Fayette County

"Where Quality Is a Lifestyle"

Purchasing Department
140 Stonewall Avenue West, Ste 204
Fayetteville, Georgia 30214
Phone: 770-305-5420
www.fayettecountyga.gov

June 28, 2016

Subject: Invitation for Bids #1143-B, Emerald Lake Dam Rehabilitation

Gentlemen/Ladies:

Fayette County, Georgia is seeking bids from GDOT prequalified Contractors experienced with construction of earthen dams, bridges, roadways and large concrete structures, in accordance with the information and specifications contained herein.

A **mandatory** pre-bid conference will be held at 10:00a.m., Tuesday, July 19, 2016 at The Woodlands Sub-Division, 235 Mountain Laurel Way, Fayetteville, GA 30215. All companies and interested parties are invited and strongly urged to attend. This will be the opportunity to take measurements, pictures, voice all questions, concerns and comments about this Invitation for Bids and have them addressed

All questions and inquiries concerning this invitation for bids or the specifications shall be addressed to Trina Barwicks, Contract Administrator of Purchasing, in writing to, email address: tbarwicks@fayettecountyga.gov or fax to (770) 719-5515, Monday through Friday excluding holidays from 8:00 a.m. to 5:00 p.m. The telephone number is (770) 305-5420. Any deviations from this procedure for questions or information pertaining to this invitation for bids may result in your bid being rejected.

Your bid should be on the attached pricing sheet. All prices shall be F.O.B. Destination, Fayette County. Be sure to include the **bid number** and **reference** along with your company's name and address on the **sealed** envelope in which the bid is returned.

BID MUST BE SUBMITTED TO:
FAYETTE COUNTY PURCHASING DEPARTMENT
140 STONEWALL AVENUE WEST - SUITE 204
FAYETTEVILLE, GEORGIA 30214
BID #1143-B
REFERENCE: EMERALD LAKE DAM REHABILITATION

Bids will be received at the above address until 3:00 p.m., Tuesday, August 2, 2016 in the Purchasing Department, Suite 204. Bids will be opened at approximately 3:00 p.m. August 2, 2016. Bids must be signed to be considered. Late bids will not be considered. Faxed bids will not be considered.

If this invitation for bids is downloaded from our web site, it is the responsibility of the individual or company that downloads this invitation for bids to continue to check the Fayette County web site for any addenda that might come out for this invitation for bids and is posted on the Fayette County web site. Fayette County shall not be responsible for any information that any individual or company fails to get in an addendum that is posted on the Fayette County web site but is not downloaded. However, if the Fayette County Purchasing Department mails the invitation for bids to a company or individual, we will keep a record of who we mailed that invitation for bids to and all addenda for that invitation for bids will also be mailed to those companies or individuals.

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Bid results will be posted on the Fayette County web site within 3 business days after the bid opening.

There is no set time for an award to be made. If an award is not made within 45 days of the bid opening, an update will be posted on the Fayette County website.

If the county awards this bid, once everything has been received by that company and the award has been completed, that information will also be posted on the Fayette County website. Please keep this procedure in mind.

****

Sincerely,

Ted L. Burgess
Director of Purchasing

TLB/tcb

Fayette County, Georgia
Checklist of Required Documents

(Be Sure to Return This Checklist and along with the Required Documents in the order listed below)

BID #1143-B, EMERALD LAKE DAM REHABILITATION

- Company information – on the form provided _____
- Bid bond _____
- Contractor Affidavit under O.C.G.A. §13-10-91(b)(1) _____
- Bid Sheet _____
- List of exceptions, if any _____
- Bidder Qualifications - on form provided _____

COMPANY NAME: _____

Contractor Affidavit under O.C.G.A. § 13-10-91(b)(1)

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

_____
Federal Work Authorization User Identification Number

_____
Date of Authorization

_____
Name of Contractor

BID #1143-B Emerald Lake Dam Rehabilitation
Name of Project

FAYETTE COUNTY GEORGIA
Name of Public Employer

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

Executed on _____, ____, 2016 in (city) _____, (state) _____

_____
Signature of Authorized Officer or Agent

_____
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME

ON THIS THE _____ DAY OF _____, 2016.

_____
NOTARY PUBLIC

My Commission Expires:

_____

INVITATION FOR BIDS #1143-B, EMERALD LAKE DAM REHABILITATION

COMPANY INFORMATION

Company_____

Physical Address Of Business _____

_____

Mailing Address (**If Different**)_____

_____

Authorized Representative_____
(Print or Type)

Authorized Representative_____
(Signature)

Title_____

Email Address:_____

Telephone Number: _____ Fax Number: _____

Cellular Number: _____

BID PACKAGE
CONSTRUCTION OF IMPROVEMENTS TO THE
EMERALD LAKE DAM
Fayette County, GA
June 28, 2016

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BACKGROUND & PURPOSE

Fayette County is soliciting Bids from GDOT prequalified Contractors experienced with construction of earthen dams, bridges, roadways, and large concrete structures.

The scope of this project involves the rehabilitation of the primary and emergency spillway for an earthen dam within The Woodlands Subdivision, located off South Jeff Davis Road in Fayetteville, GA. The existing spillway system, which includes a concrete weir and five, 48-inch corrugated metal pipes, will be removed and replaced with a concrete labyrinth spillway and energy dissipaters. The lake is spring-fed and has a drainage area of approximately 2.1 square miles.

Emerald Lake Drive is located on top of the dam and is the only means of ingress/egress for over 80 homes. To allow for construction of the new spillway, the Contractor shall construct an earth cofferdam and build a temporary road around the work zone. Upon completion of the new weir and spillway, a precast concrete bridge will be set over the structure and the road rebuilt to its original alignment. The temporary road will then be demolished and the cofferdam removed. Access to and from the home must be provided at all time during the construction process.

Other Contractor responsibilities include, but are not limited to: managing traffic throughout the work zone, coordinating utility relocations with the various utility companies, controlling erosion and sedimentation, establishing permanent stabilization, and managing water flow and lake levels during the project.

Land acquisition for fee-simple right-of-way and easements is being acquired by Fayette County and will be complete prior to issuing a Notice to Proceed (NTP).

This project is fully funded through Fayette County's Stormwater Utility.

BIDDER QUALIFICATIONS

In addition to other requirements specified within the Bid Package, bidders on this project shall meet the following minimum qualifications in order to be considered responsive and responsible. The bidder shall provide sufficient documentation to demonstrate the qualifications are satisfied. Submittal requirements are indicated in bold italics.

1. Identify the project team. ***List the Prime Contractor and all known Subcontractors and identify the work activities for which Subcontractors will be used. Provide company name, address, contact person, telephone number and email address for each company.***
2. The Prime Contractor shall have been in business under the present company name for a minimum of five (5) years and shall not have been declared in default on any construction contract within that time. ***Provide a letter on company letterhead and signed by the President/CEO certifying this information.***
3. The Contractor and/or the designated Subcontractors shall have:
    a. Within the past five years, successfully completed, to the owner's satisfaction, at least two projects of similar scope and complexity, at least one of which shall have included concrete bridge and roadway construction; and
    b. Within the past ten years, successfully completed, to the owner's satisfaction, the construction or rehabilitation of at least two Category 1 dams regulated by the Georgia Department of Natural Resources, Environmental Protection Division, Safe Dams Program or a comparable program of another state.

    Provide a completed "Contractor Experience Form". For each of the referenced projects, provide a contact name, telephone number and email address of an owner's representative who will be able to verify project scope, date of completion and indicate the owner's satisfaction of the project.
4. The Contractor's Superintendent shall have at least five years of experience as a Superintendent on projects of similar scope and complexity as this project and shall have been the Superintendent on at least one project that includes systems comparable to this project. ***Identify the proposed Project Superintendent and provide at least two, independent, references that can verify the Superintendent's experience. Identify the project with the names and telephone numbers (or email addresses) of the owner and design professional that can verify project information.***
5. The Contractor's Project Manager shall have at least five years of experience as Project Manager on projects of similar scope and complexity as this project and shall have been the Project Manager on at least one project that includes systems comparable to this project. ***Identify the proposed Project Manager and provide at least two, independent, references that can verify the Manager's experience. Identify the project with the names and telephone numbers (or email addresses) of the owner and design professional that can verify project information.***
6. The Contractor shall be a Prequalified Prime Contractor, per the Georgia Department of Transportation (GDOT), Office of Contract Administration. ***Provide copies of all applicable GDOT prequalification's.***

7. As described on Drawing Number C-104 and elsewhere in the bid package, the Contractor shall be responsible for design and maintenance of the temporary cofferdam / roadway, and the structure shall be designed by a professional engineer licensed in the State of Georgia. ***Identify the firm/company, individual name, contact information and license number of the Engineer who will do this work. If the specific person or company is not known at time of bid submittal, simply acknowledge that a PE will be retained for the required services.***

8. As described in Specification 01 71 23 and elsewhere in the bid package, the Contractor shall provide a registered land survey for various surveying and staking work throughout the project. ***Identify the firm/company, individual name, contact information and license number of the surveyor who will do this work. If the specific person or company is not known at time of bid submittal, simply acknowledge that a RLS will be retained for the required services.***

9. As shown on Drawing No. S-310 and elsewhere in the bid package, the Contractor shall provide a precast concrete bridge to span the labyrinth weir spillway. The bridge manufacturer/supplier shall be on GDOT's Qualified Products List (QPL) No. 9. ***Identify the supplier's name and plant address. If the supplier is not known at the time of bid submittal, acknowledge that the supplier will be a GDOT approved prestressed and/or precast concrete plant per QPL # 9.***

10. The Specifications require the Contractor to retain an independent commercial testing lab for a variety of services. The lab shall be prequalified by GDOT for Geotechnical Services. ***Identify the company name and address of the testing laboratory and provide a copy of their GDOT prequalification. If the testing firm is not known at the time of bid submittal, acknowledge that the lab will be prequalified by GDOT for geotechnical services.***

CONTRACTOR EXPERIENCE FORM

THIS IS TO CERTIFY pursuant to the Fayette County, GA Emerald Lake Dam bid specifications that _____, has proficiency in the construction of earthen dams; large, concrete spillways and weirs; concrete bridges; roads; and providing traffic management. This may be demonstrated by reference to the successful performance of similar work on the following four projects:

Projects 1 & 2 – Completed within past five years (i.e., since June 2011) and of similar scope and complexity to the Emerald Lake Dam project. At least one of the two projects shall have included installation of concrete bridges and roadway construction.

(1) Name/Type of Project _____

Description _____

_____

_____

_____

_____

Owner _____

Total Construction Contract Amount _____

Date of Completion _____

Contact Name & Title _____

Phone Number _____

Email _____

(2) Name/Type of Project _____

Description _____

_____

_____

_____

_____

Owner _____

Total Construction Contract Amount _____

Date of Completion _____

Contact Name & Title _____

Phone Number _____

Email _____

Projects 3 & 4 – Completed within past ten years (i.e., since June 2006), the construction or rehabilitation of at least two Category 1 (i.e., high hazard) earthen dams regulated by the Georgia Department of Natural Resources, Environmental Protection Division, Safe Dams Program or a comparable program of another state.

(3) Name/Type of Project _____

Description _____

_____

_____

_____

_____

Owner _____

Total Construction Contract Amount _____

Date of Completion _____

Contact Name & Title _____

Phone Number _____

Email _____

(4) Name/Type of Project _____

Description _____

_____

_____

_____

_____

Owner _____

Total Construction Contract Amount _____

Date of Completion _____

Contact Name & Title _____

Phone Number _____

Email _____

Owner/President/CEO Certification

I certify the above information is true and accurate and is provided to satisfy minimum bidding requirements with respect to Contractor experience for the Emerald Lake dam project.

This _____ day of _____, 2016.

Name of Company: _____

By: _____

Title: _____

PRICING SHEET

BIDDER agrees to perform all the work described in the CONTRACT DOCUMENTS, within the time set forth therein, and for the following unit prices or lump sum values:

BIDS shall include sales tax and all other applicable taxes and fees.

BID SCHEDULE					
No.	**Item Description**	**Unit**	**Est. Quant.**	**Unit Price**	**Total Price**
	BASE BID				
1	Completion of all work indicated in the Plans and Specification, with exception of items noted below.	LS	1	$	$
2	Rock Excavation (Section 01 22 00 - 1.2)	CY	10	$	$
3	Earth Work - Additional Alluvial Excavation and Backfilling (Section 01 22 00 - 1.3 and Sheet S-307)	CY	1,000	$	$
4	Additional Rip Rap (Section 31 37 00)	ton	30	$	$
5	Allowance per Special Conditions (see Specifications).	LS	1	$100,000	$100,000
	Base Bid Total				_____
	ALTERNATE BID ITEMS				
6	Optional upgrade to industrial-grade ornamental steel fence (Sheet S-300)	LS	1	**$**	**$**
7	Optional Ashlar Stone Finish to parapet walls. Both walls, both sides. (Sheet S-310)	LS	1	**$**	**$**

BIDDER hereby agrees to commence WORK under this contract on or before a date to be specified in the NOTICE TO PROCEED and to fully complete the PROJECT within 430 consecutive calendar days thereafter. BIDDER further agrees to pay as liquidated damages, the sum of $250.00 for each consecutive day thereafter as provided in the Terms and Conditions.

COMPANY NAME: _____

GDOT Prequalification/Certification No. _____

GENERAL TERMS AND CONDITIONS

1. **Definitions:** Wherever used in the Contract Documents, the following terms shall have the meanings indicated and shall be applicable to both the singular and plural thereof:

   A. ADDENDA - Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the Contract Documents, Drawings and Specifications, by additions, deletions, clarifications, or corrections.

   B. BID - The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the work to be performed, including other documentation required by this Invitation to Bid.

   C. BIDDER - Any person, firm, or corporation submitting a Bid for the work.

   D. BONDS - Bid, Performance, and Payment Bonds and other instruments of surety, furnished by the Contractor and the Contractor's surety in accordance with the Contract Documents.

   E. CHANGE ORDER - A written order to the Contractor authorizing an addition, deletion, or revision in the work within the general scope of the Contract Documents, or authorizing an adjustment in the Contract Price or Contract Time.

   F. CONTRACT DOCUMENTS - The contract, including Advertisement for Bids, Information for Bidders, Bid, Bid Bond, Agreement, Payment Bond, Performance Bond, Notice of Award, Notice to Proceed, Change Order, Drawings, Specifications, and Addenda.

   G. CONTRACT PRICE - The total monies payable to the Contractor under the terms and conditions of the Contract Documents.

   H. CONTRACT TIME - The number of calendar days stated in the Contract Documents for the completion of the work.

   I. CONTRACTOR – The person, firm, or corporation with whom the Owner has executed the Agreement. For additional descriptions, refer to General Terms and Conditions, Item #2.

   J. DRAWINGS - The parts of the Contract Documents which show the characteristics and scope of the work to be performed and which have been prepared or approved by the Engineer.

   K. ENGINEER - The person, firm, or corporation named as such in the Contract Documents. The Engineer is Walden, Ashworth & Associates, Inc. of P.O. Box 6462, Marietta, GA 30065 or the authorized representative of the owner.

   L. FIELD ORDER - A written order effecting a change in the work not involving an adjustment in the Contract Price or an extension of the Contract Time, issued by the Engineer to the Contractor during construction.

   M. NOTICE OF AWARD - The written notice of the acceptance of the Bid from the Owner to be the successful Bidder.

   N. NOTICE TO PROCEED - Written communication issued by the Owner to the Contractor authorizing him/her to proceed with the work and establishing the date for commencement of the work.

O. OWNER - A public or quasi-public body or authority, corporation, association, partnership, or an individual for whom the work is to be performed. Fayette County and County is used interchangeably to refer to the Owner.

P. PROJECT - The undertaking to be performed as provided in the Contract Documents.

Q. RESIDENT PROJECT REPRESENTATIVE - The authorized representative of the Owner who is assigned to the Project site or any part thereof.

R. SHOP DRAWINGS - All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, a Subcontractor, manufacturer, supplier or distributor, which illustrate how specific portions of the work shall be fabricated or installed.

S. SPECIFICATIONS - A part of the Contract Documents consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.

T. SUBCONTRACTOR - An individual, firm or corporation having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the work at the site.

U. SUBSTANTIAL COMPLETION - That date certified by the Engineer when the construction of the Project or a specified part thereof is sufficiently completed, in accordance with the Contract Documents, so that the Project or specified part can be utilized for the purposes for which it is intended.

V. SUPPLEMENTAL GENERAL CONDITIONS - Modifications to General Conditions.

W. SUPPLIER - Any person or organization who supplies materials or equipment for the work, including that fabricated to a special design, but who does not perform labor at the site.

X. WORK - All labor necessary to produce the construction required by the Contract Documents, and all materials and equipment incorporated or to be incorporated in the Project.

Y. WRITTEN NOTICE - Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at their last given address, or delivered in person to said party or their authorized representative on the work.

2. **Terms**: The term “Contractor” as used herein and elsewhere in these specifications shall be used synonymously with the term “Successful Bidder.” The term “County” shall mean Fayette County, Georgia.

3. **Bid is Offer to Contract**: Each bid constitutes an offer to become legally bound to a contract with the county, incorporating the invitation to bid and the bidder’s bid. The binding offer includes compliance with all terms, conditions, special conditions, specifications, and requirements stated in the invitation to bid, except to the extent that a bidder takes written exception to such provisions. All such terms, conditions, special conditions, specifications, and requirements will form the basis of the contract. The bidder should take care to answer all questions and provide all requested information, and to note any exceptions in the bid submission. Failure to observe any of the instructions or conditions in this invitation to bid may result in rejection of the bid.

4. **Binding Offer**: Each bid shall constitute a firm offer that is binding for sixty (60) days from the date of the bid opening, unless the bidder takes exception to this provision in writing.

5. **Bidder's Questions**: The Fayette County Purchasing Department must receive questions about this invitation to bid in writing at least 72 hours before the scheduled bid opening, excluding Saturdays, Sundays, and holidays. The county will post answers to questions and/or other information concerning the invitation to bid in the form of an addendum on the county's website at www.fayettecountyga.gov. It is the responsibility of the prospective bidder to check the website for any addenda issued for this invitation to bid.

6. **Bid Submission:** Submit your bid, along with any addenda issued by the county, in a sealed opaque envelope with the following information written on the outside of the envelope:

    a. The bidder's company name,
    b. The County's bid number, which is **1143-B**, and
    c. The "reference", which is **Emerald Lake Dam Rehabilitation**.

    Mail or deliver one (1) original bid, signed in ink by a company official authorized to make a legal and binding offer, and (3) three copies, to:

    Fayette County Government
    Purchasing Department
    140 Stonewall Avenue West, Suite 204
    Fayetteville, GA 30214

    Attention: Contracts Administrator

    You may submit bids in person, by U.S. mail, or by a commercial carrier. Do not submit bids by facsimile, e-mail, or other electronic means. Once submitted, all bids become the property of Fayette County.

7. **Bid Preparation Costs**: The bidder shall bear all costs associated with preparing the bid.

8. **Late Bids:** Bids not received by the time and date of the scheduled bid opening will not be considered, unless the delay is a result of action or inaction by the county.

9. **More than One Bid**: Do not submit alternate bids or options, unless requested or authorized by the county in the Invitation to Bid. If a responder submits more than one bid without being requested or authorized to do so, the county may disqualify the bids from that responder, at the county's option.

10. **Bid Corrections or Withdrawals:** The bidder may correct a mistake, or withdraw a bid, before the bid opening by sending written notification to the Director of Purchasing. Bids may be withdrawn after the bid opening only with written authorization from the Director of Purchasing.

11. **Defects or Irregularities in Bids:** The county reserves the right to waive any defect or irregularity in any bid received. In case of an error in extension of prices or totals in the bid, the unit prices shall govern.

12. **Prices Held Firm**: Prices quoted shall be firm for the period of the contract, unless otherwise specified in the bid. All prices for commodities, supplies, equipment, or other products shall be quoted FOB Destination, Fayette County or job site.

13. **Brand Name:** If items in this invitation for bid have been identified, described or referenced by a brand name or trade name description, such identification is intended to be descriptive, but not restrictive and is to indicate the quality and characteristics of products that may be offered. Alternative products may be considered for award if clearly identified in the bid. Items offered must meet required specifications and must be of a quality which will adequately serve the use and purpose for which intended.

14. **Bidder Substitutions:** Bidders offering substitutions or deviations from specifications stated in the invitation to bid, shall list such substitutions or deviations on the "Exceptions to Specifications" sheet provided, or on a separate sheet to be submitted with the bid. The absence of such list shall indicate that the bidder has taken no exception to the specifications. The evaluation of bids and the determination as to equality and acceptability of products or services offered shall be the responsibility of the county.

15. **Non-Collusion**: By responding to this invitation to bid, the bidder represents that the bid is not made in connection with any competing bidder, supplier, or service provider submitting a separate response to this invitation to bid, and is in all respects fair and without collusion or fraud.

16. **Arrears**: Bids will not be accepted from any person, firm, or corporation who is in arrears in any debt or obligation to Fayette County.

17. **Bid Evaluation:** Award will be made to the lowest responsive, responsible bidder, taking into consideration payment terms, vendor qualifications and experience, quality, references, any exceptions listed, and/or other factors deemed relevant in making the award. The county may make such investigation as it deems necessary to determine the ability of the bidder to perform, and the bidder shall furnish to the county all information and data for this purpose as the county may request. The county reserves the right to reject any bid item, any bid, or all bids, and to re-advertise for bids.

18. **Discounts:** Cash discounts offered will be a consideration in awarding the bid, but only if they give the county at least 15 days from receipt of invoice to pay. For taking discounts, time will be computed from the date of acceptance at destination or the date a correct invoice is received, whichever is the later date. Payment is deemed made, for the purpose of earning the discount, on the date of the check. For payment of full invoice price, minimum terms of net 30 are preferred.

19. **Trade Secrets – Confidentiality:** If any person or entity submits a bid or proposal that contains trade secrets, an affidavit shall be included with the bid or proposal. The affidavit shall declare the specific included information which constitutes trade secrets. Any trade secrets must be either (1) placed in a separate envelope, clearly identified and marked as such, or (2) at a minimum, marked in the affidavit or an attached document explaining exactly where such information is, and otherwise marked, highlighted, or made plainly visible. See O.C.G.A. § 50-18-72 (A) (34).

20. **Trade Secrets – Internal Use:** In submitting a bid, the bidder agrees that the county may reveal any trade secret materials contained in the bid to all county staff and officials involved in the selection process, and to any outside consultant or other third parties who may assist in the selection process. The bidder agrees to hold harmless the county and each of its officers, employees, and agents from all costs, damages, and expenses incurred in connection with refusing to disclose any material which the bidder has designated as a trade secret.

21. **Ethics – Disclosure of Relationships**: Before a proposed contract in excess of $10,000.00 is recommended for award to the Board of Commissioners or the County Administrator, or before the County renews, extends, or otherwise modifies a contract after it has been awarded, the contractor must disclose certain relationships with any County Commissioner or County Official, or their spouse, mother, father, grandparent, brother, sister, son or daughter related by blood, adoption, or marriage (including in-laws). A relationship that must be reported exists if any of these individuals is a director, officer, partner, or employee, or has a substantial financial interest the business, as described in Fayette County Ordinance Chapter 2, Article IV, Division 3 (Code of Ethics).

    If such relationship exists between your company and any individual mentioned above, relevant information must be presented in the form of a written letter to the Director of Purchasing. You must include the letter with any bid, proposal, or price quote you submit to the Purchasing Department.

In the event that a contractor fails to comply with this requirement, the County will take action as appropriate to the situation, which may include actions up to and including rejection of the bid or offer, cancellation of the contract in question, or debarment or suspension from award of a County contract for a period of up to three years.

22. **Contract Execution & Notice to Proceed**: After the Board of Commissioners makes an award, all required documents are received by the county, and the contract is fully executed with signature of both parties, the county will issue a written Notice to Proceed. The county shall not be liable for payment of any work done or any costs incurred by any bidder prior to the county issuing the Notice to Proceed.

23. **Unavailability of Funds**: This contract will terminate immediately and absolutely at such time as appropriated and otherwise unobligated funds are no longer available to satisfy the obligations of the county under the contract.

24. **Insurance**: The successful bidder shall procure and maintain the following insurance, to be in effect throughout the term of the contract, in at least the amounts and limits as follows:

    a. **General Liability Insurance**: $1,000,000 combined single limit per occurrence, including bodily and personal injury, destruction of property, and contractual liability.

    b. **Automobile Liability Insurance**: $1,000,000 combined single limit each occurrence, including bodily injury and property damage liability.

    c. **Worker's Compensation & Employer's Liability Insurance**: Workers Compensation as required by Georgia statute.

    Before a contract with the successful bidder is executed, the successful bidder shall provide Certificates of Insurance for all required coverage. The successful offeror can provide the Certificate of Insurance after award of the contract, but must be provided prior to execution of the contract document by both parties. The certificate shall list an additional insured as follows:

    Fayette County, Georgia
    140 Stonewall Avenue West
    Fayetteville, GA 30214

25. **Bid Bond**: You must include a bid bond with your bid, equal to five percent (5%) of the total amount bid. Bid bonds shall be provided by a surety which appears on Georgia's list of approved sureties administered by the State Insurance Commissioner, or the U.S. Treasury's list of approved bond sureties (Circular 570).

26. **Performance and Payment Bonds**: Prior to execution of a contract, the successful bidder shall submit performance and payment bonds each equal to 100 percent of the contract value, provided by a surety which appears on Georgia's list of approved sureties administered by the State Insurance Commissioner, or the U.S. Treasury's list of approved bond sureties (Circular 570).

27. **Unauthorized Performance:** The County will not compensate the contractor for work performed unless the work is authorized under the contract, as initially executed or as amended.

28. **Assignment of Contract:** Assignment of any contract resulting from this invitation to bid will not be authorized.

29. **Indemnification**: The contractor shall defend and indemnify the county and all its officers, agents and employees against any suits, actions, or other claims brought on account of any injuries or damages to any person, persons, or property resulting from any negligent act or fault of the contractor, or of any agent, employee, subcontractor or supplier in the performance of any contract which may be awarded. The contractor shall pay any judgment with cost which may be obtained against the county growing out of such injury or damages.

30. **Patent Indemnity:** The contractor guarantees to save the county, its agents, officers, or employees harmless from liability of any nature or kind for use of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, articles or appliances furnished or used in the performance of the contract, for which the contractor is not the patentee, assignee or licensee.

31. **Severability**: The invalidity of one or more of the phrases, sentences, clauses or sections contained in the contract shall not affect the validity of the remaining portion of the contract. If any provision of the contract is held to be unenforceable, then both parties shall be relieved of all obligations arising under such provision to the extent that the provision is unenforceable. In such case, the contract shall be deemed amended to the extent necessary to make it enforceable while preserving its intent.

32. **Delivery Failures:** If the contractor fails to deliver contracted goods or services within the time specified in the contract, or fails to replace rejected items in a timely manner, the county shall have authority to make open-market purchases of comparable goods or services. The county shall have the right to invoice the contractor for any excess expenses incurred, or deduct such amount from monies owed the contractor. Such purchases shall be deducted from contracted quantities.

33. **Substitution of Contracted Items:** The contractor shall be obligated to deliver products awarded in this contract in accordance with terms and conditions specified herein. If a contractor is unable to deliver the products under the contract, it shall be the contractor's responsibility to obtain prior approval of the ordering agency to deliver an acceptable substitute at the same price quoted in the contractor's original bid. In the event any contractor consistently needs to substitute or refuses to substitute products, the County reserves the right to terminate the contract or invoke the "Delivery Failures" clause stated herein.

34. **Inspection and Acceptance of Deliveries**: The county reserves the right to inspect all goods and products delivered. The county will decide whether to accept or reject items delivered. The inspection shall be conclusive except with respect to latent defects, fraud, or such gross mistakes as shall amount to fraud. Final inspection resulting in acceptance or rejection of the products will be made as soon as practicable, but failure to inspect shall not be construed as a waiver by the county to claim reimbursement or damages for such products which are later found to be in non-conformance with specifications. Should public necessity demand it, the county reserves the right to use or consume articles delivered which are substandard in quality, subject to an adjustment in price to be determined by the Purchasing Director.

35. **Termination for Cause**: The County may terminate the contract for cause by sending written notice to the contractor of the contractor's default in the performance of any term of this agreement. Termination shall be without prejudice to any of the county's rights or remedies by law.

36. **Termination for Convenience**: The County may terminate the contract for its convenience at any time with 10 days' written notice to the contractor. In the event of termination for convenience, the county will pay the contractor for services performed. The county will compensate partially completed performance based upon a signed statement of completion submitted by the contractor, which shall itemize each element of performance completed.

37. **Force Majeure**: Neither party shall be deemed to be in breach of the contract to the extent that performance of its obligations is delayed, restricted, or prevented by reason of any act of God, natural disaster, act of government, or any other act or condition beyond the reasonable control of the party in question.

38. **Governing Law**: This agreement shall be governed in accordance with the laws of the State of Georgia. The parties agree to submit to the jurisdiction in Georgia, and further agree that any cause of action arising under this agreement shall be required to be brought in the appropriate venue in Fayette County, Georgia.

39. **Additional Instructions and Detail Drawings:**

    A. The Contractor may be furnished additional instructions and detail drawings, by the Engineer, as necessary to carry out the work required by the Contract Documents.

    B. The additional drawings and instructions thus supplied will become a part of the Contract Documents. The Contractor shall carry out the work in accordance with the additional detail drawings and instructions.

40. **Drawings and Specifications:**

    A. The intent of the Drawings and Specifications is that the Contractor shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the work in accordance with the Contract Documents and all incidental work necessary to complete the Project in an acceptable manner, ready for use, occupancy or operation by the Owner.

    B. In case of conflict between the Drawings and Specifications, the Specifications shall govern. Figure dimensions on Drawings shall govern over general Drawings.

    C. The Contractor shall immediately report any discrepancies found between the Drawings and Specifications and site conditions or any inconsistencies or ambiguities in the Drawings or Specifications to the Engineer, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. Work done by the Contractor after discovery of such discrepancies, inconsistencies or ambiguities shall be done at the Contractor's risk.

41. **Patents:** The Contractor shall pay all applicable royalties and license fees, and shall defend all suits or claims for infringement of any patent rights and save the Owner harmless from loss on account thereof, except that the Owner shall be responsible for any such loss when a particular process, design, or product of a particular manufacturer or manufacturers is specified, however, if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, the Contractor shall be responsible for such loss unless the Contractor promptly gives such information to the Engineer.

42. **Permits & Regulations:** Permits and licenses of a temporary nature necessary for the prosecution of the work shall be secured and paid for by the Contractor unless otherwise stated in the Contract Documents. 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. The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the Contract Documents are at variance therewith, the Contractor shall promptly notify the Engineer in writing, and any necessary changes shall be adjusted as provided in Section 45, Changes in the Work.

43. **Protection of Work, Property, and Persons:**

    A. The Contractor will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work. The Contractor will take all necessary precautions for the safety of, will provide the necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the work and other persons who may be affected thereby, all the work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

    B. The Contractor will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. The Contractor will erect and maintain, as required by the conditions and progress of the work, all necessary safeguards for safety and protection. The Contractor will notify Owners of adjacent utilities when prosecution of the work may affect them. The Contractor will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or part, by the Contractor, any Subcontractor or anyone directly or indirectly employed by any of them or anyone of whose acts any of them be liable, except damage or loss attributable to the fault of the Contract Documents or to the acts or omissions of the Owner, of the Engineer or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the Contractor.

    C. In emergencies affecting the safety of persons or the work or property at the site or adjacent thereto, the Contractor, without special instructions or authorization from the Engineer or Owner, shall act to prevent threatened damage, injury or loss. The Contractor will give the Engineer prompt written notice of any significant changes in the work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved.

44. **Supervision by Contractor:** The Contractor will supervise and direct the work. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The Contractor will employ and maintain on the work a qualified supervisor or superintendent who shall have been designated in writing by the Contractor as the Contractor's representative at the site. The supervisor shall have full authority to act on behalf of the Contractor and all communications given to the supervisor shall be as binding as if given to the Contractor. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the work.

45. **Changes in the Work:**

    A. The Owner may at any time, as the need arises, order changes within the scope of the work without invalidating the Agreement. If such changes increase or decrease the amount due under the Contract Documents, or in the time required for performance of the work, an equitable adjustment shall be authorized by Change Order.

    B. The Engineer, also, may at any time, by issuing a Field Order, make changes in the details of the work. The Contractor shall proceed with the performance of any changes in the work so ordered by the Engineer unless the Contractor believes that such Field Order entitles the Contractor to a change in Contract Price or TIME, or both, in which event the Contractor shall give the Engineer written notice thereof within seven (7) days after the receipt of the ordered change. Thereafter the Contractor shall document the basis for the change in Contract Price or time within thirty (30) days. The Contractor shall not execute such changes pending the receipt of an executed Change Order for further instruction from the Owner.

C. All Contract Change Orders must be approved by the Engineer and Owner. All changes should be recorded as they occur so they may be included in the partial payment estimate.

46. **Changes in the Contract Price:** The Contract Price may be changed only by a Change Order. The value of any work covered by a Change Order or of any claim for increase or decrease in the Contract Price shall be determined by one or more of the following methods in the order of precedence listed below:
    a. Unit prices previously approved.
    b. An agreed lump sum.

47. **Time for Completion and Liquidated Damages:**

A. The date of beginning and the time for completion of the work are essential conditions of the Contract Documents and the work embraced shall be commenced on a date specified in the Notice to Proceed.

B. The Contractor will proceed with the work at such rate of progress to insure full completion within the Contract Time. It is expressly understood and agreed, by and between the Contractor and the Owner, that the Contract Time for the completion of the work described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the work.

C. If the Contractor shall fail to complete the work within the Contract Time, or extension of time granted by the Owner, then the Contractor will pay to the Owner the amount for liquidated damages as specified in the Bid for each calendar day that the Contractor shall be in default after the time stipulated in the Contract Documents. In addition to Liquidated Damages, the Contractor shall reimburse the Engineer for additional inspection and engineering services required due to overrun of the contract time, or the overrun of approved extension of contract time. This will be paid at 2.5 times the direct expense to the Engineer and will be withheld from the Contractor's monthly pay request. The Owner will pay the Engineer directly from the withheld amount.

D. The Contractor shall not be charged with liquidated damages or any excess cost or any payment to the Engineer when the delay in completion of the work is due to the following and the Contractor has promptly given written notice of such delay to the Owner or Engineer.

- To any preference, priority or allocation order duly issued by the Owner.

- To unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including but not restricted to, acts of God or of the public enemy, acts of the Owner, acts of another Contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and

- To any delays of Subcontractors occasioned by any of the causes specified in the above paragraphs of this article.

48. **Correction of Work:**

A. The Contractor shall promptly remove from the premises all work rejected by the Engineer for failure to comply with the Contract Documents, whether incorporated in the construction or not, and the Contractor shall promptly replace and re-execute the work in accordance with the Contract Documents and without expense to the Owner and shall bear the expense of making good all work of other Contractors destroyed or damaged by such removal or replacement.

B. All removal and replacement work shall be done at the Contractor's expense. If the Contractor does not take action to remove such rejected work within ten (10) days after receipt of written notice, the Owner may remove such work and store the materials at the expense of the Contractor.

49. **Suspension of Work, Termination, and Delay:**

A. The Owner may suspend the work or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the Contractor, by written notice to the Contractor and the Engineer which shall fix the date on which work shall be resumed. The Contractor will resume that work on the date so fixed. The Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension.

B. If the Contractor is adjudged as bankrupt or insolvent, or makes a general assignment for the benefit of its creditors, or if a trustee or receiver is appointed for the Contractor or for any of its property, or if Contractor files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or repeatedly fails to make prompt payments to Subcontractors or for labor, materials or equipment or disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the work or disregards the authority of the Engineer, or otherwise violates any provision of the Contract Documents, then the Owner may, without prejudice to any other right or remedy and after giving the Contractor and its surety a minimum of ten (10) days from delivery of a written notice, terminate the services of the Contractor and take possession of the Project and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor, and finish the work by whatever method the Owner may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the Project, including compensation for additional professional services, such excess SHALL BE PAID TO THE Contractor. If such costs exceed such unpaid balance, the Contractor will pay the difference to the Owner. Such costs incurred by the Owner will be determined by the Engineer and incorporated in a Change Order.

C. Where the Contractor's services have been so terminated by the Owner, said termination shall not affect any right of the Owner against the Contractor then existing or which may thereafter accrue. Any retention or payment of monies by the Owner due the Contractor will not release the Contractor from compliance with the Contract Documents.

D. After ten (1O) days from delivery of a written notice to the Contractor and the Engineer, the Owner may without cause and without prejudice to any other right or remedy, elect to abandon the Project and terminate the contract. In such case the Contractor shall be paid for all work executed and any expense sustained plus reasonable profit.

E. If, through no act or fault of the Contractor, the work is suspended for a period of more than ninety (90) days by the Owner or under an order of court or other public authority, or the Engineer fails to act on any request for payment within thirty (30) days after it is submitted, or the Owner fails to pay the Contractor substantially the sum approved by the Engineer or awarded by arbitrators within thirty (30) days of its approval and presentation, then the Contractor may, after ten (10) days from delivery of a written notice to the Owner and the Engineer terminate the contract and recover from the Owner payment for all work executed and all expenses sustained. In addition and in lieu of terminating the contract, if the Engineer has failed to act on a request for payment or if the Owner has failed to make any payment as aforesaid, the Contractor may upon ten (10) days written notice to the Owner and the Engineer stop the work until paid all amounts then due, in which event and upon resumption of the work Change Orders shall be issued for adjusting the Contract Price or extending the Contract Time or both to compensate for the costs and delays attributable to the stoppage of the work.

F. If the performance of all or any portion of the work is suspended, delayed, or interrupted as a result of a failure of the Owner or Engineer to act within the time specified in the Contract Documents, or if no time is specified, within a reasonable time, an adjustment in the Contract Price or an extension of the Contract Time, or both, shall be made by Change Order to compensate the Contractor for the costs and delays necessarily caused by the failure of the Owner or Engineer.

50. **Payment to Contractor:**

A. At least ten (10) days before each progress payment falls due (but not more often than once a month), the Contractor will submit to the Engineer a partial payment estimate filled out and signed by the Contractor covering the work performed during the period covered by the partial payment estimate and supported by such data as the Engineer may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the work but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the Owner, as will establish the Owner's title to the material and equipment and protect the Owner's interest therein, including applicable insurance.

The Engineer will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing approval of payment, and present the partial payment estimates to the Owner, or return the partial payment estimate to the Contractor indicating in writing the reasons for refusing to approve payment. In the latter case, the Contractor may make the necessary corrections and re-submit the partial payment estimate. The Owner will, within thirty (30) days of presentation of an approved partial payment estimate, pay the Contractor a progress payment on the basis of the approved partial payment estimate less the retainage.

The retainage shall be an amount equal to 10% of said estimate until 50% of the work has been completed. At 50% completion, no additional retainage will be withheld, such that total retainage will be gradually reduced from 10% at 50% completion to 5% at 100% completion. At 50% completion or any time thereafter when the progress of the work is not satisfactory, additional amounts may be retained but in no event shall the total retainage be more than 10% of the value of the work completed. The retainage amount withheld in the Contractor's Application for Payments shall be invested by the Owner at the current market rate for the duration of the Project. If the Project is completed within the time limits specified and at the Contract Price specified, subject to any authorized modification thereto, the interest earned on the retainage shall be paid to the Contractor. Any expenses charged by the financial institution for the retainage investment account will be deducted from the interest earned on the account. Payment of the interest to the Contractor shall be made with the final payment, after the Engineer certifies that the Work, including incomplete minor items remaining after substantial completion, has been completed. If the Contractor does not satisfy the time and/or price conditions, the Owner will retain the interest earned on retainage. When the work has been substantially completed except for work which cannot be completed because of weather conditions, lack of materials or other reasons which in the judgment of the Owner are valid reasons for non-completion, the Owner may make additional payments, retaining at all times an amount sufficient to cover the estimated cost of the work still to be completed.

B. The request for payment may also include an allowance for the cost of such major materials and equipment which are suitably stored either at or near the site.

C. Prior to Substantial Completion, the Owner, with the approval of the Engineer and with the concurrence of the Contractor, may use any completed or substantially completed portions of the work. Such use shall not constitute an acceptance of such portions of the work.

D. The Owner shall have the right to enter the premises for the purpose of doing work not covered by the Contract Documents. This provision shall not be construed as relieving the Contractor of the sole responsibility for the care and protection of the work, or the restoration of any damaged work except such as may be caused by agents or employees of the Owner.

E. Upon completion and acceptance of the work, the Engineer shall issue a certificate attached to the final payment request that the work has been accepted under the conditions of the Contract Documents. The entire balance found to be due the Contractor, including the retained percentages, but except such sums as may be lawfully retained by the Owner, shall be paid to the Contractor within thirty (30) days of completion and acceptance of the work.

F. The Contractor will indemnify and save the Owner or the Owner's agents harmless from all claims growing out of the lawful demand of Subcontractors, laborers, workmen, mechanics, material men, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the work. The Contractor shall, at the Owner's request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the Contractor fails to do so the Owner may, after having notified the Contractor, either pay unpaid bills or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor shall be resumed in accordance with the terms of the Contract Documents, but in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor, the Contractor's Surety, or any third party. In paying any unpaid bills of the Contractor, any payment so made by the Owner shall be considered as a payment made under the Contract Documents by the Owner to the Contractor and the Owner shall not be liable to the Contractor for any such payments made in good faith.

G. If the Owner fails to make payment thirty (30) days after approval by the Engineer, in addition to other remedies available to the Contractor, there shall be added to each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the Contractor.

51. **Acceptance of Final Payment as Release:** The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor other than claims in stated amounts as may be specifically excepted by the Contractor for all things done or furnished in connection with this work and for every act and neglect of the Owner and others relating to or arising out of this work. Any payment, however, final or otherwise, shall not release the Contractor or its sureties from any obligations under the Contract Documents or the Performance and Payment Bonds.

52. **Subcontracting**

A. Contractor may utilize the services of specialty Subcontracts on those parts of the work which, under normal contracting practices are performed by specialty Subcontractors.

B. The Contractor shall not award work to Subcontractor(s), in excess of fifty (50%) percent of the Contract Price, without prior written approval of the Owner.

C. The Contractor shall be fully responsible to the Owner for the acts and omissions of its Subcontractors, and of persons either directly or indirectly employed by them, as the Contractor is for the acts and omissions of persons directly employed by it.

D. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind Subcontractors to the Contractor by the terms of the Contract Documents insofar as applicable to the work of Subcontractors and give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.

E. Nothing contained in this Contract shall create any contractual relation between any Subcontractor and the Owner.

53. **Engineer's Authority**

A. The Engineer shall act as the Owner's representative during the construction period, shall decide questions which may arise as to quality and acceptability of materials furnished and work performed, and shall interpret the intent of the Contract Documents in a fair and unbiased manner. The Engineer will make visits to the site and determine if the work is proceeding in accordance with the Contract Documents.

B. The Contractor will be held strictly to the intent of the Contract Documents in regard to the quality of materials, workmanship, and execution of the work. Inspections may be at the factory or fabrication plant of the source of material supply.

C. The Engineer will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

D. The Engineer shall promptly make decisions relative to interpretation of the Contract Documents.

54. **Land and Rights-of-Way**

A. Prior to issuance of Notice to Proceed, the Owner shall obtain all land and rights-of-way necessary for carrying out and for the completion of the work to be performed pursuant to the Contract Documents, unless otherwise mutually agreed.

B. The Owner shall provide to the Contractor information which delineates and describes the lands owned and rights-of-way acquired.

C. The Contractor shall provide at its own expense and without liability to the Owner any additional land and access thereto that the Contractor may desire for temporary construction facilities, or for storage of materials.

55. **Guarantee**

A. The Contractor shall guarantee all materials supplied by the Contractor and equipment furnished and work performed for a period of two (2) years from the date of Substantial Completion. The Contractor warrants and guarantees for a period of two (2) years from the date of Substantial Completion of the system that the completed system is free from all defects due to faulty materials supplied by the Contractor or workmanship and the Contractor shall promptly make such corrections as may be necessary by reason of such defects including the repairs of the damage of other parts of the system resulting from such defects.

B. The Owner will give notice of observed defects with reasonable promptness. In the event that the Contractor should fail to make such repairs, adjustments, or other work that may be made necessary by such defects, the Owner may do so and charge the Contractor the cost thereby incurred. The Performance Bond shall remain in full force and effect through the guarantee period.

C. If different guarantees or warranties are required in the technical specifications for specific items then the more stringent (i.e., longer) period shall prevail.

SPECIAL CONDITIONS

1. **Light Poles** – Fayette County and the Emerald Lake Subdivision plan to re-use the decorative light poles removed as part of the project. Once de-energized, the Contractor shall remove the pole and set aside for safe storage. The Contractor shall be responsible for any damage to the poles over the course of the project. Concerns about existing pole condition or possible damage during removal shall be discussed with the Engineer prior to any work on the poles.
2. **Lighting During Construction** – The Contractor shall provide nighttime lighting of the temporary road throughout its use as a road. One light shall be placed at each transition from existing Emerald Lake Drive to the cofferdam road.
3. **Traffic Control** – The Contractor shall provide, erect, and maintain all necessary barricades, suitable and sufficient lights, danger signals, signs, pilot vehicles, flagmen and other control devices, and take all necessary precautions for the protection of the work and safety of the public. At a minimum, traffic control shall include:
    a. A minimum of one lane shall remain open to the public at all times, unless previously approved by the Engineer.
    b. Centerline striping and RPMs shall be provided and maintained along the cofferdam road and its approaches.
    c. All signs and pavement markings, both permanent and temporary, shall meet the standards established in the Manual on Uniform Traffic Control Devices (MUTCD), latest edition.
    d. A Work Zone with appropriate signs and striping shall be established around the project site. The posted speed limit within the work zone shall be reduced to 15 mph.
    e. Truck Crossing signs (WO8-6) shall be placed on South Jeff Davis Road and Callaway Road in advance of the Emerald Lake Drive intersection.
    f. Unless approved otherwise by the Engineer and County, there shall be no hauling of materials prior to 8:00 AM on school days.
4. **Work Hours** – Unless approved otherwise by the Engineer and County, work shall be limited to 7:00 AM to 7:00 PM, Monday thru Saturday.
5. **Plans and Specifications** – Fayette County shall provide the construction plans and specifications to the Contractor in Portable Document Format (.pdf). The Contractor shall use this file to plot/print hardcopies needed for the project. At a minimum, the Contractor shall keep one, full-size, paper set of Plans and Specifications on the site in good order and available to the County, Engineer and their representatives.
6. **Utilities** – The project area includes, at a minimum, the following utilities serving the subdivision: power, gas, communication and water. The Contractor is responsible for identifying and confirming location of all utilities, as well as coordinating relocation with the utilities companies. Fayette County has initiated coordination with the Utilities and understands all wired utilities plan to relocated below (downstream) of the proposed spillway and headwall; similar to the proposed water and gas line shown on Sheet C-104.
7. **Borrow Material** – In the even that off-site borrow is required, the Contractor shall be responsible for identifying one or more borrow areas for the Engineer's testing and approval. The Contractor is responsible for all loading, permitting, hauling, grading, etc. associated with material use from the borrow area.

8. **Waste/Excess Material** – All, clean, excess soil (including topsoil, structural fill, alluvial material, etc.) may be disposed at the Fayette County Staging Area located across the street from the City Fayetteville's Water & Sewer Administrative Office (328 1st Manassas Mile Rd, Fayetteville, GA 30214). Construction debris, including rock, concrete, asphalt, and organic material, will not be accepted at this location and shall be properly disposed at the Contractor's expense.

9. **Notice of Intent** – The Contractor shall file the NOI, perform all necessary inspections, and maintain all documentation per the permit.

10. **Cofferdam / Temporary Road Access** – Emerald Lake Drive is the only means of ingress/egress of over 80 homes. The Contractor shall be responsible for the adequate design and maintenance of the cofferdam / temporary roadway to ensure uninterrupted access to and from these homes. All costs associated with this work, including the import of stone, soil and other material to provide a stable driving surface, shall be included in the Project's Lump Sum cost.

11. **Contract Changes** – All changes which affect the cost of the construction of the project must be authorized by means of a Contract Change Order. The Contract Change Order will include extra work, work for which quantities have been altered from those shown in the bidding schedule, as well as decreases or increases in the quantities of installed units which are different than those shown in the Bidding Schedule because of final measurements. All changes should be recorded on a contract change order as they occur so they may be included in the partial payment estimate. All contract change orders must be approved by the ENGINEER and OWNER.

12. **Special Conditions** – The work included in this Contract shall include all labor and material necessary for the Dam Rehabilitation and associated work, complete.

    It is the intent of these Plans and Specifications that the Contractor shall perform all incidental items of Work and furnish all items of incidental material, and equipment required to construct the completed Project even though such items are not covered in detail in the Contracts Documents.

    Due to the nature of the project and the potential for unforeseen conditions, it is anticipated that some additional work may be required. A $100,000.00 allowance for additional work is to be included in the Base Bid, to be used to cover Change Orders resulting from additional work. These allowances apply only to additional work not shown on the Drawings or required by the Specifications. Should such additional work become evident during the conduct of the work, a cost to correct such work shall be established and if the Owner agrees to incorporate the Work in this Contract, a Change Order will be issued. The amount of the Change Order will be deducted from the appropriate allowance. If any allowance remains unused at the end of the job, a Change Order will be issued decreasing the Contract amount by the amount of the unused allowance.

TECHNICAL SPECIFICATIONS
FOR
CONSTRUCTION OF
IMPROVEMENTS TO THE

EMERALD LAKE DAM

IN
FAYETTE COUNTY, GEORGIA

FOR
FAYETTE COUNTY BOARD OF COMMISSIONERS

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS

June 24, 2016
WA&A J.O. 3400500

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS

SPECIFICATIONS FOR THE

REHABILITATION OF EMERALD LAKE DAM IN FAYETTE COUNTY, GEORGIA

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SECTION 01 11 00

GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY OF WORK

A. Work Covered by Contract Documents:
1. It is the declared and acknowledged intention and meaning of these Contract Documents to provide and secure the construction of the Emerald Lake Dam improvements as described in the plans and specifications complete and ready for use.
2. Work shall be done and materials furnished in strict conformity with Contract Documents.
3. Work includes following classes of construction:
a. Clearing and grubbing.
b. Demolition
c. Earthwork.
d. Erosion Control
e. Concrete Structures
4. Scope of work described may be varied by acceptance by Owner of alternate bids for the items indicated in the proposal form.

B. Notices to Utilities, Pipeline Companies, Various Engineering Offices:
1. Contractor shall give advance notice of construction to owners of utilities and pipelines and to various engineering offices as required, prudent or necessary.

C. Permits:
1. Permits and licenses of temporary nature necessary for prosecution of work shall be secured and paid for by Contractor.
2. Easements, right-of-way and instruments of permanent nature shall be secured and paid for by Owner.

D. Drawings: Accompanying these Specifications and forming an integral part thereof are Drawings listed on index sheet of Drawings.

1.02 TESTING LABORATORY SERVICES

A. The Owner will select and the Owner will pay for services of independent commercial testing laboratory to perform services specified in respective Specification Sections. Except, Contractor shall pay for services described below.

B. Contractor shall pay for services of independent commercial testing laboratory to

perform following:

1. Preliminary design mix proposed for use for portland cement concrete, asphaltic concrete, and other material mixes which require control by testing laboratory.
2. Additional samples and tests required for Contractor"s convenience or when initial tests indicate work does not comply with Contract Documents.

C. Reports of testing laboratory shall in no way relieve Contractor of his obligation to perform work in accordance with Contract Documents.

D. Laboratory Duties:
1. Cooperate with Engineer and Contractor.
2. Provide qualified personnel promptly on notice.
3. Perform specified inspections, sampling, and testing of materials and methods of construction:
   a. Comply with specified standards, ASTM, other recognized authorities, and as specified.
   b. Ascertain compliance with requirements of Contract Documents.
4. Promptly notify Engineer, Owner, and Contractor of irregularities or deficiencies of work which are observed during performance of services.
5. Promptly submit four copies of reports of inspections and tests:
   a. Owner: One copy.
   b. Engineer: One copy.
   c. Contractor: Two copies.
6. Perform additional services as required by Owner.
7. Laboratory is not authorized to:
   a. Revoke, alter, enlarge on, or release requirements of Contract Documents.
   b. Approve or accept any portion of work.
   c. Perform any duties of Contractor.

E. Contractor's Duties:
1. Cooperate with laboratory personnel, provide access to work, and to manufacturer's operations.
2. Provide samples of materials to be tested in required quantities.
3. Provide on site storage area for testing laboratory.
4. Furnish copies for mill test reports.
5. Furnish casual labor to provide access to work to be tested, to obtain and handle samples at site, and to facilitate inspections and tests.
6. Notify laboratory and Engineer 24 hrs. minimum, in advance of operations to allow for assignment of personnel and scheduling of tests.

1.03 CUTTING AND PATCHING

A. Contractor shall perform cutting, patching, or fitting of his work that may be

required to make its several parts come together properly and fit it to receive or be received by work of others shown on, or reasonably implied by Drawings and Specifications for completed facility.

B. Contractor shall not endanger any work by cutting, digging, or otherwise and shall not cut or alter work of others unless specifically noted on Drawings and Specifications.

1.04 FIELD ENGINEERING

A. Examination of Sites:
1. Contractor shall make examination of site of work to familiarize himself with conditions to be encountered.
2. Actual site and Drawings and Specifications shall be compared.
3. Exact locations of sewers, water mains, gas mains, above or below ground electrical wires and conduits and structures which may interfere with work shall be verified by the Contractor.
4. No extra compensation will be allowed for any work made necessary due to unusual conditions or obstacles encountered during progress of work which could have been determined by examination of site.

B. Boring and Subsurface Soil Investigation:
1. Logs of borings, made to determine character of materials for design purposes, are available to be inspected at the Engineer's office.
2. It is not guaranteed that other materials will not be encountered nor that proportions of several materials will not vary from those indicated by explorations.
3. Water levels represent those observed at one point in time and could vary.
4. This information is presented for convenience of prospective bidders and deviation from condition shown does not relieve Contractor of protecting, dewatering, and completing work in accordance with Drawings and Specifications.
5. Core samples, and other soil data, may be observed at office of soil consultant.
6. Contractor may take additional borings, or conduct further exploration, if he so desires and if appropriate measures relative to site access are taken and the exploration program is approved by the Engineer.

C. Line and Grades:
1. Prior to staking out work, Contractor shall satisfy himself in regard to established base line, bench marks, and work to be preformed under Contract.
2. Contractor shall furnish and maintain lines and grades; and Contractor shall take immediate steps to correct errors or inconsistencies in work to be in conformity with the Contract Documents.

3. Contractor shall be fully responsible for the accuracy of his work and the correction of it as required.

D. Survey Control Points:
1. Survey control points for work under this Contract will be provided by Owner to establish only the following:
   a. Setting of control points (2) at site.
   b. One temporary bench mark established at site.
2. These survey control points will be provided by Owner one time only, as scheduled and requested by Contractor.
3. It shall be Contractor's responsibility to preserve and maintain control points in good and usable conditions.
4. Re-establishments of these control points shall be at sole expense of Contractor.

E. Underground and Aboveground Utilities:
1. Underground utilities directly obstructing construction will be disrupted, abandoned, removed or temporarily or permanently relocated by arrangements between the Owner and the utility companies.
2. Pipe lines and other existing underground installations and structures in vicinity of work are shown on Drawings according to best information available to Owner.
3. Owner does not guarantee accuracy of such information.
4. Contractor shall accurately locate all underground pipe lines, conduits, cables and structures by contacting owners of underground installations and by prospecting in advance of trench excavation.
5. Repair of existing installations cut by Contractor shall be made at expense of Contractor, and shall be scheduled so as to cause least possible inconvenience to public and to owners of installations.
6. Delay or extra cost to Contractor caused by pipe lines, conduits, cables, or other underground structures or obstacles shall not constitute a claim for extra work, additional payment, or damages.
7. Aboveground utilities directly obstructing construction will be disrupted, abandoned, removed, or temporarily or permanently relocated by arrangements between the Owner and the utility companies, including telephone and power poles, except that aboveground utility poles and lines disrupted, abandoned, removed, or temporarily or permanently relocated for the convenience of the contractor shall be the responsibility and expense of the Contractor.

F. Restoration:
1. Items disturbed or removed as the result of performing the required work or for the convenience of the Contractor or to expedite his operations including electrical work, lawns, landscaping, paving, roads, walks, trees, shrubs and fencing shall be restored, repaired, patched, reinstalled or replaced with new work and refinished, as appropriate, so as to be left

in as good condition as existing before commencing work and such restoration shall be considered incidental to the work.

2. Existing work to be altered, extended, removed or disturbed that is found to be defective in any way shall be reported to Engineer before it is disturbed.
3. Materials and workmanship used in restoring work shall conform in type and quality to the original existing construction.

1.05 REGULATORY REQUIREMENTS

A. Where references are made on the drawings or in the specifications to codes they shall be considered an integral part of the Contract Documents as though reproduced therein.

B. References to codes are considered to be the latest revision at the time of bid unless specific dates are referenced.

C. Materials and equipment with testing categories established by UL or FM shall bear inspection label.

1.06 DEFINITIONS

A. Specification Sentence Structure:
   1. Simple imperative mood of sentence structure is used in Specification section which places verbs as first word in sentence.
   2. Verb defines action to be performed by Contractor and replaces phrases as “shall” or “shall be”.

B. Provide:
   1. Furnishing of labor, material, equipment, transportation and services required for completed installation.
   2. “Provide” is used to obtain emphasis and brevity and replaces such phrases as “Contractor shall”, “by Contractor”, “furnish labor and materials”, etc.

C. Incidental, Incidentals, Incidentals To:
   1. Minor work related and necessary to a main bid item of work or to the job as a whole.
   2. No additional, extra, separate payment, or other compensation will be made for incidental work.

1.07 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

A. Temporary Utilities:
   1. Contractor shall make arrangements required with local utility companies for obtaining temporary electric power and water service and shall bear expenses involved.

2. Contractor shall be responsible for connections, necessary extensions, and remove same upon completion of work.
3. Temporary utilities provided by Contractor shall be incidental to work.

B. Temporary Sanitary Facilities:
1. Contractor shall provide and maintain sanitary facilities at locations satisfactory to Owner for use by employees of Contractor and Engineer.
2. They shall be well ventilated, but provide proper concealment, and shall be kept scrupulously clean at all times by Contractor.
3. Facilities shall be removed and site restored to its original condition upon completion of work.
4. Such facilities shall conform to requirements of state and local health authorities, ordinances, and law.

C. Safety and Inconvenience to Public:
1. Safety of public and convenience of traffic shall be regarded as of prime importance.
2. Traffic along and across roadway shall be provided for, as well as ingress and egress to private property as specified herein, or as directed by the Owner.
3. Operations shall be planned and executed in manner that will cause minimum interference with traffic.
4. Approval of proposed plan of operation, sequence of work, and methods of providing for safe passage of traffic shall be secured from the Owner before it is placed into operation.
5. If reviewed plan does not accomplish intended purpose during construction due to weather or other conditions affecting safe handling of traffic, necessary changes therein to correct unsatisfactory conditions shall immediately be made.
6. Work such as backfilling of excavation, repair to roads and drives, and cleanup or other such operations shall follow as closely as practical to laying or installing operations, in such manner that the public is not unnecessarily inconvenienced nor hazard to public safety created.
7. If work forces or equipment are insufficient to such degree that the public is inconvenienced, measures shall be taken to remedy problem.
8. The Owner may require such changes in work forces and equipment necessary to prevent or remedy unnecessary inconveniences to public or hazard to public safety.
9. Notice of such required changes will be made in writing.
10. At night or otherwise, equipment not in use shall be stored so as not to interfere with safe passage of traffic.
11. Flagmen shall be provided and maintained at such points and for such periods of time as may be required to provide for safety and convenience of public travel and Contractor’s personnel, and as directed by the Owner.
12. Public safety shall be direct responsibility of Contractor.

13. Contractor shall provide barricades, lights, and warning and detour signs as required.

1.08 MATERIAL AND EQUIPMENT

A. General:

1 Contractor is responsible to immediately notify Engineer of any material or equipment delivery dates contrary to construction schedule.

2. No extension in contract period will be considered unless the Engineer is notified immediately that there could be delay in receiving some item.

3. Contractor shall use only new materials in permanent structure.

4. Finished work shall not include material used for temporary purposes.

5. Where materials or equipment are specified by trade or brand name, it is not intention of Owner to discriminate against equal product of another manufacturer, but rather to set definite standard of quality or performance, and to establish equal basis for evaluation of proposals.

6. Items identified by manufacturer's name and model designation or their equal shall be complete in every respect and shall be provided as specified unless an acceptable substitution or alternate is provided. However, no substitution of products is permitted after the construction contract has been awarded unless the product is not available.

7. To utilize alternate item equal to that specified, Contractor shall submit evidence that material is equal in quality, workmanship, performance, function, and strength characteristics as items specified by named manufacturer.

8. Where called for in these specifications, Contractor shall submit test data of independent testing laboratory to show compliance with characteristics specified.

9. Where materials are specified in the various sections to comply with ANSI, ASTM, AWWA, or UL, proof of compliance shall be submitted. Label or listing of specified agency will be acceptable evidence. Written certificate from nationally recognized testing organizations may be submitted in lieu of label or listing.

10. When Contractor submits substitute materials, equipment, components or systems, Contractor shall have full responsibility for design approaches, for equivalent performance and for strength and quality characteristics of alternate or substituted items.

11. Review by Owner or Engineer or their failure to take exceptions on shop drawings or other review documents, shall not relieve Contractor of his responsibility for substituted item meeting equivalent characteristics required by Contract Documents.

12. Review by Owner or Engineer will determine whether design concept, finish and appearance requirements of Contract Documents are met by the substituted item and no substituted item shall be installed which changes the design concept or appearance of the work without prior acceptance by the Engineer or Owner.

B. Storage of Materials:
1. Water-tight storage facilities of suitable size, with floors raised above ground, shall be provided for types of materials liable to damage from exposure to weather.
2. Other materials shall be stored on blocks off ground.
3. Materials shall be so placed as to permit easy access for proper inspection and identification.
4. Material which has deteriorated, become damaged, or otherwise unfit for use shall not be used in work.
5. Upon completion of work, or when directed, Contractor shall remove storage facility construction from site.

C. Construction Equipment:
1. Construction equipment provided at the work site shall be in prime working condition.
2. Inoperative and poorly operating construction equipment shall be promptly repaired or replaced.
3. Construction equipment which constantly breaks down or turns out work which does not meet requirements of the Specifications shall be replaced.
4. No extension of contract time will be allowed for delays resulting from equipment breakdowns or shortages.

1.09 PROJECT CLOSEOUT

D. Cleaning:
1. Contractor shall keep site and structure or facilities thereon, free from accumulations of waste materials, debris, or rubbish caused by his employees or work.
2. At completion of work, he shall remove from site his tools, surplus of materials and debris, and shall leave site and his work reasonably clean.
3. Areas disturbed during construction operations shall be restored generally to match conditions existing prior to start of work.

E. Project Record Documents:
1. Contractor shall provide and maintain in proper order and in good condition in field office at project site, one complete set of blueprints of working drawings.
2. On this set of Drawings, Contractor shall neatly inscribe and print by red pencil final location, sizes and types of various items of work such as pipe, valves, manholes, equipment, control devices, access openings, structures and other facilities.
3. At completion of work, and before final acceptance, this set of prints shall be delivered to Owner.

END OF SECTION
01 11 00

SECTION 01 22 00

UNIT PRICES

PART 1 - GENERAL

1.1 MEASUREMENT AND PAYMENT

A. It is intent of the Proposal that the aggregate bid amount as submitted shall cover all work required by Contract Documents in place, complete, and ready for use.

B. Unit prices in the Proposal include all costs to fully complete the work in place, including providing all labor, materials, tools, equipment, services, supplies, incidentals, and all necessary operations.

C. No costs in connection with work required by the Contract Documents for proper and successful completion of the Contract will be paid outside of or in addition to prices submitted in Proposal.

D. Work not specifically set forth in Proposal as pay items shall be considered subsidiary obligations of Contractor and costs shall be included in prices named in Proposal.

E. Method of measurement and basis of payment shall be as stipulated in following paragraphs.

1.2 ROCK EXCAVATION

A. Where necessary to excavate rock material in quantities of more than 1 cubic yard at a specific location, such material will be measured for payment as an extra or additional payment to ordinary excavation included in other pay items.

B. Measurement of rock excavation volume in cubic yards (CY) will be made by profiling the average top elevation of rock visible at sides of excavation, presuming the level to which rock is removed at 0.5 feet below sewer or structure invert, and presuming trench width over its entire length to be the maximum trench bottom width permitted. At structures and miscellaneous construction, the actual necessary rock volume removed, as determined by the Engineer, will be measured.

C. In areas of rock excavation, the Contractor shall not backfill or otherwise cover adjacent exposed rock until the Engineer has completed rock excavation measurement.

D. Payment will be by unit price which shall be full compensation for labor, materials, tools, equipment, incidentals and operations necessary to completely remove rock encountered including hauling and disposal of rock.

1.3 EARTHWORK

A. Additional Alluvial Excavation:
   1. This item will be measured by number of cubic yards for all classes of material excavated from its original position below the planned excavation as shown on the drawings and disposed of as required.
   2. Measurement will be based on quantities derived from proposed contours, grades, sections and typical sections shown on drawings and final excavated grades.
   3. This item will be paid for by unit price which shall be full compensation for labor, tools, equipment, incidentals and operations necessary to complete excavations and to backfill the excavation to the planned elevations..
   4. Includes excavation, loading, free hauling, dumping or spreading, compacting and off-site disposal of unsuitable materials and backfilling with compacted material.

1.4 STONE RIP-RAP

A. Additional Stone Rip-Rap:
   1. This item will be measured by installed ton and will be paid for by unit price.
   2. Certified signed delivery and weight tickets from supplier shall be submitted.
   3. Quantity of stone is subject to verification by Owner and shall not include rejected stone.
   4. Payment shall be full compensation for operations, materials, and labor required for complete installation of rip-rap in excess of that indicated on drawings.
   5. Expense of testing of scales and weighing of stone shall be borne by Contractor.

END OF SECTION
01 22 00

SECTION 01 25 13

SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 - GENERAL

1.01 PRODUCT OPTIONS

A. For any products specified only by reference standards, select any product meeting standards, by any manufacturer.

B. For products specified by naming several products or manufacturers, select any product and manufacturer named.

C. When products are specified by only one manufacturer's model or performance criteria with reference to other acceptable manufacturers, select any product and manufacturer named.

D. For products not specified or indicating option of selecting equivalent products by stating "or equal" or other language, Contractor must submit request, as required for substitutions, for any product or manufacturer not specifically named.

1.02 SUBSTITUTIONS

A. Where materials or equipment are specified by a trade or brand name, it is not the intention to discriminate against equivalent product of another manufacturer.

B. Materials specified are to define standard of quality or performance and to establish basis for evaluation of proposals.

C. During bidding period, Engineer will not consider requests from bidders and manufacturers for substitutions.

D. After award of Contract, Engineer will consider formal requests, only from the Contractor, for substitution of products in place of those specified.

E. Submit requests for substitutions including complete data and samples substantiating compliance of proposed substitution with Contract Documents.

F. When requested, Contractor shall submit test data from independent testing laboratory to show compliance with performance characteristics specified.

G. Materials proposed for substitution must meet or exceed specified requirements as described in these specifications.

H. Engineer's decisions of acceptance or rejection of substitution will be final.

I. In making request for substitutions, for materials, equipment, or systems, Contractor represents that:
   1. He has personally investigated proposed product or method, and determined that it is equal or superior in all respects to that specified.
   2. He will provide same guarantee for substitution as for product or method specified.
   3. He will coordinate installation of accepted substitutions into work making such changes as may be required for work.
   4. He will have full responsibility for alternate design approaches, for equivalent performance, and for strength and quality characteristics of components.

J. Substitutions will not be considered if:
   1. They are indicated or implied on shop drawings or project data submittals without formal request.
   2. Acceptance will require substantial revision of Contract Documents.
   3. Additional cost to Owner is involved.

K. Should substitution be accepted under provisions of above clauses, and this substitution subsequently proves defective or otherwise unsatisfactory for service for which it was intended, within guarantee period, Contractor shall replace defective material with material specified.

L. Review of Owner or Engineer, their approval or their failure to take exceptions to substitutions or other review documents, shall not relieve the Contractor of his responsibility for item actually meeting performance or other requirements of Contract Documents.

PART 2 – PRODUCTS – NOT APPLICABLE

PART 3 – PRODUCTS – NOT APPLICABLE

END OF SECTION
01 25 13

SECTION 01 29 73

SCHEDULE OF VALUES

PART I - GENERAL

1.01 DESCRIPTION

A. Submit to Engineer schedule of values, at least ten days prior to submitting first application for payment.

B. Upon request by Engineer, support values given with data that will substantiate their correctness.

C. Submit quantities of designated materials.

D. Use schedule of values only as basis for Contractor's application for payment.

1.02 FORM OF SUBMITTAL

A. Submit typewritten schedule of values on 8 1/2 in. x 11 in. white paper.

B. Use Table of Contents of this specification as basis for format for listing costs of work for sections under Division 2 through 16.

1.03 PREPARING SCHEDULE OF VALUES

A. Itemize separate line item cost for each of following general cost items:
1. Performance and Payment Bonds.
2. Field supervision and layout.
3. Temporary facilities and controls.

B. Itemize separate line item cost for work required by each section of this specification.

C. Breakdown installed costs into:
1. Delivered cost of product.
2. Total installed cost with overhead and profit.

D Make sum of total costs of items listed in schedule equal to total Contract Sum.

1.04 REVIEW AND RESUBMITTAL

A. After review by Engineer, revise and resubmit schedule as required.

B. Resubmit revised schedule in same manner.

END OF SECTION
01 29 73

SECTION 01 31 19

PROJECT MEETINGS

PART 1 - GENERAL

1.01 PRE-CONSTRUCTION MEETING

A. Owner will schedule meeting within two days after date of notice to proceed.

B. Attendance:
1. Owner.
2. Engineer and his consultants.
3. Contractor.
4. Major subcontractors.

C. Minimum Agenda:
1. List of major subcontractors.
2. Tentative construction schedule
3. Critical work sequencing.
4. Designation of responsible personnel.
5. Processing of field decisions and Change Orders.
6. Adequacy of distribution of Contract Documents.
7. Submittal of shop drawings, project data, and samples.
8. Procedures for maintaining record documents.
9. Use of premises.
10. Storage areas.
11. Owner’s requirements.
12. Safety and first-aid procedures.
13. Security procedures
14. Housekeeping procedures.

1.02 PROGRESS MEETINGS

A. Contractor shall schedule regular meetings at the job site biweekly or weekly if job progress dictates.

B. Attendance:
1. Engineer and his consultants.
2. Contractor.
3. Owner or his representative.
4. Subcontractors as pertinent to agenda.
5. Representatives of other regulatory agencies as pertinent to agenda.

C. Minimum Agenda:
   1. Review work progress.
   2. Note field observations, problems, and decisions.
   3. Identify problems which impede planned progress.
   4. Review off-site fabrication problems.
   5. Revise construction schedule as indicated.
   6. Review submittal schedules, expedite as required to maintain schedule.
   7. Maintaining of quality and work standards.
   8. Review proposed changes for effect on construction schedule and completion date.

PART 2 - MATERIALS - NOT APPLICABLE

PART 3 - EXECUTION - NOT APPLICABLE

END OF SECTION
01 31 19

SECTION 01 3213

CONSTRUCTION SCHEDULE

PART 1 - GENERAL

1.01 DESCRIPTION

A. Provide projected construction schedule for entire work.

B. Revise monthly.

1.02 FORM OF SCHEDULE

A. Prepare by bar chart method.

B. Arrange by chronological order by beginning of each item of work.

1.03 CONTENT OF SCHEDULES

A. Provide complete sequence of construction by activity:
   1. Shop drawings, product data, and samples: Submittal dates and dates reviewed copies will be required.
   2. Product procurement and delivery dates.
   3. Dates for beginning and completion of each element of construction.

B. Identify work of separate phases or other logically grouped activities.

C. Show projected percentage of completion for each item of work as of first day of each month.

D. Provide sub-schedules to define critical portions of entire schedule.

1.04 UPDATING

A. This schedule when reviewed by Owner and Project Manager shall be updated prior to each application for payment.

B. Show all changes occurring since previous month’s submission of updated schedule.

C. Indicate progress of each activity.

D. Show completion dates.

1.05 SUBMITTALS

A. Contractor shall submit schedule of his planned operations for work within 10 days after receipt of notice to proceed.

B. Engineer will review schedules and return review copy within ten days after receipt.

C. If required, resubmit within seven days after return of review copy.

D. Submit periodically updated schedules accurately depicting progress to first day of each month.

E. Submit the number of copies required by Contractor plus four copies to be retained by Engineer.

1.06 DISTRIBUTION

A. Distribute copies of reviewed schedules to:
1. Engineer.
2. Job-site file.
3. Subcontractors.
4. The Owner or his representative.

B. Instruct recipients to report any inability to comply. Provide detailed explanation with suggested remedies.

PART 2 - MATERIALS - NOT APPLICABLE

PART 3 - EXECUTION - NOT APPLICABLE

END OF SECTION
01 32 13

SECTION 01 3323

SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.01 DEFINITIONS

A. Shop drawings: Reinforcement and similar construction and assembly details, drawings, diagrams, material and equipment schedules and other data specially prepared for work by Contractor, subcontractor, manufacturer, supplier or distributor to illustrate some portion of work.

B. Product Data: Manufacturer's instructions and recommendations, illustrations, standards, schedules, performance charts, instructions brochures, diagrams, and other information furnished by Contractor to illustrate material, product, or system for some portion of work.

C. Samples: Physical examples which illustrate materials, equipment and workmanship and establish standards by which work will be judged.

D. Miscellaneous Submittals. Interim erection designs and operations plans, work schedules, warranties, maintenance agreements, bonds, project photographs, survey data, and reports, work records, certificates, testing reports, and similar information applicable to work.

1.02 CONTRACTOR'S RESPONSIBILITY

A. Prepare separate listing, organized by specification section number sequence, showing principal submittals and dates required for coordination of work.

B. Submit listing within 10 days after notice to proceed.

C. Review, stamp with his approval, and submit with reasonable promptness and in orderly sequence to cause no delay in work, shop drawings, product data, samples, and miscellaneous work related items as described in various specification sections.

D. Shop drawings schedules, and interim erection sketches prepared by Contractor, his subcontractors, or vendors are for the Contractor's use and benefit, to indicate his approach to fulfilling design concept.

E. By approving and submitting shop drawings, Contractor represents that he has determined and verified all measurements at job site, field construction criteria, sequences of erection, access ports, catalog numbers, and similar data.

F. Contractor is responsible for dimensions at the job site, quantities, coordinating component parts and trades to effect unified construction and implement construction techniques, safety of incremental units, and satisfactory performance of work in accordance with Contract Documents.

G. Delays caused by failure of Contractor to check shop drawings and to stamp with his approval shall be Contractor's responsibility.

H. Where literature is submitted covering a group or series of similar items, items intended for use shall be clearly indicated, identified, and labeled.

I. Coordinate preparation and processing of submittals with performance of work to avoid delays.

J. Coordinate and sequence different categories of submittals for same work and interfacing units for work.

K. No extension of time will be allowed because of failure to properly coordinate and sequence submittals.

L. Do not proceed with purchasing, fabrication, and delivery of work related to submittal until submittal procedure has been completed.

M. Contractor's responsibility for errors and omissions in submittals is not relieved by Engineer's review of submittals.

N. Request changes separately.

O. Submit shop drawings showing revisions to equipment layouts or modifications to work because of use of substitution items.

P. Contractor's responsibility for deviations in submittals from Contract Document requirement is not relieved by Engineer's review of submittal unless Engineer gives written acceptance of specific deviation.

1.03 SPECIFIC CATEGORY REQUIREMENTS

A. General: Except as otherwise indicated in the individual work sections, comply with general requirements specified herein for each indicated category of submittal. Submittals shall contain:

1. The date of submittal and the dates of any previous submittals.

2. The Project title.

3. Numerical submittal numbers, starting with 1.0, 2.0, etc. Revisions to be numbered 1.1, 1.2, etc.

4. The Names of:

   a. Contractor
   b. Supplier
   c. Manufacturer

5. Identification of the product, with the Specification section number, permanent equipment tag numbers and applicable Drawing No.

6. Field dimensions, clearly identified as such.

7. Relation to adjacent or critical features of the Work or materials.

8. Applicable standards, such as ASTM or Federal Specification numbers.

9. Notification to the Engineer in writing, at time of submissions, of any deviations on the submittals from requirements of the Contract Documents.

10. Identification of revisions on resubmittals.

11. A 6 x 3-inch blank space for Contractor and Engineer stamps.

12. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria and coordination of the information within the submittal with requirements of the Work and of Contract Documents.

13. Submittal sheets or drawings showing more than the particular item under consideration shall have all but the pertinent description of the item for which review is requested crossed out.

1.04 ROUTING OF SUBMITTALS

A. Submittals and routine correspondence shall be routed as follows:

1. Supplier to Contractor (through representative if applicable)

2. Contractor to Engineer

3. Engineer to Contractor

4. Contractor to Supplier

PART 2 - PRODUCTS

2.01 SHOP DRAWINGS

A. Unless otherwise specifically directed by the Engineer, make all shop drawings accurately to a scale sufficiently large to show all pertinent features of the item and its method of connection to the Work.

B. Submit all shop assembly drawings electronically as a PDF file.

2.02 ENGINEER'S RESPONSIBILITY

A. Review and return submittals within 10 working days.

B. Engineer review is interim review of project against design concept and shall not be construed as acceptance of work or as waiver of Contract Document requirements.

C. Review of separate items does not constitute review of assembly in which item functions.

D. Request changes for items at variance with design concept.

E. Affix shop drawing stamp with initials or signature.

F. Return submittals to Contractor for distribution.

2.03 RESUBMISSION REQUIREMENTS

A. Shop Drawings:
1. Revise initial shop drawings as required and resubmit.
2. Indicate on drawings changes made other than those requested by Engineer.

B. Product Data and Samples: Submit new data as required for initial submittal.

C. Submit all shop assembly drawings electronically as a PDF file.

D. A PDF for all submittals will be returned to the Contractor.

2.04 MANUFACTURER'S LITERATURE

A. Where content of submitted literature from manufacturers includes data not pertinent to this submittal, clearly indicate which portion of the contents is being

submitted for the Engineer's review.

B. Submit the number of copies which are required to be returned plus one which will be retained by the Engineer or submit electronically as a PDF file.

2.05 SAMPLES

A. Samples shall illustrate materials, equipment or workmanship and established standards by which completed work is judged.

B. Unless otherwise specifically directed by the Engineer, all samples shall be of the precise article proposed to be furnished.

C. Submit all samples in the quantity which is required to be returned plus one sample which will be retained by the Engineer.

2.06 COLORS

A. Unless the precise color and pattern is specifically described in the Contract Documents, wherever a choice of color or pattern is available in a specified product, submit accurate color charts and pattern charts to the Engineer for review and selection.

B. Unless all available colors and patterns have identical costs and identical wearing capabilities, and are identically suited to the installation, completely describe the relative costs and capabilities of each.

PART 3 - EXECUTION

3.01 CONTRACTOR'S COORDINATION OF SUBMITTALS

A. Prior to submittal for the Engineer’s review, the Contractor shall use all means necessary to fully coordinate all material, including the following procedures:

1. Determine and verify all field dimensions and conditions, catalog numbers and similar data.

2. Coordinate as required with all trades and all public agencies involved.

3. Submit a written statement of review and compliance with the requirements of all applicable technical Specifications as well as the requirements of this Section.

4. Clearly indicate in a letter or memorandum on the manufacturer's or fabricator's letterhead, all deviations from the Contract Documents.

B. Each and every copy of the shop drawings and data shall bear the Contractor's stamp showing that they have been so checked. Shop drawings submitted to the Engineer without the Contractor's stamp will be returned to the Contractor for conformance with this requirement.

C. The Owner may back charge the Contractor for costs associated with having to review a particular shop drawing, product data or sample more than two times to receive a "No Exceptions Taken" mark.

D. Grouping of Submittals

1. Unless otherwise specifically permitted by the Engineer, make all submittals in groups containing all associated items.

2. No review will be given to partial submittals of shop drawings for items which interconnect and/or are interdependent. It is the Contractor's responsibility to assemble the shop drawings for all such interconnecting and/or interdependent items, check them and then make one submittal to the Engineer along with Contractor's comments as to compliance, non-compliance or features requiring special attention.

E. Schedule of Submittals: Within 30 days of Contract award and prior to any shop drawing submittal, the Contractor shall submit a schedule showing the estimated date of submittal and the desired approval date for each shop drawing anticipated. A reasonable period shall be scheduled for review and comments. Time lost due to unacceptable submittals shall be the Contractor's responsibility and some time allowance for resubmittal shall be provided. The schedule shall provide for submittal of items which relate to one another to be submitted concurrently.

3.02 TIMING OF SUBMITTALS

A. Make all submittals far enough in advance of scheduled dates for installation to provide all required time for reviews, for securing necessary approvals, for possible revision and resubmittal, and for placing orders and securing delivery.

B. In scheduling, allow sufficient time for the Engineer's review following the receipt of the submittal.

3.03 REVIEWED SHOP DRAWINGS

A. Engineer Review

1. Allow a minimum of 10 working days for the Engineer’s initial processing of each submittal requiring review and response, except, allow longer periods where processing must be delayed for coordination

with subsequent submittals. The Engineer will advise the Contractor promptly when it is determined that a submittal being processed must be delayed for coordination. Allow a minimum of two weeks for reprocessing each submittal. Advise the Engineer on each submittal as to whether processing time is critical to progress of the Work, and therefore the Work would be expedited if processing time could be foreshortened.

2. Acceptable submittals will be marked **"No Exceptions Taken"**. A copy will be retained by the Engineer and a PDF copy will be returned to the Contractor.

3. Submittals requiring minor corrections before the product is acceptable will be marked **"Make Corrections Noted"**. The Contractor may order, fabricate and ship the items included in the submittals, provided the indicated corrections are made. Drawings must be resubmitted for review and marked **"No Exceptions Taken"** prior to installation or use of products.

4. Submittals marked **"Revise and Resubmit"** must be revised to reflect required changes and the initial review procedure repeated.

5. The **"Rejected"** notation is used to indicate products which are not acceptable. Upon return of a submittal so marked, the Contractor shall repeat the initial review procedure utilizing acceptable products.

B. No work or products shall be installed without a drawing or submittal bearing the **"No Exceptions Taken"** notation. The Contractor shall maintain at the job site a complete set of shop drawings bearing the Engineer's stamp.

C. Substitutions: In the event the Contractor obtains the Engineer's approval for the use of products other than those which are listed first in the Contract Documents, the Contractor shall, at the Contractor's own expense and using methods approved by the Engineer, make any changes to structures, piping and electrical work that may be necessary to accommodate these products.

D. Use of the **"No Exceptions Taken"** notation on shop drawings or other submittals is general and shall not relieve the Contractor of the responsibility of furnishing products of the proper dimension, size, quality, quantity, materials and all performance characteristics, to efficiently perform the requirements and intent of the Contract Documents. The Engineer's review shall not relieve the Contractor of responsibility for errors of any kind on the shop drawings. Review is intended only to assure conformance with the design concept of the Project and compliance with the information given in the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site. The Contractor is also responsible for information that pertains solely to the

fabrication processes or to the technique of construction and for the coordination of the work of all trades.

3.04 RESUBMISSION REQUIREMENTS

A. Shop Drawings

1. Revise initial drawings as required and resubmit as specified for initial submittal, with the resubmittal number shown.

2. Indicate on drawings all changes which have been made other than those requested by the Engineer.

B. Project Data and Samples: Resubmit new data and samples as specified for initial submittal, with the resubmittal number shown.

END OF SECTION
01 33 23

SECTION 01 3553

SECURITY

PART 1 - GENERAL

1.01 SECURITY PATROL

A. The Owner will not provide security for construction site.

B. Security shall be the responsibility of contractor.

PART 2 – PRODUCTS – NOT APPLICABLE

PART 3 – EXECUTION – NOT APPLICABLE

END OF SECTION
01 35 53

SECTION 01 70 00

CONTRACT CLOSE-OUT

PART I - GENERAL

1.01 CLOSE-OUT TIMING

A. Upon receiving the Engineer's Final Certificate, Contractor shall prepare, assemble and transmit the items listed herein to Owner and the Engineer.

B. Unless additional quantities are specified elsewhere, submit items in duplicate.

C. Documents, tools, equipment, demonstrations and other closing requirements shall be submitted or performed and accepted prior to Date of Final Acceptance.

1.02 DETAIL REQUIREMENTS

A. Maintenance manuals: Submit bound loose leaf maintenance manuals for mechanical and electrical equipment for fixtures, finish hardware, equipment, finishes requiring special treatment and as otherwise required in the specifications. Label manuals with embossed plastic tape. Include name of project, nature of information, Contractor/Subcontractor and name and address of local parts supplier and service organization.

B. Operation manuals: Submit bound loose leaf operation manuals for mechanical, electrical and elevator equipment. Assemble and submit manuals as indicated for maintenance manuals or include therewith.

C. Record drawings: Submit for mechanical and electrical work covered by subsequent construction or requiring the removal of finish material should maintenance be necessary. Drawings shall be numbered consecutively, and shall be laid out to show locations of subject elements, with base lines or dimensions enabling exposure to elements with least disturbance to finish surfaces.

D. Inspection reports: Submit certificates from applicable local governmental agencies that the construction has been inspected as required by laws or ordinances and that the building is approved for occupancy.

E. Warranties: In accord with Contract Conditions, Contractor shall furnish his warranty and shall require each subcontractor to furnish his warranty, in writing, on the form bound hereinafter. Assemble, bind, label and transmit warranties as required for other manuals above. Unless specifically indicated, warranties shall begin on the Date of Engineer's Final Certificate and shall continue for one year. Warranties shall state the Date of Engineer's Final Certificate and the date on which the warranty expires.

F. Valve tag schedules: Furnish two copies of schedules with close out

documents and mount one copy, framed under glass, in mechanical room.

G. Keys: Deliver at Date of Engineer's Final Certificate. Tag each key to indicate lock which key operates. Accompany keys with final hardware schedule, as specified in Finish Hardware Schedule.

H. Coordinate demonstrations and trial runs of equipment for Owner's designated personnel and complete such demonstrations prior to Date of Final Acceptance.

PART 2 – PRODUCTS – NOT APPLICABLE

PART 3 – EXECUTION – NOT APPLICABLE

END OF SECTION
01 70 00

SECTION 01 71 23
CONSTRUCTION SURVEYING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surveyor qualifications

B. Submittals

C. Survey reference points

D. General survey requirements

E. Surveys for measurement and payment (where applicable)

F. Survey documentation of the Work

1.02 SURVEYOR QUALIFICATIONS

A. Record survey drawings for review and approval shall be performed by an independent surveying firm with a Registered Land Surveyor (RLS) licensed and registered in the State of Georgia, retained by the Contractor, and acceptable to the Owner and Engineer.

B. Qualifications documentation shall be provided for the proposed RLS, as described in subsection 1.03.A of this Section.

C. Day to day surveying for Contractor's control purposes may be performed by Contractor's own surveyors.

1.03 SUBMITTALS

A. Submit qualifications documentation for proposed RLS. Information shall include: name, address, telephone number, and photocopy of registration of RLS.

B. Submit record survey drawings, certified by the RLS, along with computer files on diskette in AutoCAD, latest format. Redline mark-ups of the Contract Drawings are not acceptable. A digitized tracing of a manually drawn record survey drawing, derived from non-digital surveying techniques, is also not acceptable.

1.04 SURVEY REFERENCE POINTS

A. The Owner's surveyor has established benchmarks and horizontal control for the Work. Control datum for survey is that indicated on the Drawings.

B. Contractor's RLS shall establish additional temporary benchmarks and horizontal control points as required.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL SURVEY REQUIREMENTS

A. Utilize recognized engineering survey practices appropriate for obtaining the information specified.

B. Protect and preserve permanent reference points during construction.

C. Promptly report to Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons. Replace dislocated reference points based on original survey control. Make no changes without prior written notice to Engineer.

D. Establish elevations, lines and levels required for all items of the Work.

3.02 SURVEYS FOR MEASUREMENT AND PAYMENT

A. Contractor shall perform surveys to determine quantities for unit price items, including control surveys to establish measurement reference lines. Notify Engineer prior to starting surveys.

B. Contractor shall submit calculations and certify the correctness of quantities for payment purposes. County will confirm quantities prior to payment.

3.03 SURVEY DOCUMENTATION OF THE WORK

A. Maintain a complete and accurate log of control and survey work as it progresses.

B. Record survey drawings shall be prepared to fully document the Work, as specified in individual specification sections.

C. Contractor’s RLS shall prepare and certify the record survey drawings.

END OF SECTION
01 71 23

SECTION 01 78 00

OPERATING AND MAINTENANCE

PART 1 - GENERAL

1.01 OPERATING AND MAINTENANCE MANUALS

A. Accumulate during progress of work, in triplicate, service manuals, parts lists, and operating instructions pertaining to equipment and materials covered by contractual agreement.

B. Bind and organize with index tabs according to specification section sequence.

C. Include in mechanical equipment information as follows:
   1. List of manufacturers, model numbers, and catalog sheets.
   2. Control diagrams, composite wiring diagrams.
   3. Parts list and predicted life of parts subject to wear.
   4. Operating instruction, lubrication, and maintenance instructions.
   5. Test data and performance curves.
   6. Trouble shooting recommendations.

D. Submit to Engineer prior to final acceptance.

1.02 OPERATIONAL TESTS AND ADJUSTMENTS

A. After completion of work and before final acceptance, Contractor shall notify Engineer when he is ready for operational tests.

B. Perform tests in presence of Owner and Engineer and at time designated by Engineer.

C. Perform operational tests to satisfactorily demonstrate suitability for use of each entire system.

D. In event system is incomplete and tests cannot be consecutively performed, complete work and reschedule tests.

E. Adjustments or repairs may be directed by Engineer and shall be performed by Contractor.

F. Provide instruments, facilities, and labor to properly conduct test and make necessary alterations.

G. Arrange to have present, equipment manufacturers, start-up, representative of each major piece of equipment at time of operational tests and notify Engineer and Owner.

H. Perform test on component parts of plumbing and mechanical systems as outlined in respective technical sections.

1.03 OPERATING AND MAINTENANCE INSTRUCTION

A. Arrange for installer or manufacturer's representative to instruct Owner's personnel on equipment requiring operation and maintenance.

B. Provide instruction as indicated in respective technical sections.

C. Review maintenance manuals, materials, spare parts, tools, lubricants, identification systems, control sequences, hazards, and cleaning procedures.

D. Demonstrate start-up, shut-down, emergency operations, noise and vibration adjustments, safety, and similar operations.

E. Review maintenance and operation procedures in relationship to extended warranties and service agreements.

PART 2 – PRODUCTS – NOT APPLICABLE

PART 3 – EXECUTION – NOT APPLICABLE

END OF SECTION
01 78 00

SECTION 02 40 00
DEMOLITION AND STRUCTURE MOVING

PART 1 GENERAL

1.01 SUMMARY

A. Section includes demolition and removal and/or abandonment of:

1. Asphalt and concrete pavement
2. Subsurface utilities (including storm drain structures, inlets and pipes)
3. Concrete curbs, gutters and walkways
4. Fencing
5. Retaining walls
6. Power and light poles
7. Other facilities and above-grade structures (concession buildings, restroom buildings, batting cages, goal posts, scoreboards, dugouts, bleachers, batting cages, scorer's booths, storage structures)

B. Related Sections:

1. Section 31 23 17 – Excavating and Backfilling for Structures
2. Section 31 23 33 – Trenching and Backfilling

1.02 REFERENCES

A. Code of Federal Regulations Publications (CFR)

1. United States Department of Labor

a. 29 CFR 1926, Safety and Health Regulations for Construction

1.03 SUBMITTALS

A. Prepare and submit a Demolition Plan prior to commencement of demolition. The Demolition Plan shall include the following information at a minimum:

1. Description of methods, equipment and tools to be used for demolition and relocation work.
2. Methods for protecting existing adjacent pavement, utilities, structures, and other facilities to remain in place.
3. Sequence of demolition, on-site relocations, and off-site removal of demolition materials.

B. Submit written certification of proper transport and final disposal of demolition materials to a permitted waste disposal facility.

1.04 QUALITY ASSURANCE

A. Conform to applicable local, state, and federal regulations (including 29 CFR 1926, Part T – Demolition) related to operation of equipment and tools, protection of persons and property, and environmental controls.

B. Notify affected utility companies before starting work and comply with their requirements.

1.05 PROJECT CONDITIONS

A. Work with Owner and Engineer to coordinate schedule for demolition, relocations, and removals.

B. During demolition, relocations and removal, use all procedures necessary to assure that no portion of the structures, either that to be removed or to remain, become a hazard to persons by instability or other condition.

C. Notify all local, state, and federal agencies having jurisdiction and complete all necessary forms required for demolition and disposal.

D. Demolition and relocations shall be performed in a manner that will not disturb existing pavement, utilities, structures, and other facilities not indicated to be removed.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 PREPARATION FOR DEMOLITION

A. By careful study of the Drawings and these Specifications, and coordination with the Owner and Engineer, determine the location and extent of demolition to be performed.

B. Excavate for removal of buried structures and piping as specified in Sections 31 23 17 and 31 23 33.

C. If not indicated to be removed, shut off, cap, and otherwise protect existing public utility lines in the area of demolition in accordance with the requirements of the Owner and Engineer, utility owner, or public agency having jurisdiction (as applicable).

D. Barricade the work areas from pedestrian and vehicular traffic. Post "No Trespassing" and other necessary warning signs around the work areas during the entire duration of demolition work. Maintain barricades and signs during the construction period.

3.02 ASPHALT AND CONCRETE REMOVAL

A. Existing asphalt and concrete shall be cut and removed as specified herein and as shown on the Drawings.

B. Where portions of pavement and walkways are to be removed, cut asphalt and concrete in uniform line at the designated limits of removal. Use an adequately powered, water-cooled,

mechanical saw with a diamond-edge blade or abrasive wheel, unless otherwise approved by the Owner and Engineer.

C. Break up and remove asphalt and concrete at the designated locations and to the required limits.

D. At limits of asphalt and concrete remaining in place, maintain cuts in good order until adjacent construction is completed.

3.03 REMOVAL AND ABANDONMENT OF SUBSURFACE UTILITIES

A. Remove or abandon designated existing subsurface utilities, including storm drain structures, inlets and pipes, and other utilities as indicated on the Drawings and specified in the following paragraphs.

B. Remove existing subsurface drainage and other utility structures. Removal work shall be accomplished using methods and equipment which will prevent damage to adjacent structures not indicated to be removed.

C. Where applicable, piping shall be removed back to the nearest joint from the limit of removals indicated on the Drawings, unless otherwise directed by the Owner and Engineer.

D. Cap sanitary sewer, potable water lines and other designated utilities at exposed ends of pipes to be abandoned in-place. Capping of pipelines shall be performed in accordance with requirements of the city of Marietta and other applicable local codes and standards.

E. If damaged during pipe cutting and removals, the exposed ends of existing pipes to remain in place shall be repaired as necessary to provide a smooth end at right angles to the axis of the piping. The repair work shall be accomplished using materials and methods approved by the Owner and Engineer at no additional cost to the Project.

F. When septic tanks are encountered, the contents of each tank shall first be completely removed, then demolished and completely removed. Provide documentation on the removal and disposal of the tank contents. Removal and disposal of contents shall meet the requirements of the State Department of Health and local health authorities. All open wells located within the property must be filled with gravel and covered with a reinforced four (4) inch concrete slab in accordance with Georgia D.O.T. Standard 9031H.

G. Manhole frames, covers, drainage grates and all other iron castings shall be disposed off-site or salvaged for reuse by the Owner. All structures that will not be salvaged shall be demolished as required and removed from the Site. Disposal of structures and iron castings shall be as specified in subsection 3.09.

3.04 REMOVAL OF CURBS, GUTTERS AND WALKWAYS

A. Cut and remove existing concrete curbs, gutters and walkways where indicated on the Drawings.

B. Saw cut concrete at the limits of removal as approved by the Owner and Engineer. Use an adequately powered, water-cooled, mechanical saw with a diamond-edge blade or abrasive wheel.

C. Break up and remove concrete using suitable tools and equipment. Maintain saw cuts in good order until new curb and gutter and new walkway construction work is completed (as applicable).

3.05 REMOVAL OF FENCING

A. Remove fencing (including fabric, posts and accessories) at locations indicated on the Drawings.

B. Remove fence posts and concrete footings to full depth.

3.06 REMOVAL OF RETAINING WALLS

A. Where portions of retaining walls are to be removed, make a vertical cut at designated limits using tools and methods that will not damage existing wall structures to remain. Provide protection of existing structures as required to prevent damage or disturbance.

B. Break up and remove the sections of the walls to the limits indicated on the Drawings.

C. Excavate and remove walls and footings to full depth.

3.07 REMOVAL OF POWER AND LIGHT POLES

A. Coordinate with the local utility owner for de-energizing of power lines on poles to be removed within the designated limits of construction as indicated on the Drawings.

B. After power lines are de-energized, designated power and light poles shall be removed and disposed off-site as specified in the following paragraphs.

C. Remove luminaires, pole hardware, wiring, cables, other devices and accessories.

D. Excavate and remove power and light poles to full depth, including concrete foundations. Soil excavated for removal of poles shall be used as backfill. Place and compact backfill as specified in Section 31 23 17.

3.08 REMOVAL OF STRUCTURES

A. Remove designated existing structures where indicated on the Drawings.

B. During removal of structures, use all procedures necessary to assure that no portion of the structures become a hazard to persons by instability or other conditions.

C. Structures may be moved intact, without disassembly. If intact removal is not feasible, disassembly may be allowed as determined by the contractor. Proper equipment and methods shall be used to prevent damage to the structures.

3.09 DISPOSAL OF REMOVED MATERIALS

A. Demolition materials and debris classified as non-hazardous construction and debris (C&D) wastes shall be transported off-site and disposed at a permitted landfill in conformance with all applicable local, state and federal regulations.

3.10 SITE RESTORATION

A. Backfill and grade excavated areas as indicated on the Drawings and specified in applicable specification sections.

3.11 HAZARDOUS MATERIALS SURVEY

A. Reports of Hazardous Materials surveys are included for information on CD accompanying these construction documents and following this section.

END OF SECTION
02 40 00

SECTION 03 10 00
CONCRETE FORMWORK

PART 1 - GENERAL

1.01 DESCRIPTION

A. Related Work Specified Elsewhere:

1. Concrete Reinforcement: Section 03 20 00.

2. Cast-in-Place Concrete: Section 03 30 00.

1.02 QUALITY ASSURANCE

A. Design Criteria: Design, construct, erect, maintain, and remove formwork complying with ACI 347 and building code requirements. Contractor is solely responsible for formwork design.

B. Tolerances for Formed Surfaces:

1. Variation from plumb:

a. In lines and surfaces of walls:

1) In any 10 ft. of length: 1/4 in.

2. Variation in cross-sectional dimensions in thickness of slabs and walls:

a. Minus: 1/4 in.

b. Plus: ½ in.

3. Footings:

a. Tolerances apply to concrete dimensions only, not to positioning of vertical reinforcing steel, dowels, or embedded items.

b. Variations in dimensions in plan:

1) Minus: ½ in.

2) Plus: 2 in.

4. Maximum deflection of facing materials reflected in concrete surfaces exposed to view: 1/240 of span between structural members.

PART 2 - PRODUCTS

2.01 MATERIALS

A. FORMS:

1. Conform to ACI 347.

2. Use forms to confine concrete and shape to required dimensions.

B. Precast Concrete Soil Retainers: Continuous precast units.

C. Form Release Materials: Non-staining, field applied form release or sealer, or factory applied liner.

D. Form Accessories: Commercially manufactured ties, hangers, or other required type for partial or wholly embedding in concrete.

PART 3 - EXECUTION

3.01 PREPARATION

A. Preparation of Form Surfaces:

1. Clean surfaces of forms and embedded materials of accumulated mortar, grout, and of other foreign material before concrete is placed.

2. Apply form release agent or sealer, or use factory applied non-absorptive liner in accordance with manufacturer's recommendations.

B. Construct formwork so that concrete surface will conform to tolerance limits specified.

3.02 INSTALLATION OF FORMWORK

A. Fabricate formwork for loads, lateral pressure, and allowable stresses outlined in ACI 347 and for wind loads.

B. Assemble form ties so that ends or end fasteners can be removed without causing appreciable spalling at face of concrete.

3.03 REMOVAL OF FORMS

A. When repair of surface defects or finishing is required at early age, remove forms as soon as concrete has hardened sufficiently to resist damage from removal operation.

B. Maintain shoring used to support weight of concrete in beams, slabs, and other structural members in place until concrete has reached strength sufficient to carry its weight and construction loads.

C. Concrete strength when shores are removed shall not be less than 75% of 28-day strength.

END OF SECTION
03 10 00

SECTION 03 20 00
CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 DESCRIPTION

A. Related Work Specified Elsewhere:

1. Concrete Formwork: Section 03 10 00.

2. Cast-in-Place Concrete: Section 03 30 00.

1.02 QUALITY ASSURANCE

A. Reference Standards:

1. American Society for Testing and Materials (ASTM):

a. A 185, Standard Specification for Welded Steel Wire Fabric for Concrete Reinforcement.

b. A 615, Standard Specification for Deformed and Plain Billet Steel Bar for Concrete Reinforcement.

2. American Concrete Institute (ACI):

a. 315, Manual of Standard Practice for Detailing Reinforced Concrete Structures.

b. 318, Building Code Requirements for Reinforced Concrete.

c. 347, Recommended Practice for Concrete Formwork.

3. American Welding Society (AWS):

a. D12.1, Reinforcing Steel Welding Code.

4. Concrete Reinforcing Steel Institute (CRSI):

a.. Placing Reinforcing Bars.

B. Tolerances:

1. Fabricating tolerances:

a. Sheared length: + or - 1 in.

b. Depth of truss bars: + 0, - ½ in.

c. Overall dimensions of stirrups and ties: + or - ½ in.

d. Other bends: + or - 1 in.

2. Placing tolerances:

a. Clear distance to formed surfaces: + or - 1/4 in.

b. Minimum spacing between bars: + or - 1/4 in.

c. Top bars in slabs and beams:

1) Members 8 in. deep or less: + or - 1/4 in.

2) Members more than 8 in. but not over 2 ft. deep: + or - 1 in.

d. Crosswise of members: spaced evenly within 2 in.

e. Lengthwise of member: + or - 2 in.

1.03 SUBMITTALS

A. Shop Drawings:

1. Show number, size, and spacing of reinforcing and location in work.

2. Detail Splices.

3. Detail walls in elevation.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Reinforcing Bars:

1. ASTM A 615, Grade 60.

B. Welded Wire Fabric:

1. ASTM A 185.

2. Welded intersections shall be spaced not farther apart than 12 in. in direction of principal reinforcement.

2.02 FABRICATIONS

A. Fabricate details of concrete reinforcement and accessories complying with ACI 315.

PART 3 - EXECUTION

3.01 PLACING:

A. Place reinforcement in accordance with CRSI Placing Reinforcing Bars.

B. Move bars as necessary to avoid interference with other reinforcing steel, conduits or embedded items.

C. If bars are moved more than one bar diameter or enough to exceed tolerances, submit resulting arrangement of bars to Engineer for review.

D. Minimum concrete protective covering for reinforcement. See Drawings.

E. Place reinforcement at time of concrete placing, free of mud, oil, or other materials that adversely affect or reduce bond.

F. Reinforcement with rust or mill scale will be accepted without cleaning or brushing provided dimensions and weights shall not be less than required by applicable ASTM Standard.

G. Support reinforcement and fasten together to prevent displacement by construction loads of placing concrete.

H. On ground, concrete blocks may be used to support reinforcement.

I. Over formwork, use metal or plastic bar chairs and spacers to support reinforcement.

J. Where concrete surface will be exposed to weather in finished structure, use noncorrosive or corrosion protected accessories within ½ in. of concrete surface.

K. Where successive mats or rolls are continuous, overlap welded wire fabric so that overlap measured between outermost cross wires of each fabric sheet is not less than spacing of cross wires plus 2 in.

L. Extend fabric across supporting beams to within 3 in. of concrete edges.

A. Bars having splices not shown on shop drawings or lapped in accordance with the Lap Splice Schedule on the drawings will be rejected.

N. Do not bend reinforcement after being embedded in hardened concrete.

END OF SECTION
03 20 00

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION

A. Related Work Specified Elsewhere:

1. Concrete Formwork: Section 03 10 00.

2. Concrete Reinforcement: Section 03 20 00.

1.02 QUALITY ASSURANCE

A. Testing Agency Services:

1. Inspect subgrade, excavations, and fill for required compaction and/or required bearing capacity.

2. Conduct strength and other tests of concrete during construction in accordance with following procedures:

a. Mold and cure four specimens from each sample in accordance with ASTM C 31.

b. Test specimens in accordance with ASTM C 39.

c. Test two specimens at 28 days for acceptance and one at 7 days for information. Break the fourth specimen at 56 days only in the event of low breaks at 28 days.

d. Acceptance test results shall be average of strengths of two specimens tested at 28 days.

e. If one specimen in test manifests evidence of improper sampling, molding, or testing, discard.

f. Strength of remaining cylinder shall be considered test result.

g. Should both specimens in test show defects, discard entire test.

h. Make at least one strength test for each 100 cu. yard or fraction thereof, of each mix design of concrete placed in one day.

i. When total quantity of concrete with mix design is less than 50 cu. yd., strength tests may be waived by Engineer if, in his judgement, adequate evidence of satisfactory strength is provided.

3. Determine slump in accordance with ASTM C 143 of concrete sample for each strength test and when consistency of concrete appears to vary.

4. Determine air content of normal weight concrete for each strength test in accordance with ASTM C 138, C 173, or C 231.

5. Determine temperature of concrete sample for each strength test.

6. Sample concrete at point of placement where possible.

7. Indicate in report location specimens were taken, method of storing, and curing procedures.

1.03 SUBMITTALS

A. Samples: Secure in accordance with ASTM C 172.

B. Shop Drawings: Indicate location of proposed control, construction, and expansion joints not shown on the drawings.

C. Concrete mix designs shall be submitted to the design engineer for review and approval.

1.04 JOB CONDITIONS

A. Environmental Requirements:

1. Unless protection is provided, do not place concrete during rain, sleet, or snow.

2. Do not allow rainwater to increase mixing water nor to damage surface finish.

3. Cold Weather: ACI 306.

4. Hot Weather: ACI 305.

B. Protection:

1. During curing period, protect concrete from damaging mechanical disturbances, load stresses, shock, and vibration.

2. Protect finished concrete surfaces from damage by construction equipment or materials.

3. Protect from rain or running water.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Cement: ASTM C 150, Type as listed in Section 2.2. One brand of cement shall be used for all exposed work.

B. Water: Fresh, clean, and potable containing not more than 0.30 percent of chloride ion content, by weight of cement.

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C. Aggregates for Normal Weight Concrete: ASTM C 33.

D. Curing Compound:

1. Comply with ASTM C 309.

E. Expansion Joint Fillers: Preformed type joint filler complying with ASTM D 994, D 1751, or D 1752.

2.02 CONCRETE MIX

A.

Cement	Type I or III
Strength	4,000 psi in 28 days
Maximum size of coarse aggregate	1 inch (#57)
Air content	3% to 6% by volume
Slump	3 to 5 inches

B. Slump:

1. Proportion concrete to produce slump listed above.

2. Tolerance of up to 1 in. above maximum shall be allowed for individual batches provided average for batches or most recent 10 batches tested, whichever is fewer, does not exceed maximum limit.

3. Concrete of lower than usual slump may be used provided properly placed and consolidated.

4. Determine slump by ASTM C 143.

2.03 SELECTION OF PROPORTIONS

A. GENERAL:

1. Proportion ingredients to produce mixture which will work readily into corners, angles of forms, and around reinforcement by methods of placing and consolidation to be employed on work.

2. Proportions shall not permit materials to segregate or excessive free water to collect on surface.

3. Select proportions of ingredients to produce proper ease of placing, durability, strength, and other required properties.

2.04 PRODUCTION OF CONCRETE

A. Ready Mixed Concrete: Batch mix and transport in accordance with ASTM C 94.

PART 3 - EXECUTION

3.01 INSPECTION

A. Notify soils engineer or owner 24 hours in advance so that final excavation subgrade may be inspected before concrete is poured.

B. Do not proceed with work until soils engineer's approval is obtained.

3.02 JOINTS AND EMBEDDED ITEMS

A. Control Joints:

1. As shown on drawings.

B. Construction Joints:

1. Locate joints in beams, slabs, and walls a shown on the drawings or as approved by the Engineer.

2. Make joints perpendicular to main reinforcement.

3. Place reinforcing steel continuously across joints unless shown otherwise.

4. Provide keys or roughened surface and dowels.

5. Clean surface of concrete and remove laitance at joint before placing adjoining concrete.

C. Expansion Joints: Do not extend reinforcing or embedded metal items through expansion joints except dowels to be bonded on one side.

D. Placing Miscellaneous Embedded Items.

1. Place sleeves, inserts, anchors, and other embedded items prior to concreting.

2. Coordinate placing of embedded items required by other trades prior to placing concrete.

3. Position embedded items accurately and support against displacement.

4. Temporarily fill voids in sleeves, inserts, and anchor slots with removable material to prevent entry of concrete into voids.

3.03 PREPARATION FOR PLACING CONCRETE

A. Remove hardened concrete and foreign materials from inner surfaces of conveying

equipment.

B. Remove snow, ice, and water from completed formwork.

C. Verify that reinforcement is secured in place.

D. Verify that expansion joint material, anchors, and other embedded items are in place.

E. Slabs on Grade:

1. Subgrade shall be frost-free before concrete is placed.

2. If temperature is below freezing, raise and maintain subgrade temperature above 50 deg. F to eliminate frost.

3. Subgrade may be moist, but there shall be no free water standing on subgrade nor any muddy or soft spots when concrete is placed.

4. When formwork is cambered, set screeds to same camber to maintain thickness.

3.04 PLACING CONCRETE

A. Conveying:

1. Comply with ASTM C 94.

2. Handle concrete as rapidly as practicable by methods which will prevent segregation, loss of ingredients, or damage to quality of concrete.

3. Do not use conveying equipment that will restrict continuous placement of concrete.

4. When used, use horizontal or sloped belt conveyors that will not cause segregation or loss of ingredients.

5. Protect concrete against undue drying or rise in temperature.

6. Do not allow mortar to adhere to return length of belt.

7. Conveyor runs longer than 20 ft. shall discharge into a hopper.

8. Use metal or metal lined chutes with slope not exceeding 1 vertical to 2 horizontal and not less than 1 vertical to 3 horizontal.

B. Depositing:

1. Comply with ACI 304.

2. Deposit concrete continuously without formation of seams, cold joints, or planes of weakness.

3. If section cannot be placed continuously, provide construction joints. Obtain approval of Engineer.

4. Do not start placing of concrete on supported elements until concrete previously placed in columns or walls is no longer plastic and has been in place 6 hours minimum.

5. Slabs on grade:

   a. Conform to ACI 302.

   b. Coordinate placing with finishing.

   c. Do not place concrete on subgrade or forms more rapidly than spreading and floating can be accomplished.

C. Segregation:

1. Deposit concrete as nearly as practicable in final position to prevent segregation due to rehandling or flowing.

2. Do not subject concrete to procedures which will cause segregation.

D. Consolidation:

1. Comply with ACI 309.

2. Consolidate concrete by vibration.

3. Thoroughly work around reinforcements, embedded items, and into corners of forms.

4. Eliminate air or stone pockets which may cause honeycombing, pitting, or planes of weakness.

5. Use internal vibrators with minimum frequency of 8,000 vibrations per minute and sufficient amplitude to consolidate concrete effectively.

6. Do not use vibrators to transport concrete within forms.

7. Insert and withdraw vibrators at points approximately 18 in. apart.

8. At each insertion, maintain duration from 5 to 15 sec. to consolidate concrete but not long enough to cause segregation.

9. Keep spare vibrators on job site during concrete placing operations.

10. Where concrete is to have as-cast finish, bring full surface of mortar against form by vibration process and supplement by spading to work coarse aggregate back from formed surface.

11. Use internal vibration in beams, girders, slabs, and along bulkheads of slabs on grade.

F. Bonding:

1. Before placing fresh concrete, dampen hardened concrete and coat with grout proportioned to mortar in concrete.

2. Place grout as thick as possible on vertical surfaces.

3. Place grout ½ in. thick on horizontal surfaces.

4. Place fresh concrete before grout has attained its initial set.

3.05 REPAIR OF SURFACE DEFECTS

A. Preparation:

1. Repair tie holes and surface defects immediately after form removal.

2. After approval by the engineer, remove honeycombed and otherwise defective concrete down to sound concrete.

3. If chipping is necessary, place edges perpendicular to surface or slightly undercut.

4. No feathered edges will be permitted.

5. Dampen patch and minimum of 6 in. of surrounding area.

B. Bonding Grout:

1. Use mix of approximately one part cement to one part fine sand passing No. 30 mesh sieve.

2. Mix to consistency of thick cream.

3. Brush into surface.

C. Patching Mixture:

1. Use same materials and approximately same proportion used for concrete.

2. Omit coarse aggregate.

3. Mix one part cement to 2 ½ parts sand by damp loose volume.

4. Use patching mortar to match color of surrounding concrete as determined by trial patch.

5. Add water only as necessary for handling and placing.

6. Mix patching mortar in advance and allow to stand with frequent manipulation with trowel, without addition of water, until it has reached stiffest consistency that will permit placing.

D. Patch Application

1. Apply patching mortar after bonding grout has lost its sheen.

2. Thoroughly consolidate mortar into place and strike off to leave patch slightly higher than surrounding surface.

3. Leave undisturbed for one hour minimum before being finally finished.

E. Tie Holes: After cleaning and dampening, fill solid with patching mortar.

3.06 FINISHING OF FORMED SURFACES

A. As-Cast Finishes:

1. Rough Form Finish: (Not exposed to view)

a. No selected form facing materials are specified.

b. Patch tie holes and defects.

c. Remove fins exceeding 1/8 in. in height.

d. Leave surfaces with texture imparted by forms.

2. Smooth Form Finish (Exposed to view):

a. Form facing material shall produce smooth, hard, and uniform texture on concrete.

b. Arrange facing material orderly and symmetrical with minimum seams.

c. Supported by forms capable of preventing excessive deflection.

d. Do not use materials with raised grain, torn surfaces, worn edges, patches, dents, or other defects which will impair texture of concrete.

e. Patch tie holes and defects.

f. Remove fins completely.

B. Related Unformed Surfaces:

1. Strike tops of walls or buttresses, horizontal offsets, and similar unformed surfaces occurring adjacent of formed surfaces. Smooth after concrete is placed and floated to texture consistent with that of formed surfaces.

2. Final treatment on formed surfaces shall continue uniformly across unformed surface.

C. Finishes Not Designated:

1. All exposed concrete faces: Smooth form finish.

2. Unexposed faces: Rough form finish.

3.07 FINISHING SLABS

A. Conform to ACI 302.

B. Finishing Tolerance:

1. True planes within 1/8 in. in 10 ft. as determined by 10 ft. straight edge placed anywhere on slab in any direction.

C. Floated Finish (Slabs not intended for foot traffic):

1. After concrete has been placed, consolidated, struck off, and leveled do not work concrete further until ready for floating.

2. Begin floating when water sheen has disappeared and when concrete has stiffened sufficiently to permit operation.

3. Check planeness of surface with 10 ft. straight edge applied at two different angles.

4. Cut down high spots and fix low spots to produce surface within finishing tolerance.

5. Refloat immediately to uniform sandy texture.

D. Troweled Finish (Slabs intended for foot traffic):

1. Float finish surface and trowel.

2. Finished surface shall be free of trowel marks, uniform in texture and appearance, and planed to Class A tolerance.

3. On surfaces intended to support floor coverings, remove defects which will show through floor covering by grinding.

E. Broom or Belt Finish: After concrete has received float finish, give coarse transverse scored texture by drawing broom or burlap belt across surface.

F. Finishes Not Designated:

1. Slabs to be exposed: Broom finish.

3.08 CURING

A. General:

1. Comply with ACI 308.

2. After placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

3. Maintain concrete with minimal moisture loss at relative constant temperature for period necessary for hydration and hardening.

B. Preservation of Moisture for Concrete Surfaces not in Contact with Forms:

1. Ponding or continuous sprinkling.

2. Absorptive mats or fabric kept continuously wet.

3. Sand kept continuously wet.

4. Continuous application of steam not exceeding 150 deg. F or mist spray.

5. Curing compound:

a. Apply in accordance with manufacturer's recommendations.

b. Do not apply to surfaces to which additional concrete or resilient materials are to be bonded unless manufacturer certifies that compound will not prevent bond or positive means are taken to completely remove compound.

C. Curing Period:

1. Continue curing for seven days minimum or when average compressive strength or job-cured cylinders have reached 70% of the specified design strength.

D. Cold Weather:

1. Comply with ACI 306.

2. When mean daily outdoor temperature is less than 40 deg. F, maintain temperature of concrete between 50 deg. F and 70 deg. F for curing period.

3. Make arrangements for heating, covering, insulating, or housing concrete work in advance of placement.

4. Maintain required temperature without injury due to concentration of heat.

5. Do not use combustion heaters during first 24 hrs. unless precautions are taken to prevent exposure of concrete to exhaust gases containing carbon dioxide.

E. Hot Weather:

1. Comply with ACI 305.

2. Make provision for windbreaks, shading, fog spraying, sprinkling, ponding, or wet covering in advance of placement.

3. Take protective measures as quickly as concrete finishing operations will allow.

4. Prevention of rapid surface drying.

a. Protect unformed surfaces of slab concrete against rapid surface drying.

b. Apply membrane curing compound immediately following finishers.

F. Rate of Temperature Change: Keep changes in temperature of air uniform and do not exceed 5 deg. F in one hour or 50 deg. F in 24 hr. period.

G. Protection from Mechanical Injury:

1. Protect concrete from damaging disturbances, load stresses, shock, and vibration.

2. Protect finished concrete surfaces from damage by construction equipment, material, rain, and running water.

END OF SECTION
03 30 00

SECTION 05 05 23

ANCHOR BOLTS

PART 1 GENERAL

1.1 SCOPE

Furnish all labor, materials and equipment required to install following anchors:

1. Cast-in-place anchor bolts as detailed on the Drawings or as required by equipment manufacturer's anchor bolt setting plan.

2. All expansion bolts indicated on the Drawings required to attach or anchor ladders, handrails, stairs, ship's ladders and structural steel shapes to hardened concrete or masonry.

1.2 APPLICABLE SPECIFICATIONS AND STANDARDS

The following publications of issues listed below, but referenced to thereafter by basic designation only, apply to this section to extent applicable in each reference thereto.

1. American Society for Testing and Materials (ASTM)

   F 593-80 Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.

   F 594-80 Specifications for Stainless Steel Nuts.

2. Federal Specification

   FF-S-325 Shield, Expansion; Nail Expansion; and Nail, Drive Screw (Devices, Anchoring, Masonry).

3. Manual of Steel Construction (AISC).

1.3 MATERIAL STORAGE

All material shall be stored in a manner which will protect it from deterioration and damage.

PART 2 -PRODUCTS

2.1 MATERIALS

A. All anchor and expansion bolts shall be of stainless steel meeting requirements of ASTM F 593, Alloy Group 1, Condition CW.

B. All nuts shall be of stainless steel meeting requirements of ASTM F 594, Alloy Group 1, Condition CW.

C. All washers shall meet dimensional requirements of ASTM F 436. Material for washers shall be stainless steel, Type 304, 305, 384 or MX7.

D. Expansion bolts shall meet requirements of Federal Specification FF-S324 and Interim Amendments. Expansion bolts complying with following are acceptable.

1. Group I
   Type 1, Class 2.
   Type 2, Class 2, Styles 1 and 2.

2. Group 11
   Type 3, Class 1 and 2.

3. Group III
   Type 1 and 2.

4. Group VIII
   Type 1 and 2.

5. All expansion bolts shall be stainless steel.

PART 3 - EXECUTION

3.1 ANCHOR BOLT SETTING

A. Accurately locate and hold all anchor bolts in place by templates until the concrete has hardened.

B. Furnish anchor bolts for equipment with baseplates with pipe sleeves to permit adjustment and grouting. Cast anchor bolts integrally with concrete. Pipe sleeve shall have an internal diameter not less than three times bolt diameter and shall be not less than 10 bolt diameters long.

3.2 EXPANSION BOLT INSTALLATION

A. Drill expansion bolt holes into concrete through item being supported or locate by a template. Drill all holes by a tool designed by or approved by manufacturer of expansion anchors.

B. Installation of expansion anchors shall be in compliance with manufacturer's recommendations for maximum holding power, but in no case shall depth of hole be less than 4 bolt diameters. Minimum distance between center of any expansion anchor and an edge or exterior corner of concrete shall be not less than 4 1/2 times diameter of hole in which it is installed.

END OF SECTION
05 05 23

SECTION 31 00 00

EARTHWORK

PART 1 - GENERAL

1.1 DESCRIPTION

A. Related Work Specified Elsewhere:
1. Site Preparation: Section 31 10 00.
2. Excavating, Filling and Backfilling for Structures: Section 31 23 17.

1.2 QUALITY ASSURANCE

A. Reference Standards:
1. American Society for Testing and Materials (ASTM)
2. D 424-59 (R 1971), Test for Plastic Lime and Plasticity Index for Soils.
a. D 698-78, Methods of Test for Moisture-Density Relations of Soils, Using 5.5 lb. (2.5 kg) Rammer and 12 in. (304.8 mm) Drop.
b. D 1556-64 (R 1974), Method of Test for Density of Soil in Place by the Sand-Cone Method.
c. D 2922-71 (76), Methods of Test of Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
d. D 2937 (94) Method of Test for Density of Soil in Place by the Drive Cylinder method.

1.3 PROTECTION

A. Maintain protection of trees.

B. Protect existing utilities, facilities, or permanent objects to remain.

C. Maintain adequate clearance, cut back banks on stable slope, or properly and substantially sheet, brace, and shore as required to prevent caving or sliding to protect workmen, work, and structures and to prevent undermining, disturbing, or removing support to structures to remain.

D. Design and build sheeting, bracing, and shoring to withstand loads caused by earth movement and construction operations.

E. Maintain shape and position of sheeting, bracing, and shoring for duration necessary.

F. Remove when not necessary.

PART 2 - PRODUCTS

2.1 MATERIAL

A. Fill:
1. Soil free from trash, vegetation, and organic matter, rock over 3" in size, hard lumps of earth and frozen, corrosive or perishable material. All fill materials shall be subject to the approval of the Engineer.

B. Top Soil:
1. Fertile, friable loam, suitable for growth of grass and plants.
2. Decomposed vegetable matter, finely divided and minimum 4% by weight.
3. Free from subsoil, clay, brush, weeds, stones larger than 1/2 in. diameter, stalks, roots, and other materials that would be toxic or harmful to growth.

PART 3 - EXECUTION

3.1 CLASSIFICATION OF EXCAVATED MATERIALS

A. All excavated materials will be unclassified except rock excavation which consists of the removal and disposal of natural material encountered that cannot be excavated without continuous and systemic drilling and blasting or continuous use of a ripper or other special equipment. Intermittent drilling or blasting performed to increase production and unnecessary for excavation of material encountered will not be classified as rock excavation.

3.2 EXCAVATION

A. Perform excavation of every description and of substances encountered within grading limits of project to lines and grades indicated.

B. Transport suitable excavated material to and place in fill areas within limits of work.

C. Where material encountered within limits of work is unsuitable, excavate material below required grade and replace with suitable material.

D. Maintain existing sections and ditches to ensure proper drainage at all times.

E. Construct and maintain ditches and channels to avoid damage to sections.

F. Utilize suitable excavated materials in construction.

3.3 BORROW AREA

A. In excavating materials which are suitable for use in the dam embankment, the Engineer will designate the depths of cut and areas to be excavated which will result in the best gradation of materials, and the cuts shall be made to such designated depths and in such areas. The location and extent of all borrow pits within borrow areas shall be as directed, and the Engineer reserves the right to change the limits of the borrow areas in order to obtain the most suitable material, to minimize stripping, or for other reasons.

B. The borrow area shall be graded smooth upon completion of borrowing operations. The borrow site shall be graded to drain adequately and grades left without humps and ridges. Maximum finished cut slopes in borrow areas shall be 1.5(H) to 1.0(V).

C. During borrow operations, all cut areas shall be maintained so as to provide surface drainage and prevent ponding of surface water.

D. The Contractor will be required to excavate sufficient suitable material from borrow areas to complete the work under these Specifications, regardless of whether overly wet conditions encountered are due to groundwater, precipitation, difficulty in draining, or any other reason. To minimize operations with overly wet material, the Contractor will be permitted to utilize portions of the borrow areas which contain dry materials and which have been designated as suitable borrow pits to the greatest extent practicable consistent with obtaining suitable material.

E. The Contractor shall be entitled to no additional allowance above the base bid on account of the requirement for excavating drainage ditches; for allowing additional time for curing or drying; for stockpiling and rehandling excavated materials which have been deposited temporarily in stockpiles; delays or increased costs due to stockpiling; poor trafficability in the borrow area, the haul roads, or the embankment; reduced efficiency of the equipment the Contractor elects to use; or on account of any other operations or difficulties caused by overly wet or dry materials.

3.4 EMBANKMENTS AND FILLS

A. Preparation of Ground Surfaces:
   1. Backfill stump holes or other small excavations with fill material and compact.
   2. Plow, step (bench), or break upsloped ground surfaces that are steeper than one vertical to four horizontal on which fill is to be placed, so that

fill material will bond with existing surface.

3. Scarify dam "footprint" area to 6 in. depth minimum.
4. Scarify or plow areas outside dam "footprint" area which are to receive embankment or fill to depth of 4 in. minimum.
5. Re-compact loosened material with new fill or embankment material.

B. Formation of Embankments and Fills:

1. Construct embankments at locations and to lines and grades indicated within limits of work.
2. Form embankments from earth free from roots or other organic material, trash, frozen material, and rock or stones having maximum dimension greater than 3 in.
3. Construct embankments in layers and compact.
4. Do not place trees, stumps, roots, vegetation, or other unsuitable materials in embankment.
5. Construct embankment in layers approximately parallel to finished grade surface.
6. Construct embankments to grade; completed embankments shall correspond to general shape of typical sections.
7. Each section of embankment shall correspond to detailed section or required slopes.
8. Continuously maintain finished section and grade until project is accepted.

C. Earth Embankments:

1. Shall be defined as those composed principally of material other than rock, and shall be constructed of accepted material from reviewed sources as defined for fill material.
2. Constructed in successive layers for full width of individual cross section and in lengths as best suited to sprinkling and compaction methods utilized.
3. Form layers of embankment by utilizing equipment which will spread material as it is dumped or from by spreading by blading or other acceptable methods from piles or windrows dumped form excavating or hauling equipment in amounts that material is evenly distributed.
4. Each layer of embankment shall be uniform as to material, density and moisture content before beginning compaction.
5. No material placed in embankment by dumping in a pile or windrows shall be incorporated in a layer in that position, but such piles or windrows shall be moved by blading or similar methods.
6. Break clods or lumps of material and mix embankment material by blading, harrowing, disking or similar methods to obtain

material of uniform density in each layer.

7. When water is required for sprinkling to bring material to moisture content necessary for required compaction, apply evenly and secure uniform moisture content throughout layer by necessary methods.
8. In order to facilitate uniform wetting of embankment material, water may be applied at material source if sequence and methods used will not cause undue waste of water.
9. Scarify earth cuts, full width or part width cuts in hill side to uniform depth 6 in. below grade, and mix material and reshape by blading and then sprinkle and compact to same density as that required for adjustment embankment.
10. Compact each layer to required density by methods, type, and size of equipment which will give required compaction.
11. Depth of layers, prior to compaction, shall depend upon type of sprinkling and compacting equipment used.
12. Prior to and in conjunction with rolling operation, bring each layer to moisture content necessary to obtain required density and keep level with suitable equipment to insure uniform compaction over entire layer.
13. For each layer of earth embankment and select material, provide required density.
14. Sprinkle or dry embankment materials as required and compact to extent necessary to provide not less than 95% of maximum density at optimum moisture content as determined by ASTM D 698-79 (Standard Proctor).
15. Control moisture so that required density is achieved at or above optimum moisture content.
16. Make field density determinations in accordance with ASTM D 2937 or other approved method.
17. After each layer of earth embankment or select material is complete, make tests.
18. If material fails to meet density specified or moisture content is out of acceptable range, rework course to obtain specified results, and compaction method shall be altered on subsequent work.
19. Scarify layers as necessary to eliminate any smooth horizontal planes.
20. Procedure shall be subject to review of Engineer.

D. Embankments at Outlet Pipe:

1. Embankments adjacent to drain pipe which cannot be compacted by use of blading and rolling equipment used in compacting adjoining sections of embankment shall be compacted using reviewed hand tamped equipment and methods.
2. Mix, wet, and compact materials as specified.
3. Embankment material placed adjacent to any portion of structure and in first two layers above top of any culvert or similar structure shall be earth free of any appreciable amount of gravel or stone particles more than 3 in. in greatest dimensions and of such gradation as to permit thorough

compaction.

3.5 CHANNEL EXCAVATION:

A. Description:

1. Channel excavation shall consist of required excavation for channels, removal and proper utilization or disposal of excavated materials, and constructing, shaping, and finishing of earthwork involved in conformity with required lines, grades, and typical cross sections and in accordance with specifications requirements herein outlined.

2. Compaction of embankments shall conform to “Embankment”.

B. Construction Methods:

1. Materials removed from excavation shall be satisfactorily disposed of as indicated on drawings or as reviewed, and completed work shall conform to established alignment, grades and cross sections.
2. During construction, channel shall be kept drained, insofar as practicable, and work shall be prosecuted in a neat workmanlike manner.

3.6 COMPACTING

A. General:

1. Place fill in uniform layers, dried or moistened as required to obtain approximate optimum moisture content, and roll where practicable, to density of at least 95% of maximum density at or above optimum moisture determined by ASTM D 698-78 (Standard Proctor).
2. Maximum thickness of uniform layers (loose measurement) shall be as follows:
   a. Layers of thickness required to achieve the specified density compatible with the equipment being utilized.
   b. Compaction equipment selected should leave a non-smooth surface; otherwise, scarify each layer prior to placing additional fill materials.
   c. Compacting equipment and methods of compaction shall be such that uniform density will be obtained over entire area and depth of material being compacted.
   d. Break up fill material deposited in place by means of scrappers, dump trucks, drag lines, or other similar equipment before being spread into uniform layers.
   e. Start rolling longitudinally at sides and proceed toward

center of crowned sections, or start longitudinally at low side and proceed toward high side of sloped areas, overlapping on successive trips by at least ½ width of roller unit.

f. Alternate trips of roller shall be slightly different in length.

g. Maintain equipment in good repair and in operating condition; operate and load according to recommendations of equipment manufacturer.

h. Mechanical hand tampers:

1) Use reviewed mechanical hand tampers in areas inaccessible to roller equipment.

2) Use methods of compaction so that uniform density is obtained throughout entire area and depth of each layer.

3.7 FIELD QUALITY CONTROL

A. Frequency and Types of Tests:

1. Laboratory shall make one density test of earth fill and embankment for each 5,000 sq. ft of filled areas for each two (2) vertical feet of fill placed in compliance with ASTM D 2937 and D 1556.

3.8 FINISH GRADING

A. Finish surface not more than 0.15 ft. above or below established grade or reviewed cross-sections.

B. Finish ditches and gutters to drain readily.

C. Where existing grade is disturbed in areas not marked to be graded, regrade disturbed area to original grade.

3.9 EXTRA EXCAVATION

A. Some areas may have poor or weak soil conditions.

B. Owner may direct Contractor to undercut proposed subgrade as required and replace unsuitable material with stable material.

C. These areas of weak soil will be determined by geotechnical engineer in field.

3.10 EXCESS MATERIAL

A. Excavated and stripped materials meeting requirements for fill or topsoil material in excess of that used to construct required fills, embankments, stockpiles and topsoiled areas shall remain property of Owner and shall be spread on site as

directed by the Engineer.

B. Excess Material that cannot be spread on site shall be hauled offsite by the Contractor. The material may be taken to the Fayette County Staging Area located on 1st Manassas Mile Road in Fayetteville. See Supplementary Conditions for additional information.

3.11 DISPOSAL OF WASTE MATERIALS

A. Objectionable materials such as trash, debris, cleared and grubbed materials, and unsuitable, unusable, and undesirable materials necessary to be removed for construction operations shall be termed "waste materials".

B. Burning of combustible and cleared and grubbed materials will be permitted only after appropriate permits are obtained.

C. Disposal of waste material shall be the responsibility of the Contractor and all costs associated with hauling and disposal shall be included in the lump sum fee for the project.

3.12 TOPSOIL

A. Distribute topsoil on areas indicated to minimum depth of 4 in.

B. Topsoil from stripping operations which meets requirements of paragraph entitled "Materials" may be used.

C. Provide additional topsoil as needed.

D. Maintain finished surfaces to grade shown, and spread additional topsoil to correct settlement or erosion.

E. Existing Fencing: Mend damage to existing fencing or provide temporary fencing to maintain function of fencing that is disturbed.

* END OF SECTION *
31 10 00

SECTION 31 09 13

INSTRUMENTATION

PART 1 - GENERAL

1.1 SCOPE

The Contractor shall install monitoring instruments, as described in these Specifications and on the Drawings. These instruments shall include observation wells. These instruments shall be capable of permitting monitoring of the development of the phreatic surface during and after the initial filling of the reservoir. The number and locations of these instruments are shown on the drawings.

1.2 STANDARDS

This specification describes the general requirements for installing the monitoring devices. Detailed installation methods and types of materials used shall be in accordance with recognized standards such as American Society for Testing and Materials (ASTM) and U.S. Army Corps of Engineers (COE). The following standards, as referred to herein, shall have the equal authority as though included in full in this specification, except as explicitly modified by this specification:

1. Annual Book of ASTM Standards - Volume 04.08
2. Annual Book of ASTM Standards - Volume 08.04
3. Instrumentation of Earth and Rock-fill Dams (Groundwater and Pore Pressure Observations), Engineer Manual, EM1 1 10-2-1908, Department of the Army Corps of Engineers.

1.3 SUBMITTALS

A. Upon completion of installation of each observation well, the Contractor shall submit to the Engineer the following items:

1. Drill log for the well, including the location of special features such as abnormal gain or loss of drill water, drill action, penetration rate, drilling RPM, hydraulic pressure, and other pertinent items.
2. All required data collected during the installation performance tests.

PART 2 - PRODUCTS

2.1 OBSERVATION WELLS

Products for the installation, performance testing, and reading of observation wells are described in this section.

A. The well pipe shall have a 2-inch nominal inside diameter and shall be blank slotted pipe with the slotted PVC section 5-foot long. The blank PVC section shall be in convenient length for coupling.

B. The slotted section shall have circumferential slots cut in two rows on 180 degree centers. The slots shall be 0.010 inch in width and of sufficient number to provide a minimum of 0.75 square inch of opening per linear foot of pipe.

C. All pipe shall conform to ASTM D 1785 polyvinyl chloride (PVC) pipe, Schedule 80. Fittings shall be Schedule 80 socket or screwed end.

D. All socketed joints shall be solvent welded conforming to ASTM D 2672, except when noted on the design drawings as flanged and/or screwed joints.

E. Solvent cement shall conform to ASTM D 2564. Before applying the cement to the socket joint, the pipe end and fitting socket shall be cleaned with a cleaner or primer recommended for PVC pipe and in accordance with manufacturers recommended procedure which shall be considered as being part of this Specification.

F. Procedure for cementing pipe and fittings shall be in accordance with ASTM D 2855.

G. Sand for the filter pack shall be #20 Morrie Industrial Sand and shall not extend more than 4 feet above the screened interval.

H. Sand for the backfill seals shall have 100 percent passing the No. 10 sieve, not more than 50 percent passing the No. 40 screen, and not more than 5 percent passing the No. 200 sieve.

I. Bentonite for seals shall be in pellet or other approved form.

J. A concrete base as shown on the Drawings shall be constructed in the ground surface at the top of each hole.

K. A steel sleeve with leak-resistant cover shall be permanently set in the concrete base to protect the well pipe. The well pipe shall be equipped with a locking cover.

PART 3 - EXECUTION

3.1 INSTALLATION OF OBSERVATION WELLS

A. The monitoring wells shall serve to monitor the phreatic surface within the embankment. The depths and locations of the wells shall be as specified on the drawings.

B. Borings shall be drilled in accordance with reference specifications. A drill log shall be prepared for each drill hole. The log shall include the location of special features, such as abnormal gain or loss of drill water, drill action, penetration rate, drilling RPM, hydraulic pressure, and other pertinent items.

C. The borehole shall be stabilized with casing, clean drilling water or clean water with a degradable drilling fluid additive as specified in the reference specification. When the hole has reached the prescribed depth and cuttings have been removed from the hole, the slotted screen pipe shall be lowered into the hole, centered using centering spiders, and backfilled with filter material as shown on the drawings. If the hole has been stabilized using casing, the backfill shall be placed using 1-foot increments as the casing is removed. Sand backfill in wet drill holes shall be placed through a tremie.

D. Once the well is in place and the hole is backfilled as specified, an installation performance test consisting of a failing-head permeability test shall be performed on each well. If a drilling fluid is used in the installation procedure, the installation performance test shall be performed only after the fluid has broken down (degraded). During this test, the well shall be filled to the top of the riser pipe with clean clear water and the water level in the well recorded at one minute intervals for the first 5 minutes and then at 5 minute intervals for an additional 15 minute period. Any well which does not fall 50 percent of the distance to its original level within 5 minutes shall be re-evaluated.

E. An installation record shall be provided to the Engineer containing a copy of the field boring log and documenting all pertinent dimensions, conditions, observations made during installation and installation performance test results.

F. Installation and performance test data shall be reviewed by the Engineer. If he/she determines that the well is not functioning property, the well will be pulled, the hole will be backfilled, and a working well shall be installed at a new location specified by the Engineer.

END OF SECTION
31 09 13

SECTION 31 10 00

SITE PREPARATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Related Work Specified Elsewhere:
1. Earthwork: Section 31 00 00.
2. Excavating, Filling and Backfilling for Structures: Section 31 12 17.

1.2 JOB CONDITIONS

A. Protection of Existing Improvements:
1. Provide barricades, coverings, or other types of protection necessary to prevent damage to existing improvements indicated to remain in place.
2. Protect improvements on adjoining properties as well as those on Owner's property.
3. Restore improvements damaged by work to their original condition, as acceptable to owners or other parties or authorities having jurisdiction.

B. Protection of Existing Trees and Vegetation:
1. All trees and vegetation outside of clearing limits shall be protected.
2 Protect against unnecessary cutting, breaking or skinning of roots, or skinning and bruising of bark.
3. Do not smother trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line.
4. Provide temporary fences, barricades or guards as required to protect trees and vegetation to be left standing.
5. Water trees and other vegetation which are to remain within limits of contract work to maintain their health.
6. Carefully and cleanly cut roots and branches of trees where roots and branches obstruct construction.
7. Coat roots over 1 2 in. diameter that are cut during construction operations with asphalt paint.
8. Temporarily cover exposed roots with wet burlap to prevent roots from drying out.
9. Provide early cover as soon as possible.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Asphalt Paint: Emulsified asphalt or other coating especially formulated for horticultural use on cut or injured plant tissue.

B. Liquid Fertilizer: 20% nitrogen, 10% phosphorus, and 5% potash.

PART 3 - EXECUTION

3.1 PRESERVATION OF STAKING

A. Site preparation operations shall preserve survey staking.

B. At completion of site preparation, check staking and reset missing, damaged, or disturbed staking.

C. Use staking to check that obstructions have been removed within designated construction areas, right-of-way, or easements.

3.2 SITE CLEARING

A. Topsoil Removal:
1. Topsoil is defined as friable clay loam surface soil found to a depth of not less than 4 in.
2. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 1/2 inch in diameter.
3. Strip topsoil to depths encountered.
4. Perform stripping in a manner to prevent intermingling with underlying subsoil or other objectionable material.
5. Remove heavy growths of grass from areas before stripping.
6. Where trees are indicated to be left standing, stop topsoil stripping at sufficient distance from such trees to prevent damage to main root system.
7. Stockpile topsoil in storage piles in designated areas.
8. Construction storage piles shall freely drain surface water.
9. Cover storage piles if required to prevent wind-blown dust.

B. Clearing and Grubbing:
1. Clear project site of trees, shrubs, and other vegetation, except for those indicated to be left standing.
2. Completely remove stumps, roots, and other debris protruding through ground surface.
3. Use only hand methods for grubbing inside drip line of trees indicated to be left standing.

4. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation for earthwork is indicated.
5. Place fill materials in horizontal layers not exceeding 6 in. loose depth, and thoroughly compact to density equal to adjacent original ground.
6. On areas required for embankment construction, completely remove all stumps, roots and other organic material.
7. Blade entire area to prevent ponding of water and to provide drainage, except in areas to be immediately excavated.

C. Removal of Obstructions or Improvements:
1. Remove culverts, storm sewers, manholes, weir structures and inlets in proper sequence for maintenance of traffic and drainage.
2. Backfill and tamp holes remaining after removal of obstructions.
3. Complete operation by blading, grading, or bulldozing, so that prepared area is free of holes, ditches, abrupt changes in elevations, irregularities of contour, and drainage of area is preserved.
4. Completely fill abandoned storm sewers, culverts, sanitary sewers, conduits, and water or gas pipes over 3 in. in diameter, with concrete or grout to form tight closure when backfilling is required.
5. Removal of Above-Grade Improvements:
   a. Remove surfacing and pavements, including bases for pavements.
   b. Remove concrete slabs, curbs, gutters, walks, concrete or wood headers, valve boxes, concrete and masonry walls, posts, poles, fences, manhole frames and covers, catch basin grates, and other work as specifically indicated.
6. Removal of Below-Grade Improvements:
   a. Remove foundations, footing, walls, catch basins, manholes, cisterns, septic tanks, underground pipe, and other work as specifically indicated.
   b. Remove foundation and underground obstructions to following depths:
      1) In areas to receive embankment: 2 ft. below natural ground.
      2) In areas to be excavated: 2 ft. below lower elevation of excavation.
      3) Other areas: 1 ft. below natural ground.

3.3 DISPOSAL OF WASTE MATERIALS

A. Burning on Owner’s Property:
1. Burning of combustible cleared and grubbed materials is not permitted on Owner’s property.

B. Removal of Waste Materials:
   1. Remove waste materials and unsuitable and excess topsoil from Owner's property and legally dispose of it.

3.4 ADJUSTMENTS

A. Repair or replace trees and vegetation damaged by construction operations, in a manner acceptable to Engineer.

B. Repair tree damage by qualified tree surgeon.

C. Replace trees which cannot be repaired and restored to full growth status, as determined by tree surgeon.

END OF SECTION
31 10 00

SECTION 31 23 17

EXCAVATING, FILLING AND BACKFILLING FOR STRUCTURES

PART 1 – GENERAL

1.1 DESCRIPTION

A. Related Work Specified Elsewhere:
   1. General Requirements: Section 01 11 00.
   2. Site Preparation: Section 31 10 00.
   3. Cast-in-Place Concrete: Section 03 30 00.

B. Definitions:
   1. Cohesionless and cohesive materials:
      a. Cohesionless materials: Gravels, gravel-sand mixtures, sand, and gravelly sands.
      b. Cohesive material: Clayey and silty gravels, gravel-silt mixtures, clayey and silt mixtures, clayey and silty sands, sand-clay mixtures, clays, silts, and very fine sands.
   2. Degree of compaction required: Percentage of maximum obtained by test procedure presented in ASTM D 698.

1.2 QUALITY ASSURANCE

A. Design Criteria: Conform to dimensions and elevations of structure.

1.3 PROTECTION

A. Repair damage caused by project construction operations to new and existing utility lines that are to be retained at locations shown on drawings, or made known prior to excavation.

B. Report immediately to Owner damages to existing utility lines that are not shown or locations of which were not known.

C. When utility lines are to be removed or relocated, notify Owner in time to prevent interruption of services.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Fill:
   1. Fill material shall be on site material approved by the Engineer.

2. Material shall be free of debris, roots, organic or frozen materials.

B. Crushed Stone Drainage Fill: Number 57 crushed stone unless shown otherwise on the drawings.

PART 3 - EXECUTION

3.1 EXCAVATION

A. General :

1. Except where concrete for walls and footings is authorized to be deposited directly against excavated surfaces, extend excavation sufficient distance from walls and footings to allow for placing and removal of forms, for installation of services, and for inspection.
2. Excavations carried below indicated depths will not be permitted except to remove unsatisfactory material.
3. Excavate unsatisfactory material, as directed, below grades shown and replace with satisfactory materials.
4. Replace materials removed below indicated depths, without specific directions, with satisfactory materials and compact.
5. Column footings shall bear on compacted earth.

B. Drainage:

1. Perform excavation of site area and immediate surroundings to continually and effectively drain by gravity.
2. Do not allow water to accumulate in excavation.
3. Drain excavation to prevent softening of foundation bottom, undercutting of footings, or other actions detrimental to proper construction procedures.

C. Shoring:

1. Place shoring and sheet piling to protect banks, adjacent paving, structures and utilities.
2. Remove shoring, bracing, and sheeting to prevent caving as excavations are backfilled.

D. Excavated Materials:

1. Place satisfactory excavated material required for fill or backfill in permanent work or stockpile separately if materials cannot be readily placed.
2 Dispose of satisfactory material in excess of project requirements and unsatisfactory materials as directed by the engineer.
3. Place, grade, and shape stockpiles for proper drainage.

E. Final Grade:

1. Take care not to disturb bottom of excavation.

2. Do not make excavation to final grade until immediately prior to placing of concrete.
3. Excavations for column footings shall be inspected by the soils engineer before placing concrete. Owner shall be notified 24 hours in advance of required inspection.

3.2 FILLING AND SUBGRADE PREPARATION

A. Fill:
1. Provide fill where required to raise concrete slabs, appurtenances, and adjacent areas to required elevations.
2. Replace unsuitable material and removed topsoil material to required elevations, as required by the soils engineer.
3. Replace unstable material and remove topsoil within areas of structures.
4. Do not place fill on subgrade that is muddy, frozen, or contains frost.
5. Spread layers uniformly.
6. Moisten layers uniformly.
7. Compact each layer with self-propelled or towed sheepsfoot rollers except vibrating plate compactors shall be used within 5 ft of structures.
8. Bring surface to reasonably true and even plane for review.

B. Filling under Concrete Slabs on Grade:
1. Where concrete slabs are placed on earth or fill, remove organic matter and excavate subgrade within limits of slab construction for minimum of 6 in. Below natural grade.
2. Soils, other than undisturbed earth providing a uniform bearing under the entire slab, shall be prepared as described in 3 thru 7 below.
3. Loosen additional 6 in. below excavated material.
4. Moisten as required to obtain optimum moisture content.
5. Manipulate and recompact to density of 95% of Standard Proctor density complying with ASTM D 698 at not less than optimum moisture content.
6. Place fill in loose layers, not exceeding 8 in. In thickness and compact to at least 95% of maximum density.
7. Determine maximum density and moisture content in accordance with ASTM D 698.
8. Use 6 inches of compacted #57 crushed stone as top fill under slab on grade.

3.3 BACKFILLING

A. Place backfill material equivalent to specified fill material in layers around structures.

B. Backfill material shall not contain wood, grass, roots, broken concrete, stones, trash, or other debris.

C. Compact to density of 95% of Standard Proctor density complying with ASTM D 698 at not less than optimum moisture content.

D. Do not use water settlement procedures.

E. Do not deposit backfill intended to be mechanically tamped in water.

3.4 SOIL COMPACTION TESTING

A. After compaction, the laboratory shall perform one soil compaction test per 5,000 sq. Ft. or a minimum of one test per every two (2) feet of fill placed in compliance with ASTM D 1556 and ASTM D 2992.

B. If test results are not satisfactory, modify compaction procedure to obtain acceptable maximum density.

END OF SECTION
31 23 17

SECTION 31 23 19

CARE, DIVERSION AND REMOVAL OF WATER

PART 1 - GENERAL

1.1 PROTECTION

A. The Contractor shall provide all diversion and care of stream during construction.

B. The Contractor shall construct and maintain all necessary channels, flumes, drains, sumps, and/or other temporary diversion and protective work; shall furnish all materials required thereof; and shall furnish, install, maintain, and operate all necessary pumping and other equipment for removal of water from the various parts of the work and for maintaining the foundations and other parts of the work free from water. The Contractor shall be responsible for and shall repair at his expense any damage to the foundations, structures, or any other part of the work caused by floods, water or failure of any part of the diversion of protective work.

1.2 SUBMITTALS

A. Prior to beginning any work on diversion and care of stream and removal of water from foundations, the Contractor shall submit for approval a water control plan showing his proposed method for the diversion and care of the water during construction and removal of water from foundations. The plan may be placed in operation upon approval, but nothing in this section shall relieve the Contractor for full responsibility for the adequacy of the diversion and protection works.

PART 2 – PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.1 EXAMINATION

A. The contractor shall verify the existing conditions.

3.2 DIVERSION AND CARE OF SURFACE WATER

A. The Contractor shall provide measures to route surface runoff and stream flows to prevent damage to the foundation subgrade, embankment fill, internal drains, permanent ditches, drawdown structures, outlet conduits and all other project features.

3.3 REMOVAL OF WATER FROM FOUNDATIONS

A. The Contractor should be aware that considerable removal and control of groundwater will be required during undercutting and replacement of unsuitable materials in the floodplain, installation of the seepage drains and construction of the spillway structure, conduits, and plunge pool.

B. The design of the dewatering system is the responsibility of the contractor.

C. Dewatering shall be accomplished in a manner that will prevent the loss of fines from the foundation.

D. The Contractor will maintain the stability of the excavated slopes and bottom of the trenches.

E. The contractor shall perform dewatering such that groundwater is lowered in all work areas to a depth of at least three feet below the lowest excavation level.

F. The dewatering system should function continuously, 24 hours a day, 7 days a week until structures, drains and fill (if appropriate) is placed to a level of at least three feet above stabilized groundwater levels.

G. Construction operations shall be performed in the dry.

H. The Contractor must use wellpoints, deep sumps, cased wells and/or similar means of effectively dewatering the floodplain area. Shallow sumps and trenches will not provide adequate dewatering.

I. The Contractor will be required to control seepage along the bottom of the excavation.

J. The Contractor shall install temporary groundwater monitoring wells at locations directed by the Geotechnical Engineer to confirm that the groundwater has been lowered to the level directed by the contract documents.

3.4 REMOVAL OF DIVERSION AND DEWATERING WORKS

A. All cofferdams or other temporary diversion and dewatering works downstream from the dam shall be removed from the stream channel in a

manner approved by the Engineer.

B. All cofferdams or other temporary diversion and dewatering works constructed upstream from the dam and not a part of the permanent dam embankment shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatever of the flow of water to the spillway or outlet works.

C. The portions of the dewatering works that are to remain in place such as wellpoints or cased wells shall be filled with cement grout as directed by the Engineer.

END OF SECTION
31 23 19

SECTION 31 23 34
TRENCHING AND BACKFILLING FOR PIPE

PART 1 GENERAL

1.01 SUMMARY

A. Section includes trenching, foundation preparation, backfilling and compaction (as applicable) for the installation of underground pipelines.

B. Related Sections:

1. Section 31 23 19 – Dewatering

1.02 REFERENCES

A. ASTM International:

1. ASTM C 1479, Standard Practice for Installation of Precast Concrete Sewer, Storm Drain, and Culvert Pipe Using Standard Installations

2. ASTM D 448, Standard Classification for Sizes of Aggregate for Road and Bridge Construction

3. ASTM D 698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort

4. ASTM D 1556, Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method

5. ASTM D 2216, Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

6. ASTM D 2321, Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications

7. ASTM D 2487, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

8. ASTM D 2937, Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method

9. ASTM D 6938, Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

1.03 SUBMITTALS

A. Submit the following for review prior to commencement of the work of this Section:

1. Certifications by material suppliers for proposed borrow materials showing conformance with the Specifications as applicable.

1.04 QUALITY ASSURANCE / QUALITY CONTROL

A. Owner will retain the services of independent Quality Control firm(s) to determine conformance of the materials and constructed work with the Specifications.

1.05 PROJECT CONDITIONS

A. The Contractor is solely responsible for excavation slope stability. Excavation work shall be in compliance with applicable local, state and federal regulations (including OSHA).

PART 2 PRODUCTS

2.01 SOURCE QUALITY CONTROL

A. Proposed materials and source of supply shall be approved by the Owner and Engineer as specified prior to delivery and use in the construction. The QC Firm shall also determine:

1. The suitability of excavated trench bottoms for pipe bedding.

2.02 STABILIZER AGGREGATE (if required)

A. Stabilizer Aggregate shall consist of coarse aggregate with gradation conforming to Size Number 2 aggregate (2 1/2 inch to 1 1/2 inch nominal size) as defined in ASTM D 448, or as required by the QC Firm.

2.03 PIPE BEDDING MATERIAL

A. Unless otherwise indicated, Bedding Material shall consist of either excavated material or imported material conforming to the specifications in the following paragraphs, depending on type of pipe.

B. Precast Reinforced Concrete Pipe (RCP) Bedding: Conform to the requirements for Category I, II or III materials as defined in ASTM C 1479 and as specified in the following paragraphs. Maximum particle size shall be one inch.

1. Category I materials consist of clean coarse-grained soils and having characteristics consistent with SW, SP, GW or GP classifications as defined by the Unified Soil Classification System (USCS).

2. Category II materials consist of coarse-grained soils with fines and having characteristics consistent with SM, SC, GM or GC classifications as defined by the USCS.

3. Category III materials consist of fine-grained soils having characteristics consistent with CL, ML, or CL-ML classifications as defined by the USCS.

C. PVC Pipe Bedding: Conform to the requirements for Class II or Class III materials as defined in ASTM D 2321 and as specified in the following paragraphs. Maximum particle size shall be: 3/4 inch (for pipe diameters greater than 6 inches); 1/2 inch for pipes 4-inch to 6-inch diameter; and 3/8 inch for pipes less than 4-inch diameter.

1. Class II materials consist of clean coarse-grained soils and having characteristics consistent with SW, SP, GW or GP classifications as defined by the Unified Soil Classification System (USCS).

2. Class III materials consist of coarse-grained soils with fines and having characteristics consistent with SM, SC, GM or GC classifications as defined by the USCS.

D. Testing of Bedding Material:

1. Soil Classification (ASTM D 2487): Minimum of one test for each visible change in material.

2.04 INITIAL TRENCH BACKFILL

A. Initial Trench Backfill shall have characteristics consistent with Class II, Class III, or Class IV-A materials as defined in ASTM D 2321 with maximum particle sizes as specified in subsection 2.03 and as specified in the following paragraphs. On-site excavated materials will be considered suitable for Initial Trench Backfill, provided that the material conforms to the above specified maximum particle sizes and is substantially free of roots, trash and other material which may be compressible or which cannot be compacted properly.

1. Class II and Class III materials are as defined in subsection 2.03.C.

2. Class IV-A materials consist of fine-grained inorganic soils having characteristics consistent with ML or CL classifications as defined by the USCS.

B. Testing of Initial Trench Backfill Material:

1. Soil Classification (ASTM D 2487): Minimum of one test for each visible change in material.

2.04 FINAL TRENCH BACKFILL

A. Final Trench Backfill shall consist of soil obtained from trench excavation, provided that it is substantially free of material which may be compressible or which cannot be compacted properly.

B. Testing of Final Trench Backfill Material:

1. Moisture-Density Curve (ASTM D 698): Minimum of one test for each visible change in material.

PART 3 EXECUTION

3.01 FIELD QUALITY CONTROL

A. The following tests shall be performed during placement and compaction of Final Trench Backfill in areas subject to vehicular traffic:

1. In-Place Density (using ASTM D 1556, ASTM D 2937, or ASTM D 6938): Minimum of one test for every lift of Final Trench Backfill placed for every 100 linear feet of trench (or fraction thereof) and at each road crossing.

2. Moisture Content (using ASTM D 2216 or ASTM D 6938): Minimum of one test for every lift of Final Trench Backfill placed for every 100 linear feet of trench (or fraction thereof) and at each road crossing.

3.02 PREPARATION

A. Establish required alignment and elevations for trench excavation.

B. Implement, operate and maintain dewatering system as required to control groundwater in conformance with the requirements of Section 031 23 19. This work shall be included as part of the Base Bid.

3.03 EXCAVATION

A. Excavate trenches for pipe installation where indicated on the Drawings and as specified in the following paragraphs.

B. The depth of trench excavation shall be as necessary to provide the required invert elevations and stable foundation for the pipe. Excavate trenches to the width necessary for proper installation of the piping as indicated on the Drawings.

C. Sloping, shoring or bracing shall be used as necessary to prevent failure of the trench banks. All trench protection shall conform to applicable laws and regulations, including OSHA regulations regarding trench excavation.

D. Pipe Foundation Stabilization:

1. If existing material below the pipe invert elevation is unsuitable (such as excessively soft soils) for properly laying pipe, stabilize the subgrade using methods approved by the Owner and Engineer. Stabilization shall include: undercutting and replacement with suitable material (as defined below); or in-situ stabilization of subgrade.

2. For undercutting, excavate and remove the unsuitable material to the required depth below the pipe invert as determined by the QC firm and approved by the Owner and Engineer. Replace the removed unsuitable material with Stabilizer Aggregate, or as required by Owner's QC Firm, which shall be placed in horizontal loose lifts no greater than six inches and "lightly" compacted. "Light" compaction for purposes of trench stabilization is defined as spreading and tamping with a backhoe bucket to ensure reasonable uniformity of stabilized trench bottom.

E. Removal of materials beyond the indicated subgrade elevations, without authorization by the Owner and Engineer, shall be classified as unauthorized excavation and shall be backfilled and compacted at no additional cost to the Project.

F. Unless otherwise approved by the Owner and Engineer, a minimum of 6-inch thickness of Bedding Material shall be placed under all pipe. Thoroughly compact Bedding Material using manually-guided compaction equipment and accurately grade to the required elevations and slopes.

G. If rock is encountered in trench excavations, remove rock to a depth of six inches below the pipe invert elevation using methods approved by the Owner and Engineer. Place and

compact Stabilizer Aggregate or Bedding Material to required elevation for installation of pipe as approved by the Owner and Engineer.

H. Removal of rock and stabilization of trench subgrade shall be included as part of the Base Bid.

I. Where suitable subgrade conditions are encountered, as determined by the QC Firm and approved by the Owner and Engineer, shape the existing exposed materials as required to provide a firm and uniform bearing for piping. Thoroughly compact using manually-guided compaction equipment.

3.04 PIPE INSTALLATION

A. Install piping as shown on the Drawings and as specified in the applicable sections of the Specifications.

3.05 BACKFILLING AND COMPACTING

A. Backfilling and compacting shall conform to the details shown on the Drawings and as specified in the following paragraphs.

B. Place and compact Initial Trench Backfill around pipes in the “haunch zone” up to the pipe “springline” (centerline). Contractor shall take necessary measures to prevent the pipe from being displaced upwards during compaction of fill in this area. If applicable, continue placement and compaction of the material around and over pipes as follows:

1. Reinforced Concrete Pipe (Gravity-Flow): No Initial Trench Backfill is required above pipe centerline.

2. PVC Pipe: Place and compact Initial Trench Backfill in six-inch lifts up to approximately 12 inches above the top of the pipe.

C. Initial Trench Backfill shall be placed on both sides of pipes at the same time and to approximately the same elevation. Each lift shall be thoroughly compacted using manually-guided compaction equipment.

D. Do not place Final Trench Backfill until the piping, as installed, conforms to the specifications.

E. Place and compact Final Trench Backfill for pipe installations as follows:

1. Place backfill in lifts not greater than six-inch loose thickness and compact as specified in the following paragraphs.

2. Other than areas described in the following paragraph 3, compact trench backfill to at least 95 percent of the material's maximum dry density as determined by ASTM D 698.

3. For piping under pavement and building pads, backfill placed within the top 12 inches of the finished subgrade shall be compacted to a minimum of 98 percent of the material's maximum dry density as determined by ASTM D 698.

F. Place Final Trench Backfill up to the required subgrade elevation for roadway construction or finish grade (as applicable) and as indicated on the Drawings.

G. Placement and compaction of trench backfill around and over pipes shall be performed in a manner that does not damage the pipes. Pipes that are damaged shall be replaced.

H. Construction traffic shall not be allowed to cross installed pipes prior to placement and compaction of the full depth of cover.

I. Materials not meeting density specification requirement shall be scarified, recompacted and retested.

3.07 DISPOSAL OF MATERIAL

A. Excess and unsuitable materials shall be placed on-site where approved by the Owner and Engineer or hauled off site and legally disposed of.

END OF SECTION
31 23 34

SECTION 31 25 14

SOIL EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 SCOPE

A. These specifications cover control of Soil Erosion from the project area during the construction period and until such time as permanent erosion control is effective.

1.2 REFERENCE STANDARDS (LATEST EDITIONS)

A. Environmental Protection Agency, Guidelines for Erosion and Sediment Control Planning and Implementation.

B. Environmental Protection Agency, Control of Erosion and Sediment Deposition from Construction of Highways and Land Development.

C. Environmental Protect Agency, Guidelines for Erosion and Sediment Control Planning and Implementation , Environmental Protection Agency.

D. Soil Conservation Service, Georgia, Manual of Standards and Specifications for Control of Soil Erosion and Sediment in Areas Undergoing Urban Development.

E. State Soil and Water Conservation Committee of Georgia, Manual for Erosion and Sediment Control in Georgia.

PART 2 - PRODUCTS

2.1 MATERIALS

A. All sediment and erosion control measures to meet local ordinance and Georgia Department of Natural Resources rule and regulations.

PART 3 - EXECUTION

3.1 STORM DRAINAGE SYSTEM

A. As much of the storm drainage system as is practicable shall be initially installed and surface water diverted into the system. The remainder of the storm drainage system shall be installed as soon as conditions will allow.

B. Temporary sediment barriers shall be maintained around street drainage structures until final subgrade preparation is begun. It is recommended that the

Contractor utilize shoulder berms, silt screen, or hay bales staked to the ground for this purpose.

3.2 GRADING OPERATIONS

A. Grading operations shall be scheduled such that the ground surface will be disturbed for the shortest possible time. Excavated materials shall be immediately placed into compacted embankments. Large areas shall be maintained as flat as possible to minimize soil transport through surface flow.

B. Wherever steeper slopes or abrupt changes in grade are required, a diversion or berm shall be constructed at the top of the slope to cause the surface water to flow along the diversion to a control point. In no case shall surface water be allowed to flow uncontrolled down slopes.

3.3 GRASSING AND MULCHING

A. Slopes and graded areas as indicated on drawing that are not to be immediately planted with permanent grass shall be seeded with a temporary seed that will produce a fast growing cover resistant to erosion. For shorter duration exposures, mulch may be applied alone to control erosion. Temporary seeding and mulch shall be applied to the steeper slopes.

3.4 EROSION CONTROL CHECK DAMS

A. Check dams shall be constructed across all drainage outfalls leaving the project area. All drainage leaving the site shall be diverted to a check dam. Check dams may be constructed of rubble, logs, brush, fencing, or other non-corrosive material. Sufficient wire mesh shall be employed to hold the lighter materials in place. Brush dams shall be tightly compacted by passes of tracked equipment.

B. The maximum height of the check dams shall be four feet and they shall be arranged to cause ponding behind them. Provision shall be made to remove the accumulated sediment periodically. The Contractor shall be responsible for anchoring check dams so that they will not be dislodged during high flows. Check dams shall be placed in the series in drainage outfalls to control sediment transport and shall be removed when permanent erosion control is effective.

3.5 PERIMETER SILT BARRIERS

A. Prior to commencement of any clearing or earthwork install the perimeter silt fencing at all points where flows onto adjacent properties.

3.6 SLOPE DRAINS

A. Temporary drains shall be provided to convey surface water down slopes. Slope drains may be constructed of pipe, fiber mats, rubble, Portland cement, concrete, bituminous concrete, or plastic sheets stabilized with asphalt. Slope drains shall be provided with an apron at their tops to anchor them and properly direct water into them. Stone or rubble shall be placed at slope drain outlets to prevent scour at these points.

3.7 DIVERSION DITCHES

A. Temporary diversion ditches shall be constructed and maintained during construction to protect structures and site improvements, to direct drainage into the storm drainage and/or siltation ponds, and to protect other property.

3.8 LEVEL SPREADERS

A. Level spreaders shall be constructed to convert a concentrated flow of storm runoff into sheet flow and to outlet it onto areas stabilized by existing vegetation without causing erosion. Entrance to spreader must be graded in a manner to insure that runoff enters directly onto a zero percent graded channel. Construct level lip on zero percent grade to insure uniform spreading of storm runoff. Periodic inspection and maintenance must be provided to insure the intended purpose is accomplished.

3.9 MAINTENANCE

A. Maintain all erosion control structures at all times during the construction period.
   1. The contractor shall make daily inspections of the erosion control structures and shall construct adjustments and temporary structures as may be required to meet changing conditions.
   2. After each rain the Contractor shall inspect all erosion control structures and shall make repairs, reinforcements, and/or adjustments as required to keep the structures in working order.

END OF SECTION
31 25 14

SECTION 31 32 20

GEOTEXTILES

PART 1 - GENERAL

1.1 SCOPE

This specification covers nonwoven geotextile fabrics for use in all applications. The geotextile shall serve as a permeable layer allowing water to flow through while retaining the soil underneath.

1.2 REFERENCES

The following are ASTM Standards applicable to this Specification:

D3786 Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics - Diaphragm Bursting Strength Tester Methods

D4354 Sampling of Geotextiles for Testing

D4355 Deterioration of Geotextiles from exposure to ultraviolet light & Water (Xenon-arc Type Apparatus)

D4491 Water Permeability of Geotextiles by Permittivity

D4533 Trapezoid Tearing Strength of Geotextiles

D4632 Breaking Load and Elongation of Geotextiles (Grab Method)

D4751 Determining Apparent Opening Size of a Geotextile

D4759 Determining the Specification Conformance of Geotextiles

D4833 Index Puncture Resistance of Geotextiles, Geomembranes and Related Products

1.3 SUBMITTALS

Technical specifications and samples of the proposed geotextile(s) shall be submitted for approval.

PART 2 - PRODUCTS

2.1 MATERIAL REQUIREMENTS

Fibers used in the manufacture of geotextiles, and the threads used in joining geotextiles by sewing, shall consist of long-chain synthetic polymers. Where the geotextile will be in contact with fresh concrete, polyester fabrics will not be permitted. They shall be formed into a nonwoven network such that the filaments or yarns retain dimensional stability relative to each other, including selvedges. The geotextile shall be mildew and rot resistant, resistant to ultraviolet light exposure, insect and rodent resistant and inert to commonly encountered chemicals and hydrocarbons.

Geotextiles shall be nonwoven, needle-punched type having a minimum average roll weight of 8.0 oz./sq. yard and shall conform to the physical requirements stipulated in Table 1. Heat bonded geotextiles will not be permitted.

TABLE 1
REQUIREMENTS FOR NONWOVEN GEOTEXTILES

PROPERTY	TEST METHOD	
Tensile Strength (lbs.) 1/	ASTM D4632 Grab Test	200 min.
Bursting Strength (psi) 1/	ASTM D3786 Diaphragm Tester	360 min.
Elongation At Failure (Percent) 1/	ASTM D4632 Grab Test	≥50
Puncture (lbs.) 1/	ASTM D3787	90 min.
Ultraviolet Light (Percent residual tensile strength)	ASTM D4355 150 Hours Exposure	70 min.
Apparent Opening Size - AOS	ASTM D4751	≥#60 2/
Coefficient of Normal Permeability (cm/sec)	ASTM D4491	

1/ Minimum average roll value (weakest principle direction)
2/ U.S. Standard sieve size

2.2 SAMPLING AND TESTING

The geotextile shall be subject to sampling and testing. Sampling shall be in accordance with ASTM D4354, and testing procedures in accordance with the methods given on Table 1. If the manufacturer's quality control procedures do not include the testing requirements in Table 1, a competent laboratory shall be retained by the manufacturer of the fabric for testing to determine the necessary values.

2.3 MANUFACTURER'S CERTIFICATE

The manufacturer shall file with the purchaser a certificate stating the name of the manufacturer, the chemical composition of the filaments or yarns, and other pertinent information so as to fully describe the geotextile. The manufacturer shall include in the certificate a guarantee stating that the geotextile that is furnished meets the requirements of the specification. The certificate shall be attested to by a person having legal authority to bind the company. Either mismarking or misrepresentation by the manufacturer shall be reason to discontinue acceptance under these specifications. Notice sent to the manufacturer by the purchaser regarding the discontinuance of acceptance will be considered to be notice to all wholesalers, jobbers, distributors, agents and other intermediaries handling the manufacturer's product.

2.4 PACKAGING AND IDENTIFICATION

The geotextile shall be provided in rolls wrapped with protective covering to protect from mud, dust, dirt, debris, and light. The geotextile shall be free of defects or flaws which affect its physical or chemical properties. Each roll of fabric in the shipment shall be labeled with a number or symbol to identify that production run.

PART 3 - EXECUTION

3.1 SHIPMENT AND STORAGE

During periods of shipment and storage, the geotextile will be kept wrapped until ready for installation. Rolls shall be labeled so as not to allow damage due to lifting devices or other equipment. Geotextile shall not be stored directly on the ground. Rolls of geotextile will be stored under cover on outside on racks supporting the roll at least 6 inches off the ground. Partial rolls shall be labeled as such, any rolls partially used shall not remain uncovered or unwrapped for over 48 hours.

3.2 SUBGRADE PREPARATION

Prior to placement of the geotextile, the subgrade shall be prepared in accordance with the plans. The subgrade shall be free of significant amounts of organic soil, mud, all tree stumps and roots, all metal objects or other sharp protruding objects that could penetrate

the fabric. Filter fabric should be installed in the dry and ruts and similar irregularities shall be filled to prevent overstressing the fabric due to voids underneath the fabric. The subgrade shall be prepared such that when the geotextile and stone are installed there will be intimate contact between the subsoil and the geotextile.

3.3 FABRIC INSTALLATION

The geotextile fabric shall be installed as indicated on the plans. Unless otherwise indicated, geotextile shall be unrolled and placed in the upslope-downslope direction. Placement shall begin from the furthermost downstream section and proceed in the upstream direction. Unless otherwise indicated, overlaps shall be a minimum of 18 inches. Soft subgrade may require additional overlap. Geotextile shall be secured to the slope with pins, U-shaped bars, or other means as suggested by the manufacturer or as directed by the Engineer. Spacing of securing pins shall not exceed ten feet in any direction. Ample slack will be provided in the geotextile, since fill placement tends to stretch and tighten the fabric. If anchorage trenches are indicated on the plans, special care must be taken to ensure the fabric is properly secured, has adequate slack, and will not be pulled from the trench.

If, during installation of the geotextile, the fabric becomes contaminated or clogged by sift from surface runoff or other sources, the damaged fabric shall be removed and replaced at no additional cost to the owner.

3.4 PLACEMENT OF BEDDING STONE

Bedding stone shall be placed on the geotextile as indicated on the plans. Bedding stone shall be dumped on top of previously-placed stone and spread to a uniform thickness. Dumping of the stone directly on the geotextile should be avoided. No construction vehicles or equipment will be allowed directly on the fabric. Any ruts that develop during spreading or compacting shall be filled with additional aggregate rather than bladed from surrounding areas.

END OF SECTION
31 32 20

SECTION 31 37 00

STONE RIP RAP

PART 1 - GENERAL

1.1 WORK INCLUDED

A. The contractor shall furnish all labor, materials, tools, and equipment necessary for hauling and properly placing stone rip rap at the locations and to the limits indicated on the drawings or as directed by the Engineer.

B. The rip rap and bedding shall be keyed into surface such that the surface of the completed rip rap approximately coincides with that of the general ground surface.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Furnish stone consisting of trap rock, granite, gneiss, or other hard, durable, tough rock having a percentage of wear more than 4.5 as determined in accordance with AASHTO Designation T3.

B. Stone shall be of the size and/or weight shown on the Drawings and free from clay, caked stone dust, or other objectionable materials.

C. The individual rip rap rock fragments shall be dense, sound and resistant to abrasion and shall be free from cracks, seams and other defects that would tend to increase unduly their destruction by water and frost actions.

D. Samples of the proposed rip rap material will be furnished to the Engineer for approval.

E. Rip rap shall be reasonably well graded with a maximum particle size as indicated on the drawings.

F. Bedding for the rip rap shall consist of a layer of geotextile (filter fabric) overlain by approximately 6 inches of No. 57 stone to prevent punching of the fabric when the rip rap is placed. The geotextile shall be AMOCO 4553, LINQ 180EX, MIRA FI 180N or approved equivalent. The fabric will be place as recommended by the manufacturer. The Contractor’s operations shall be such as to prevent damage to the fabric.

PART 3 - EXECUTION

3.1 CONSTRUCTION

A. The rip rap need not be compacted but shall be placed to grade in a manner to insure that the smaller rock fragments serve to fill the spaces between the larger rock fragments in such a manner as will result in well-keyed, densely placed, uniform layers of rip rap of the specified thickness. Hand placing will be required only to the extent necessary to secure the results specified above.

B. The Contractor's placement techniques will be subject to the approval of the Engineer.

END OF SECTION
31 37 00

SECTION 31 52 00

TEMPORARY COFFERDAMS

PART 1 – GENERAL

1.1 SCOPE:

A. Summary or Work: The Contractor shall furnish all labor, material and equipment necessary for the removal of all surface and subsurface waters from spillway excavation areas. This section includes the construction of temporary cofferdams with earth embankment and/or steel sheet piling and bracing. The work includes the removal of temporary cofferdams at the completion of the work.

1.2 APPLICABLE PUBLICATIONS:

A. American Society for Testing and Materials (ASTM):
1. ASTM A 36 - Standard Specification for Carbon Structural Steel
2. ASTM A328 - Standard Specification for Steel Sheet Pile

1.3 DEFINITIONS: (Not Used)

1.4 SUBMITTALS:

The Contractor shall make submittals in accordance with Section 01340 and the following:

A. The Contractor shall submit to the Engineer a dewatering plan, which includes the cofferdam design and dewatering equipment, safety procedures and sequence of construction prior to the start of any such operations.

B. Submit certification from a professional engineer registered in the State of Georgia that the temporary cofferdam has been designed to meet the criteria specified herein.

C. Two sets of prints of the cofferdam system bearing the seal of an engineer registered in the State of Georgia shall be submitted to the Engineer for reference.

D. Acquire all permits required to discharge water and protect waterways from turbidity during the dewatering operation.

1.5 QUALIFICATIONS: (Not Used)

1.6 RESPONSIBILITIES:

A. This is a performance specification. Except as otherwise specified or indicated, selection of equipment, materials, and methods shall be Contractor's responsibility. The dewatering of any excavation areas and disposal of all water handled shall be in strict accordance with all local and state government rules and regulations.

B. The Contractor shall be responsible for the design of the dewatering system including, but not necessarily limited to, the temporary cofferdam, required pump equipment, temporary shoring, as well as any miscellaneous temporary structures required.

1.7 CERTIFICATIONS AND TESTING:

A registered professional engineer in the State of Georgia hired by the Contractor shall inspect, accept, and certify any used sheet piling proposed for dewatering purposes.

1.8 INSPECTION COORDINATION:

The Contractor shall provide access to the work for the Engineer as requested for inspection. The Contractor shall provide 48 hours notice of its intention to begin new work activities.

1.9 WARRANTY: (Not Used)

PART 2 – PRODUCTS

2.1 PRODUCT REQUIREMENTS:

All materials used in the construction of the dewatering facilities shall be selected, furnished and installed by the Contractor in accordance with the design as submitted to the Engineer.

A. Earth Embankment Cofferdam shall meet all of the requirements outlined in these specifications including Specification Section 02200, “Earthwork”.

B. Sheet Pile Cofferdam:

1. The Contractor shall provide new or used sheet piling for use in the cofferdam conforming to the requirements of ASTM A328.

2. Structural Steel: The Contractor shall provide structural steel for use in the cofferdam conforming to the requirements of ASTM A36.

PART 3 – EXECUTION

3.1 PERFORMANCE:

The Contractor shall furnish and install cofferdams in accordance with the following.

A. The Contractor shall employ the services of a structural engineer registered in the State of Georgia for the design of the cofferdam system. The walls and bracing shall be designed to withstand, without damage, the maximum water elevations indicated on the drawings.

B. Approximate locations of cofferdam, structural characteristics and embedment depths shall be determined by the engineer designing the cofferdam.

C. The layout and design of the interior and exterior bracing system for the cofferdam shall fully accommodate with appropriate factors of safety, all applied loading indicated. Those loadings may be increased if considered appropriate by the engineer designing the cofferdam.

3.2 DEWATERING:

A. The Contractor shall provide adequate equipment for removal of storm, subsurface or cofferdam leakage waters, which may accumulate in the cofferdam interior.

B. The Contractor shall perform all work for the water control structure in the cofferdam interior free from water. The Contractor shall furnish, install, maintain, and operate all necessary pumping and other equipment necessary for dewatering the work area.

1. All dewatering equipment shall be in first-class condition and shall at all times be maintained and operated at the efficiency and capacity necessary for maintaining the cofferdam interior free from standing water or wet conditions that prevent proper construction.

C. The Contractor shall provide dewatering facilities with stand-by pumps with 100 percent standby capacity.

D. The Contractor shall comply with all local, state and federal regulations when disposing of water generated by dewatering operations.

3.3 REMOVAL OF DEWATERING SYSTEM AND COFFERDAMS:

A. The Contractor shall remove the dewatering system in its entirety when construction has been completed.

END OF SECTION
31 52 00

SECTION 32 34 35

PRE-FABRICATED CONCRETE BRIDGE

PART 1 - GENERAL

1.1 DESCRIPTION

A. These specifications are for a fully engineered clear span bridge of precast concrete construction and shall be regarded as minimum standards for design.

1.2 DIMENSIONS

A. Width: The inside clear width of bridge shall be as shown on the drawings.

B. Camber: The bridge shall be cambered to provide a residual camber as required to provide the concrete surface to be straight after the application of bridge rails and concrete fill, including creep.

1.3 DESIGN

A. The bridge shall be designed by a professional engineer licensed in the State of Georgia and experienced in concrete bridge design. The Engineer shall submit a signed and sealed letter stating that the bridge has been designed in accordance with the design criteria of this specification, including all applicable codes and standards and generally accepted engineering principles.

B. In addition to normal dead loads, the bridge shall be designed for the following:

1. Uniform Live Load: Pedestrian walkways shall be designed for an evenly distributed live load of 100 pounds per square foot of deck area.

2. Wind Load: All bridges shall be designed for wind load in accordance with ASCE 7-10.

3. Design Criteria: The design of the bridge shall be in accordance with HL-93 Truck loading and all AASHTO and GDOT Requirements.

4. Seismic: All bridges shall be designed for seismic loads in accordance with ASCE 7-10.

5. Temperature: Bridge shall be designed to accommodate a temperature differential of 120 degrees Fahrenheit. Slip pads of UHMW polyethylene shall be placed between the smooth surface of this setting plate and the smooth bearing plate of the bridge. At least 1" clearance shall be provided between the bridge end and concrete abutments.

6. Deflection: The vertical deflection of the bridge due to design live load shall not exceed 1/400 of the span length. The horizontal deflection due to lateral wind load shall not exceed 1/500 of the span length.

1.4 QUALIFICATIONS

A. Manufacturers of precast bridge components will be considered acceptable if they meet the following minimum requirements.

B. The bridge manufacturer shall have been in the business of design and fabrication of bridges for a minimum of five years and provide a list of ten successful bridge projects, of similar construction, each of which has been in service at least three years.

C. The bridge supplier shall be the designer and fabricator of the bridge and shall not assign, sublet, or subcontract any part of the bridge fabrication.

PART 2 - MATERIALS

2.1 BRIDGE MATERIALS

A. All structural members shall have a minimum thickness of material of at least 5/16".

B. Concrete for precast concrete bridge components shall be of regular weight (145 pcf minimum) concrete and shall have a minimum 28-day compressive strength of at least 5000 psi.

C. Concrete for bridge topping shall be of regular weight (145 pcf minimum) concrete and shall have a minimum 28-day compressive strength of at least 4000 psi with an entrained air content of 3-6 percent.

D. All bolts and other metal components shall be stainless steel.

E. Welding materials shall be in strict accordance with the American Welding Society (AWS). Structural Welding Code, D1.1. Filler metal as specified in 4.1 shall be used for the particular welding process required. Welders will be certified in accordance with AWS D1.1.

PART 3 - EXECUTION

3.1 FABRICATION

A. Bridge fabricator shall be certified by the Precast Concrete Institute.

B. To ensure quality control during bridge fabrication, the bridge supplier shall be the designer and fabricator of the bridge and shall not assign, sublet, or subcontract any part of the bridge fabrication.

C. Workmanship, fabrication, and shop connections shall be in accordance with American Association of State Highway and Transportation Officials Specifications (AASHTO) and GDOT requirements.

3.2 RAILINGS & ACCESSORIES

A. All railings shall have a smooth inside surface with no protrusions or depressions and shall have rounded edges. Railing heights shall be in accordance with AASHTO requirements but shall be a minimum height of 42 inches above the walking surface.

3.3 FINISHES

A. Exposed surfaces of precast bridge components shall have smooth formed surfaces with no form marks or fins. Concrete walkway and driving surfaces shall be in accordance with ASSHTO and GDOT requirements but at a minimum shall have a medium broom finish perpendicular to the walking/driving direction.

3.4 DELIVERY AND ERECTION

A. Bridges will be delivered by truck to a location nearest to the site accessible by roads. Hauling permits and freight charges are the responsibility of the manufacturer.

B. The manufacturer will notify the customer in advance of the expected arrival time. Information regarding delays after the trucks depart the plant such as inclement weather, delays in permits, re-routing by public agencies or other circumstances will be passed on to the customer as soon as possible but the expense of such unavoidable delays will not be accepted by the manufacturer.

C. The manufacturer will advise the customer of the actual lifting weights, attachment points and all necessary information to install the bridge. Unloading, erection, splicing, bolting, and proper lifting equipment is the responsibility of the contractor.

D. The owner shall procure all necessary information about the site and soil conditions. The project engineer will design the bridge abutments, piers and/or footings. The contractor shall install the anchor bolts in accordance with the bridge manufacturer's anchor bolt spacing dimensions. All grounding and lightning protection installation shall be the responsibility of the contractor.

3.5 WARRANTY

A. The bridge manufacturer shall provide a warranty against defects in material and workmanship for a period of ten years.

* END OF SECTION *
32 34 35

SECTION 32 34 35

PRE-FABRICATED CONCRETE BRIDGE

PART 1 - GENERAL

1.1 DESCRIPTION

A. These specifications are for a fully engineered clear span bridge of precast concrete construction and shall be regarded as minimum standards for design.

1.2 DIMENSIONS

A. Width: The inside clear width of bridge shall be shall be as shown on the drawings.

B. Camber: Bridge shall be cambered to provide a residual camber as required to provide the concrete surface to be straight after the application of bridge rails and concrete fill, including creep.

1.3 DESIGN

A. Open truss bridges shall be designed by a professional engineer licensed in the State of Georgia and experienced in pony truss bridge design and top chord stability criteria utilizing elastic lateral restraints. The Engineer shall submit a signed and sealed letter stating that the bridge has been designed in accordance with the design criteria of this specification, including all applicable codes and standards and generally accepted engineering principles.

B. In addition to normal dead loads, the bridge shall be designed for the following:

1. Uniform Live Load: Pedestrian walkways shall be designed for an evenly distributed live load of 100 pounds per square foot of deck area.

2. Wind Load: All bridges shall be designed for wind load in accordance with ASCE 7-10.

3. Design Criteria: The design of the bridge shall be in accordance with HL-93 Truck loading and all AASHTO and GDOT Requirements.

4. Seismic: All bridges shall be designed for seismic loads in accordance with ASCE 7-10.

5. Temperature: Bridge shall be designed to accommodate a temperature differential of 120 degrees Fahrenheit. Slip pads of UHMW polyethylene shall be placed between the smooth surface of this setting plate and the smooth bearing plate of the bridge. At least 1" clearance shall be provided between the bridge end and concrete abutments.

6. Deflection: The vertical deflection of the bridge due to pedestrian live load shall not exceed 1/400 of the span length. The horizontal deflection due to lateral wind load shall not exceed 1/500 of the span length.

1.4 QUALIFICATIONS

A. Manufacturers of precast bridge components will be considered acceptable if they meet the following minimum requirements.

B. The bridge manufacturer shall have been in the business of design and fabrication of bridges for a minimum of five years and provide a list of ten successful bridge projects, of similar construction, each of which has been in service at least three years.

C. The bridge supplier shall be the designer and fabricator of the bridge and shall not assign, sublet, or subcontract any part of the bridge fabrication.

PART 2 - MATERIALS

2.1 BRIDGE MATERIALS

A. All structural members shall have a minimum thickness of material of at least 5/16".

B. Concrete for precast concrete bridge components shall be of regular weight (145 pcf minimum) concrete and shall have a minimum 28-day compressive strength of at least 5000 psi.

C. Concrete for bridge topping shall be of regular weight (145 pcf minimum) concrete and shall have a minimum 28-day compressive strength of at least 4000 psi with an entrained content of 3-6 percent.

D. All bolts and other metal components shall be stainless steel.

E. Welding materials shall be in strict accordance with the American Welding Society (AWS). Structural Welding Code, D1.1. Filler metal as specified in 4.1 shall be used for the particular welding process required. Welders will be certified in accordance with AWS D1.1.

PART 3 - EXECUTION

3.1 FABRICATION

A. Bridge fabricator shall be certified by the Precast Concrete Institute.

B. To ensure quality control during bridge fabrication, the bridge supplier shall be the designer and fabricator of the bridge and shall not assign, sublet, or subcontract any part of the bridge fabrication.

C. Workmanship, fabrication, and shop connections shall be in accordance with American Association of State Highway and Transportation Officials Specifications (AASHTO) and GDOT requirements.

3.2 RAILINGS & ACCESSORIES

A. All railings shall have a smooth inside surface with no protrusions or depressions. All ends of angles and tubes shall be closed and ground smooth. In accordance with AASHTO, railings should be a minimum height of 42 inches above the deck.

3.3 FINISHES

A. Exposed surfaces of precast bridge components shall have smooth formed surfaces with no form marks or fins. Concrete walkway and driving surfaces shall be in accordance with ASSHTO and GDOT requirements but at a minimum shall have a medium broom finish perpendicular to the walking/driving direction.

3.4 DELIVERY AND ERECTION

A. Bridges will be delivered by truck to a location nearest to the site accessible by roads. Hauling permits and freight charges are the responsibility of the manufacturer.

B. The manufacturer will notify the customer in advance of the expected arrival time. Information regarding delays after the trucks depart the plant such as inclement weather, delays in permits, re-routing by public agencies or other circumstances will be passed on to the customer as soon as possible but the expense of such unavoidable delays will not be accepted by the manufacturer.

C. The manufacturer will advise the customer of the actual lifting weights, attachment points and all necessary information to install the bridge. Unloading, erection, splicing, bolting, and proper lifting equipment is the responsibility of the contractor.

D. The owner shall procure all necessary information about the site and soil conditions. The project engineer will design the bridge abutments, piers and/or footings. The contractor shall install the anchor bolts in accordance with the bridge manufacturer's anchor bolt spacing dimensions. All grounding and lightning protection installation shall be the responsibility of the contractor.

3.5 WARRANTY

A. The bridge manufacturer shall provide a warranty against defects in material and workmanship for a period of ten years.

END OF SECTION
32 34 35

SECTION 32 92 19

SEEDING

PART 1- GENERAL

1.1 SCOPE

A. The work covered by this Section consists of furnishing all labor, equipment, and material required to place topsoil, seed, commercial fertilizer, agricultural limestone, and mulch material, including seedbed preparation, harrowing, compacting, and other placement operations on graded earthen areas as described herein and/or shown on the Drawings. In general seeding operations shall be conducted on all newly graded earthen areas not covered by structures, pavement, or sidewalks; all cleared or grubbed areas which are to remain as finish grade surfaces; and on all existing turf areas which are disturbed by construction operations and which are to remain as finish grades surfaces. Areas disturbed by borrow activities shall also be seeded according to these Specifications.

B. The work shall include temporary seeding operations to stabilize earthen surfaces during construction or inclement weather and to minimize stream siltation and erosion.

1.2 QUALITY ASSURANCE

A. Prior to seeding operations, the Contractor shall furnish to the Engineer labels or certified laboratory reports from an accredited commercial seed laboratory or state seed laboratory showing the analysis and germination of the seed to be furnished. Acceptance of the seed test reports shall not relieve the Contractor of any responsibility or liability for furnishing seed meeting the requirements of this Section.

B. Prior to topsoil operations, the Contractor shall obtain representative samples and furnish soil test certificates including textural, pH, and organic ignition analysis from the State University Agricultural Extension Services or other certified testing laboratory.

PART 2 - PRODUCTS

2.1 TOPSOIL

A. Utilizing designated stockpiles or borrow areas on site, the Contractor shall place a minimum of 4 inches of topsoil over all graded earthen areas and other areas to be seeded. Sources of topsoil shall be approved by the Engineer prior to

disturbance. Importing topsoil from offsite sources shall be at the discretion of the Engineer and shall be justification for additional compensation to the Contractor. A change Order properly authorized by the Owner shall be agreed upon prior to importing offsite topsoil. No additional compensation will be allowed for spreading of topsoil.

B. Topsoil shall be friable loam containing a large amount of humus and shall be original surface soil of good, rich, uniform quality, free from any material such as hard clods, stiff clay, hardpan, partially disintegrated stone, pebbles larger than 2 inch in diameter, lime, cement, bricks, ashes, cinders, slag, concrete, bitumen or its residue, boards, sticks, chips, or other undesirable material harmful or unnecessary to plant growth. Topsoil shall be reasonably free from perennial plant material, toxic amounts of either acid or alkaline elements or vegetable debris undesirable or harmful to plant life.

C. Topsoil shall be natural topsoil without admixture of subsoil material, and shall be classified as loam, silt loam, clay loam, sandy loam, or a combination thereof. The pH shall range from 5.5 to 7.0. The topsoil shall contain not less than 5 percent nor more than 20 percent, by weight of organic matter as determined by loss on ignition of oven-dried samples to 65 degrees c.

2.2 SEED

A. Seed shall be delivered in new bags or bags that are sound and labeled in accordance with the U.S. Department of Agriculture Federal Seed Act.

B. All seed shall be form the last crop available at item of purchase and shall not be moldy, wet, or otherwise damaged in transit or storage.

C. Seed shall bear the growers analysis testing to 98 percent for purity and 90 percent for germination. At the discretion of the Engineer samples of seed may be taken for check against the growers analysis.

D. Species, rate of seeding, fertilization, and other requirements are shown in the Seeding Requirements Table.

2.3 FERTILIZER AND LIMING MATERIALS

A. Fertilizer and liming materials shall comply with applicable state, local, and federal laws concerned with their production and use.

B. Commercial fertilizer shall be a ready mixed material and shall be

equivalent to the grade or grades specified in the Seeding Requirements Table. Container bags shall have the name and address of the manufacturer, the brand name, net weight, and chemical composition.

C. If used, agricultural limestone shall be a pulverized limestone having a calcium carbonate content of not less than 85 percent by weight. Agricultural limestone shall be crushed so that at least 85 percent of the material will pass a No. 10 mesh screen and 50 percent will pass a No. 40 mesh screen.

2.4 MULCH MATERIAL

A. All mulch materials shall be air dried and reasonably free of noxious weeds and weed seeds or other materials detrimental to plant growth.

B. Mulch shall be composed of wood cellulose fiber, straw, or stalks as specified herein. Mulch shall be suitable for spreading with standard mulch blowing equipment.

C. Wood-cellulose fiber mulch shall be as manufactured by Weyerhauser Company, Conway Corporation, Woodtech, LLC or equal.

D. Straw mulch shall be the partially decomposed stalks of wheat, rye, oats, or other approved grain crops.

E. Stalks shall be the partially decomposed, shredded residue of corn, cane, sorghum, or other approved standing field corps.

2.5 MULCH BINDER

A. Mulch on slopes exceeding 3 to 1 ration shall be held in place by the use of an approved mulch binder. The mulch binder shall be nontoxic to plant life and shall be acceptable to the Engineer.

B. Emulsified asphalt binder shall be Grade ss-1, ASTM D 977. Cutback asphalt binder shall be Grade RC 70 or RC 250.

2.6 INNOCULANTS AND LEGUMES

A. All leguminous seed shall be inoculated prior to seeding with a standard culture of nitrogen-fixing bacteria that is adapted to the particular seed involved.

2.7 WATER

A. Water shall be clean, clear water free from any objectionable or harmful chemical qualities or organisms and shall be furnished by the Contractor.

PART 3 - EXECUTION

3.1 SECURING AND PLACING TOPSOIL

A. Topsoil shall be secured from areas from which topsoil has not been previously removed, either by erosion of mechanical methods. Topsoil shall not be removed to a depth in excess of the depth approved by the Engineer.

B. The area or areas from which topsoil is secured shall possess such uniformity of soil depth, color, texture, drainage, and other characteristics as to offer assurance that, when removed the product will be homogeneous in nature and will conform to the requirements of these Specifications.

C. All areas from which topsoil is to be secured, shall be cleaned of all sticks, boards, stones, lime, cement, ashes, cinders, slag, concrete, bitumen, or its residue, and any other refuse which will hinder or prevent growth.

D. In securing topsoil from a designated pit, or elsewhere, should strata or seams of materials occur which do not come under the requirements for topsoil, such material shall be removed from the topsoil, or if required by the Engineer, the pit shall be abandoned.

E. Before placing or depositing topsoil upon any areas, all improvement within the area shall be completed, unless otherwise approved by the Engineer.

F. The areas in which topsoil is to be placed or incorporated shall be prepared before securing topsoil for use.

3.2 SEEDBED PREPARATION

A. Before fertilizing and seeding, the topsoil surfaces shall be trimmed and worked to true line free from unsightly variation, bumps, ridges and depressions, and all detrimental material, roots, and stones larger than 3 inches in any dimension shall be removed from the soil.

B. Not earlier than 24 hours before the seed is to be sown, the soil surface to be seeded shall be thoroughly cultivated to a depth of not less than 2 inches with weighted disc, tiller, pulvimixer, or other equipment, until the surface is smooth and in a condition acceptable to the Engineer.

C. If the prepared surface becomes eroded as a result of rain or for any other

reason, or becomes crusted before the seed is sown, the surface shall again be places in a condition suitable for seeding.

D. Ground preparation operations shall be performed only when the ground is in a tillable and workable condition, as determined by the Engineer.

3.3 FERTILIZATION AND LIMING

A. Following seedbed preparation, fertilizer shall be applied to all areas to be seeded so as to achieve the application rates shown in the Seeding Requirements Table shown on drawing.

B. Fertilizer shall be spread evenly over the seedbed and shall be lightly harrowed, raked, or otherwise incorporated into the soil for a depth of 2 inch.

C. Fertilizer need not be incorporated in the soil as specified above when mixed with seed in water power sprayer equipment. The seed shall not remain in water containing fertilizer for more than 30 minutes when a hydraulic seeder is used.

D. Agricultural limestone shall be thoroughly mixed into the soil according to the rates in the Seeding Requirements Table. The specified rate of application of limestone may be reduced by the Engineer if pH tests indicate this to be desirable. It is the responsibility of the Contractor to obtain such tests and submit the results to the Engineer for adjustment in rates.

E. It is the responsibility of the Contractor to make one application of maintenance fertilizer according to the recommendations listed in the Seeding Requirements Table.

3.4 SEEDING

A. Seed of the specified group shall be sown as soon as preparation of the seedbed has been completed. No seed shall be sown during high winds, nor until the surface is suitable for working and is in proper condition. Seeding shall be performed during the dates shown in the Seeding Requirements Table unless otherwise approved by the Engineer. Seed mixture may be sown together provided they are kept in a thoroughly mixed condition during the seeding operation.

B. Seeds shall be uniformly sown by any approved mechanical method to suit the slope and size of the areas to be seeded, preferably with a broadcast type seeder, windmill hand seeder, or approved mechanical power drawn seed drills. Hydro-seeding and hydro-mulching may be used on steep embankments, provided full coverage is obtained. Care shall be taken to adjust the seeder for seeding at the proper rate before seeding operations are started and to maintain their adjustment

during seeding. Seed in hoppers shall be agitated to prevent segregation of the various seeds to a seeding mixture.

C. Immediately after sowing, the seeds shall be covered and compacted to a depth of 1/8 to 3/8 inch by a cultipacker of suitable roller.

D. Leguminous seeds shall be inoculated prior to seeding with an approved and compatible nitrogen-fixing inoculant in accordance with the manufacturer=s mixing instructions.

3.5 MULCHING

A. All seeded areas shall be uniformly mulched in a continuous blanket immediately after seeding. The mulch shall be applied so as to permit some sunlight to penetrate and the air to circulate and at the same time shade the ground, reduce erosion, and conserve soil moisture. Approximately 25 percent of the ground shall be visible through the mulch blanket.

B. One of the following mulches shall be spread evenly over the seeded areas at the following application rates:

1.	Wood Cellulose Fiber	1,400 lbs./acre
2.	Straw	4,000 lbs./acre
3.	Stalks	4,000 lbs./acre

These rates may be adjusted at the discretion of the Engineer at no additional cost to the Owner, depending on the texture and condition of the mulch material and the characteristics of the seeded area.

C. Mulch on slopes greater than 3 to 1 ratio shall be held in place by the use of an approved mulch binder. Binder shall be thoroughly mixed and applied with the mulch. Emulsified asphalt or cutback asphalt shall be applied at the approximate rate of 5 gallons per 1,000 square feet as required to hold the mulch in place.

D. The Contractor shall cover structures, poles, fence, and appurtenances if the mulch binder is applied in such a way that it would come in contact with or discolor the structure.

E. Mulch and binder shall be applied by suitable blowing equipment at closely controlled application rates in a manner acceptable to the Engineer.

3.6 WATERING

A. Contractor shall be responsible for maintaining the proper moisture content of the soil to insure adequate plant growth until a satisfactory stand is obtained. If necessary, watering shall be performed to maintain adequate water in the soil.

B. Watering shall be accomplished by hoses, tank truck, or sprinklers in such a way to prevent erosion, excessive runoff, and over watered spots.

3.7 MAINTENANCE

A. Upon completion of seeding operations, the Contractor shall clear the area of all equipment, debris, and excess material and the premises shall be left in a neat and orderly condition.

B. The Contractor shall maintain all seeded areas without additional payment until final acceptance of the work by the Owner, and any regrading, refertilizing, reliming, reseeding, or remulching shall be done at the contractor's expense. Seeding work shall be repeated on defective areas until a satisfactory uniform stand is accomplished. Damage resulting from erosion, gulleys, washouts, or other causes shall be repaired by filling with topsoil compacting, and repeating the seeding work at his expense.

C. See drawings for seeding table.

END OF SECTION
32 92 19

SECTION 35 20 10

CAST IRON SLUICE GATES

PART 1 - GENERAL

1.1 SCOPE

A. Provide all labor, materials, tools, equipment and related items required to furnish and install heavy-duty sluice gates required on the project.

B. Each gate shall be furnished and installed complete with anchor bolts, operating stem, gate lift operator and other appurtenances as specified or needed to make a complete and operable installation.

1.2 QUALIFICATIONS

A. All sluice gates shall be furnished by a manufacturer fully experienced, (minimum 5 years), reputable and qualified in the manufacture of the materials to be furnished.

B. Sluice gates shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications as applicable.

1.3 SUBMITTALS

Submittals shall comply with requirements of the section entitled “Shop Drawings, Product Data and Samples” of these Specifications, and shall include product data to show compliance with this section.

PART 2 - PRODUCTS

2.1 GENERAL

A. Gates, stems, lifts and other appurtenances shall be the size, type, material and construction as shown on the drawings and specified herein. Gates shall meet the requirements of AWWA Specifications C-501 (latest revision) or as modified per these Specifications.

B. Sluice gates shall be as manufactured by Waterman or approved equal. Sluice gates shall be with manual operators, flat back mounted on existing riser and of the sizes and with seating and unseating heads as indicated on the drawings.

C. All component parts shall be of the type of material shown, and interchangeable where

size and material are the same without grinding, chipping or special fitting in the field. All mating and sliding parts shall be fully machined. All sluice gate parts, including lift, shall be designed for the heads shown with a minimum safety factor of 5.

D. All materials used in the construction of the gate and appurtenances shall be the best suited for the application and shall be as follows:

Gate Part or Item	**Bronze Trim**	**#1 (Standard) Standard Number**	**AS**
Anchor Bolts & Nuts	18-8 Stainless (4)	A-582-Type 303 or 276-Type 304	
Frame, Slide and Guide Rails	Cast Iron	A-126 Class B	
Seating Faces	Naval Bronze	B-2-1-Alloy 482	
Wedges Fasteners	Manganese Bronze 18-8 Stainless (4)	B-584-Alloy 865 (Bolts) A-193 Grade B8 (Nuts) A-194 Grade 8	
Stem Block	Manganese Bronze	B-584-Alloy 865	
Sill Plate	Cast Iron	A-126 Class B	
Seal	Rubber	2000-Grade R-62	
Retainer	Naval Bronze	B-2-1-Alloy 482	
Yoke	Cast Iron	A-126 Class B	
Stem	18-8 Stainless (1)	A-582-Type 303 or 276-Type 304	

2.2 FRAME AND GUIDE RAILS

A. The frame and guide rails shall be of cast iron and cast integrally and shall be machined on all bearing and contact surfaces.

B. Frame and guides shall be designed for the maximum head indicated with a minimum safety factor of 5 with respect to tensile, compressive and shear strength.

C. Guides shall be of such length as to support at least one-half of the vertical height of the slide when in the open position.

2.3 SLIDE

A. The slide shall be made of cast iron, with strengthening ribs where required, and a reinforced section to receive the seating faces.

B. The slide shall be designed for the maximum head indicated with a minimum safety factor of 5 with respect to tensile, compressive and shear strength.

C. The slide shall have tongues on each side extending its full length, and these tongues shall be accurately machined on contact surfaces. Surfaces of the slide that come in contact with the seat facings and wedges shall be accurately machined. The maximum allowable clearance between the slide and slide guide shall be 1/16 inch.

D. A thrust-nut pocket shall be provided above the horizontal centerline of the slide reinforced by ribs. The thrust-nut pocket shall be drained.

2.4 SEATING FACES

A. Seating faces shall be made of strips of rolled or extruded bronze or stainless steel. They shall be firmly secured in finished grooves in the frame and slide faces in such a way as to insure that they will remain in place, free from distortion and loosening during the life of the sluice gate

B. These faces shall be of ample section and so finished that the maximum clearance between the seating surfaces, with the slide in the closed position shall be 0.004 inches.

2.5 SEALS

A. Resilient seals for flush-bottom gates shall be of natural or synthetic rubber.

B. Reclaimed rubber shall not be used.

C. Rubber compounds shall contain no more than 1.5 part of wax per 100 parts of rubber hydrocarbon.

D. Rubber compounds shall be free of vegetable oils, vegetable-oil derivatives, animal fats, and animal oils.

E. Rubber seals shall be resistant to microbiological attack, copper poisoning and ozone attack.

F. Design of the seal should be such as to provide tight shutoff.

G. Seals shall be mounted on the slide and shall be securely held in place with a retainer bar bolted to the slide leaving an unobstructed flush invert.

2.6 THRUST NUT

A. Gate shall be provided with a thrust nut for connecting the stem to the slide. It shall be of ample design to take the thrust developed during gate operation under the maximum operating head condition loads with a safety factor of 5 in opening and closing direction.

B. The thrust nut and slide shall be constructed to prevent turning off the thrust nut in the pocket in the slide.

C. On nonrising stem gates, the thrust nut shall be threaded but not keyed or pinned to the stem, so that the nut and slide can move up and down the stem, as the stem turns.

2.7 WEDGING DEVICES

A. Sluice gate shall be equipped with adjustable side-wedging devices to provide contact between the slide and frame facings when the gate is in closed position.

B. All faces shall be accurately machined to give maximum contact and wedging action.

C. Wedges shall be fully adjustable and so designed that they will remain in the fixed position after adjustment.

D. On all gates larger than 24 inches in size that will be subject to unseating heads, top and bottom wedging devices shall be provided. If the gates are flush-bottom closure gates, they will be provided with top wedges only.

2.8 ASSEMBLY BOLTS, STUDS, NUTS AND ANCHOR BOLTS

A. All assembly bolts, studs, nuts, and anchor bolts shall be of such size and spacing as required to provide for the design forces with a safety factor of 5.

B. Bolting on circular flanged-back gates shall mate with 25-pound or 125-pound drilling as specified in ANSI B16.1.

C. An adequate number of holes shall be provided in the flange on the back of the gate to prevent leakage under the design heads and to resist the shearing action caused by closing and opening forces.

2.9 WALL THIMBLES

A. Wall thimbles shall be type “F” made of cast iron and shall be furnished by the gate manufacturer.

B. The wall thimble shall provide a rigid mounting designed to prevent warping of the gate frame during installation.

2.10 STEMS AND STEM COUPLINGS

A. Operating stems shall be of a size to safely withstand, without buckling or permanent distortion, stresses induced by normal operating forces.

B. Stems shall be fabricated from round bar stock of stainless steel and shall be provided with 29 degrees modified or full acme threads.

C. Stems composed of 2 or more sections shall be joined by bronze couplings threaded and keyed to stems, or couplings of the same material as the stems, pinned, bolted or welded and pinned to the stems.

2.11 STEM GUIDES

A. Stem guides shall be cast, with bronze bushings, and mounted on cast brackets. Guides shall be adjustable in two directions and shall be so constructed that when properly spaced they will hold the stem in alignment and still allow enough play to permit easy operation.

B. Stem guide spacing shall be as recommended by the manufacturer, but in no case shall it exceed and l/r ratio of 200.

C. Brackets shall be attached to the wall by anchor bolts of sufficient strength to prevent twisting or sagging under load.

2.12 MANUAL OPERATOR FLOOR STANDS

A. Manual operation shall be by handwheel or crank-operated floor stands or bench stands as shown on the plans. Handwheel operated type shall be without gear reduction and crank-operated type shall have either a single- or double-gear reduction depending upon the lifting capacity required. Each type shall be provided with a threaded cast bronze lift nut to engage the operating stem.

B. Tapered roller bearings shall be provided above and below a flange on the operating nut to support both opening and closing thrusts.

C. Floor stands shall operate the gates with not greater than a 40-pound pull on the crank or handwheel. Gears, where required, shall be steel or cast iron with machine-cut teeth designed for smooth operation. The pinion shafts on crank-operated floor stands, either single or double, shall be supported on tapered roller bearings or needle bearings. All components shall be totally enclosed in a cast iron case and cover. Positive mechanical seals shall be provided on the operating nut and the pinion shafts where they extend from the cast iron case or gear box to retain lubricant and to exclude moisture and dirt. Lubricating fittings shall be provided for the lubrication of all gears and bearings.

D. The removable crank shall be cast iron with a revolving brass grip. Floor stands shall

include a cast iron pedestal design to position the input shaft approximately 36 inches above the operating floor.

2.13 WORKMANSHIP

A. All part in the sluice gate and accessories shall be accurately machined on mating and bearing surfaces. All like parts, except the bronze seating surfaces shall be interchangeable so that replacement parts can be furnished at any time and attached in the field with a minimum of fitting, chipping or re-machining. All parts shall conform to design dimensions and shall be free of defects of material and workmanship. All attaching bolt holes shall be drilled accurately to layout indicated on the drawings.

B. All casting shall be clean and sound without defect capable of impairing their functions.

C. The seating facings shall be machined to a finish of 63 micro-inch. The applicable standard is ANSI B46.1. All mating surfaces, such as guides-to-frame and frame-to-wall thimble, shall be machined flat.

2.14 SHOP TESTING

A. Before the final assembly, all seating and wedging surfaces shall be thoroughly cleaned of all foreign materials and final adjustments made. With the gate full closed, clearance between the seating faces shall be checked with a 0.004 inch thickness gauge. If this thickness gauge can be inserted between seating facers, wedging devices must be readjusted or the gate slide or gate frame or both re-machined, until insertion is no longer possible. In the event of re-machining, clearances will again be checked as stated above.

B. After completion, all seating and wedging surfaces shall be thoroughly cleaned of all foreign materials and final adjustments made. The sluice gate shall then be shop operated from the fully-closed to the fully-opened position to verify that the assembly is workable.

PART 3 - EXECUTION

3.1 STORAGE AND INSTALLATION

A. Sluice gates and equipment shall be stored and installed in accordance with the installation manual furnished by the gate manufacturer. After installation, the completely assembled gate, stem, guides and lift shall be operated through one full cycle to demonstrate satisfactory operation. Such adjustments as necessary will be made until operation is approved by the Engineer.

B. The gate shall be subjected to leakage tests and pass the standard requirements for maximum leakage as specified in AWWA C501.

3.2 PAINTING

All cast iron parts of the sluice gate (not in bearing or sliding contact) and stem guides shall be painted in accordance with manufacturer's recommendations.

END OF SECTION
35 20 10

SECTION 35 70 10

FOUNDATION DRAIN

PART 1 - GENERAL

1.1 DESCRIPTION

A. The foundation drain shall be constructed at the locations shown on the Contract Drawings or as directed by the project Engineer.

B. Care shall be taken to avoid clogging the drains during the progress of the work, and should any drain become clogged or obstructed from any cause before final acceptance of the work, it shall be cleaned out in a manner approved by the project Engineer or replaced by and at the expense of the Contractor.

C. The foundation drain shall consist of fine filter material compacted in place as indicated on the construction drawings. The upper 18" of drain material shall be protected by filter fabric as indicated on the construction drawings

PART 2 - PRODUCTS

2.1 MATERIALS

A. The fine filter material shall conform to ASTM Specification C-33- Concrete Sand,

B. The geotextile (filter fabric) shall be Linq Industries 180EX, AMOCO 4553, Mirafi 180N or approved equal.

PART 3 - EXECUTION

3.1 CONSTRUCTION

A. A typical cross section for the foundation drain is shown on the plans.

B. A general description of the drainage system has been presented in Part 1 of this Specification.

C. Care shall be taken to maintain the integrity of the various layers of filter material to assure that contamination of any layer or violation of the minimum specified layer thickness does not occur throughout the entire construction process.

D. The drainage system shall be constructed in the dry.

E. The contractor will be responsible for any damage to the drainage system which occurs during construction of the embankment.

END OF SECTION
35 70 10

SECTION 35 70 12

TOE DRAIN

PART 1 - GENERAL

1.1 DESCRIPTION

A. The toe drain system shall be constructed at the locations shown on the Contract Drawings or as directed by the project Engineer.

B. Care shall be taken to avoid clogging the drains during the progress of the work, and should any drain become clogged or obstructed from any cause before final acceptance of the work, it shall be cleaned out in a manner approved by the project Engineer or replaced by at the expense of the Contractor.

C. No pipe which has been damaged shall be used in the work if, in the opinion of the project Engineer, the pipe is unfit for use.

D. Travel over drainpipe will not be permitted until the pipe has been covered to a depth sufficient to prevent damage to or breakage of the pipe.

E. The toe drain system shall consist of 6 inch I.D. perforated drain pipe surrounded by coarse filter material in turn wrapped in a layer of geotextile (filter fabric). The coarse filter shall provide at least 6 inches of thickness between all points of the pipe and the filter fabric. The filter fabric shall separate the coarse filter from the embankment fill and subgrade at all points.

F. The pipe shall be laid to lines and grades so as to approximately follow the downstream abutment contacts and toe of the existing embankment or as directed by the project Engineer. No portion of the drain system shall be placed with adverse slopes. Toe drain location shall be set in the field by the project Engineer.

PART 2 - PRODUCTS

2.1 MATERIALS

A. The drain pipe shall be 6 inch I.D. PVC drain pipe SDR-35, The pipe shall meet AASHTO M 278 and ASTM F 758 Specifications. All pipe in the dam embankment drain system shall be perforated, except as shown on the Drawings.

B. The fine filter material shall conform to ASTM Specification C-33 Standard Gradation Sand.

C. The coarse filter material shall consist of washed stone conforming to #89 and/or #57 gradation.

D. The geotextile (filter fabric) shall be Linq Industries 180EX, AMOCO 4553, Mirafi 180N or approved equivalent.

PART 3 - EXECUTION

3.1 CONSTRUCTION

A. A typical cross section for the toe drain system is shown on the plans.

B. A general description of the drain system has been presented in Part 1 of this Specification.

C. The methods of lowering the pipe into the trench and placing pipe in position shall be such as to prevent getting dirt inside of the pipe and coupling, and to prevent damage to the pipe.

D. Before and during assembly of a joint, all parts shall be cleaned and shall be free of mud, ice, oil and grease.

E. All joints shall be made in accordance with the manufacturer's recommendations.

F. End caps shall be fastened in place on the upper ends of the drains, and a screen shall be fastened to the discharge end of the pipe.

G. The layers of coarse filter material shall be placed and tamped to provide uniform bedding for the pipe.

H. Care shall be taken to maintain the integrity of the various layers of filter material to assure that contamination of any layer or violation of the minimum specified layer of thickness does not occur.

I. The drain system shall be constructed in the dry.

J. The perforated pipe shall be laid carefully in the coarse filter material. The pipe shall then be covered with the additional minimum thickness of filter materials as shown on the Drawing. The filter materials shall be placed and tamped about the pipe so as not to disturb the pipe and to hold it securely in position while the overlying material is being placed.

K. The contractor will be responsible for any damage to the drain system which occurs during construction of the embankment.

L. Install filter fabric with a minimum 24 inch lap at all fabric joints.

END OF SECTION
35 70 12

SECTION 35 70 14

BLANKET DRAIN

PART 1 - GENERAL

1.1 DESCRIPTION

A. The blanket drain system shall be constructed at the locations shown on the Contract Drawings or as directed by the project Engineer.

B. Care shall be taken to avoid clogging the drains during the progress of the work, and should any drain become clogged or obstructed for any cause before final acceptance of the work, it shall be cleaned out in a manner approved by the project Engineer or replaced by and at the expense of the Contractor.

C. Travel over pipe will not be permitted until the drain has been covered to a depth sufficient to prevent displacement of filter material.

D. The blanket drain system shall consist of a fine filter material compacted in place as indicated on the construction drawings.

PART 2 - PRODUCTS

2.1 MATERIALS

A. The fine filter material shall conform to ASTM Specification C-33 Standard Gradation Sand.

PART 3 - EXECUTION

3.1 CONSTRUCTION

A. A typical cross section for the blanket drain system is shown on the plans.

B. A general description of the drainage system has been presented in Part 1 of this specification.

C. The layers of fine filter material shall be placed and tamped to provide uniform thickness.

D. Care shall be taken to maintain the integrity of the various layers of filter material to assure that contamination of any layer or violation of the minimum specified layer thickness does not occur.

E. The drain system shall be constructed in the dry.

F. The Contractor will be responsible for any damage to the drain system which occurs during construction of the embankment.

END OF SECTION
35 70 14

SECTION 40 05 33

HIGH DENSITY POLYETHYLENE (HDPE) PIPE

PART 1 - GENERAL

1.1 SECTION DESCRIPTION

A. This specification includes high-density polyethylene (PE 3408) pressure pipe primarily intended for sliplining existing low level pipes through earthen dams.

1.2 REFERENCES

Reference:	**Title:**
AWWA C906	Polyethylene (PE) pressure Pipe & Fittings, 4 inch through 63 inch for water dist.
ASTM D3035	Standard Spec for PE Pipe (DR-PR) Based on Controlled Outside Diameter
ASTM D3261	Butt Heat Fusion PE Fittings for PE Pipe & Tubing
ASTM D3350	Standard Specification for PE Pipe & Fittings Materials
ASTM D1238	Melt Flow Index
ASTM D1505	Density of Plastics
ASTM D2837	Hydrostatic Design Basis
NSF Std.#14	Plastic Piping Components & Related Materials

1.3 GENERAL

A. USE
1. High Density Polyethylene (HDPE) pipes/fittings shall be used for sliplining as shown on the drawings.

B. DOCUMENTATION
1. Documentation from the resin's manufacturer showing results of the following tests for resin identification:
(a) Melt Flow Index ASTM D1238
2. Density ASTM D1505

C. MANUFACTURER
1. All HDPE pipe and fittings shall be from a single manufacturer, who is fully experienced, reputable and qualified in the manufacture of the HDPE pipe to be furnished. The pipe shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications. Qualified manufacturers shall be: PLEXCO Division of Chevron Chemical Company, DRISCOPIPE as manufactured by Phillips Products Co., Inc., SCLAIRPIPE as manufactured by Dupont of Canada or equal as approved by the Engineer.

D. FINISHED PRODUCT EVALUATION
1. Production staff shall check each length of pipe produced for the items listed below. The results of all measurements shall be recorded on production sheets, which become part of the manufacturer's permanent records.
a. Pipe in process shall be checked visually, inside and out for cosmetic defects (grooves, pits, hollows, etc.)
b. Pipe outside diameter shall be measured using a suitable periphery tape to ensure conformance with ASTM F714 or ASTM D3035, whichever is applicable.
c. Pipe wall thickness shall be measured at 12 equally spaced locations around the circumference at both ends of the pipe to ensure conformance with ASTM F714 or ASTM D3035, whichever is applicable.
d. Pipe length shall be measured.
e. Pipe marking shall be examined and checked for accuracy.
f. Pipe ends shall be checked to ensure they are cut square and clean.
g. Subject inside surface to a "reverse bend test" to ensure the pipe is free of oxidation (brittleness).

E. STRESS REGRESSION TESTING
1. The polyethylene pipe manufacturer shall provide certification that stress regression testing has been performed on the specific polyethylene resin being utilized in the manufacture of this product. This stress regression testing shall have been done in accordance with ASTM D2837 and the manufacturer shall provide a product supplying a minimum Hydrostatic Design Basis (HDB) of 1,600 psi as determined in accordance with ASTM D2837.

F. COMPATIBILITY
1. Contractor is responsible for compatibility between pipe materials, fittings and appurtenances.

PART 2 - PRODUCTS

2.1 MATERIALS FOR PIPE SIZES 4-INCH DIAMETER AND LARGER

A. Materials used for the manufacture of polyethylene pipe and fittings shall be made from a PE 3408 high density polyethylene resin compound meeting cell classification 345434C per ASTM D3350; and meeting Type lll, Class C, Category 5, Grade P34 per ASTM D1238.
B. High Density Polyethylene (HDPE) pipe shall comply with AWWA Specifications C906.
C. If rework compounds are required, only those generated in the Manufacturer's own plant from resin compounds of the same class and type from the same raw material supplier shall be used.
D. Dimensions and workmanship shall be as specified by ASTM F714. HDPE fittings and transitions shall meet ASTM D3261. HDPE pipe shall have a minimum density of 0.955 grams per cubic centimeter. All HDPE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi.
E. HDPE pipe and accessories 4-inch diameter and larger, shall be 160 psi at 73.4E F

meeting the requirements of Standard Dimension Ration (SDR) 17 as MINIMUM STRENGTH.

F. The pipe manufacturer must certify compliance with the above requirements.

2.2 FITTINGS

A. All molded fittings and fabricated fittings shall be fully pressure rated to match the pipe SDR pressure rating to which they are made. All fittings shall be molded or fabricated by the manufacturer. No Contractor fabricated fittings shall be used unless approved by the Engineer.

B. The manufacturer of the HDPE pipe shall supply all HDPE fittings and accessories as well as any adapters and/or specials required to perform the work as shown on the Drawings and specified herein.

C. All fittings shall be installed using butt-fused fittings, thermo-fused fittings/couplings, or flanged adapters and must be approved by the Engineer. No size on size wet taps shall be permitted.

D. All transition from HDPE pipe to ductile iron or PVC must be approved by the Engineer and per the HDPE pipe manufacturer's recommendations and specifications.

2.3 PIPE IDENTIFICATION

A. The following shall be continuously indent printed on the pipe or spaced at intervals not exceeding 5-feet:
   1. Name and/or trademark of the pipe manufacturer.
   2. Nominal pipe size.
   3. Dimension ratio.
   4. The letters PE followed by the polyethylene grade in accordance with ASTM
   5. D1248 followed by the hydrostatic design basis in 160's of psi, e.g., PE 3408.
   6. Manufacturing standard reference, e.g., ASTM F714 or D-3035, as required.
   7. A production code from which the date and place of manufacture can be determined.

PART 3 - EXECUTION

3.1 JOINTING METHOD

A. The pipe shall be joined with butt, heat fusion joints as outlined in ASTM D2657. All joints shall be made in strict compliance with the manufacturer's recommendations. A factory qualified joining technician as designated by pipe manufacturer or experienced, trained technician shall perform all heat fusion joints in the presence of the Engineer.

B. Lengths of pipe shall be assembled into suitable installation lengths by the butt-fusion process. All pipe so joined shall be made from the same class and type of raw material made by the same raw material supplier. Pipe shall be furnished in standard laying lengths not to exceed 50 feet and no shorter than 20 feet.

C. On days butt fusions are to be made, the first fusion shall be a trial fusion in the presence of the Engineer. The following shall apply:
   1. Heating plates shall be inspected for cuts and scrapes. The plate temperature shall

be measured at various locations to ensure proper heating/melting per manufacturer's recommendations and approval by the Engineer.

2. The fusion or test section shall be cut out after cooling completely for inspection.
3. The test section shall be 12" or 30 times (minimum) the wall thickness in length and 1" or 1.5 times the wall thickness in width (minimum).
4. The joint shall be visually inspected as to continuity of "beads" from the melted material, and for assurance of "cold joint" prevention (i.e. – joint shall have visible molded material between walls of pipe). Joint spacing between the walls of the two ends shall be a minimum of 1/16" to a maximum 3/16".

D. The polyethylene flange adapters at pipe material transitions shall be backed up by stainless steel flanges conforming to ANSI B16.1 and shaped as necessary to suit the outside dimensions of the pipe. The flange adapter assemblies shall be connected with corrosion resisting bolts and nuts of Type 316 Stainless Steel as specified in ASTM A726 and ASTM A307. All bolts shall be tightened to the manufacturer's specified torques. Bolts shall be tightened alternatively and evenly. After installation apply a bitumastic coating to bolts and nuts.

3.2 INSTALLATION

A. High Density Polyethylene (HDPE) Pipe shall be installed in accordance with the instruction of the manufacturer, as shown on the Drawings and as specified herein. A factory qualified joining technician as designated by the pipe manufacturer shall perform all heat fusion joints.

B. Care shall be taken in loading, transporting and unloading to prevent injury to the pipe. Pipe or fitting shall not be dropped. All pipe or fitting shall be examined before installation, and no piece shall be installed which is found to be defective. Any damage to the pipe shall be repaired as directed by the Engineer.

C. Care shall be taken during transportation of the pipe such that it will not be cut, kinked or otherwise damaged.

D. Ropes, fabric or rubber protected slings and straps shall be used when handling pipes. Chains, cables or hooks inserted into the pipe ends shall not be used. Two slings spread apart shall be used for lifting each length of pipe.

E. Pipes shall be stored on level ground, preferably turf or sand, free of sharp objects, which could damage the pipe. Stacking of the polyethylene pipe shall be limited to a height that will not cause excessive deformation of the bottom layers of pipes under anticipated temperature conditions. Where necessary due to ground conditions, the pipe shall be stored on wooden sleepers, spaced suitably and of such width as not to allow deformation of the pipe at the point of contact with the sleeper or between supports.

F. Pipe shall be stored on clean level ground to prevent undue scratching or gouging. The handling of the pipe shall be in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects. The maximum allowable depth of cuts, scratches or gouges on the exterior of the pipe is 5 percent of wall thickness. The interior pipe surface shall be free of cuts, gouges or scratches.

G. Pipe shall be laid to lines and grade shown on the Drawings with bedding and backfill as shown on the Drawings.

H. Sections of pipe with cuts, scratches or gouges exceeding 5 percent of the pipe wall thickness shall be removed completely and the ends of the pipeline rejoined.

I. The pipe shall be joined by the method of thermal butt fusion, as outlined in PART 3 –

Execution, Section 3.1 Joining Method. All joints shall be made in strict compliance with the manufacturer's recommendations.

J. Flange connections shall be provided with a full-face neoprene gasket.

K. All HDPE pipe must be at the temperature of the existing low level pipe at the time of pressure grouting.

L. If a defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner at no additional cost to the Owner. All pipe and fittings shall be thoroughly cleaned before installation, shall be kept clean until they are used in the work and when laid, shall conform to the lines and grades required.

3.3 CLEANING

A. Before inserting the liner, the pipe must be cleaned. All debris or other materials must be removed from the host pipe.

B. At the conclusion of the work, thoroughly clean all of the new pipe lines to remove all dirt, stones, pieces of wood or other material which may have entered during the construction period.

3.4 GROUTING

A. Use blocks or skids around the pipe to prevent floatation and center the liner. Install blocks or skids in a staggered pattern.

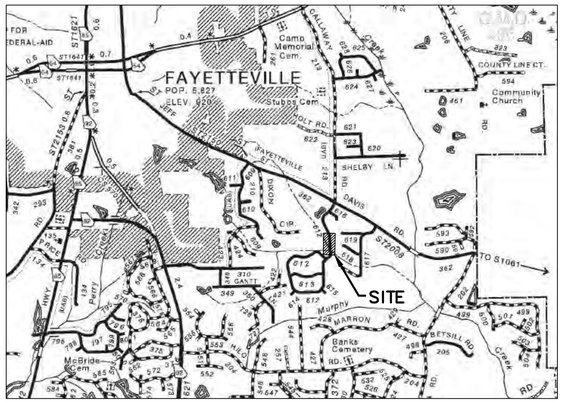
B. Insertion of liner shall be in conformance with all manufacturer's recommendations.

C. After the liner is in place, the area between the original pipe and the liner shall be completely filled with grout in such a manner as to obtain a substantially uniform space between the liner and the original pipe on the top, bottom and sides.

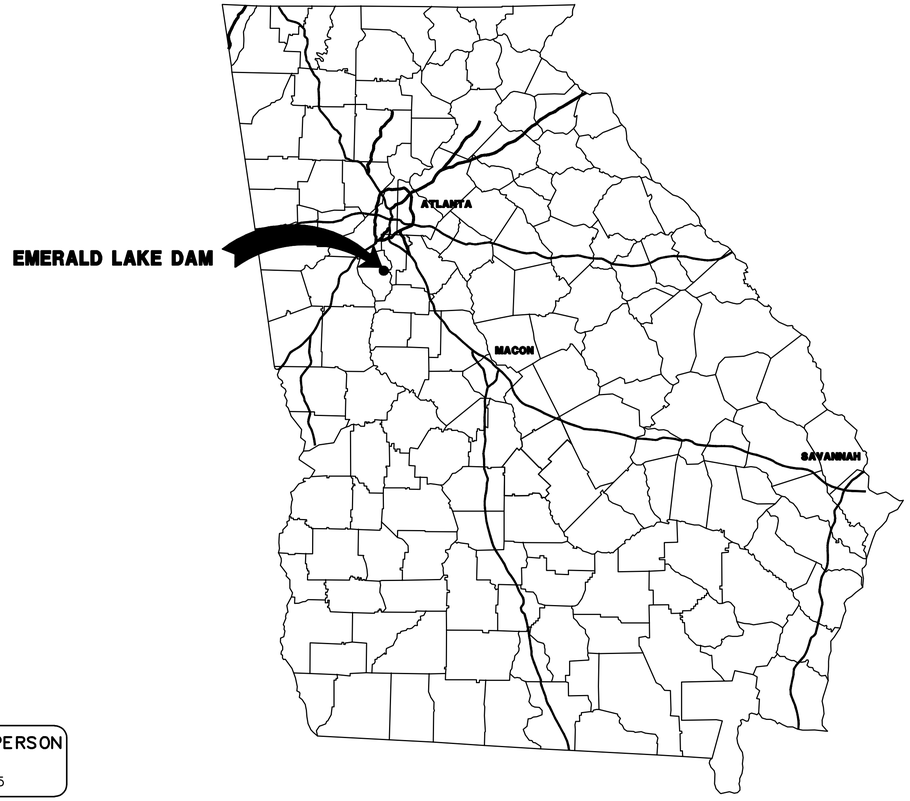
END OF SECTION
40 05 33

EMERALD LAKE DAM REHABILITATION
CONSTRUCTION PLANS
FAYETTE COUNTY, GEORGIA

5th DISTRICT
LAND LOTS 73 & 74



LOCATION MAP
SCALE: N.T.S.
(GDOT FAYETTE COUNTY ROAD MAP)



DRAWING LIST

C-100	SITE WORK	–	RESERVOIR PLAN
C-101	SITE WORK	–	EXISTING CONDITIONS
C-102	SITE WORK	–	DEMOLITION PLAN
C-103	DAM IMPROVEMENTS	–	PHASE 2 UNDERCUT PLAN
C-104	DAM IMPROVEMENTS	–	TEMPORARY ROADWAY PLAN
C-105	DAM IMPROVEMENTS	–	LAYOUT PLAN
C-106	DAM IMPROVEMENTS	–	GRADING PLAN
C-107	SEEPAGE CONTROL	–	PROFILES & SECTIONS
C-108	SEEPAGE CONTROL	–	PROFILES & SECTIONS
C-109	SEEPAGE CONTROL	–	BLANKET & FOUNDATION DRAIN DETAILS
C-110	DAM IMPROVEMENTS	–	MISCELLANEOUS DETAILS
C-200	EROSION CONTROL	–	INITIAL PLAN
C-201	EROSION CONTROL	–	INTERMEDIATE PLAN
C-202	EROSION CONTROL	–	FINAL PLAN
C-203	EROSION CONTROL	–	SECTIONS & DETAILS
C-204	EROSION CONTROL	–	SECTIONS & DETAILS
C-205	EROSION CONTROL	–	SECTIONS & DETAILS
C-206	EROSION CONTROL	–	NOTES
C-207	EROSION CONTROL	–	NOTES
S-300	PRIMARY SPILLWAY	–	PLAN & PROFILE
S-301	PRIMARY SPILLWAY	–	LABYRINTH WEIR SECTIONS & DETAILS
S-302	PRIMARY SPILLWAY	–	LABYRINTH WEIR SECTIONS & DETAILS
S-303	PRIMARY SPILLWAY	–	CHUTE SECTIONS & DETAILS
S-304	PRIMARY SPILLWAY	–	CHUTE SECTIONS & DETAILS
S-305	PRIMARY SPILLWAY	–	STILLING BASIN SECTIONS & DETAILS
S-306	PRIMARY SPILLWAY	–	STILLING BASIN SECTIONS & DETAILS
S-307	PRIMARY SPILLWAY	–	EXIT CHANNEL PLAN & SECTION
S-308	PRIMARY SPILLWAY	–	MISCELLANEOUS DETAILS
S-309	GEORGIA DOT	–	STANDARD DETAILS
S-310	STRUCTURAL PLANS	–	SECTIONS & DETAILS

OWNER
FAYETTE COUNTY BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214

24 HR. CONTACT PERSON
PHIL MALLON
(770) 313-9855

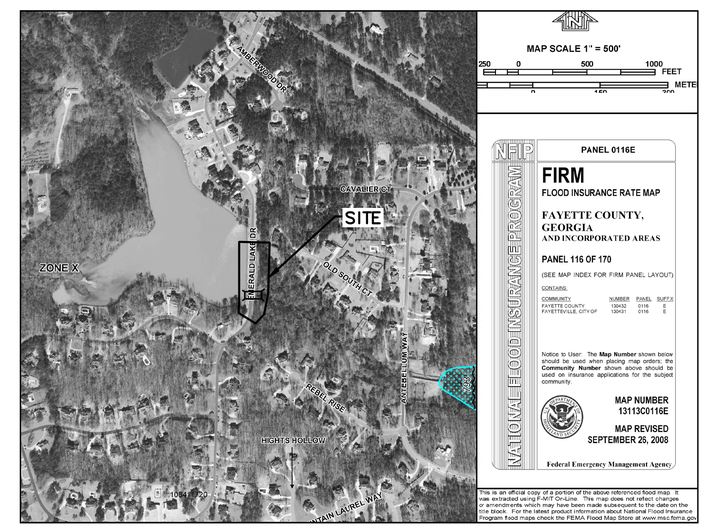
PROJECT DESIGN ENGINEER
WALDEN, ASHWORTH & ASSOCIATES, INC.
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956-7879
CONTACT: MARTIN L. WALDEN, P.E., E.O.R..

PROJECT GEOTECHNICAL CONSULTANTS
PIEDMONT GEOTECHNICAL CONSULTANTS, INC.

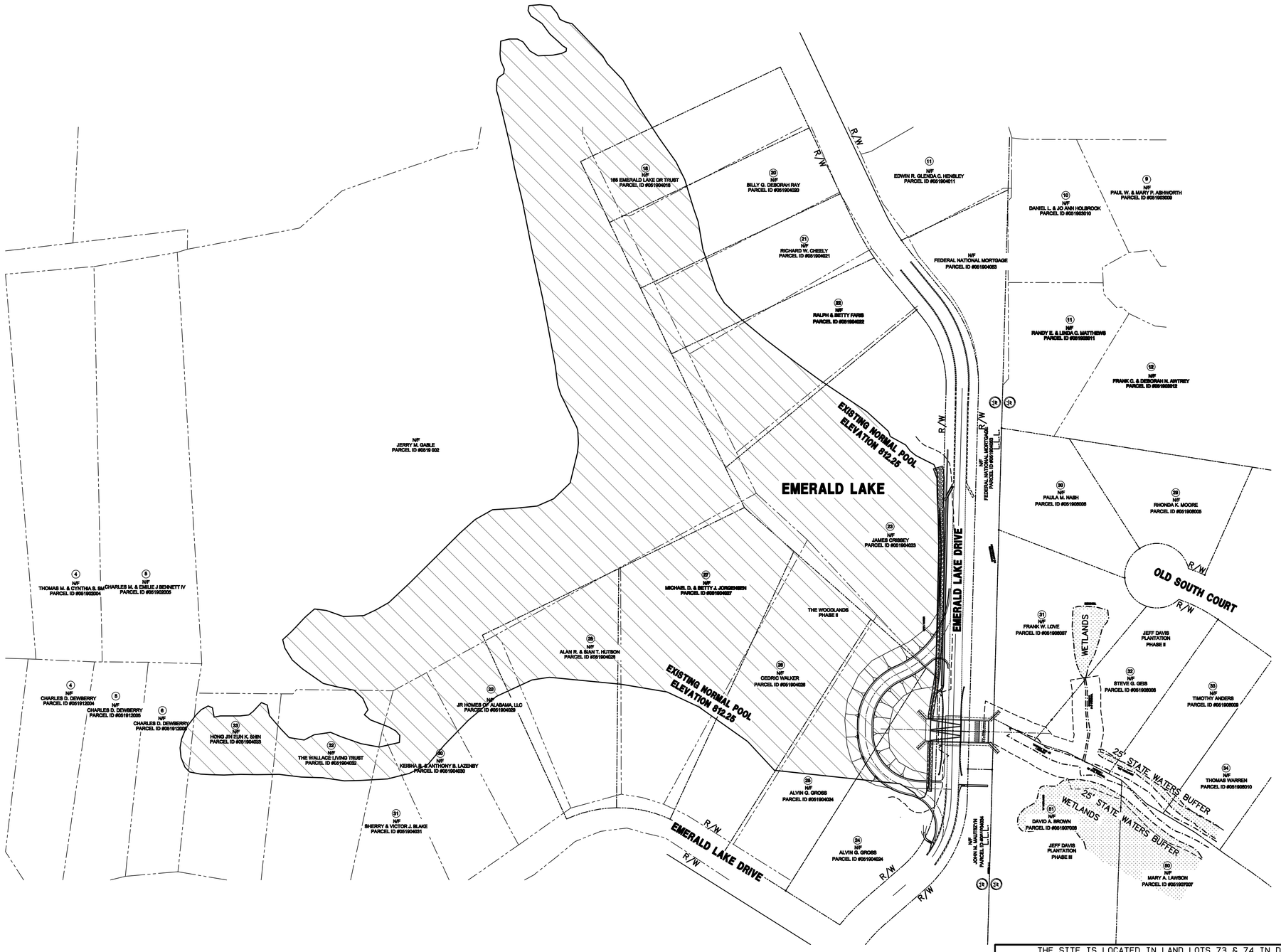
FOR BID PURPOSES ONLY 02/26/16

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065

WA&A JOB NO. 3400500



F.I.R.M. PANEL
MAP NUMBER 13181C0100A
SCALE: AS SHOWN



NOTES

1. SEE DRAWING NO. C-105 FOR GENERAL NOTES AND LEGEND.
2. PROPERTY LINES SHOWN ARE APPROXIMATE AND ARE BASED ON FAYETTE COUNTY GIS PARCEL INFORMATION AVAILABLE ON FAYETTE COUNTY'S PUBLIC GIS PORTAL (WEBSITE).

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

PRIMARY PERMITTEE
OWNER:
FAYETTE COUNTY BOARD OF COMMISSIONERS 140 STONEWALL AVENUE WEST FAYETTEVILLE, GEORGIA 30214 CONTACT: MR. PHIL MALLON PHONE: (770) 313-9855

24 HR. CONTACT PERSON
PHIL MALLON (770) 313-9855

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5, FAYETTE COUNTY, GA
LOCATED ON EMERALD LAKE DRIVE.

FOR BID PURPOSES ONLY
NOT FOR CONSTRUCTION

NO.	REVISIONS	MADE	CKD.	DATE

NO.	REVISIONS	MADE	CKD.	DATE

	DATE
SCALE: 1"=100'	
DESIGN BY: JMH	02/16
DRAWN BY: JMH	02/16
CHECKED BY: MLW	02/16
SUPV. BY:	

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

EMERALD LAKE DAM REHAB
SITE WORK
RESERVOIR PLAN
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

JOB NO.	DRAWING NUMBER	REV. NO.
3400500	34005-C-100	0

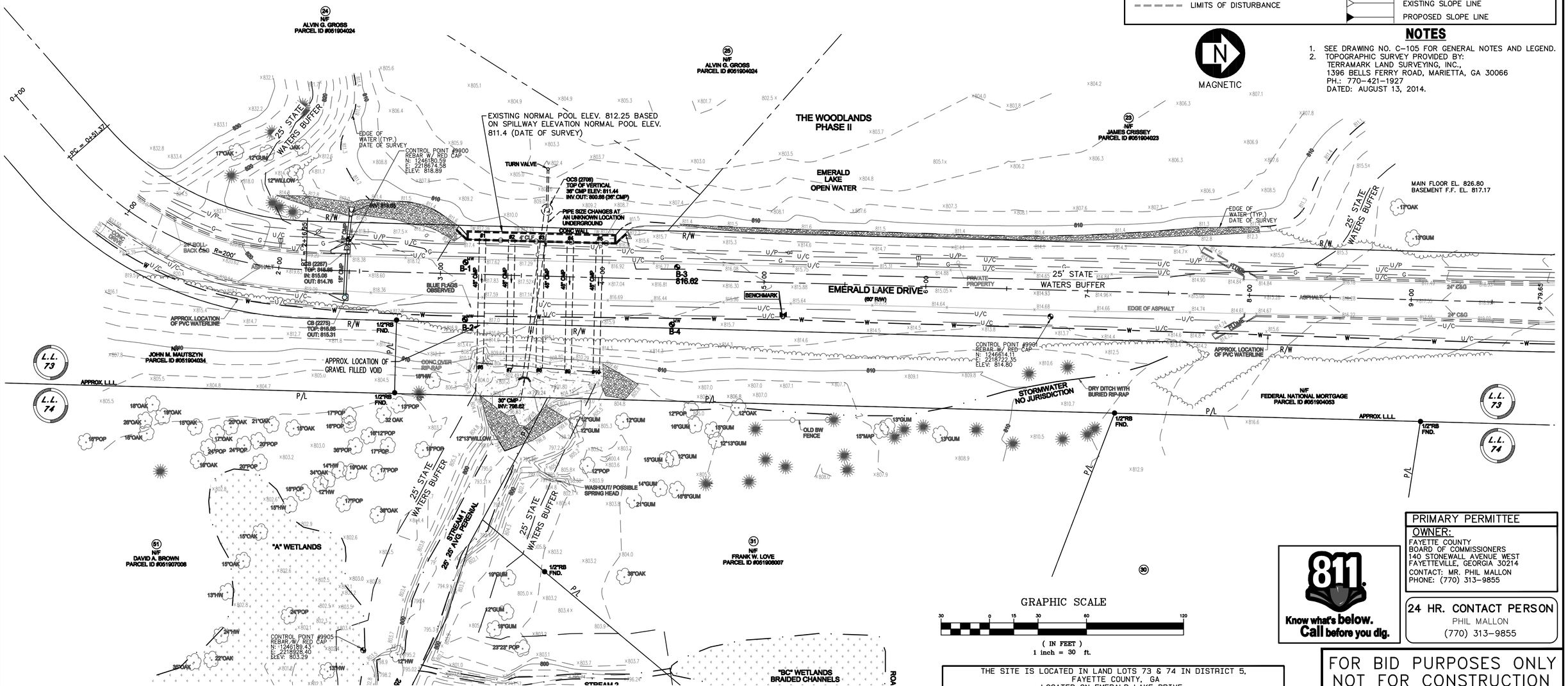
LEGEND

- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- PROPOSED WATER SURFACE (C-100)
- WETLANDS
- RIPRAP AND/OR WAVE PROTECTION
- EXISTING CONCRETE
- PREFABRICATED BRIDGE
- ASPHALT DRIVE (PVMT REPLACEMENT)
- RETAINING WALL
- LIMITS OF DISTURBANCE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- PROPOSED CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- EXISTING TREE LINE
- EXISTING TREE (HARDWOOD AND PINE)
- BORING LOCATION
- UNDERGROUND COMMUNICATION LINE
- UNDERGROUND POWER LINE
- GAS LINE
- WATER LINE
- PROPOSED UNDERGROUND UTILITY LINE
- RIGHT OF WAY
- EXISTING SLOPE LINE
- PROPOSED SLOPE LINE

MAGNETIC

NOTES

1. SEE DRAWING NO. C-105 FOR GENERAL NOTES AND LEGEND.
2. TOPOGRAPHIC SURVEY PROVIDED BY:
   TERRAMARK LAND SURVEYING, INC.,
   1396 BELLS FERRY ROAD, MARIETTA, GA 30066
   PH.: 770-421-1927
   DATED: AUGUST 13, 2014.



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5, FAYETTE COUNTY, GA
LOCATED ON EMERALD LAKE DRIVE.

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NO.	REVISIONS	MADE	CKD.	DATE

		DATE
SCALE:	1"=30'	
DESIGN BY:	JMH	02/16
DRAWN BY:	JMH	02/16
CHECKED BY:	MLW	02/16
SUPV. BY:		

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

EMERALD LAKE DAM REHAB
SITE WORK
EXISTING CONDITIONS
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

JOB NO. 3400500

DRAWING NUMBER 34005- C-101

REV. NO. 0

MAGNETIC

NOTES

1. SEE DRAWING NO. C-105 FOR GENERAL NOTES AND LEGEND.
2. DEMOLISH AND REMOVE ALL NOTED STRUCTURES INCLUDING FOUNDATIONS AND ANY OTHER SUB SURFACE STRUCTURES.
3. MONITORING WELLS (TO BE ABANDONED) TO BE FILLLED WITH BENTONITE CHIPS/PELLETS.

TEMPORARY ROADWAY (COFFER DAM) SHALL BE CONSTRUCTED AND INSPECTED BY THE ENGINEER AND FAYETTE COUNTY BEFORE THE CONTRACTOR MAY BEGIN DEMOLITION ACTIVITIES. SEE DWG. C-104 TEMPORARY ROADWAY PLAN FOR COFFER DAM INFORMATION, ETC.

LIMITS OF DISTURBANCE REMOVE ALL TREES AND VEGETATION WITHIN L.O.D.

EXISTING PIPES AND DRAIN STRUCTURE TO BE REMOVED

EXISTING LOW LEVEL PIPE TO REMAIN UNTIL AFTER NEW 30" HDPE LOW LEVEL DRAIN AND ANY OTHER DRAINS THE CONTRACTOR WISHES TO INSTALL TO CONTROL STORMWATER DURING CONSTRUCTION. (PH. 2)

EXISTING RIPRAP TO BE REMOVED

EMERALD LAKE OF-FN WATER

EMERALD LAKE DRIVE (60' R/W)

SAW CUT LIMITS FOR PAVEMENT REMOVAL

REMOVE AND REPLACE CATCH BASINS AND HEADWALL. INSTALL NEW PIPES W/ BEDDING, ETC.

ABANDON

EXISTING PIPES TO BE REMOVED

BOTTOM OF PHASE 1 UNDERCUT TO ELEVATION 805.0

EXISTING CONCRETE TO BE REMOVED

PHASE 1 UNDERCUT LIMITS TO EXTEND 5-FT MIN. BEYOND 48"ø PIPES AND DRAIN STRUCTURE; AND THEN EXTEND AT A 2:1 SLOPE TO EXISTING GRADE. NOTE THAT PHASE I LIMIT ON RIGHT SIDE COULD BE EXPANDED. ACTUAL LIMIT IS GOING TO BE DICTATED BY PHASE II CUT. (SEE C-103 A)

"A" WETLANDS

25' STATE WATERS BUFFER

STREAM 1 25 AVG. PERENNIAL

STORMWATER NO JURISDICTION

DRY DITCH WITH BURIED RIP-RAP

OLD BW FENCE

EXISTING FLUME TO BE REMOVED

APPROX. L.L.L.

L.L. 73

L.L. 74

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

PRIMARY PERMITTEE

OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
CONTACT: MR. PHIL MALLON
PHONE: (770) 313-9855

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

24 HR. CONTACT PERSON
PHIL MALLON
(770) 313-9855

FOR BID PURPOSES ONLY
NOT FOR CONSTRUCTION

NO.	REVISIONS	MADE	CKD.	DATE

NO.	REVISIONS	MADE	CKD.	DATE

		DATE
SCALE:	1" = 30'	
DESIGN BY:	JMH	02/16
DRAWN BY:	JMH	02/16
CHECKED BY:	MLW	02/16
SUPV. BY:		

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5, FAYETTE COUNTY, GA LOCATED ON EMERALD LAKE DRIVE.

EMERALD LAKE DAM REHAB
SITE WORK
DEMOLITION PLAN
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

JOB NO.	DRAWING NUMBER	REV. NO.
3400500	34005-C-102	0

LIMITS OF DISTURBANCE
REMOVE ALL TREES AND VEGETATION WITHIN L.O.D.

TEMPORARY ROADWAY AND COFFER DAM, SEE DWG. C-104 FOR ADDL. INFORMATION.

36" HDPE DRAIN, SEE COFFER DAM DWG. C-104 FOR ADDL. INFORMATION.

HDPE DRAIN(S) UNDER COFFER DAM, SEE DWG. C-104 FOR ADDL. INFORMATION

BOTTOM OF COFFER DAM UNDERCUT LIMITS, ELEVATION 791.0 , WITH A 1.5:1 SLOPE TO EXISTING GRADE.

SUBGRADE & SUBSURFACE CONDITIONS BENEATH COFFER DAM/ACCESS ROAD ARE UNKNOWN. CONTRACTOR SHOULD ANTICIPATE SOFT/WET SOIL CONDITIONS THAT MAY REQUIRE UNDERCUTTING AND REPLACEMENT, SOIL BRIDGING OR OTHER METHODS TO CONSTRUCT A STABLE EMBANKMENT.

28" HDPE DRAIN, SEE COFFER DAM DWG. C-104 FOR ADDL. INFORMATION.

25' STATE WATERS BUFFER

EDGE OF WATER (TYP.) DATE OF SURVEY

64 LF 28" HDPE

158 LF 36" HDPE

254 LF 36" HDPE

EMERALD LAKE OF-EN-WATER

INV: 813.85

CB (2267) TOP: 818.85 IN: 815.05 OUT: 814.76

CB (2275) TOP: 818.86 OUT: 815.31

2:1 SLOPE (TYP.)

BLUE FLAGS OBSERVED

APPROX. LOCATION OF PVC WATERLINE

SAW CUT LIMITS FOR PAVEMENT REMOVAL

C102 C107 C103

EMERALD LAKE DRIVE (50' R/W)

BENCHMARK

PRIVATE PROPERTY

SAW CUT LIMITS FOR PAVEMENT REMOVAL AND STORM SEWER INSTL.

EXISTING FLUMES TO BE REMOVED

APPROX. L.L.L.

P/L

R/W

BOTTOM OF PHASE 2 UNDERCUT LIMITS, ELEVATION 791.0 , WITH A 2:1 SLOPE TO EXISTING GRADE.

BOTTOM OF PHASE 2 UNDERCUT LIMITS, ELEVATION 805.0 , WITH A 2:1 SLOPE TO EXISTING GRADE.

AREA THAT MAY REQUIRE ADDITIONAL UNDERCUTTING. TO BE DETERMINED IN THE FIELD BY THE ENGINEER DURING UNDERCUTTING OPERATIONS.

STORMWATER NO JURISDICTION

DRY DITCH WITH BURIED RIP-RAP

L.L. 73

L.L. 74

TOP OF BANK OF SPILLWAY

WASHOUT/ POSSIBLE SPRING HEAD

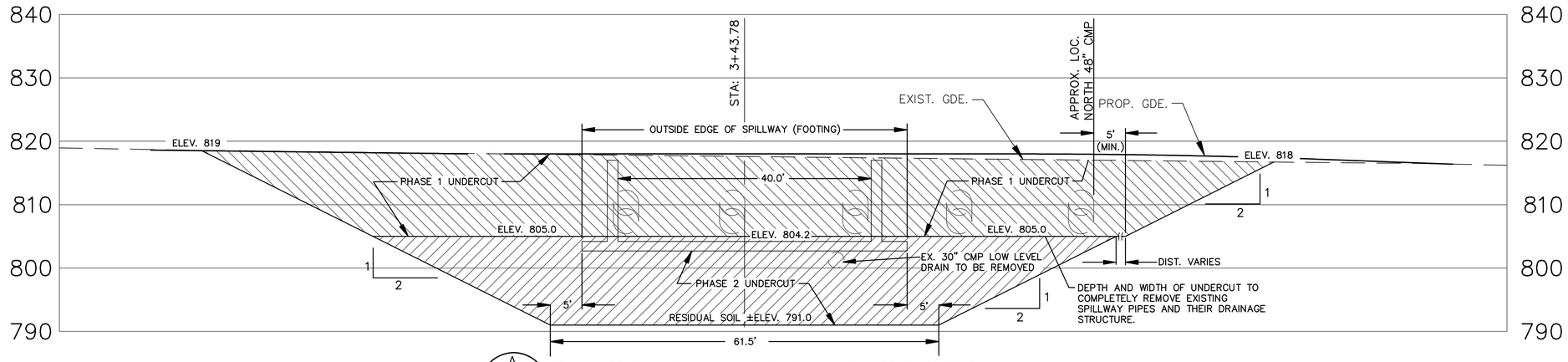
"A" WETLANDS

STREAM 1 25' AVG. PERENNIAL

25' STATE WATERS BUFFER

PHASE 2 UNDERCUT PLAN

SCALE: 1" = 30'



A C103 C103 PHASE 2 UNDERCUT SECTION

SCALE: 1" = 10' HORZ. & VERT.

MAGNETIC

NOTES

1. SEE DRAWING NO. C-104 FOR GENERAL NOTES AND LEGEND.

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

PRIMARY PERMITTEE

OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
CONTACT: MR. PHIL MALLON
PHONE: (770) 313-9855

24 HR. CONTACT PERSON
PHIL MALLON
(770) 313-9855

FOR BID PURPOSES ONLY
NOT FOR CONSTRUCTION

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5, FAYETTE COUNTY, GA
LOCATED ON EMERALD LAKE DRIVE.

NO.	REVISIONS	MADE	CKD.	DATE

NO.	REVISIONS	MADE	CKD.	DATE

		DATE
SCALE:	AS SHOWN	
DESIGN BY:	JMH	02/16
DRAWN BY:	JMH	02/16
CHECKED BY:	MLW	02/16
SUPV. BY:		

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

EMERALD LAKE DAM REHAB
DAM IMPROVEMENTS
PHASE 2 UNDERCUT PLAN
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

JOB NO. 3400500

DRAWING NUMBER 34005-C-103

REV. NO. 0

NOTE: THE CONTRACTOR WILL HAVE TO DIVERT THE STREAM AND STORMWATER FLOW, DEWATER AND UNDERCUT FOR THE COFFER DAM (TEMP. ROAD) PRIOR TO BEGINNING DEMOLITION AND/OR UNDERCUTTING OPERATIONS FOR THE SPILLWAY REPLACEMENT.

NOTE: AFTER THE COFFER DAM IS REMOVED, THE CONTRACTOR SHALL RESTORE THE DISTURBED BOTTOM OF THE LAKE TO IT PRE-CONSTRUCTION ELEVATIONS.

INSTALL GDOT STD. JERSEY BARRIER ON THE INSIDE AND OUTSIDE OF THE TEMPORARY ROADWAY. OUTSIDE FACE OF BARRIER TO BE 1-FT OUTSIDE OF EDGE OF PAVEMENT.

CURVE DATA:
R = 103.0'
L = 142.8'
Ch= 131.6'

INSTALL GDOT STD. 9017 "J" CONCRETE SPILLWAY (BOTH SIDES OF ROADWAY) WITH RIPRAP AT OUTLET.

CURVE DATA:
R = 75.0'
L = 139.9'
Ch= 74.8'

R = 200.0'

80 LF 28" HDPE

INSTALL 28" HDPE DRAIN (D.R.15.5) UNDER COFFER DAM, UPPER INV. 813.0, LOWER INV. 807.0

NOTE: THE AREA BETWEEN THE COFFER DAM AND THE EX. DAM/SPILLWAY MAY REQUIRE A PUMP TO KEEP THE AREA DRAINED.

INSTALL 36" HDPE DRAIN (D.R. 15.5) UNDER COFFER DAM TO EXISTING RISER. REMOVE EXIST. VALVE.
UPPER INV. 805

164 LF 36" HDPE

254 LF 36" HDPE

CURVE DATA:
R = 103.0'
L = 120.7'
Ch= 113.9'

INSTALL 36" HDPE DRAIN (D.R.15.5) UNDER COFFER DAM TO EXISTING ROADWAY. PROVIDE TEMPORARY PLUG AT EACH END OF PIPE.
UPPER INV. 801.7

NOTE: THE CONTRACTOR MAY INSTALL ADDITIONAL TEMPORARY PIPES UNDER COFFER DAM, THAT MAY BE EXTENDED BEYOND DAM CONSTRUCTION TO CONTROL DRAINAGE DURING CONSTRUCTION.

CURVE DATA:
R = 175.0'
L = 200.3'
Ch= 189.5'

TURN VALVE

30"x45° BEND

OCS (2708)
TOP OF VERTICAL
36" CMP ELEV: 811.44
INV OUT: 800.88 (36" CMP)

PIPE SIZE CHANGES AT AN UNKNOWN LOCATION UNDERGROUND

CONC WALL

#1 #2 14' CLF #3 #4 #5

OPEN WATER

R/W

90°

45" CMP

#6 #7 #8 #9 #10

30" CMP
INV: 798.62

799.0

EMERALD LAKE
(60' R/W)

BENCHMARK

PLACE TEMPORARY UTILITIES IN COFFER DAM (BEFORE PLACEMENT OF GAB AND ASPHALT). ALL COST OF RELOCATING TEMPORARY UTILITIES TO BE PAID BY THE CONTRACTOR.

UNDERCUT LIMITS FOR SPILLWAY, AS SHOWN ON DWG. C-103.

MAINTAIN POSITIVE DRAINAGE DURING ALL CONSTR. OPERATIONS INCL. UNDERCUTTING.

INSTALL NEW CUT-IN GAS LINE VALVES, ON EACH SIDE (TO ISOLATE THE GAS LINE TO BE RELOCATED AND THE PORTION TO BE ABANDONED AND REMOVED). INSTALL REPLACEMENT GAS LINE AS SHOWN.

3W FENCE

PLACE GDOT 9039 TEMPORARY WOODEN BARRICADE ACROSS EACH END OF ROADWAY WITH DETOUR SIGNAGE, ETC.; AS NECESSARY TO DIVERT TRAFFIC AWAY FROM THE CONSTRUCTION AREA. (BOTH ENDS). THE CONTRACTOR WILL BE RESPONSIBLE FOR PREPARING A TRAFFIC CONTROL PLAN FOR DIVERTING TRAFFIC AROUND CONSTRUCTION, UNTIL THE PROJECT IS COMPLETED AND ACCEPTED BY THE ENGINEER AND THE OWNER.

INSTALL NEW CUT-IN WATERLINE VALVES, ON EACH SIDE (TO ISOLATE THE WATER LINE TO BE RELOCATED AND THE PORTION TO BE ABANDONED AND REMOVED). INSTALL REPLACEMENT WATERLINE AS SHOWN.

NOTE: PLACE WATERLINE 3-FT BELOW THE PROPOSED RIPRAP BASIN'S FILTER FABRIC (TOP OF WATERLINE ELEV. 792.0), SEE DWG. 3-307 FOR RIPRAP BASIN SECTIONS.

NOTE: PLACE GAS LINE 3-FT BELOW THE PROPOSED RIPRAP BASIN'S FILTER FABRIC (TOP OF WATERLINE ELEV. 792.0), SEE DWG. 3-307 FOR RIPRAP BASIN SECTIONS.

A

B
C102 C107
C104

PLAN
SCALE: 1" = 20'

NOTE:
CONTRACTOR IS RESPONSIBLE FOR PROPERLY DISPOSING OF UNDERCUT MATERIAL (PH. 1 AND PH.2) OFFSITE AND FOR REPLACING THE MATERIAL WITH SUITABLE SOILS, WHICH WOULD NEED TO BE PRE-APPROVED BY GEOTECHNICAL ENGINEER AND THEN STOCKPILED OFFSITE.

TEMPORARY COFFER DAM NOTES:

1. THE COFFER DAM & ACCESS ROAD ARRANGEMENT/ALIGNMENT SHOWN ON THIS DRAWING IS CONCEPTUAL ONLY. THE CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE DESIGN OF THE TEMPORARY COFFER DAM INCLUDING LAYOUT AND ALIGNMENT AS NECESSARY TO PROTECT THE WORK THROUGHOUT THE CONSTRUCTION PERIOD AND PROVIDE FOR CONTROL OF TRAFFIC.
2. THE COFFER DAM/ACCESS ROAD MUST BE BUILT TO A MINIMUM ELEVATION OF 818 FEET AND PROVIDE MINIMUM CROSS-SECTION. SEE C-107, DETAIL A, AND C-110 TEMPORARY ASPHALT DRIVE DETAIL.
2. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE WORK FROM DAMAGE RESULTING FROM STORMWATER. ANY DAMAGE RESULTING FROM ANY RAINFALL EVENT OR EVENTS REGARDLESS OF THE AMOUNT OR DURATION OF THE RAINFALL SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER BY THE CONTRACTOR WITHOUT ANY ADDITIONAL COMPENSATION.
4. THE LAKE SHALL GENERALLY BE MAINTAINED BY THE CONTRACTOR IN A DRAINED CONDITION BY KEEPING THE LOW LEVEL DRAINS FULLY OPERATIONAL. THE WATER LEVEL IN THE LAKE WILL RISE SUBSTANTIALLY DUE TO RAINFALL EVENTS. SEE THE TABLE ON THIS DRAWING FOR PROJECTED WATER SURFACE ELEVATIONS ASSOCIATED WITH VARIOUS STORM EVENTS.
5. THE REQUIREMENT TO PERFORM ALL CONSTRUCTION "IN THE DRY" SHALL NOT BE OBVIATED BY AN ELEVATED WATER LEVEL IN THE RESERVOIR.

NOTE:
TEMPORARY ROADWAY AND DRAINAGE MUST BE IN PLACE PRIOR TO ANY DEMOLITION AND/OR EXCAVATION AND UNDERCUTTING FOR THE LABYRINTH WEIR CONSTRUCTION.

STORM	INCOMING FLOW (CFS)	EXISTING OUTFLOW (CFS)	EXISTING W.S. ELEV. (FT)	TEMP. DRAIN FLOW (CFS)	TEMP. DRAIN W.S. ELEV. (FT)	PROPOSED OUTFLOW (CFS)	PROPOSED W.S. ELEV. (FT)
2 YEAR	547	425	813.5	124	809.3	495	813.1
5 YEAR	859	588	814.2	144	811.9	790	813.4
10 YEAR	976	616	814.6	152	812.8	900	813.5
25 YEAR	1,470	1,095	815.7 ✡	359	815.5 ✡ ▽	1,356	814.0
50 YEAR	1,654	1,324	815.9 ✡	580	815.7 ✡ ▽	1,519	814.2
100 YEAR	1,935	1,658	816.2 ✡	944	816.0 ✡ ▽	1,772	814.5
1/4 PMP	3,124	2,907	816.8 ✡	N/A	N/A	2,717	815.8

✡ DENOTES OVERTOPPPING DAM/ROAD

NOTE: PROPOSED FLOWS ARE BASED ON THE LABYRINTH AND WALL BEING CONSTRUCTED. EXISTING FLOWS ARE BASED ON THE EXISTING BOX AND 5-48" PIPES AND THE EXISTING 30" LOW LEVEL (CMP) DRAIN. TEMPORARY FLOWS ARE BASED ON 30" CMP LOW LEVEL DRAIN AND 36" HDPE DRAIN THRU COFFER DAM AND DAM/ROAD

NOTE:
THE TEMPORARY LOW LEVEL (30" HDPE) PIPE EXTENSION AND THE TEMPORARY 36' (HDPE) PIPE PROVIDES STORMWATER CONTROL FOR STORMS UP TO THE 10-YR STORM EVENT WITH THE LAKE FULLY DRAINED (DURING CONSTRUCTION). THE CONTRACTOR IS RESPONSIBLE FOR COFFER DAM DESIGN INCLUDING TEMPORARY DRAINAGE DESIGN FOR ALL STORMS EXCEEDING THE 10-YR STORM EVENT. THIS PROJECT MAY REQUIRE THE USE OF PUMPS IN ORDER TO PREVENT THE DAM FROM OVERTOPPING DURING STORM EVENTS.

NOTE:
TEMPORARY COFFER DAM TO PROTECT WORK AREA DURING CONSTRUCTION. COFFER DAM SHALL BE DESIGNED BY GA PE. DESIGN CALCULATIONS AND SHOP DWG SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. TEMPORARY COFFER DAM SHALL BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

PRIMARY PERMITTEE
OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
CONTACT: MR. PHIL MALLON
PHONE: (770) 313-9855

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

24 HR. CONTACT PERSON
PHIL MALLON
(770) 313-9855

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5, FAYETTE COUNTY, GA
LOCATED ON EMERALD LAKE DRIVE.

FOR BID PURPOSES ONLY
NOT FOR CONSTRUCTION

NO.	REVISIONS	MADE	CKD.	DATE

NO.	REVISIONS	MADE	CKD.	DATE

SCALE: 1" = 20'	DATE
DESIGN BY: JMH	02/16
DRAWN BY: JMH	02/16
CHECKED BY: MLW	02/16
SUPV. BY:	

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

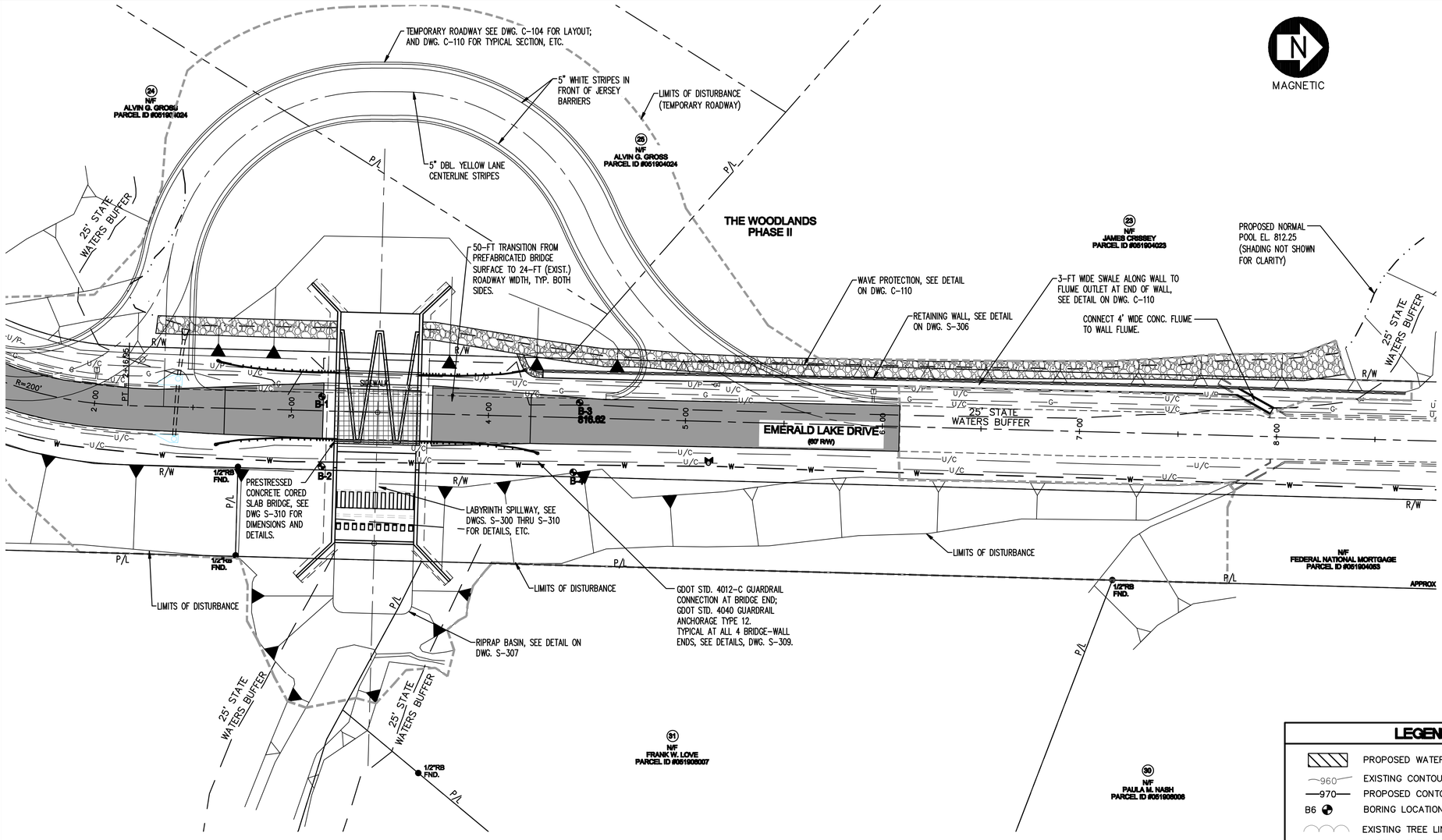
EMERALD LAKE DAM REHAB
DAM IMPROVEMENTS
TEMPORARY ROADWAY PLAN
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

JOB NO. 3400500

DRAWING NUMBER 34005-C-104

REV. NO. 0



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

STORM	INCOMING FLOW (CFS)	TOP OF DAM EL. 814.9 EXISTING OUTFLOW (CFS)	TOP OF DAM EL. 814.9 EXISTING W.S. ELEV. (FT)	TOP OF DAM EL. 816.9 PROPOSED OUTFLOW (CFS)	TOP OF DAM EL. 816.9 PROPOSED W.S. ELEV. (FT)
2 YEAR	547	425	813.5	495	813.1
5 YEAR	859	588	814.2	790	813.4
10 YEAR	976	616	814.6	900	813.5
25 YEAR	1,470	1,095	815.7 ✡	1,356	814.0
50 YEAR	1,654	1,324	815.9 ✡	1,519	814.2
100 YEAR	1,935	1,658	816.2 ✡	1,772	814.5
1/4 PMP	3,124	2,907	816.8 ✡	2,717	815.8

✡ DENOTES OVERTOPPPING

DESIGN INFORMATION

		EXISTING	PROPOSED
TOP OF DAM ELEVATION	=	814.9	816.9 (WALL)
EXISTING NORMAL POOL ELEV.	=	812.25	812.25
100 YEAR POOL ELEVATION	=	816.15 ✡	814.5
1/4 PMP POOL ELEVATION	=	816.8 ✡	815.8
SURFACE AREA AT NORMAL POOL	=	22.5 ACRES	22.5 ACRES
STORAGE AT NORMAL POOL	=	131 ACRE FEET	131 ACRE FEET
SURFACE AREA AT TOP OF DAM	=	27.7 ACRES	30.6 ACRES
STORAGE AT TOP OF DAM	=	198 ACRE FEET	198 ACRE FEET
DRAINAGE BASIN	=	2.13 SQ. MILES	2.13 SQ. MILES
HEIGHT OF DAM	=	20 FEET	22 FEET
LENGTH OF DAM	=	600 ± FEET	600 ± FEET

GEOTECHNICAL NOTES

1. ALL FILL MATERIAL SHALL CONSIST OF CLEAN SOILS, FREE OF DEBRIS, ORGANICS AND ROCK PARTICLES LARGER THAN THREE INCHES IN DIAMETER. FILL SHALL BE PLACED IN MAXIMUM SIX TO EIGHT INCH LIFTS (LOOSE MEASURE). SELECT FILL TO HAVE USCS CLASSIFICATION CL, ML & SC; WITH MINIMUM 30% PASSING #200 SIEVE.
2. ALL FILL MATERIAL FOR THE DAM EMBANKMENT SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER AND SHALL BE COMPACTED TO AT LEAST 95% OF THE SOIL'S STANDARD PROCTOR MAXIMUM DRY DENSITY AT A MOISTURE CONTENT RANGING AT OR ABOVE SOIL'S OPTIMUM MOISTURE.
3. IN AREAS TO RECEIVE FILL, STRIPPING IN THE FOOTPRINT OF DAM WILL BE INCLUDED IN THE UNDERCUT. UNDERCUT QUANTITIES SHALL BE MEASURED FROM THE EXISTING GROUND SURFACE AFTER CLEARING AND GRUBBING HAS BEEN COMPLETED.

LEGEND

- PROPOSED WATER SURFACE (C-100)
- 960 EXISTING CONTOUR
- 970 PROPOSED CONTOUR
- B6 BORING LOCATION
- EXISTING TREE LINE
- 960.5 X EXISTING SPOT ELEVATION
- OBSERVATION WELL
- WETLANDS
- RIPRAP
- PREFABRICATED BRIDGE
- ASPHALT DRIVE (PVMT REPLACEMENT)
- RETAINING WALL
- LIMITS OF DISTURBANCE

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH ALL APPLICABLE STATE, FEDERAL, AND LOCAL CODES. ALL NECESSARY LICENSES AND PERMITS SHALL BE OBTAINED. CONTRACTOR SHALL HAVE ONE COMPLETE SET OF "SAFE DAMS APPROVED" DRAWINGS ON SITE AT ALL TIMES.
2. THE CONTRACTOR SHALL NOT DEVIATE FROM THESE PLANS AND SPECIFICATIONS WITHOUT WRITTEN APPROVAL OF THE DESIGN ENGINEER AND FAYETTE COUNTY'S COUNTY ENGINEER.
3. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO COVER A COMPLETE PROJECT, READY TO USE, AND ALL ITEMS NECESSARY FOR A COMPLETE AND WORKABLE JOB SHALL BE FURNISHED AND INSTALLED.
4. CONTRACTOR SHALL FURNISH AND MAINTAIN ANY AND ALL NECESSARY BARRICADES AROUND THE WORK AND PROVIDE PROTECTION AGAINST WATER DAMAGE AND SOIL EROSION.
5. ALL CONSTRUCTION WORK TO COMPLY WITH APPLICABLE AASHTO, GDOT AND FAYETTE COUNTY STANDARDS AND SPECIFICATIONS. IN THE EVENT OF A CONFLICT, THE MORE STRINGENT SHALL APPLY UNLESS DIRECTED OTHERWISE BY THE ENGINEER. ALL SIGNS AND PAVEMENT MARKINGS, BOTH PERMANENT, SHALL MEET THE STANDARDS ESTABLISHED IN THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION.
6. CONTRACTOR SHALL VERIFY TOPOGRAPHIC AND UTILITY DATA WITH ACTUAL FIELD CONDITIONS PRIOR TO BEGINNING ANY CONSTRUCTION.
7. OWNER: FAYETTE COUNTY BOARD OF COMMISSIONERS.
8. ALL OPEN DRAINAGE SWALES SHALL BE GRASSED, AND RIP RAP MUST BE PLACED AS DIRECTED BY THE ENGINEER.
9. MAXIMUM CUT SLOPE IS 2H:1V EXCEPT WHERE NOTED. FILL SLOPES OUTSIDE OF THE DAM EMBANKMENT SUCH AS SOIL WASTE AREAS, SHALL BE A MAXIMUM OF 4.0H:1V.
10. FILTER FABRIC FOR THE PROJECT SHALL BE LINQ INDUSTRIES 225EX, AMOCO 4553, OR APPROVED EQUAL.
11. TOPOGRAPHIC INFORMATION PROVIDED BY TERRAMARK LAND SURVEYING, INC. DATED 8/4/14.
12. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL UTILITIES AND NOTIFYING THE APPROPRIATE UTILITY COMPANY PRIOR TO BEGINNING CONSTRUCTION.
13. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING STORM SEWER STRUCTURES AND PIPES PRIOR TO CONSTRUCTION.
14. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING IMPROVEMENTS DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURBS, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS.
15. PROJECT IS LOCATED IN LAND LOTS 73 & 74 IN THE 5TH DISTRICT.
16. APPROXIMATELY 2.4 ACRES WILL BE DISTURBED AS A PART OF THIS PROJECT.
17. THE LENGTH OF THIS DAM IS APPROXIMATELY 580'. THE DAM IS APPROXIMATELY 20' HIGH.
18. CONTRACTOR SHALL CLEAN OUT ACCUMULATED SILT THROUGHOUT THE DURATION OF CONSTRUCTION AND AT END OF CONSTRUCTION BEFORE ALL OF THE DISTURBED AREAS ARE STABILIZED.
19. ALL WETLANDS, BUFFERS AND TREE SAVE AREAS SHALL BE CLEARLY IDENTIFIED WITH PROTECTIVE FENCING BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF ANY LAND DISTURBANCE.
20. A 25-FOOT UNDISTURBED BUFFER SHALL BE MAINTAINED ADJACENT TO ALL STREAMS AND BODIES OF WATER EXCEPT WHERE SPECIFIC ENCROACHMENTS ARE INDICATED ON THESE DRAWINGS.
21. WETLANDS DENOTED ON PLANS WERE DELINEATED BY CAMPBELL ENVIRONMENTAL, INC. IN MAY OF 2014.

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

PRIMARY PERMITTEE

OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
CONTACT: MR. PHIL MALLON
PHONE: (770) 313-9855

24 HR. CONTACT PERSON
PHIL MALLON
(770) 313-9855

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5, FAYETTE COUNTY, GA
LOCATED ON EMERALD LAKE DRIVE.

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NOT FOR CONSTRUCTION

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NO.	REVISIONS	MADE	CKD.	DATE

SCALE:	1"=30'
DESIGN BY: JMH	02/16
DRAWN BY: JMH	02/16
CHECKED BY: MLW	02/16
SUPV. BY:	

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

EMERALD LAKE DAM REHAB
DAM IMPROVEMENTS
LAYOUT PLAN
FAYETTE COUNTY

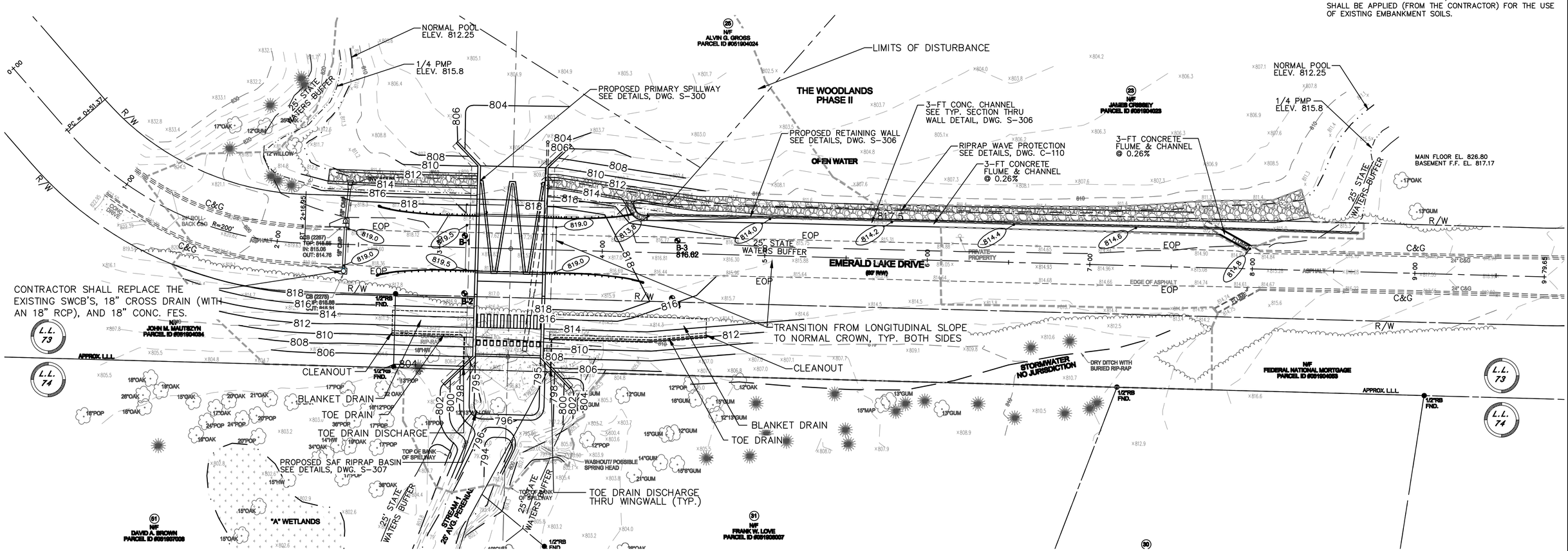
WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

JOB NO. 3400500
DRAWING NUMBER 34005-C-105
REV. NO. 0

NOTES

1. SEE DRAWING NO. C-105 FOR GENERAL NOTES AND LEGEND.
2. PROPERTY LINES SHOWN ARE APPROXIMATE AND ARE BASED ON A TOPOGRAPHIC-R/WURVEY FOR FAYETTE COUNTY, BY TERRAMARK LAND SURVEYING.
3. BLASTING WILL NOT BE PERMITTED WITHOUT PRIOR APPROVAL OF THE ENGINEER.
4. THE GEOTECHNICAL ENGINEER WILL EVALUATE ALL EMBANKMENT CUT TO DETERMINE IF IT IS SUITABLE TO BE USED FOR BACKFILL MATERIAL. FOR BID PURPOSES, ASSUME ALL EXCAVATION WILL BE HAULED OFF AND WASTED, AND SOIL HAULED IN FROM AN APPROVED AREA TO BE USED AS BACKFILL AND/OR FILL MATERIAL. A CREDIT SHALL BE APPLIED (FROM THE CONTRACTOR) FOR THE USE OF EXISTING EMBANKMENT SOILS.

MAGNETIC



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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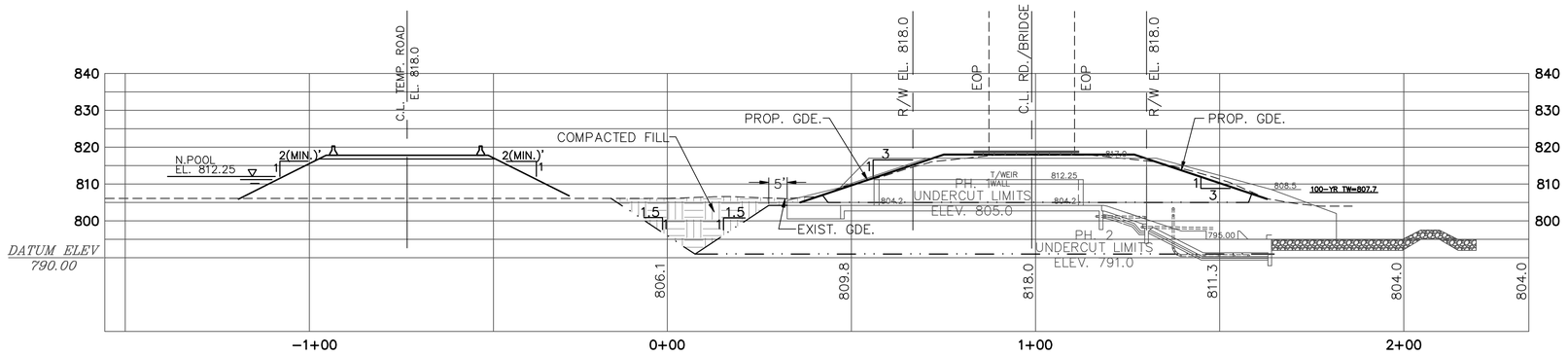
MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

EMERALD LAKE DAM REHAB
DAM IMPROVEMENTS
GRADING PLAN
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

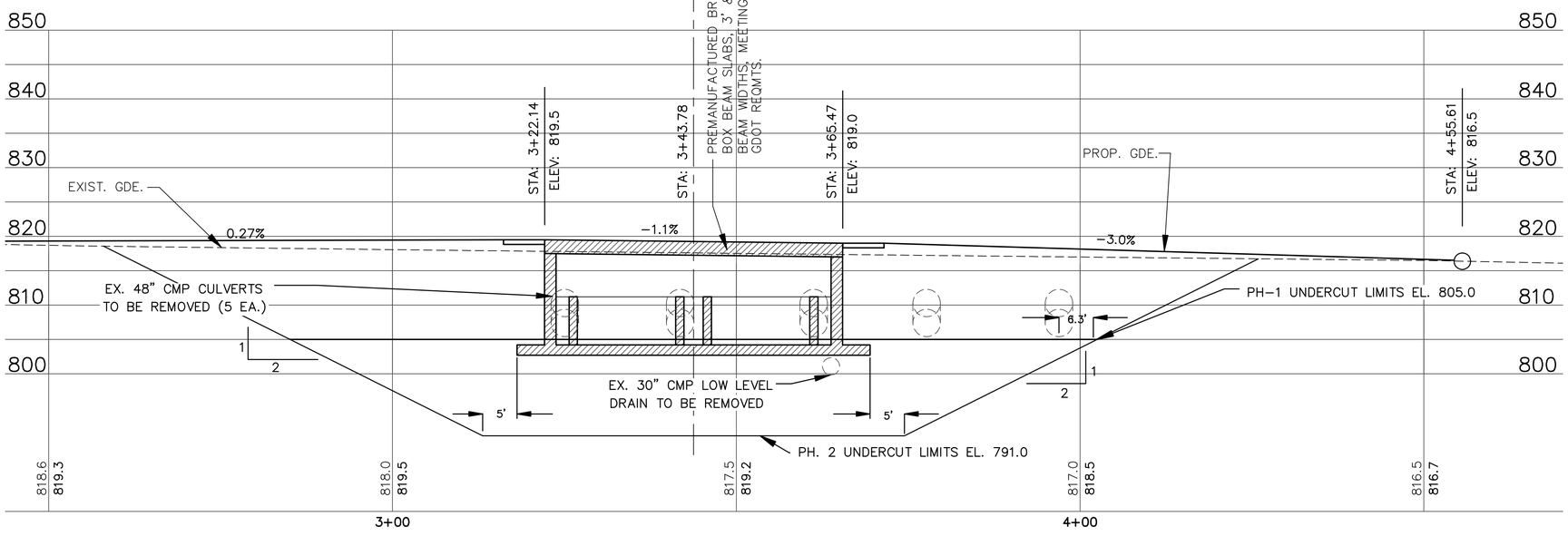
JOB NO.	DRAWING NUMBER	REV. NO.
3400500	34005- C-106	0



B SPILLWAY AND TEMPORARY ROADWAY SECTION

C102 C107 C104

SCALE: 1" = 20' HORZ. & VERT. THROUGH CENTERLINE OF SPILLLWAY



A CENTERLINE PROFILE

C102 C107 C103

SCALE: 1" = 10' HORZ. & VERT. LOOKING UPSTREAM

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SUPV. BY:		

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
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EMERALD LAKE DAM REHAB
SEEPAGE CONTROL
PROFILES & SECTIONS
FAYETTE COUNTY

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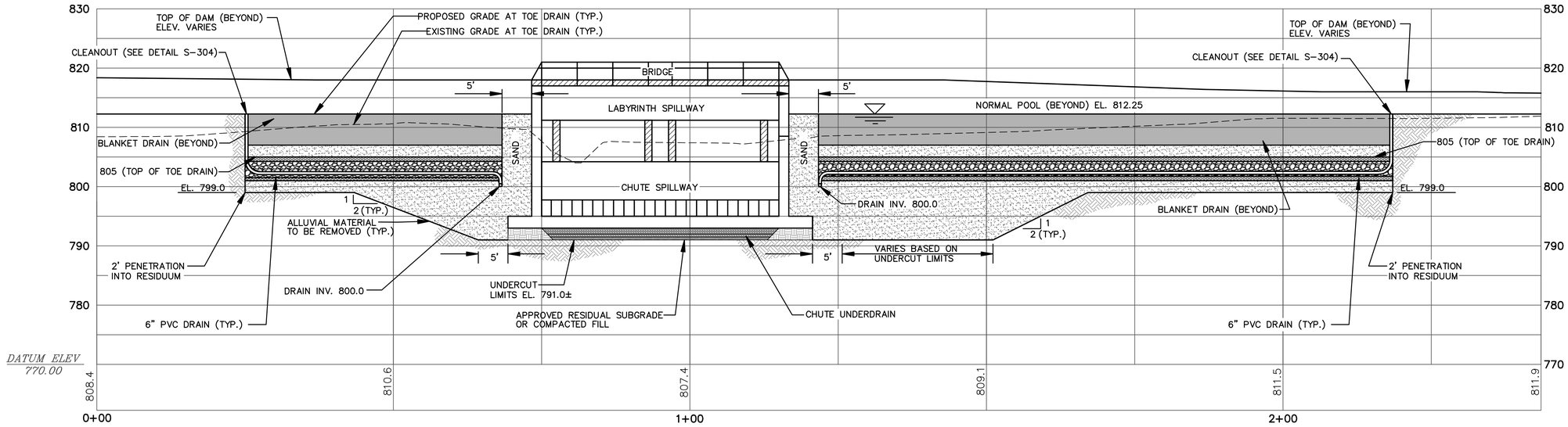
(770) 956 - 7879

JOB NO. 3400500

DRAWING NUMBER 34005- C-107

REV. NO. 0



TOE /FOUNDATION DRAIN PROFILE

SCALE: 1" = 10' HORZ. & VERT. LOOKING UPSTREAM

LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- (LAKE) NORMAL POOL ELEVATION
- SUBGRADE (EXISTING)
- SUBGRADE (PROPOSED)
- BLANKET DRAIN (BEYOND)
- #89 STONE
- #57 STONE
- C33 SAND

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EMERALD LAKE DAM REHAB
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PROFILES & SECTIONS
FAYETTE COUNTY

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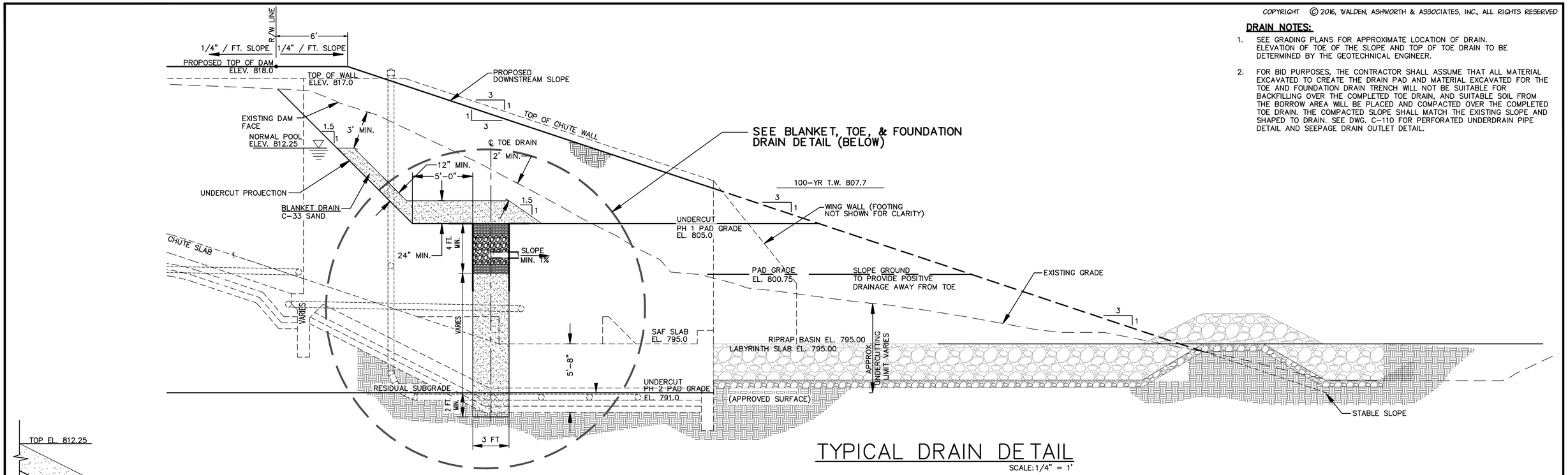
JOB NO. 3400500

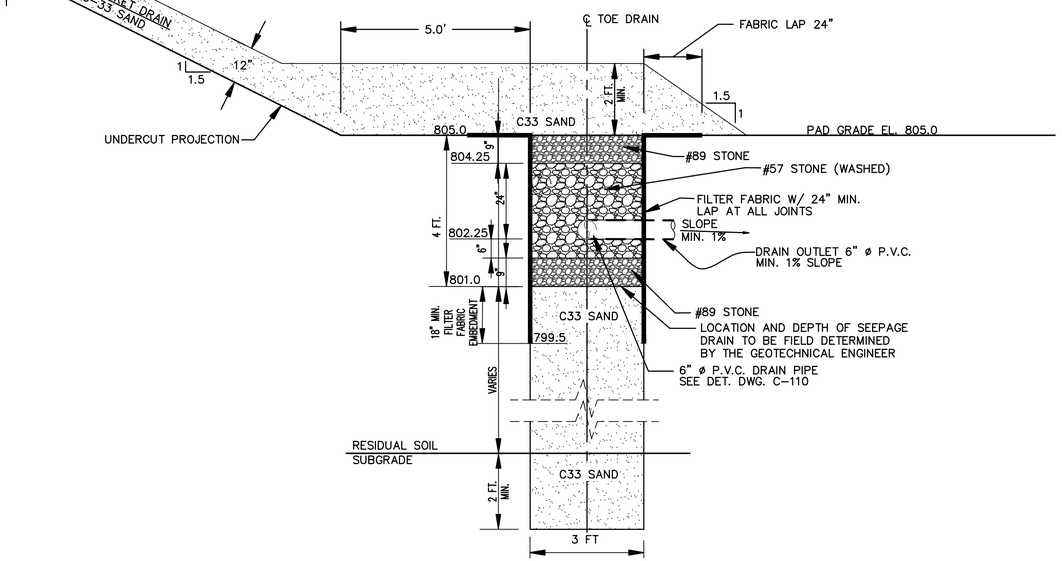
DRAWING NUMBER 34005- C-108

REV. NO. 0



TYPICAL DRAIN DETAIL

SCALE: 1/4" = 1'



BLANKET, TOE, & FOUNDATION DRAIN DETAIL (INSIDE FLOODPLAIN)

SCALE: 1/2" = 1'

DRAIN NOTES:

1. SEE GRADING PLANS FOR APPROXIMATE LOCATION OF DRAIN. ELEVATION OF TOE OF THE SLOPE AND TOP OF TOE DRAIN TO BE DETERMINED BY THE GEOTECHNICAL ENGINEER.
2. FOR BID PURPOSES, THE CONTRACTOR SHALL ASSUME THAT ALL MATERIAL EXCAVATED TO CREATE THE DRAIN PAD AND MATERIAL EXCAVATED FOR THE TOE AND FOUNDATION DRAIN TRENCH WILL NOT BE SUITABLE FOR BACKFILLING OVER THE COMPLETED TOE DRAIN, AND SUITABLE SOIL FROM THE BORROW AREA WILL BE PLACED AND COMPACTED OVER THE COMPLETED TOE DRAIN. THE COMPACTED SLOPE SHALL MATCH THE EXISTING SLOPE AND SHAPED TO DRAIN. SEE DWG. C-110 FOR PERFORATED UNDERDRAIN PIPE DETAIL AND SEEPAGE DRAIN OUTLET DETAIL.

NOTE:

CONTRACTOR SHALL USE A BACKHOE BUCKET WITH A SMOOTH FLAT BLADE TO PERFORM FINAL CLEANUP OF SUBGRADE AND CONSTRUCTION OF FOUNDATION AND TOE DRAINS.

GEOTECHNICAL ENGINEER MUST APPROVE SUBGRADE PRIOR TO BACKFILLING.

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MARTIN L. WALDEN, PE
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EMERALD LAKE DAM REHAB
SEEPAGE CONTROL
BLANKET & FOUNDATION DRAIN DETAILS
FAYETTE COUNTY

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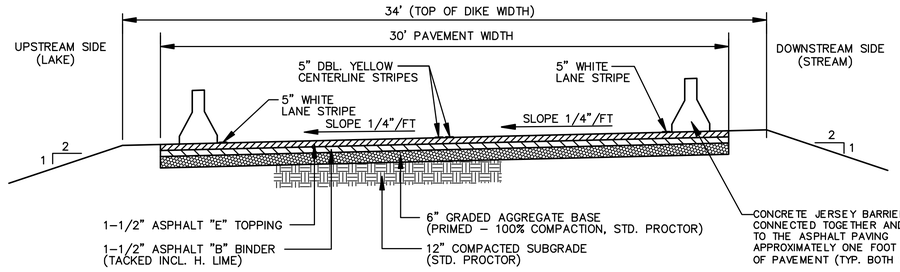
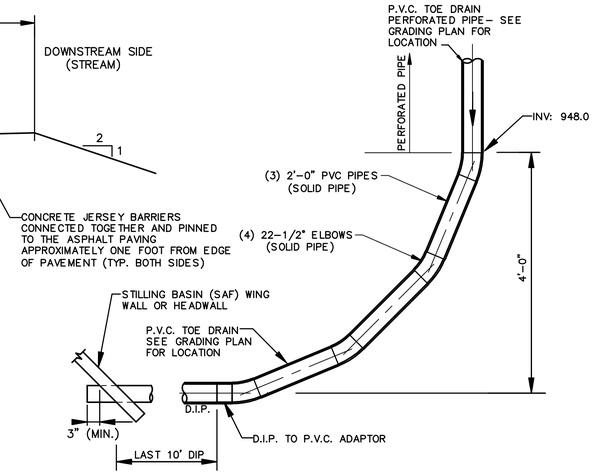
JOB NO.	DRAWING NUMBER	REV. NO.
3400500	34005- C-109	0



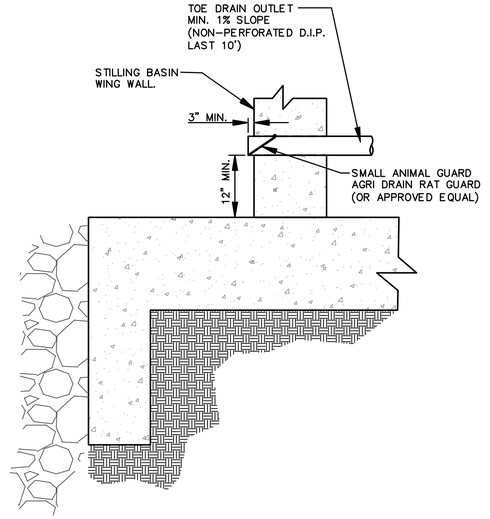
TEMPORARY ASPHALT DRIVE DETAIL

SCALE: 1/4" = 1'



SEE DWG. S-303 FOR CLEANOUT DETAIL

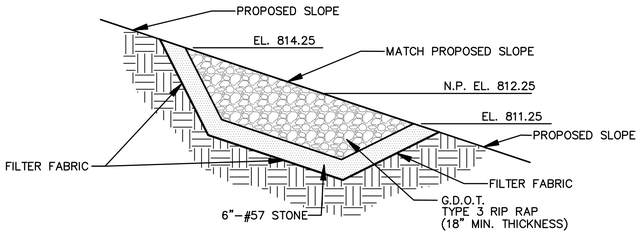
PLAN VIEW



ELEVATION

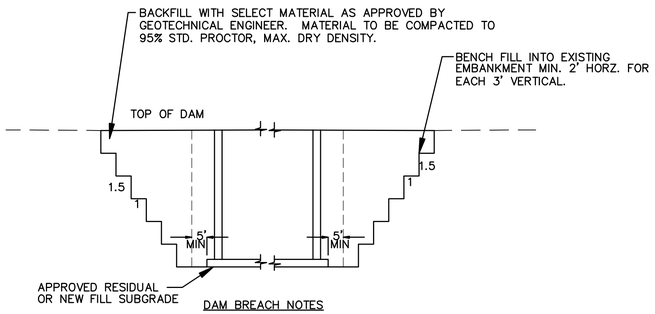
SEEPAGE DRAIN OUTLET DETAIL

SCALE: N.T.S.



RIP RAP WAVE PROTECTION DETAIL

SCALE: 1/2" = 1'



DAM BREACH NOTES

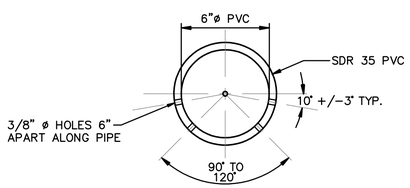
1. THE CONTRACTOR SHALL BREACH THE DAM TO CONSTRUCT THE PROPOSED NEW SPILLWAY. THE WIDTH AT THE BOTTOM OF THE BREACH SHALL BE 5 FEET MINIMUM BEYOND THE STRUCTURE.

EXCAVATION FOR SPILLWAY

SCALE: N.T.S.

LAP SPLICE SCHEDULE									
LOCATION	BAR SIZE								
	#3	#4	#5	#6	#7	#8	#9	#10	#11
HORIZONTAL BARS	18"	24"	30"	36"	42"	48"	60"	74"	88"
VERTICAL BARS	16"	18"	23"	28"	32"	37"	46"	57"	68"

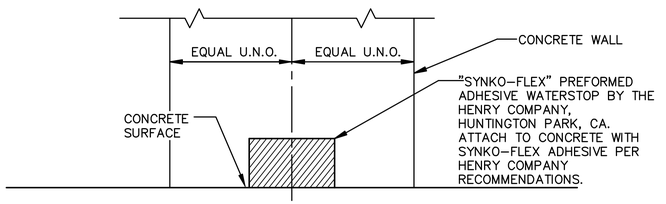
NOTES:
1. LAP SPLICES ARE BASED ON 4000 PSI REG. WT. CONCRETE, MIN. BAR SPACING OF 8", AND MIN. COVER OF 2".
2. LAP ALL BARS IN ACCORDANCE WITH THIS SCHEDULE U.N.O.



NOTE: HOLES TO BE TURNED DOWN IN UNDERDRAIN.

2 C106C110 PERFORATED UNDERDRAIN PIPE DETAIL

SCALE: N.T.S.



TYPE I WATERSTOP DETAIL

N.T.S.

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MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

EMERALD LAKE DAM REHAB
DAM IMPROVEMENTS
MISCELLANEOUS DETAILS
FAYETTE COUNTY

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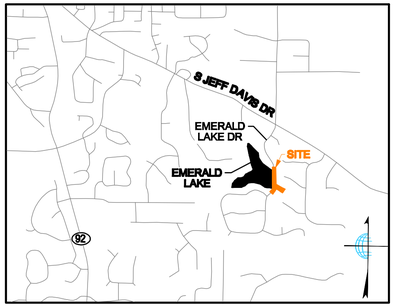
DRAWING NUMBER 34005- C-110

REV. NO. 0



LOCATION MAP
SCALE: NOT TO SCALE

CLEARING PHASE NOTES:

PRIOR TO LAND DISTURBING ACTIVITY, THE CONTRACTOR SHALL SCHEDULE A PRECONSTRUCTION MEETING WITH THE AREA SITE DEVELOPMENT INSPECTOR.

THE CONTRACTOR SHALL OBSERVE THE PROJECT SEQUENCE SHOWN ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN CAREFUL SCHEDULING AND PERFORMANCE TO ENSURE THAT LAND STRIPPED OF ITS NATURAL COVER IS EXPOSED ONLY IN SMALL QUANTITIES.

NO STAGING AREAS, MATERIAL STORAGE, CONCRETE WASH OUT AREAS, OR DEBRIS BURNING AND BURIAL HOLES SHALL BE LOCATED WITHIN 500 FEET OF DESIGNATED TREE PROTECTION AREAS,

A COPY OF THE APPROVED LAND DISTURBANCE PLAN AND PERMIT SHALL BE PRESENT ON THE SITE AT ALL TIMES.

PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, LIMITS OF LAND DISTURBANCE SHALL CLEARLY AND ACCURATELY BE DEMARCATED WITH STAKES, RIBBONS OR OTHER APPROPRIATE MEANS, AND SHALL BE DEMARCATED FOR THE DURATION OF THE CONSTRUCTION ACTIVITY. NO LAND DISTURBANCE SHALL OCCUR OUTSIDE THE LIMITS INDICATED ON THE APPROVED PLANS.

PRIOR TO ANY OTHER CONSTRUCTION, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AT EACH POINT OF ENTRY TO OR EXIT FROM THE SITE OR ONTO ANY PUBLIC ROADWAY.

THE FOLLOWING INITIAL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY:

1. THE CONSTRUCTION EXIT SHALL BE PLACED AS SHOWN ON THE PLANS.

2. IMMEDIATELY AFTER THE ESTABLISHMENT OF CONSTRUCTION EXIT, ALL PERIMETER EROSION CONTROL AND STORMWATER MANAGEMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE CLEARING PHASE EROSION CONTROL PLAN.

3. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO THE START OF ANY LAND DISTURBING ACTIVITY.

WITHIN SEVEN (7) DAYS AFTER INSTALLATION OF INITIAL EROSION CONTROL MEASURES, THE SITE CONTRACTOR SHALL SCHEDULE AN INSPECTION BY THE PROJECT DESIGN PROFESSIONAL. NO OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR UNTIL THE PROJECT PROFESSIONAL APPROVES THE INSTALLATION OF SAID EROSION CONTROL MEASURES. IF UNFORESEEN CONDITIONS EXIST IN THE FIELD THAT WARRANT ADDITIONAL EROSION CONTROL MEASURES, THE CONTRACTOR MUST CONSTRUCT ANY ADDITIONAL EROSION CONTROL DEVICES DEEMED NECESSARY BY THE PROJECT PROFESSIONAL DURING THE SITE INSPECTION.

AFTER APPROVAL OF INITIAL EROSION CONTROL INSTALLATION, THE CONTRACTOR MAY PROCEED WITH CLEARING AND GRUBBING ACTIVITIES. AS CLEARING PERMITS, THE CONTRACTOR SHALL CONSTRUCT SEDIMENT PONDS AS SHOWN ON PLANS.

THE CONTRACTOR CAN UTILIZE CLEARED TREES AS BARRIER BRUSH SEDIMENT CONTROL WHERE INITIAL GRADING ACTIVITIES WILL NOT OCCUR.

NO BURN OR BURY PITS SHALL BE PERMITTED ON THE CONSTRUCTION SITE WITHOUT WRITTEN PERMISSION BY THE OWNER AND/OR THE ENGINEER OF RECORD.

ALL SILT FENCES MUST MEET THE REQUIREMENTS OF SECTION 171–TEMPORARY SILT FENCE FOR THE DEPARTMENT OF TRANSPORTATION, STATE OF GEORGIA, STANDARD SPECIFICATIONS, 1983 EDITION.

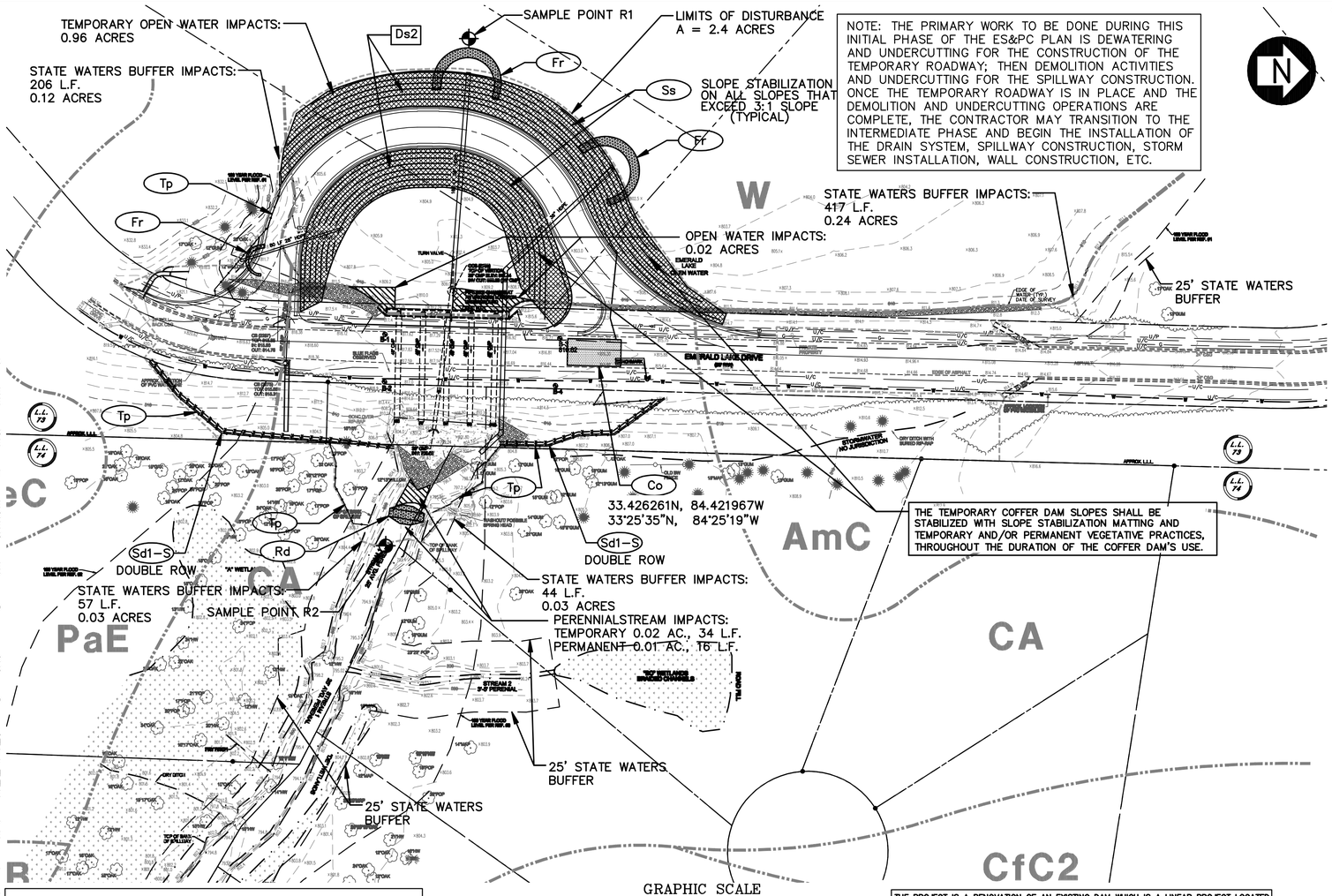
MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 7 DAYS OF LAND DISTURBANCE. ALL DISTURBED AREAS LEFT MULCHED MORE THAN 30 DAYS SHALL BE STABILIZED WITH TEMPORARY VEGETATION.

SEDIMENT AND EROSION CONTROL MEASURES MUST BE CHECKED AFTER EACH RAIN EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED HALF THE CAPACITY OF THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.

THE CONSTRUCTION EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACK OR FLOW OF MUD ONTO PUBLIC RIGHT–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 1"–3" OF STONE, AS CONDITIONS DEMAND. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM A VEHICLE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN MUST BE REMOVED IMMEDIATELY.

CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE PROPER FUNCTIONING.

FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE SITE UNTIL SUCH MEASURES ARE CORRECTED BACK TO THE APPROVED PLANS.



NOTE: THE PRIMARY WORK TO BE DONE DURING THIS INITIAL PHASE OF THE ES&PC PLAN IS DEWATERING AND UNDERCUTTING FOR THE CONSTRUCTION OF THE TEMPORARY ROADWAY; THEN DEMOLITION ACTIVITIES AND UNDERCUTTING FOR THE SPILLWAY CONSTRUCTION. ONCE THE TEMPORARY ROADWAY IS IN PLACE AND THE DEMOLITION AND UNDERCUTTING OPERATIONS ARE COMPLETE, THE CONTRACTOR MAY TRANSITION TO THE INTERMEDIATE PHASE AND BEGIN THE INSTALLATION OF THE DRAIN SYSTEM, SPILLWAY CONSTRUCTION, STORM SEWER INSTALLATION, WALL CONSTRUCTION, ETC.

THE TEMPORARY COFFER DAM SLOPES SHALL BE STABILIZED WITH SLOPE STABILIZATION MATTING AND TEMPORARY AND/OR PERMANENT VEGETATIVE PRACTICES, THROUGHOUT THE DURATION OF THE COFFER DAM'S USE.

Ds1	Ds2	Ds3	Ds	Du	PAM	Ss
MULCHING	TEMP. GRASSING	PERM. GRASSING	SODDING	DUST CONTROL	TACKIFIER & FLOCCULANTS	SLOPE STABILIZATION

(TYPICAL ALL DISTURBED AREAS)

ALL TEMPORARY/PERMANENT STABILIZATION PRACTICES ARE TO BE IN ACCORDANCE WITH THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA.

CONSTRUCTION SCHEDULE

ACTIVITY \ MONTHS	1	2	3	4	5	6	7	8	9	10
SILT FENCE, CONST. EXIT, ROCK DAMS	■									
CLEARING, GRUBBING, FILTER RINGS		■								
TEMP. ROAD, RELOC. UTILS, FILTER RINGS		■								
EROSION CONTROL	■	■	■	■	■	■	■	■	■	
DAM CONSTRUCTION			■	■	■	■	■	■	■	
GRASSING TEMPORARY	■	■	■	■	■	■	■	■	■	
GRASSING FINAL										■
FINAL LANDSCAPING										■

AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMP'S WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.

REVISIONS

DATE	DESCRIPTION

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

STATE WATERS BUFFER (VARIANCE) IMPACTS:
724 L.F.
0.42 ACRES

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND–DISTURBING ACTIVITIES.

CONSTRUCTION EXIT NOTE:

A STABILIZED CONSTRUCTION EXIT WILL BE PROVIDED AT THE END OF THE PROPOSED CONSTRUCTION, AND MAY NEED TO BE MOVED FROM THE ENTRANCE OF THE TEMPORARY ROADWAY TO EACH SIDE OF THE SPILLWAY (CONSTRUCTION AREA). ALL CONSTRUCTION EQUIPMENT WILL BE ON THE DIRT–GRAVEL ROADS. THE (PUBLIC) PAVED STREET WILL BE INSPECTED DAILY FOR TRACKING OF MUD, DIRT, AND ROCK. DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE WILL BE COVERED WITH A TARPAULIN.

THE PROJECT IS A RENOVATION OF AN EXISTING DAM WHICH IS A LINEAR PROJECT LOCATED ON STATE WATERS. THE FOLLOWING TEMPORARY AND PERMANENT MEASURES WILL BE UTILIZED, IN CONJUNCTION TO THE BMP'S DENOTED ON DWGS. C–200, 201 AND 202 TO PREVENT THE ESCAPE OF SEDIMENT FROM ENTERING THE STREAM BELOW THE DAM.

TEMPORARY POLLUTION CONTROL MEASURES DURING CONSTRUCTION:
1. THE LAKE WILL BE DRAINED AND FILTER RINGS INSTALLED IN FRONT OF ALL TEMPORARY STORM PIPES.
2. TEMPORARY COFFER DAM (ROAD) TO PREVENT OVERTOPPING.
3. EROSION PREVENTED WITH TEMPORARY GRASSING.
4. ENERGY DISSIPATORS AND RIPRAP APRON (PRIMARY SPILLWAY).

PERMANENT POLLUTION CONTROL MEASURES AFTER CONSTRUCTION IS COMPLETE:
1. THE LAKE WILL BE RESTORED
2. NEW CONTROL STRUCTURE TO PREVENT OVERTOPPING
3. EROSION PREVENTED WITH PERMANENT GRASSING
4. ENERGY DISSIPATOR AND RIPRAP APRON

ALL WETLANDS WITHIN THE SITE HAVE BEEN DELINEATED.

EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5, FAYETTE COUNTY, GA
LOCATED ON EMERALD LAKE DRIVE.

EROSION CONTROL LEGEND

Co	CONSTRUCTION EXIT
Sd1–?	SEDIMENT BARRIER (TYPE)
Ds2 | Ds3	AREA STABILIZATION (TEMP./PERM. VEGETATION)
Rd	ROCK DAM
	CONCRETE WASHOUT AREA
	LIMITS OF DISTURBANCE
	SOIL DELINEATION
Tp	TREE PROTECTION FENCING
Fr	FILTER RING
Ss	SLOPE STABILIZATION

SOILS LEGEND

AmB	APPLING SANDY LOAM, 2–6% SLOPES
AmC	APPLING SANDY LOAM, 6–10% SLOPES
CA	CARTECAY SOILS
CeC	CECIL SANDY LOAM, 6–10% SLOPES
CfC2	CECIL SANDY CLAY LOAM, 6–10% SLOPES, ERODED
PaE	PACOLET SANDY LOAM, 10–25% SLOPES
W	WATER

NOTE: THE CRITICAL AREA OF THIS SITE IS THE STREAM–CHANNEL DOWNSTREAM OF THE WORK AREA. A DOUBLE ROW OF SILT FENCE AND A ROCK DAM WILL BE UTILIZED TO PREVENT SEDIMENT LEAVING THE WORK AREA.

NOTE: WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

SEE C–203, 204 & 205 FOR EROSION CONTROL DETAILS
SEE C–206 FOR EROSION CONTROL NOTES AND NARRATIVE
SEE C–207 FOR COMPREHENSIVE MONITORING PLAN

NOTE: AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMP'S WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.

STATE WATERS EXIST WITHIN 200 FEET OF THE SITE. THE RECEIVING WATERS FROM THIS SITE IS TRIBUTARY OF MURPHY CREEK.

NOTE: THE TRIBUTARY OF MURPHY CREEK IS NOT LISTED AS CATEGORY 1 ON THE LATEST 303(d) LIST ON GA EPD'S 2014 INTEGRATED LIST.

NOTE: THE CONTRACTOR SHALL INSTALL A DOUBLE ROW OF SILT FENCE TYPE SENSITIVE NEAR WETLANDS AND STATE AND/OR COUNTY WATER BUFFERS.

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

NOTE: NO WASTE DISPOSAL OR PETROLEUM STORAGE IS PERMITTED ON SITE. ALL WASTE DISPOSAL & PETROLEUM STORAGE TO BE OFF SITE. SEE NOTE 8, DWG C–206 FOR SPILL CLEANUP AND CONTROL PRACTICES

NOTE: ALL NON–EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50' UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25–FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.

PRIMARY PERMITTEE
OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
CONTACT: MR. PHIL MALLON
PHONE: (770) 313–9855

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

24 HR. CONTACT PERSON
PHIL MALLON
(770) 313–9855

FOR BID PURPOSES ONLY
NOT FOR CONSTRUCTION

NO.	REVISIONS	MADE	CKD.	DATE

NO.	REVISIONS	MADE	CKD.	DATE

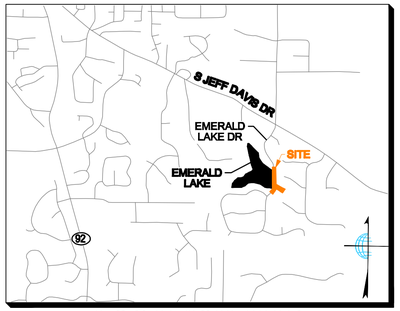
SCALE:	1" = 50'
DESIGN BY:	JMH
DRAWN BY:	JMH
CHECKED BY:	MLW
SUPV. BY:	
DATE	02/16
DATE	02/16
DATE	02/16

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

EMERALD LAKE DAM REHAB
EROSION CONTROL
INITIAL PLAN
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

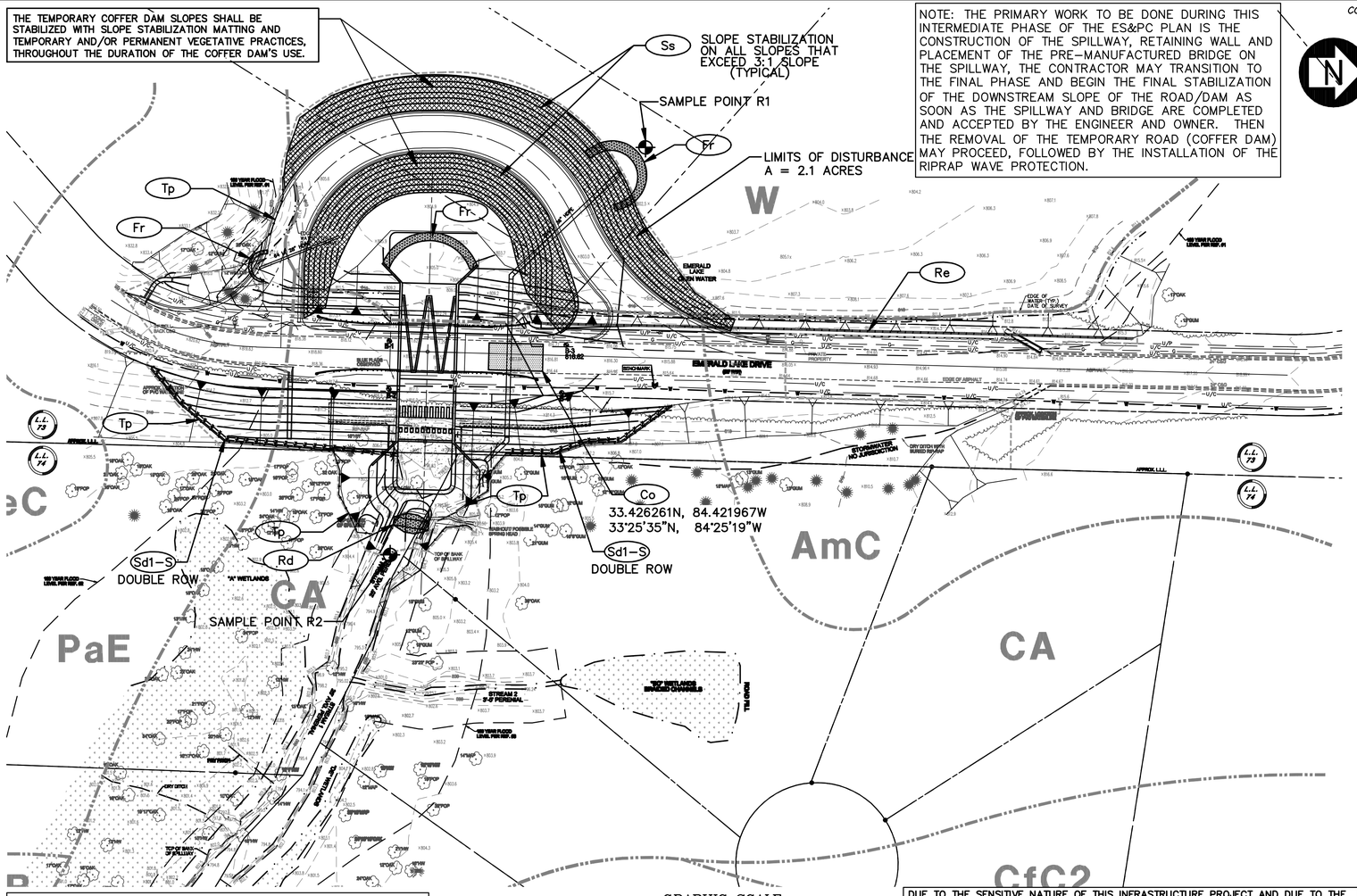
JOB NO.	DRAWING NUMBER	REV. NO.
3400500	34005-C-200	0



LOCATION MAP
SCALE: NOT TO SCALE

THE TEMPORARY COFFER DAM SLOPES SHALL BE STABILIZED WITH SLOPE STABILIZATION MATTING AND TEMPORARY AND/OR PERMANENT VEGETATIVE PRACTICES, THROUGHOUT THE DURATION OF THE COFFER DAM'S USE.

NOTE: THE PRIMARY WORK TO BE DONE DURING THIS INTERMEDIATE PHASE OF THE ES&PC PLAN IS THE CONSTRUCTION OF THE SPILLWAY, RETAINING WALL AND PLACEMENT OF THE PRE-MANUFACTURED BRIDGE ON THE SPILLWAY, THE CONTRACTOR MAY TRANSITION TO THE FINAL PHASE AND BEGIN THE FINAL STABILIZATION OF THE DOWNSTREAM SLOPE OF THE ROAD/DAM AS SOON AS THE SPILLWAY AND BRIDGE ARE COMPLETED AND ACCEPTED BY THE ENGINEER AND OWNER. THEN THE REMOVAL OF THE TEMPORARY ROAD (COFFER DAM) MAY PROCEED, FOLLOWED BY THE INSTALLATION OF THE RIPRAP WAVE PROTECTION.



GRAPHIC SCALE

50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

EROSION CONTROL LEGEND

Co	CONSTRUCTION EXIT
Sd1-?	SEDIMENT BARRIER (TYPE)
Ds2 | Ds3	AREA STABILIZATION (TEMP./PERM. VEGETATION)
Rd	ROCK DAM
	CONCRETE WASHOUT AREA
	LIMITS OF DISTURBANCE
	SOIL DELINEATION
Tp	TREE PROTECTION FENCING
Fr	FILTER RING
Ss	SLOPE STABILIZATION

SOILS LEGEND

AmB	APPLING SANDY LOAM, 2-6% SLOPES
AmC	APPLING SANDY LOAM, 6-10% SLOPES
CA	CARTECAY SOILS
CeC	CECIL SANDY LOAM, 6-10% SLOPES
CfC2	CECIL SANDY CLAY LOAM, 6-10% SLOPES, ERODED
PaE	PACOLET SANDY LOAM, 10-25% SLOPES
W	WATER

GRADING PHASE NOTES:

DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN CAREFUL SCHEDULING AND PERFORMANCE TO ENSURE THAT LAND STRIPPED OF ITS NATURAL GROUND COVER IS EXPOSED ONLY IN SMALL QUANTITIES, AND THEREFORE, LIMITED DURATIONS BEFORE PERMANENT EROSION PROTECTION IS ESTABLISHED.

EARTHWORK OPERATIONS IN THE VICINITY OF STREAM BUFFERS SHALL BE CAREFULLY CONTROLLED TO AVOID DUMPING OR SLOUGHING INTO THE BUFFER AREAS.

EROSION CONTROL DEVICES SHALL BE INSTALLED IMMEDIATELY AFTER GROUND DISTURBANCE OCCURS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES DURING CONSTRUCTION, AND ALTER THE LOCATION OF EROSION CONTROL DEVICES ACCORDINGLY. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE DESIGN PROFESSIONAL IMMEDIATELY.

THE CONTRACTOR SHALL ESTABLISH BARRIERS AT THE TOP OF ALL SLOPES UNDER CONSTRUCTION. CUT AND FILL SLOPES SHALL NOT EXCEED 3:1.

STORM DRAIN OUTLET PROTECTION SHALL BE PLACED AT ALL OUTLET HEADWALLS AS SOON AS THE HEADWALL IS CONSTRUCTED.

ALL DRAINAGE SWALES AND GRADED AREAS SHALL BE APPLIED WITH VEGETATIVE COVER AS SOON AS FINAL GRADE IS ACHIEVED. MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 7 DAYS OF LAND DISTURBANCE. ALL DISTURBED AREAS LEFT MULCHED FOR MORE THAN 30 DAYS SHALL BE STABILIZED WITH TEMPORARY GRASSING.

THE CONTRACTOR SHALL MAINTAIN THE SEDIMENT POND UNTIL PERMANENT GROUNDCOVER IS ESTABLISHED. SEDIMENT SHALL BE CLEAN OUT OF THE POND WHEN IT REACHES ONE THIRD OF THE DEPTH OF THE BASIN.

MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 7 DAYS OF LAND DISTURBANCE. ALL DISTURBED AREAS LEFT MULCHED FOR MORE THAN 30 DAYS SHALL BE STABILIZED WITH TEMPORARY GRASSING.

SEDIMENT AND EROSION CONTROL MEASURES MUST BE CHECKED AFTER EACH RAIN EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED HALF THE CAPACITY OF THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.

CONTRACTOR SHALL INSPECT CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.

THE CONSTRUCTION EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACK OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 1"-3" OF STONE, AS CONDITIONS DEMAND. ALL MATERIALS SPILLED, DROPPED WASHED OR TRACKED FROM A VEHICLE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN MUST BE REMOVED IMMEDIATELY.

FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB UNTIL SUCH MEASURES ARE CORRECTED BACK TO THE APPROVED EROSION CONTROL PLANS.

TEMPORARY SEDIMENT BASIN-STORAGE NOTE:

THE EXIST. LAKE(DRAINED) COLLECTS RUNOFF AND SEDIMENT FROM A 2.1 SQ. MILE DRAINAGE BASIN. THOUGH THERE ARE BMP'S THAT WOULD COLLECT SEDIMENT (DRAINED LAKE) AND PREVENT THEM FROM PASSING THROUGH TO THE DOWNSTREAM CHANNEL, THERE IS NO PLACE TO REDIRECT THAT RUNOFF-SEDIMENT VOLUME TO A TEMPORARY SEDIMENT BASIN, THAT WOULD BE OUTSIDE OF THE WATER OF THE US AND STATE WATERS BUFFERS THEREFORE NO SEDIMENT STORAGE IS PROVIDED FOR THIS PROJECT.

Ds1	Ds2	Ds3	Ds	Du	PAM	Ss
MULCHING	TEMP. GRASSING	PERM. GRASSING	SODDING	DUST CONTROL	TACKIFIER & FLOCCULANTS	SLOPE STABILIZATION

(TYPICAL ALL DISTURBED AREAS)

ALL TEMPORARY/PERMANENT STABILIZATION PRACTICES ARE TO BE IN ACCORDANCE WITH THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA.

CONSTRUCTION SCHEDULE

ACTIVITY \ MONTHS	1	2	3	4	5	6	7	8	9	10
SILT FENCE, CONST. EXIT, ROCK DAMS	■									
CLEARING, GRUBBING, FILTER RINGS		■								
TEMP. ROAD, RELOC. UTILS, FILTER RINGS		■								
EROSION CONTROL		■	■	■	■	■	■	■	■	
DAM CONSTRUCTION			■	■	■	■	■	■	■	
GRASSING TEMPORARY	■	■	■	■	■	■	■	■	■	
GRASSING FINAL										■
FINAL LANDSCAPING										■

AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMP'S WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.

REVISIONS

DATE	DESCRIPTION

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND-DISTURBING ACTIVITIES.

CONSTRUCTION EXIT NOTE:

A STABILIZED CONSTRUCTION EXIT WILL BE PROVIDED AT THE END OF THE PROPOSED CONSTRUCTION, AND MAY NEED TO BE MOVED FROM THE ENTRANCE OF THE TEMPORARY ROADWAY TO EACH SIDE OF THE SPILLWAY (CONSTRUCTION AREA). ALL CONSTRUCTION EQUIPMENT WILL BE ON THE DIRT-GRAVEL ROADS. THE (PUBLIC) PAVED STREET WILL BE INSPECTED DAILY FOR TRACKING OF MUD, DIRT, AND ROCK. DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE WILL BE COVERED WITH A TARPAULIN.

DUE TO THE SENSITIVE NATURE OF THIS INFRASTRUCTURE PROJECT AND DUE TO THE LIMITED CONSTRUCTION AREA, NO CONCRETE WASHDOWN OF TOOLS, CONCRETE MIXERS CHUTES, HOPPERS AND THE REAR OF VEHICLES WILL BE ALLOWED ON THE SITE, UNLESS SO DIRECTED IN WRITTING BY THE COUNTY'S INSPECTOR AND/OR ENGINEERING REPRESENTATIVE.

TEMPORARY POLLUTION CONTROL MEASURES DURING CONSTRUCTION:
1. THE LAKE WILL BE DRAINED AND FILTER RINGS INSTALLED IN FRONT OF ALL TEMPORARY STORM PIPES.
2. TEMPORARY COFFER DAM (ROAD) TO PREVENT OVERTOPPING.
3. EROSION PREVENTED WITH TEMPORARY GRASSING.
4. ENERGY DISSIPATORS AND RIPRAP APRON (PRIMARY SPILLWAY).

PERMANENT POLLUTION CONTROL MEASURES AFTER CONSTRUCTION IS COMPLETE:
1. THE LAKE WILL BE RESTORED
2. NEW CONTROL STRUCTURE TO PREVENT OVERTOPPING
3. EROSION PREVENTED WITH PERMANENT GRASSING
4. ENERGY DISSIPATOR AND RIPRAP APRON

ALL WETLANDS WITHIN THE SITE HAVE BEEN DELINEATED.

EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5, FAYETTE COUNTY, GA
LOCATED ON EMERALD LAKE DRIVE.

NOTE: THE CRITICAL AREA OF THIS SITE IS THE STREAM-CHANNEL DOWNSTREAM OF THE WORK AREA. A DOUBLE ROW OF SILT FENCE AND A ROCK DAM WILL BE UTILIZED TO PREVENT SEDIMENT LEAVING THE WORK AREA.

NOTE: WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

SEE C-203, 204 & 205 FOR EROSION CONTROL DETAILS
SEE C-206 FOR EROSION CONTROL NOTES AND NARRATIVE
SEE C-207 FOR COMPREHENSIVE MONITORING PLAN

NOTE: AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMP'S WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.

STATE WATERS EXIST WITHIN 200 FEET OF THE SITE. THE RECEIVING WATERS FROM THIS SITE IS TRIBUTARY OF MURPHY CREEK.

NOTE: THE TRIBUTARY OF MURPHY CREEK IS NOT LISTED AS CATEGORY 1 ON THE LATEST 303(d) LIST ON GA EPD'S 2014 INTEGRATED LIST.

NOTE: THE CONTRACTOR SHALL INSTALL A DOUBLE ROW OF SILT FENCE TYPE SENSITIVE NEAR WETLANDS AND STATE AND/OR COUNTY WATER BUFFERS.

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

NOTE: NO WASTE DISPOSAL OR PETROLEUM STORAGE IS PERMITTED ON SITE. ALL WASTE DISPOSAL & PETROLEUM STORAGE TO BE OFF SITE. SEE NOTE 8, DWG C-206 FOR SPILL CLEANUP AND CONTROL PRACTICES

NOTE: ALL NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50' UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.

Know what's below. Call before you dig. 811

PRIMARY PERMITTEE

OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
CONTACT: MR. PHIL MALLON
PHONE: (770) 313-9855

24 HR. CONTACT PERSON
PHIL MALLON
(770) 313-9855

FOR BID PURPOSES ONLY
NOT FOR CONSTRUCTION

NO.	REVISIONS	MADE	CKD.	DATE

NO.	REVISIONS	MADE	CKD.	DATE

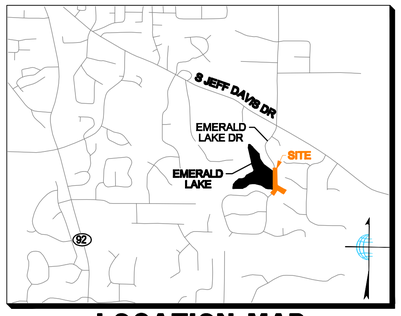
SCALE: 1" = 50'	DATE
DESIGN BY: JMH	02/16
DRAWN BY: JMH	02/16
CHECKED BY: MLW	02/16
SUPV. BY:	

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

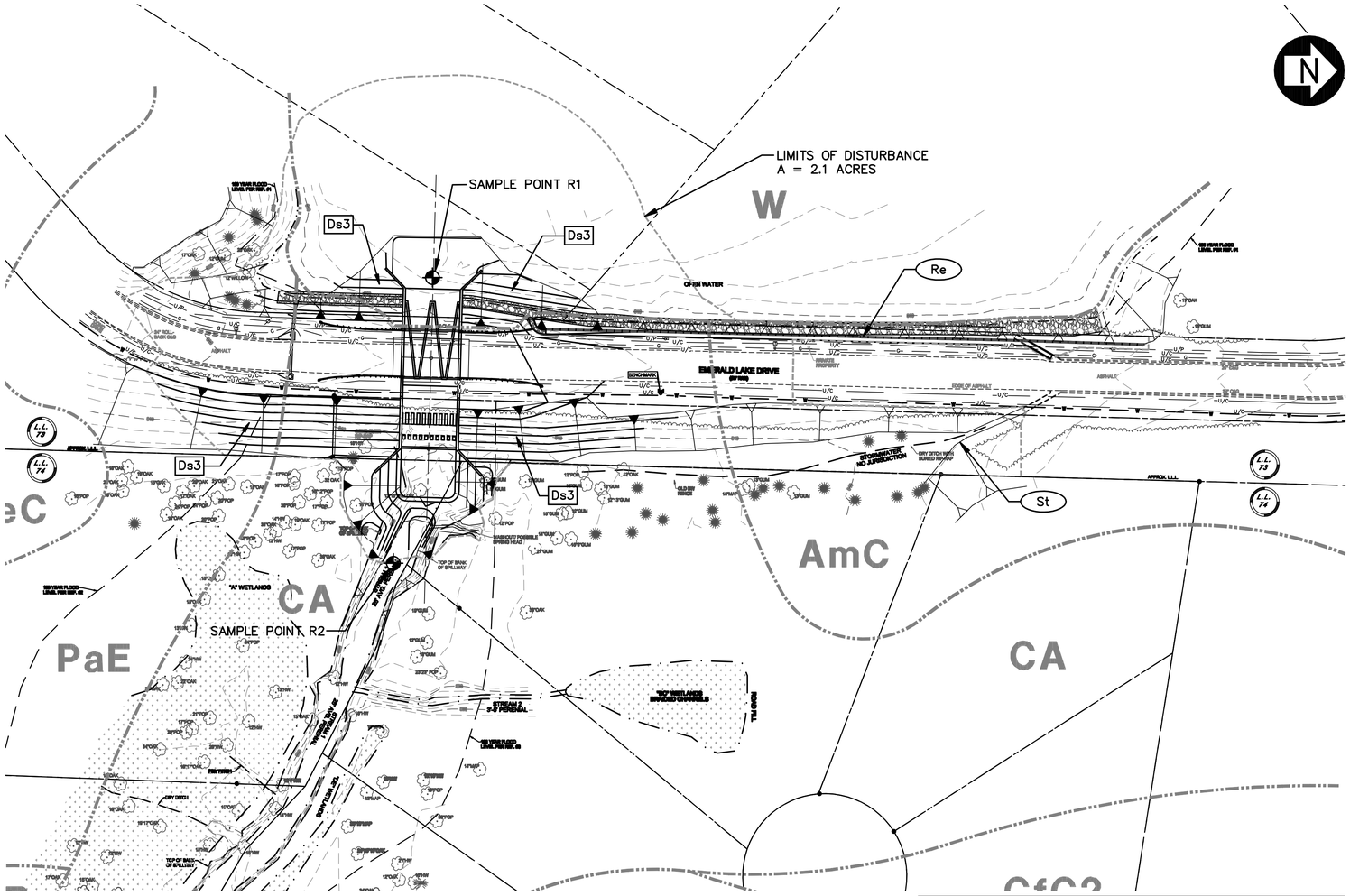
EMERALD LAKE DAM REHAB
EROSION CONTROL
INTERMEDIATE PLAN
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

JOB NO.	DRAWING NUMBER	REV. NO.
3400500	34005-C-201	0



LOCATION MAP
SCALE: NOT TO SCALE



FINAL PHASE NOTES

THE CONTRACTOR SHALL MAINTAIN THE SEDIMENT POND UNTIL PERMANENT GROUNDCOVER IS ESTABLISHED. SEDIMENT SHALL BE CLEANED OUT OF THE POND WHEN IT REACHES ONE THIRD OF THE DEPTH OF THE BASIN.

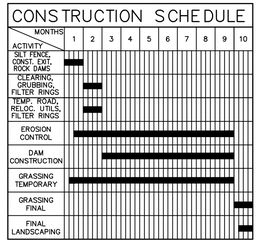
ALL ROADWAY AND PARKING SHOULDERS SHOULD BE GRASSED AS SOON AS FINAL GRADE IS ACHIEVED.

SEDIMENT AND EROSION CONTROL MEASURES MUST BE CHECKED AFTER EACH RAIN EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED HALF THE CAPACITY OF THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.

FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE SITE UNTIL SUCH MEASURES ARE CORRECTED BACK TO THE APPROVED PLANS.

UPON COMPLETION OF THE PROJECT AND RECEIPT OF THE CERTIFICATE OF COMPLETION, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AND DISPOSE OF THEM UNLESS NOTED OTHERWISE ON PLANS.

CONSTRUCTION SCHEDULE



EROSION CONTROL LEGEND

Co	CONSTRUCTION EXIT
Sd1–?	SEDIMENT BARRIER (TYPE)
Du | Ds3	AREA STABILIZATION (PERM. VEGETATION)
Rd	ROCK DAM
	CONCRETE WASHOUT AREA
	LIMITS OF DISTURBANCE APPROXIMATE AREA = 2.0 ACRES
	SOIL DELINEATION
	TREE PROTECTION FENCING
Fr	FILTER RING

SOILS LEGEND

AmB	APPLING SANDY LOAM, 2–6% SLOPES
AmC	APPLING SANDY LOAM, 6–10% SLOPES
CA	CARTECAY SOILS
CeC	CECIL SANDY LOAM, 6–10% SLOPES
CfC2	CECIL SANDY CLAY LOAM, 6–10% SLOPES, ERODED
PaE	PACOLET SANDY LOAM, 10–25% SLOPES
W	WATER

NOTE: THE CRITICAL AREA OF THIS SITE IS THE STREAM–CHANNEL DOWNSTREAM OF THE WORK AREA. A DOUBLE ROW OF SILT FENCE AND A ROCK DAM WILL BE UTILIZED TO PREVENT SEDIMENT LEAVING THE WORK AREA.

NOTE: WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

SEE C–203, 204 & 205 FOR EROSION CONTROL DETAILS
SEE C–206 FOR EROSION CONTROL NOTES AND NARRATIVE
SEE C–207 FOR COMPREHENSIVE MONITORING PLAN

NOTE: AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMP'S WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.

STATE WATERS EXIST WITHIN 200 FEET OF THE SITE. THE RECEIVING WATERS FROM THIS SITE IS TRIBUTARY OF MURPHY CREEK.

NOTE: THE TRIBUTARY OF MURPHY CREEK IS NOT LISTED AS CATEGORY 1 ON THE LATEST 303(d) LIST ON GA EPD'S 2014 INTEGRATED LIST.

NOTE: THE CONTRACTOR SHALL INSTALL A DOUBLE ROW OF SILT FENCE TYPE SENSITIVE NEAR WETLANDS AND STATE AND/OR COUNTY WATER BUFFERS.

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

NOTE: NO WASTE DISPOSAL OR PETROLEUM STORAGE IS PERMITTED ON SITE. ALL WASTE DISPOSAL & PETROLEUM STORAGE TO BE OFF SITE. SEE NOTE 8, DWG C–206 FOR SPILL CLEANUP AND CONTROL PRACTICES.

NOTE: ALL NON–EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50' UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25–FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.

HYDROLOGY STATEMENT:
THE PURPOSE OF THIS PROJECT IS TO RENOVATE THE EXISTING EMERALD LAKE DAM AND IT'S SPILLWAY TO PREVENT OVERTOPPING AS DENOTED IN THE CHART BELOW. THERE WILL BE INCREASES IN THE PEAK RUNOFF RATES FOR THE 2 THRU 100 YEAR STORM EVENTS FOR THE COMPLETED PROJECT WITH THE LAKE LEVEL AT FULL POOL, DURING CONSTRUCTION, THE LAKE LEVEL WILL BE DRAINED, PROVIDING SUFFICIENT STORAGE AND A REDUCTION OF PEAK RUNOFF RATES TO PREVENT AND INCREASE IN FLOWS FOR THE STUDIED STORM EVENTS. THE FULL POOL LAKE INCREASED FLOW RATES WILL BE MITIGATED BY FAYETTE COUNTY SECURING EASEMENTS FROM THE AFFECTED DOWNSTREAM PROPERTY OWNERS FROM THE SPILLWAY DISCHARGE TO THE FLOODPLAIN OF MURPHY CREEK. THE REPLACEMENT OF THE EXISTING CULVERT(S) UNDER ANTEBELLUM WAY WILL REDUCE THE FLOODPLAIN–BACKWATER ELEVATION FOR THE PROPERTIES UPSTREAM OF THE PROPOSED CULVERT REPLACEMENT.

		TOP OF DAM EL. 814.9		TOP OF DAM EL. 816.9	
STORM	INCOMING FLOW (CFS)	EXISTING OUTFLOW (CFS)	EXISTING W.S. ELEV. (FT)	PROPOSED OUTFLOW (CFS)	PROPOSED W.S. ELEV. (FT)
2 YEAR	547	425	813.5	495	813.1
5 YEAR	859	588	814.2	790	813.4
10 YEAR	976	616	814.6	900	813.5
25 YEAR	1,470	1,095	815.7 ✡	1,356	814.0
50 YEAR	1,654	1,324	815.9 ✡	1,519	814.2
100 YEAR	1,935	1,658	816.2 ✡	1,772	814.5
1/4 PMP	3,124	2,907	816.8 ✡	2,717	815.8

✡ DENOTES OVERTOPPPING

BASED ON THE HEC–RAS FLOODPLAIN STUDY PERFORMED ON THE CHANNEL DOWNSTREAM OF THE PROPOSED SPILLWAY, THE 25–YR VELOCITIES FROM THE SPILLWAY'S RIPRAP BASIN (6 FPS) TO THE EXISTING/PROPOSED CULVERT UNDER ANTEBELLUM WAY (8 FPS) VARY DEPENDING ON THE WIDTH AND SLOPE OF THE CHANNEL.

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

Ds1 MULCHING — Ds2 TEMP. GRASSING — Ds3 PERM. GRASSING — Ds SODDING — Du DUST CONTROL — PAM TACKIFIER & FLOCCULANTS — Ss SLOPE STABILIZATION
(TYPICAL ALL DISTURBED AREAS)
ALL TEMPORARY/PERMANENT STABILIZATION PRACTICES ARE TO BE IN ACCORDANCE WITH THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA.

AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMP'S WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND–DISTURBING ACTIVITIES.

PERMANENT POLLUTION CONTROL MEASURES AFTER CONSTRUCTION IS COMPLETE:
1. THE LAKE WILL BE RESTORED
2. NEW CONTROL STRUCTURE TO PREVENT OVERTOPPING
3. EROSION PREVENTED WITH PERMANENT GRASSING
4. ENERGY DISSIPATOR AND RIPRAP APRON

ALL WETLANDS WITHIN THE SITE HAVE BEEN DELINEATED.

EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

REVISIONS

DATE	DESCRIPTION

NO.	REVISIONS	MADE	CKD.	DATE

NO.	REVISIONS	MADE	CKD.	DATE

Know what's below. Call before you dig. 811

PRIMARY PERMITTEE
OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
CONTACT: MR. PHIL MALLON
PHONE: (770) 313–9855

24 HR. CONTACT PERSON
PHIL MALLON
(770) 313–9855

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5, FAYETTE COUNTY, GA
LOCATED ON EMERALD LAKE DRIVE.

FOR BID PURPOSES ONLY
NOT FOR CONSTRUCTION

SCALE:	1" = 50'
DESIGN BY:	JMH
DRAWN BY:	JMH
CHECKED BY:	MLW
SUPV. BY:	
DATE	02/16
DATE	02/16
DATE	02/16

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

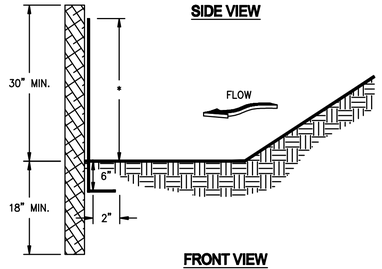
EMERALD LAKE DAM REHAB
EROSION CONTROL
FINAL PLAN
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

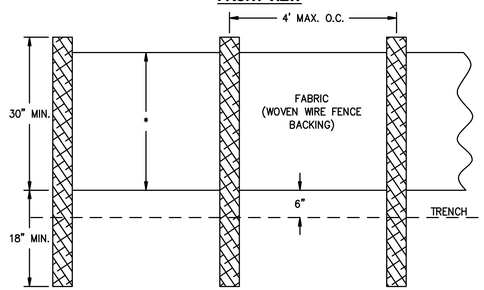
JOB NO. 3400500
DRAWING NUMBER 34005-C-202
REV. NO. 0

SILT FENCE - TYPE SENSITIVE

SIDE VIEW



FRONT VIEW

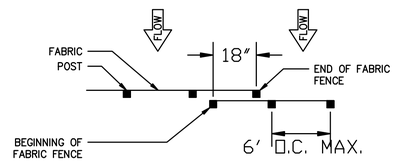


NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
2. HEIGHT (*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

Sd1 SILT FENCE – TYPE SENSITIVE
SCALE: N.T.S.

FASTENERS FOR SILT FENCES

OVERLAP AT FABRIC ENDS



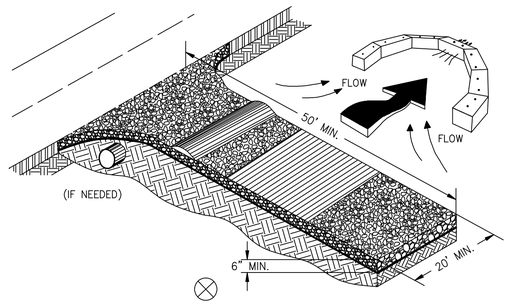
TOP VIEW – NOT TO SCALE

FRONT VIEWS – NOT TO SCALE

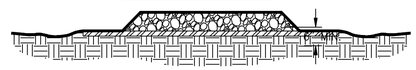
NOTES:
1. THE FABRIC AND WIRE SHOULD BE SECURELY FASTENED TO POSTS AND FABRIC ENDS MUST BE OVERLAPPED A MINIMUM OF 18" OR WRAPPED TOGETHER AROUND A POST TO PROVIDE A CONTINUOUS FABRIC BARRIER AROUND THE INLET.

CRUSHED STONE CONSTRUCTION EXIT

EXIT DIAGRAM



ENTRANCE ELEVATION

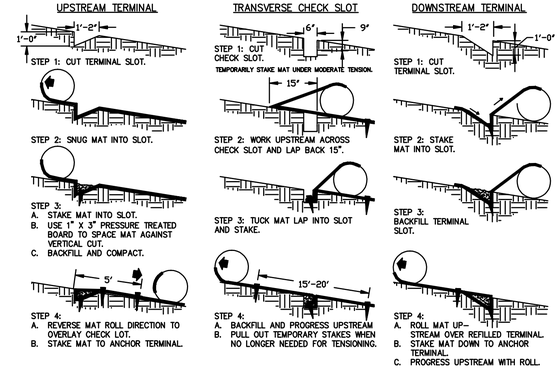


NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R–2 (1.5"–3.5" STONE).
4. GRAVEL PAD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

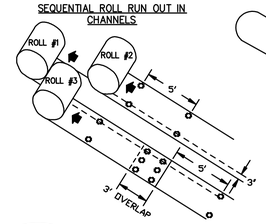
Co CONSTRUCTION EXIT
SCALE: N.T.S.

TYPICAL INSTALLATION GUIDELINES FOR ROLLED EROSION CONTROL PRODUCTS (RECP)

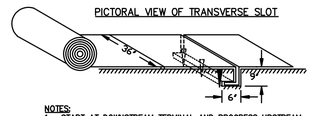
BLANKET AND MATTING CROSS-SECTIONS



SEQUENTIAL ROLL RUN OUT IN CHANNELS

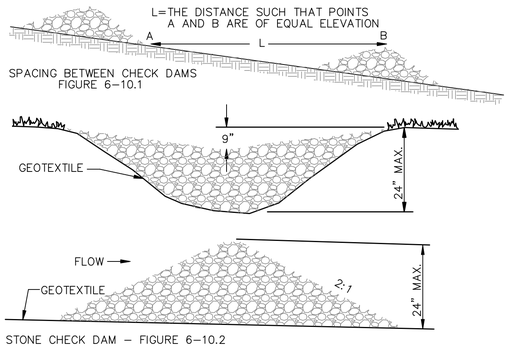


PICTORAL VIEW OF TRANSVERSE SLOT



NOTES:
1. START AT DOWNSTREAM TERMINAL AND PROGRESS UPSTREAM.
2. FIRST ROLL IS CENTERED LONGITUDINALLY IN MID–CHANNEL AND PINNED WITH TEMPORARY STAKES TO MAINTAIN ALIGNMENT.
3. SUBSEQUENT ROLLS FOLLOW IN STAGGERED SEQUENCE BEHIND THE FIRST ROLL. USE THE CENTER ROLL FOR ALIGNMENT TO THE CHANNEL CENTER.
4. WORK OUTWARDS FROM THE CHANNEL CENTER TO THE EDGE.
5. USE 3" OVERLAPS AND STAKE AT 5' INTERVALS ALONG THE SEAMS.
6. USE 3" OVERLAPS AND SHINGLE DOWNSTREAM TO CONNECT THE LINING AT THE ROLL ENDS.

Ss SLOPE STABILIZATION
SCALE: N.T.S.



STONE CHECK DAM – FIGURE 6–10.2

CONSTRUCTION SPECIFICATIONS

STONE CHECK DAMS (Cd–S)

STONE CHECK DAMS SHOULD BE CONSTRUCTED OF GRADED SIZE 2–10" STONE. (SEE FIG. 6–10.2) MECHANICAL OR HAND PLACEMENT SHALL BE REQUIRED TO INSURE COMPLETE COVERAGE OF ENTIRE WIDTH OF DITCH OR SWALE AND THAT CENTER OF DAM IS LOWER THAN EDGES.

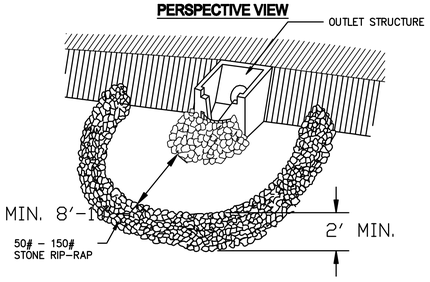
MAINTENANCE

PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED. SEDIMENT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF ONE–HALF THE ORIGINAL DAM HEIGHT OR BEFORE. IF THE AREA IS TO BE MOWED, CHECK DAMS SHALL BE REMOVED ONCE FINAL STABILIZATION HAS OCCURRED. OTHERWISE, CHECK DAMS MAY REMAIN IN PLACE PERMANENTLY. AFTER REMOVAL, THE AREA BENEATH THE DAM SHALL BE SEEDED AND MULCHED IMMEDIATELY.

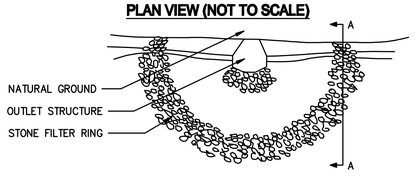
Cd–S STONE CHECK DAM
SCALE: N.T.S.

STONE FILTER RING

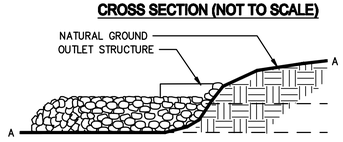
PERSPECTIVE VIEW



PLAN VIEW (NOT TO SCALE)

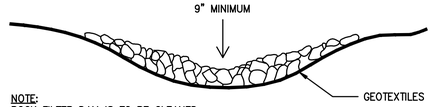


CROSS SECTION (NOT TO SCALE)

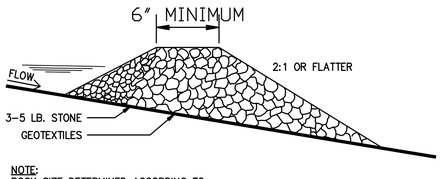


Fr STONE FILTER RING
SCALE: N.T.S.

ROCK FILTER DAM

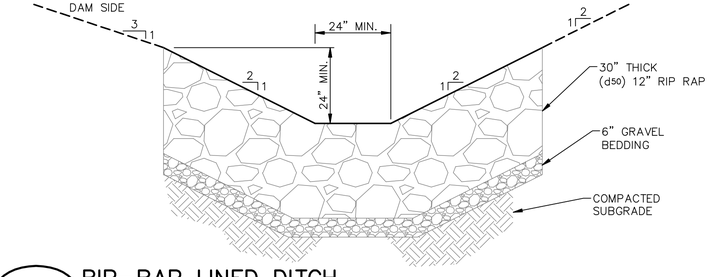


NOTE:
ROCK FILTER DAM IS TO BE CLEANED OUT WHEN VOLUME BECOMES HALF FULL.



NOTE:
ROCK SIZE DETERMINED ACCORDING TO SPECIFICATIONS SET FORTH IN APPENDIX C.

Rd ROCK FILTER DAM
SCALE: N.T.S.



Wt RIP–RAP LINED DITCH
SCALE: N.T.S.

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

PRIMARY PERMITTEE
OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
CONTACT: MR. PHIL MALLON
PHONE: (770) 313–9855

24 HR. CONTACT PERSON
PHIL MALLON
(770) 313–9855

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5, FAYETTE COUNTY, GA
LOCATED ON EMERALD LAKE DRIVE.

FOR BID PURPOSES ONLY
NOT FOR CONSTRUCTION

NO.	REVISIONS	MADE	CKD.	DATE

NO.	REVISIONS	MADE	CKD.	DATE

SCALE: AS SHOWN	DATE
DESIGN BY: JMH	02/16
DRAWN BY: JMH	02/16
CHECKED BY: MLW	02/16
SUPV. BY:	

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

EMERALD LAKE DAM REHAB
EROSION CONTROL
SECTIONS AND DETAILS
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

JOB NO. 3400500
DRAWING NUMBER 34005-C-203
REV. NO. 0

	RATES/SPACING		PLANTING DATES			REMARKS
BAHIA, WILMINGTON (PASPALUM NOTATUM) ALONE OR TEMP. COVER WITH OTHER PERENNIALS	14 LB 0.7 LB	60 LBS. 30 LBS.	1/1 – 12/31	1/1 – 12/31		166,000 SEED PER POUND. LOW GROWING SOD FORMING. SLOW TO ESTABLISH. PLANT WITH A COMPANION CROP. WILL SPREAD INTO BERMUDA PASTURES AND LAWNS. MIX WITH SERICEA LESPEDEZA OR WEEPING LOVEGRASS.
BERMUDA, COMMON (CYNODON DACTYLON) HULLED SEED ALONE WITH OTHER PERENNIALS	0.2 LB 0.1 LB	10 LBS 6 LBS	5/1 – 6/30	2/15 – 6/30		1,787,000 SEED PER POUND.QUICK COVER. LOW GROWING AND SOD FORMING. FULL SUN. GOOD FOR ATHLETIC FIELDS.
BERMUDA, COMMON (CYNODON DACTYLON) UNHULLED SEED WITH TEMPORARY COVER WITH OTHER PERENNIALS	0.2 LB 0.1 LB	10 LBS 6 LBS	10/1 – 2/28	11/1 – 1/31		PLANT WITH WINTER ANNUALS. PLANT WITH TALL FESCUE.
CENTIPEDE, (EREMOCHLOA OPHIUROIDES)	BLOCK SOD ONLY		4/1 – 6/30	4/1 – 6/30		DROUGHT TOLERANT. FULL SUN OR PARTIAL SHADE. EFFECTIVE ADJACENT TO CONCRETE AND IN CONCENTRATED FLOW AREAS. IRRIGATION IS NEEDED UNTIL FULLY ESTABLISHED. DO NOT PLANT NEAR PASTURES. WINTERHARDY AS FAR NORTH AS ATHENS AND ATLANTA.
FESCUE, TALL (FESTUCA ARUNDINACEA) ALONE WITH OTHER PERENNIALS	1.1 LB 0.7 LB	50 LBS 30 LBS	8/1 – 10/31	3/1 – 4/15	8/15 – 10/31	227,000 SEED PER POUND. USE ALONE ONLY ON BETTER SITES. NOT FOR DROUGHT SOILS. MIX WITH PERENNIAL LESPEDEZAS OR CROWNVETCH. APPLY TOPDRESSING IN SPRING FOLLOWING FALL PLANTINGS. NOT FOR HEAVY USE AREAS OR ATHLETIC FIELDS.

M–L REPRESENTS THE MOUNTAIN; BLUE RIDGE; AND RIDGES AND VALLEYS MLRAS
P REPRESENTS THE SOUTHERN PIEDMONT MLRA
C REPRESENTS SOUTHERN COASTAL PLAIN; SAND HILLS; BLACK LANDS; AND ATLANTIC COAST FLATWOODS MLRAS

DEFINITION

THE PLANTING OF PERENNIAL VEGETATION SUCH AS TREES, SHRUBS, VINES, GRASSES, OR LEGUMES ON EXPOSED AREAS FOR FINAL PERMANENT STABILIZATION. PERMANENT PERENNIAL VEGETATION SHALL BE USED TO ACHIEVE FINAL STABILIZATION.

CONDITIONS

PERMANENT PERENNIAL VEGETATION IS USED TO PROVIDE A PROTECTIVE COVER FOR EXPOSED AREAS INCLUDING CUTS, FILLS, DAMS, AND OTHER DENUDED AREAS.

GRADING AND SHAPING

GRADING AND SHAPING MAY NOT BE REQUIRED WHERE HYDRAULIC SEEDING AND FERTILIZING EQUIPMENT IS TO BE USED. VERTICAL BANKS SHALL BE SLOPED TO ENABLE PLANT ESTABLISHMENT.

WHEN CONVENTIONAL SEEDING AND FERTILIZING ARE TO BE DONE, GRADE AND SHAPE WHERE FEASIBLE AND PRACTICAL, SO THAT EQUIPMENT CAN BE USED SAFELY AND EFFICIENTLY DURING SEEDBED PREPARATION, SEEDING, MULCHING AND MAINTENANCE OF THE VEGETATION.

CONCENTRATIONS OF WATER THAT WILL CAUSE EXCESSIVE SOIL EROSION SHALL BE DIVERTED TO A SAFE OUTLET. DIVERSIONS AND OTHER TREATMENT PRACTICES SHALL CONFORM WITH THE APPROPRIATE STANDARDS AND SPECIFICATIONS.

SEEDBED PREPARATION

SEEDBED PREPARATION MAY NOT BE REQUIRED WHERE HYDRAULIC SEEDING AND FERTILIZING EQUIPMENT IS TO BE USED. WHEN CONVENTIONAL SEEDING IS TO BE USED, SEEDBED PREPARATION WILL BE DONE AS FOLLOWS:

BROADCAST PLANTINGS

1. TILLAGE AT A MINIMUM, SHALL ADEQUATELY LOOSEN THE SOIL TO A DEPTH OF 4 TO 6 INCHES; ALLEVIATE COMPACTION; INCORPORATE LIME AND FERTILIZER; SMOOTH AND FIRM THE SOIL; ALLOW FOR THE PROPER PLACEMENT OF SEED, SPRIGS, OR PLANTS; AND ALLOW FOR THE ANCHORING OF STRAW OR HAY MULCH IF A DISK IS TO BE USED.
2. TILLAGE MAY BE DONE WITH ANY SUITABLE EQUIPMENT.
3. TILLAGE SHOULD BE DONE ON THE CONTOUR WHERE FEASIBLE.
4. ON SLOPES TOO STEEP FOR THE SAFE OPERATION OF TILLAGE EQUIPMENT, THE SOIL SURFACE SHALL BE PITTED OR TRENCHED ACROSS THE SLOPE WITH APPROPRIATE HAND TOOLS TO PROVIDE TWO PLACES 6 TO 8 INCHES APART IN WHICH SEED MAY LODGE AND GERMINATE. HYDRAULIC SEEDING MAY ALSO BE USED.

INDIVIDUAL PLANTS

1. WHERE INDIVIDUAL PLANTS ARE TO BE SET, THE SOIL SHALL BE PREPARED BY EXCAVATING HOLES, OPENING FURROWS, OR DIBBLE PLANTING.
2. FOR NURSERY STOCK PLANTS, HOLES SHALL BE LARGE ENOUGH TO ACCOMMODATE ROOTS WITHOUT CROWDING.
3. WHERE PINE SEEDLINGS ARE TO BE PLANTED, SUBSOIL UNDER THE ROW 36 INCHES DEEP ON THE CONTOUR FOUR TO SIX MONTHS PRIOR TO PLANTING. SUBSOILING SHOULD BE DONE WHEN THE SOIL IS DRY, PREFERABLY IN AUGUST OR SEPTEMBER.

PLANTING

HYDRAULIC SEEDING

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

CONVENTIONAL SEEDING

SEEDING WILL BE DONE ON A FRESHLY PREPARED AND FIRMED SEEDBED. FOR BROADCAST PLANTING, USE A CULTIPACKER SEEDER, DRILL, ROTARY SEEDER, OTHER MECHANICAL SEEDER, OR HAND SEEDING TO DISTRIBUTE THE SEED UNIFORMLY OVER THE AREA TO BE TREATED. COVER THE SEED LIGHTLY WITH ⅛ TO ½ INCH OF SOIL FOR SMALL SEED AND ½ TO 1 INCH FOR LARGE SEED WHEN USING A CULTIPACKER OR OTHER SUITABLE EQUIPMENT.

NO–TILL SEEDING

NO–TILL SEEDING IS PERMISSIBLE INTO ANNUAL COVER CROPS WHEN PLANTING IS DONE FOLLOWING MATURITY OF THE COVER CROP OR IF THE TEMPORARY COVER STAND IS SPARSE ENOUGH TO ALLOW ADEQUATE GROWTH OF THE PERMANENT (PERENNIAL) SPECIES. NO–TILL SEEDING SHALL BE DONE WITH APPROPRIATE NO–TILL SEEDING EQUIPMENT. THE SEED MUST BE UNIFORMLY DISTRIBUTED AND PLANTED AT THE PROPER DEPTH.

INDIVIDUAL PLANTS

SHRUBS, VINES AND SPRIGS MAY BE PLANTED WITH APPROPRIATE PLANTERS OR HAND TOOLS. PINE TREES SHALL BE PLANTED MANUALLY IN THE SUBSOIL FURROW. EACH PLANT SHALL BE SET IN A MANNER THAT WILL AVOID CROWDING THE ROOTS. NURSERY STOCK PLANTS SHALL BE PLANTED AT THE SAME DEPTH OR SLIGHTLY DEEPER THAN THEY GREW AT THE NURSERY. THE TIPS OF VINES AND SPRIGS MUST BE AT OR SLIGHTLY ABOVE THE GROUND SURFACE. WHERE INDIVIDUAL HOLES ARE DUG, FERTILIZER SHALL BE PLACED IN THE BOTTOM OF THE HOLE. TWO INCHES OF SOIL SHALL BE ADDED AND THE PLANT SHALL BE SET IN THE HOLE.

MULCHING

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

1. DRY STRAW OR DRY HAY OF GOOD QUALITY AND FREE OF WEED SEEDS CAN BE USED. DRY STRAW SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE. DRY HAY SHALL BE APPLIED AT A RATE OF 2 ½ TONS PER ACRE.
2. WOOD CELLULOSE MULCH OR WOOD PULP FIBER SHALL BE USED WITH HYDRAULIC SEEDING. IT SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE. DRY STRAW OR DRY HAY SHALL BE APPLIED (AT THE RATE INDICATED ABOVE) AFTER HYDRAULIC SEEDING.
3. ONE THOUSAND POUNDS OF WOOD CELLULOSE OR WOOD PULP FIBER; WHICH INCLUDES A TACKIFIER, SHALL BE USED WITH HYDRAULIC SEEDING ON SLOPES 2:1 OR STEEPER.
4. SERICEA LESPEDEZA HAY CONTAINING MATURE SEED SHALL BE APPLIED AT A RATE OF THREE TONS PER ACRE.
5. PINE STRAW OR PINE BARK SHALL BE APPLIED AT A THICKNESS OF THREE INCHES FOR BEDDING PURPOSES. OTHER SUITABLE MATERIALS IN SUFFICIENT QUANTITY MAY BE USED WHERE ORNAMENTALS OR OTHER GROUND COVERS ARE PLANTED. THIS IS NOT APPROPRIATE FOR SEEDED AREAS.
6. WHEN USING TEMPORARY EROSION CONTROL BLANKETS OR BLOCK SOD, MULCH IS NOT REQUIRED.
7. BITUMINOUS TREATED ROVING MAY BE APPLIED ON PLANTED AREAS ON SLOPES, IN DITCHES OR DRY WATERWAYS TO PREVENT EROSION. BITUMINOUS TREATED ROVING SHALL BE APPLIED WITHIN 24 HOURS AFTER AN AREA HAS BEEN PLANTED. APPLICATION RATES AND MATERIALS MUST MEET GEORGIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.

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

APPLYING MULCH

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

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

ANCHORING MULCH

ANCHOR STRAW OR HAY MULCH IMMEDIATELY AFTER APPLICATION BY ON OF THE FOLLOWING METHODS:
1. EMULSIFIED ASPHALT CAN BE (A) SPRAYED UNIFORMLY ONTO THE MULCH AS IT IS EJECTED FROM THE BLOWER MACHINE OR (B) SPRAYED ON THE MULCH IMMEDIATELY FOLLOWING MULCH APPLICATION WHEN STRAW OR HAY IS SPREAD BY METHODS OTHER THAN SPECIAL BLOWER EQUIPMENT.

THE COMBINATION OF ASPHALT EMULSION AND WATER SHALL CONSIST OF A HOMOGENEOUS MIXTURE SATISFACTORY OF SPRAYING. THE MIXTURE SHALL CONSIST OF 100 GALLONS OF GRADE SS–1h OR CSS–1h EMULSIFIED ASPHALT AND 100 GALLONS OF WATER PER TON OF MULCH.
CARE SHALL BE TAKEN AT ALL TIMES TO PROTECT STATE WATERS, THE PUBLIC, ADJACENT PROPERTY, PAVEMENTS, CURBS, SIDEWALKS, AND ALL OTHER STRUCTURES FROM ASPHALT DISCOLORATION.
2. HAY AND STRAW MULCH SHALL BE PRESSED INTO THE SOIL IMMEDIATELY AFTER THE MULCH IS SPREAD. A SPECIAL "PACKER DISK" OR DISK HARROW WITH THE DISKS SET STRAIGHT MAY BE USED. THE DISKS MAY BE SMOOTH OR SERRATED AND SHOULD BE 20 INCHES OR MORE IN DIAMETER AND 8 TO 12 INCHES APART. THE EDGES OF THE DISKS SHALL BE DULL ENOUGH TO PRESS THE MULCH INTO THE GROUND WITHOUT CUTTING IT, LEAVING MUCH OF IT IN AN ERECT POSITION. MULCH SHALL NOT BE PLOWED INTO THE SOIL.
3. SYNTHETIC TACKIFIERS OR BINDERS APPROVED BY GDOT SHALL BE APPLIED WITH OR IMMEDIATELY AFTER THE MULCH IS SPREAD. SYNTHETIC TACKIFIERS SHALL BE MIXED AND APPLIED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. REFER TO Tb–TACKIFIERS AND BINDERS.
4. RYE AND WHEAT CAN BE INCLUDED WITH FALL AND WINTER PLANTINGS TO STABILIZE THE MULCH. THEY SHALL BE APPLIED AT A RATE OF ONE–QUARTER TO ONE–HALF BUSHEL PER ACRE.
5. PLASTIC MESH OR NETTING WITH MESH NO LARGER THAN ONE INCH BY ONE INCH MAY BE NEEDED TO ANCHOR STRAW OR HAY MULCH ON UNSTABLE SOILS AND CONCENTRATED FLOW AREAS. THESE MATERIALS SHALL BE INSTALLED AND ANCHORED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.

IRRIGATION

IRRIGATION SHALL BE APPLIED AT A RATE THAT WILL NOT CAUSE RUNOFF.

Ds3 DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)

DEFINITION

CONTROLLING SURFACE AND AIR MOVEMENT OF DUST ON CONSTRUCTION SITES, ROADS, AND DEMOLITION SITES.

CONDITIONS

THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO SURFACE AND AIR MOVEMENT OF DUST WHERE ON AND OFF–SITE DAMAGE MAY OCCUR WITHOUT TREATMENT.

METHOD AND MATERIALS

A. TEMPORARY METHODS

MULCHES. SEE STANDARD Ds1–DISTURBED AREA STABILIZATION (WITH MULCHING ONLY. SYNTHETIC RESINS MAY BE USED INSTEAD OF ASPHALT TO BIND MULCH MATERIAL. REFER TO STANDARD Tb–TACKIFIERS AND BINDERS. RESINS SUCH AS CURASOLOR OR TERRATACK SHOULD BE USED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

VEGETATIVE COVER. SEE STANDARD Ds2–DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING).

SPRAY–ON ADHESIVES. THESE ARE USED ON MINERAL SOILS (NOT EFFECTIVE ON MUCK SOILS). KEEP TRAFFIC OFF THESE AREAS. REFER TO STANDARD Tb–TACKIFIERS AND BINDERS.

TILLAGE. THIS PRACTICE IS DESIGNED TO ROUGHEN AND BRING CLODS TO THE SURFACE. IT IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE WIND EROSION STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL–TYPE PLOWS SPACED ABOUT 12 INCHES APART, SPRING–TOOTHED HARROWS, AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.

IRRIGATION. THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS WET. REPEAT AS NEEDED.

BARRIERS. SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 15 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING WIND EROSION.

CALCIUM CHLORIDE. APPLY AT RATE THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT.

B. PERMANENT METHODS

PERMANENT VEGETATION. SEE STANDARD Ds3–DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION). EXISTING TREES AND LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION IF LEFT IN PLACE.

TOPSOILING. THIS ENTAILS COVERING THE SURFACE WITH LESS EROSIVE SOIL MATERIAL. SEE STANDARD Tp–TOPSOILING.

STONE. COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL. SEE STANDARD Cr–CONSTRUCTION ROAD STABILIZATION.

Du DUST CONTROL ON DISTURBED AREAS

SPECIES	RATES/SPACING 1000 FT2	RATES/SPACING ACRES	MTS.–L–STONE	PLANTING DATES PIEDMONT	PLANTING DATES COASTAL	REMARKS
BARLEY (HORDEUM VULGARE) ALONE IN MIXTURES	3.3 LBS 0.6 LB	3 BU(144 LBS) 1/2 BU(24 LBS)	8/15–11/15	8/15–12/15	9/1–12/31	14,000 SEED PER POUND. WINTERHARDY. USE ON PRODUCTIVE SOILS.
LESPEDEZA, ANNUAL (LESPEDEZA STRIATA) ALONE IN MIXTURES	0.9 LB 0.2 LB	40 LBS 10 LBS	2/1–4/30	2/15–4/30	1/15–3–15	200,000 SEED PER POUND. MAY VOLUNTEER FOR SEVERAL YEARS. USE INOCULANT EL.
MILLET, BROWNTOP (PANICUM FASCICULATUM) ALONE IN MIXTURES	0.9 LB 0.2 LB	40 LBS 10 LBS	4/1–7/30	4/1–7/20	4/1–7/15	137,000 SEED PER POUND. QUICK DENSE COVER. WILL PROVIDE TOO MUCH COMPETITION IN MIXTURES
MILLET, PEARL (PENNESETUM GLAUCUM) ALONE	1.1 LB	50 LBS	5/1–7/31	4/15–8/31	4/1–8/31	DENSE COVER. MAY REACH 5 FEET IN HEIGHT. NOT RECOMMENDED
OATS (AVENA SATIVA) ALONE IN MIXTURES	2.9 LB 0.7 LB	4 BU(128 LBS) 1 BU (32 LBS)	9/1–11/30	9/1–11/30	9/1–11/30	13,000 SEED PER POUND. USE ON PRODUCTIVE SOILS. NOT AS WINTERHARDY AS RYE OR BARLEY.
RYE (SECALE CEREALE) ALONE IN MIXTURES	3.9 LB 0.6 LB	3 BU(168 LBS) 1/2 BU(28 LBS)	7/15–11/30	8/15–12/31	9/1–2/28	18,000 SEED PER POUND. QUICK COVER. DROUGHT TOLERANT AND WINTERHARDY.
RYEGRASS, ANNUAL (LOLIUM TEMULENTUM) ALONE	0.9 LB	40 LBS	8/1–4/30	8/1–4/15	8/15–3/31	227,000 SEED PER POUND. DENSE COVER. VERY COMPETITIVE AND
SUDANGRASS (SORGHUM SUDANESE) ALONE	1.4 LB	60 LBS	4/1–8/31	4/1–8/31	3/1–7/31	55,000 SEED PER POUND. GOOD ON DROUGHTY SITES. NOT
TRITICALE (X–TRITICOSECALE) ALONE IN MIXTURES	3.3 LB 0.6 LB	3 BU(144 LBS) 1/2 BU(24 LBS)			9/15–1/31	USE ON LOWER PART OF SOUTHERN COASTAL PLAIN AND IN ATLANTIC COASTAL FLATWOODS ONLY.
WHEAT (TRITICUM AESTIVUM) ALONE IN MIXTURES	4.1 LB 0.7 LB	3 BU(180 LBS) 1/2 BU(30 LBS)	9/1–12/31	9/1–12/31	9/15–1/31	15,000 SEED PER POUND. WINTERHARDY.

Ds2 GRASSING TABLE

DEFINITION
THE ESTABLISHMENT OF TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDINGS FOR SEASONAL PROTECTION ON DISTURBED OR DENUDED AREAS.

CONDITIONS
TEMPORARY GRASSING INSTEAD OF MULCH, CAN BE APPLIED TO ROUGH GRADED AREAS THAT WILL BE EXPOSED FOR LESS THAN SIX MONTHS. TEMPORARY VEGETATIVE MEASURES SHOULD BE COORDINATED WITH PERMANENT MEASURES TO ASSURE ECONOMICAL AND EFFECTIVE STABILIZATION. MOST TYPES OF TEMPORARY VEGETATION ARE IDEAL TO USE AS COMPANION CROPS UNTIIL THE PERMANENT VEGETATION IS ESTABLISHED.

1. TEMPORARY COVER CROPS ARE VERY COMPETITIVE AND WILL CROWD OUT PERENNIALS IF SEEDED TOO HEAVILY.
2. REDUCE SEEDING RATES BY 50% WHEN DRILLED.
3. PLS IS AN ABBREVIATION FOR PURE LIVE SEED.
4. M–L REPRESENTS THE MOUNTAIN; BLUE RIDGE; AND RIDGES AND VALLEYS MLRAS
   P REPRESENTS THE SOUTHERN PIEDMONT MLRA
   C REPRESENTS SOUTHERN COASTAL PLAIN; SAND HILLS; BLACK LANDS; AND ATLANTIC COAST FLATWOODS MLRAS

GRADING AND SHAPING
1. EXCESSIVE WATER RUN–OFF SHALL BE REDUCED BY PROPERLY DESIGNED AND INSTALLED EROSION CONTROL PRACTICES SUCH AS CLOSED DRAINS, DITCHES, DIKES, DIVERSIONS, SEDIMENT BARRIERS AND OTHERS.
2. NO SHAPING OR GRADING IS REQUIRED IF SLOPES CAN BE STABILIZED BY HAND–SEEDED VEGETATION OR IF HYDRAULIC SEEDING EQUIPMENT IS TO BE USED.

SEEDBED PREPARATION
1. WHEN A HYDRAULIC SEEDER IS USED, SEEDBED PREPARATION IS NOT REQUIRED. WHEN USING CONVENTIONAL OR HAND–SEEDING, SEEDBED PREPARATION IS NOT REQUIRED IF THE SOIL MATERIAL IS LOOSE AND NOT SEALED BY RAINFALL.
2. WHEN SOIL HAS BEEN SEALED BY RAINFALL OR CONSISTS OF SMOOTH CUT SLOPES, THE SOIL SHALL BE PITTED, TRENCHED OR OTHERWISE SCARIFIED TO PROVIDE A PLACE FOR SEED TO LODGE AND GERMINATE.

LIME AND FERTILIZER
AGRICULTURAL LIME IS REQUIRED UNLESS SOIL TESTS INDICATE OTHERWISE. APPLY AGRICULTURAL LIME AT A RATE OF ONE TON PER ACRE. GRADED AREAS REQUIRE LIME APPLICATION. SOILS CAN BE TESTED TO DETERMINE IF FERTILIZER IS NEEDED. ON REASONABLY FERTILE SOILS OR SOIL MATERIAL, FERTILIZER IS NOT REQUIRED. FOR SOILS WITH VERY LOW FERTILITY, 500 TO 700 POUNDS OF 10–10–10 FERTILIZER OR THE EQUIVALENT PER ACRE (12–16 LBS./1,000 SQ. FT.) SHALL BE APPLIED. FERTILIZER SHOULD BE APPLIED BEFORE LAND PREPARATION AND INCORPORATED WITH A DISK, RIPPER OR CHISEL.

SEEDING
SELECT A GRASS OR GRASS–LEGUME MIXTURE SUITABLE TO THE AREA AND SEASON OF THE YEAR. SEED SHALL BE APPLIED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTIPACKER–SEEDER, OR HYDRAULIC SEEDER (SLURRY INCLUDING SEED AND FERTILIZER). DRILL OR CULTIPACKER SEEDERS SHOULD NORMALLY PLACE SEED ONE–QUARTER TO ONE–HALF INCH DEEP. APPROPRIATE DEPTH OF PLANTING IS TEN TIMES THE SEED DIAMETER. SOIL SHOULD BE "RAKED LIGHTLY TO COVER SEED WITH SOIL IF SEEDED BY HAND.

MULCHING
TEMPORARY VEGETATION CAN, IN MOST CASES, BE ESTABLISHED WITHOUT THE USE OF MULCH. MULCH WITHOUT SEEDING SHOULD BE CONSIDERED FOR SHORT TERM PROTECTION. SEE DS1– DISTURBED AREA STABILIZATION, (WITH MULCHING ONLY).

IRRIGATION
DURING TIMES OF DROUGHT, WATER SHALL BE APPLIED AT A RATE NOT CAUSING RUNOFF AND EROSION. THE SOIL SHALL BE THOROUGHLY WETTED TO A DEPTH THAT WILL INSURE GERMINATION OF THE SEED. SUBSEQUENT APPLICATIONS SHOULD BE MADE WHEN NEEDED.

Ds2 GRASSING NOTES

Know what's below. Call before you dig. 811

PRIMARY PERMITTEE
OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
CONTACT: MR. PHIL MALLON
PHONE: (770) 313–9855

24 HR. CONTACT PERSON
PHIL MALLON
(770) 313–9855

NO.	REVISIONS	MADE	CKD.	DATE

NO.	REVISIONS	MADE	CKD.	DATE

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5, FAYETTE COUNTY, GA
LOCATED ON EMERALD LAKE DRIVE.

FOR BID PURPOSES ONLY
NOT FOR CONSTRUCTION

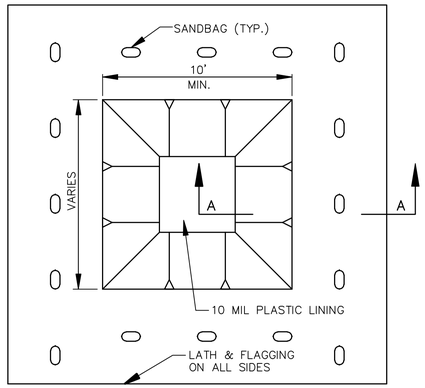
		DATE
SCALE:	AS SHOWN	
DESIGN BY:	JMH	02/16
DRAWN BY:	JMH	02/16
CHECKED BY:	MLW	02/16
SUPV. BY:		

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45643
EXPIRATION DATE: 09/25/16

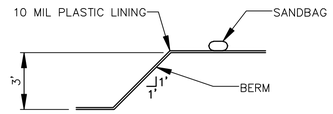
EMERALD LAKE DAM REHAB
EROSION CONTROL
SECTIONS AND DETAILS
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

JOB NO. 3400500
DRAWING NUMBER 34005-C-204
REV. NO. 0



PLAN (BELOW GRADE)
SCALE: 1/4" = 1'



SECTION A–A
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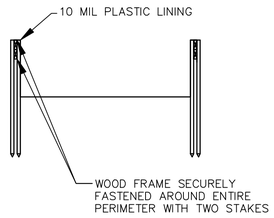

SECTION B–B
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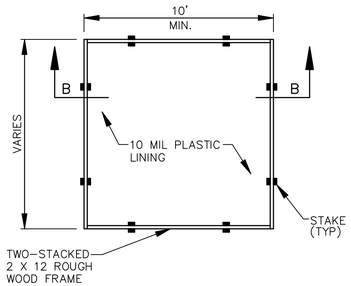
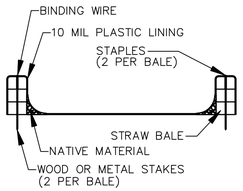


PLAN (ABOVE GRADE)
SCALE: 1/4" = 1'



SECTION C–C
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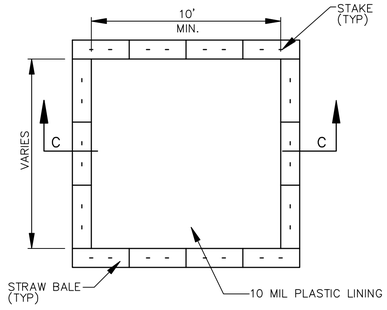

PLAN (ABOVE GRADE W/STRAW BALES)
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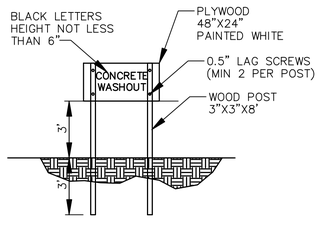
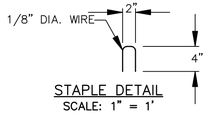


SIGN DETAIL
SCALE: 1/4" = 1'



STAPLE DETAIL
SCALE: 1" = 1'

NOTES:

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

CONCRETE WASHOUT
SCALE: VARIES

Know what's below. Call before you dig. 811

PRIMARY PERMITTEE

OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
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FOR BID PURPOSES ONLY
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NO.	REVISIONS	MADE	CKD.	DATE	NO.	REVISIONS	MADE	CKD.	DATE

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LOCATED ON EMERALD LAKE DRIVE.

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DESIGN BY:	JMH	02/16
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MARIETTA, GEORGIA 30065
(770) 956 - 7879

JOB NO. 3400500
DRAWING NUMBER 34005-C-205
REV. NO. 0

EROSION, SEDIMENTATION & POLLUTION CONTROL NOTES:

1. THE PRIMARY PERMITTEE OF THIS PROJECT IS: FAYETTE COUNTY'S STORMWATER MANAGEMENT DEPARTMENT.
CONTACT PERSON: MR. PHIL MALLON TEL: (770) 320-6010

2. THE TOTAL ACREAGE OF THE PROPERTY IS N/A AND THE TOTAL DISTURBED AREA IS: 2.4 ACRES.

3. THE PROPERTY IS LOCATED AT GPS LOCATION LATITUDE: N33.426261° ; LONGITUDE: W84.411967° ; AND THE ADDRESS IS: EMERALD LAKE DRIVE, FAYETTEVILLE, GA. THE PROJECT IS A LINEAR PROJECT AND BY ITS NATURE IS LOCATED ON STATE WATERS. THERE ARE NO CRITICAL AREAS REQUIRING ADDITIONAL MEASURES.

4. THE PRESENCE OF ON-SITE WETLANDS HAS BEEN INVESTIGATED AND IT WAS DETERMINED THAT THERE ARE NONE PRESENT. ALL STATE WATERS LOCATED ON AND WITHIN 200 FEET OF THE PROJECT SITE HAVE BEEN IDENTIFIED AND WILL BE PROTECTED BY ASSOCIATED STATE AND COUNTY PROTECTION REGULATIONS AND BUFFERS.

5. THE RECEIVING WATERS OF THIS PROJECT IS TRIBUTARY OF MURPHY CREEK , WHICH IS NOT LISTED AS A TIER 4a IMPAIRED STREAM SEGMENT BASED ON THE 2014 INTEGRATED 305(b)/303(D) LIST FOR RIVERS AND STREAMS.

6. THE MOST EFFICIENT METHOD OF DUST CONTROL FOR THE SITE SHALL BE DETERMINED EXPERIMENTALLY AND MAY CONSIST OF TEMPORARY MEASURES SUCH AS MULCHES, VEGETATIVE COVER, SPRAY-ON ADHESIVES, TILLAGE, IRRIGATION, BARRIERS AND/OR THE APPLICATION OF CALCIUM CHLORIDE. LIKEWISE, IF THE ACTION OF THE VEHICLE TRAVELING OVER THE GRAVEL CONSTRUCTION EXIT PAD DOES NOT SUFFICIENTLY REMOVE THE MUD FROM VEHICLE TIRES, THE TIRES SHOULD BE WASHED PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WIT CRUSHED STONE AND PROVISIONS THAT INTERCEPT THE SEDIMENT-LADEN RUNOFF AND DIRECT IT INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

7. WASHOUT OF THE DRUM OF A CONCRETE TRUCK AT THE CONSTRUCTION SITE IS PROHIBITED. CONCRETE WASHDOWN OF TOOLS, CONCRETE MIXER CHUTES, HOPPERS AND THE REAR OF VEHICLES WILL ONLY BE ALLOWED IN A DESIGNATED AREA PROVIDED FOR THIS PURPOSE, AS SHOWN ON THE DRAWINGS. THE FOLLOWING BEST PRACTICES WILL BE FOLLOWED:
(1) CONTAIN ALL WASH WATER ON SOIL, IN A BOWL SHAPED AREA CREATED IN THE DESIGNATED WASH AREA TO PREVENT THE WASH WATER FROM FLOWING FROM THE WASHOUT AREA;
(2) USE THE MINIMUM AMOUNT OF WATER TO WASH DOWN THE TOOLS, CONCRETE MIXER CHUTES, HOPPERS AND THE REAR OF VEHICLES;
(3) REMOVE ANY CONCRETE SEDIMENT FROM THE AREA SURROUNDING THE WASHOUT AREA BEFORE IT HARDENS; AND
(4) REMOVE ALL CONCRETE RESIDUE FROM THE DESIGNATED AREA ONCE IT HAS HARDENED.

8. SPILL CLEANUP AND CONTROL PRACTICES:
LOCAL, STATE AND MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND PROCEDURES WILL BE MADE AVAILABLE TO SITE PERSONNEL. MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIALS STORAGE AREA. TYPICAL MATERIALS AND EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO, BROOMS, DUSTPANS, MPS, RAGS, GLOVES, GOGGLES, CAT LITTER, SAND, SAWDUST AND PROPERLY LABELED PLASTIC AND METAL WASTE CONTAINERS. SPILL PREVENTION PRACTICES AND PROCEDURES WILL BE REVIEWED AFTER A SPILL AND ADJUSTED AS NECESSARY TO PREVENT FUTURE SPILLS. ALL SPILLS WILL BE CLEANED UP IMMEDIATELY UPON DISCOVERY. ALL SPILLS WILL BE REPORTED AS REQUIRED BY LOCAL, STATE AND FEDERAL REGULATIONS. FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER), THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-424-8802. FOR SPILLS OF AN UNKNOWN AMOUNT, THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-424-8802. FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE SPILL WILL BE CLEANED UP AND LOCAL AGENCIES WILL BE CONTACTED AS REQUIRED. THE CONTRACTOR SHALL NOTIFY THE LICENSED PROFESSIONAL WHO PREPARED THIS PLAN IF MORE THAN 1,320 GALLONS OF PETROLEUM IS STORED ONSITE (THIS INCLUDES CAPACITIES OF EQUIPMENT) OR IF ANY ONE PIECE OF EQUIPMENT HAS A CAPACITY GREATER THAN 660 GALLONS. THE CONTRACTOR WILL NEED A SPILL PREVENTION CONTAINMENT AND COUNTERMEASURES PLAN PREPARED BY THAT LICENSED PROFESSIONAL.

9. THE EXISTING SITE IS A SPILLWAY REPLACEMENT PROJECT LOCATED IN FAYETTE COUNTY. THE PURPOSE OF THE PROJECT IS TO REPLACE THE SPILLWAY WITH NEW SPILLWAY AND A BRIDGE OVER THE SPILLWAY. THE CONSTRUCTION OF THE SPILLWAY WILL NOT HAVE AN ADVERSE AFFECT ON THE DOWNSTREAM PROPERTIES, AND SHOULD PREVENT THE OVERTOPPING OF THE DAM-ROAD, IMPROVING THE DOWNSTREAM CONDITION.

10. ALL POLLUTANTS FROM WASTE DISPOSAL PRACTICES, SOIL ADDITIVES, REMEDIATION OF SPILLS AND LEAKS OF PETROLEUM PRODUCTS, CONCRETE TRUCK WASHOUT, ETC, SHOULD ANY OF THESE OCCUR, WILL BE CONTROLLED BY THE IMPLEMENTATION OF APPROPRIATE BEST MANAGEMENT PRACTICES. THE SITE WILL BE IN COMPLIANCE WITH ALL APPLICABLE STATE AND LOCAL WASTE DISPOSAL, SANITARY SEWER OR SEPTIC SYSTEM REGULATIONS.

PRODUCT SPECIFIC PRACTICES:

PETROLEUM BASED PRODUCTS – CONTAINERS FOR PRODUCTS SUCH AS FUELS, LUBRICANTS AND TARS WILL BE INSPECTED DAILY FOR LEAKS AND SPILLS. THIS INCLUDES ONSITE VEHICLE AND MACHINERY, DAILY INSPECTIONS AND REGULAR PREVENTIVE MAINTENANCE OF SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS WILL BE LOCATED AWAY FROM STATE WATER, NATURAL DRAINS AND STORMWATER DRAINAGE INLETS. IN ADDITION, TEMPORARY FUELING TANKS SHALL HAVE A SECONDARY CONTAINMENT LINER TO PREVENT/MINIMIZE SITE CONTAMINATION. DISCHARGE OF OILS, FUELS AND LUBRICANTS IS PROHIBITED. PROPER DISPOSAL METHODS WILL INCLUDE COLLECTION IN A SUITABLE CONTAINER AND DISPOSAL AS REQUIRED BY LOCAL AND STATE REGULATIONS.

PAINTS/FINISHES/SOLVENTS – ALL PRODUCTS WILL BE STORED IN TIGHTLY SEALED ORIGINAL CONTAINERS WHEN NOT IN USE. EXCESS PRODUCTS WILL NOT BE DISCHARGED TO THE STORMWATER COLLECTION SYSTEM. EXCESS PRODUCT MATERIALS USED WITH THESE PRODUCTS AND PRODUCT CONTAINERS WILL BE DISPOSED OF ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

CONCRETE TRUCK WASHING – NO CONCRETE TRUCKS WILL BE ALLOWED TO WASH OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ONSITE.

FERTILIZER/HERBICIDES – THESE PRODUCTS WILL BE APPLIED AT RATES THAT DO NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS OR ABOVE THE GUIDELINES SET FORTH IN THE CROP ESTABLISHMENT OR IN THE GSWCC MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. ANY STORAGE OF THESE MATERIALS WILL BE UNDER ROOF IN SEALED CONTAINERS.

BUILDING MATERIALS – NO BUILDING OR CONSTRUCTION MATERIALS WILL BE BURIED OR DISPOSED OF ONSITE. ALL SUCH MATERIAL WILL BE DISPOSED OF IN PROPER WASTE DISPOSAL PROCEDURES.

11. I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY SUPERVISION.

WALDEN, ASHWORTH & ASSOCIATES, INC.

SIGNATURE: ______________________ CERTIFICATION NO.: 45843 EXPIRATION DATE: 09/25/16
MARTIN L. WALDEN, P.E., PRESIDENT

12. I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING AS REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" (MANUAL) PUBLISHED BY THE STATE SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORM WATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR 100002.

WALDEN, ASHWORTH & ASSOCIATES, INC.

SIGNATURE: ______________________ CERTIFICATION NO.: 45843 EXPIRATION DATE: 09/25/16
MARTIN L. WALDEN, P.E., PRESIDENT

13. I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT CERTIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

SIGNED BY PRIMARY PERMITTEE:

NAME: ______________________ COMPANY ______________________ ADDRESS ______________________

CITY/ST/ZIP ______________ LEVEL IA CERT NO. ____________ SIGNATURE ______________________

14. A HYDROLOGY STUDY ACCOMPANIES THESE ES&PC DRAWINGS AND FORMS PART OF THE PLANS; OR IF THE PROJECT IS A MINOR LAND DISTURBING PROJECT WHERE THERE IS NO INCREASE AND/OR A REDUCTION IN THE SITE'S IMPERVIOUS AREA, AN HYDROLOGY STATEMENT SHALL BE PLACED ON THE ES&PC CLEARING AND/OR GRADING PHASE PLAN STATING WHY A HYDROLOGY STUDY IS NOT PROVIDED AND THE IMPROVEMENTS DENOTED ON THE CONSTRUCTION PLANS WILL OR WILL NOT CAUSE AN INCREASE IN PEAK RUNOFF RATES FROM THE SITE ONTO THE DOWNSTREAM PROPERTIES.

15. WHERE APPLICABLE NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.

16. THE PRIMARY PERMITTEE AND TERTIARY PERMITTEE(S) MUST RETAIN THE DESIGN PROFESSIONAL WHO PREPARED THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, EXCEPT WHEN THE PERMITTEE HAS REQUESTED IN WRITING AND EPD HAS AGREED TO AN ALTERNATE DESIGN PROFESSIONAL, TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPS WHICH THE DESIGN PROFESSIONAL DESIGNED WITHIN SEVEN (7) DAYS AFTER INSTALLATION. THE DESIGN PROFESSIONAL SHALL DETERMINE IF THESE BMPS HAVE BEEN INSTALLED AND ARE BEING MAINTAINED AS DESIGNED. THE DESIGN PROFESSIONAL SHALL REPORT THE RESULTS OF THE INSPECTION TO THE PERMITTEE WITHIN SEVEN (7) DAYS AND THE PERMITTEE MUST CORRECT ALL DEFICIENCIES WITHIN TWO (2) BUSINESS DAYS OR RECEIPT OF THE INSPECTION REPORT FROM THE DESIGN PROFESSIONAL UNLESS WEATHER RELATED SITE CONDITIONS ARE SUCH THAT ADDITIONAL TIME IS REQUIRED.

17. THE PRIMARY, SECONDARY OR TERTIARY PERMITTEES, AS APPLICABLE, SHALL AMEND THEIR PLANS WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE, WHICH HAS A SIGNIFICANT EFFECT ON BMPS WITH A HYDRAULIC COMPONENT. AMENDMENTS TO THE PLANS MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL. ALL REVISIONS OR AMENDMENTS SHALL BE SUBMITTED TO THE LOCAL ISSUING AUTHORITY FOR REVIEW.

18. NO WASTE MATERIALS, INCLUDING BUT NOT LIMITED TO WASTE BUILDING MATERIALS, CONSTRUCTION AND DEMOLITION DEBRIS, CONCRETE WASHOUT OR EXCAVATED SEDIMENT, SHALL BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

19. THE PRIMARY PERMITTEE SHALL COMPLETE A LIST OF ALL SECONDARY PERMITTEES AND CONTACT INFORMATION IN THE SPACE PROVIDED BELOW AND PROVIDE A COPY OF THE PLAN (AND ANY SUBSEQUENT REVISIONS TO THE PLAN) TO EACH SECONDARY PERMITTEE. EACH SECONDARY PERMITTEE SHALL SIGN AS WRITTEN ACKNOWLEDGEMENT OF RECEIPT OF THE PLAN IN THE SPACE PROVIDED BELOW. THE PRIMARY PERMITTEE SHALL KEEP A COPY OF THE ACKNOWLEDGEMENTS ON-SITE IN HIS RECORDS.

SECONDARY PERMITTEES:

NAME ______________ COMPANY ______________ ADDRESS ______________
CITY/ST/ZIP ______________ LEVEL IA CERT NO. ______________ SIGNATURE ______________

NAME ______________ COMPANY ______________ ADDRESS ______________
CITY/ST/ZIP ______________ LEVEL IA CERT NO. ______________ SIGNATURE ______________

NAME ______________ COMPANY ______________ ADDRESS ______________
CITY/ST/ZIP ______________ LEVEL IA CERT NO. ______________ SIGNATURE ______________

NAME ______________ COMPANY ______________ ADDRESS ______________
CITY/ST/ZIP ______________ LEVEL IA CERT NO. ______________ SIGNATURE ______________

20. ALL HAZARDOUS WASTES:

ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL, STATE AND/OR FEDERAL REGULATIONS AND BY THE MANUFACTURER OF SUCH PRODUCTS. THE JOB SITE SUPERINTENDENT, WHO WILL ALSO BE RESPONSIBLE FOR SEEING THAT THESE PRACTICES ARE FOLLOWED, WILL INSTRUCT SITE PERSONNEL IN THESE PRACTICES. MATERIAL SAFETY DATA SHEETS (MSDS'S) FOR EACH SUBSTANCE WITH HAZARDOUS PROPERTIES THAT IS USED ON THE JOB SITE WILL BE OBTAINED AND USED FOR THE PROPER MANAGEMENT OF POTENTIAL WASTES THAT MAY RESULT FROM THESE PRODUCTS. AN MSDS WILL BE MAINTAINED IN THE ESPCP FILE AT THE JOB SITE CONSTRUCTION TRAILER OFFICE. EACH EMPLOYEE WHO MUST HANDLE A SUBSTANCE WITH HAZARDOUS PROPERTIES WILL BE INSTRUCTED ON THE USED OF MSDS SHEETS AND THE SPECIFIC INFORMATION IN THE APPLICABLE MSDS FOR THE PRODUCT HE/SHE IS USING, PARTICULARLY REGARDING SPILL CONTROL TECHNIQUES.

THE CONTRACTOR WILL IMPLEMENT THE SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN FOUND WITHIN THIS ESPCP AND WILL TRAIN ALL PERSONNEL IN THE PROPER CLEANUP AND HANDLING OF SPILLED MATERIALS. NO SPILLED HAZARDOUS MATERIAL OR HAZARDOUS WASTES WILL BE ALLOWED TO COME IN CONTACT WITH STORMWATER DISCHARGES. IF SUCH CONTACT OCCURS, THE STORMWATER DISCHARGE WILL BE CONTAINED ON SITE UNTIL APPROPRIATE MEASURES IN COMPLIANCE WITH STATE AND FEDERAL REGULATIONS ARE TAKEN TO DISPOSE OF SUCH CONTAMINATED STORMWATER. IT SHALL BE THE RESPONSIBILITY OF THEIR JOB SITE SUPERINTENDENT TO PROPERLY TRAIN ALL PERSONNEL IN THE USE OF THE SPCC PLAN.

SANITARY WASTES:
A MINIMUM OF ONE PORTABLE SANITARY UNIT WILL BE PROVIDED TO EVERY TEN (10) WORKERS ON THE SITE. ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONE TIME PER WEEK BY A LICENSED PORTABLE FACILITY PROVIDER IN COMPLETE COMPLIANCE WITH LOCAL AND STATE REGULATIONS.

ALL SANITARY WASTE UNITS WILL BE LOCATED IN AN AREA WHERE THE LIKELIHOOD OF THE UNIT CONTRIBUTING TO STORMWATER DISCHARGE IS NEGLIGIBLE. ADDITIONAL CONTAINMENT BMP'S MUST BE IMPLEMENTED, SUCH AS GRAVEL BAGS OR SPECIALLY DESIGNED PLASTIC SKID CONTAINERS AROUND THE BASE, TO PREVENT WASTES FROM CONTRIBUTING TO STORM WATER DISCHARGES. THE LOCATION OF WASTE UNITS MUST BE IDENTIFIED ON THE EROSION CONTROL PLAN GRADING PHASE BY THE CONTRACTOR ONCE THE LOCATIONS HAVE BEEN DETERMINED.

SANITARY SEWER WILL BE PROVIDED BY MUNICIPAL AUTHORITY AT THE COMPLETION OF THE PROJECT.

21. SEE ES&PC INSPECTIONS PLAN FOR PRIMARY, SECONDARY AND TERTIARY PERMITTEE REQUIREMENTS; SAMPLING FREQUENCY, SAMPLE TYPE, REPORTING, RETENTION OF RECORDS AND SAMPLE REQUIREMENTS. IF SAMPLING IS NOT REQUIRED FOR THIS PROJECT, THE ES&PC INSPECTIONS PLAN WILL NOT BE INCLUDED IN THE SET OF CONSTRUCTION PLANS AND A NOTE ON THE ES&PC NOTES WILL SPECIFICALLY STATE THAT SAMPLING IS NOT REQUIRED.

22. THE ALLOWABLE INCREASE IN TURBIDITY BETWEEN THE DOWNSTREAM AND UPSTREAM SAMPLING POINTS IN THE RECEIVING WATERS, WHICH ARE CLASSIFIED AS WARM WATER, FOR THIS PROJECT IS 25 NTU.

23. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND DISTURBING ACTIVITIES.

24. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

25. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MUCH OR TEMPORARY SEEDING.

26. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL CONFORM WITH THE GUIDELINES OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL".

27. ACCORDING TO FLOOD INSURANCE RATE MAPS 13113C0116E DATED SEPTEMBER 226 2008 . THE PROPERTY IS NOT LOCATED IN A FLOOD ZONE, WHICH IS AREA SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT, BECAUSE DETAILED HYDRAULIC ANALYSES HAVE NOT BEEN PERFORMED, NO BASE FLOOD ELEVATIONS (BFEs) OR FLOOD DEPTHS ARE SHOWN.

28. EROSION CONTROL AND TREE PROTECTION MEASURES SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY AND MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED.

29. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY FIELD INSPECTOR.

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

WALDEN, ASHWORTH & ASSOCIATES, INC.

SIGNATURE: ______________________ CERTIFICATION NO.: 45843 EXPIRATION DATE: 09/25/16
MARTIN L. WALDEN, P.E., PRESIDENT

DESIGN PROFESSIONAL / 7 DAY VISIT VERIFICATION

DATE OF INSPECTION ______________
I CERTIFY THE SITE WAS IN COMPLIANCE WITH THE ES&PC PLAN ON THE DATE OF INSPECTION.

____

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION #

INSPECTION REVEALED THE FOLLOWING DISCREPANCIES FROM THE ES&PC PLAN.

____
____
____
____
____
____

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST
INFRASTRUCTURE CONSTRUCTION PROJECTS

SWCD: Mountain District - Atlanta Satellite
Project Name:____ Emerald Lake Dam Renovation Address:__ Emerald Lake Drive
City/County:_____ Fayette County Date on Plans:______ Feb-16

TO BE SHOWN ON ES&PC PLAN

Plan Page #	Included Y/N	
C206	Y	1 The applicable Erosion, Sedimentation and Pollution Control Plan Checklist established by the Commission as of January 1 of the year in which the land-disturbing activity was permitted. (The completed Checklist must be submitted with the ES&PC Plan or the Plan will not be reviewed)
ALL	Y	2 Level II certification number issued by the Commission, signature and seal of the certified design professional. (Signature, seal and Level II number must be on each sheet pertaining to ES&PC Plan or the Plan will not be reviewed)
ALL	Y	3 The name and phone number of the 24-hour local contact responsible for erosion, sedimentation and pollution controls.
ALL	Y	4 Provide the name, address and phone number of primary permittee.
C200	Y	5 Note total and disturbed acreage of the project or phase under construction.
C206	Y	6 Provide the GPS locations of the beginning and end of the Infrastructure project. Give the Latitude and Longitude in decimal degrees.
C200	Y	7 Initial date of the Plan and the dates of any revisions made to the Plan including the entity who requested the revisions.
C206	Y	8 Description of the nature of construction activity.
COVER	Y	9 Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if necessary.
C206	Y	10 Identify the project receiving waters and describe all sensitive adjacent areas including streams, lakes, residential areas, wetlands, marshlands, etc. which may be affected.
C206	Y	11 Design professional's certification statement and signature that the site was visited prior to development of the ES&PC Plan as stated on page 15 of the permit.
C206	Y	12 Design professional's certification statement and signature that the permittee's ES&PC Plan provides for an appropriate and comprehensive system of BMPs and sampling to meet permit requirements as stated on page 15 of the permit.*
C206	Y	13 Design professional certification statement and signature that the permittee's ES&PC Plan provides for representative sampling as stated on page 26 of permit as applicable.*
C206	Y	14 Clearly note the statement that "The design professional who prepared the ES&PC Plan is to inspect the installation of the initial sediment storage requirements, perimeter control BMPs, and sediment basins in accordance with part IV.A.5. within 7 days after installation."*
C200	Y	15 Clearly note the statement that "Non-exempt activities shall not be conducted within the 25 or 50-foot undisturbed stream buffers as measured from the point of wrested vegetation or within 25-feet of the coastal marshland buffer as measured from the Jurisdictional Determination Line without first acquiring the necessary variances and permits."
C200	Y	16 Provide a description of any buffer encroachments and indicate whether a buffer variance is required.
C200	Y	17 Clearly note the statement that "Amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional."*
C200	Y	18 Clearly note the statement that "Waste materials shall not be discharged to waters of the State, except as authorized by a section 404 permit."*
C200	Y	19 Clearly note statement that "The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities."
C200	Y	20 Clearly note statement that "Erosion control measures will be maintained at all times. If full implementation of the approved Plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source."
C200	Y	21 Clearly note the statement "Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding."
C200	N/A	22 Any construction activity which discharges storm water into an Impaired Stream Segment, or within 1 linear mile upstream of and within the same watershed as, any portion of an Biota Impaired Stream Segment must comply with Part III. C. of the Permit. Include the completed Appendix 1 listing all the BMPs that will be used for those areas of the site which discharge to the Impaired Stream Segment.*
N/A	N/A	23 If a TMDL Implementation Plan for sediment has been finalized for the Impaired Stream Segment (identified in item 22 above) at least six months prior to submittal of NOI, the ES&PC Plan must address any site-specific conditions or requirements included in the TMDL Implementation Plan.*
201/206	Y	24 BMPs for concrete washdown of tools, concrete mixer chutes, hoppers and the rear of the vehicles. Washout of the drum at the construction site is prohibited.*
C206	Y	25 Provide BMPs for the remediation of all petroleum spills and leaks.
C206	Y	26 Description of the measures that will be installed during the construction process to control pollutants in storm water that will occur after construction operations have been completed.*
C200	Y	27 Description of the practices that will be used to reduce the pollutants in storm water discharges.*
C200	Y	28 Description and chart or timeline of the intended sequence of major activities which disturb soils for the major portions of the site (i.e., initial perimeter and sediment storage BMPs, clearing and grubbing activities, excavation activities, utility activities, temporary and final stabilization).
C207	Y	29 Provide complete requirements of inspections and record keeping by the primary permittee.*
C207	Y	30 Provide complete requirements of sampling frequency and reporting of sampling results.*
C207	Y	31 Provide complete details for retention of records as per Part IV.F. of the permit.*
C207	Y	32 Description of analytical methods to be used to collect and analyze the samples from each location.*
C207	Y	33 Appendix B rationale for NTU values at all outfall sampling points where applicable.*
C206	Y	34 Delineate all sampling locations, perennial and intermittent streams and other water bodies into which storm water is discharged also provide a summary chart of the justification and analysis for the representative sampling as applicable.*
200-202	Y	35 A description of appropriate controls and measures that will be implemented at the construction site including: (1) initial sediment storage requirements and perimeter control BMPs, (2) intermediate grading and drainage BMPs, and (3) final BMPs. For construction sites where there will be no mass grading and the initial perimeter control BMPs, intermediate grading and drainage BMPs, and final BMPs are the same, the plan may combine all of the BMPs into a single phase.*
200-202	Y	36 Graphic scale and North arrow.
200-202	Y	37 Existing and proposed contour lines with contour lines drawn at an interval in accordance with the following:
200-202	N/A	38 Use of alternative BMPs whose performance has been documented to be equivalent to or superior to conventional BMPs as certified by a Design Professional (unless disapproved by EPD or the Georgia Soil and Water Conservation Commission). Please refer to the Alternative BMP Guidance Document found at www.gaswcc.org.
200-202	N/A	39 Use of alternative BMP for application to the Equivalent BMP List. Please refer to Appendix A-2 of the Manual for Erosion & Sediment Control in Georgia 2016 Edition.*
200-202	Y	40 Delineation of the applicable 25-foot or 50-foot undisturbed buffers adjacent to State waters and any additional buffers required by the Local Issuing Authority. Clearly note and delineate all areas of impact.
200-202	Y	41 Delineation of on-site wetlands and all State waters located on and within 200 feet of the project site.
C200	Y	42 Delineation and acreage of contributing drainage basins on the project site.
C207	Y	43 Delineate on-site drainage and off-site watersheds using USGS 1" :2000' topographical sheets.
C200	Y	44 An estimate of the runoff coefficient or peak discharge flow of the site prior to and after construction activities are completed.
C202	Y	45 Storm-drain pipe and weir velocities with appropriate outlet protection to accommodate discharges without erosion. Identify/Delineate all storm water discharge points.
200-202	Y	46 Soil series for the project site and their delineation.
200-202	Y	47 The limits of disturbance for each phase of construction.
C200	N/A	48 Provide a minimum of 67 cubic yards of sediment storage per acre drained using a temporary sediment basin, retrofitted detention pond, and/or excavated inlet sediment traps for each common drainage location. Sediment storage volume must be in place prior to and during all land disturbance activities until final stabilization of the site has been achieved. A written justfication explaining the decision to use equivalent controls when a sediment basin is not attainable must be included in the plan for each common drainage location in which a sediment basin is not provided. A written justification as to why 67 cubic yards of storage is not attainable must also be given. Worksheets from the Manual must be included for structural BMPs and all calculations used by the design professional to obtain the required sediment storage when using equivalent controls. When discharging from sediment basins and impoundments, permittees are required to utilize outlet structures that withdraw water from the surface, unless infeasible. If outlet structures that withdraw water from the surface are not feasable, a written justification explaining this decision must be included in the plan.
200-202	Y	49 Location of Best Management Practices that are consistent with and no less stringent than the Manual for Erosion and Sediment Control in Georgia. Use uniform coding symbols from the Manual, Chapter 6, with legend.
203-205	Y	50 Provide detailed drawings for all structural practices. Specifications must, at a minimum, meet the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia.
C202	Y	51 Provide vegetative plan, noting all temporary and permanent vegetative practices. Include species, planting dates and seeding, fertilizer, lime and mulching rates. Vegetative plan shall be site specific for appropriate time of year that seeding will take place and for the appropriate geographic region of Georgia.

Contour intervals for item 37:

Existing Contours	USGS 1": 2000' Topographical Sheets
Proposed Contours	1" : 400' Centerline Profile

*If using this checklist for a project that is less than 1 acre and not part of a common development but within 200 ft of a perennial stream the * checklist items would be N/A.

Effective January 1, 2016

Waters Supporting Warm Water Fisheries

Surface Water Drainage Area, square miles

Site Size, acres	0-4.99	5-9.99	10-24.99	25-49.99	50-99.99	100-249.99	250-499.99	500+
1.00-10	(75)	150	200	400	750	750	750	750
10.01-25	50	100	100	200	300	500	750	750
25.01-50	50	50	100	100	200	300	750	750
50.01-100	50	50	50	100	100	150	300	600
100.01+	50	50	50	50	50	100	200	100

HYDROLOGY STATEMENT:

THE PURPOSE OF THIS PROJECT IS TO RENOVATE THE EXISTING EMERALD LAKE DAM AND IT'S SPILLWAY TO PREVENT OVERTOPPING AS DENOTED ON THE CHART LOCATED ON DWG. C-105. THERE WILL BE INCREASES IN THE PEAK RUNOFF RATES FOR THE 2 THRU 100 YEAR STORM EVENTS FOR THE COMPLETED PROJECT WITH THE LAKE LEVEL AT FULL POOL, DURING CONSTRUCTION, THE LAKE LEVEL WILL BE DRAINED, PROVIDING SUFFICIENT STORAGE AND A REDUCTION OF PEAK RUNOFF RATES TO PREVENT AND INCREASE IN FLOWS FOR THE STUDIED STORM EVENTS. THE FULL POOL LAKE INCREASED FLOW RATES WILL BE MITIGATED BY FAYETTE COUNTY SECURING EASEMENTS FROM THE AFFECTED DOWNSTREAM PROPERTY OWNERS FROM THE SPILLWAY DISCHARGE TO THE FLOODPLAIN OF MURPHY CREEK. THE REPLACEMENT OF THE EXISTING CULVERT(S) UNDER ANTEBELLUM WAY WILL REDUCE THE FLOODPLAIN-BACKWATER ELEVATION FOR THE PROPERTIES UPSTREAM OF THE PROPOSED CULVERT REPLACEMENT.

EROSION CONTROL NARRATIVE

1. THE SITE FOR THE IMPROVEMENTS TO THE EMERALD LAKE-DAM IS LOCATED ON EMERALD LAKE DRIVE IN FAYETTE, GA, WITH THE ROADWAY SERVING AS THE DAM FOR THE LAKE. THE PROJECT IS A LINEAR INFRASTRUCTURE PROJECT, SPILLWAY REPLACEMENT PROJECT, LOCATED BY ITS NATURE, ON A STATE WATER. WATER FROM THE LAKE FLOWS INTO MURPHY CREEK. MURPHY CREEK IS NOT LISTED AS AN IMPAIRED STREAM ON GAEPD'S 2014 INTEGRATED 305(B)/303(d) STREAMS LIST.

2. THE SITE IS OWNED BY FAYETTE COUNTY (R/W) AND PRIVATE OWNERS.

3. APPROXIMATELY 2.4 ACRES WILL BE DISTURBED BY THE REPLACEMENT OF THE SPILLWAY AND PLACEMENT OF A BRIDGE (OVER SPILLWAY). THE RECEIVING WATERS FOR THIS SITE IS MURPHY CREEK. TEMPORARY SEDIMENT STORAGE WILL NOT BE PROVIDED FOR THIS PROJECT, DUE TO THE MAJORITY OF THE PROJECT BEING CONSTRUCTED WITHIN THE FLOODPLAIN AND/OR WITHIN 25-FT STATE WATERS BUFFER AND 50-FT COUNTY BUFFER.

4. SEE PLAN FOR ALL TEMPORARY AND PERMANENT VEGETATIVE PLANTINGS AND PRACTICES TO BE UTILIZED ON THE SITE.

5. ALL OF THE SEDIMENT AND EROSION CONTROL DETAILS TO BE UTILIZED ON THE SITE AREA SHOWN ON DRAWINGS C-204 & 205 AND ARE AVAILABLE WITHIN THE LATEST EDITION OF THE GEORGIA SEDIMENT AND EROSION CONTROL MANUAL.

6. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES SHALL BE INSTALLED AS DEEMED NECESSARY BY ON-SITE INSPECTION.

7. THE MAINTENANCE OF ALL SEDIMENT AND EROSION CONTROL MEASURES AND PRACTICES, WHETHER TEMPORARY OR PERMANENT, SHALL BE AT ALL TIMES THE RESPONSIBILITY OF THE CONTRACTOR UNTIL SUBSTANTIAL COMPLETION.

PRIMARY PERMITTEE
OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
CONTACT: MR. PHIL MALLON
PHONE: (770) 313-9855

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

24 HR. CONTACT PERSON
PHIL MALLON
(770) 313-9855

REVISIONS	
DATE	DESCRIPTION

FOR BID PURPOSES ONLY
NOT FOR CONSTRUCTION

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5,
FAYETTE COUNTY, GA
LOCATED ON EMERALD LAKE DRIVE.

NO.	REVISIONS	MADE	CKD.	DATE	NO.	REVISIONS	MADE	CKD.	DATE

SCALE:	DATE
DESIGN BY: JMH	02/16
DRAWN BY: JMH	02/16
CHECKED BY: MLW	02/16
SUPV. BY:	

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

EMERALD LAKE DAM REHAB
EROSION CONTROL
NOTES
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

JOB NO. 3400500
DRAWING NUMBER 34005-C-206
REV. NO. 0

EROSION, SEDIMENTATION & POLLUTION CONTROL INSPECTION NOTES:

1. THE PRIMARY PERMITTEE AND TERTIARY PERMITTEE(S) MUST RETAIN THE DESIGN PROFESSIONAL WHO PREPARED THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, EXCEPT WHEN THE PERMITTEE HAS REQUESTED IN WRITING AND EPD HAS AGREED TO AN ALTERNATE DESIGN PROFESSIONAL, TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPS WHICH THE DESIGN PROFESSIONAL DESIGNED WITHIN SEVERN (7) DAYS AFTER INSTALLATION. THE DESIGN PROFESSIONAL SHALL DETERMINE IF THESE BMPS HAVE BEEN INSTALLED AND ARE BEING MAINTAINED AS DESIGNED. THE DESIGN PROFESSIONAL SHALL REPORT THE RESULTS OF THE INSPECTION TO THE PERMITTEE WITHIN SEVEN (7) DAYS AND THE PERMITTEE MUST CORRECT ALL DEFICIENCIES WITHIN TWO (2) BUSINESS DAYS OR RECEIPT OF THE INSPECTION REPORT FROM THE DESIGN PROFESSIONAL UNLESS WEATHER RELATED SITE CONDITIONS ARE SUCH THAT ADDITIONAL TIME IS REQUIRED.

7. THE PRIMARY, SECONDARY OR TERTIARY PERMITTEES, AS APPLICABLE, SHALL AMEND THEIR PLANS WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE, WHICH HAS A SIGNIFICANT EFFECT ON BMPS WITH A HYDRAULIC COMPONENT. AMENDMENTS TO THE PLANS MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL. ALL REVISIONS OR AMENDMENTS SHALL BE SUBMITTED TO THE LOCAL ISSUING AUTHORITY FOR REVIEW.

8. INSPECTIONS:

A. PRIMARY PERMITTEE:

(1) EACH DAY WHEN ANY TYPE OF CONSTRUCTION ACTIVITY HAS TAKEN PLACE AT A PRIMARY PERMITTEE'S SITE, CERTIFIED PERSONNEL PROVIDED BY THE PRIMARY PERMITTEE SHALL INSPECT: (A) ALL AREAS AT THE PRIMARY PERMITTEE'S SITE WHERE PETROLEUM PRODUCTS ARE STORED, USED, OR HANDLED FOR SPILLS AND LEAKS FROM VEHICLES AND EQUIPMENT AND (B) ALL LOCATIONS AT THE PRIMARY PERMITTEE'S SITE WHERE VEHICLES ENTER OR EXIT THE SITE FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING. THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.
(2) MEASURE RAINFALL ONCE EVERY 24 HOURS EXCEPT ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY AND NON-WORKING FEDERAL HOLIDAY UNTIL A NOTICE OF TERMINATION IS SUBMITTED. MEASUREMENT OF RAINFALL MAY BE SUSPENDED IF ALL AREAS OF THE SITE HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION.
(3) CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT THE FOLLOWING AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES RAINFALL OR GREATER (UNLESS SUCH STORM ENDS AFTER 5:00 PM ON ANY FRIDAY OR ON ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY OR ANY NON-WORKING FEDERAL HOLIDAY IN WHICH CASE THE INSPECTION SHALL BE COMPLETED BY THE END OF THE NEXT BUSINESS DAY AND/OR WORKING DAY, (WHICHEVER OCCURS FIRST): (A) DISTURBED AREAS OF THE PRIMARY PERMITTEE'S CONSTRUCTION SITE, (B) AREAS USED BY THE PRIMARY PERMITTEE FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION; AND (C) STRUCTURAL CONTROL MEASURES. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN APPLICABLE TO THE PRIMARY PERMITTEE'S SITE SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S). FOR AREAS OF A SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION, THE PERMITTEE MUST COMPLY WITH PART IV.D.4.A.(4). THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.
(4) CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT AT LEAST ONCE PER MONTH DURING THE TERM OF THIS PERMIT (I.E. UNTIL A NOTICE OF TERMINATION IS SUBMITTED TO EPD) THE AREAS OF THE SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION. THESE AREAS SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM AND THE RECEIVING WATER(S). EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THE ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S).
(5) BASED ON THE RESULTS OF EACH INSPECTION, THE SITE DESCRIPTION AND THE POLLUTION PREVENTION AND CONTROL MEASURES IDENTIFIED IN THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, THE PLAN SHALL BE REVISED AS APPROPRIATE NOT LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION. IMPLEMENTATION OF SUCH CHANGES SHALL BE MADE AS SOON AS PRACTICAL BUT IN NO CASE LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION. THE PRIMARY PERMITTEE MUST AMEND THE PLAN IN ACCORDANCE WITH PART IV.D.4.B(5) WHEN A SECONDARY PERMITTEE NOTIFIES THE PRIMARY PERMITTEE OF ANY PLAN DEFICIENCIES.
(6) A REPORT OF EACH INSPECTION THAT INCLUDES THE NAMES(S) OF CERTIFIED PERSONNEL MAKING EACH INSPECTION, THE DATE(S) OF EACH INSPECTION, CONSTRUCTION PHASE (I.E. INITIAL, INTERMEDIATE OR FINAL), MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, AND ACTIONS TAKEN IN ACCORDANCE WITH PART IV.D.4.A(5). OF THE PERMIT SHALL BE MADE AND RETAINED AT THE SITE OR BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION UNTIL THE ENTIRE SITE OR THAT PORTION OF A CONSTRUCTION PROJECT THAT HAS BEEN PHASED HAS UNDERGONE FINAL STABILIZATION AND A NOTICE OF TERMINATION IS SUBMITTED TO EPD. SUCH REPORTS SHALL BE READILY AVAILABLE BY END OF THE SECOND BUSINESS DAY AND/OR WORKING DAY AND SHALL IDENTIFY ALL INCIDENTS OF BEST MANAGEMENT PRACTICES THAT HAVE NOT BEEN PROPERLY INSTALLED AND/OR MAINTAINED AS DESCRIBED IN THE PLAN, WHERE THE REPORT DOES NOT IDENTIFY AND INCIDENT, THE INSPECTION REPORT SHALL CONTAIN A STATEMENT THAT THE BEST MANAGEMENT PRACTICES ARE IN COMPLIANCE WITH THE EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART V.G.2. OF THIS PERMIT.

B. SECONDARY PERMITTEE:

(1) EACH DAY WHEN ANY TYPE OF CONSTRUCTION ACTIVITY HAS TAKEN PLACE AT A SECONDARY PERMITTEE'S SITE, CERTIFIED PERSONNEL PROVIDED BY THE SECONDARY PERMITTEE SHALL INSPECT: (A) ALL AREAS USED BY THE SECONDARY PERMITTEE WHERE PETROLEUM PRODUCTS ARE STORED, USED, OR HANDLED FOR SPILLS AND LEAKS FROM VEHICLES AND EQUIPMENT; AND (B) ALL LOCATIONS AT THE SECONDARY PERMITTEE SITE WHERE THAT PERMITTEE'S VEHICLES ENTER OR EXIT THE SITE FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING. THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED. THIS PARAGRAPH IS NOT APPLICABLE TO UTILITY COMPANIES AND UTILITY CONTRACTORS IF THEY ARE SECONDARY PERMITTEES.
(2) CERTIFIED PERSONNEL (PROVIDED BY THE UTILITY COMPANIES AND UTILITY CONTRACTORS IF THEY ARE SECONDARY PERMITTEES) SHALL INSPECT THE FOLLOWING EACH DAY ANY TYPE OF CONSTRUCTION ACTIVITY HAS TAKEN PLACE AT THE CONSTRUCTION SITE: (A) AREAS OF THE CONSTRUCTION SITE DISTURBED BY THE UTILITY COMPANIES AND UTILITY CONTRACTORS THAT HAVE NOT UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION; (B) AREAS USED BY THE UTILITY COMPANIES AND UTILITY CONTRACTORS FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION THAT HAVE NOT UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION; AND (C) STRUCTURAL CONTROL MEASURES, EROSION AND SEDIMENT CONTRACTORS' CONSTRUCTION ACTIVITIES SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S). THIS PARAGRAPH IS NOT APPLICABLE TO UTILITY COMPANIES AND UTILITY CONTRACTORS WHEN THEY ARE SECONDARY PERMITTEES PERFORMING SERVICE LINE INSTALLATIONS OR WHEN CONDUCTING REPAIRS ON EXISTING LINE INSTALLATIONS.
(3) CERTIFIED PERSONNEL (PROVIDED BY THE SECONDARY PERMITTEE) SHALL INSPECT THE FOLLOWING AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES RAINFALL OR GREATER (UNLESS SUCH STORM ENDS AFTER 5:00 PM ON ANY FRIDAY OR ON ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY OR ANY NON-WORKING FEDERAL HOLIDAY IN WHICH CASE THE INSPECTION SHALL BE COMPLETED BY THE END OF THE NEXT BUSINESS DAY AND/OR WORKING DAY, (WHICHEVER OCCURS FIRST): (A) DISTURBED AREAS OF THE SECONDARY PERMITTEE'S CONSTRUCTION SITE, (B) AREAS USED BY THE SECONDARY PERMITTEE FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION; AND (C) STRUCTURAL CONTROL MEASURES. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN APPLICABLE TO THE PRIMARY PERMITTEE'S SITE SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S). FOR AREAS OF A SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION, THE PERMITTEE MUST COMPLY WITH PART IV.D.4.B.(4). THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED. THIS PARAGRAPH IS NOT APPLICABLE TO UTILITY COMPANIES AND UTILITY CONTRACTORS IF THEY ARE SECONDARY PERMITTEES.
(4) CERTIFIED PERSONNEL (PROVIDED BY THE SECONDARY PERMITTEE) SHALL INSPECT AT LEAST ONCE PER MONTH DURING THE TERM OF THIS PERMIT (I.E. UNTIL A NOTICE OF TERMINATION IS SUBMITTED TO EPD) THE AREAS OF THEIR SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION. THESE AREAS SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM AND THE RECEIVING WATER(S). EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THE ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S). THIS PARAGRAPH IS NOT APPLICABLE TO UTILITY COMPANIES AND UTILITY CONTRACTORS IF THEY ARE SECONDARY PERMITTEES.
(5) BASED ON THE RESULTS OF EACH INSPECTION, THE SECONDARY PERMITTEE MUST NOTIFY THE PRIMARY PERMITTEE WITHIN 24 HOURS OF ANY SUSPECTED BMP DEFICIENCIES. THE PRIMARY PERMITTEE MUST EVALUATE WHETHER THESE DEFICIENCIES EXIST WITHIN 48 HOURS OF SUCH NOTICE AND, IF THESE DEFICIENCIES ARE FOUND TO EXIST, MUST AMEND THE PLAN IN ACCORDANCE WITH PART IV.C. OF THIS PERMIT TO ADDRESS THOSE DEFICIENT BMPS WITHIN SEVEN (7) DAYS OF BEING NOTIFIED BY THE SECONDARY PERMITTEE. WHEN THE PLAN IS AMENDED, THE PRIMARY PERMITTEE MUST NOTIFY AND PROVIDE A COPY OF THE AMENDMENT TO ALL AFFECTED SECONDARY PERMITTEE(S) WITHIN THIS SEVEN (7) DAY PERIOD. THE SECONDARY PERMITTEES MUST IMPLEMENT ANY NEW PLAN REQUIREMENTS AFFECTING THEIR SITE(S) WITHIN 48 HOURS OF NOTIFICATION BY THE PRIMARY PERMITTEE.
(6) A REPORT OF EACH INSPECTION THAT INCLUDES THE NAMES(S) OF CERTIFIED PERSONNEL MAKING EACH INSPECTION, THE DATE(S) OF EACH INSPECTION, CONSTRUCTION PHASE (I.E. INITIAL, INTERMEDIATE OR FINAL), MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, AND ACTIONS TAKEN IN ACCORDANCE WITH PART IV.D.4.B(5). OF THE PERMIT SHALL BE MADE AND RETAINED AT THE SITE OR BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION UNTIL THE ENTIRE SITE OR THAT PORTION OF A CONSTRUCTION PROJECT THAT HAS BEEN PHASED HAS UNDERGONE FINAL STABILIZATION AND A NOTICE OF TERMINATION IS SUBMITTED TO EPD. SUCH REPORTS SHALL BE READILY AVAILABLE BY END OF THE SECOND BUSINESS DAY AND/OR WORKING DAY AND SHALL IDENTIFY ALL INCIDENTS OF BEST MANAGEMENT PRACTICES THAT HAVE NOT BEEN PROPERLY INSTALLED AND/OR MAINTAINED AS DESCRIBED IN THE PLAN. WHERE THE REPORT DOES NOT IDENTIFY ANY INCIDENTS, THE INSPECTION REPORT SHALL CONTAIN A CERTIFICATION THAT THE BEST MANAGEMENT PRACTICES ARE IN COMPLIANCE WITH THE EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART V.G.2. OF THIS PERMIT. THIS PARAGRAPH IS NOT APPLICABLE TO UTILITY COMPANIES AND UTILITY CONTRACTORS WHEN THEY ARE SECONDARY PERMITTEES PERFORMING SERVICE LINE INSTALLATIONS OR WHEN CONDUCTING REPAIRS ON EXISTING LINE INSTALLATIONS.

C. TERTIARY PERMITTEE

(1) EACH DAY WHEN ANY TYPE OF CONSTRUCTION ACTIVITY HAS TAKEN PLACE AT A TERTIARY PERMITTEE'S SITE, CERTIFIED PERSONNEL PROVIDED BY THE TERTIARY PERMITTEE SHALL INSPECT: (A) ALL AREAS USED BY THE TERTIARY PERMITTEE WHERE PETROLEUM PRODUCTS ARE STORED, USED, OR HANDLED FOR SPILLS AND LEAKS FROM VEHICLES AND EQUIPMENT; AND (B) ALL LOCATIONS AT THE TERTIARY PERMITTEE SITE WHERE THAT PERMITTEE'S VEHICLES ENTER OR EXIT THE SITE FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING. THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED. THIS PARAGRAPH IS NOT APPLICABLE TO UTILITY COMPANIES AND UTILITY CONTRACTORS PERFORMING ONLY SERVICE LINE INSTALLATIONS OR WHEN CONDUCTING REPAIRS ON EXISTING LINE INSTALLATIONS.
(2) MEASURE RAINFALL ONCE EVERY 24 HOURS EXCEPT ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY AND NON-WORKING FEDERAL HOLIDAY UNTIL A NOTICE OF TERMINATION IS SUBMITTED. MEASUREMENT OF RAINFALL MAY BE SUSPENDED IF ALL AREAS OF THE SITE HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION.

(3) CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT THE FOLLOWING AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES RAINFALL OR GREATER (UNLESS SUCH STORM ENDS AFTER 5:00 PM ON ANY FRIDAY OR ON ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY OR ANY NON-WORKING FEDERAL HOLIDAY IN WHICH CASE THE INSPECTION SHALL BE COMPLETED BY THE END OF THE NEXT BUSINESS DAY AND/OR WORKING DAY, (WHICHEVER OCCURS FIRST): (A) DISTURBED AREAS OF THE TERTIARY PERMITTEE'S CONSTRUCTION SITE, (B) AREAS USED BY THE TERTIARY PERMITTEE FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION; AND (C) STRUCTURAL CONTROL MEASURES. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN APPLICABLE TO THE PRIMARY PERMITTEE'S SITE SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S). FOR AREAS OF A SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION, THE PERMITTEE MUST COMPLY WITH PART IV.D.4.C.(4). THIS PARAGRAPH IS NOT APPLICABLE TO UTILITY COMPANIES AND UTILITY CONTRACTORS PERFORMING ONLY SERVICE LINE INSTALLATIONS OR WHEN CONDUCTING REPAIRS ON EXISTING LINE INSTALLATIONS.
(4) CERTIFIED PERSONNEL (PROVIDED BY THE TERTIARY PERMITTEE) SHALL INSPECT AT LEAST ONCE PER MONTH DURING THE TERM OF THIS PERMIT (I.E. UNTIL A NOTICE OF TERMINATION IS SUBMITTED TO EPD) THE AREAS OF THEIR SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION. THESE AREAS SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM AND THE RECEIVING WATER(S). EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THE ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S). THIS PARAGRAPH IS NOT APPLICABLE TO UTILITY COMPANIES AND UTILITY CONTRACTORS PERFORMING ONLY SERVICE LINE INSTALLATIONS OR WHEN CONDUCTING REPAIRS ON EXISTING LINE INSTALLATIONS.
(5) BASED ON THE RESULTS OF EACH INSPECTION, THE SITE DESCRIPTION AND THE POLLUTION PREVENTION AND CONTROL MEASURES IDENTIFIED IN THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, THE PLAN SHALL BE REVISED AS APPROPRIATE NOT LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION. IMPLEMENTATION OF SUCH CHANGES SHALL BE MADE AS SOON AS PRACTICAL BUT IN NO CASE LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION.
(6) A REPORT OF EACH INSPECTION THAT INCLUDES THE NAMES(S) OF CERTIFIED PERSONNEL MAKING EACH INSPECTION, THE DATE(S) OF EACH INSPECTION, CONSTRUCTION PHASE (I.E. INITIAL, INTERMEDIATE OR FINAL), MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, AND ACTIONS TAKEN IN ACCORDANCE WITH PART IV.D.4.B(5). OF THE PERMIT SHALL BE MADE AND RETAINED AT THE SITE OR BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION UNTIL THE ENTIRE SITE OR THAT PORTION OF A CONSTRUCTION PROJECT THAT HAS BEEN PHASED HAS UNDERGONE FINAL STABILIZATION AND A NOTICE OF TERMINATION IS SUBMITTED TO EPD. SUCH REPORTS SHALL BE READILY AVAILABLE BY END OF THE SECOND BUSINESS DAY AND/OR WORKING DAY AND SHALL IDENTIFY ALL INCIDENTS OF BEST MANAGEMENT PRACTICES THAT HAVE NOT BEEN PROPERLY INSTALLED AND/OR MAINTAINED AS DESCRIBED IN THE PLAN. WHERE THE REPORT DOES NOT IDENTIFY ANY INCIDENTS, THE INSPECTION REPORT SHALL CONTAIN A CERTIFICATION THAT THE BEST MANAGEMENT PRACTICES ARE IN COMPLIANCE WITH THE EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART V.G.2. OF THIS PERMIT. THIS PARAGRAPH IS NOT APPLICABLE TO UTILITY COMPANIES AND UTILITY CONTRACTORS WHEN THEY ARE TERTIARY PERMITTEES PERFORMING ONLY SERVICE LINE INSTALLATIONS OR WHEN CONDUCTING REPAIRS ON EXISTING LINE INSTALLATIONS.

22. SAMPLING FREQUENCY:

(1) THE PRIMARY PERMITTEE MUST SAMPLE IN ACCORDANCE WITH THE PLAN AT LEAST ONCE FOR EACH RAINFALL EVENT DESCRIBED BELOW. FOR A QUALIFYING EVENT, SAMPLES MUST BE TAKEN WITHIN FORTY-FIVE (45) MINUTES OF:
(A) THE ACCUMULATION OF THE MINIMUM AMOUNT OF RAINFALL FOR THE QUALIFYING EVENT, IF THE STORM WATER DISCHARGE TO A MONITORED RECEIVING WATER OR FROM A MONITORED OUTFALL HAS BEGUN AT OR PRIOR TO THE ACCUMULATION, OR
(B) THE BEGINNING OF ANY STORM WATER DISCHARGE TO A MONITORED RECEIVING WATER OR FROM A MONITORED OUTFALL, IF THE DISCHARGE BEGINS AFTER THE ACCUMULATION OF THE MINIMUM AMOUNT OF RAINFALL FOR THE QUALIFYING EVENT.
(2) HOWEVER, WHERE MANUAL AND AUTOMATIC SAMPLING ARE IMPOSSIBLE (AS DEFINED IN THIS PERMIT), OR ARE BEYOND THE PERMITTEE'S CONTROL, THE PERMITTEE SHALL TAKE SAMPLES AS SOON AS POSSIBLE, BUT IN NO CASE MORE THAN TWELVE (12) HOURS AFTER THE BEGINNING OF THE STORM WATER DISCHARGE.
(3) SAMPLING BY THE PERMITTEE SHALL OCCUR FOR THE FOLLOWING EVENTS:
(A) FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING STREAM, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR A MONITORING DURING NORMAL BUSINESS HOURS* (MONDAY THRU FRIDAY, 8:00 AM TO 5:00 PM AND SATURDAY 8:00 AM TO 5:00PM, EXCLUDING ALL NON-WORKING FEDERAL HOLIDAYS, WHEN CONSTRUCTION ACTIVITY IS BEING CONDUCTED BY THE PRIMARY PERMITTEE) THAT OCCURS AFTER ALL CLEARING AND GRUBBING OPERATIONS HAVE BEEN COMPLETED IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION;
(B) IN ADDITION TO (A) ABOVE, FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING STREAM, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR MONITORING DURING NORMAL BUSINESS HOURS* THAT OCCURS EITHER 90 DAYS AFTER THE FIRST SAMPLING EVENT OR AFTER ALL MASS GRADING OPERATIONS HAVE BEEN COMPLETED IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION, WHICHEVER COMES FIRST;
(C) AT THE TIME OF SAMPLING PERFORMED PURSUANT TO (A) AND (B) ABOVE, IF BMPS ARE FOUND TO BE PROPERLY DESIGNED, INSTALLED AND MAINTAINED, NO FURTHER ACTION IS REQUIRED. IF BMPS IN ANY AREA OF THE SITE THAT DISCHARGES TO A RECEIVING STREAM ARE NOT PROPERLY DESIGNED, INSTALLED AND MAINTAINED, CORRECTIVE ACTION SHALL BE DEFINED AND IMPLEMENTED WITHIN TWO (2) BUSINESS DAYS, AND TURBIDITY SAMPLES SHALL BE TAKEN FROM DISCHARGES FROM THAT AREA OF THE SITE FOR EACH SUBSEQUENT RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH DURING NORMAL BUSINESS HOURS* UNTIL THE SELECTED TURBIDITY STANDARD IS ATTAINED, OR UNTIL POST-STORM EVENT INSPECTIONS DETERMINE THAT BMPS ARE PROPERLY DESIGNED, INSTALLED AND MAINTAINED; AND
(D) EXISTING CONSTRUCTION ACTIVITIES, I.E., THOSE THAT ARE OCCURRING ON OR BEFORE THE EFFECTIVE DATE OF THIS PERMIT, THAT HAVE MET THE SAMPLING REQUIRED BY (A) ABOVE SHALL SAMPLE IN ACCORDANCE WITH (B). THOSE EXISTING CONSTRUCTION ACTIVITIES THAT HAVE MET THE SAMPLING REQUIRED BY (B) ABOVE SHALL NOT BE REQUIRED TO CONDUCT ADDITIONAL SAMPLING OTHER THAN AS REQUIRED BY (C) ABOVE.
*NOTE THAT THE PERMITTEE MAY CHOOSE TO MEET THE REQUIREMENTS OF (A) AND (B) ABOVE BY COLLECTING TURBIDITY SAMPLES FROM ANY RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR MONITORING AT ANY TIME OF THE DAY OR WEEK.

23. REPORTING:
(1) THE APPLICABLE PERMITTEES ARE REQUIRED TO SUBMIT THE SAMPLING RESULTS TO THE EPD AT THE ADDRESS SHOWN IN PART II.C. BY THE FIFTEENTH DAY OF THE MONTH FOLLOWING THE REPORTING PERIOD. REPORTING PERIODS ARE MONTHS DURING WHICH SAMPLES ARE TAKEN IN ACCORDANCE WITH THIS PERMIT. SAMPLING RESULTS SHALL BE IN A CLEARLY LEGIBLE FORMAT. UPON WRITTEN NOTIFICATION, EPD MAY REQUIRE THE APPLICABLE PERMITTEE TO SUBMIT THE SAMPLING RESULTS ON A MORE FREQUENT BASIS. SAMPLING AND ANALYSIS OF ANY STORM WATER DISCHARGE(S) OR THE RECEIVING WATER(S) BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED IN A SIMILAR MANNER TO THE EPD. THE SAMPLING REPORTS MUST BE SIGNED IN ACCORDANCE WITH PART V.G.2. SAMPLING REPORTS MUST BE SUBMITTED TO EPD UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.
(2) ALL SAMPLING REPORTS SHALL INCLUDE THE FOLLOWING INFORMATION:
(A) THE RAINFALL AMOUNT, DATE, EXACT PLACE AND TIME OF SAMPLING OR MEASUREMENTS;
(B) THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE SAMPLING AND MEASUREMENTS;
(C) THE DATE(S) ANALYSES WERE PERFORMED;
(D) THE TIME(S) ANALYSES WERE INITIATED;
(E) THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE ANALYSES;
(F) REFERENCES AND WRITTEN PROCEDURES, WHEN AVAILABLE, FOR THE ANALYTICAL TECHNIQUES OR METHODS USED;
(G) THE RESULTS OF SUCH ANALYSES, INCLUDING THE BENCH SHEETS, INSTRUMENT READOUTS, COMPUTER DISKS OR TAPES, ETC., USED TO DETERMINE THESE RESULTS;
(H) RESULTS WHICH EXCEED 1000 NTU SHALL BE REPORTED AS "EXCEEDS 1000 NTU"; AND
(I) CERTIFICATION STATEMENT THAT SAMPLING WAS CONDUCTED AS PER THE PLAN.
(3. ALL WRITTEN CORRESPONDENCE REQUIRED BY THIS PERMIT SHALL BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL (OR SIMILAR SERVICE) TO THE APPROPRIATE DISTRICT OFFICE OF THE EPD ACCORDING TO THE SCHEDULE IN APPENDIX A OF THIS PERMIT. THE APPLICABLE PERMITTEES SHALL RETAIN A COPY OF THE PROOF OF SUBMITTAL AT THE CONSTRUCTION SITE OR THE PROOF OF SUBMITTAL SHALL BE READILY AVAILABLE AT A DESIGNATED LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI. IF AN ELECTRONIC SUBMITTAL IS PROVIDED BY EPD THEN TE WRITTEN CORRESPONDENCE MAY BE SUBMITTED ELECTRONICALLY. IF REQUIRED, A PAPER COPY MUST ALSO BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL OR SIMILAR SERVICE.

24. RETENTION OF RECORDS:
(1) THE PRIMARY PERMITTEE SHALL RETAIN THE FOLLOWING RECORDS AT THE CONSTRUCTION SITE OR THE RECORDS SHALL BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI:
(A) A COPY OF ALL SAMPLING INFORMATION, RESULTS, AND REPORTS REQUIRED BY THIS PERMIT;
(B) A COPY OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN REQUIRED BY THIS PERMIT;
(C) THE DESIGN PROFESSIONAL'S REPORT OF THE RESULTS OF THE INSPECTION CONDUCTED IN ACCORDANCE WITH PART IV.A.5. OF THIS PERMIT;
(D) A COPY OF ALL SAMPLING INFORMATION, RESULTS, AND REPORTS REQUIRED BY THIS PERMIT;
(E) A COPY OF ALL INSPECTION REPORTS GENERATED IN ACCORDANCE WITH PART IV.D.4.A OF THIS PERMIT;
(F) A COPY OF ALL VIOLATION SUMMARIES AND VIOLATION SUMMARY REPORTS GENERATED IN ACCORDANCE WITH PART III.D.2. OF THIS PERMIT; AND
(G) DAILY RAINFALL INFORMATION COLLECTED IN ACCORDANCE WITH PART IV.D.4.A.(2) OF THIS PERMIT.
(2) EACH SECONDARY PERMITTEE SHALL RETAIN THE FOLLOWING RECORDS AT THE CONSTRUCTION SITE OR THE RECORDS SHALL BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI:
(A) A COPY OF ALL SAMPLING INFORMATION, RESULTS, AND REPORTS REQUIRED BY THIS PERMIT;
(B) A COPY OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN REQUIRED BY THIS PERMIT OR THE APPLICABLE PORTION OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN FOR THEIR ACTIVITIES AT THE CONSTRUCTION SITE REQUIRED BY THIS PERMIT;
(C) A COPY OF ALL INSPECTION REPORTS GENERATED IN ACCORDANCE WITH PART IV.D.4.B OF THIS PERMIT;
(D) A COPY OF ALL VIOLATION SUMMARIES AND VIOLATION SUMMARY REPORTS GENERATED IN ACCORDANCE WITH PART III.D.2. OF THIS PERMIT.

(3) EACH TERTIARY PERMITTEE SHALL RETAIN THE FOLLOWING RECORDS AT THE CONSTRUCTION SITE OR THE RECORDS SHALL BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI:
(A) A COPY OF ALL NOTICES OF INTENT SUBMITTED TO EPD;
(B) A COPY OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN REQUIRED BY THIS PERMIT;
(C) THE DESIGN PROFESSIONAL'S REPORT OF THE RESULTS OF THE INSPECTION CONDUCTED IN ACCORDANCE WITH PART IV.A.5. OF THIS PERMIT.
(D) A COPY OF ALL SAMPLING INFORMATION, RESULTS, AND REPORTS REQUIRED BY THIS PERMIT;
(E) A COPY OF ALL INSPECTION REPORTS GENERATED IN ACCORDANCE WITH PART IV.D.4.C OF THIS PERMIT;
(F) A COPY OF ALL VIOLATION SUMMARIES AND VIOLATION SUMMARY REPORTS GENERATED IN ACCORDANCE WITH PART III.D.2. OF THIS PERMIT;
(G) DAILY RAINFALL INFORMATION COLLECTED IN ACCORDANCE WITH PART IV.D.4.C.(2) OF THIS PERMIT.
(4) COPIES OF ALL NOTICES OF INTENT, NOTICES OF TERMINATION, INSPECTION REPORTS, SAMPLING REPORTS (INCLUDING ALL CALIBRATION AND MAINTENANCE RECORDS AND ALL ORIGINAL STRIP CHART RECORDINGS FOR CONTINUOUS MONITORING INSTRUMENTATION) OR OTHER REPORTS REQUESTED BY THE EPD, EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS, RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT TO BE COVERED BY THIS PERMIT AND ALL OTHER RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED BY THE PERMITTEE WHO EITHER PRODUCED OR USED IT FOR A PERIOD OF AT LEAST THREE YEARS FROM THE DATE THAT THE NOT IS SUBMITTED IN ACCORDANCE WITH PART VI OF THIS PERMIT. THESE RECORDS MUST BE MAINTAINED AT THE PERMITTEE'S PRIMARY PLACE OF BUSINESS ONCE THE CONSTRUCTION ACTIVITY HAS CEASED AT THE PERMITTED SITE. THIS PERIOD MAY BE EXTENDED BY REQUEST OF THE EPD AT ANY TIME UPON WRITTEN NOTIFICATION TO THE PERMITTEE.

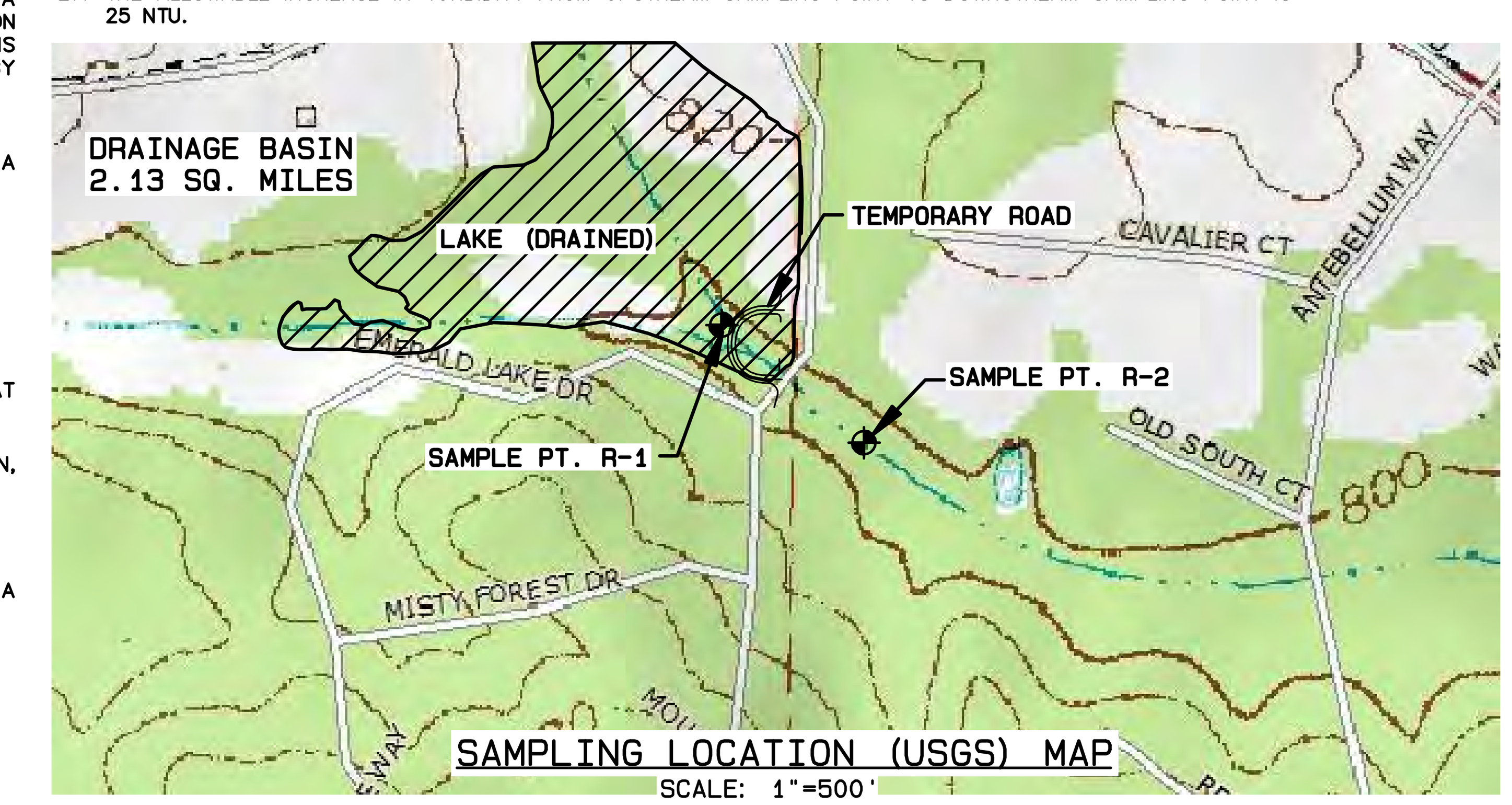
25. SAMPLING REQUIREMENTS:
THIS PERMIT REQUIRES THE MONITORING OF NEPHELOMETRIC TURBIDITY IN RECEIVING WATER(S) OR OUTFALLS IN ACCORDANCE WITH THIS PERMIT. THIS SECTION IS APPLICABLE TO PRIMARY PERMITTEES WITH A TOTAL PLANNED DISTURBANCE EQUAL TO OR GREATER THAN ONE (1) ACRE AND TERTIARY PERMITTEES WITH A TOTAL PLANNED DISTURBANCE EQUAL TO OR GREATER THAN FIVE (5) ACRES. THIS SECTION IS NOT APPLICABLE TO SECONDARY PERMITTEES. THE FOLLOWING PROCEDURES CONSTITUTE EPD'S GUIDELINES FOR SAMPLING TURBIDITY.

(A) SAMPLING REQUIREMENTS SHALL INCLUDE THE FOLLOWING:
(1) A USGS TOPOGRAPHIC MAP, A TOPOGRAPHIC MAP OR A DRAWING (REFERRED TO AS A TOPOGRAPHIC MAP) THAT IS A SCALE EQUAL TO OR MORE DETAILED THAN A 1:24000 MAP SHOWING THE LOCATION OF THE SITE OR THE COMMON DEVELOPMENT; (A) THE LOCATION OF ALL PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES AS SHOWN ON A USGS TOPOGRAPHIC MAP, AND ALL OTHER PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES LOCATED DURING MANDATORY FIELD VERIFICATION, INTO WHICH THE STORM WATER IS DISCHARGED AND (B) THE RECEIVING WATER AND/OR OUTFALL SAMPLING LOCATIONS, WHEN THE PERMITTEE HAS CHOSEN TO USE A USGS TOPOGRAPHIC MAP AND THE RECEIVING WATER(S) IS NOT SHOWN ON THE USGS TOPOGRAPHIC MAP, THE LOCATION OF THE RECEIVING WATER(S) MUST BE HAND-DRAWN ON THE USGS TOPOGRAPHIC MAP FROM WHERE THE STORM WATER(S) ENTERS THE RECEIVING WATER(S) TO THE POINT WHERE THE RECEIVING WATER(S) COMBINES WITH THE FIRST BLUE LINE STREAM SHOWN ON THE USGS TOPOGRAPHIC MAP;
(2) THE ANALYTICAL METHOD USED TO COLLECT AND ANALYZE THE SAMPLES INCLUDING QUALITY CONTROL/QUALITY/ASSURANCE PROCEDURES. THIS NARRATIVE MUST INCLUDE PRECISE SAMPLING METHODOLOGY FOR EACH SAMPLING LOCATION.
(3) WHEN THE PERMITTEE HAS DETERMINED THAT SOME OR ALL OUTFALLS WILL BE MONITORED, A RATIONALE MUST BE INCLUDED FOR THE NTU LIMIT(S) SELECTED FROM APPENDIX B. THIS RATIONALE MUST INCLUDE THE SIZE OF THE CONSTRUCTION SITE, THE CALCULATION OF THE SIZE OF THE SURFACE WATER DRAINAGE AREA, AND THE TYPE OF RECEIVING WATER(S) (I.E. TROUT STREAM OR SUPPORTING WARM WATER FISHERIES); AND
(4) MANUAL, AUTOMATIC OR RISING STAGE SAMPLING MAY BE UTILIZED. SAMPLES REQUIRED BY THIS PERMIT SHOULD BE ANALYZED IMMEDIATELY, BUT IN NOT CASE LATER THAN 48 HOURS AFTER COLLECTION. HOWEVER, SAMPLES FROM AUTOMATIC SAMPLERS MUST BE COLLECTED NO LATER THAN THE NEXT BUSINESS DAY AFTER THEIR ACCUMULATION, UNLESS FLOW THROUGH AUTOMATED ANALYSIS IS UTILIZED. DILUTION OF SAMPLES IS NOT REQUIRED. SAMPLES MAY BE ANALYZED USING A DIRECT READING, PROPERLY CALIBRATED TURBIDIMETER. SAMPLES ARE NOT REQUIRED TO BE COOLED.
(5) SAMPLING AND ANALYSIS OF THE RECEIVING WATER(S) OR OUTFALLS BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED TO EPD AS SPECIFIED IN PART IV.E.

(B) SAMPLE TYPE:
ALL SAMPLING SHALL BE COLLECTED BY "GRAB SAMPLES" AND THE ANALYSIS OF THE SAMPLES MUST BE CONDUCTED IN ACCORDANCE WITH METHODOLOGY AND TEST PROCEDURES ESTABLISHED BY 40 CFT PART 136 (UNLESS OTHER TEST PROCEDURES HAVE BEEN APPROVED); THE GUIDANCE DOCUMENT TITLED "NPDES STORM WATER SAMPLING GUIDANCE DOCUMENT, EPA 833-B-02-001" AND GUIDANCE DOCUMENTS THAT MAY BE PREPARED BY THE EPD.
(1) FOR CONSTRUCTION ACTIVITIES THE PRIMARY PERMITTEE MUST SAMPLE ALL RECEIVING WATER(S OR ALL OUTFALL(S) OR A COMBINATION OF RECEIVING WATER(S) AND OUTFALL(S). SAMPLES TAKEN FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY AND REPRESENTATIVE OF THE WATER QUALITY OF THE RECEIVING WATER(S) AND/OR THE STORM WATER OUTFALLS USING THE FOLLOWING MINIMUM GUIDELINES:
(A) THE UPSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN IMMEDIATELY UPSTREAM OF THE CONFLUENCE OF THE FIRST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E THE DISCHARGE FARTHEST UPSTREAM AT THE SITE) BUT DOWNSTREAM OF ANY OTHER STORM WATER DISCHARGES NO ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL UPSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE UPSTREAM TURBIDITY VALUE.
(B) THE DOWNSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN DOWNSTREAM OF THE CONFLUENCE OF THE LAST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E THE DISCHARGE FARTHEST DOWNSTREAM AT THE SITE) BUT UPSTREAM OF ANY OTHER STORM WATER DISCHARGES NO ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL DOWNSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE DOWNSTREAM TURBIDITY VALUE.
(C) IDEALLY THE SAMPLES SHOULD BE TAKEN FROM THE HORIZONTAL AND VERTICAL CENTER OF THE RECEIVING WATER(S) OR THE STORM WATER OUTFALL CHANNEL(S).
(D) CARE SHOULD BE TAKEN TO AVOID STIRRING THE BOTTOM SEDIMENTS IN THE RECEIVING WATER(S) OR IN THE OUTFALL STORM WATER CHANNEL.
(E) THE SAMPLING CONTAINER SHOULD BE HELD SO THAT THE OPENING FACES UPSTREAM.
(F) THE SAMPLES SHOULD BE KEPT FREE FROM FLOATING DEBRIS.
(G) PERMITTEES DO NOT HAVE TO SAMPLE SHEETFLOW THAT FLOWS ONTO UNDISTURBED NATURAL AREAS OR AREAS STABILIZED BY THE PROJECT. FOR PURPOSES OF THIS SECTION, STABILIZED SHALL MEAN, 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.
(H) ALL SAMPLING PURSUANT TO THIS PERMIT MUST BE DONE IN SUCH A WAY (INCLUDING GENERALLY ACCEPTED SAMPLING METHODS, LOCATIONS, TIMING, AND FREQUENCY) AS TO ACCURATELY REFLECT WHETHER STORM WATER RUNOFF FROM THE CONSTRUCTION SITE IS IN COMPLIANCE WITH THE STANDARDS SET FORTH IN PARTS III.D.3. OR III.D.4., WHICHEVER IS APPLICABLE.

26. THE ALLOWABLE TURBIDITY AT THE OUTFALL SAMPLING POINT FOR THIS PROJECT IS N/A NTU.

27. THE ALLOWABLE INCREASE IN TURBIDITY FROM UPSTREAM SAMPLING POINT TO DOWNSTREAM SAMPLING POINT IS 25 NTU.



SAMPLING LOCATION (USGS) MAP
SCALE: 1"=500'

REVISIONS

DESCRIPTION

Know what's below. Call before you dig. 811

PRIMARY PERMITTEE
OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
CONTACT: MR. PHIL MALLON
PHONE: (770) 313-9855

24 HR. CONTACT PERSON
PHIL MALLON
(770) 313-9855

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5,
FAYETTE COUNTY, GA
LOCATED ON EMERALD LAKE DRIVE.

FOR BID PURPOSES ONLY
NOT FOR CONSTRUCTION

NO.	REVISIONS	MADE	CKD.	DATE	NO.	REVISIONS	MADE	CKD.	DATE

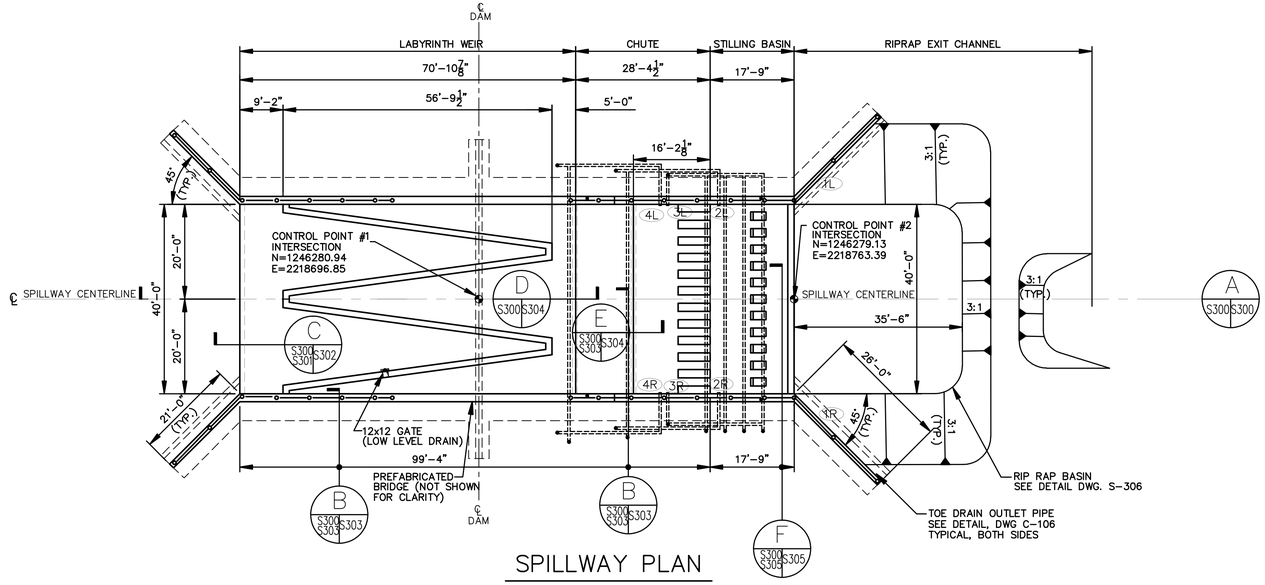
SCALE:	DATE
DESIGN BY: JMH	02/16
DRAWN BY: JMH	02/16
CHECKED BY: MLW	02/16
SUPV. BY:	

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

EMERALD LAKE DAM REHAB
EROSION CONTROL
NOTES
FAYETTE COUNTY

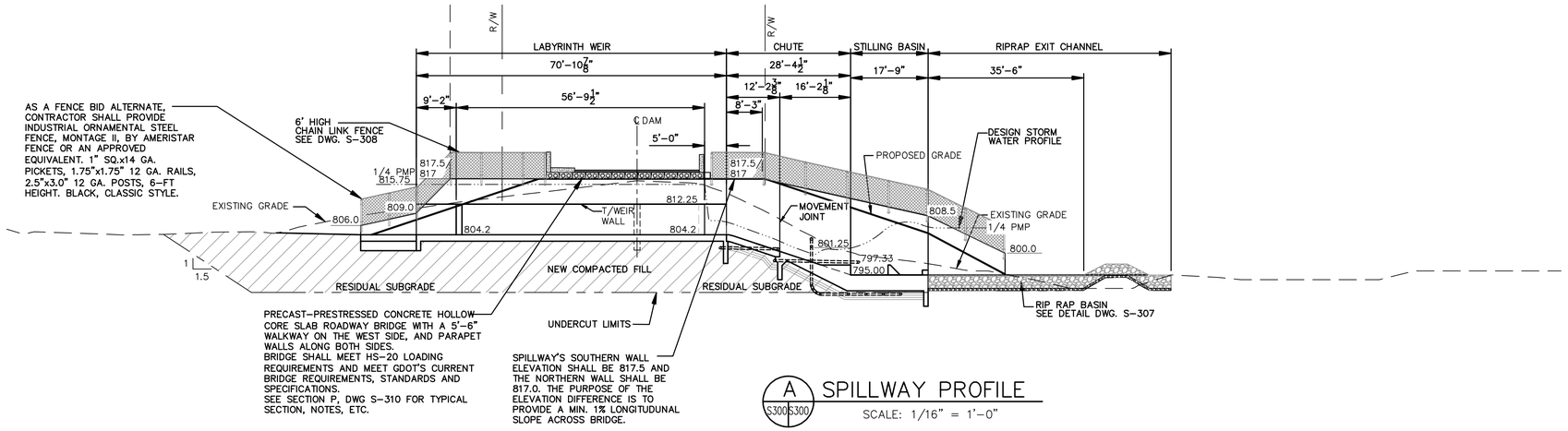
WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

JOB NO. 3400500
DRAWING NUMBER 34005-C-207
REV. NO. 0



SPILLWAY PLAN

SCALE: 1/16" = 1'-0"



A S300 S300 SPILLWAY PROFILE

SCALE: 1/16" = 1'-0"

NOTES:

1. FOR GENERAL NOTES AND LEGEND, SEE C-105.

STRUCTURAL NOTES

1. DESIGN IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING WITH GEORGIA AMENDMENTS AND ACI 318-05.
2. MATERIALS ARE TO BE AS FOLLOWS:
   CONCRETE REGULAR WEIGHT, f'c = 4,000 PSI AT 28 DAYS
   AIR ENTRAINMENT = 3-6 PERCENT. MAX W/C = 0.45.
   SLUMP RANGE = 3" TO 5"
3. CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS AND COMPLETE REINFORCING DETAILS TO THE DESIGN ENGINEER FOR REVIEW AND APPROVAL.
4. MINIMUM DESIGN SOIL BEARING CAPACITY IS 3,000 PSF AND IS TO BE VERIFIED BY THE PROJECT GEOTECHNICAL ENGINEER.
5. PROVIDE BAR SUPPORTS AND SPACERS IN ACCORDANCE WITH ACI 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES."
6. CONCRETE PROTECTION FOR REINFORCEMENT:
   CONCRETE CAST AGAINST EARTH:.....3 INCHES
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #5 BARS AND SMALLER:.....2 INCHES
   #6 BARS AND LARGER:.....2 INCHES
7. LAP ALL BARS IN ACCORDANCE WITH THE LAP SPLICE SCHEDULE UNLESS OTHERWISE NOTED. ALL REINFORCING SHALL CONFORM TO ACI 615-GRADE 60.
8. EXPOSED EDGES OF CONCRETE SHALL HAVE A 3/4" 45° CHAMFER UNLESS SHOWN OTHERWISE.
9. A SOIL BEARING CAPACITY OF LESS THAN IS STATED MAY REQUIRE THE FOOTING TO BE LARGER THAN SHOWN. NOTIFY DESIGN ENGINEER BEFORE PROCEEDING.
10. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR CONCRETE WALL STEEL FABRICATION TO WALDEN, ASHWORTH & ASSOCIATES, INC. FOR REVIEW PRIOR TO CONSTRUCTION.
11. NOTIFY THE ENGINEER IN WRITING OF CONDITIONS ENCOUNTERED IN THE FIELD THAT ARE CONTRADICTORY TO THOSE SHOWN ON THE CONTRACT DOCUMENTS.
12. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN, ADEQUACY AND SAFETY OF ERECTION BRACING, SHORING, FORMWORK, OR TEMPORARY SUPPORTS REQUIRED.
13. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF DIMENSIONS SHOWN ON THE CONTRACT DRAWINGS. NOTIFY THE ENGINEER OF ANY DISCREPANCY BEFORE STARTING SHOP DRAWINGS OR ANY WORK.
14. REVIEW OF SHOP DRAWINGS AND OTHER SUBMITTALS BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO REVIEW AND CHECK SHOP DRAWINGS BEFORE SUBMITTAL TO THE ENGINEER. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS AND DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ALL MEANS, METHODS, TECHNIQUES, SEQUENCES, & PROCEDURES OF CONSTRUCTION, AS WELL AS, JOBSITE SAFETY. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS AND REGULATIONS.
15. INSPECTION OF REINFORCING STEEL FOR ALL WALLS IS REQUIRED. CONTRACTOR SHALL NOTIFY DESIGN ENGINEER A MINIMUM OF 24 HOURS PRIOR TO COMPLETION OF STEEL PLACEMENT TO ARRANGE AN INSPECTION. CONCRETE SHALL NOT BE POURED UNTIL STEEL PLACEMENT HAS BEEN INSPECTED AND APPROVED BY THE DESIGN ENGINEER. CONCRETE TEST CYLINDERS SHALL BE TAKEN FROM EACH POUR, OR EVERY 50 CUBIC YARDS, WHICHEVER IS GREATER. ONE CYLINDER WILL BE TESTED AT 7 DAYS AND THE OTHER TWO AT 28 DAYS BY THE GEOTECHNICAL ENGINEER FOR STRENGTH COMPLIANCE.
16. FIELD BENDING OF REINFORCING STEEL WILL BE ALLOWED AS LONG AS ALL BARS ARE BENT AROUND A MINIMUM RADIUS PIN AS REQUIRED IN ACI 318. DO NOT HEAT BARS. BARS MUST BE BENT COLD.

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PRIMARY PERMITTEE

OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
CONTACT: MR. PHIL MALLON
PHONE: (770) 313-9855

24 HR. CONTACT PERSON
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THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5, FAYETTE COUNTY, GA
LOCATED ON EMERALD LAKE DRIVE.

FOR BID PURPOSES ONLY
NOT FOR CONSTRUCTION

NO.	REVISIONS	MADE	CKD.	DATE

NO.	REVISIONS	MADE	CKD.	DATE

SCALE:	AS SHOWN	DATE
DESIGN BY:	JMH	02/16
DRAWN BY:	JMH	02/16
CHECKED BY:	MLW	02/16
SUPV. BY:		

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

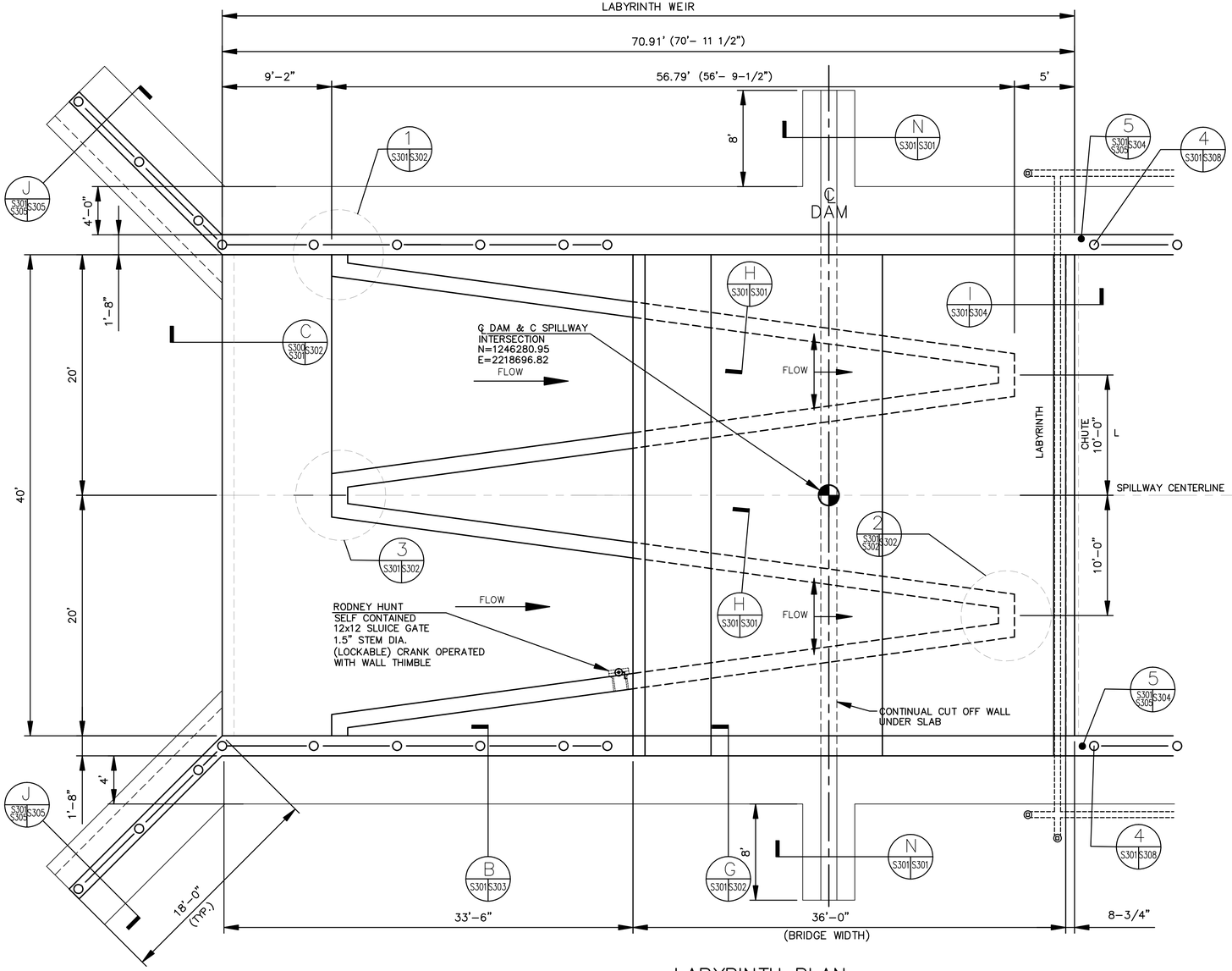
EMERALD LAKE DAM REHAB
PRIMARY SPILLWAY
PLAN AND PROFILE
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

JOB NO. 3400500

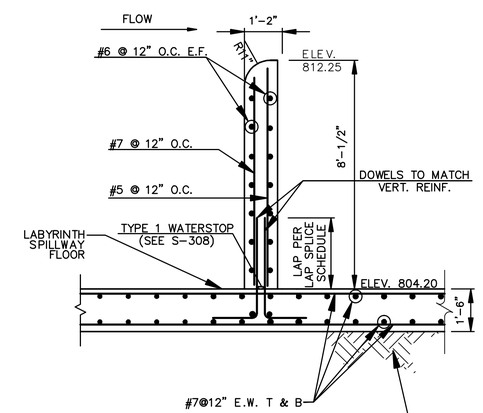
DRAWING NUMBER 34005- S-300

REV. NO. 0



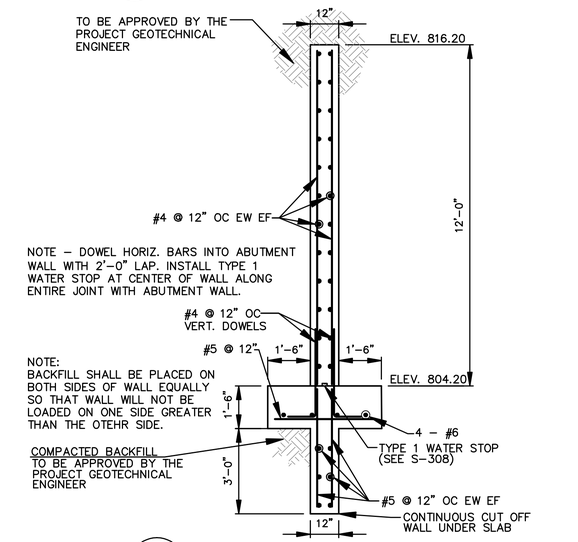
LABYRINTH PLAN

SCALE: 3/16" = 1'–0"



H S301 S301 LABYRINTH WEIR WALL

SCALE: 3/8" = 1'–0"



N S301 S301 SECTION THRU ANTI–SEEP WALL

SCALE: 3/8" = 1'–0"

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

PRIMARY PERMITTEE

OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
CONTACT: MR. PHIL MALLON
PHONE: (770) 313–9855

24 HR. CONTACT PERSON
PHIL MALLON
(770) 313–9855

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5, FAYETTE COUNTY, GA
LOCATED ON EMERALD LAKE DRIVE.

FOR BID PURPOSES ONLY
NOT FOR CONSTRUCTION

NO.	REVISIONS	MADE	CKD.	DATE

NO.	REVISIONS	MADE	CKD.	DATE

SCALE: AS SHOWN	DATE
DESIGN BY: JMH	02/16
DRAWN BY: JMH	02/16
CHECKED BY: MLW	02/16
SUPV. BY:	

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

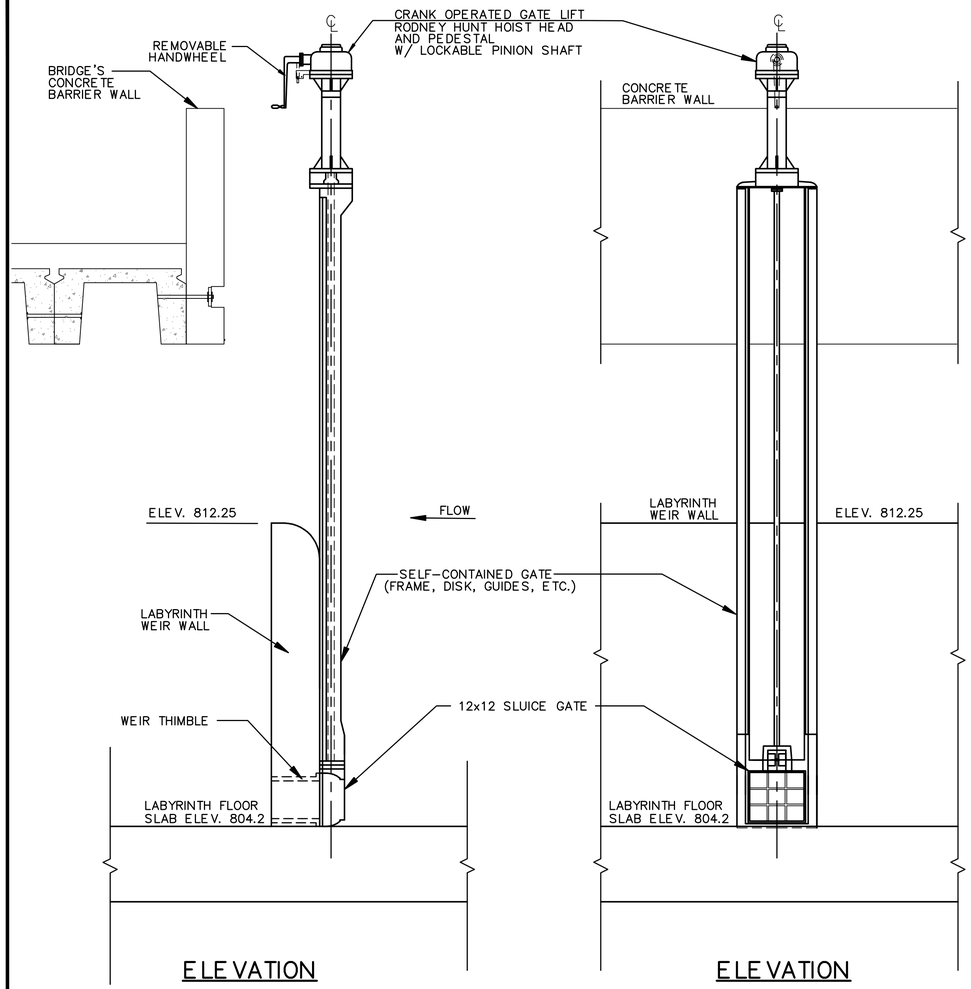
EMERALD LAKE DAM REHAB
PRIMARY SPILLWAY
LABYRINTH WEIR SECTIONS & DETAILS
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

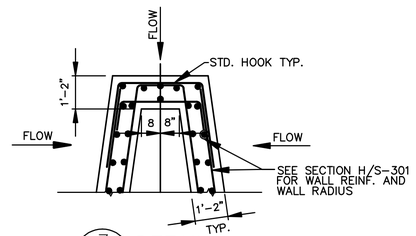
JOB NO. 3400500

DRAWING NUMBER 34005- S-301

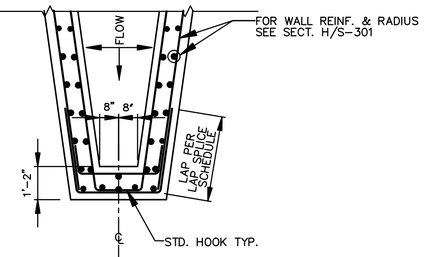
REV. NO. 0



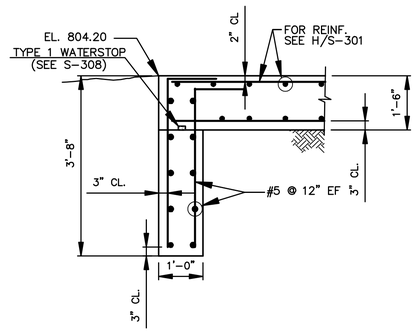
D S308 S308 DRAWDOWN GATE ACCESS DETAIL
SCALE: 1/2"=1'-0"



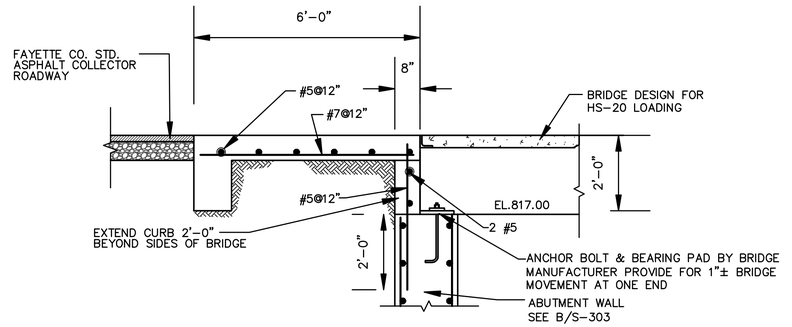
3 S301 S302 DETAIL
SCALE: 3/8" = 1'-0"



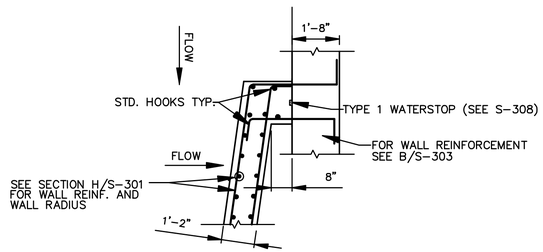
2 S301 S302 DETAIL
SCALE: 3/8" = 1'-0"



C S300 S301 S302 SECTION AT TURNDOWN
N.T.S.



G S301 S302 SECTION AT BRIDGE APPROACH
(TYP. BOTH SIDES)
SCALE: 1/2" = 1'-0"



1 S301 S302 DETAIL
SCALE: 3/8" = 1'-0"

Know what's below. Call before you dig. 811

PRIMARY PERMITTEE
OWNER:
FAYETTE COUNTY BOARD OF COMMISSIONERS 140 STONEWALL AVENUE WEST FAYETTEVILLE, GEORGIA 30214 CONTACT: MR. PHIL MALLON PHONE: (770) 313-9855

24 HR. CONTACT PERSON
PHIL MALLON
(770) 313-9855

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5,
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FOR BID PURPOSES ONLY
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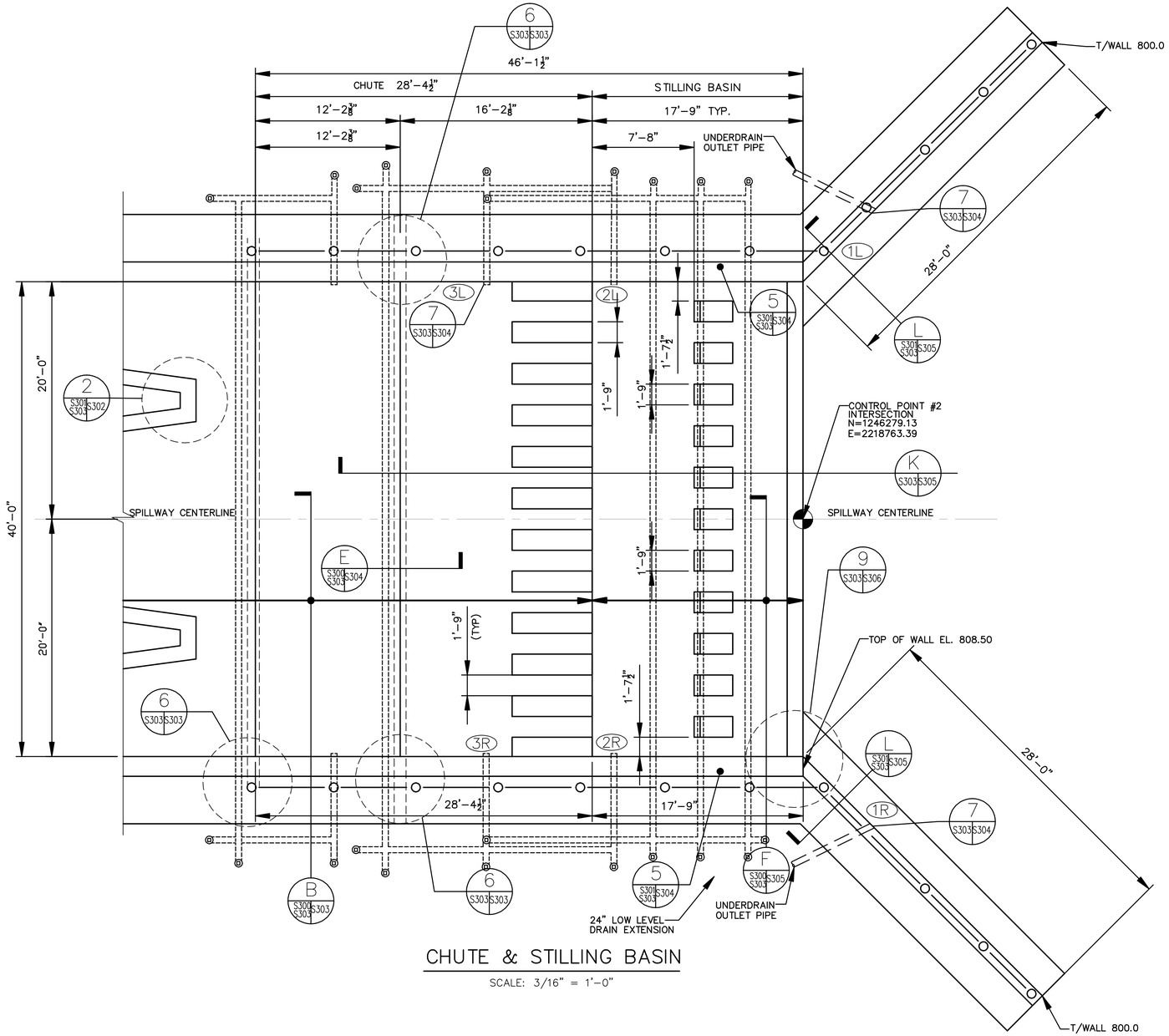
CHECKED BY:	MLW	02/16
SUPV. BY:		

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

EMERALD LAKE DAM REHAB
PRIMARY SPILLWAY
LABYRINTH WEIR SECTIONS & DETAILS
FAYETTE COUNTY

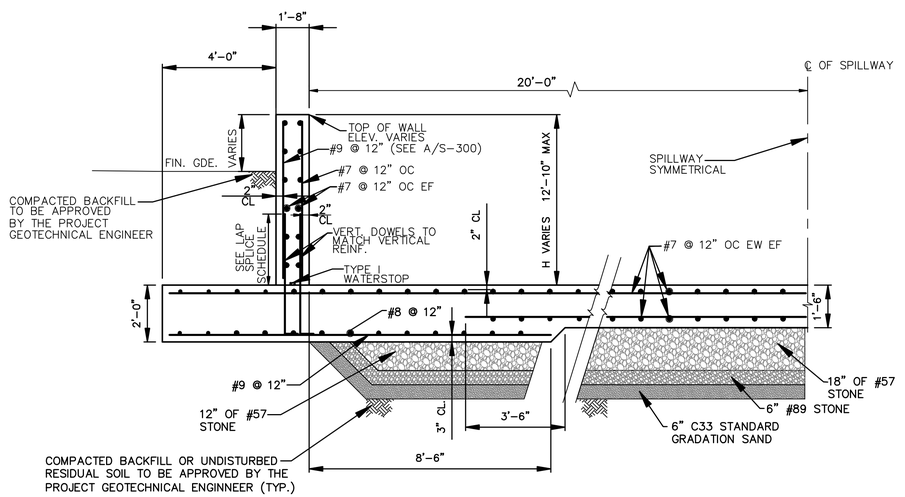
WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

JOB NO.	DRAWING NUMBER	REV. NO.
3400500	34005- S-302	0



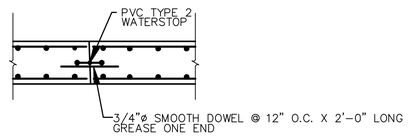
CHUTE & STILLING BASIN

SCALE: 3/16" = 1'-0"



B S301 S303 S303 SECTION THROUGH ABUTMENT & CHUTE WALLS

SCALE: 3/8" = 1'-0"



6 S303 S303 WALL DETAIL AT MOVEMENT JOINT

SCALE: 3/8"=1'-0"

Know what's below. Call before you dig.

PRIMARY PERMITTEE

OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
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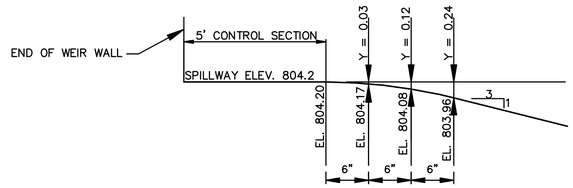
MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

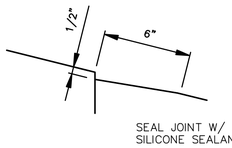
EMERALD LAKE DAM REHAB
PRIMARY SPILLWAY
CHUTE SECTIONS AND DETAILS
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

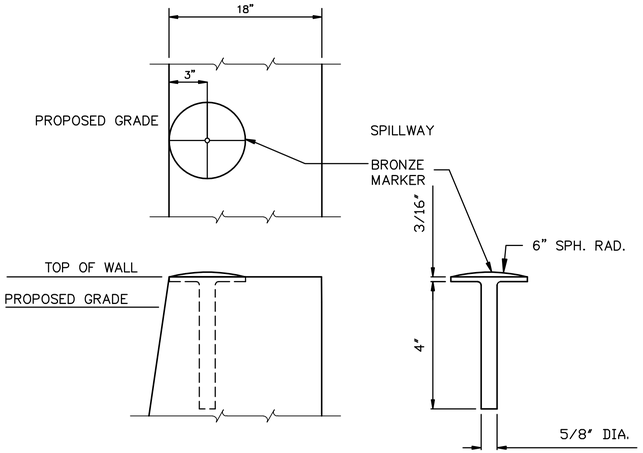
JOB NO.	DRAWING NUMBER	REV. NO.
3400500	34005- S-303	0



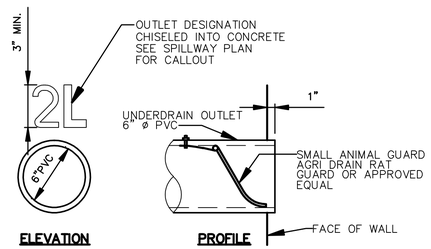
D S300\S304 SECTION AT VERTICAL CURVE
SCALE: N.T.S.



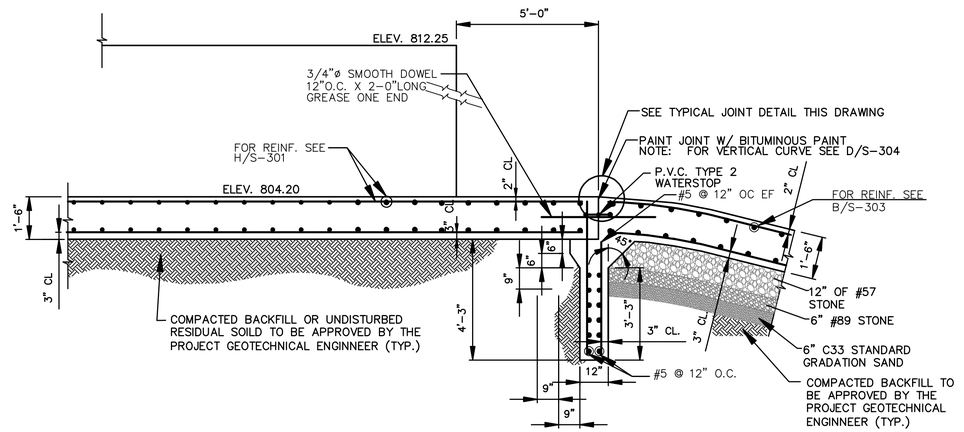
TYPICAL JOINT DETAIL
N.T.S.



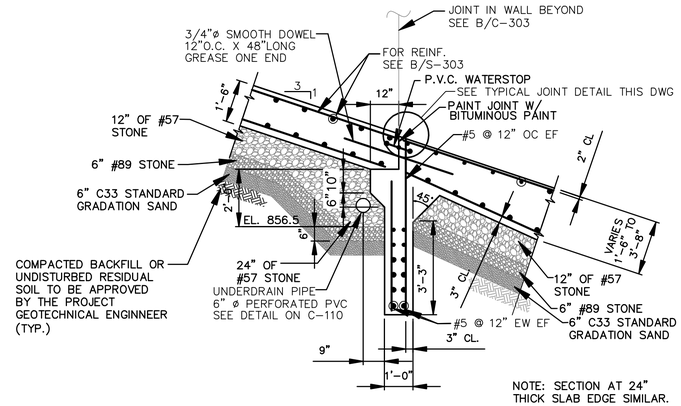
5 S301\S304 SETTLEMENT PLATE DETAIL
SCALE: NTS



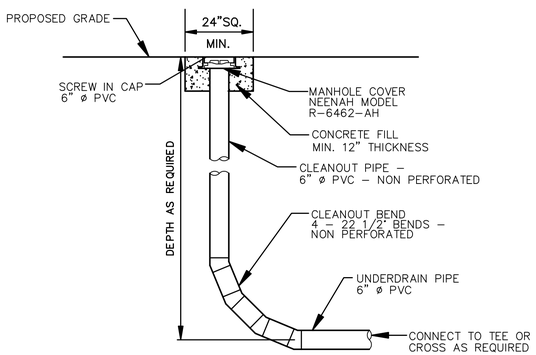
7 S303\S304 DETAIL AT UNDERDRAIN OUTLET
N.T.S. (TYPICAL 8 PLACES)



1 S301\S304 SECTION AT TRANSITION
SCALE: 3/8"=1'-0"



E S300\S303 SECTION
SCALE: 3/8"=1'-0"



8 S305\S304 DETAIL AT UNDERDRAIN CLEANOUT
N.T.S.

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

PRIMARY PERMITTEE

OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
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24 HR. CONTACT PERSON
PHIL MALLON
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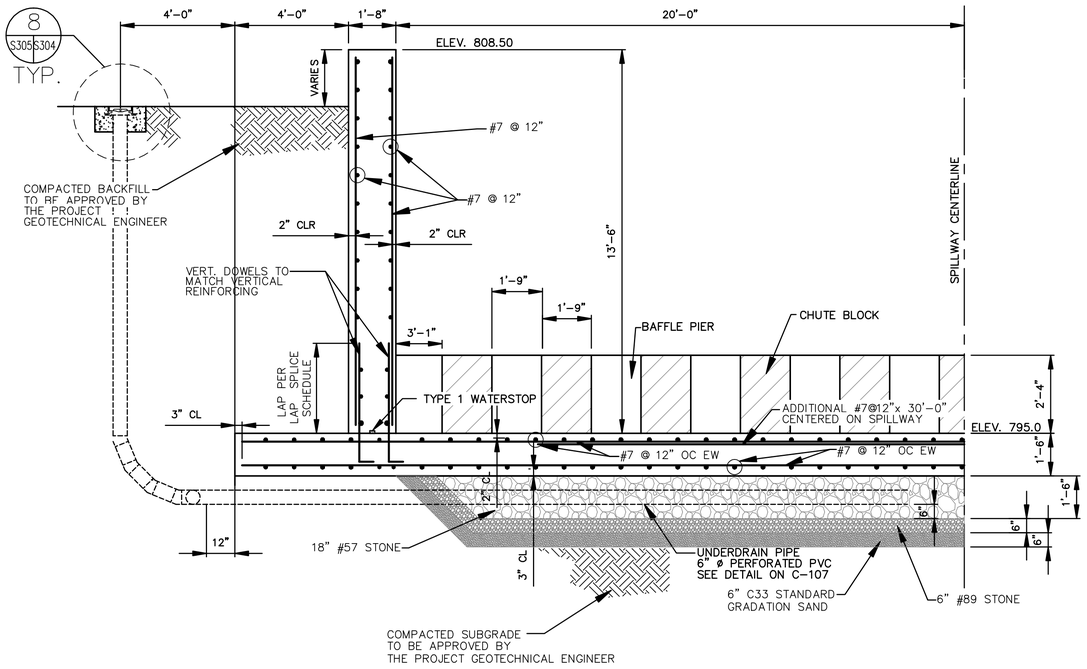
SUPV. BY:	

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

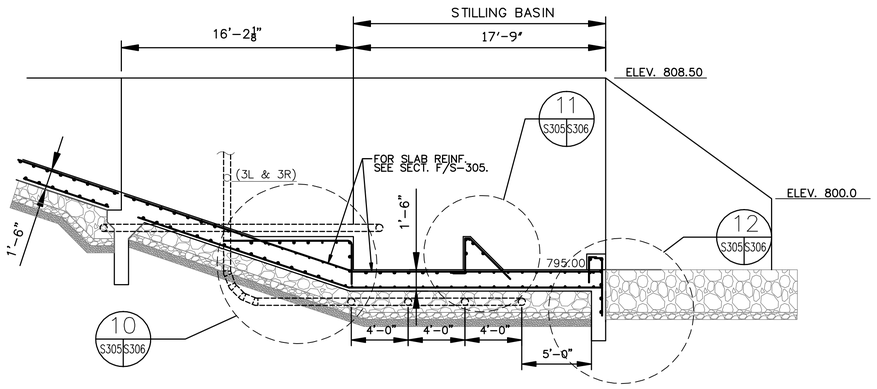
EMERALD LAKE DAM REHAB
PRIMARY SPILLWAY
CHUTE SECTIONS AND DETAILS
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

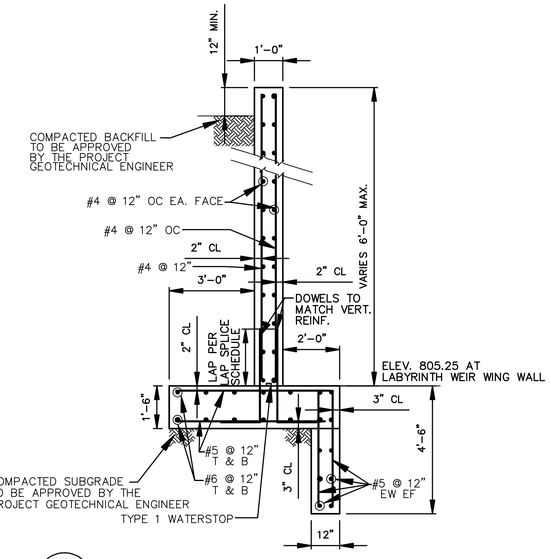
JOB NO. 3400500
DRAWING NUMBER 34005- S-304
REV. NO. 0



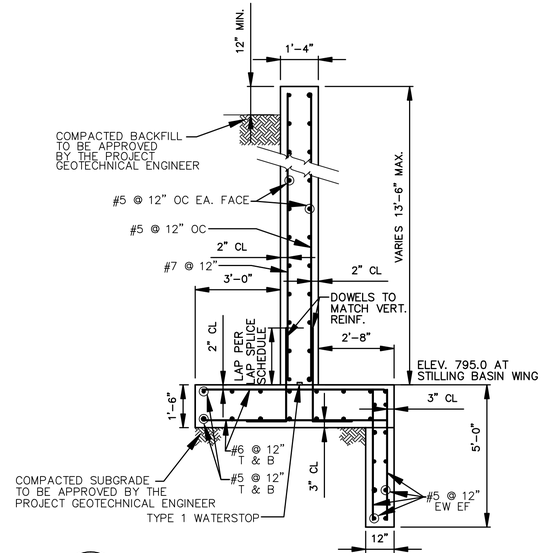
F S305S305 S305 — SECTION AT STILLING BASIN
SCALE: 3/8" = 1'-0"



K S303S305 — SECTION
SCALE: 3/16" = 1'-0"



J S305S305 S305 — SECTION THRU UPPER WING WALL
SCALE: 3/8" = 1'-0"



L S301S305 S305 — SECTION THRU LOWER WING WALL
SCALE: 3/8" = 1'-0"

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

PRIMARY PERMITTEE

OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
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24 HR. CONTACT PERSON
PHIL MALLON
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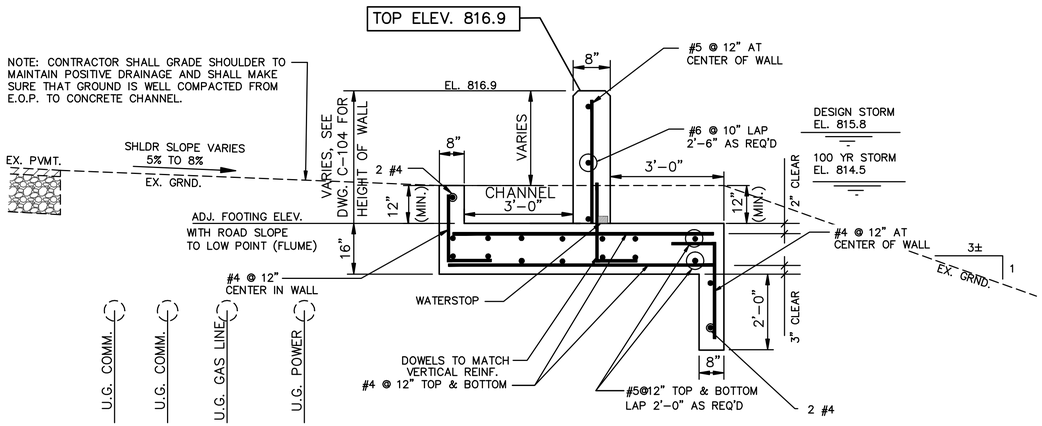
MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

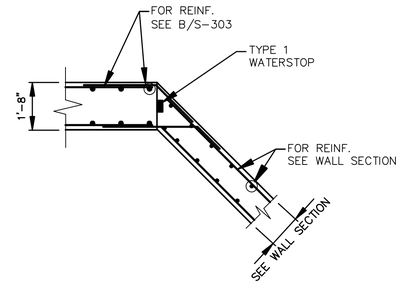
EMERALD LAKE DAM REHAB
PRIMARY SPILLWAY
STILLING BASIN SECTIONS AND DETAILS
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

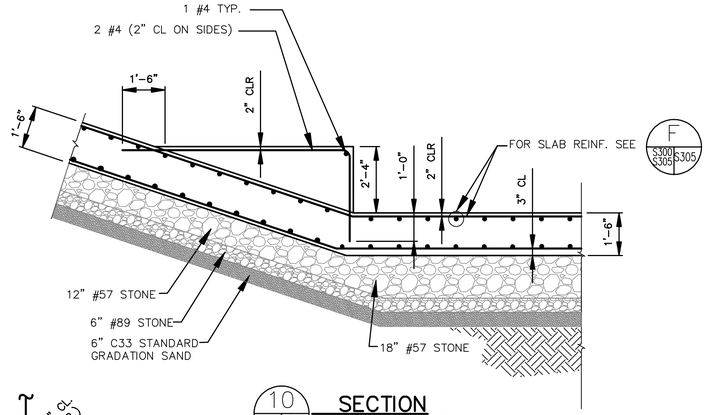
JOB NO. 3400500
DRAWING NUMBER 34005- S-305
REV. NO. 0



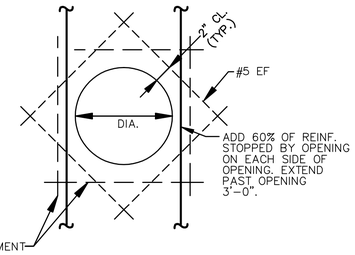
TYPICAL SECTION THRU RETAINING WALL
SCALE: 1/2" = 1'-0"



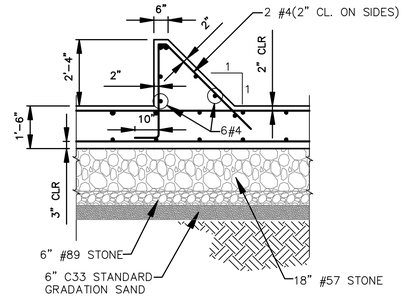
9 S305 S306 **DETAIL AT WALL JOINT**
SCALE: 3/8" = 1'-0"

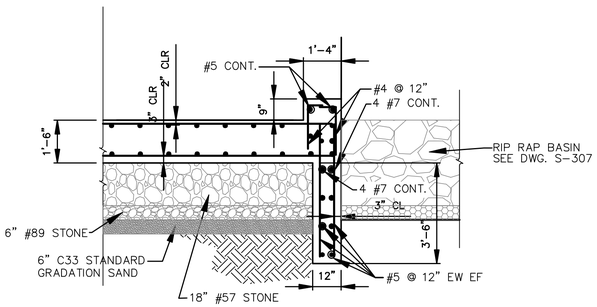


10 S305 S306 **SECTION**
SCALE: 3/8" = 1'-0"



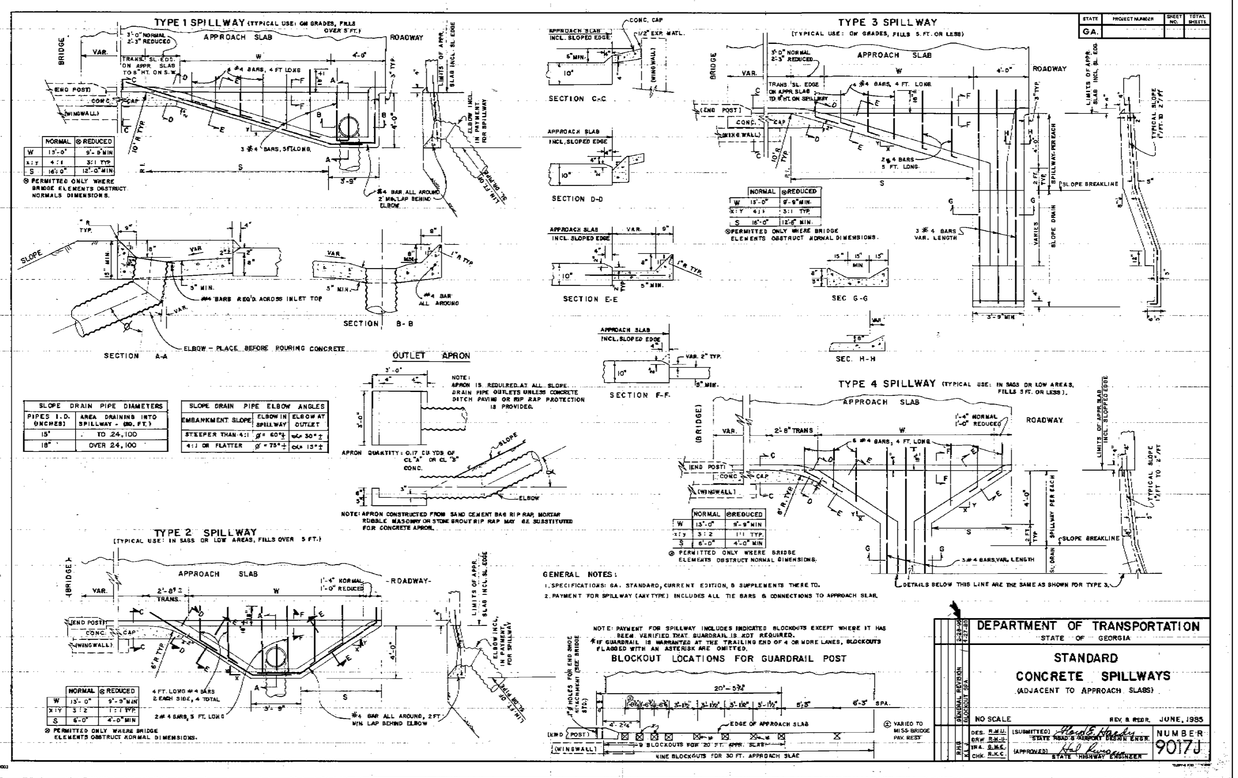
REINFORCEMENT AROUND ORIFICE OR PIPE OPENING
N.T.S.– TYPICAL UNLESS SHOWN OTHERWISE





11 S305 S306 **DETAIL**
SCALE: 3/8" = 1'-0"

12 S305 S306 **DETAIL**
SCALE: 3/8" = 1'-0"



SLOPE DRAIN PIPE DIAMETERS	
PIPES I.D. (INCHES)	AREA DRAINING INTO SPILLWAY - (SQ. FT.)
15"	TO 24,100
18"	OVER 24,100

SLOPE DRAIN PIPE ELBOW ANGLES		
EMBANKMENT SLOPE	ELBOW IN SPILLWAY	ELBOW AT OUTLET
STEEPER THAN 4:1	0° TO 60°	90°-30° ±
4:1 OR FLATTER	0° - 75° ±	90° - 15° ±

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5, FAYETTE COUNTY, GA
LOCATED ON EMERALD LAKE DRIVE.

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MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

EMERALD LAKE DAM REHAB
PRIMARY SPILLWAY
STILLING BASIN SECTIONS AND DETAILS
FAYETTE COUNTY

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24 HR. CONTACT PERSON
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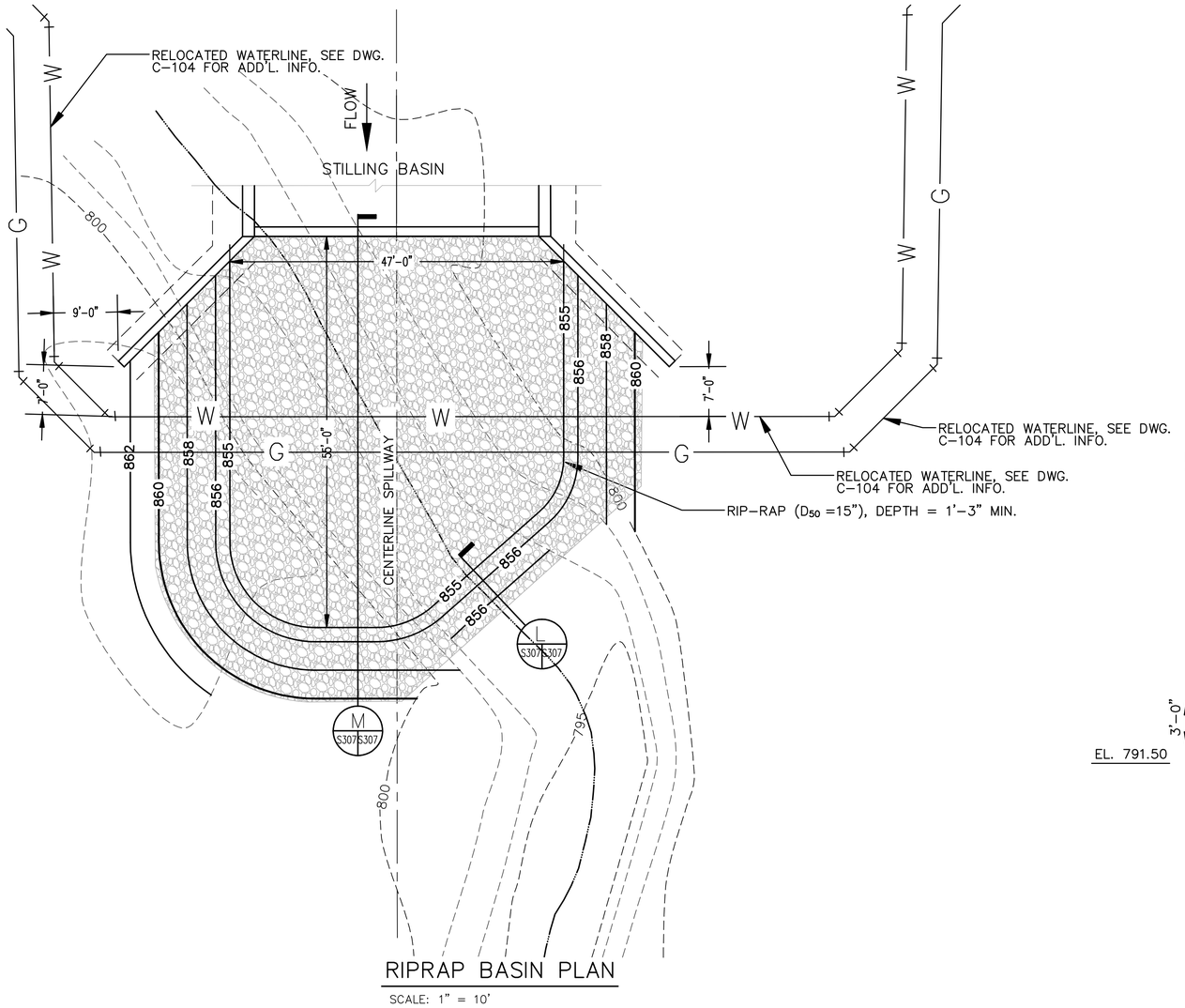
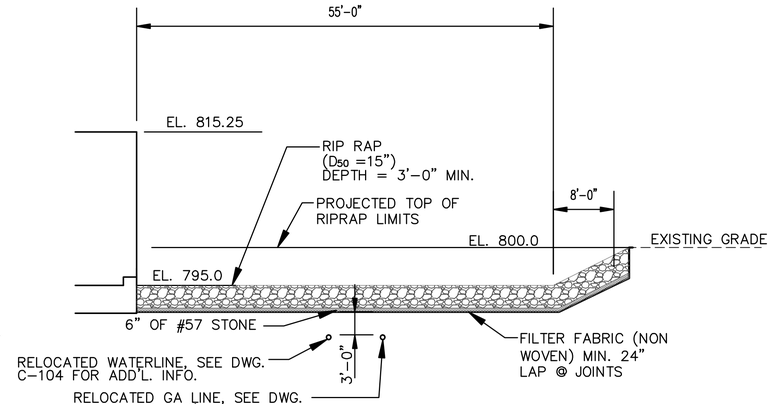
(770) 313-9855

JOB NO.	DRAWING NUMBER	REV. NO.
3400500	34005- S-306	0



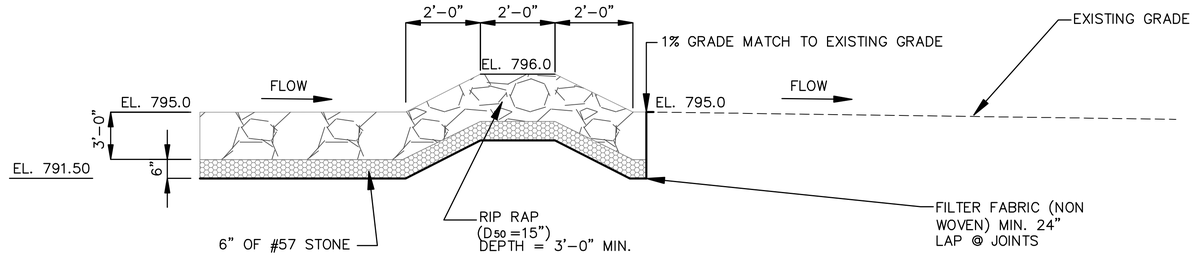
RIPRAP BASIN PLAN

SCALE: 1" = 10'



M S307 S307 SECTION THRU RIPRAP BASIN

SCALE: 1" = 10'



L S307 S307 SECTION THRU RIP RAP

SCALE: 1/2" = 1'-0"

NOTE:
CONTRACTOR SHALL REMOVE ALL ALLUVIAL MATERIAL AS DIRECTED BY THE GEOTECHNICAL ENGINEER. DEWATERING WILL BE REQUIRED.

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

PRIMARY PERMITTEE

OWNER:
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BOARD OF COMMISSIONERS
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SUPV. BY:		

MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

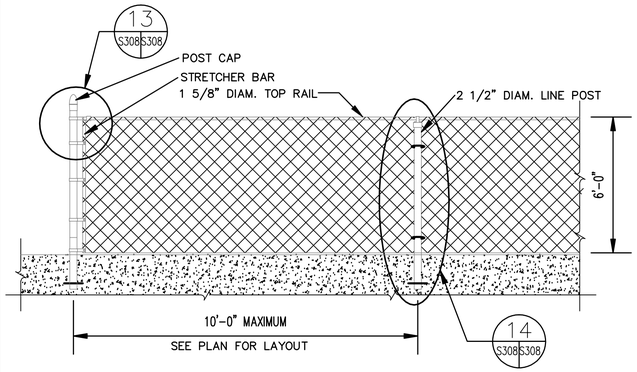
EMERALD LAKE DAM REHAB
PRIMARY SPILLWAY
EXIT CHANNEL PLAN AND SECTION
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

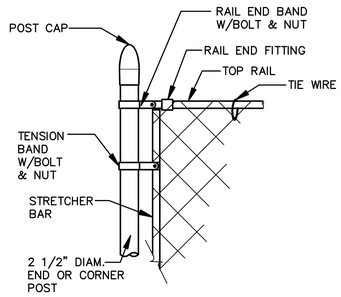
JOB NO. 3400500

DRAWING NUMBER 34005- S-307

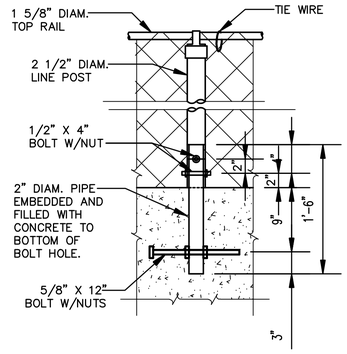
REV. NO. 0



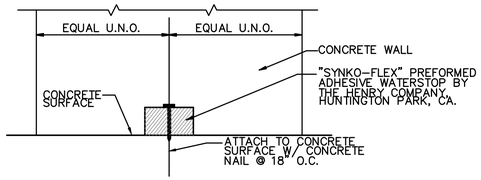
4 S301 S308 CHAIN LINK FENCE DETAIL
NOT TO SCALE



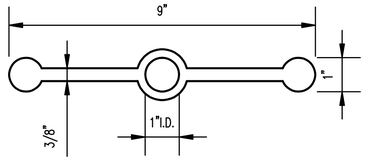
13 S308 S308 DETAIL



14 S308 S308 LINE POST DETAIL



TYPE 1 WATERSTOP DETAIL
N.T.S. (FOR USE AT CONSTRUCTION JOINTS)



PVC WATERSTOP SHALL MEET U.S. ARMY CORP OF ENGINEERS SPECIFICATION CRD-C572-74.

TYPE 2 WATERSTOP
N.T.S. (FOR USE AT MOVEMENT JOINTS)

LAP SPLICE SCHEDULE									
LOCATION	BAR SIZE								
	#3	#4	#5	#6	#7	#8	#9	#10	#11
HORIZONTAL BARS	18"	24"	30"	36"	42"	48"	60"	74"	88"
VERTICAL BARS	16"	18"	23"	28"	32"	37"	46"	57"	68"

NOTES:
1. LAP SPLICES ARE BASED ON 4000 PSI REG. WT. CONCRETE, MIN. BAR SPACING OF 8", AND MIN. COVER OF 2".
2. LAP ALL BARS IN ACCORDANCE WITH THIS SCHEDULE U.N.O.

MOVEMENT JOINT INTERSECTION DETAIL
N.T.S.

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

PRIMARY PERMITTEE
OWNER:
FAYETTE COUNTY
BOARD OF COMMISSIONERS
140 STONEWALL AVENUE WEST
FAYETTEVILLE, GEORGIA 30214
CONTACT: MR. PHIL MALLON
PHONE: (770) 313-9855

24 HR. CONTACT PERSON
PHIL MALLON
(770) 313-9855

THE SITE IS LOCATED IN LAND LOTS 73 & 74 IN DISTRICT 5, FAYETTE COUNTY, GA
LOCATED ON EMERALD LAKE DRIVE.

FOR BID PURPOSES ONLY
NOT FOR CONSTRUCTION

NO.	REVISIONS	MADE	CKD.	DATE

NO.	REVISIONS	MADE	CKD.	DATE

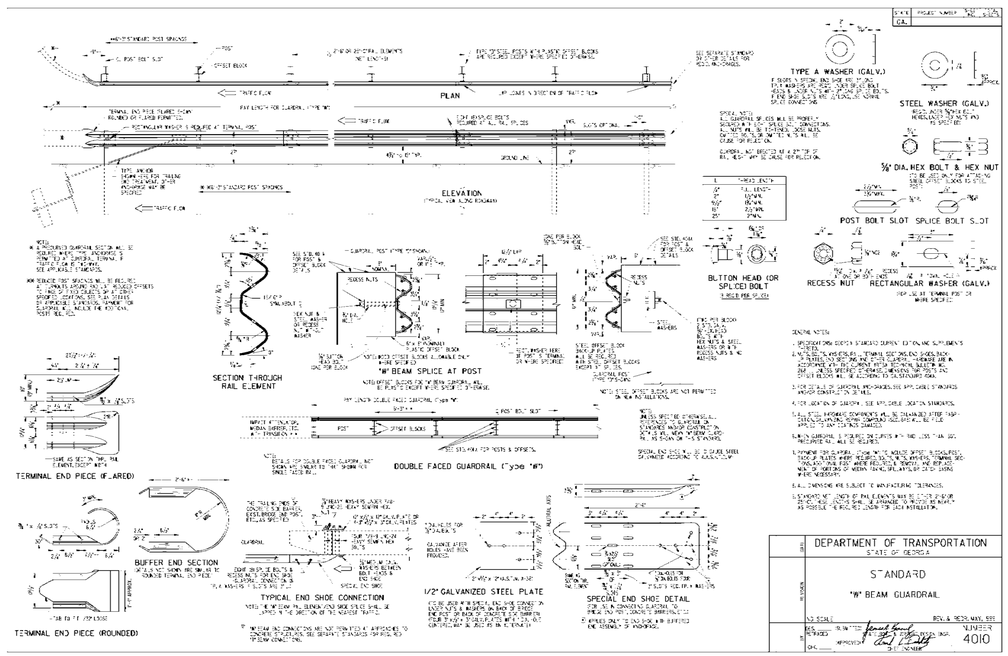
SCALE: AS SHOWN	DATE
DESIGN BY: JMH	02/16
DRAWN BY: JMH	02/16
CHECKED BY: MLW	02/16
SUPV. BY:	

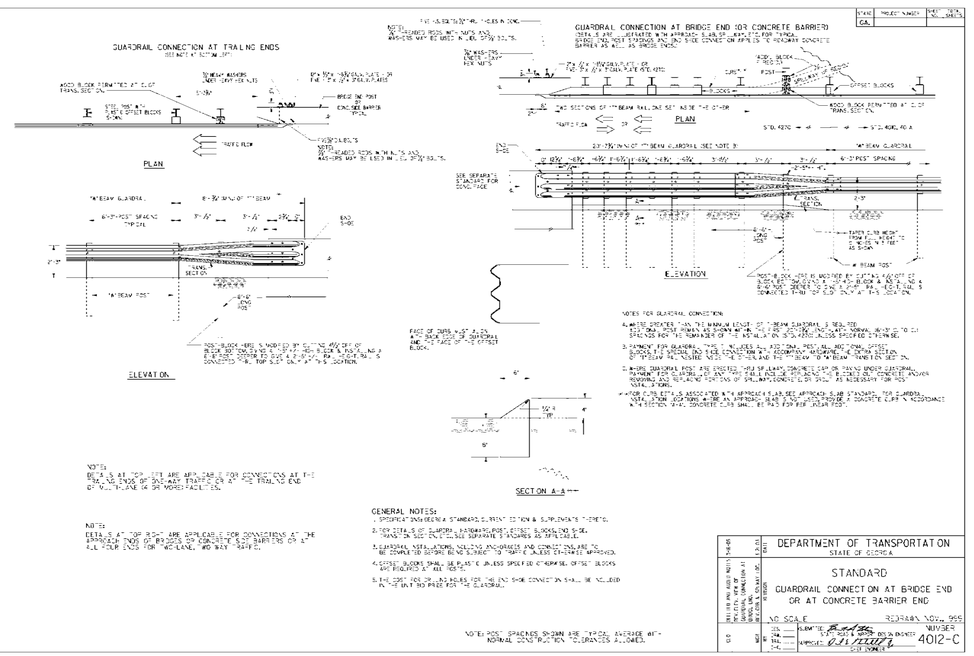
MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

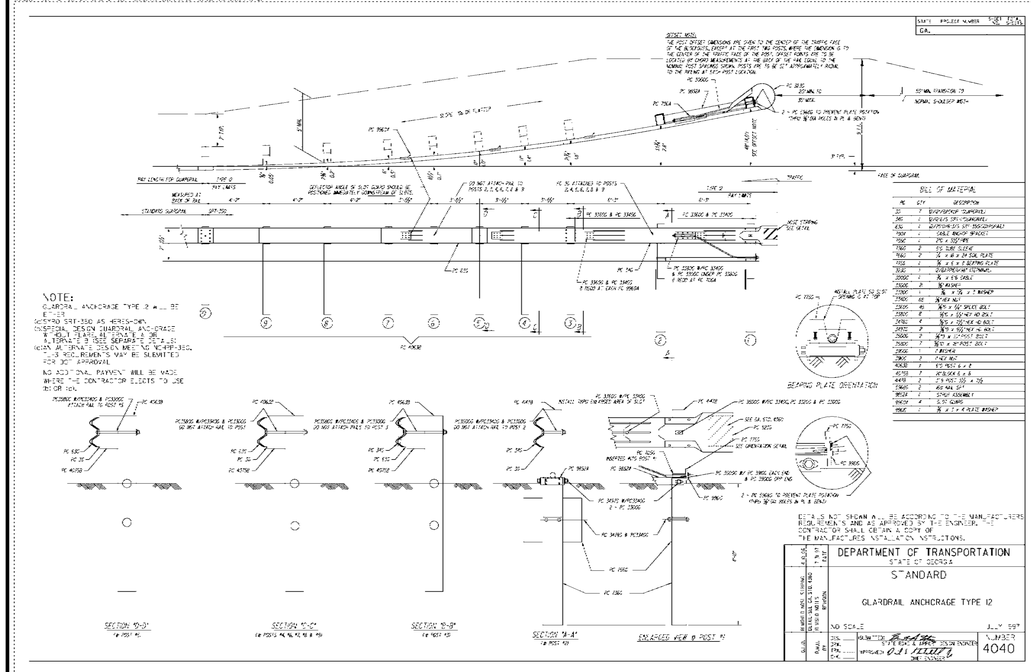
EMERALD LAKE DAM REHAB
PRIMARY SPILLWAY
MISCELLANEOUS DETAILS
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

JOB NO.	DRAWING NUMBER	REV. NO.
3400500	34005- S-308	0







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MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

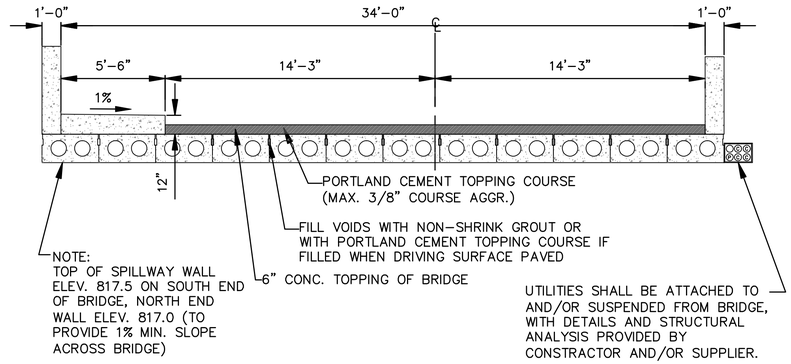
EMERALD LAKE DAM REHAB
GEORGIA DOT
STANDARD DETAILS
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462
MARIETTA, GEORGIA 30065
(770) 956 - 7879

JOB NO. 3400500

DRAWING NUMBER 34005- S-309

REV. NO. 0



P
S300|S310

TYPICAL ROADWAY CROSS SECTION

SCALE: 1/4" = 1'-0"

BRIDGE NOTES:

1. THE BRIDGE MANUFACTURER/SUPPLIER SHALL BE ON THE APPLICABLE GDOT QUALIFIED PRODUCTS LIST No.9.
2. THE BRIDGE SUPERSTRUCTURE SHALL BE PRECAST, PRESTRESSED CONCRETE BOX BEAM.
3. THE DESIGN LOAD FOR THE BRIDGE IS AASHTO HS-20.
4. THE BRIDGE PARAPET WALLS SHALL BE CAST-IN-PLACE, WITH DETAILS PROVIDED BY THE MANUFACTURER/SUPPLIER. AS A BID ALTERNATE, THE PARAPET WALLS SHALL HAVE AN ASHLAR COLOR/FINISH. THE FINISH/COLOR SHALL BE APPROVED BY FAYETTE COUNTY AS A PART OF THE SUBMITTAL/SHOP DRAWING REVIEW PROCESS.
5. ALL UNDERGROUND UTILITIES, EXCEPT WATER AND GAS, SHALL BE SUSPENDED AND/OR ATTACHED TO THE BRIDGE WITH DETAILS AND STRUCTURAL ANALYSIS PROVIDED BY MANUFACTURER/SUPPLIER/CONTRACTOR.
6. ALL BRIDGE COMPONENTS SHALL MEET APPLICABLE AASHTO AND GDOT SPECIFICATIONS.
7. ALL SUBMITTIALS AND SHOP DRAWINGS ARE SUBJECT TO REVIEW AND APPROVAL BY FAYETTE COUNTY AND THE PROJECT ENGINEER.
8. A POLISHED ALUMINUM (GDOT STD. 3626) SINGLE PIPE HANDRAIL SHALL BE ATTACHED TO THE PARAPET, BRACKETS SPACED AT NO MORE THAN 6'-0" O.C., THE ENTIRE LENGTH OF THE BRIDGE.
9. THE SIDEWALK AND PARAPET WALL DESIGN AND ATTACHMENT TO THE PRESTRESSED CONCRETE HOLLOW CORE SLABS SHALL BE PROVIDED THE MANUFACTURER/SUPPLIER.
10. A BACKER ROD (SLIGHTLY OVERSIZED TO RESIST MOVEMENT DURING SEALING) WITH SELF LEVELING SILICONE SEALANT SHALL BE USED AT THE JOINT BETWEEN THE BRIDGE AND APPROACH SLAB, REFER TO GA DOT STD. 5046H FOR "DETAIL B CONTRACTION OR CONSTRUCTION JOINT" AND FOR "GENERAL NOTES".

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MARTIN L. WALDEN, PE
LEVEL 2 CERTIFICATION # 45843
EXPIRATION DATE: 09/25/16

EMERALD LAKE DAM REHAB
STRUCTURAL PLANS
SECTIONS & DETAILS
FAYETTE COUNTY

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
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MARIETTA, GEORGIA 30065
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REV. NO. 0