Request for Proposal

Bid #014-009

Emergency Declaration for Culvert Replacement

for

City of Flowery Branch

Closing Date/Time:

<u>Tuesday, October 28, 2014, 3:00 PM</u>

City of Flowery Branch
P.O. Box 757/5517 Main Street
Flowery Branch, Georgia 30542
(770) 967-6371

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PROCEDURES FOR SUBMITTAL OF OFFERS AND PROPOSAL EVALUATION CRITERIA

Overview

1.1. The intent of this solicitation is to select one contractor for the demolition and removal of the existing damaged Spring Street Culverts, site preparation, grading, and culvert replacement installation as described in the Spring Street Culvert Replacement Plans, dated 10/13/14, as designed by Pond & Company.

1.2 The City will award a firm fixed price contract to the responsible Offeror whom conforms to the solicitation, is fair and reasonable and offers the best overall value to the City. The City reserves the right to accept other than the lowest priced offer or to reject all offers.

1.3 Technical inquiries and questions relating to the proposal shall be submitted via e-mail to John McHenry at johnm@flowerybranchga.org. Bidder Inquiry e-mails shall be titled "Spring Street Bidder Inquiry".

Bidder Inquiries shall be submitted by 1**2:00 p.m. Friday, October 17, 2014**. No bidder inquiries shall be accepted after 1**2:00 p.m. Friday October 17, 2014**. All bidder inquiries shall be formally answered on **5:00 p.m. Monday, October 20, 2014** via e-mail.

Submittal Procedure

2.1 Offerors submitting proposals for this project should limit submissions to data essential for evaluation of proposals so that a minimum of time and monies will have been expended in preparing information required herein. However, in order to be effectively and equitably evaluated, the proposals must include a technical description and construction schedule sufficiently detailed to clearly describe the requirements stated in this RFP are minimums.

2.2 Offerors shall submit their proposals to the City of Flowery Branch, Attention John McHenry, 5517 Main Street, P.O. Box 757, Flowery Branch, GA 30542 by **Tuesday, October 28th, 2014 at 3:00 PM**. Any bids received after **Tuesday**, **October 28th, 2014 at 3:00** will not be accepted.

Proposal Information and Evaluation Criteria

3.1 Volume I– Proposal (Sealed Envelope, 1 original)

1. Price Breakdown Schedule
2. Bonding and Insurance Requirements
3. E-verification affidavit
4. Construction Schedule
5. Technical Description

Volume I – Proposal (Sealed Envelope)

Offeror's submitting proposals shall provide all items in Volume II in a sealed envelope.

1) Price Breakdown Schedule

Contractor shall complete the Price Breakdown Schedule in Appendix A.

2). Bonding and Insurance Requirements

A. A bid bond in the amount of 5% of the base bid must be submitted with each bid. A performance bond and payment bond shall be equal to 100% of the Contract Sum and shall be required at the signing of the contract for the project.

B. Bid bonds may be submitted in the form of a cashier's check, certified check, bank draft, money order, or an irrevocable letter of credit made payable to the City of Flowery Branch, or a bid bond issued by a surety company licensed to issue such bonds in the state of Georgia. The guarantee shall insure the execution of the contract document and the furnishing of a payment bond and a performance bond.

Payment bonds and performance bonds must be issued by a surety company licensed to issue such bonds in the State of Georgia.

C. The insurance and bonding company should be licensed to do business by the Georgia Secretary of State, authorized to do business in Georgia by the Georgia Insurance Department, listed in the Department of Treasury's Publication of Companies holding Certificates of Authority as Acceptable Surety on Federal Bonds and as acceptable reinsuring companies, and must have an A.M. Best rating of A-V (A-5) or higher.

D. Prior to the execution of a contract by the City, the selected company must have all insurance required under the attached contract

1. A Certificate of Insurance, reflecting evidence of the required insurance, shall be filed with the City Manager prior to the commencement of the work. These certificates shall contain a provision that coverage afforded under these policies will not be canceled until at least 30 days prior written notice has been given to the City.

2. Insurance shall remain in force until all work required to be performed under the terms of the contract is satisfactorily completed, as evidenced by the formal acceptance by the City. In the event the insurance certificate provided indicates that the insurance shall terminate and lapse during the period of this contract, the selected company shall furnish, at least 30 days prior to the expiration of such insurance, a renewal certificate of insurance as proof that equal and like coverage for the balance of the period of the contract and extension there under is in effect. The selected company shall not continue to work pursuant to this contract unless all required insurance remains in full force and effect.

3). E-verification Affidavit

Contractor shall sign the E-verification Affidavit in Appendix B and include with the bid.

4). Construction Schedule demonstrating the construction activities and the timeframe of construction.
5). Technical Narrative

Provide a clear, concise narrative (not to exceed 5 pages using a minimum font of 11 and a minimum margin of one-half inch on all sides) describing the requirements of the project.

STATEMENT OF WORK

PART 1 - DESIGN OBJECTIVES AND FUNCTIONAL REQUIREMENTS

1.1 SCOPE OF WORK

1.1.1 The objective of this solicitation is to replace the collapsed culverts on Spring Street with a triple, concrete 8' x 8' Box Culvert and to analyze the existing soil conditions to provide the proper foundation system.

1.1.2 Requirements stated in this RFP are minimums; construction shall meet or exceed the requirements. The design and technical criteria contained and cited in this RFP establish minimum standards for design and construction quality. Alternate solutions may be submitted for evaluation.

1.1.3 This project shall consist of the construction of Spring Street including , but may not be limited to, the required grading, utilities, storm drainage, road improvements, culverts, sidewalks, curbs, guard rail, and erosion control within the limits depicted on the Construction Plans For Spring Street Culvert Replacement, dated 10/13/14, and prepared by Pond & Company.

1.2 DESIGN OBJECTIVES

1.2.1 Applicable Criteria. Applicable design and construction criteria references are listed in this Statement of Work. Criteria shall be taken from the most current references as of the date of issue of the RFP, unless noted otherwise. Referenced codes and standards are the minimum acceptable criteria.

1.2.2 Design Freedom. Requirements stated in this RFP are minimums. Innovative, creative, or cost-saving proposals, which can be demonstrated to meet or exceed these requirements may be submitted and evaluated.

1.3 CONTRACTOR RESPONSIBILITY

1.3.1 The Contractor shall provide all labor, materials, equipment, supplies, and consultant services to design and construct Spring Street. No work shall be proposed outside of the approved limits of disturbance.

1.3.2 Contractor is responsible for paying all utility services required for construction, and any costs associated with relocating utilities. Contractor shall coordinate required metering of utility services with the City and utility providers.

1.4 SURVEY AND GEOTECHNICAL INFORMATION

1.4.1 A survey was performed by a licensed surveyor and is provided in these documents. The Contractor shall, at its own expense, obtain any additional information. Do not contact the project surveyor during the preparation of proposals for the solicitation. This may result in rejection of the Offeror's proposal.

1.4.2 A preliminary Subsurface Characterization report has been performed by a professional engineer, and is provided in this Statement of Work. The Contractor shall reatain a geotechnical engineer, at its own expense, to evaluate the subsurface conditions at the site and to recommend a foundation system which meets the requirements of the RFP.

1.5 DRAWINGS

The drawings included as part of this RFP are intended to serve as construction documents. The provided drawings will be a sealed set.

1.6 SPECIFICATIONS

Specifications shall be utilized as minimum standards for the corresponding construction work, and shall be met or exceeded unless Contractor obtains specific City approval for proposed reductions. The standards referenced establish minimum requirements for the final construction specifications.

1.7 SITE

Spring Street is located within the City of Flowery Branch and east of Atlanta Highway. Site work includes all construction of site features described in the RFP, including but not limited to, clearing, grading, erosion control, site drainage, utility systems, pavements, culverts, erosion controls and site furnishings.

1.7.1 Environmental Considerations and Mitigation Requirements. The site includes work within Flowery Branch Creek. All work depicted within Flowery Branch Creek has been coordinated with the United States Army Corps of Engineers (USACE.

Should any suspected hazardous materials be encountered during site investigations or construction, the Contractor shall immediately stop work in the affected area and notify the City.

1.7.2 Verification of Conditions. The Contractor shall field verify existing conditions prior to beginning work. The Contractor shall provide notice to the City of any such issues prior to proceeding and with sufficient time to avoid cost or schedule impacts.

1.7.3 Verification of Utilities. The Contractor shall be responsible for verifying the condition and location for all utilities necessary for the project. The Contractor shall coordinate all required relocations of utilities with the utility provider.

PART 2 - APPLICABLE CRITERIA AND COORDINATION WITH LOCAL AUTHORITIES

2.1 APPLICABLE CRITERIA. Applicable design and construction criteria references include, but are not limited, to the following:

- Georgia Department of Transportation (GDOT) 2013 (or most current release) specifications
- GDOT Bridge and Structure Design Manual
- GDOT Drainage Manual
- Georgia Manual for Erosion and Sediment Control in Georgia
- Flowery Branch Water and Sewer Standard Specifications

2.2 FOUNDATIONS

1. Box culvert foundations shall be designed to support HS-20 loading. Headwall foundations for this structure have been designed with the following:
   a. Minimum soil bearing pressure of 1000 PSF.
   b. Granular Backfill with coefficient of 0.29, equivalent fluid density of 35 PSF
2. Soil beneath the new structure shall be engineered by contractor's delegated Geotechnical Engineer registered in the State of Georgia. Contractor shall provide soil improvement system under foundations to achieve minimum bearing pressure of 1000 PSF. In addition, anticipated settlements shall not exceed 3" for full 1000 PSF loading. Acceptable improvement methods include but are not limited to:
   - Removal of all loose soils to firm bearing as determined by Contractor's Geotechnical Engineer and replacement to design bearing elevation with lean fill or correctly compacted granular or low plasticity fill.
   - Vibro-replacement pier as designed by Contractor's delegated engineers.
   - Wood piles with a concrete mat. Pile spacing, mat thickness and reinforcement shall be by contractor's engineer.
3. Contractor shall provide Geotechnical Report with recommended soil improvement to City for review prior to construction.
4. Prior to placing foundation concrete, contractor shall submit documentation signed and sealed by geotechnical engineer, showing the requirements of note. Subgrade soil improvements meeting specified requirements shall be part of contractor's base bid.
5. No backfilling shall be done against concrete waslls until concrete meets minimum of 75% of required 28 day strength and a minimum of 7 day curing time.

2.3 PERMITS AND COORDINATION WITH LOCAL AUTHORITIES

The project land disturbance permit will be issued by the City. The contractor shall not be required to receive approval from the Hall County Soil and Water Conservation District unless additional land disturbance is proposed. All work shall be performed within the approved limits of disturbance.

2.4 EASEMENT ACQUISITION

Contractor is responsible for verifying that construction easements and access easements as shown on the construction documents are suitable for construction phasing operations. If changes are proposed, the City shall be notified and documents shall be provide to the City illustrating the proposed changes. Estimated off site work includes grading, culverts, temporary access. As part of off-site work requirements, the Contractor shall obtain necessary approvals, notifications, inspections, reporting and acceptance of the work by the utility, municipality other jurisdictional authorities owning the off-site easements or property.

2.5 EMERGENCY SERVICES

Spring Street is a dead end road. Emergency Services shall be maintained to the Quad Oak Forrest Apartment Complex at all times. If a temporary shutdown of access is required, the Contractor is responsible for obtaining approval from the City of Flowery Branch and the Hall County Fire Department. The City maintains the right to deny shutting off access to the Quad Oak Forrest Apartment Complex. The existing temporary bridge is owned by Simpson Trucking and Grading and shall be removed by the contractor and loaded on to a Simpson Truck at the completion of the project. Contact David Hammond at 770-536-4731 to arrange pick up of the temporary bridge. The temporary bridge shall not be used for any construction vehicles or equipment.

2.6 UTILITY SERVICES

Contractor shall notify and seek approval from the City prior to any temporary disruption of, or damage to, any existing utilities. Upon receiving approval from City to disrupt utility services, residents shall be notified 72-hours before any temporary disruption of utility services. Services to water and sewer shall not be shutoff for a period exceeding 6 hours. The City shall be notified immediately upon any utilities damaged in the course of construction.

2.7 GEOTECHINCAL TESTING AND INSPECTIONS

A third party inspector, Moreland Altobelli, has been contracted by the City to perform testing in accordance with Georgia DOT standards and inspect. Contractor shall coordinate scheduling procedures for tests and inspections prior to be beginning construction. Contact Hank Collins at 770-263-5945 or hcollins@maai.net after project has been awarded. Do not contact Moreland Altobelli during the bid process. This may result in rejection of the Offeror's proposal.

2.8 WORK WITHIN JURISDICTIONAL WATERS (FLOWERY BRANCH CREEK)

Contractor shall not enter jurisdictional waters with construction equipment to the maximum extent possible. Efforts shall be made to avoid "pumping" the wet soils located within the stream bottom through repetitive downward pressure from construction equipment during the demolition and grading process. In addition to standard erosion requirements per the NPDES permit, slopes along the bank shall be stabilized the same day whenever disturbance occurs. Sediment that may be released into the stream and captured shall be cleaned out at the end of each day.

2.9 DEMOLITION

Materials shall be disposed of off City property in a state permitted landfill. Contractor shall obtain required disposal permits.

2.10 AS-BUILT DOCUMENTS FOR DESIGN BUILD PROJECTS

The Contractor shall prepare as-builts of all water and sewer lines for the City of Flowery Branch. In addition the Contractor shall provide an as-built of the final road elevation, culverts, and all utility locations. An as-built drawing is a construction drawing revised to reflect the final as-built conditions of the project as a result of modifications and corrections to the project design required during construction. The final signed and sealed as-built drawings shall not have the appearance of marked up drawings, but that of professionally prepared drawings as if they were the "as designed" drawings.

APPENDIX A

PRICE BREAKDOWN SCHEDULE

PRICE BREAKDOWN SCHEDULE

OFFEROR'S NAME:_____

PROJECT: Spring Street Culvert Replacement

LOCATION: Flowery Branch, Ga

BASE PROPOSAL

lump sum $_____

TOTAL BASE PROPOSAL

Contract shall attach unit cost breakdown of all construction items associated with the project. Contractor may submit potential Value Engineering (VE) items on a separate sheet with a line item breakdown for savings associated with each VE item.

_____ _____

Signature Date

_____

Printed Name

_____

Title

APPENDIX B

E-VERIFICATION AFFIDAVIT

City of Flowery Branch

5517 Main Street
P O Box 757
Flowery Branch, GA 30542

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

_____ _____
Federal Work Authorization User Identification Number Date of Authorization

_____ _____
Name of Contractor Name of Project

_____
Name and Address of Contractor

_____ _____
Name of Public Employer Date of Contract

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

Executed on the _____ day of _____, 201___ in _____(city), _____(state)

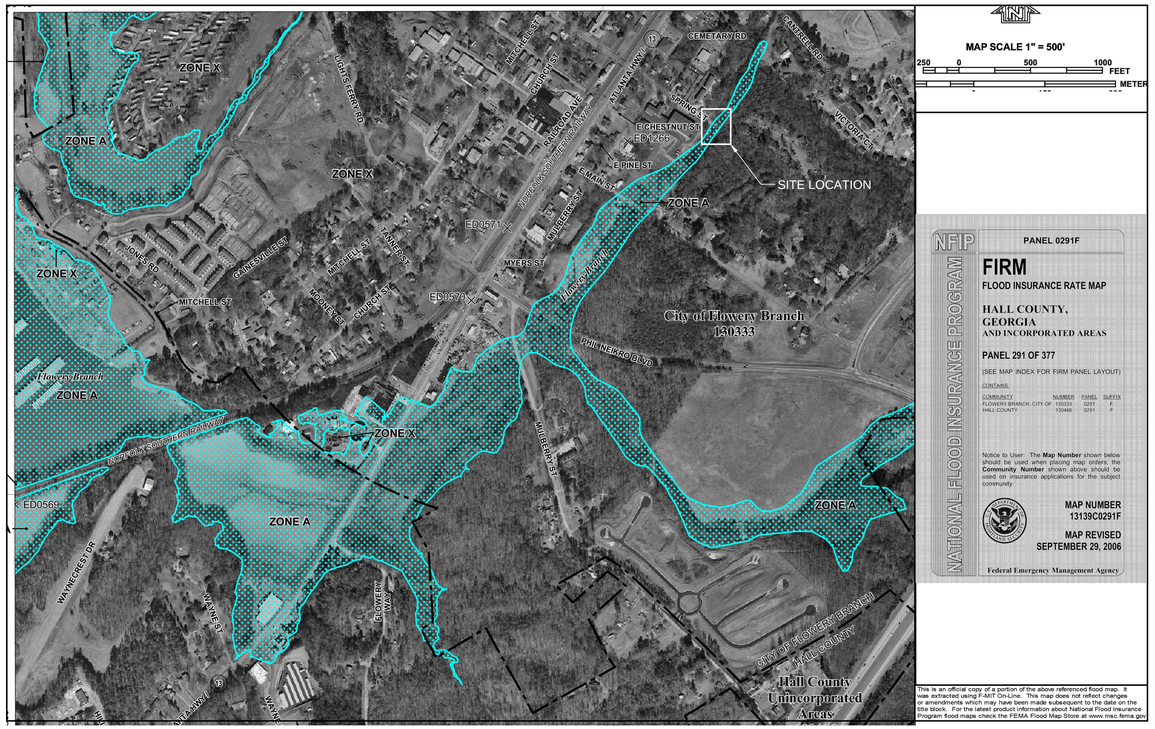
_____ _____
Signature of Authorized Officer or Agent NOTARY PUBLIC

_____ _____
Printed Name and Title of Authorized Officer or Agent My Commission Expires

APPENDIX C

SPRING STREET CULVERT REPLACEMENT PLANS PREPARED BY POND & COMPANY

CONSTRUCTION PLANS FOR SPRING STREET CULVERT REPLACEMENT FLOWERY BRANCH, GA



PROJECT NOTES

OWNER:
CITY OF FLOWERY BRANCH
5512 MAIN STREET
P.O. BOX 757
FLOWERY BRANCH, GA 30542
P: 770-967-6371 EXT. 15
CONTACT: BILL ANDREW, CITY MANAGER

CIVIL ENGINEER:
POND AND COMPANY
3500 PARKWAY LANE, SUITE 600
NORCROSS, GEORGIA 30092
P: 678-336-7740
CONTACT: ANDREW SWIFT, PE

GEOTECHNICAL ENGINEER
S&ME, INC
11420 JOHNS CREEK PARKWAY
DULUTH, GA 30097
P: 770-476-3555
CONTACT: RICHARD MOCKRIDGE, P.E.

SURVEYOR
MCKIM & CREED
1505 LAKES PARKWAY, SUITE 170
LAWRENCEVILLE, GA 30043
P: 770-962-4125
CONTACT: PETER SANCHEZ

THE SITE IS LOCATED WITHIN LAND LOT 112 AND LAND LOT 111 IN THE CITY OF FLOWERY BRANCH AND HALL COUNTY, GEORGIA

THE SITE IS LOCATED IN FLOOD ZONE 'A' PER FIRM MAP NUMBER 13139C0291F

PROJECT SITE IS WITHIN 200' OF WATERS OF THE STATE.

DRAWING INDEX

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C-004	RIGHT-OF-WAY PLAN
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C-104	INITIAL PHASE - EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN
C-105	INTERMEDIATE - EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN
C-106	FINAL - EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN
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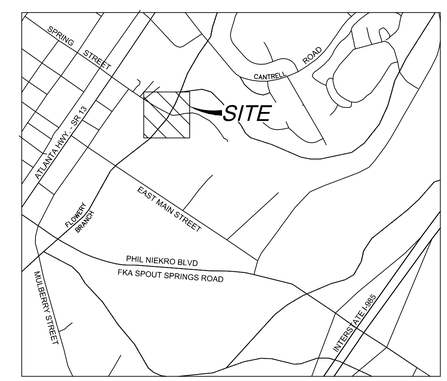
C-501	CONSTRUCTION DETAILS
C-502	CONSTRUCTION DETAILS
C-503	CONSTRUCTION DETAILS
C-504	CONSTRUCTION DETAILS
C-505	CONSTRUCTION DETAILS



VICINITY MAP
NO TO SCALE

Prepared by:

POND
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Norcross, GA 30092
Phone (678) 336-7740
Fax (678) 336-7744
Contact: ANDREW SWIFT, PE

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Architects ▪ Engineers ▪ Planners
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Norcross, Ga. 30092
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Fax 678-336-7744
Web www.pondco.com

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Flowery Branch
CITY OF FLOWERY BRANCH
5517 MAIN STREET
P. O. BOX 757
FLOWERY BRANCH, GA 30542

GEORGIA REGISTERED NO. 034823 PROFESSIONAL ENGINEER JAMES A. SWIFT
10-13-14

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

COVER SHEET

DESIGNED BY	CHECKED BY
CJP	HCS

ISSUED DATE: 10/13/2014

JOB NUMBER: 1130128

DRAWING NUMBER:
G-001

BID SET

C:\Users\JordanJ\appdata\local\temp\AcPublish_1188\G-001.dwg JordanJ 10/13/14 - 10:53 A

ABBREVIATIONS

&	AND
ABI	ADDITIVE BID ITEM
ACMU	ARCHITECTURAL CONCRETE MASONRY UNIT
BC	BACK OF CURB AND GUTTER (AT FINISHED GRADE)
BFP	BACK FLOW PREVENTER
BLDG	BUILDING
BVCS	BEGIN VERTICAL CURVE STATION
CB	CATCH BASIN
CI	CAST IRON
CL	CENTER LNE
CLF	CHAIN LINK FENCE
CO	CLEANOUT
COMM	COMMUNICATIONS
CONC	CONCRETE
COR	CONTRACTING OFFICER'S REPRESENTATIVE
CMP	CORRUGATED METAL PIPE
DB	DEED BOOK
DBL	DOUBLE
DEPT	DEPARTMENT
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DIR	PIPE DIRECTION
DOD	DEPARTMENT OF DEFENSE
E	EASTING
EA	EACH
ELEC.	ELECTRIC
ELEV,EL	ELEVATION
E.O.T.	EDGE OF TAXIWAY
EOR	ENGINEER OF RECORD
EX, EX.	EXISTING
EVCS	END VERTICAL CURVE STATION
FDC	FIRE DEPARTMENT CONNECTION
FFE	FINISHED FLOOR ELEVATION
FL	GUTTER FLOW LINE ELEVATION
FLG	FLANGE
FM	FORCE MAIN
FT	FOOT
FW	FIRE WATER
G	GAS
GSWCC	GEORGIA SOIL AND WATER CONSERVATION COMMISSION
H	HEIGHT
HORIZ.	HORIZONTAL
HP	HIGH POINT
Hp	HORSEPOWER
HW	HEADWALL
INV, IE:	INVERT
JB	JUNCTION BOX
LB	POUND
LF	LINEAR FEET
LOX	LIQUID OXYGEN
LP	LOW POINT
LVC	LENGTH OF VERTICAL CURVE
MAX	MAXIMUM
MECH	MECHANICAL
MH	MANHOLE
MIN	MINIMUM
MW	MONITORING WELL
NIC	NOT IN CONTRACT
N	NITROGEN
NO.	NUMBER
NTS	NOT TO SCALE
O.C.	ON CENTER
PB	PLAT BOOK
PC	POINT OF CURVATURE
PCC	PORTLAND CONCRETE CEMENT
PG	PAGE
PIV	POST INDICATOR VALVE
P/L	PROPERTY LINE
PROP	PROPOSED
PS	PLAT SLIDE
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE PIPE
PVI	POINT OF VERTICAL INTERSECTION
PW	POTABLE WATER
R	REINFORCED CONCRETE PAVEMENT
R/W	RIGHT OF WAY LINE
RD	ROOF DRAIN
RCP	REINFORCED CONCRETE PIPE
REINF	REINFORCING
SAN	SANITARY
SPEC	SPECIFICATION
SD	STORM DRAIN
SF	SILT FENCE
SS	SANITARY SEWER
STA	STATION
STD	STANDARD
STM	STEAM
TC	TOP BACK CURB
TYP	TYPICAL
UGE	UNDERGROUND ELECTRIC
UNO	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
VC	VITRIFIED CLAY
W	WATER
W/	WITH

LEGEND

	EXISTING GUARDRAIL
	EXISTING CENTER CREEK
SS	SANITARY SEWER LINE
SS	EXISTING SANITARY SEWER LINE
G	EXISTING UNDERGROUND GAS LINE
UK	EXISTING UNDERGROUND UNKNOWN UTILITY
UF	EXISTING UNDERGROUND FIBER OPTIC
OE	EXISTING OVERHEAD ELECTRIC LINE
UE	EXISTING UNDERGROUND ELECTRIC LINE
UT	EXISITING UNDERGROUND TELEPHONE LINE
C	EXISTING UNDERGROUND CABLE LINE
W(D)	EXISTING UNDERGROUND WATER LINE (LEVEL "D" FROM RECORDS)
W	UNDERGROUND WATER LINE
Wx	EXISTING WATER REUSE LINE
PL	PROPERTY LINE
LOD	LIMITS OF DISTURBANCE
E	EXISTING ELECTRICAL MANHOLE
E	EXISTING ELECTRICAL EQUIPMENT
	EXISTING POST INDICATOR VALVE
WV	EXISTING WATER VALVE
W	EXISTING WATER METER
GV	EXISTING GAS VALVE
G	EXISTING GAS EQUIPMENT
	EXISTING FIRE HYDRANT
	EXISTING FIRE DEPARTMENT CONNECTION
S	EXISTING SANITARY SEWER MANHOLE
D	EXISTING STORM SEWER MANHOLE
	EXISTING GRATE INLET
	EXISTING SIGN
	EXISTING LIGHT POLE
	EXISTING POWER POLE
	EXISTING GUY WIRE
T	EXISTING TELEPHONE BOX
	EXISTING CONCRETE MONUMENT

GENERAL NOTES

1. COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS APPLICABLE TO THE CONSTRUCTION OF THIS SITE.
2. ALL APPLICABLE PERMITS SHALL BE OBTAINED PRIOR TO BEGINNING CONSTRUCTION.
3. EXISTING CONDITIONS AND TOPOGRAPHIC INFORMATION SHOWN WAS PROVIDED BY McKIM & CREED DATED 12/3/12 AND LAST REVISED ON 03/10/14.
4. ALL DIMENSIONS ARE TAKEN FROM/TO FENCE LINES, CENTERLINE OF UTILITY, CENTER OF MANHOLE, CENTERLINE OF ROAD, FACE OF CURB, FACE OF BUILDING, FACE OF ABUTMENT OR CENTERLINE OF STRIPING UNLESS OTHERWISE NOTED.
5. "DEMOLISH" SHALL MEAN TO REMOVE AN OBJECT IN ITS ENTIRETY. RESTORE GRADES AND SURFACE IMPROVEMENTS TO MATCH EXISTING CONDITIONS OR PER REQUIREMENTS OF C-103 IN THIS PLAN SET, WHICHEVER IS APPLICABLE.
6. ALL EXISTING FEATURES AND EXISTING LANDSCAPING LABELED TO REMAIN SHALL BE PRESERVED AND PROTECTED AT ALL TIMES. ANY ITEM DAMAGED DURING THE PERFORMANCE OF THE WORK WILL BE RESTORED TO ORIGINAL CONDITION, OR REPLACED WITH NEW TO THE CITY'S SATISFACTION AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL TAKE PRECAUTIONS TO NOT OVERLOAD PAVEMENTS THAT ARE TO REMAIN.
7. COORDINATE WITH THE APPLICABLE UTILITY COMPANY FOR ANY UTILITY SERVICE DISRUPTION. SERVICES TO ADJACENT PROPERTIES AND BUILDINGS TO REMAIN SHOULD BE PRESERVED AND PROTECTED AT ALL TIMES . NOTIFY THE CITY OF FLOWERY BRANCH AND THE RESIDENTS 72 HOURS PRIOR TO ANY INTERRUPTIONS OF SERVICE.
8. GRADE ALL DISTURBED AREAS TO ENSURE POSITIVE DRAINAGE AWAY FROM ROADWAYS AND INTO DRAINAGE STRUCTURES OR SWALES.
9. VERIFY ALL COORDINATES AND DIMENSIONAL INFORMATION PRIOR TO CONSTRUCTION. BRING ANY DIFFERING CONDITION WITH LAYOUT TO ATTENTION OF THE CITY OF FLOWERY BRANCH PRIOR TO STARTING CONSTRUCTION.
10. ALL TRAFFIC SIGNS AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), LATEST EDITION.
11. IT SHOULD BE NOTED THAT LOCATIONS OF EXISTING UTILITIES AND OTHER IMPROVEMENTS HAVE BEEN OBTAINED FROM AVAILABLE SURVEYS AND RECORDS. THE LOCATIONS OF UNDERGROUND UTILITIES SHALL BE CONSIDERED APPROXIMATE AND DEPTHS OF MANY UTILITIES ARE UNKNOWN. THE VERIFICATION OF THE LOCATION OF ALL UTILITIES AND STRUCTURES SHOWN OR NOT SHOWN ON THESE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. IF ANY DIFFERING CONDITIONS EXIST, THE CONTRACTOR SHALL NOTIFY CITY OF FLOWERY BRANCH PRIOR TO BEGINNING CONSTRUCTION.
12. ALL TOPSOIL AND EXCAVATED MATERIAL SHALL BE STOCKPILED IN AN APPROVED AREA DURING CONSTRUCTION. EXCESS, UNUSABLE OR UNSUITABLE SOIL SHALL BE DISPOSED OF OFF-SITE IN A MANNER THAT IS LEGAL AND CONSISTENT WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS.
13. DO NOT BURN CONSTRUCTION WASTE. REMOVE AND PROPERLY DISPOSE OF ALL CONSTRUCTION WASTE AND DEBRIS FROM THE SITE IN A MANNER THAT IS LEGAL AND CONSISTENT WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS.
14. LIMITS OF DISTURBANCE IS LESS THAN ONE ACRE. A NOTICE OF INTENT (NOI) IS NOT REQUIRED TO BE SUBMITTED TO THE ENVIROMENTAL PROTECTION DIVISION (EPD). IF THE DESIGN OF THE BRIDGE REQUIRES ADDITIONAL DISTURBANCE EXCEEDING ONE ACRE OF TOTAL DISTURBANCE, THE CONTRACTOR SHALL SUBMIT A NOI TO THE EPD PRIOR TO BEGINNING WORK. IF AN NOI IS TO BE SUBMITTED THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE COPIES OF THE NOTICE OF TERMINATION (NOT) TO THE CITY OF FLOWERY BRANCH PRIOR TO FILING WITH THE EPD AT THE COMPLETION.
15. DISPLAY THE LAND DISTURBANCE PERMIT ISSUED BY THE CITY OF FLOWERY BRANCH ON THE SITE AT ALL TIMES DURING CONSTRUCTION AND IN PLAIN VIEW AND IN ACCORDANCE WITH HALL COUNTY REQUIREMENTS.
16. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PROVIDED, INSTALLED, AND MAINTAINED AS SHOWN ON THE APPLICABLE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS CONTAINED WITHIN THESE CONSTRUCTION DOCUMENTS.
17. BASED ON CONVERSATION WITH USACE, THIS PROJECT FALLS UNDER NATIONWIDE PERMIT 3A. NO PRE-CONSTRUCTION NOTIFICATION(PCN) IS REQUIRED.
18. ALL TEMPORARY FACILITIES SHALL BE REMOVED AT THE END OF CONSTRUCTION AND RETURNED TO EXISTING CONDITIONS.
19. IF CONFLICTS OCCUR WITH GRAVITY AND NON-GAVITY UTILITIES, RELOCATE THE NON-GRAVITY LINES.

PROJECT NOTES:

THE SITE IS LOCATED WITHIN LAND LOT 112 AND LAND LOT 111 IN THE CITY OF FLOWERY BRANCH IN HALL COUNTY, GEORGIA

OWNER:
CITY OF FLOWERY BRANCH
5512 MAIN STREET
P.O. BOX 757
FLOWERY BRANCH, GA 30542
P: 770-967-6371 EXT. 15
CONTACT: BILL ANDREW, CITY MANAGER

CIVIL ENGINEER:
POND AND COMPANY
3500 PARKWAY LANE, SUITE 600
NORCROSS, GEORGIA 30092
P: 678-336-7740
CONTACT: ANDREW SWIFT, PE

GEOTECHNICAL ENGINEER
S&ME, IN
11420 JOHNS CREEK PARKWAY
DULUTH, GA 30097
P: 770-476-3555
CONTACT: RICHARD MOCKRIDGE, P.E.

SURVEYOR
MCKIM & CREED
1505 LAKES PARKWAY, SUITE 170
LAWRENCEVILLE, GA 30043
P: 770-962-4125
CONTACT: PETER SANCHEZ, RLS

POND
Architects ▪ Engineers ▪ Planners
3500 Parkway Lane
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Norcross, Ga. 30092
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Fax 678-336-7744
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Flowery Branch
CITY OF FLOWERY BRANCH
5517 MAIN STREET
P. O. BOX 757
FLOWERY BRANCH, GA 30542

GEORGIA REGISTERED NO. 034823 PROFESSIONAL ENGINEER JAMES A. SWIFT
10-13-14

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

GENERAL NOTES, LEGEND, AND ABBREVIATIONS

DESIGNED BY	CHECKED BY
CJP	HCS
ISSUED DATE: 10/13/2014	

JOB NUMBER: 1130128

DRAWING NUMBER:
C-001

BID SET

M:\FloweryBranch\1130128 Downtown Storm Drainage Improvements\04.CAD_BIM\04.02.CAD\Spring Street Culvert Replacement\C-001.dwg Jordanj 10/13/14 - 10:53 A

EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN GENERAL NOTES

OWNER: CITY OF FLOWERY BRANCH
5512 MAIN STREET
P.O. BOX 757
FLOWERY BRANCH, GA 30542
P: 770-967-6371 EXT. 15
CONTACT: BILL ANDREW, CITY MANAGER

ENGINEER: POND & COMPANY
3500 PARKWAY LANE, SUITE 600
NORCROSS, GEORGIA 30092
PHONE: (678) 336-7740
FAX: (678) 336-7744
CONTACT: JAMES ANDREW SWIFT
GA. P.E. # , E&S LEVEL II CERTIFICATION # 0000064846

CONTRACTOR: TO BE ASSIGNED

24-HOUR EROSION AND SEDIMENT CONTROL CONTACT: JOHN MCHENRY P: 770-530-9998

DISTURBED AREA: 0.67 ACRES

EXISTING LAND USE: PREVIOUSLY DEVELOPED ROADWAY (SPRING STREET) WITH CREEK CROSSING WITH TWIN CULVERTS THAT ARE UNDER CAPACITY AND CURRENTLY FAILING

PROPOSED LAND USE: RAISE ROADWAY (SPRING STREET), CONSTRUCT BRIDGE CROSSING, AND RELOCATE UTILITIES

NAME OF RECEIVING WATERS: FLOWERY BRANCH CREEK
AREA OF ON-SITE WETLANDS: 0 AC (OUTSIDE OF FLOWERY BRANCH CREEK BANKS)
PRE-CONSTRUCTION RUNOFF COEFFICIENT = POST-CONSTRUCTION RUNOFF COEFFICIENT = 76

THERE ARE NO TEMPORARY SEDIMENT BASINS PROPOSED WITH THIS CONSTRUCTION PROJECT. TEMORARY SEDIMENT BASINS ARE NOT FEASIBLE FOR THIS PROJECT DUE TO THE ADDITIONAL LAND DISTURBANCE ALONG THE STREAMBANKS TO CONSTRUCT FOUR TEMPORARY SEDIMENT BASINS WITH ASSOCIATED DIVERSION BERMS. DOUBLE ROWS OF SILT FENCE AROUND THE PERIMETER WITH PROPER MAINTENANCE AT ALL TIMES SHALL CONTROL EROSION AND SEDIMENT TO THE MAXIMUM EXTENT FEASIBLE.

PROPER OPERATION AND MAINTENANCE:

THE PERMITTEE SHALL AT ALL TIMES PROPERLY OPERATE AND MAINTAIN ALL FACILITIES AND SYSTEMS OF TREATMENT AND CONTROL (AND RELATED APPURTENANCES) WHICH ARE INSTALLED OR USED BY THE PERMITTEE TO ACHIEVE COMPLIANCE WITH THE CONDITIONS OF THIS PERMIT AND WITH THE REQUIRED PLANS. PROPER OPERATION AND MAINTENANCE ALSO INCLUDES ADEQUATE LABORATORY CONTROLS AND APPROPRIATE QUALITY ASSURANCE PROCEDURES. PROPER OPERATION AND MAINTENANCE REQUIRES THE OPERATION OF BACKUP OR AUXILIARY FACILITIES OR SIMILAR SYSTEMS, INSTALLED BY AN PERMITTEE ONLY WHEN NECESSARY TO ACHIEVE COMPLIANCE WITH THE CONDITIONS OF THE PERMIT.

EROSION AND SEDIMENT CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION AND SEDIMENT CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

REFER TO THE DETAILS CONTAINED WITHIN THIS PLAN SET FOR ADDITIONAL MAINTENANCE INSTRUCTION.

NON-STORM WATER DISCHARGES :

NON-STORM WATER DISCHARGES (DISCHARGES FROM FIRE FIGHTING ACTIVITIES, FIRE HYDRANT FLUSHING, POTABLE WATER SOURCES INCLUDING WATER LINE FLUSHING, IRRIGATION DRAINAGE, AIR CONDITIONING CONDENSATE, SPRINGS, UNCONTAMINATED GROUNDWATER, AND FOUNDATION OR FOOTING DRAINS WHERE FLOWS ARE NOT CONTAMINATED WITH PROCESS MATERIALS OR POLLUTANTS) THAT ARE COMBINED WITH STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY SHALL BE DISCHARGED TO THE PROPOSED STORM DRAINAGE SYSTEM AND ROUTED THROUGH THE EROSION AND SEDIMENTATION CONTROLS IDENTIFIED WITHIN THIS PLAN. NOTIFY THE LICENSED PROFESSIONAL WHO PREPARED THIS PLAN IF THIS IS NOT POSSIBLE.

WASTE MATERIALS AND DISPOSAL :

NO SOLID MATERIALS, INCLUDING BUILDING MATERIALS, SHALL BE DISCHARGED INTO STORM WATER INLETS OR WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER OR OTHER APPROPRIATE WASTE MANAGEMENT FACILITY PERMISSIBLE UNDER GAR PERMIT NO. 100001. WASTE MANAGEMENT FACILITIES SHALL MEET ALL SOLID WASTE MANAGEMENT REGULATIONS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN THE WASTE MANAGEMENT FACILITIES. WASTE MANAGEMENT FACILITIES SHALL BE EMPTIED A MINIMUM OF ONCE PER WEEK OR MORE OFTEN IF NECESSARY AND TRASH SHALL BE HAULED AS REQUIRED BY LOCAL REGULATIONS. NO CONSTRUCTION WASTE SHALL BE BURIED ON-SITE.

ALL PERSONNEL SHALL BE INSTRUCTED ON PROPER PROCEDURES FOR WASTE DISPOSAL. A NOTICE STATING THESE PRACTICES SHALL BE POSTED AT THE JOB SITE AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED.

LOCATE WASTE COLLECTION AREAS AWAY FROM STREETS, GUTTERS, WATERCOURSES AND STORM DRAINS. WASTE COLLECTION AREAS, SUCH AS DUMPSTERS, ARE OFTEN BEST LOCATED NEAR CONSTRUCTION SITE ENTRANCES TO MINIMIZE TRAFFIC ON DISTURBED SOILS.

HAZARDOUS WASTES:

ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER AS REQUIRED 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, SHALL 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 SHALL BE OBTAINED AND USED FOR THE PROPER MANAGEMENT OF POTENTIAL WASTES THAT MAY RESULT FROM THESE PRODUCTS. AN MSDS SHALL BE POSTED IN THE IMMEDIATE AREA WHERE SUCH PRODUCT IS STORED AND/OR USED AND ANOTHER COPY OF EACH MSDS SHALL BE MAINTAINED IN THE EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN (ESPCP) FILE AT THE JOB SITE CONSTRUCTION TRAILER OFFICE. EACH EMPLOYEE WHO HANDLES A SUBSTANCE WITH HAZARDOUS PROPERTIES WILL BE INSTRUCTED ON THE USE 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 MATERIALS OR HAZARDOUS WASTES SHALL BE ALLOWED TO COME IN CONTACT WITH STORM WATER DISCHARGES. IF SUCH CONTACT OCCURS, THE STORM WATER DISCHARGE SHALL BE CONTAINED ON SITE UNTIL APPROPRIATE MEASURES IN COMPLIANCE WITH STATE AND FEDERAL REGULATIONS ARE TAKEN TO DISPOSE OF SUCH CONTAMINATED STORM WATER. IT SHALL BE THE RESPONSIBILITY OF THE JOB SITE SUPERINTENDENT TO PROPERLY TRAIN ALL PERSONNEL IN THE USE OF THE SPCC PLAN.

NOTHING IN THIS PERMIT SHALL BE CONSTRUED TO PRECLUDE THE INSTITUTION OF ANY LEGAL ACTION OR RELIEVE THE PERMITTEE FROM ANY RESPONSIBILITIES, LIABILITIES, OR PENALTIES TO WHICH THE PERMITTEE IS OR MAY BE SUBJECT UNDER THE GEORGIA HAZARDOUS WASTE MANAGEMENT ACT, O.C.G.A. § 12-8-60, ET SEQ. OR UNDER CHAPTER 14 OF TITLE 12 OF THE OFFICIAL CODE OF GEORGIA ANNOTATED; NOR IS THE OPERATOR RELIEVED FROM ANY RESPONSIBILITIES, LIABILITIES OR PENALTIES TO WHICH THE PERMITTEE IS OR MAY BE SUBJECT UNDER SECTION 311 OF THE CLEAN WATER ACT OR SECTION 106 OF COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT.

OFFSITE VEHICLE TRACKING / DUST CONTROL

OFF-SITE VEHICLE TRACKING OF DIRT, SOILS, AND SEDIMENTS AND THE GENERATION OF DUST SHALL BE MINIMIZED OR ELIMINATED TO THE MAXIMUM EXTENT PRACTICAL. A STABILIZED CONSTRUCTION EXIT (CO) SHALL BE PROVIDED TO REDUCE VEHICLE TRACKING OF SEDIMENT. SEE ESPCP PLAN AND DETAIL SHEETS FOR THE CONSTRUCTION EXIT LOCATIONS AND DETAIL. THE PAVED STREET ADJACENT TO THE CONSTRUCTION EXIT SHALL BE INSPECTED DAILY BY A REPRESENTATIVE OF THE SITE CONTRACTOR FOR TRACKING OF MUD, DIRT, OR ROCK. DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE SHALL BE COVERED WITH A TARPAULIN. DUST CONTROL (DU) SHALL BE APPLIED AS NECESSARY TO PREVENT SURFACE AND AIR MOVEMENT OF DUST.

INVENTORY FOR POLLUTION PREVENTION PLAN

THE FOLLOWING MATERIALS ARE EXPECTED TO BE ONSITE DURING CONSTRUCTION: CONCRETE PRODUCTS, ASPHALT, PETROLEUM BASED FUELS AND LUBRICANTS FOR EQUIPMENT, TAR, METAL BUILDING MATERIALS, LUMBER, SHEET ROCK, FLOOR COVERINGS, ELECTRICAL WIRE AND FIXTURES, PAINTS/STAINS/FINISHING TREATMENTS, PAINT SOLVENTS, ADDITIVES FOR SOIL STABILIZATION, CLEANING SOLVENTS, PESTICIDES, FERTILIZERS, HERBICIDES, CRUSHED STONE, PLASTIC AND METAL PIPES.

SPILL PREVENTION

PRACTICES SUCH AS GOOD HOUSEKEEPING, PROPER HANDLING OF HAZARDOUS PRODUCTS AND PROPER SPILL CONTROL PRACTICES WILL BE FOLLOWED TO REDUCE THE RISK OF SPILLS AND SPILLS FROM DISCHARGING INTO STORM WATER RUNOFF.

GOOD HOUSEKEEPING

A) QUANTITIES OF PRODUCTS STORED ONSITE WILL BE LIMITED TO THE AMOUNT NEEDED FOR THE JOB.
B) PRODUCTS AND MATERIALS WILL BE STORED IN A NEAT, ORDERLY MANNER IN APPROPRIATE CONTAINERS PROTECTED FROM RAINFALL, WHERE POSSIBLE.
C) PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH MANUFACTURER LABELS LEGIBLE AND VISIBLE.
D) PRODUCT MIXING, PRODUCT DISPOSAL, AND DISPOSAL OF PRODUCT CONTAINERS WILL BE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
E) THE CONTRACTOR WILL INSPECT SUCH MATERIALS TO ENSURE PROPER USE, STORAGE AND DISPOSAL.

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 ON-SITE VEHICLE AND MACHINERY DAILY INSPECTIONS AND REGULAR PREVENTATIVE MAINTENANCE OF SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS WILL BE LOCATED AWAY FROM STATE WATER, NATURAL DRAINS AND STORM WATER DRAINAGE INLETS. IN ADDITION, TEMPORARY FUELING TANKS SHALL HAVE A SECONDARY CONTAINMENT LINER TO PREVENT/MINIMIZE SITE CONTAINMENT. 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 PRODUCT WILL NOT BE DISCHARGED INTO THE STORM WATER COLLECTION SYSTEM. EXCESS PRODUCT, MATERIALS USED WITH THESE PRODUCTS, AND PRODUCT CONTAINERS WILL BE DISPOSED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

CONCRETE/MASONRY - NO CONCRETE TRUCKS WILL BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ON SITE. THE CONCRETE PROVIDER HAS RESPONSIBILITY TO ENSURE APPROPRIATE TRAINING HAS BEEN PROVIDED TO THEIR TRUCK DRIVERS, AND MUST PROVIDE APPROPRIATE DETAILS AND RESOURCES TO ENABLE THEM TO COMPLETE A DELIVERY WITHOUT CAUSING POLLUTION. CHUTES, BARRELS, WHEELBARROWS AND OTHER EQUIPMENT MUST BE RINSED IN THE SITE WASH-DOWN AREA. SWEEP OR SHOVEL ANY SPILLS THAT OCCUR AND ALLOW RESIDUE TO SET BEFORE REMOVING. THE HARDENED RESIDUE MAY THEN BE PLACED IN A DESIGNATED CONCRETE/MASONRY RECYCLING BIN ON SITE. DO NOT WASH CONCRETE/MASONRY INTO STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS. TRUCKS SHOULD NOT TRACK ANY CONCRETE OR MUD AND SEDIMENT OFF SITE.

FERTILIZER/HERBICIDES - THESE PRODUCTS WILL BE APPLIED AT RATES THAT DO NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS, THE CROP ESTABLISHMENT GUIDELINES, OR THE SPECIFICATIONS CONTAINED WITHIN THE GSWCC MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA.

BUILDING MATERIALS - NO BUILDING OR CONSTRUCTION MATERIALS WILL BE BURIED OR DISPOSED OF ONSITE. ALL SUCH MATERIAL WILL BE DISPOSED OF USING PROPER WASTE DISPOSAL PROCEDURES.

SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN:

A. LOCAL, STATE, AND MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND PROCEDURES SHALL BE MADE AVAILABLE TO SITE PERSONNEL.
B. MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREAS. TYPICAL MATERIALS AND EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO, BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, CAT LITTER, SAND, SAWDUST, AND PROPERLY LABELED PLASTIC AND METAL WASTE CONTAINERS.
C. SPILL PREVENTION PRACTICES AND PROCEDURES SHALL BE REVIEWED AFTER A SPILL AND ADJUSTED AS NECESSARY TO PREVENT FUTURE SPILLS.
D. ALL SPILLS WILL BE CLEANED IMMEDIATELY UPON DISCOVERY. ALL SPILLS SHALL BE REPORTED AS REQUIRED BY LOCAL, STATE AND FEDERAL REGULATIONS.
E. THE DISCHARGE OF HAZARDOUS SUBSTANCES OR OIL IN THE STORM WATER DISCHARGE(S) FROM A SITE SHALL BE PREVENTED.
F. WHERE A RELEASE CONTAINING A HAZARDOUS SUBSTANCE IN AN AMOUNT EQUAL TO OR IN EXCESS OF A REPORTING QUANTITY ESTABLISHED UNDER EITHER GEORGIA'S OIL OR HAZARDOUS MATERIAL SPILLS OR RELEASES ACT (O.C.G.A. SEC. 12-14-2, ET SEQ.), 40 CFR 117, OR 40 CFR 302 OCCURS DURING A 24-HOUR PERIOD, THE PERMITTEE IS REQUIRED TO NOTIFY EPD AT (404) 656-4863 OR (800) 241-4113 AND THE NATIONAL RESPONSE CENTER (NRC) AT (800) 424-8802 IN ACCORDANCE WITH THE REQUIREMENTS OF GEORGIA'S OIL OR HAZARDOUS MATERIAL SPILLS OR RELEASES ACT (O.C.G.A. SEC. 12-14-2, ET SEQ.), 40 CFR 117, AND 40 CFR 302 AS SOON AS HE HAS KNOWLEDGE OF THE DISCHARGE.
G. FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER) OR SPILLS OF AN UNKNOWN AMOUNT, THE NATIONAL RESPONSE CENTER (NRC) SHALL BE CONTACTED WITHIN 24 HOURS AT (800) 424-8802.
H. FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE GEORGIA EPD SHALL BE CONTACTED WITHIN 24 HOURS AT (404) 656-4863 OR (800) 241-4113.
I. FOR SPILLS LESS THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE SPILL SHALL BE CLEANED AND LOCAL AGENCIES SHALL BE CONTACTED AS REQUIRED.
J. GENERAL NPDES PERMIT NO. GAR 100001 DOES NOT AUTHORIZE THE DISCHARGE OF HAZARDOUS SUBSTANCES OR OIL RESULTING FROM AN ON-SITE SPILL.

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 A LICENSED PROFESSIONAL.

RECORD OF DATES - CONSTRUCTION ACTIVITIES

(NOTE TO PERMITTEE(S): COMPLETE THE FOLLOWING TABLE TO INCLUDE THE DATES WHEN INITIAL CONSTRUCTION ACTIVITIES COMMENCE, MAJOR GRADING ACTIVITIES OCCUR, WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE, AND WHEN STABILIZATION MEASURES ARE INITIATED. THE DESIGN PROFESSIONAL WHO PREPARED THIS PLAN SHALL BE NOTIFIED WHEN THIS TABLE IS AMENDED.)

DATE	DESCRIPTION OF CONSTRUCTION ACTIVITY

ACTIVITY SCHEDULE

DESCRIPTION	TIME / MONTHS 1	2	3	4	5	6
INSTALL INITIAL PHASE PERIMETER EROSION CONTROLS						
DEMOLITION/CLEARING						
GRADING						
TEMPORARY SEEDING						
STREAMBANK STABILIZATION						
UTILITY RELOCATION/CONSTRUCTION						
BRIDGE & PAVEMENT CONSTRUCTION						
INSTALL INTERMEDIATE/FINAL EROSION CTRLS.						
PERMANENT SEEDING/VEGETATION						
MAINTENANCE OF EROSION CONTROLS						

THIS SCHEDULE IS CONCEPTUAL AND IS ONLY INTENDED TO ILLUSTRATE THE RELATIONSHIP BETWEEN MAJOR SITE WORK TASKS AND EROSION CONTROL MILESTONES.

DESIGN PROFESSIONAL'S CERTIFICATION:

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.

10-7-14
DATE

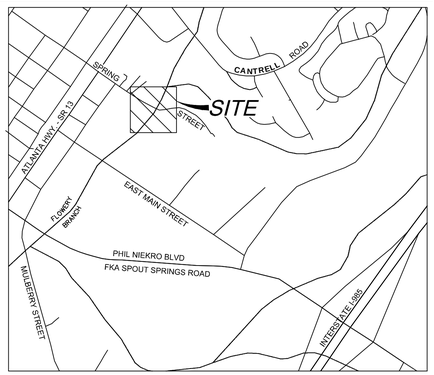
JAMES ANDREW SWIFT, P.E.
GSWCC LEVEL II CERTIFICATION # 0000064846
EXPIRES: 10/12/2014

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.

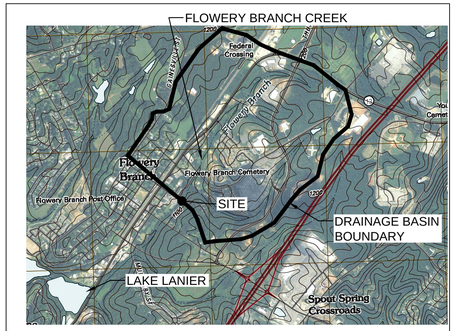
THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.

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.

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.



VICINITY MAP
NO TO SCALE



FLOWERY BRANCH
USGS TOPOGRAPHIC MAP
SCALE: 1=2,000'

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST
INFRASTRUCTURE CONSTRUCTION PROJECTS
SWCD:__ HALL COUNTY REGION II

Project Name:_____ **SPRING ST. CULVERT REPLACEMENT** **Address:**_ SPRING STREET, FLOWERY BRANCH, GA
City/County:_____ FLOWERY BRANCH/HALL **Date on Plans:**_____ 10/3/2014

TO BE SHOWN ON ES&PC PLAN

Plan Page #	Included Y/N		
C-002	X	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)
C-002	X	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)
C-002	X	3	The name and phone number of the 24-hour local contact responsible for erosion, sedimentation and pollution controls.
C-002	X	4	Provide the name, address and phone number of primary permittee.
C-002	X	5	Note total and disturbed acreage of the project or phase under construction.
C-104	X	6	Provide the GPS locations of the Beginning and End of the Infrastructure project. Give the Latitude and Longitude in decimal degrees.
ALL SHTS.	X	7	Initial date of the Plan and the dates of any revisions made to the Plan including the entity who requested the revisions.
C-002	X	8	Description of the nature of construction activity.
C-002	X	9	Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if necessary.
C-002	X	10	Identify the project receiving waters and describe all sensitive adjacent areas including streams, lakes, residential areas, wetlands, etc. which may be affected.
C-002	X	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.
N/A		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.*
N/A		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.
N/A		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."*
C-002	X	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 without first acquiring the necessary variances and permits."
N/A		16	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."*
N/A		17	Clearly note the statement that "Waste materials shall not be discharged to waters of the State, except as authorized by a section 404 permit."*
C-002	X	18	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."
C-002	X	19	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."
C-002	X	20	Clearly note the statement "Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding."
N/A		21	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		22	If a TMDL Implementation Plan for sediment has been finalized for the Impaired Stream Segment (identified in item 21 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.*
N/A		23	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.*
C-002	X	24	Provide BMPs for the remediation of all petroleum spills and leaks.
N/A		25	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.*
N/A		26	Description of the practices that will be used to reduce the pollutants in storm water discharges.*
C-002	X	27	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).
N/A		28	Provide complete requirements of inspections and record keeping by the primary permittee.*
N/A		29	Provide complete requirements of sampling frequency and reporting of sampling results.*
N/A		30	Provide complete details for retention of records as per Part IV.F. of the permit.*
N/A		31	Description of analytical methods to be used to collect and analyze the samples from each location.*
N/A		32	Appendix B rationale for NTU values at all outfall sampling points where applicable.*
N/A		33	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.*
N/A		34	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.*
C-104-106	X	35	Graphic scale and north arrow.
C-104-106	X	36	Existing and proposed contour lines with contour lines drawn at an interval in accordance with the following: (Existing Contours: USGS 1": 2000' Topographical Sheets; Proposed Contours: 1" = 400' Centerline Profile)
N/A		37	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.
C-104-106	X	38	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.
C-104-106	X	39	Delineation of on-site wetlands and all state waters located on and within 200 feet of the project site.
C-002/104	X	40	Delineation and acreage of contributing drainage basins on the project site.
C-002	X	41	Delineate on-site drainage and off-site watersheds using USGS 1": 2000' topographical sheets.
C-002	X	42	An estimate of the runoff coefficient or peak discharge flow of the site prior to and after construction activities are completed.
N/A		43	Storm-drain pipe and weir velocities with appropriate outlet protection to accommodate discharges without erosion. Identify/Delineate all storm water discharge points.
C-104-106	X	44	Soil series for the project site and their delineation.
C-104-106	X	45	The limits of disturbance for each phase of construction.
C-002	X	46	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 justification 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.
C-104-106	X	47	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.
C-501/503/504	X	48	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.
C-104, C-105, C-106, C-107, C-505	X	49	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.

*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, 2014

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FLOWERY BRANCH, GA 30542

GEORGIA REGISTERED NO. 034223 PROFESSIONAL ENGINEER JAMES A. SWIFT
10-13-14

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

EROSION, SEDIMENTATION AND POLLUTION CONTROL NOTES AND CHECKLIST

DESIGNED BY	CHECKED BY
CJP	HCS

ISSUED DATE: 10/13/2014

JOB NUMBER: 1130128

DRAWING NUMBER:
C-002

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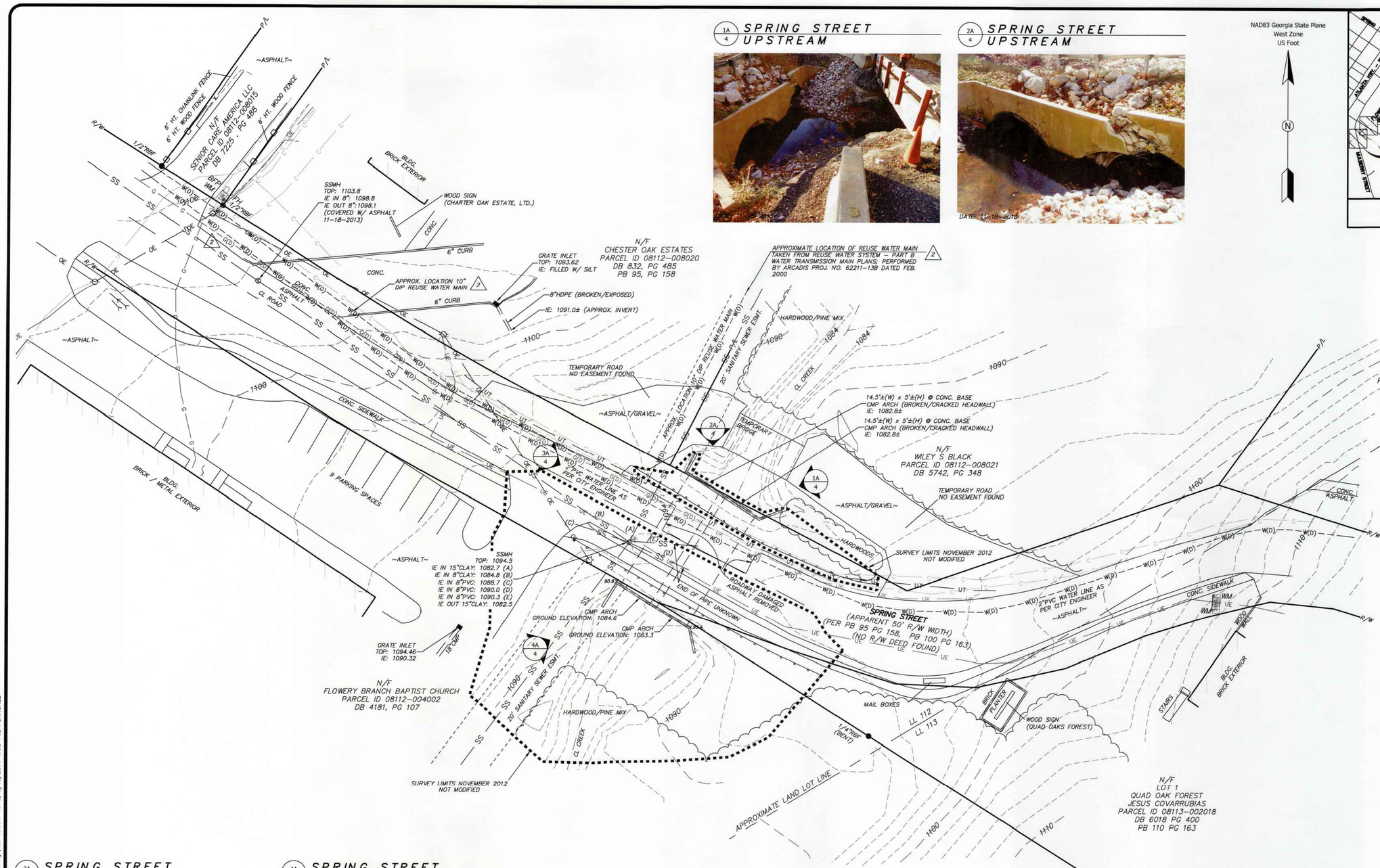


LEGEND

P/L	PROPERTY LINE
R/W	RIGHT OF WAY LINE
DIR	PIPE DIRECTION
RCP	REINFORCED CONCRETE PIPE
CMP	CORRUGATED METAL PIPE
DIP	DUCTILE IRON PIPE
PVC	POLYVINYL CHLORIDE PIPE
CONC.	CONCRETE
TC	TOP BACK CURB ELEVATION
FL	GUTTER FLOW LINE ELEVATION
IE:	INVERT
BLDG.	BUILDING
DB	DEED BOOK
PB	PLAT BOOK
PG	PAGE
PS	PLAT SLIDE
CL	CENTER LINE
	GUARDRAIL
	CENTER CREEK
— SS —	SANITARY SEWER LINE
— G —	UNDERGROUND GAS LINE
— UK —	UNDERGROUND UNKNOWN UTILITY
— UF —	UNDERGROUND FIBER OPTIC
— OE —	OVERHEAD ELECTRIC LINE
— UE —	UNDERGROUND ELECTRIC LINE
— UT —	UNDERGROUND TELEPHONE LINE
— C —	UNDERGROUND CABLE LINE
— W —	UNDERGROUND WATER LINE
—W(D)—	UNDERGROUND WATER LINE (LEVEL "D" FROM RECORDS)
—G(D)—	UNDERGROUND GAS LINE (LEVEL "D" FROM RECORDS)
— X —	WIRE / CHAINLINK FENCE
	WOOD FENCE
	TREE LINE
	STORM SEWER PIPE
E	ELECTRICAL MANHOLE
E	ELECTRICAL EQUIPMENT
	POST INDICATOR VALVE
WV	WATER VALVE
W	WATER METER
GV	GAS VALVE
G	GAS EQUIPMENT
	FIRE HYDRANT
	FIRE DEPARTMENT CONNECTION
S	SANITARY SEWER MANHOLE
D	STORM SEWER MANHOLE
	GRATE INLET
	SIGN
	LIGHT POLE
	POWER POLE
	GUY WIRE
T	TELEPHONE BOX
	CONCRETE MONUMENT
1	REVISION CALL

PHOTO CALLOUT

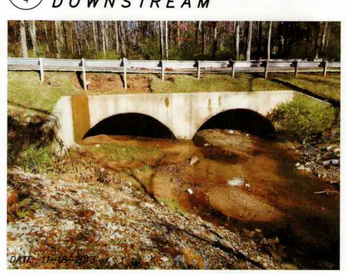
2 VIEW NUMBER
1 SHEET NUMBER

20' 0 20' 40' 60'

GRAPHIC SCALE
SCALE 1" = 20'

3A/4 SPRING STREET

4A/4 SPRING STREET DOWNSTREAM



NOTES

1. THE LOCATION OF UNDERGROUND UTILITIES SHOWN IS BASED ON A LEVEL B UTILITY SURVEY AND RECORDS PROVIDED BY THE CLIENT. LOCATIONS OF UNDERGROUND UTILITIES/ STRUCTURES MAY VARY FROM LOCATIONS SHOWN HEREON. ADDITIONAL BURIED UTILITIES AND OR STRUCTURES MAY EXIST. THE SURVEYOR MAKES NO CERTIFICATION AS TO THE ACCURACY AND COMPLETENESS OF THE LOCATIONS SHOWN HEREON.
2. DATE OF FIELD SURVEY: NOVEMBER 2012 (REVISED NOVEMBER 2013)
3. THE SURVEY WAS PERFORMED USING A LEICA GPS SMART ROVER, WITH DUAL FREQUENCY RECEIVERS. AND A LEICA TOTAL STATION T403.
4. THE TYPE OF GPS SURVEY THAT WAS PERFORMED: NETWORK ADJUSTED REAL TIME KINEMATIC. (EGPS SOLUTIONS)
5. THE PRECISION OF THE GPS IN RELATIVE POSITIONAL ACCURACY WITHIN 0.07 FEET (OR 20 MM) + 50 PPM, GIVEN AT THE 95 PERCENT CONFIDENCE LEVEL.
6. THE FIELD DATA UPON WHICH THIS MAP OR PLAT IS BASED HAS A CLOSURE PRECISION OF ONE FOOT IN +10,000 FEET, AND AN ANGULAR ERROR OF 02 PER ANGLE POINT, AND WAS ADJUSTED USING COMPASS RULE.
7. HORIZONTAL AND VERTICAL DATUM IS MEAN SEA LEVEL BASED ON NAD 83/94 STATE PLANE COORDINATE SYSTEM (GEORGIA WEST ZONE), US FOOT AND NAVD 88, USING A NETWORK OF REFERENCED STATIONS.
8. CONTOUR INTERVAL IS TWO (2) FOOT.
9. THIS SURVEY IS NOT A BOUNDARY SURVEY. IT IS INTENDED FOR TOPOGRAPHIC, UTILITY AND STRUCTURAL IMPROVEMENT LOCATION ONLY. NO RECORD OF TITLE RESEARCH HAS BEEN PERFORMED.

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T: 770-962-4125 - F: 770-962-4126

GEORGIA REGISTERED LAND SURVEYOR No. 03286 PETER JOHN SANCHEZ

TOPOGRAPHIC SURVEY

CITY OF FLOWERY BRANCH FLOWERY BRANCH CREEK STORMWATER CULVERT STUDY

LAND LOT 112- 8TH DISTRICT - CITY OF FLOWERY BRANCH - HALL COUNTY, GEORGIA

#	DATE	REVISION DESCRIPTION
1	11-19-2013	ADDITIONAL TOPOGRAPHY AND CREEK AREA
2	03-10-2014	ADDED REUSE WATER MAIN AND LEVEL "D" GAS LINE

PROJECT NAME:

C-003

SHEET TITLE:
TOPOGRAPHIC SURVEY

PROJECT NO. 021160007
SHEET NO. 4 of 5
DATE: 12/03/2012
ISSUE No. 1

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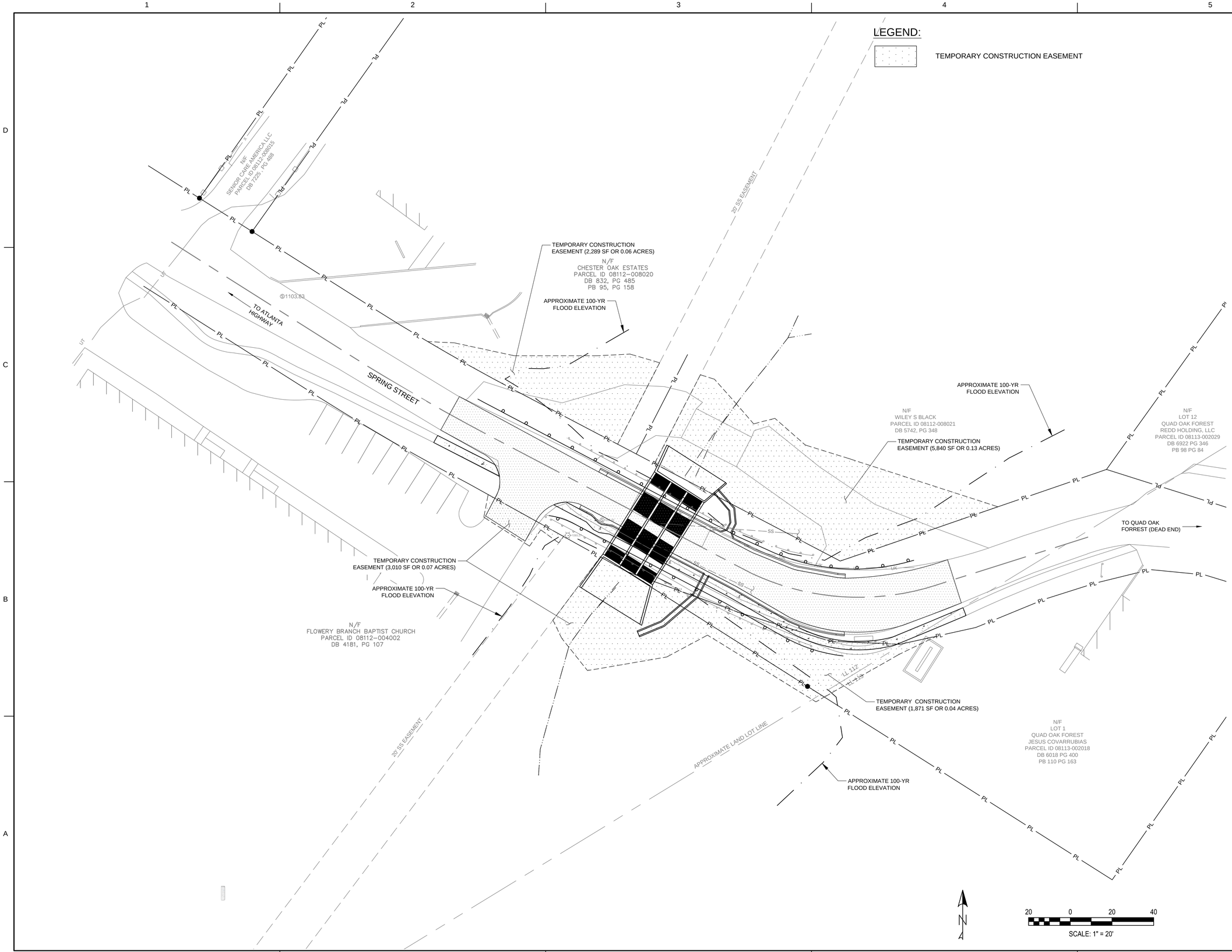

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GEORGIA REGISTERED NO. 034223 PROFESSIONAL ENGINEER JAMES A. SWIFT
10-13-14

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

EASEMENT PLAN

DESIGNED BY	CHECKED BY
CJP	HCS

ISSUED DATE: 10/13/2014

JOB NUMBER: 1130128

DRAWING NUMBER:
C-004

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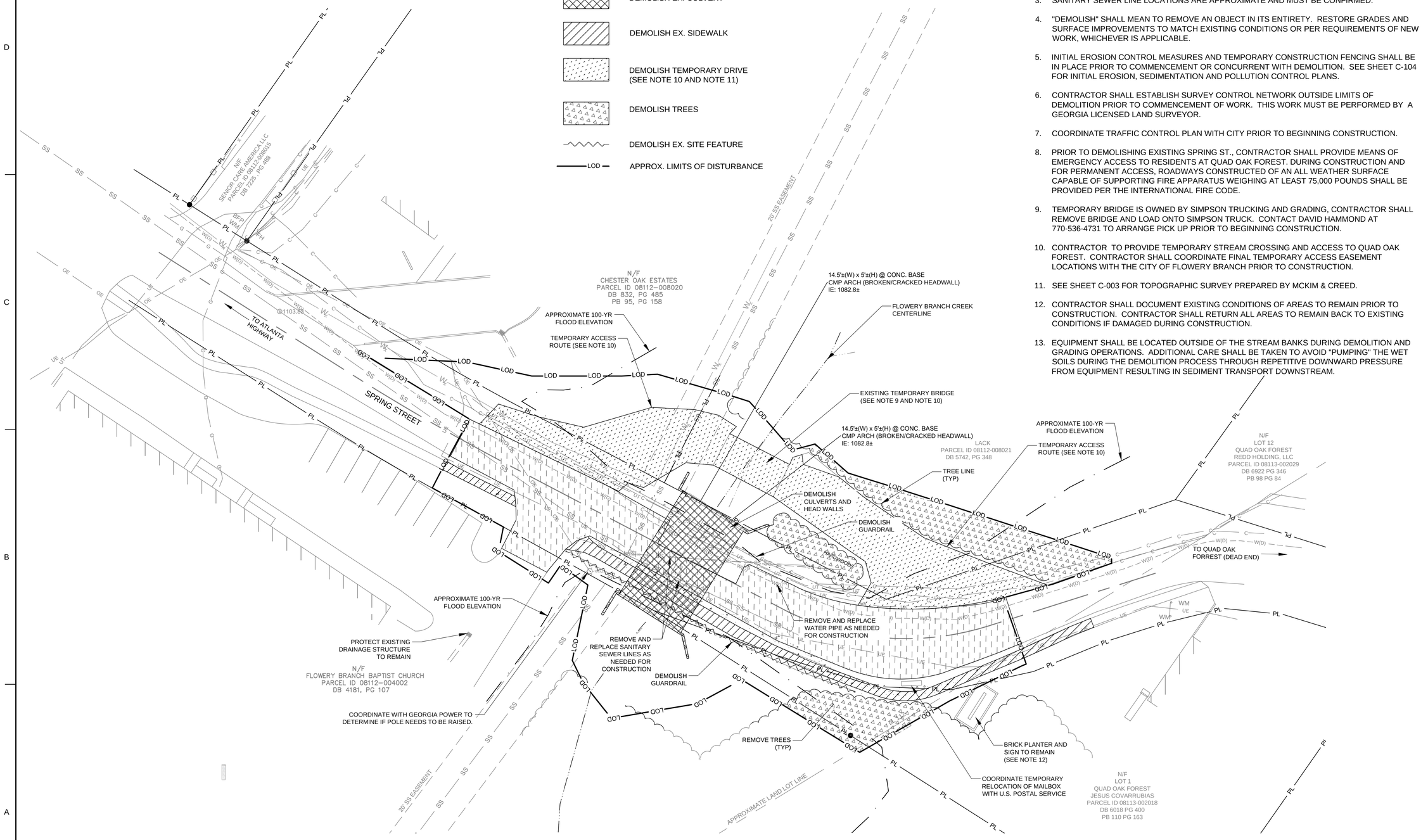
LEGEND:

- DEMOLISH EX. ASPHALT
- DEMOLISH EX. CULVERT
- DEMOLISH EX. SIDEWALK
- DEMOLISH TEMPORARY DRIVE (SEE NOTE 10 AND NOTE 11)
- DEMOLISH TREES
- DEMOLISH EX. SITE FEATURE
- LOD — APPROX. LIMITS OF DISTURBANCE

NOTES:

1. SEE DRAWING C-001 FOR CIVIL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. FOR RELOCATION OF CABLE, TELEPHONE, AND ELECTRIC UTILITIES ACROSS PROPOSED CULVERT, CONTACT CHARTER, BELL SOUTH, AND GEORGIA POWER.
3. SANITARY SEWER LINE LOCATIONS ARE APPROXIMATE AND MUST BE CONFIRMED.
4. "DEMOLISH" SHALL MEAN TO REMOVE AN OBJECT IN ITS ENTIRETY. RESTORE GRADES AND SURFACE IMPROVEMENTS TO MATCH EXISTING CONDITIONS OR PER REQUIREMENTS OF NEW WORK, WHICHEVER IS APPLICABLE.
5. INITIAL EROSION CONTROL MEASURES AND TEMPORARY CONSTRUCTION FENCING SHALL BE IN PLACE PRIOR TO COMMENCEMENT OR CONCURRENT WITH DEMOLITION. SEE SHEET C-104 FOR INITIAL EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS.
6. CONTRACTOR SHALL ESTABLISH SURVEY CONTROL NETWORK OUTSIDE LIMITS OF DEMOLITION PRIOR TO COMMENCEMENT OF WORK. THIS WORK MUST BE PERFORMED BY A GEORGIA LICENSED LAND SURVEYOR.
7. COORDINATE TRAFFIC CONTROL PLAN WITH CITY PRIOR TO BEGINNING CONSTRUCTION.
8. PRIOR TO DEMOLISHING EXISTING SPRING ST., CONTRACTOR SHALL PROVIDE MEANS OF EMERGENCY ACCESS TO RESIDENTS AT QUAD OAK FOREST. DURING CONSTRUCTION AND FOR PERMANENT ACCESS, ROADWAYS CONSTRUCTED OF AN ALL WEATHER SURFACE CAPABLE OF SUPPORTING FIRE APPARATUS WEIGHING AT LEAST 75,000 POUNDS SHALL BE PROVIDED PER THE INTERNATIONAL FIRE CODE.
9. TEMPORARY BRIDGE IS OWNED BY SIMPSON TRUCKING AND GRADING, CONTRACTOR SHALL REMOVE BRIDGE AND LOAD ONTO SIMPSON TRUCK. CONTACT DAVID HAMMOND AT 770-536-4731 TO ARRANGE PICK UP PRIOR TO BEGINNING CONSTRUCTION.
10. CONTRACTOR TO PROVIDE TEMPORARY STREAM CROSSING AND ACCESS TO QUAD OAK FOREST. CONTRACTOR SHALL COORDINATE FINAL TEMPORARY ACCESS EASEMENT LOCATIONS WITH THE CITY OF FLOWERY BRANCH PRIOR TO CONSTRUCTION.
11. SEE SHEET C-003 FOR TOPOGRAPHIC SURVEY PREPARED BY MCKIM & CREED.
12. CONTRACTOR SHALL DOCUMENT EXISTING CONDITIONS OF AREAS TO REMAIN PRIOR TO CONSTRUCTION. CONTRACTOR SHALL RETURN ALL AREAS TO REMAIN BACK TO EXISTING CONDITIONS IF DAMAGED DURING CONSTRUCTION.
13. EQUIPMENT SHALL BE LOCATED OUTSIDE OF THE STREAM BANKS DURING DEMOLITION AND GRADING OPERATIONS. ADDITIONAL CARE SHALL BE TAKEN TO AVOID "PUMPING" THE WET SOILS DURING THE DEMOLITION PROCESS THROUGH REPETITIVE DOWNWARD PRESSURE FROM EQUIPMENT RESULTING IN SEDIMENT TRANSPORT DOWNSTREAM.



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SCALE: 1" = 20'

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FLOWERY BRANCH, GA 30542

GEORGIA REGISTERED NO. 034223 PROFESSIONAL ENGINEER JAMES A. SWIFT
10-13-14

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

DEMOLITION PLAN

DESIGNED BY	CHECKED BY
CJP	HCS

ISSUED DATE: 10/13/2014

JOB NUMBER: 1130128

DRAWING NUMBER:
C-101

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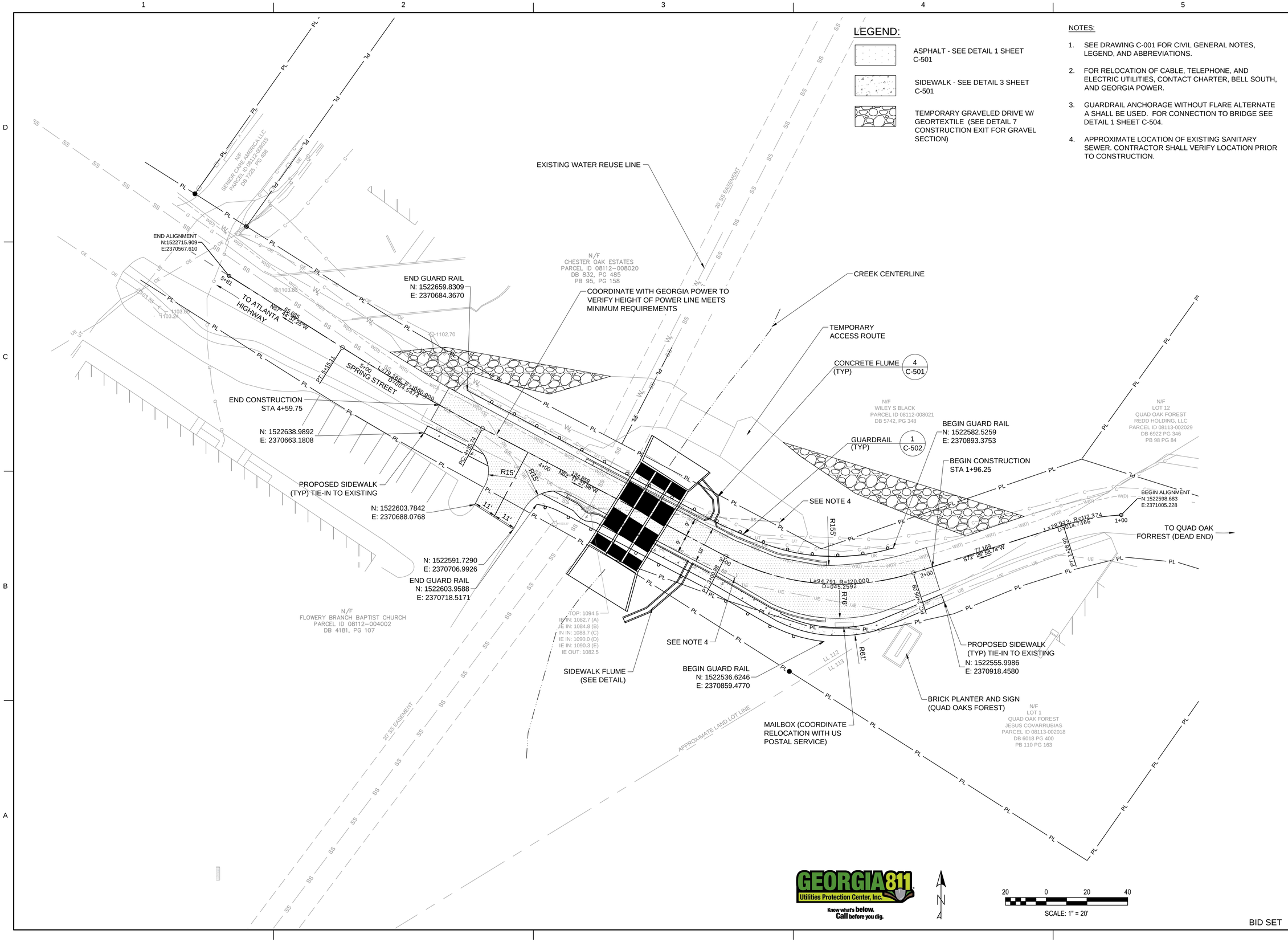

LEGEND:

- ASPHALT - SEE DETAIL 1 SHEET C-501
- SIDEWALK - SEE DETAIL 3 SHEET C-501
- TEMPORARY GRAVELED DRIVE W/ GEORTEXTILE (SEE DETAIL 7 CONSTRUCTION EXIT FOR GRAVEL SECTION)

NOTES:

1. SEE DRAWING C-001 FOR CIVIL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. FOR RELOCATION OF CABLE, TELEPHONE, AND ELECTRIC UTILITIES, CONTACT CHARTER, BELL SOUTH, AND GEORGIA POWER.
3. GUARDRAIL ANCHORAGE WITHOUT FLARE ALTERNATE A SHALL BE USED. FOR CONNECTION TO BRIDGE SEE DETAIL 1 SHEET C-504.
4. APPROXIMATE LOCATION OF EXISTING SANITARY SEWER. CONTRACTOR SHALL VERIFY LOCATION PRIOR TO CONSTRUCTION.

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GEORGIA REGISTERED NO. 034223 PROFESSIONAL ENGINEER JAMES A. SWIFT
10-13-14

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR SPRING STREET CULVERT REPLACEMENT

FLOWERY BRANCH, GEORGIA

SITE AND UTILITY PLAN

DESIGNED BY	CHECKED BY
CJP	HCS

ISSUED DATE: 10/13/2014

JOB NUMBER: 1130128

DRAWING NUMBER:

C-102

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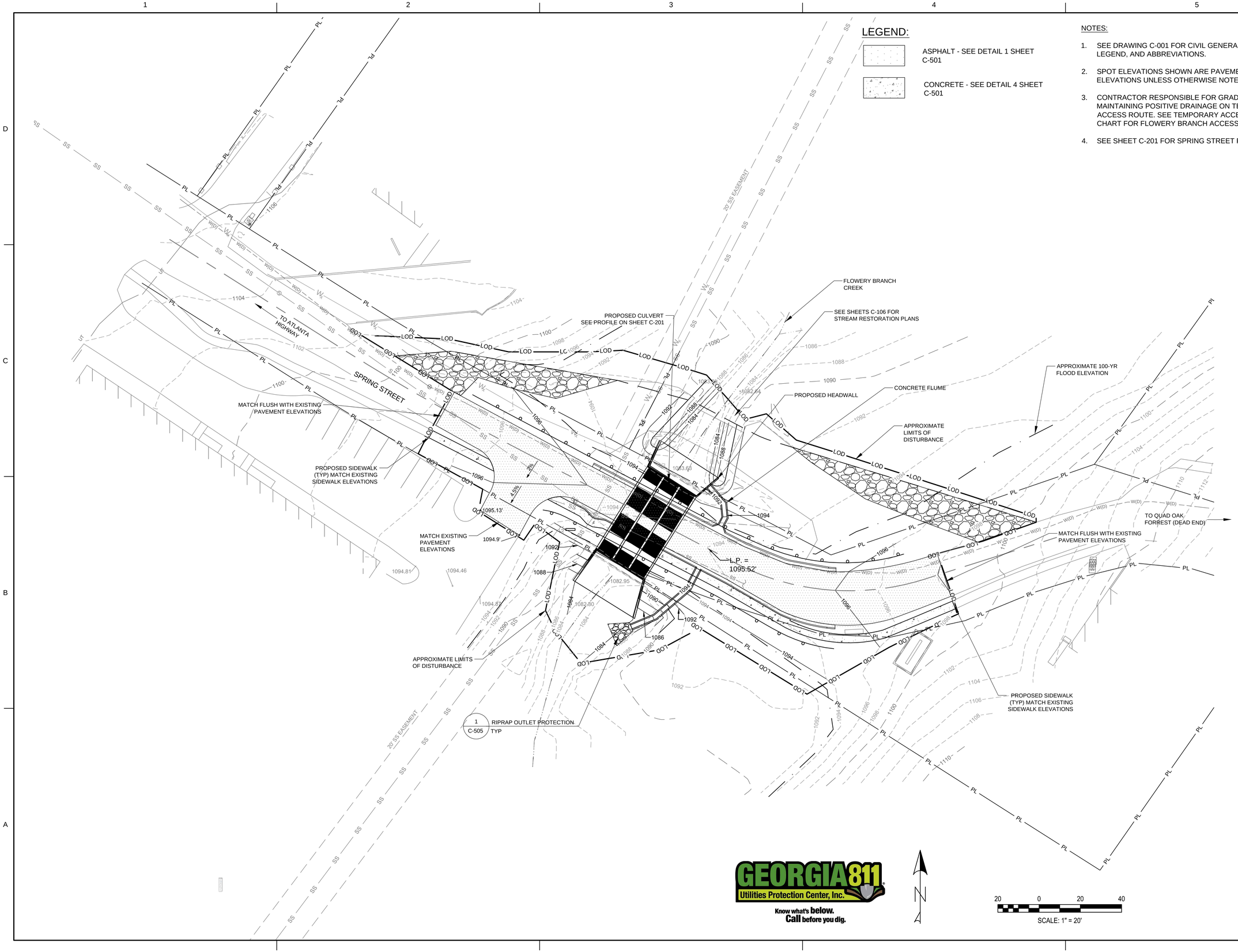

LEGEND:

ASPHALT - SEE DETAIL 1 SHEET C-501

CONCRETE - SEE DETAIL 4 SHEET C-501

NOTES:

1. SEE DRAWING C-001 FOR CIVIL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. SPOT ELEVATIONS SHOWN ARE PAVEMENT ELEVATIONS UNLESS OTHERWISE NOTED.
3. CONTRACTOR RESPONSIBLE FOR GRADING AND MAINTAINING POSITIVE DRAINAGE ON TEMPORARY ACCESS ROUTE. SEE TEMPORARY ACCESS ROUTE CHART FOR FLOWERY BRANCH ACCESS CODE.
4. SEE SHEET C-201 FOR SPRING STREET PROFILE.

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GEORGIA REGISTERED NO. 034223 PROFESSIONAL ENGINEER JAMES A. SWIFT
10-13-14

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR SPRING STREET CULVERT REPLACEMENT

FLOWERY BRANCH, GEORGIA

GRADING AND DRAINAGE PLAN

DESIGNED BY	CHECKED BY
CJP	HCS

ISSUED DATE: 10/13/2014

JOB NUMBER: 1130128

DRAWING NUMBER:

C-103

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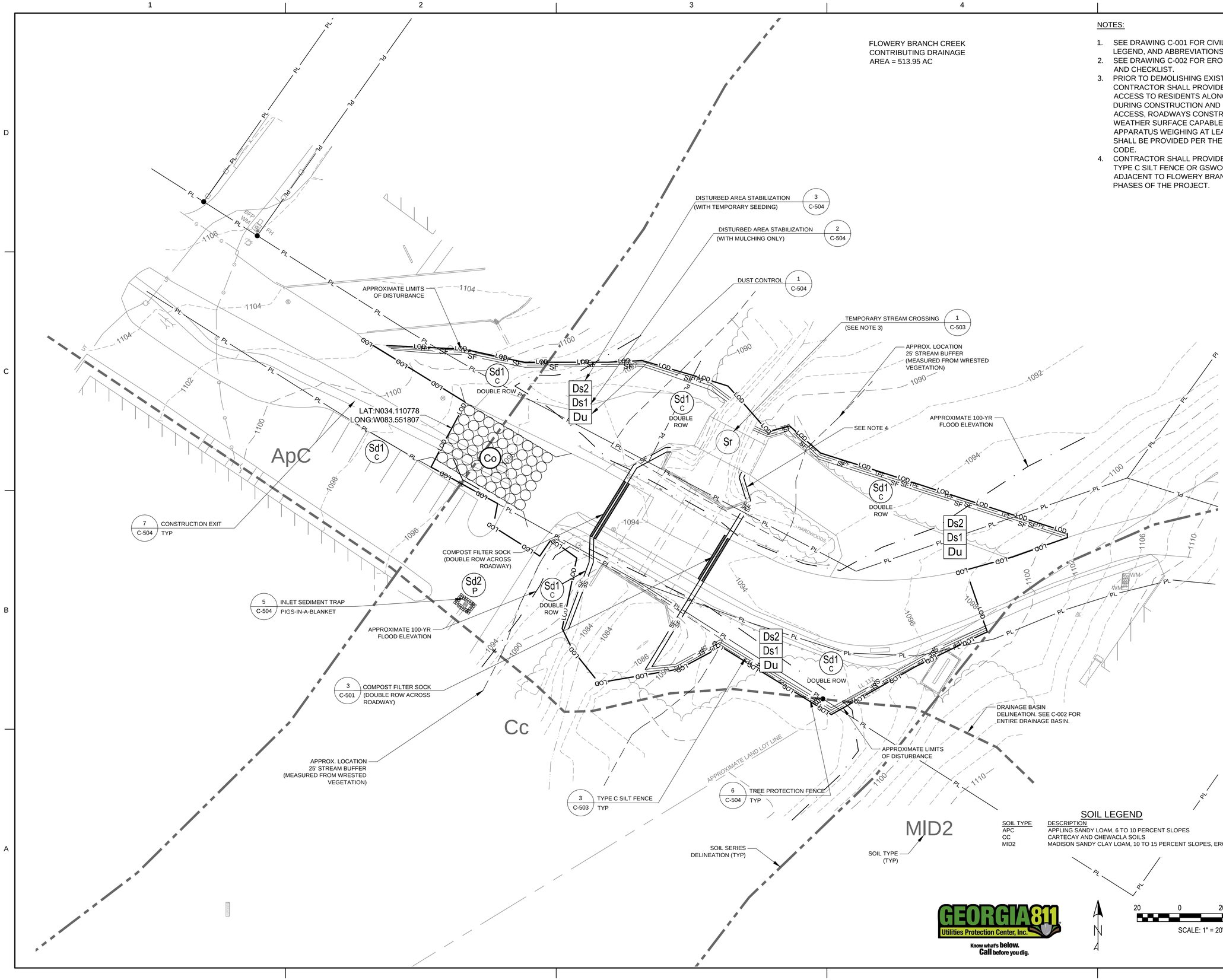
FLOWERY BRANCH CREEK
CONTRIBUTING DRAINAGE
AREA = 513.95 AC

NOTES:

1. SEE DRAWING C-001 FOR CIVIL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. SEE DRAWING C-002 FOR EROSION CONTROL NOTES AND CHECKLIST.
3. PRIOR TO DEMOLISHING EXISTING SPRING ST., CONTRACTOR SHALL PROVIDE MEANS OF EMERGENCY ACCESS TO RESIDENTS ALONG SPRING STREET. DURING CONSTRUCTION AND FOR PERMANENT ACCESS, ROADWAYS CONSTRUCTED OF AN ALL WEATHER SURFACE CAPABLE OF SUPPORTING FIRE APPARATUS WEIGHING AT LEAST 75,000 POUNDS SHALL BE PROVIDED PER THE INTERNATIONAL FIRE CODE.
4. CONTRACTOR SHALL PROVIDE A DOUBLE ROW OF TYPE C SILT FENCE OR GSWCC APPROVED EQUAL ADJACENT TO FLOWERY BRANCH CREEK DURING ALL PHASES OF THE PROJECT.



SOIL LEGEND

SOIL TYPE	DESCRIPTION
APC	APPLING SANDY LOAM, 6 TO 10 PERCENT SLOPES
CC	CARTECAY AND CHEWACLA SOILS
MID2	MADISON SANDY CLAY LOAM, 10 TO 15 PERCENT SLOPES, ERODED

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GEORGIA REGISTERED NO. 034223 PROFESSIONAL ENGINEER JAMES A. SWIFT
10-13-14

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

INITIAL PHASE
EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN

DESIGNED BY	CHECKED BY
CJP	HCS

ISSUED DATE: 10/13/2014

JOB NUMBER: 1130128

DRAWING NUMBER:
C-104

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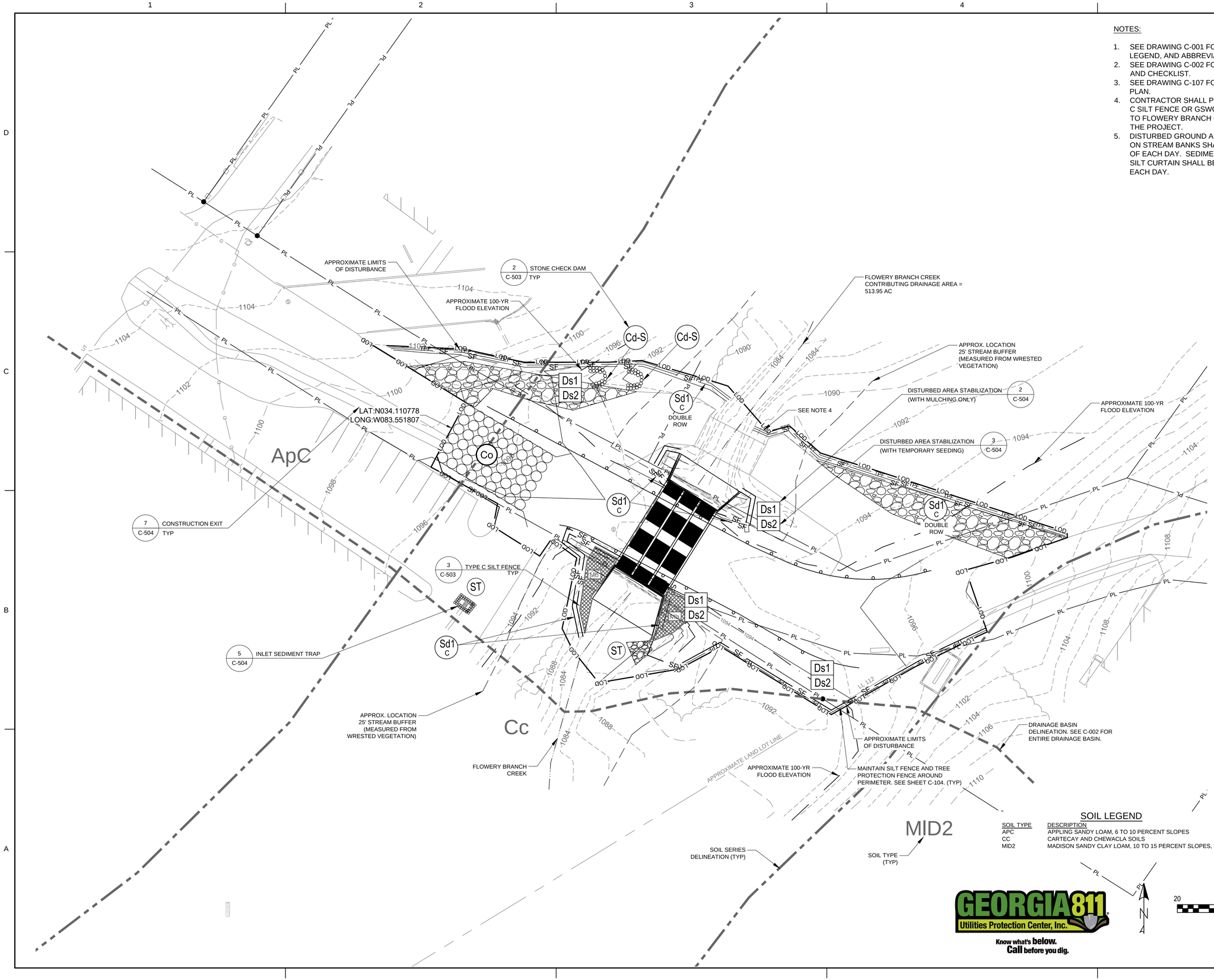
NOTES:

1. SEE DRAWING C-001 FOR CIVIL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. SEE DRAWING C-002 FOR EROSION CONTROL NOTES AND CHECKLIST.
3. SEE DRAWING C-107 FOR STREAMBANK STABILIZATION PLAN.
4. CONTRACTOR SHALL PROVIDE DOUBLE ROW OF TYPE C SILT FENCE OR GSWCC APPROVED EQUAL ADJACENT TO FLOWERY BRANCH CREEK DURING ALL PHASES OF THE PROJECT.
5. DISTURBED GROUND ADJACENT TO STREAM BANKS OR ON STREAM BANKS SHALL BE STABILIZED AT THE END OF EACH DAY. SEDIMENT THAT IS CAPTURE BY THE SILT CURTAIN SHALL BE REMOVED AT THE END OF EACH DAY.



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APC	APPLING SANDY LOAM, 6 TO 10 PERCENT SLOPES
CC	CARTECAY AND CHEWACLA SOILS
MID2	MADISON SANDY CLAY LOAM, 10 TO 15 PERCENT SLOPES, ERODED

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Flowery Branch
CITY OF FLOWERY BRANCH
5517 MAIN STREET
P. O. BOX 757
FLOWERY BRANCH, GA 30542

GEORGIA REGISTERED NO. 034223 PROFESSIONAL ENGINEER JAMES A. SWIFT
10-13-14

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

INTERMEDIATE PHASE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN

DESIGNED BY	CHECKED BY
CJP	HCS

ISSUED DATE: 10/13/2014

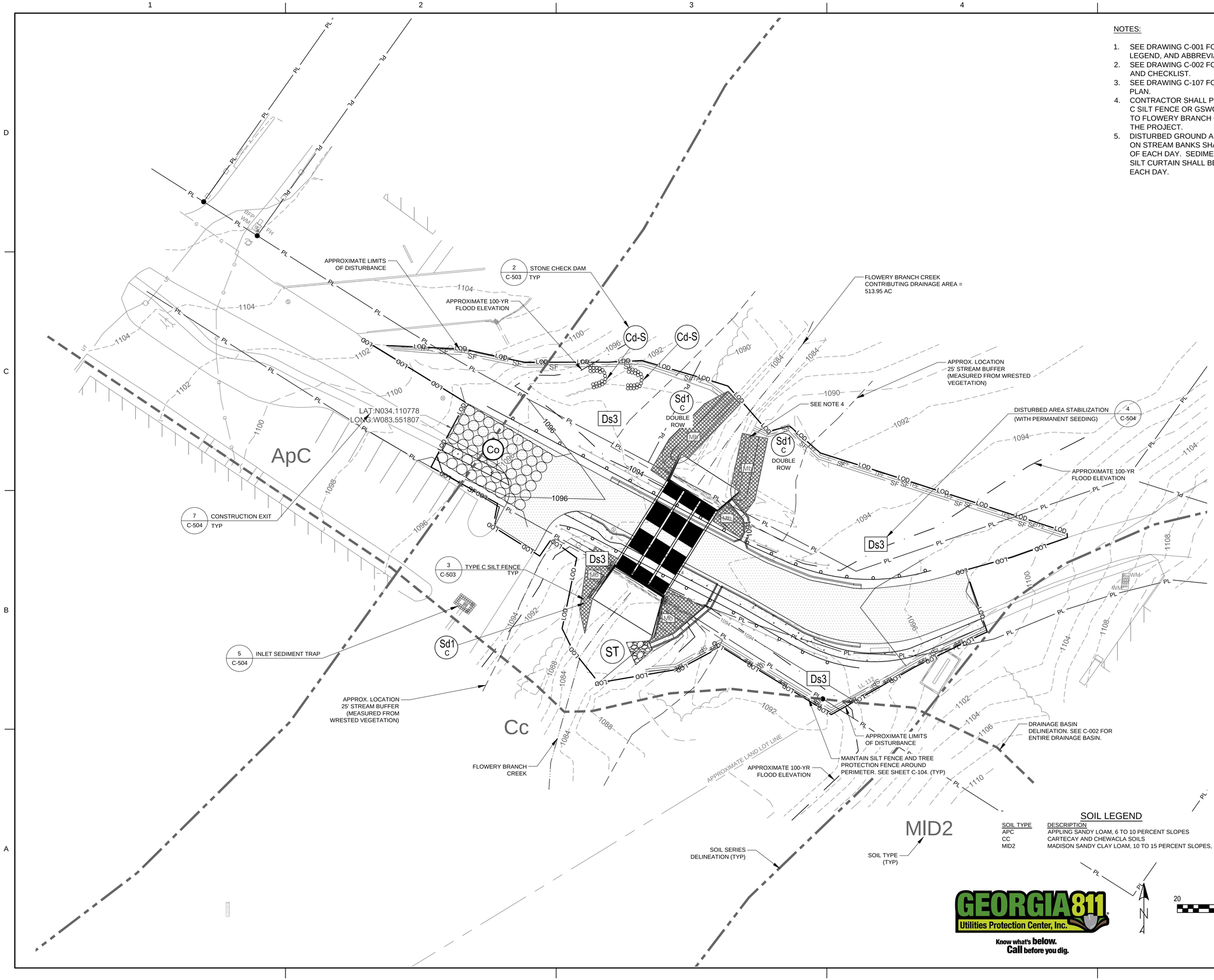
JOB NUMBER: 1130128

DRAWING NUMBER:
C-105

M:\FloweryBranch\1130128 Downtown Storm Drainage Improvements\04.CAD_BIM\04.02.CAD\Spring Street Culvert Replacement\C-105.dwg JordanJ 10/13/14 - 10:55 A

NOTES:

1. SEE DRAWING C-001 FOR CIVIL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. SEE DRAWING C-002 FOR EROSION CONTROL NOTES AND CHECKLIST.
3. SEE DRAWING C-107 FOR STREAMBANK STABILIZATION PLAN.
4. CONTRACTOR SHALL PROVIDE DOUBLE ROW OF TYPE C SILT FENCE OR GSWCC APPROVED EQUAL ADJACENT TO FLOWERY BRANCH CREEK DURING ALL PHASES OF THE PROJECT.
5. DISTURBED GROUND ADJACENT TO STREAM BANKS OR ON STREAM BANKS SHALL BE STABILIZED AT THE END OF EACH DAY. SEDIMENT THAT IS CAPTURE BY THE SILT CURTAIN SHALL BE REMOVED AT THE END OF EACH DAY.



SOIL LEGEND

SOIL TYPE	DESCRIPTION
APC	APPLING SANDY LOAM, 6 TO 10 PERCENT SLOPES
CC	CARTECAY AND CHEWACLA SOILS
MID2	MADISON SANDY CLAY LOAM, 10 TO 15 PERCENT SLOPES, ERODED

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FLOWERY BRANCH, GA 30542

GEORGIA REGISTERED NO. 034223 PROFESSIONAL ENGINEER JAMES A. SWIFT
10-13-14

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

FINAL PHASE
EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN

DESIGNED BY	CHECKED BY
CJP	HCS

ISSUED DATE: 10/13/2014

JOB NUMBER: 1130128

DRAWING NUMBER:
C-106

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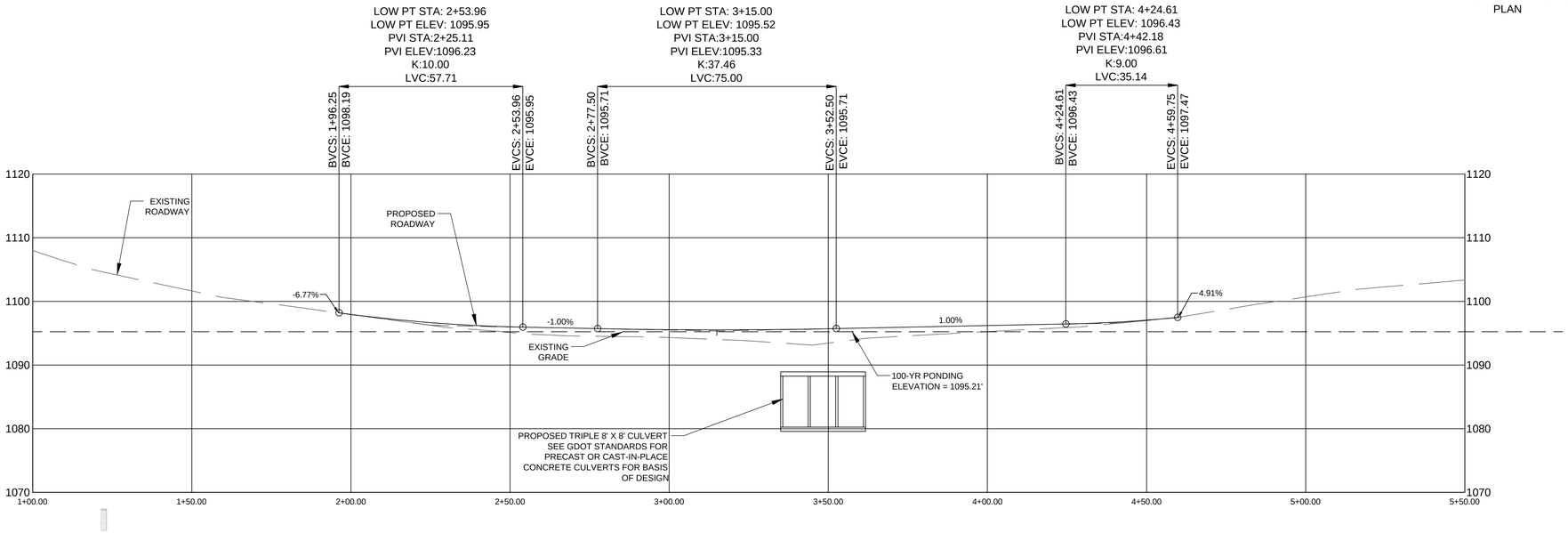
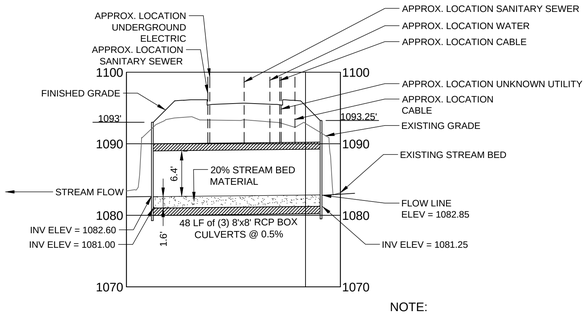
NOTES:

1. SEE DRAWING C-001 FOR CIVIL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. SEE DRAWING C-103 FOR GRADING AND DRAINAGE PLAN



PROFILE OF SPRING STREET CENTERLINE
VERT. SCALE 1"=10'
HORZ. SCALE 1"=20'



NOTE:
20% OF CULVERT HEIGHT TO BE INSTALLED IN EXISTING STREAM BED

PROFILE OF (3) 8'X8' BOX CULVERTS
VERT. SCALE 1"=10'
HORZ. SCALE 1"=20'

VERTICAL SCALE
10 0 10 20
SCALE: 1" = 10'

HORIZONTAL SCALE
20 0 20 40
SCALE: 1" = 20'

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GEORGIA REGISTERED NO. 034823 PROFESSIONAL ENGINEER JAMES A. SWIFT
10-13-14

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

SPRING STREET CENTERLINE PROFILE

DESIGNED BY	CHECKED BY
CJP	HCS

ISSUED DATE: 10/13/2014

JOB NUMBER: 1130128

DRAWING NUMBER:
C-201

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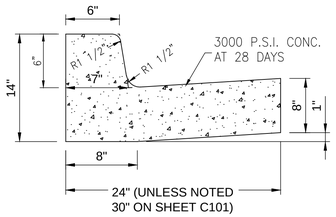
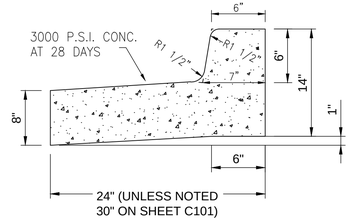


NORMAL GUTTER



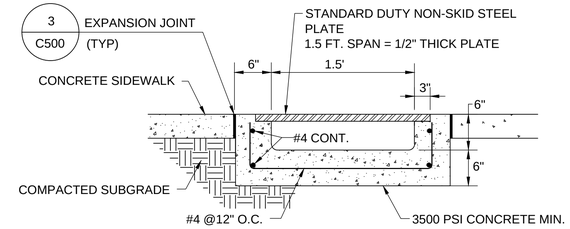
PITCHED GUTTER

NOTES:

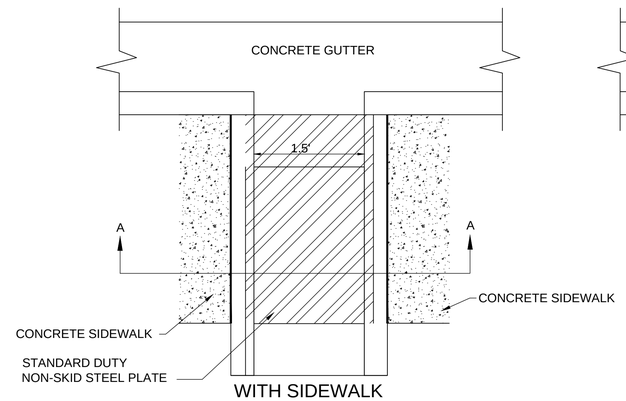
1. CURB AND GUTTER TO BE CONSTRUCTED IN 10 FOOT LENGTHS.
2. 1/2" EXPANSION JOINTS SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 50 FEET, AT THE ENDS AND MID-POINT OF RETURNS, AND AT ANY POINT WHERE THE NEW CURB AND GUTTER ABUTS OTHER CONCRETE STRUCTURES.
3. 5' LONG TRANSITIONS SHALL BE PROVIDED BETWEEN NORMAL GUTTER AND PITCHED GUTTER, UNLESS OTHERWISE NOTED ON THE PAVING PLANS.

1 CONCRETE CURB AND GUTTER

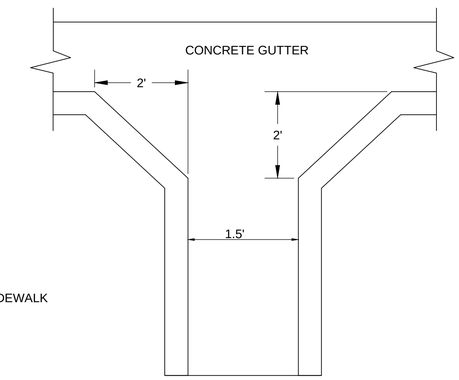
SCALE: NTS



SECTION A-A



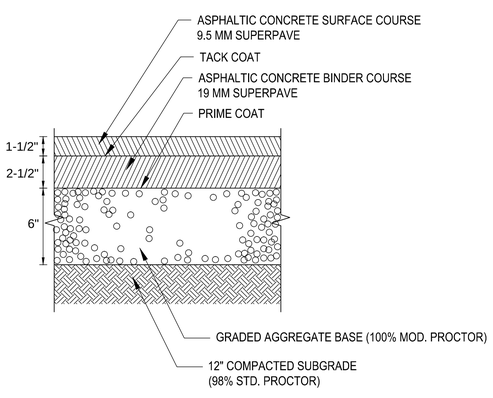
WITH SIDEWALK
PLAN VIEW



WITHOUT SIDEWALK
PLAN VIEW

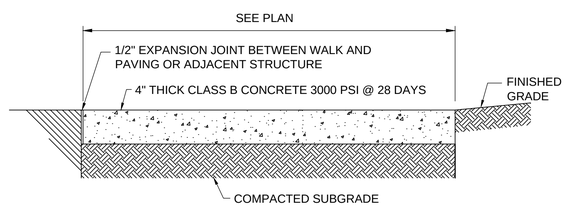
4 CONCRETE FLUME

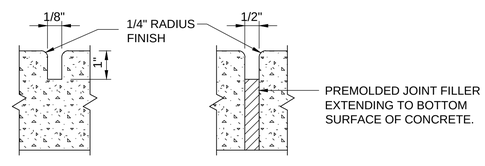
SCALE: NTS



2 ASPHALT PAVEMENT

SCALE: NTS





NOTE:
CONTRACTION JOINT SHALL DIVIDE SIDEWALK INTO SQUARE PANELS. SPACING OF CONTRACTION JOINTS SHALL EQUAL THE WIDTH OF THE SIDEWALK.

CONTRACTION JOINT

NOTE:
EXPANSION JOINTS @ 50' MAX. SPACING AND AT JUNCTIONS WITH OTHER STRUCTURES AND RIGID PAVING.

EXPANSION JOINT

5 CONCRETE SIDEWALK

SCALE: NTS

CONSTRUCTION SPECIFICATIONS

The compost filter sock shall be installed according to this specification, as shown on the plans or as directed by the engineer. For installation of the compost filter sock see Figure 1.

1. Compost filter socks should be installed parallel to the base of the slope or other disturbed area. In extreme conditions (i.e., 2:1 slopes), a second compost filter sock shall be constructed at the top of the slope.
2. Stakes shall be installed through the middle of the compost filter sock on 10 ft (3m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft (1m) wooden stakes. In the event staking is not possible, i.e., when compost filter socks are used on pavement, heavy concrete blocks shall be used behind the compost filter socks to help stabilize during rainfall/runoff events.
3. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.
4. Loose compost may be backfilled along the upslope side of the compost filter sock, filling the seam between the soil surface and the device, improving filtration and sediment retention.
5. If the compost filter sock is to be left as a permanent filter or part of the natural landscape, it may be seeded at time of installation for establishment of permanent vegetation. The engineer will specify seed requirements.
6. Compost filter socks are not to be used in perennial, ephemeral, or intermittent streams.

COMPOST FILTER MEDIA SPECIFICATIONS

Compost used for compost filter sock filler material (filter media) shall be weed free and derived from a well-decomposed source of organic matter. The compost shall be produced using an aerobic composting process meeting CFR 503 regulations including time and temperature data. The compost shall be free of any refuse, contaminants or other materials toxic to plant growth. Non-composted products will not be accepted. Test methods for the items below should follow US Composting Council Test Methods for the Examination of Composting and Compost guidelines for laboratory procedures:

A. PH – 5.0-8.0 in accordance with TMECC 04.11-A, "Electrometric pH Determinations for Compost"
B. Particle size – 99% passing a 2 in (50mm) sieve and a maximum of 40% passing a 3/8 in (9.5mm) sieve, in accordance with TMECC 02.02-B, "Sample Sieving for Aggregate Size Classification". (Note- In the field, product commonly is between ½ in [12.5mm] and 2 in [50mm] particle size.)
C. Moisture content of less than 60% in accordance with standardized test methods for moisture determination.
D. Material shall be relatively free (<1% by dry weight) of inert or foreign man made materials.
E. A sample shall be submitted to the Engineer for approval prior to being used and must comply with all local, state and federal regulations.

MAINTENANCE

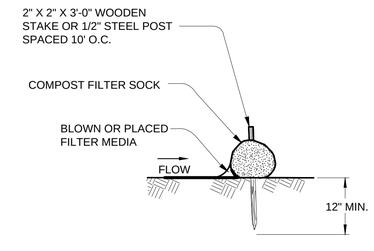
Sediment shall be removed once it has accumulated to one-half the original height of the barrier. Compost filter socks shall be replaced whenever it has deteriorated to such an extent that the effectiveness of compost filter sock is reduced. Compost filter socks shall remain in place until disturbed areas have been permanently stabilized. All sediment accumulation at the compost filter sock shall be removed and properly disposed of before the compost filter sock is removed.

Table 2.

Material Type	Multi-Filament Polypropylene	Multi-Filament Polypropylene
Material Characteristic	Photodegradable	Photodegradable
Mesh Opening	3/8 in (10mm)	1/8 in (3mm)
Tensile Strength (ASTM 5035-95)	44 psi (3.09 kg/cm^2)	202 psi (14.2 kg/cm^2)*
% Original Strength from Ultraviolet Exposure (ASTM G-155)	100% at 1000 hr	100% at 1000 hr

Table 3.

	12 in (300mm) Diameter
Effective Circumference	38 in (960mm)
Density (when filled)	32 lbs/ft (50 kg/m)
Air Space	20%
Hydraulic Flow Through Rate	11.3 gpm/ft (141 L/min/m)
P Factor (RUSLE)	0.1-0.32



COMPOST FILTER SOCK ELEVATION VIEW
N.T.S.

3 COMPOST FILTER SOCK

SCALE: NTS

BID SET

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GEORGIA REGISTERED NO. 034823 PROFESSIONAL ENGINEER JAMES A. SWIFT
10-13-14

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

CONSTRUCTION DETAILS

DESIGNED BY	CHECKED BY
TRE	TRE

ISSUED DATE: 10/13/2014

JOB NUMBER: 1130128

DRAWING NUMBER:
C-501

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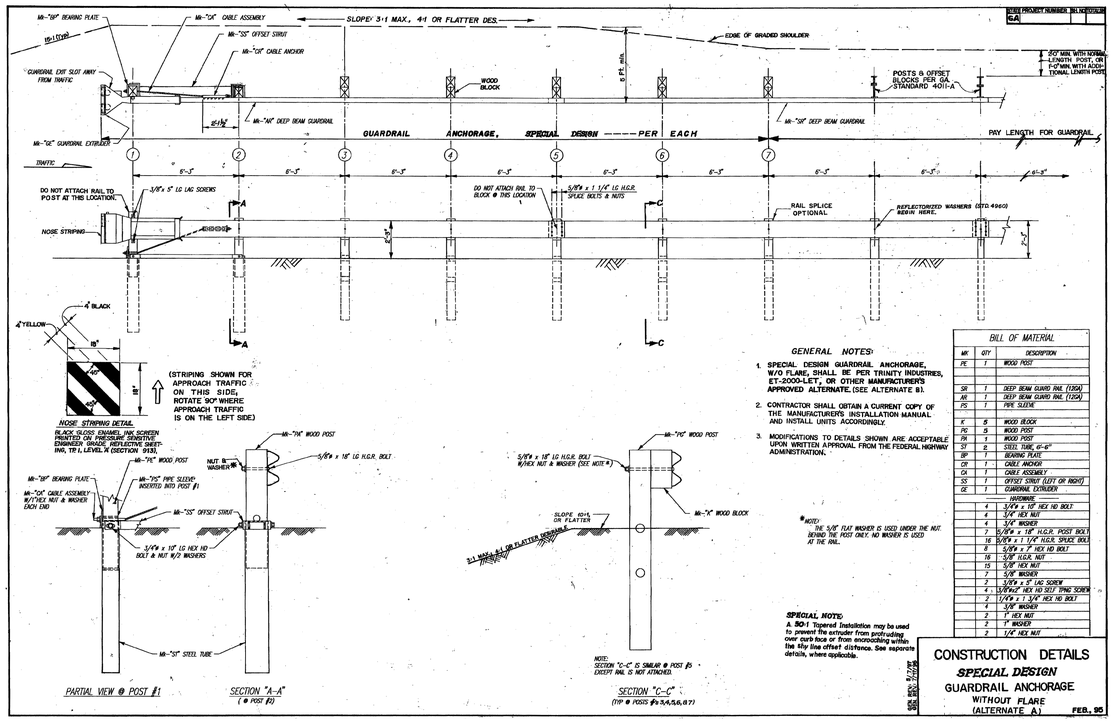


GENERAL NOTES:

1. SPECIAL DESIGN GUARDRAIL ANCHORAGE, W/O FLARE, SHALL BE PER TRINITY INDUSTRIES, ET-2000-LET, OR OTHER MANUFACTURER'S APPROVED ALTERNATE. (SEE ALTERNATE #1.
2. CONTRACTOR SHALL OBTAIN A CURRENT COPY OF THE MANUFACTURER'S INSTALLATION MANUAL AND INSTALL UNITS ACCORDINGLY.
3. MODIFICATIONS TO DETAILS SHOWN ARE ACCEPTABLE UPON WRITTEN APPROVAL FROM THE FEDERAL HIGHWAY ADMINISTRATION.

BILL OF MATERIAL

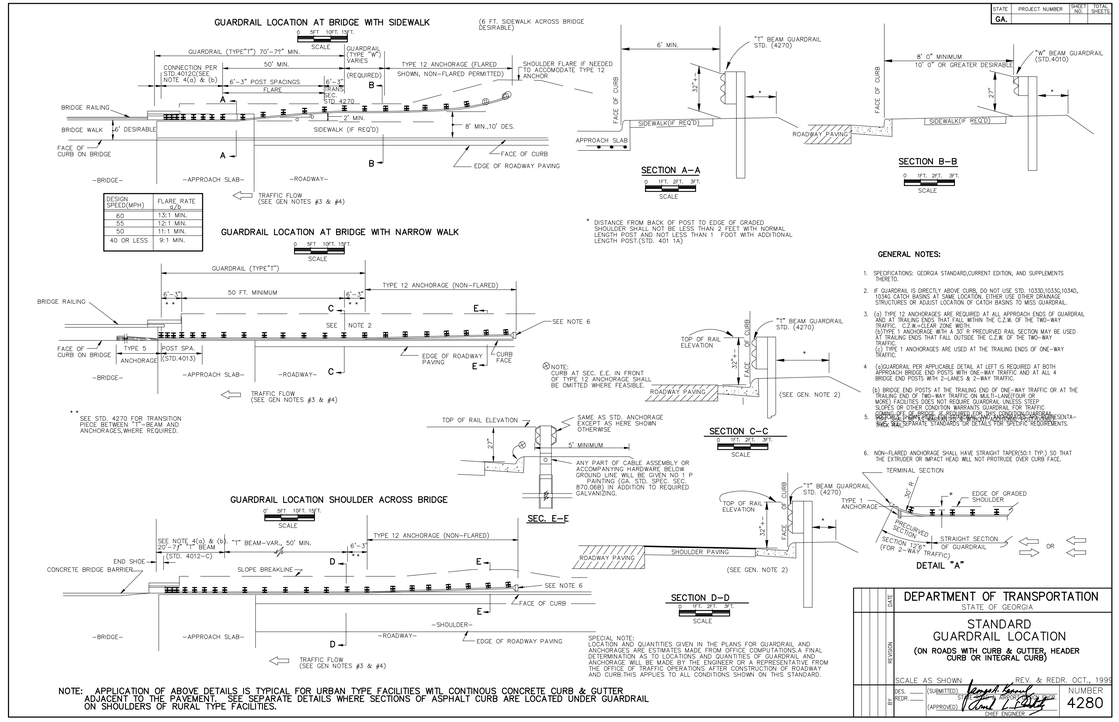
MK	QTY	DESCRIPTION
PE	1	WOOD POST
SR	1	DEEP BEAM GUARD RAIL (120A)
AR	1	DEEP BEAM GUARD RAIL (120A)
PS	1	PIPE SLEEVE
K	5	WOOD BLOCK
PC	5	WOOD POST
PA	1	WOOD POST
SY	2	STEEL TUBE, 6"-6"
BP	1	BEARING PLATE
CR	1	CABLE ANCHOR
CA	1	CABLE ASSEMBLY
SS	1	OFFSET STRUT (LEFT OR RIGHT)
GE	1	GUARDRAIL EXTRUDER
		HARDWARE
	4	3/4"ø x 10" HEX HD BOLT
	4	3/4" HEX NUT
	4	3/4" WASHER
	7	5/8"ø x 18" H.G.R. POST BOLT
	16	5/8"ø x 1 1/4" H.G.R. SPUCE BOLT
	8	5/8"ø x 7" HEX HD BOLT
	16	5/8" H.G.R. NUT
	15	5/8" HEX NUT
	7	5/8" WASHER
	2	5/8"ø x 5" LAG SCREW
	4	5/8"ø x 1" HEX HD SELF TPNG SCREW
	2	1/4"ø x 1 3/4" HEX HD BOLT
	4	3/8" WASHER
	2	1" HEX NUT
	2	1" WASHER
	2	1/4" HEX NUT

CONSTRUCTION DETAILS

SPECIAL DESIGN

GUARDRAIL ANCHORAGE WITHOUT FLARE (ALTERNATE A)

FED. 96

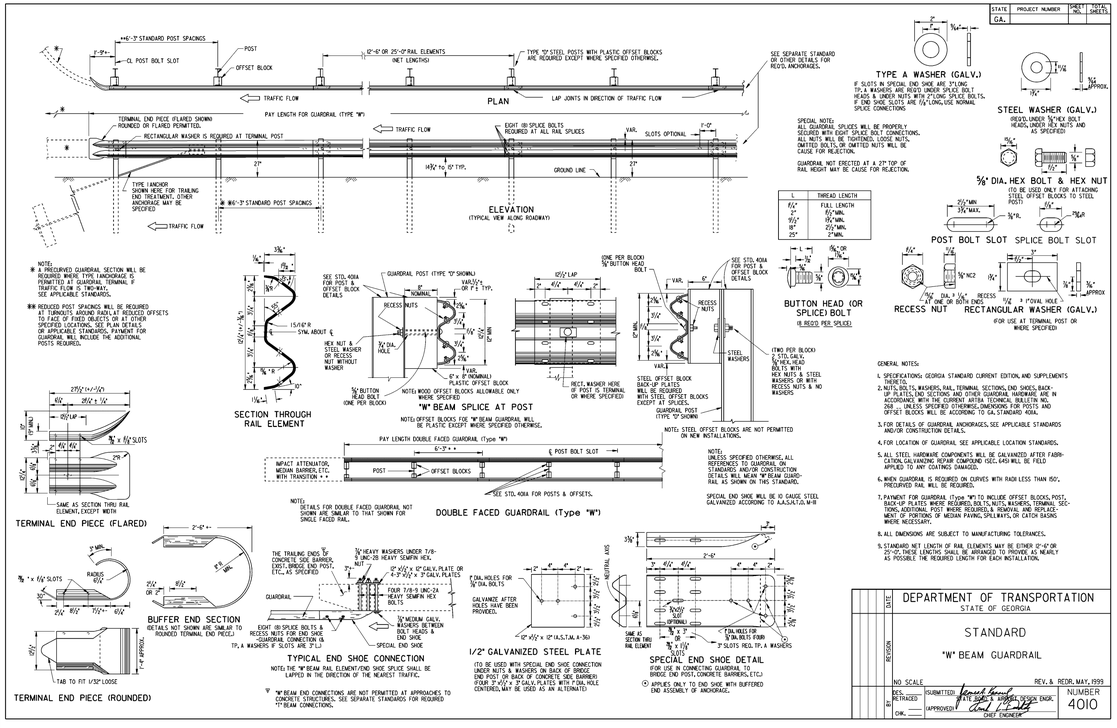


NOTE: APPLICATION OF ABOVE DETAILS IS TYPICAL FOR URBAN TYPE FACILITIES WITL CONTINOUS CONCRETE CURB & GUTTER ADJACENT TO THE PAVEMENT. SEE SEPARATE DETAILS WHERE SECTIONS OF ASPHALT CURB ARE LOCATED UNDER GUARDRAIL ON SHOULDERS OF RURAL TYPE FACILITIES.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

STANDARD GUARDRAIL LOCATION
(ON ROADS WITH CURB & GUTTER, HEADER CURB OR INTEGRAL CURB)

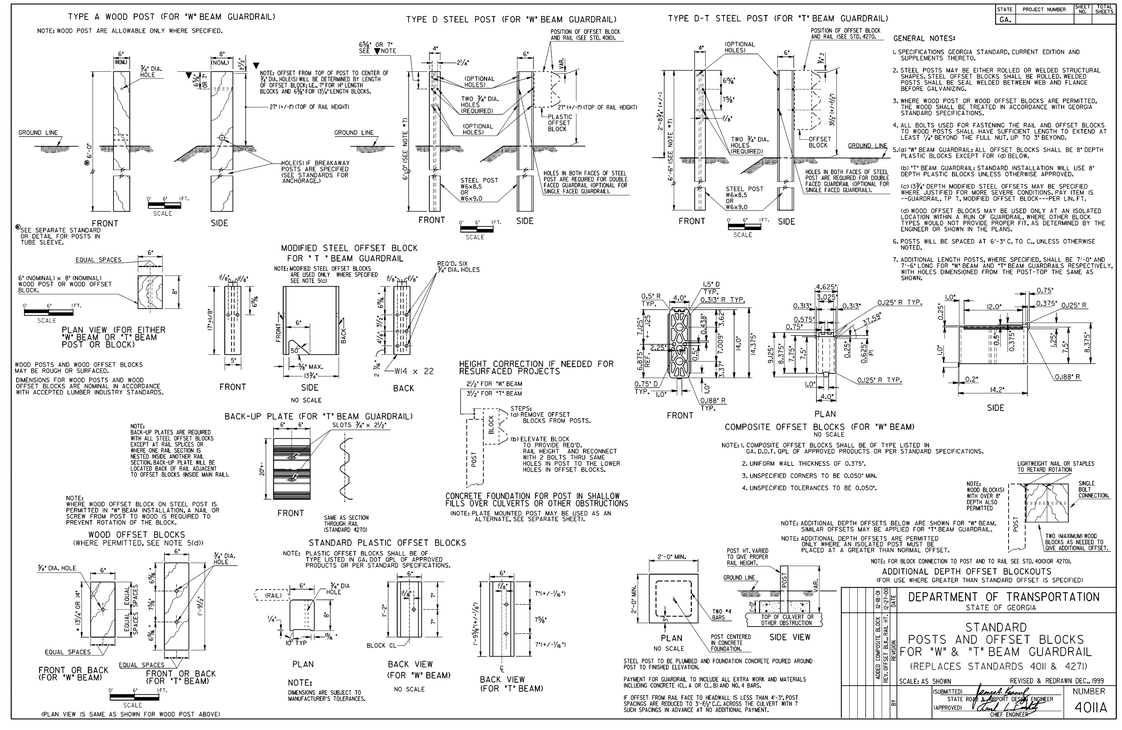
SCALE AS SHOWN — REV. & REDR. OCT., 1995 — NUMBER 4280



DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

STANDARD "W" BEAM GUARDRAIL

NO SCALE — REV. & REDR. MAY, 1999 — NUMBER 4010



DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

STANDARD POSTS AND OFFSET BLOCKS FOR "W" & "T" BEAM GUARDRAIL
(REPLACES STANDARDS 4011 & 4271)

SCALES AS SHOWN — REVISED & REDRAWN DEC., 1999 — NUMBER 4011A

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GEORGIA REGISTERED PROFESSIONAL ENGINEER NO. 034823 JAMES A. SWIFT
10-13-14

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

CONSTRUCTION DETAILS

DESIGNED BY	CHECKED BY
TRE	TRE

ISSUED DATE: 10/13/2014

JOB NUMBER: 1130128

DRAWING NUMBER:
C-502

BID SET

1 GUARDRAIL
SCALE: NTS

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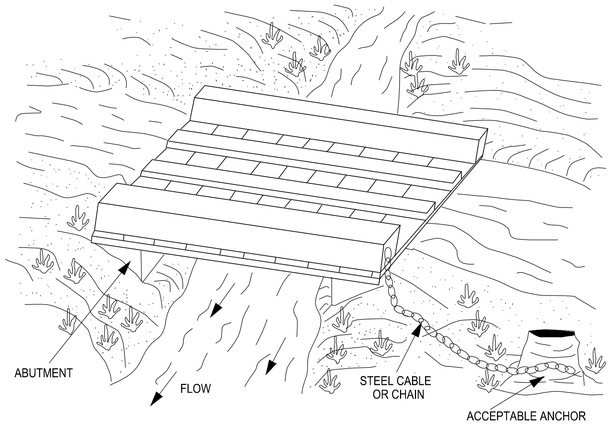
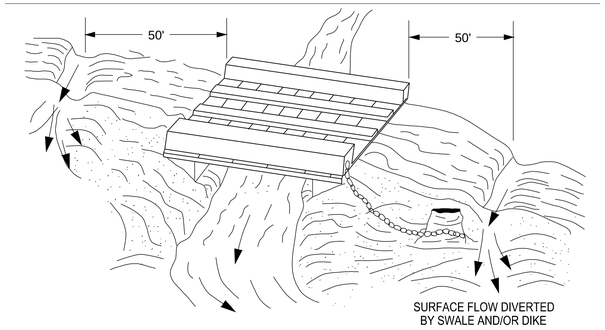
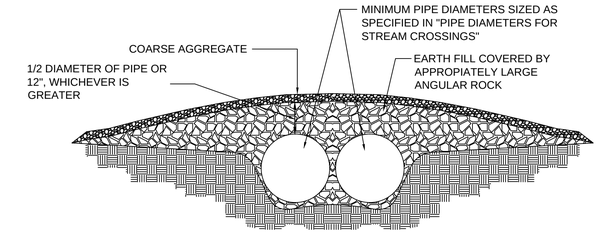


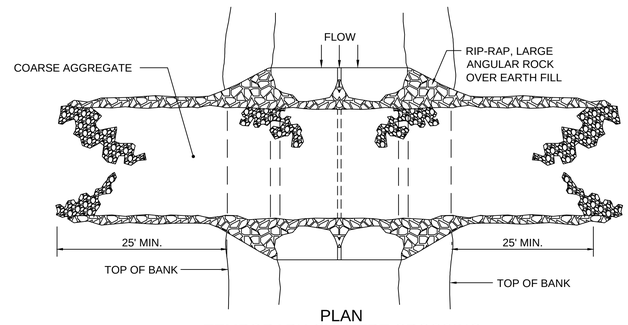


TEMPORARY BRIDGE CROSSING

PRIOR TO DEMOLISHING EXISTING SPRING ST., CONTRACTOR SHALL PROVIDE MEANS OF EMERGENCY ACCESS TO RESIDENTS ALONG SPRING STREET. DURING CONSTRUCTION AND FOR PERMANENT ACCESS, ROADWAYS CONSTRUCTED OF AN ALL WEATHER SURFACE CAPABLE OF SUPPORTING FIRE APPARATUS WEIGHING AT LEAST 75,000 POUNDS SHALL BE PROVIDED PER THE INTERNATIONAL FIRE CODE.



ELEVATION



PLAN
TEMPORARY CULVERT CROSSING

CONSTRUCTION SPECIFICATIONS

1. Clearing of the stream bed and banks shall be kept to a minimum.
2. All surface water from the construction site shall be diverted onto undisturbed areas adjoining the stream. Line unstable stream banks with riprap or otherwise appropriately stabilize them.
3. The structure shall be removed as soon as it is no longer necessary for project construction.
4. Upon removal of the structure, the stream shall immediately be restored to its original crosssection and properly stabilized.

Temporary Bridge Crossing

1. The temporary bridge shall be constructed at or above bank elevation to prevent the entrapment of floating materials and debris.
2. Abutment shall be placed parallel to and on stable banks.
3. Bridges shall be constructed to span the entire channel. If the channel width exceeds eight feet (as measured from the tops of the banks), a footing, pier or bridge support may be constructed within the waterway.
4. Bridges shall be securely anchored at only one end using steel cable or chain. This will prevent channel obstruction in the event that floodwaters float the bridge. Large trees, large boulders, or driven steel anchors can serve as anchors.

Temporary Culvert Crossing

1. The invert elevation of the culvert shall be installed on the natural streambed grade.
2. The culvert(s) shall extend a minimum of one foot beyond the upstream and downstream toe of the aggregate placed around the culvert. In no case shall the culvert exceed 40 feet in length.
3. The culvert(s) shall be covered with a minimum of one foot of aggregate. If multiple culverts are used, they shall be separated by a minimum of 12 inches of compacted aggregate fill.

MAINTENANCE
The structure shall be inspected after every rainfall and at least once a week, whether it has rained or not, and all damages repaired immediately. The structure shall be removed immediately after construction is finished, and the streambed and banks must be stabilized. Refer to specification Bf - Buffer Zone.

STONE CHECK DAMS

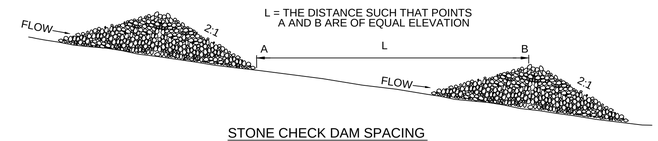
STONE CHECK DAMS SHOULD BE CONSTRUCTED OF GRADED SIZE 2-10 INCH STONE. (SEE FIGURE 6-10.2) MECHANICAL OR HAND PLACEMENT SHALL BE REQUIRED TO ENSURE COMPLETE COVERAGE OF ENTIRE WIDTH OF DITCH OR SWALE AND THAT CENTER OF DAM IS LOWER THE EDGES.

GEOTEXTILES

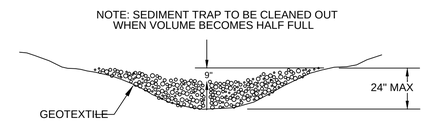
THE GEOTEXTILE SHALL BE SELECTED/SPECIFIED IN ACCORDANCE WITH AASHTO M288-96 SECTION 7.3, SEPARATION REQUIREMENTS, TABLE 3. GEOTEXTILES SHALL BE "SET" INTO THE SUBGRADE SOILS. THE GEOTEXTILE SHALL BE PLACED IMMEDIATELY ADJACENT TO THE SUBGRADE WITHOUT ANY VOIDS AND EXTEND FIVE FEET BEYOND THE DOWNSTREAM OF THE DAM TO PREVENT SCOUR.

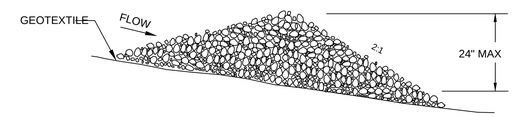
MAINTENANCE

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.



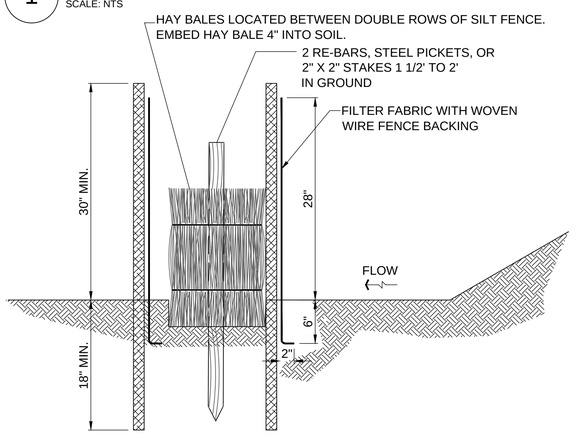
STONE CHECK DAM SPACING



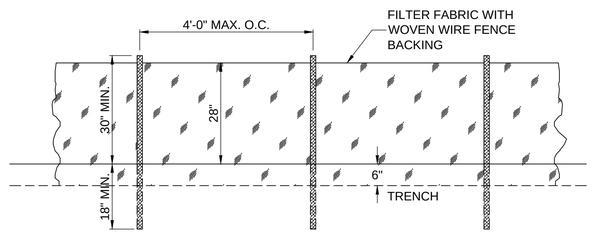


STONE CHECK DAM

1 TEMPORARY STREAM CROSSING (Sr)
SCALE: NTS



ELEVATION VIEW



FRONT VIEW

NOTES:

1. SILT FENCE MATERIAL SHALL MEET GDOT SPECIFICATIONS.

2. SILT FENCE SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT.

FENCE TYPE	C
Tensile Strength (lbs. Min.)(1) (ASTM D-4632)	Warp - 260 Fill - 180
Elongation (% Max.) (ASTM D-4632)	40
AOS (Apparent Opening Size) (Max. Sieve Size)(ASTM D-4751)	#30
Flow Rate (Gal/Min/Sq. Ft.) (GDT-87)	70
Ultraviolet Stability (2) (ASTM D-4632 after 300 hours weathering in accordance with ASTM D-4355)	80
Bursting Strength (PSI Min.) (ASTM D-3786 Diaphragm Bursting Strength Tester)	175
Minimum Fabric Width (Inches)	36

(1) Minimum roll average of five specimens.
(2) Percent of required initial minimum tensile strength.

POST SIZE			
	Minimum Length	Type of Post	Size of Post
Type C	4'	Steel	1.3 lb./ft. min.

2 STONE CHECK DAM (Cd-S)
SCALE: NTS

CONSTRUCTION SPECIFICATIONS

The manufacturer shall have either an approved color mark yarn in the fabric or label the fabricated silt fence with both the manufacturer and fabric name every 100 feet.

The temporary silt fence shall be installed according to this specification, as shown on the plans or as directed by the engineer.

Post installation shall start at the center of the low-point (if applicable) with remaining posts spaced 6 feet apart for Type A and B silt fences and 4 feet apart for Type C silt fence. While Type A and B silt fences can be used with both wood and steel posts, only steel posts shall be used with Type C silt fence. For post size requirements, see the Post Size table. For fastener requirements for wood posts, see the Fasteners for Wood Posts table.

Along steam buffers and other sensitive areas, two rows of Type C silt fence or one row of Type C silt fence backed by haybales shall be used.

MAINTENANCE

Sediment shall be removed once is has accumulated to one-half the original height of the barrier. Filter fabric shall be replaced whenever it has deteriorated to such an extent that the effectiveness of the fabric is reduced (approximately six months). Temporary sediment barriers shall remain in place until disturbed areas have been permanently stabilized. All sediment accumulated at the barrier shall be removed and properly disposed of before the barrier is removed.

3 TYPE 'C' SILT FENCE (Sd1 C)
SCALE: NTS

BID SET

POND
Architects ▪ Engineers ▪ Planners
3500 Parkway Lane
Suite 600
Norcross, Ga. 30092
Phone 678-336-7740
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CITY OF FLOWERY BRANCH
5517 MAIN STREET
P. O. BOX 757
FLOWERY BRANCH, GA 30542

GEORGIA REGISTERED NO. 034223 PROFESSIONAL ENGINEER JAMES A. SWIFT
10-13-14

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

CONSTRUCTION DETAILS

DESIGNED BY	CHECKED BY
TRE	TRE

ISSUED DATE: 10/13/2014

JOB NUMBER: 1130128

DRAWING NUMBER:
C-503

M:\FloweryBranch\1130128 Downtown Storm Drainage Improvements\04.CAD_BIM\04.02.CAD\Spring Street Culvert Replacement\C-503.dwg JordanJ 10/13/14 - 10:56 A

Methods 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 Curasol or Terratack should be used according to manufacturer's recommendations.

Vegetative Cover

See standard Ds2-Disturbed Areas Stabilization (With Temporary Seeding).
Spay-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, snowfences, 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 time their height are effective in controlling wind erosion.
Calcium Chloride. Apply at rate that will keep surface moist. May need re-treatment.

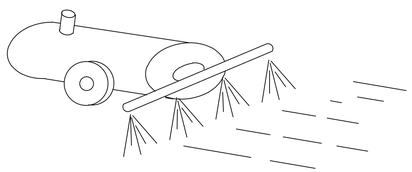
B. PERMANENT METHODS

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



1 DUST CONTROL Du

SCALE: NTS

CONSTRUCTION SPECIFICATIONS

Site Preparation
1. Grade to permit the use of equipment for applying and anchoring mulch.
2. Install needed erosion control measures as required such as dikes, diversions, berms, terraces and sediment barriers.
3. Loosen compact soil to a minimum depth of 3 inches.

Mulching Materials

Select one of the following materials and apply at the depth indicated:
1. Dry straw or hay shall be applied at a depth of 2 to 4 inches providing complete soil coverage. One advantage of this material is easy application.
2. Wood waste (chips, sawdust or bark) shall be applied at a depth of 2 to 3 inches. Organic material from the clearing stage of development should remain on site, be chipped, and applied as mulch. This method of mulching can greatly reduce erosion control costs.
3. Cutback asphalt (slow curing) shall be applied at 1200 gallons per acre (or ¼ gallon per sq. yd.)
4. Polyethylene film shall be secured over banks or stockpiled soil material for temporary protection. This material can be salvaged and re-used.

Applying Mulch

When mulch is used without seeding, mulch shall be applied to provide full coverage of exposed area.
1. Dry straw or hay mulch and wood chips shall be applied uniformly by hand or by mechanical equipment.
2. If the area will eventually be covered with perennial vegetation, 20-30 pounds of nitrogen per acre in addition to the normal amount shall be applied to offset the uptake of nitrogen caused by the decomposition of the organic mulches.
3. Cutback asphalt shall be applied uniformly. Care should be taken in areas of pedestrian traffic due to problems of "tracking in" or damage to shoes, clothing, etc.
4. Apply polyethylene film on exposed areas.

Anchoring Mulch

1. Straw or hay mulch can be pressed into the soil with a disk harrow with the disk set straight or with a special "packer disk". 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 disk should be dull enough not to cut the mulch but to press it into the soil leaving much of it in an erect position. Straw or hay mulch shall be anchored immediately after application.

2 DISTURBED AREA STABILIZATION (WITH MULCHING ONLY) Ds1

SCALE: NTS

FERTILIZER REQUIREMENTS

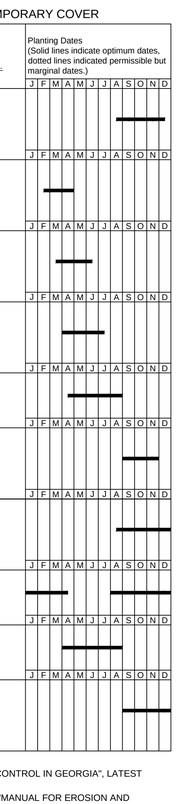
TYPE OF SPECIES	YEAR	ANALYSIS OR EQUIVALENT	RATE	N TOP DRESSING RATE
1. Cool season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs.ac.	50-100 lbs./ac. 1/ 2/ — 30
2. Cool season grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 lbs./ac. 1000 lbs/ac. 400 /bs.ac.	0-50 lbs./ac. 1/ — —
3. Ground covers	First Second Maintenance	10-10-10 10-10-10 10-10-10	1300 lbs.ac 3/ 1300 lbs./ac. 3/ 1100 lbs./ac.	— — —
4. Pine Seedlings	First	20-10-5	one 21-gram pellet per seedling placed in the closing hole	—
5. Shrub Lespedeza	First Maintenance	0-10-10 0-10-10	700 lbs./ac. 700 lbs./ac. 4/	—
6. Temporary cover crops seeded alone	First	10-10-10	500 lbs./ac.	30 lbs./ac. 5/
7. Warm season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 lbs./ac. 800 lbs./ac. 400 lbs./ac.	50-100 lbs./ac. 2/ 6/ 50-100 lbs./ac. 2/ 30 lbs./ac.
8. Warm season grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 lbs./ac. 1000 lbs./ac. 400 /bs./ac.	50 lbs./ac. 6/

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

SEEDING SCHEDULE FOR TEMPORARY COVER

Species	Broadcast Rates - PLS Per Acre	Broadcast Rates - PLS Per 1000 sq. ft.
BARLEY (Hordeum vulgare)		
alone	3 bu. (144 lbs.)	3.3 lb.
in mixtures	½ bu. (24 lbs.)	0.6 lb.
LESPEDEZA, ANNUAL (lezpedeza striata)		
alone	40 lbs.	0.9 lb.
in mixtures	10 lbs.	0.2 lb.
LOVEGRASS, WEEPING (Eragrostis curvula)		
alone	4 lbs.	0.1 lb.
in mixtures	2 lbs.	0.05 lb.
MILLET, BROWNTOP (Pancium fasciculatum)		
alone	40 lbs.	0.9 lb.
in mixtures	10 lbs.	0.2 lb.
MILLET, PEARL (Pennesetum glaucum)		
alone	50 lbs.	1.1 lb.
OATS (Avena sativa)		
alone	4 bu. (128 lbs.)	2.9 lb.
in mixtures	1 bu. (32 lbs.)	0.7 lb.
RYE (Secale cereale)		
alone	3 bu. (168 lbs.)	3.9 lb.
in mixtures	½ bu. (28 lbs.)	0.6 lb.
RYEGRASS, ANNUAL (Lolium temulentum)		
alone	40 lbs.	0.9 lb.
SUDANGRASS (Sorghum sudanese)		
alone	60 lbs.	1.4 lb.
WHEAT (Triticum aestivum)		
alone	3 bu. (180 lbs.)	4.1 lb.
in mixtures	½ bu. (30 lbs.)	0.7 lb.

Planting Dates (Solid lines indicate optimum dates, dotted lines indicated permissible but marginal dates.)



NOTES:
1. REFERENCE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA", LATEST EDITION, FOR CONSTRUCTION SPECIFICATIONS.
2. YOU MAY USE ANY OTHER SPECIES IF APPROVED BY "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA", LATEST EDITION.
3. ALL FERTILIZER RATE AND APPLICATION, SEED QUALITY, SEEDBED PREPERATION, INNOCULANTS, PLANTING, AND MULCHING SHALL COMPLY WITH MANUAL OF EROSION AND SEDIMENT CONTROL IN GEORGIA, LATEST EDITION.
4. DO NOT USE KUDZU ON THIS PROJECT.

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 (1216 LBS./1,000 SQ. FT.) SHALL BE APPLIED. FERTILIZER SHOULD BE APPLIED BEFORE LAND PREPARATION AND INCORPORATED WITH A DISK, RIPPER OR CHISEL.

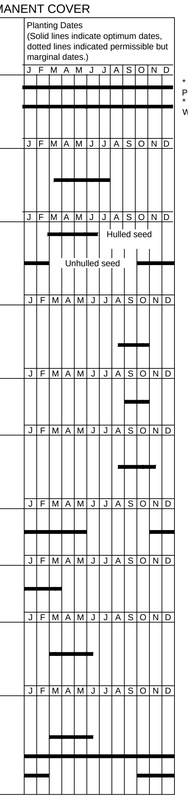
3 DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING) Ds2

SCALE: NTS

SEEDING SCHEDULE FOR PERMANENT COVER

Species	Broadcast Rates - PLS Per Acre	Broadcast Rates - PLS Per 1000 sq. ft.
BAHIA, * (Paspalum notatum)		
alone or w/temporary cover w/other perennials	60 lbs. 30 lbs.	1.4 lb. 0.7 lb.
BERMUDA, SPRIGS (Cynodon dactylon)		
Coastal, Common, or Tift 44	40 cu. ft. or sod plugs 3'x3'	0.9 cu. ft.
BERMUDA, COMMON (Cynodon dactylon)		
alone w/other perrenials	10 lbs. 6 lbs.	0.2 lb. 0.1 lb.
FESCUE, TALL (Festuca arundinacea)		
alone w/other perrenials	50 lbs. 30 lbs.	1.1 lb. 0.7 lb.
CROWNVTECH (Coronilla varia) w/winter annuals or cool season grasses	15 lbs.	0.3 lb.
REED CANARY GRASS (Pharlaris arundinacea)		
alone w/other perrenials	50 lbs. 30 lbs.	1.1 lb. 0.7 lb.
CENTIPEDE (Eremochloa ophiuroides)	Black sod only	
KUDZU (Pueraria thumbergiana)		
plants or crowns	3' - 7' apart	
LOVEGRASS, WEEPING (Eragrostis curvula)		
alone w/other perrenials	4 lbs. 2 lbs.	0.1 lb. 0.05 lb.
LESPEDEZA, SERICEA (Lespedeza cuneata)		
scarified	60 lbs.	1.4 lb.
unscarified	75 lbs.	1.7 lb.
seed-bearing hay	3 tons	138 lb.

Planting Dates (Solid lines indicate optimum dates, dotted lines indicated permissible but marginal dates.)



* BAHIA, PENSACOLA
* BAHIA, WILMINGTON

NOTES:
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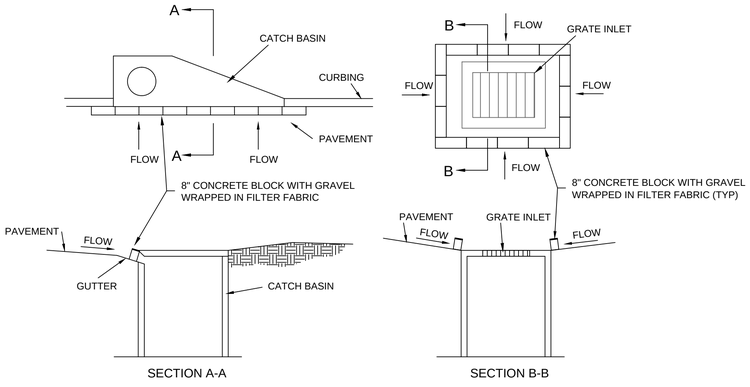
2. YOU MAY USE ANY OTHER SPECIES IF APPROVED BY "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA", LATEST EDITION.
3. FERTILIZER RATES SHALL COMPLY WITH TABLE SHOWN ON THIS SHEET.
4. SEED QUALITY, SEEDBED PREPERATION, INNOCULANTS, PLANTING, AND MULCHING SHALL COMPLY WITH MANUAL OF EROSION AND SEDIMENT CONTROL IN GEORGIA, LATEST EDITION.
5. DO NOT USE KUDZU ON THIS PROJECT.

4 DISTURBED AREA STABILIZATION (WITH PERMANENT SEEDING) Ds3

SCALE: NTS



CONSTRUCTION SPECIFICATIONS

Once pavement has been installed, a curb inlet filter shall be installed on inlets receiving runoff from disturbed areas. This method of inlet protection shall be removed if a safety hazard is created.

One method of curb inlet protection uses "pigs-in-a-blanket" - 8-inch concrete blocks wrapped in filter fabric. Another method uses gravel bags constructed by wrapping DOT #57 stone with filter fabric, wire, plastic mesh, or equivalent material.

A gap of approximately 4 inches shall be left between the inlet filter and the inlet to allow for overflow and prevent hazardous ponding in the roadway. Proper installation and maintenance are crucial due to possible ponding in the roadway, resulting in a hazardous condition.

MAINTENANCE

The trap shall be inspected daily and after each rain and repairs made as needed.

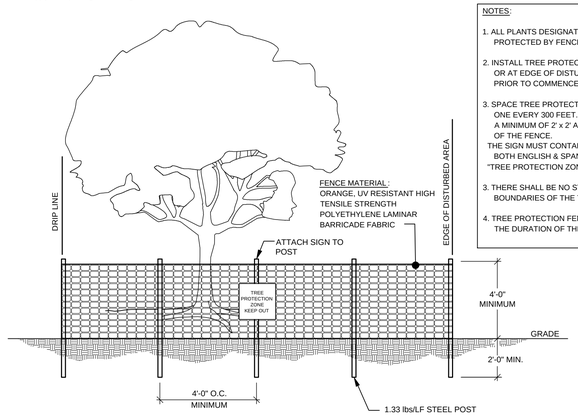
Sediment shall be removed when the sediment has accumulated to one-half the height of the trap. Sediment shall be removed from curb inlet protection immediately. For excavated inlet sediment traps, sediment shall be removed when one-half of the sediment storage capacity has been lost to sediment accumulation. Sod inlet protection shall be maintained as specified in Ds4-Disturbed Area Stabilization (with sodding).

Sediment shall not be washed into the inlet. It shall be removed from the sediment trap and disposed of and stabilized so that it will not enter the inlet, again.

When the contributing drainage area has been permanently stabilized, all materials and any sediment shall be removed, and either salvaged or disposed of properly. The disturbed area shall be brought to proper grade, then smoothed and compacted. Appropriately stabilize all disturbed areas around the inlet.

5 INLET SEDIMENT TRAP PIGS-IN-A-BLANKET Sd2 P

SCALE: NTS



NOTES:

1. ALL PLANTS DESIGNATED TO BE SAVED SHALL BE PROTECTED BY FENCING, AS ILLUSTRATED.

2. INSTALL TREE PROTECTION FENCE AT TREE DRIP LINE OR AT EDGE OF DISTURBED AREA, AS SHOWN ON PLANS, PRIOR TO COMMENCEMENT OF CONSTRUCTION.

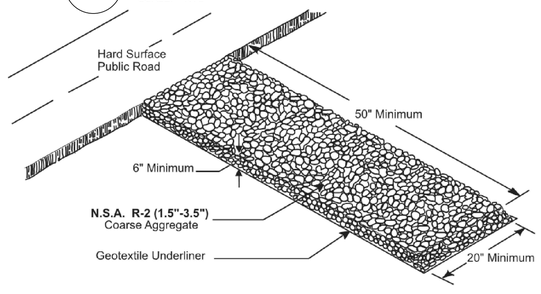
3. SPACE TREE PROTECTION ZONE SIGNS A MINIMUM OF ONE EVERY 300 FEET. THE SIZE OF EACH SIGN MUST BE A MINIMUM OF 2' x 2' AND BE VISIBLE FROM BOTH SIDES OF THE FENCE.
THE SIGN MUST CONTAIN THE FOLLOWING LANGUAGE IN BOTH ENGLISH & SPANISH:
"TREE PROTECTION ZONE, KEEP OUT".

3. THERE SHALL BE NO STORAGE OF MATERIAL WITHIN THE BOUNDARIES OF THE TREE PROTECTION FENCING.

4. TREE PROTECTION FENCING SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT.

6 TREE PROTECTION FENCE

SCALE: NTS



WASHING
IF THE ACTION OF THE VEHICLE TRAVELING OVER THE GRAVEL PAD DOES NOT SUFFICIENTLY REMOVE THE MUD, 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 WITH CRUSHED STONE AND PROVISIONS THAT INTERCEPT THE SEDIMENTLADEN RUNOFF AND DIRECT IT INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. IT IS RECOMMENDED THAT THE ENTRANCE AREA BE EXCAVATED TO DEPTH OF 3 INCHES AND BE CLEARED OF ALL VEGETATION AND ROOTS.

DIVERSION RIDGE
ON SITES WHERE THE GRADE TOWARD THE PAVED AREA IS GREATER THAN 2%, A DIVERSION RIDGE 6 TO 8 INCHES HIGH WITH 3:1 SIDE SLOPES SHALL BE CONSTRUCTED ACROSS THE FOUNDATION APPROXIMATELY 15 FEET ABOVE THE ROAD.

GEOTEXTILE
THE GEOTEXTILE UNDERLINER MUST BE PLACED THE FULL LENGTH AND WIDTH OF THE ENTRANCE. GEOTEXTILE SELECTION SHALL BE BASED ON AASHTO M28898 SPECIFICATION:
1. FOR SUBGRADES WITH A CBR GREATER THAN OR EQUAL TO 3 OR SHEAR STRENGTH GREATER THAN 90 KPA, GEOTEXTILE MUST MEET REQUIREMENTS OF SECTION AASHTO M28896 SECTION 7.3, SEPARATION REQUIREMENTS.
2. FOR SUBGRADES WITH A CBR BETWEEN 1 AND 3 OR SHEER STRENGTH BETWEEN 30 AND 90 KPA, GEOTEXTILE MUST MEET REQUIREMENTS OF SECTION AASHTO M28896 SECTION 7.4, STABILIZATION REQUIREMENTS.

MAINTENANCE
THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSINGS WITH 1.5-3.5 INCH STONE, AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES OR SITE ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

7 CONSTRUCTION EXIT

SCALE: NTS

BID SET

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3500 Parkway Lane
Suite 600
Norcross, Ga. 30092
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Fax 678-336-7744
Web www.pondco.com

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P. O. BOX 757
FLOWERY BRANCH, GA 30542

GEORGIA REGISTERED NO. 034223 PROFESSIONAL ENGINEER JAMES A. SWIFT
10-13-14

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

CONSTRUCTION DETAILS

DESIGNED BY	CHECKED BY
TRE	TRE
ISSUED DATE: 10/13/2014	

JOB NUMBER: 1130128

DRAWING NUMBER:
C-504

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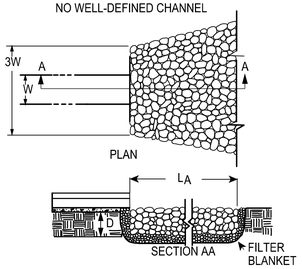
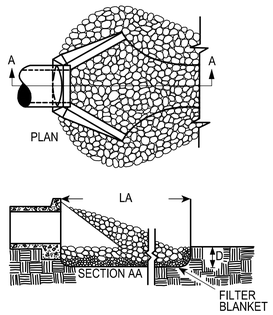
PIPE OUTLET TO FLAT AREA-
NO WELL-DEFINED CHANNEL



PIPE OUTLET TO WELL-DEFINED
CHANNEL



NOTES

1. L $_a$ IS THE LENGTH OF THE RIPRAP APRON.
2. D = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6".
3. IN A WELL-DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OF TO THE TOP OF THE BANK, WHICHEVER IS LESS.
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

OUTLET					APRON LENGTH	APRON WIDTH	RIPRAP SIZE
W (IN.)	QFULL (CFS)	Q25 (CFS)	V25 (FT/S)	TAILWATER	La (FT.)	W (FT.)	d50 (IN.)
18"	1.379	0.330	1.14	< 0.5d	10	11.5	3

1 RIPRAP OUTLET PROTECTION

St

SCALE: NTS

DEFINITION
A PROTECTIVE COVERING (BLANKET) OR SOIL STABILIZATION MAT USED TO ESTABLISH PERMANENT VEGETATION ON STEEP SLOPES, CHANNELS, OR SHORELINES.

PURPOSE
- TO PROVIDE A MICROCLIMATE WHICH PROTECTS YOUNG VEGETATION AND PROMOTES ITS ESTABLISHMENT.
- TO REINFORCE THE TURF TO RESIST FORCES OF EROSION DURING STORM EVENTS.

CONDITIONS
MATTING AND BLANKETS CAN BE APPLIED ON STEEP SLOPES WHERE EROSION HAZARD IS HIGH AND PLANTING IS LIKELY TO BE TOO SLOW IN PROVIDING ADEQUATE PROTECTIVE COVER. CONCENTRATED FLOW AREAS, ALL SLOPES STEEPER THAN 2.5:1 AND WITH A HEIGHT OF TEN FEET OR GREATER, AND CUTS AND FILLS WITHIN STREAM BUFFERS, SHALL BE STABILIZED WITH THE APPROPRIATE EROSION CONTROL MATTING OR BLANKETS. MAINTENANCE OF FINAL VEGETATIVE COVER MUST BE CONSIDERED WHEN CHOOSING BLANKETS VERSES MATTING. ON STREAMBANKS OR TIDAL SHORELINES WHERE MOVING WATER IS PRESENT, MATTING CAN PREVENT NEW PLANTINGS FROM BEING WASHED AWAY.

PLANNING CONSIDERATIONS
CARE MUST BE TAKEN TO CHOOSE THE TYPE OF BLANKET OR MATTING WHICH IS MOST APPROPRIATE FOR THE SPECIFIC NEEDS OF A PROJECT. TWO GENERAL TYPES OF BLANKETS AND MATS ARE DISCUSSED WITHIN THIS SPECIFICATION. DUE TO THE ABUNDANCE OF EROSION CONTROL MATTING AND BLANKET PRODUCTS AVAILABLE, ALL OF THE ADVANTAGES, DISADVANTAGES, AND SPECIFICATIONS OF ALL MANUFACTURED PRODUCTS WILL NOT BE DISCUSSED IN THIS MANUAL. MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS, AS WELL AS A SITE VISIT BY DESIGNER AND PLAN REVIEWER IS HIGHLY RECOMMENDED TO DETERMINE A PRODUCT'S APPROPRIATENESS.

TEMPORARY EROSION CONTROL BLANKETS
THIS INCLUDES TEMPORARY "COMBINATION" BLANKETS (ROLLED EROSION CONTROL BLANKETS-RECB) CONSISTING OF A PLASTIC NETTING WHICH COVERS AND IS INTERTWINED WITH A NATURAL ORGANIC OR MANMADE MULCH; OR, A JUTE MESH WHICH IS TYPICALLY HOMOGENEOUS IN DESIGN AND CAN ACT ALONE AS A SOIL STABILIZATION BLANKET. TEMPORARY BLANKETS AS A MINIMUM SHALL BE USED TO STABILIZE CONCENTRATED FLOW AREAS WITH A VELOCITY LESS THAN 5 FT/SEC AND SLOPES 2.5:1 OR STEEPER WITH A HEIGHT OF 10 FEET OT GREATER. BECAUSE TEMPORARY BLANKETS WILL DETERIORATE IN A SHORT PERIOD OF TIME, THEY PROVIDE NO ENDURING REDUCTION IN EROSION PROTECTION.

BENEFITS OF USING EROSION BLANKETS INCLUDE THE FOLLOWING:

1. PROTECTION OF THE SEED AND SOIL FROM RAINDROP IMPACT AND SUBSEQUENT DISPLACEMENT.
2. THERMAL CONSISTENCY AND MOISTURE RETENTION FOR SEEDBED AREA.
3. STRONGER AND FASTER GERMINATION OF GRASSES AND LEGUMES.
4. PLANING OFF EXCESS STORMWATER RUNOFF.
5. PREVENTION OF SLOUGHING OF TOPSOIL ADDED TO STEEPER SLOPES.

PERMANENT EROSION CONTROL MATTING

CONSISTS OF A PERMANENT NON-DEGRADABLE, THREE-DIMENSIONAL PLASTIC STRUCTURE WHICH CAN BE FILLED WITH SOIL PRIOR TO PLANTING. THESE MATS ARE ALSO KNOWN AS PERMANENT SOIL REINFORCING MATS (TURF REINFORCEMENT MATTING). ROOTS PENETRATE AND BECOME ENTANGLED IN THE MATRIX, FORMING A CONTINUOUS ANCHORAGE FOR SURFACE GROWTH AND PROMOTING ENHANCED ENERGY DISSIPATION. MATTING SHALL BE USED WHEN A VEGETATIVE LINING IS DESIRED IN STORMWATER CONVEYANCE CHANNELS WHERE THE VELOCITY IS BETWEEN FIVE AND TEN FEET PER SECOND.

BENEFITS OF USING EROSION CONTROL MATTING INCLUDE THE FOLLOWING:

1. ALL BENEFITS GAINED FROM USING EROSION CONTROL BLANKETS.
2. CAUSES SOIL TO DROP OUT OF STORMWATER AND FILL MATRIX WITH FINE SOILS WHICH BECOME THE GROWTH MEDIUM FOR THE DEVELOPMENT OF ROOTS.
3. ACTS WITH THE VEGETATIVE ROOT SYSTEM TO FORM AN EROSION RESISTANT COVER WHICH RESISTS HYDRAULIC LIFT AND SHEAR FORCES WHEN EMBEDDED IN THE SOIL WITHIN STORMWATER CHANNELS.

MATERIALS: ALL BLANKET AND MATTING MATERIALS SHALL BE ON THE GEORGIA DEPARTMENT OF TRANSPORTATION QUALIFIED PRODUCTS LIST (QPL # 62 FOR BLANKETS, QPL # 49 FOR MATTING). ALL BLANKETS SHALL BE NONTOXIC TO VEGETATION AND TO THE GERMINATION OF SEED AND SHALL NOT BE INJURIOUS TO THE UNPROTECTED SKIN OF HUMANS. AT A MINIMUM, THE PLASTIC NETTING SHALL BE INTERTWINED WITH THE MULCHING MATERIAL/FIBER TO MAXIMIZE STRENGTH AND PROVIDE FOR EASE OF HANDLING.

TEMPORARY BLANKETS: MACHINE PRODUCED TEMPORARY COMBINATION BLANKETS SHALL HAVE A CONSISTENT THICKNESS WITH THE ORGANIC MATERIAL EVENLY DISTRIBUTED OVER THE ENTIRE BLANKET AREA. ALL COMBINATION BLANKETS SHALL HAVE A MINIMUM WIDTH OF 48 INCHES. MACHINE PRODUCED COMBINATION BLANKETS INCLUDE THE FOLLOWING:

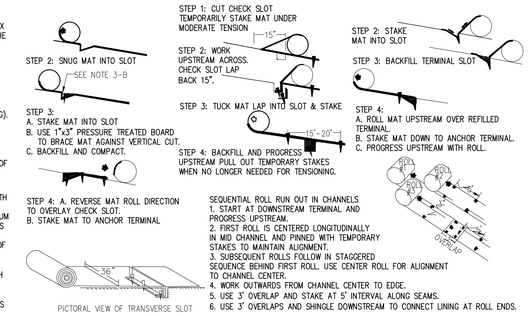
A. STRAW BLANKETS ARE COMBINATION BLANKETS THAT CONSIST OF WEED-FREE STRAW FROM AGRICULTURAL CROPS FORMED INTO A BLANKET. BLANKETS WITH A TOP SIDE OF PHOTODEGRADABLE PLASTIC MESH WITH A MAXIMUM MESH SIZE OF 5/16 X 5/16 INCH AND SEWN TO THE STRAW WITH BIODEGRADABLE THREAD IS APPROPRIATE FOR SLOPES. THE BLANKET SHALL HAVE A MINIMUM THICKNESS OF 3/8 INCH AND MINIMUM DRY WEIGHT OF 0.5 POUNDS PER SQUARE YARD.

B. EXCELSIOR BLANKETS ARE COMBINATION BLANKETS THAT CONSIST OF CURLED WOOD EXCELSIOR (80% OF FIBERS ARE SIX INCHES OR LONGER) FORMED INTO A BLANKET. THE BLANKET SHALL HAVE CLEAR MARKINGS INDICATING THE TOP SIDE OF THE BLANKET AND BE SMOLDER RESISTANT. BLANKETS SHALL HAVE PHOTODEGRADABLE PLASTIC MESH HAVING A MAXIMUM MESH SIZE OF 1 1/2 X 3 INCHES. THE BLANKET SHALL HAVE A MINIMUM THICKNESS OF 1/4 OF AN INCH AND A MINIMUM DRY WEIGHT OF 0.8 POUNDS PER SQUARE YARD. SLOPES REQUIRE EXCELSIOR MATTING WITH THE TOP SIDE OF THE BLANKET COVERED IN THE PLASTIC MESH, AND FOR WATER-WAYS, BOTH SIDES OF THE MESH REQUIRE PLASTIC MESH.

C. COCONUT FIBER BLANKETS ARE COMBINATION BLANKETS THAT CONSIST OF 100% COCONUT FIBER FORMED INTO A BLANKET. THE MINIMUM THICKNESS OF THE BLANKET SHALL BE 1/4 OF AN INCH WITH A MINIMUM WEIGHT OF 0.5 POUNDS PER SQUARE YARD. BLANKETS SHALL HAVE PHOTODEGRADABLE PLASTIC MESH, WITH A MAXIMUM MESH SIZE OF 5/8 X 5/8 INCH AND SEWN TO THE FIBER WITH A BREAKDOWN RESISTANT SYNTHETIC YARN. PLASTIC MESH IS REQUIRED ON BOTH SIDES OF THE BLANKET IF USED IN WATER-WAYS. A MAXIMUM OF TWO INCHES IS ALLOWABLE FOR THE STITCH PATTERN AND ROW SPACING.

D. WOOD FIBER BLANKETS ARE COMBINATION BLANKETS THAT CONSIST OF REPROCESSED WOOD FIBERS THAT DO NOT POSSESS OR CONTAIN ANY GROWTH OR GERMINATION INHIBITING FACTORS. THE BLANKET SHALL HAVE A PHOTODEGRADABLE PLASTIC MESH, WITH A MAXIMUM MESH SIZE OF 5/8 X 3/4 INCH, SECURELY BONDED TO THE TOP OF THE MAT. THE BLANKET SHALL HAVE A MINIMUM DRY WEIGHT OF 0.35 POUNDS PER SQUARE YARD. A MAXIMUM OF TWO INCHES IS ALLOWABLE FOR THE STITCH PATTERN AND ROW SPACING. THIS PRACTICE SHALL BE APPLIED ONLY TO SLOPES.

E. JUTE MESH CAN BE APPLIED TO SLOPES. JUTE MESH WITH A 48 INCH WIDTH SHALL SHOW BETWEEN 76 AND 80 WARPINGS AND A ONE YARD LENGTH SHALL SHOW BETWEEN 39 AND 43 WEFTINGS. THE WOVEN MESH SHALL BE AT LEAST 45 INCHES WIDE. YARN SHALL HAVE A UNIT WEIGHT OF AT LEAST 0.9 POUNDS PER SQUARE YARD, BUT NOT MORE THAN 1.5 POUNDS PER SQUARE YARD.



SEQUENTIAL ROLL RUN OUT IN CHANNELS
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 FIRST ROLL. USE CENTER ROLL FOR ALIGNMENT TO CHANNEL CENTER.
4. WORK OUTWARDS FROM CHANNEL CENTER TO EDGE.
5. USE 3" OVERLAP AND STAKE AT 5' INTERVAL ALONG SEAMS.
6. USE 3" OVERLAPS AND SHINGLE DOWNSTREAM TO CONNECT LINING AT ROLL ENDS.

PERMANENT MATTING: PERMANENT MATTING SHALL CONSIST OF A LOFTY WEB OF MECHANICALLY OR MELT BONDED POLYMER NETTINGS, MONOFILAMENTS OR FIBER WHICH ARE ENTANGLED TO FORM A STRONG AND DIMENSIONALLY STABLE MATRIX. POLYMER WELDING, THERMAL OR POLYMER FUSION, OR THE PLACEMENT OF FIBERS BETWEEN TWO HIGH STRENGTH, BIAXIALLY ORIENTED NETS BOUND SECURELY TOGETHER BY PARALLEL LOOK STITCHING WITH POLYOLEFIN, NYLON OR POLYESTER THREADS ARE ALL APPROPRIATE BONDING METHODS. MATS SHALL MAINTAIN THEIR SHAPE BEFORE, DURING, AND AFTER INSTALLATION, UNDER DRY OR WATER SATURATED CONDITIONS. MATS MUST BE STABILIZED AGAINST ULTRAVIOLET DEGRADATION AND SHALL BE INERT TO CHEMICALS NORMALLY ENCOUNTERED IN A NATURAL SOIL ENVIRONMENT. THE MAT SHALL CONFORM TO THE FOLLOWING PHYSICAL PROPERTIES:

PROPERTY	MINIMUM VALUE
THICKNESS	0.5 INCH
WEIGHT	0.6 PSY
ROLL WIDTH	38 INCHES
TENSILE STRENGTH	
LENGTH (50% ELONGATION)	15 LBS./IN.
LENGTH (ULTIMATE)	20 LBS./IN.
WIDTH (50% ELONGATION)	5 LBS./IN.
WIDTH (ULTIMATE)	10 LBS./IN.
(ASTM D 1682 - 6"STRIP)	
ULTRAVIOLET STABILITY (1000 HRS. IN AN ATLAS ARC WEATHERMETER, ASTM G 23, TYPE D IN ACCORDANCE WITH ASTM D 822)	80%

SITE PREPARATION: AFTER THE SITE HAS BEEN SHAPED AND GRADED TO THE APPROVED DESIGN, PREPARE A FRIABLE SEEDBED RELATIVELY FREE FROM CLODS AND ROCKS MORE THAN ONE INCH IN DIAMETER, AND ANY FOREIGN MATERIAL THAT WILL PREVENT CONTACT OF THE SOIL STABILITATION MAT WITH THE SOIL SURFACE.

SURFACE MUST BE SMOOTH TO ENSURE PROPER CONTACT OF BLANKETS OR MATTING TO THE SOIL SURFACE. IF NECESSARY, REDIRECT ANY RUNOFF FROM THE DITCH OR SLOPE DURING THE FOLLOWING ARE CONSIDERED APPROPRIATE STAPLING AND STAKING MATERIALS. TEMPORARY BLANKETS THIS INCLUDES STRAW, EXCELSIOR, COCONUT FIBER, AND WOOD FIBER BLANKETS. STAPLES SHALL BE USED TO ANCHOR TEMPORARY BLANKETS. U-SHAPED WIRE (11 GAUGE OR GREATER) STAPLES WITH LEGS AT LEAST 6 INCHES IN LENGTH AND A CROWN OF ONE INCH OR APPROPRIATE BIODEGRADABLE STAPLES CAN BE USED. STAPLES SHALL BE OF SUFFICIENT THICKNESS FOR SOIL PENETRATION WITHOUT UNDUE DISTORTION.

PERMANENT MATTING: SOUND WOOD STAKES, 1X3 INCHES STOCK SAWN IN A TRIANGULAR SHAPE, SHALL BE USED. DEPENDING ON THE COMPACTION OF THE SOIL, SELECT STAKES WITH A LENGTH FROM 12 TO 18 INCHES. U-SHAPED STAPLES SHALL BE 11 GAUGE STEEL OR GREATER, WITH LEGS AT A MINIMUM OF 8 INCHES LENGTH WITH A 2 INCH CROWN.

PLANTING: LIME, FERTILIZER, AND SEED SHALL BE APPLIED IN ACCORDANCE WITH SEEDING OR OTHER TYPE OF PLANTING PLAN COMPLETED TO INSTALLATION OF TEMPORARY COMBINATION BLANKETS OR JUTE MESH. FOR PERMANENT MATS, THE AREA MUST BE BROUGHT TO FINAL GRADE, PLOWED, LIMED, AND FERTILIZED. AFTER THE PERMANENT MAT HAS BEEN INSTALLED AND BACKFILLED, THE ENTIRE AREA SHALL BE GRASSED. REFER TO SPECIFICATION 0x3 - DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION).
INSTALLATION: FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR LAYING AND STAPLING.

MAINTENANCE: ALL EROSION CONTROL BLANKETS AND MATTING SHOULD BE INSPECTED PERIODICALLY TO CHECK FOR EROSION AND UNDERMINING. ANY DISLOCATION OR FAILURE SHOULD BE REPAIRED IMMEDIATELY. IF WASHOUTS OR BREAKAGE OCCURS, REINSTALL THE MATERIAL AFTER REPAIRING THE DAMAGE TO THE SLOPE OR DITCH. CONTINUE TO MONITOR THESE AREAS UNTIL THEY BECOME PERMANENTLY STABILIZED.

Mb EROSION CONTROL MATTING & BLANKETS

N.T.S.

2 EROSION CONTROL MATTING BLANKETS

SCALE: NTS

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GEORGIA REGISTERED NO. 034223 PROFESSIONAL ENGINEER JAMES A. SWIFT
10-13-14

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

CONSTRUCTION DETAILS

DESIGNED BY	CHECKED BY
TRE	TRE

ISSUED DATE: 10/13/2014

JOB NUMBER: 1130128

DRAWING NUMBER:

C-505

BID SET

M:\FloweryBranch\1130128 Downtown Storm Drainage Improvements\04.CAD_BIM\04.02.CAD\Spring Street Culvert Replacement\C-505.dwg JordanJ 10/13/14 - 10:56 A

GENERAL STRUCTURAL NOTES:

A. GENERAL:

1. THE CONTRACTOR SHALL REVIEW ALL SUBMITTALS BEFORE THEY ARE PROVIDED TO THE OWNER AND STRUCTURAL ENGINEER. THE CONTRACTOR'S REVIEW SHALL BE DOCUMENTED WITHIN THE SUBMITTAL. THE OWNER AND STRUCTURAL ENGINEER RESERVES THE RIGHT TO REJECT SUBMITTALS THAT HAVE NOT BEEN FIRST REVIEWED BY THE CONTRACTOR. THE ACCURACY AND COMPLETENESS OF THE SUBMITTALS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR, INCLUDING ALL ERRORS AND OMISSIONS. IN ADDITION, THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL MEANS, METHODS, AND SEQUENCING OF CONSTRUCTION.

2. THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL BE EXPERIENCED AND QUALIFIED TO PERFORM THE TYPE OF CONSTRUCTION REQUIRED TO COMPLETE THE WORK PRESCRIBED BY THE CONTRACT DOCUMENTS. THE CONTRACT DOCUMENTS WERE PREPARED AS A COMPLETE SET OF PROJECT DRAWINGS AND SPECIFICATIONS. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE ALL INFORMATION PROVIDED IN THE CIVIL, MECHANICAL, ELECTRICAL, AND LANDSCAPE ARCHITECTURE DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL NOTIFY THE OWNER AND ARCHITECT/ENGINEER IMMEDIATELY OF ANY CONFLICTS, OMISSIONS, OR DISCREPANCIES. THIS COORDINATION SHALL BE PERFORMED BEFORE THE PROCUREMENT OF MATERIALS AND/OR FABRICATION OF ANY PROJECT COMPONENTS.

3. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, CIVIL, MECHANICAL, AND ELECTRICAL DRAWINGS, AND THE SPECIFICATIONS. THE CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF OTHER DISCIPLINES AS TO SLEEVES, CHASES, HANGERS, INSERTS, ANCHORS, HOLES, PENETRATIONS, AND OTHER ADDITIONAL ITEMS TO BE PLACED OR SET IN THE STRUCTURAL WORK.

4. WHERE SECTION IS SHOWN AND DETAILED, OTHER SECTIONS OF SIMILAR CONDITION SHALL BE DETAILED THE SAME OR OPPOSITE HAND, WHETHER SPECIFICALLY NOTED OR NOT.

5. ENGINEER'S APPROVAL MUST BE SECURED FOR ALL SUBSTITUTIONS. SUCH APPROVAL MAY ALSO BE WITHHELD AT THE SOLE DISCRETION OF THE ENGINEER.

6. THE STRUCTURES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE PROVISIONS OF THE INTERNATIONAL (STANDARD) BUILDING CODE, 2012 EDITION (IBC 2012) WITH GEORGIA AMENDMENTS.

7. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL PERMANENT SUPPORTS AND LATERAL BRACING ARE IN PLACE.

8. DESIGN LOADS USED IN THE DESIGN OF THE STRUCTURAL SYSTEMS IN THIS PROJECT ARE AS FOLLOWS:

a. WIND DESIGN CRITERIA:

EXPOSURE CATEGORY	C
BASIC WIND SPEED	115 mph
INTERNAL PRESSURE	±0.18

b. SEISMIC DESIGN CRITERIA:

SPECTRAL RESPONSE ACCELERATION:

S_S (SHORT PERIOD (0.2 SECOND))	=	0.211 g
S_1 (LONG PERIOD (1.0 SECOND))	=	0.095 g
S_{DS}	=	0.169 g
S_{D1}	=	0.108 g
SITE CLASSIFICATION	=	CLASS D
SEISMIC DESIGN CATEGORY		B

7. ALL VERTICAL ELEVATIONS ARE BASED ON THE CONTROL ELEVATION FROM SURVEY BY OTHERS.

B. FOUNDATION:

1. FOUNDATIONS FOR THIS STRUCTURE HAVE BEEN DESIGNED FOR THE FOLLOWING:
   1.1. MINIMUM SOIL BEARING PRESSURE OF 1000 psf.
   1.2. GRANULAR BACKFILL WITH COEFFICIENT OF 0.29, EQUIVALENT FLUID DENSITY OF 35 psf.

2. SOIL BENEATH THE NEW STRUCTURE SHALL BE ENGINEERED BY CONTRACTOR'S DELEGATED GEOTECHNICAL ENGINEER REGISTERED IN STATE OF GEORGIA. CONTRACTOR SHALL PROVIDE SOIL IMPROVEMENT SYSTEM UNDER FOUNDATIONS TO ACHIEVE MINIMUM BEARING PRESSURE OF 1000 psf. IN ADDITION, ANTICIPATED SETTLEMENTS SHALL NOT EXCEED 3" FOR FULL 1000 psf LOADING. EXISTING GEOTECHNICAL REPORT BY S & ME, INC. SHALL BE PROVIDED TO CONTRACTOR FOR REFERENCE. ACCEPTABLE IMPROVEMENT METHODS INCLUDE BY ARE NOT LIMITED TO:
   2.1. REMOVAL OF ALL LOOSE SOILS TO FIRM BEARING AS DETERMINED BY CONTRACTOR'S GEOTECHNICAL ENGINEER AND REPLACEMENT TO DESIGN BEARING ELEVATION WITH LEAN FILL OR CORRECTLY COMPACTED GRANULAR OR LOW PLASTICITY FILL.
   2.2. VIBRO-REPLACEMENT PIER AS DESIGNED BY CONTRACTOR'S DELEGATED ENGINEERS
   2.3. WOOD PILES WITH A CONCRETE MAT. PILE SPACING, MAT THICKNESS AND REINFORCEMENT SHALL ALL BE BY CONTRACTOR'S ENGINEER.

3. CONTRACTOR SHALL PROVIDE GEOTECHNICAL REPORT WITH RECOMMENDED SOIL IMPROVEMENT FOR REVIEW PRIOR TO CONSTRUCTION.

4. PRIOR TO PLACING FOUNDATION CONCRETE, CONTRACTOR SHALL SUBMIT DOCUMENTATION SIGNED AND SEALED BY GEOTECHNICAL ENGINEER, SHOWING THE REQUIREMENTS OF NOTE NOTES B.1 AND B.2 HAVE BEEN MEET. SUBGRADE SOIL IMPROVEMENTS MEETING SPECIFIED REQUIREMENTS SHALL BE PART OF CONTRACTOR'S BASE BID..

5. NO BACKFILLING SHALL BE DONE AGAINST CONCRETE WALLS UNTIL CONCRETE MEETS MINIMUM OF 75% OF REQUIRED 28 DAY STRENGTH AND A MINIMUM OF 7 DAY CURING TIME.

C. CAST-IN-PLACE CONCRETE:

1. CAST-IN-PLACE CONCRETE FOR THIS PROJECT SHALL COMPLY WITH THE AMERICAN CONCRETE INSTITUTE (ACI) "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE AND COMMENTARY" ACI 318-11 AND ACI 318R-11.

2. CONCRETE SHALL HAVE THE FOLLOWING PROPERTIES:

AREA	WEIGHT	STRENGTH AT 28 DAYS	AIR CONTENT	MAX. W/C RATIO
RETAINING WALL FOOTINGS	150 pcf	3000 psi	3% MAX.	0.50
RETAINING WALLS	150 pcf	4000 psi	5% - 7%	0.45

(SEE GDOT STANDARD SPECIFICATION SECTION 500 FOR ADDITIONAL REQUIREMENTS)

3. CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS FOR REVIEW AND APPROVAL BY ENGINEER PRIOR TO PLACING CONCRETE. SUBMITTAL SHALL CONFORM WITH REQUIREMENTS OF GDOT. RESPONSIBILITY OF FOR OBTAINING THE REQUIRED DESIGN STRENGTH IS THE CONTRACTOR'S.

4. AN INTENTIONALLY ROUGHENED SURFACE MAY BE USED INSTEAD OF A CONTINUOUS SHEAR KEY AT ALL HORIZONTAL CONSTRUCTION JOINTS.

5. ALL EXPOSED CONCRETE EDGES SHALL HAVE 3/4" CHAMFER, WHETHER SPECIFICALLY NOTED OR NOT.

6. CONCRETE FORMWORK SHALL COMPLY WITH ACI 347, LATEST EDITION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL FORMWORK. EXPOSED RETAINING WALL SURFACE SHALL HAVE CLASS "A" FORMWORK. SEE ACI 117 FOR TOLERANCES.

7. DURING AND IMMEDIATELY AFTER PLACING, CONCRETE SHALL BE THOROUGHLY COMPACTED BY SPADING OR MECHANICAL VIBRATING TO PROVIDE DENSE CONCRETE FREE OF HONEY COMBING.

8. DIRECTLY AFTER FORMS HAVE BEEN REMOVED, ALL EXPOSED TIE WIRES AND STAPLED ENDS SHALL BE REMOVED FROM CONCRETE SURFACES TO BE EXPOSED. CUT TIES FLUSH WITH FINISHED SURFACES FOR ALL OTHER CONCRETE. RUB SMOOTH OR CUT OFF FINS AND ROUGH PLACES. REMOVE ALL LOOSE CONCRETE AND OTHER IRREGULARITIES. PATCH AND FILL VOIDS WITH BONDING AGENT AS REQUIRED.

9. THE TESTING AGENCY SHALL SAMPLE AND TEST EACH 100 CUBIC YARDS OR FRACTION THEREOF OF EACH CLASS OF CONCRETE PLACED EACH DAY. SAMPLE CONCRETE IN ACCORDANCE WITH ASTM C172. PERFORM THE FOLLOWING TEST IN ACCORDANCE WITH THE INDICATED STANDARD:

SLUMP:	ASTM C143
AIR CONTENT:	ASTM C173
COMPRESSIVE STRENGTH:	ASTM C39, WITH ONE CYLINDER AT 7 DAYS, 2 CYLINDERS AT 28 DAYS, AND ONE SPECIMEN HELD IN RESERVE

D. CONCRETE REINFORCEMENT:

1. REINFORCING STEEL SHALL CONFORM TO ASTM A615 SUPPLEMENT SI, GRADE 60, OF DOMESTIC MANUFACTURER.

2. WELDED WIRE REINFORCEMENT SHALL CONFORM TO ASTM A185. WELDED WIRE REINFORCEMENT SHALL BE SUPPLIED IN FLAT SHEETS ONLY. LAP 9" MINIMUM.

3. REINFORCEMENT SHALL BE FABRICATED TO SHAPES AND DIMENSIONS SHOWN AND SHALL CONFORM TO THE REQUIREMENTS OF CRSI AND ACI 318. REINFORCEMENT SHALL BE COLD BENT UNLESS OTHERWISE AUTHORIZED. BENDING MAY BE ACCOMPLISHED IN THE FIELD OR AT THE MILL. BARS SHALL NOT BE BENT AFTER EMBEDDED IN CONCRETE.

4. REINFORCEMENT SHALL BE FREE FROM LOOSE RUST AND SCALE, DIRT, OIL, OR OTHER DELETERIOUS COATING THAT COULD REDUCE BOND WITH THE CONCRETE.

5. NO SPLICES OF REINFORCEMENT SHALL BE PERMITTED EXCEPT AS DETAILED OR AUTHORIZED. MAKE BARS CONTINUOUS AROUND CORNERS WITH CORNER BARS. WHERE PERMITTED, SPLICES MADE BY CONTACT LAPS SHALL BE CLASS "B" TENSION LAPS.

6. TENSION AND COMPRESSION REINFORCEMENT SPLICES IN CONCRETE SHALL BE MADE AS FOLLOWS:
   #4 BARS - 28"
   #5 BARS - 35"
   #6 BARS - 46"
   #7 BARS - 63"

7. WHERE HOOKS ARE SHOWN, PROVIDE STANDARD 90° HOOKS IN ACCORDANCE WITH CRSI AND ACI 318, UNLESS NOTED OTHERWISE.

8. WHERE REQUIRED, PROVIDE DOWELS TO MATCH SIZE AND SPACING OF VERTICAL REINFORCING FROM FOUNDATION. DOWELS SHALL HAVE STANDARD 90° HOOKS.

9. MINIMUM CAST-IN-PLACE CONCRETE REINFORCING COVER REQUIREMENTS:
   a. CONCRETE CAST AGAINST EARTH: 3"
   b. FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
      WALLS, SLABS:
      #6 BAR AND LARGER 2"
      #5 BAR AND SMALLER 1 1/2"
   c. FORMED CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
      WALLS, SLABS:
      #11 BAR AND SMALLER 3/4"

10. ALL REINFORCING STEEL AND EMBEDDED ITEMS SUCH AS ANCHOR RODS AND WELD PLATES SHALL BE PLACED TO PREVENT DISPLACEMENT BEYOND PERMITTED TOLERANCES.

11. DETAIL BARS IN ACCORDANCE WITH "ACI DETAILING MANUAL-2004," PUBLICATION SP-66, ACI 318, AND ACI 315, OR LATEST EDITIONS.

12. PROVIDE ACCESSORIES NECESSARY TO PROPERLY SUPPORT REINFORCING AT POSITIONS SHOWN ON PLANS.

ABBREVIATION KEY

&	AND	lb	POUNDS
@	AT	L.L.	LIVE LOAD
Ø	DIAMETER	LLH	LONG LEG HORIZONTAL
ARCH	ARCHITECTURAL	LLV	LONG LEG VERTICAL
BLDG	BUILDING	MAX.	MAXIMUM
BM	BEAM	MFR.	MANUFACTURER
BTM	BOTTOM	MIN.	MINIMUM
B.U.	BACK-UP	mph	MILES PER HOUR
CL	CENTER LINE	N/A	NOT APPLICABLE
CIP	CAST-IN-PLACE	NIC	NOT IN CONTRACT
CJ	CONTROL JOINT	N.S.	NEAR SIDE
CLR.	CLEAR	N.T.S.	NOT TO SCALE
CMU	CONCRETE MASONRY UNIT	O/O	OUT TO OUT
COL	COLUMN	O.C.	ON CENTER
CONC	CONCRETE	OPN'G	OPENING
CONST.	CONSTRUCTION	OPP.	OPPOSITE
CONT.	CONTINUOUS	PL	PLATE
DIA.	DIAMETER	PJF	PRE-MOLDED JOINT FILLER
D.L.	DEAD LOAD	PROJ.	PROJECTION
DWG	DRAWING	PTB	POST-TENSION BEAM
DWL	DOWEL	psf	POUNDS PER SQUARE FOOT
E.E.	EACH END	psi	POUNDS PER SQUARE INCH
E.F.	EACH FACE	RCB	REINFORCED CONCRETE BEAM
ELEV.	ELEVATION	REINF.	REINFORCEMENT
E.O.R.	ENGINEER OF RECORD	REQ'D	REQUIRED
E.O.S.	EDGE OF SLAB	SDSTSMS	SELF-DRILLING, SELF-TAPPING SHEET METAL SCREWS
E.S.	EACH SIDE		
E.W.	EACH WAY	S.F.	SQUARE FOOT
EXP.	EXPANSION	SIM.	SIMILAR
EXT.	EXTERIOR	SQ.	SQUARE
FD	FLOOR DRAIN	STD	STANDARD
FDN	FOUNDATION	STL	STEEL
F.P.	FLOOR PENETRATION	SW	SELF-WEIGHT
F.F.	FINISH FLOOR	T&B	TOP AND BOTTOM
F.S.	FAR SIDE	T/	TOP OF
FT	FEET	THRD	THREAD
FTG	FOOTING	TYP.	TYPICAL
HK	HOOK	U.N.O.	UNLESS NOTED OTHERWISE
HORIZ.	HORIZONTAL	VERT.	VERTICAL
H.S.	HEADED STUD	w/	WITH
HT.	HEIGHT	W/C	WATER TO CEMENT
HVY.	HEAVY	WF	WIDE FLANGE
IN	INCH	W.L.	WIND LOAD
INT.	INTERIOR	W.P.	WORKING POINT
K	KIPS	WT.	WEIGHT
ksi	1,000 POUNDS PER SQUARE INCH	WWR	WELDED WIRE REINFORCEMENT

POND
Architects ▪ Engineers ▪ Planners
3500 Parkway Lane
Suite 600
Norcross, Ga. 30092
Phone 678-336-7740
Fax 678-336-7744
Web www.pondco.com

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Flowery Branch
CITY OF FLOWERY BRANCH
5517 MAIN STREET
P. O. BOX 757
FLOWERY BRANCH, GA 30542

GEORGIA REGISTERED PROFESSIONAL ENGINEER MERISSA LEIGH GAMB

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

GENERAL STRUCTURAL NOTES AND ABBREVIATION KEY

DESIGNED BY	CHECKED BY
TLN	MLG

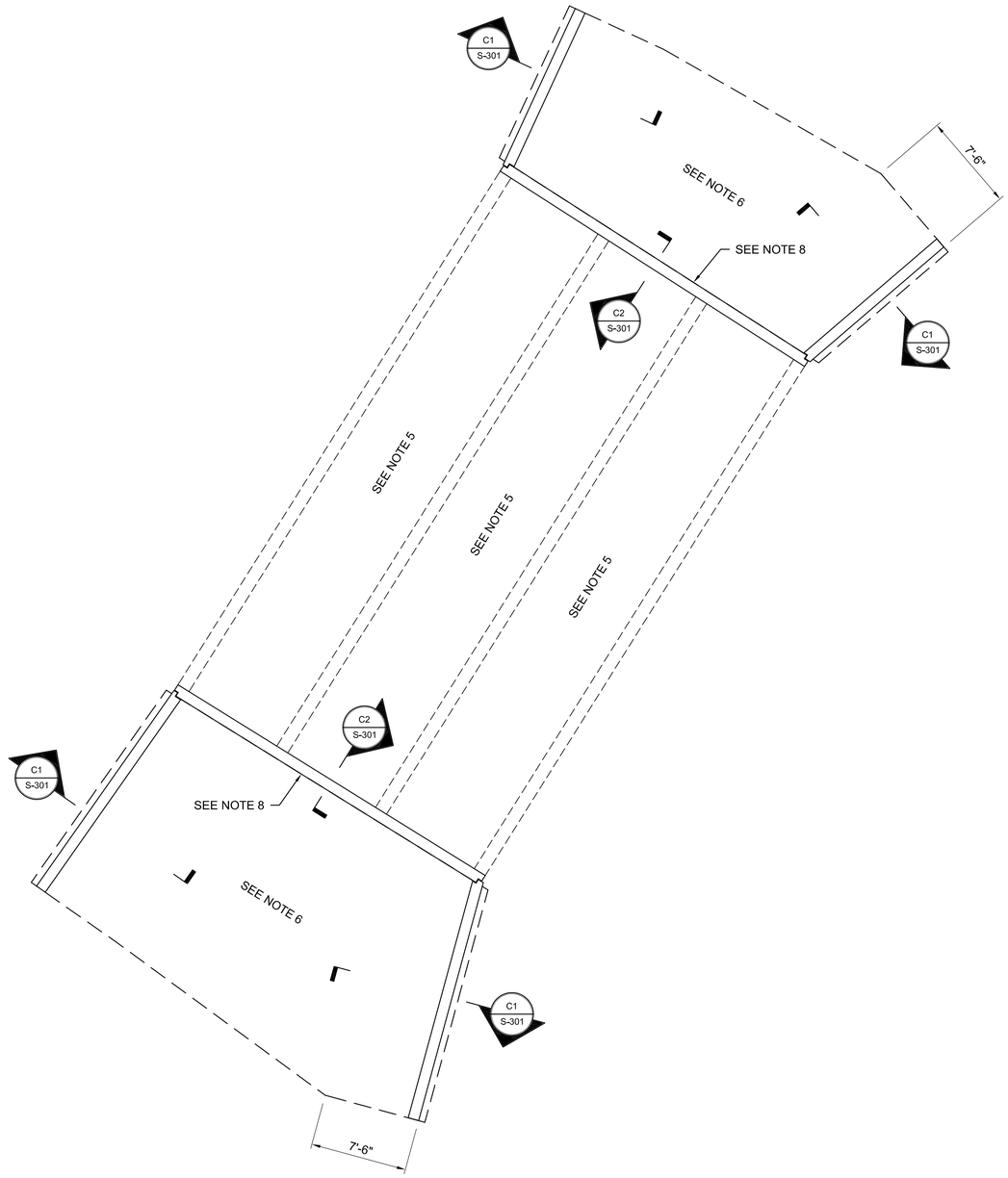
ISSUED DATE: 10/13/2014

JOB NUMBER: 1130128

DRAWING NUMBER:
S-001

BID SET

C:\Users\JohnsonM\appdata\local\temp\AcPublish_5748\S-001.dwg JohnsonM 10/13/14 - 11:23 A



FOUNDATION PLAN

SCALE: 3/16"=1'-0"

N

NOTES:

1. ALL REINFORCING STEEL SHALL BE TIED IN ACCORDANCE WITH THE GEORGIA DOT SPECIFICATIONS. WELDING OF REINFORCING WILL NOT BE PERMITTED.
2. JOINTS IN WALL FORMS SHALL BE SUPPORTED WITH BACKING STRIPS TO PROVIDE A FLUSH SURFACE IN THE FINISHED WALL FACE.
3. WHERE BACKFILL IS REQUIRED, COMPACT TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY. BACKFILL MUST MEET DOT REQUIREMENTS PER 810.2.01 CLASS I OR II.
4. THE DESIGN AND INSTALLATION OF ALL FORMWORK AND SHORING IS THE RESPONSIBILITY OF THE CONTRACTOR. STRUCTURES SHALL BE SHORED UNTIL IN THEIR COMPLETED FINAL POSITION AND ALL CONCRETE HAS CURED.
5. BOX CULVERTS, SEE CIVIL DRAWINGS. CULVERTS SHALL BE DESIGNED TO GEORGIA DOT STANDARDS FOR ALL SUPERIMPOSED LOADS, AND SIGNED AND SEALED BY A REGISTERED ENGINEER. SUBGRADE PREPARATION SHALL BE BY CONTRACTOR'S DELEGATED ENGINEER, SEE GENERAL NOTES AND CIVIL DRAWINGS.
6. 10" THICK CONCRETE MAT REINFORCED WITH #4@12" EACH WAY, TOP AND BOTTOM. PROVIDE ADDITIONAL REINFORCEMENT AS INDICATED ON SECTIONS.
7. SEE CIVIL DRAWINGS FOR ALL DIMENSIONS INCLUDING TOP OF WALL ELEVATIONS.
8. PROVIDE 1/2" EXPANSION JOINT BETWEEN CULVERT AND RETAINING WALL.

4 0 4 8 12

SCALE: 3/16" = 1'-0"

BID SET

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Suite 600
Norcross, Ga. 30092
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Flowery Branch
CITY OF FLOWERY BRANCH
5517 MAIN STREET
P. O. BOX 757
FLOWERY BRANCH, GA 30542

GEORGIA REGISTERED PROFESSIONAL ENGINEER MERISSA LEIGH GAMBLE

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

FOUNDATION PLAN

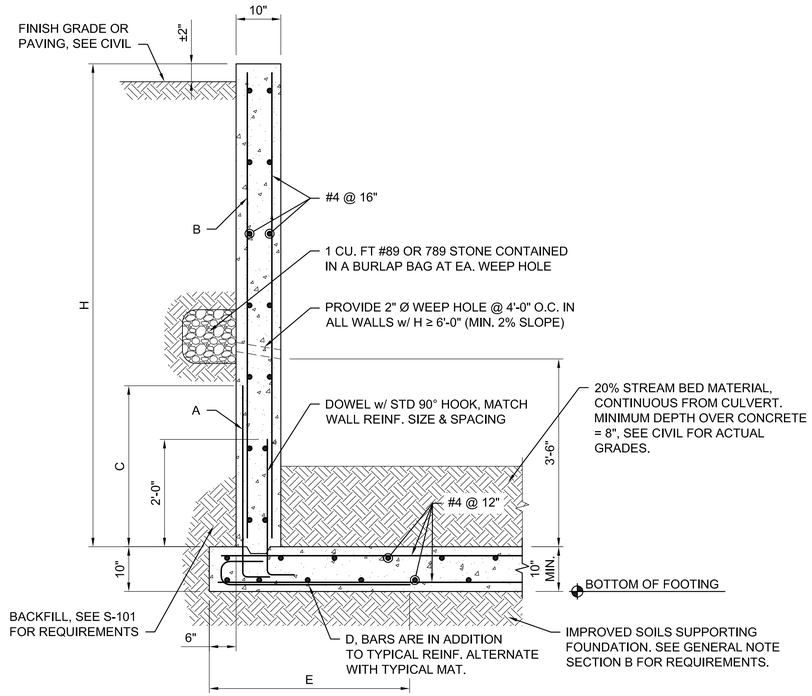
DESIGNED BY	CHECKED BY
TLN	MLG
ISSUED DATE: 10/13/2014	

JOB NUMBER: 1130128

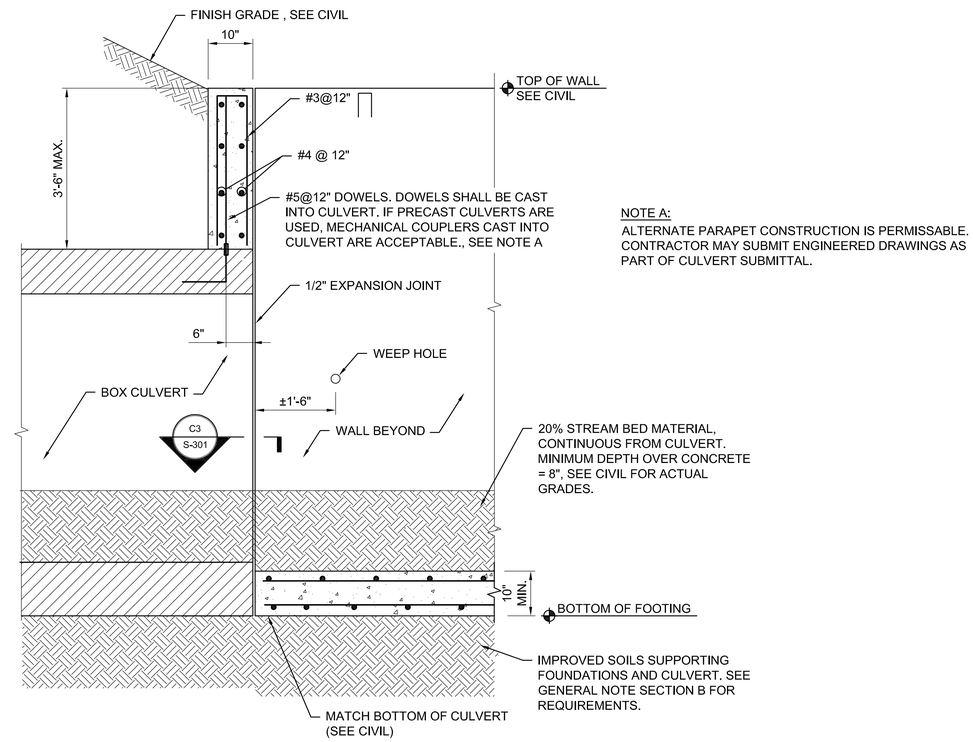
DRAWING NUMBER:

S-101

M:\FloweryBranch\1130128 Downtown Storm Drainage Improvements\04.CAD_BIM\04.02.CAD\Spring Street Culvert Replacement\S-101.dwg JohnsonM 10/13/14 - 11:23 A



C1 RETAINING WALL
SCALE: NTS



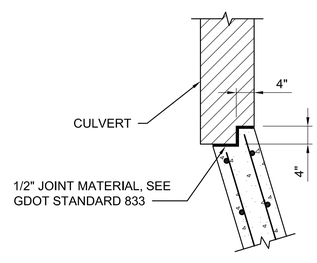
NOTE A:
ALTERNATE PARAPET CONSTRUCTION IS PERMISSABLE. CONTRACTOR MAY SUBMIT ENGINEERED DRAWINGS AS PART OF CULVERT SUBMITTAL.

C2 SECTION
SCALE: NTS

RETAINING WALL SCHEDULE

WALL HEIGHT H	WALL DOWELS A	WALL VERTS B	REINF. LAP LENGTH C	FOOTING REINF. D	REINF. LENGTH E
0'-0" - 6'-0"	#5@12"	#5@12"	35"	#4@12" *	4'-6"
6'-0" - 9'-0"	#6@12"	#5@12"	46"	#4@12" *	4'-6"
9'-0" - 11'-0"	#7@12"	#6@12"	63"	#5@12" *	6'-0"

*PROVIDE 180 DEGREE HOOKS AT EDGE OF MAT.



C3 JOINT DETAIL
SCALE: NTS

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5517 MAIN STREET
P. O. BOX 757
FLOWERY BRANCH, GA 30542

GEORGIA REGISTERED PROFESSIONAL ENGINEER MERISSA LEIGH GAMBLE

MARK	DESCRIPTION	DATE

CONSTRUCTION PLANS FOR
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

GENERAL STRUCTURAL NOTES AND ABBREVIATION KEY

DESIGNED BY	CHECKED BY
TLN	MLG

ISSUED DATE: 10/13/2014

JOB NUMBER: 1130128

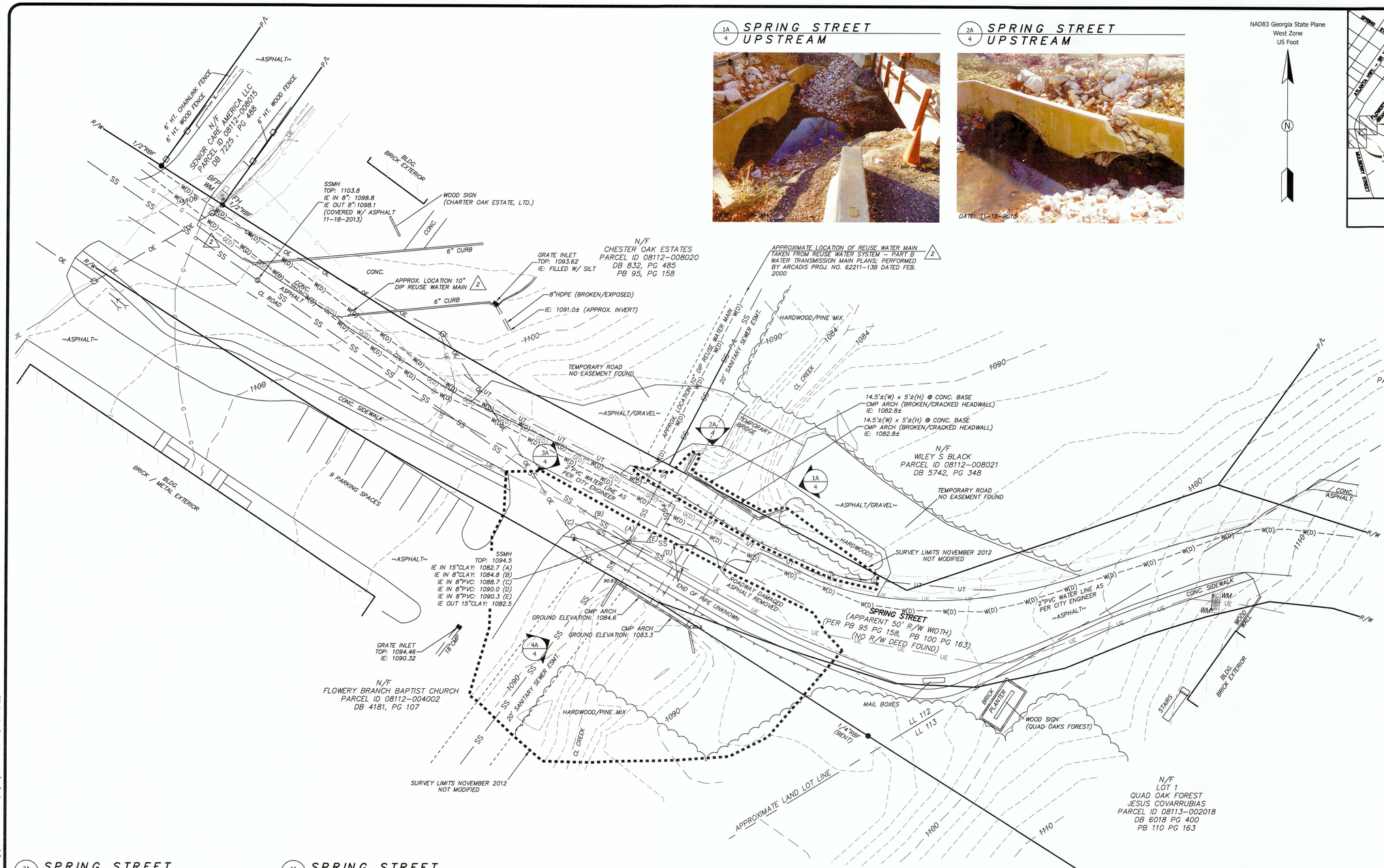
DRAWING NUMBER:
S-301

BID SET

M:\FloweryBranch\1130128 Downtown Storm Drainage Improvements\04.CAD_BIM\04.02.CAD\Spring Street Culvert Replacement\S-301.dwg JohnsonM 10/13/14 - 11:23 A

APPENDIX D

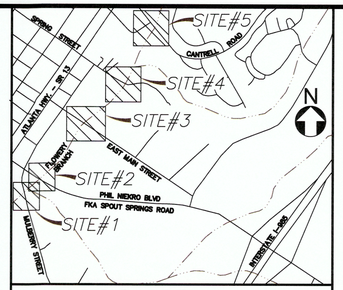
TOPOGRAPHIC SURVEY PREPARED BY MCKIM & CREED



1A/4 SPRING STREET UPSTREAM

2A/4 SPRING STREET UPSTREAM

NAD83 Georgia State Plane
West Zone
US Foot



LOCATION MAP
SCALE: 1" = 1000'

McKIM & CREED
1505 LAKES PARKWAY, SUITE 170
LAWRENCEVILLE, GA. 30043
T: 770-962-4125 - F: 770-962-4126

GEORGIA REGISTERED LAND SURVEYOR No. 03285 PETER JOHN SANCHEZ

TOPOGRAPHIC SURVEY

CITY OF FLOWERY BRANCH
FLOWERY BRANCH CREEK
STORMWATER CULVERT STUDY

LAND LOT 112- 8TH DISTRICT - CITY OF FLOWERY BRANCH - HALL COUNTY, GEORGIA

#	DATE	REVISION DESCRIPTION
1	11-19-2013	ADDITIONAL TOPOGRAPHY AND CREEK AREA
2	03-10-2014	ADDED REUSE WATER MAIN AND LEVEL "D" GAS LINE

PROJECT NAME:

SHEET TITLE:
TOPOGRAPHIC SURVEY

PROJECT NO. 021160007
SHEET NO. 4 of 5
DATE: 12/03/2012
ISSUE No. 1

LEGEND

P/L	PROPERTY LINE
R/W	RIGHT OF WAY LINE
DIR	PIPE DIRECTION
RCP	REINFORCED CONCRETE PIPE
CMP	CORRUGATED METAL PIPE
DIP	DUCTILE IRON PIPE
PVC	POLYVINYL CHLORIDE PIPE
CONC.	CONCRETE
TC	TOP BACK CURB ELEVATION
FL	GUTTER FLOW LINE ELEVATION
IE:	INVERT
BLDG.	BUILDING
DB	DEED BOOK
PB	PLAT BOOK
PG	PAGE
PS	PLAT SLIDE
CL	CENTER LINE
	GUARDRAIL
	CENTER CREEK
SS	SANITARY SEWER LINE
G	UNDERGROUND GAS LINE
UK	UNDERGROUND UNKNOWN UTILITY
UF	UNDERGROUND FIBER OPTIC
OE	OVERHEAD ELECTRIC LINE
UE	UNDERGROUND ELECTRIC LINE
UT	UNDERGROUND TELEPHONE LINE
C	UNDERGROUND CABLE LINE
W	UNDERGROUND WATER LINE
W(D)	UNDERGROUND WATER LINE (LEVEL "D" FROM RECORDS)
G(D)	UNDERGROUND GAS LINE (LEVEL "D" FROM RECORDS)
X	WIRE / CHAINLINK FENCE
	WOOD FENCE
	TREE LINE
	STORM SEWER PIPE
E	ELECTRICAL MANHOLE
E	ELECTRICAL EQUIPMENT
PIV	POST INDICATOR VALVE
WV	WATER VALVE
W	WATER METER
GV	GAS VALVE
G	GAS EQUIPMENT
	FIRE HYDRANT
	FIRE DEPARTMENT CONNECTION
S	SANITARY SEWER MANHOLE
D	STORM SEWER MANHOLE
	GRATE INLET
	SIGN
	LIGHT POLE
	POWER POLE
	GUY WIRE
T	TELEPHONE BOX
	CONCRETE MONUMENT
	REVISION CALL

PHOTO CALLOUT
2 VIEW NUMBER
1 SHEET NUMBER

20' 0 20' 40' 60'
GRAPHIC SCALE
SCALE 1" = 20'

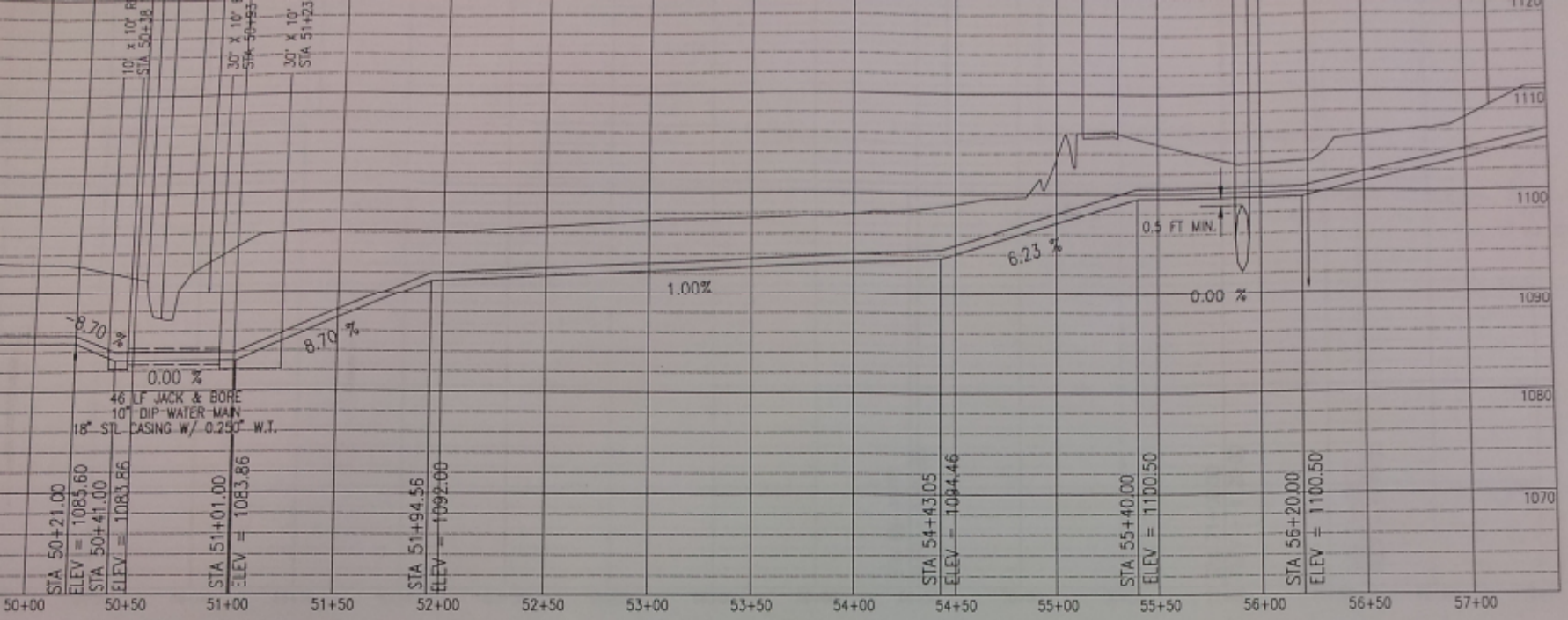
3A/4 SPRING STREET

4A/4 SPRING STREET DOWNSTREAM

NOTES

1. THE LOCATION OF UNDERGROUND UTILITIES SHOWN IS BASED ON A LEVEL B UTILITY SURVEY AND RECORDS PROVIDED BY THE CLIENT. LOCATIONS OF UNDERGROUND UTILITIES/ STRUCTURES MAY VARY FROM LOCATIONS SHOWN HEREON. ADDITIONAL BURIED UTILITIES AND OR STRUCTURES MAY EXIST. THE SURVEYOR MAKES NO CERTIFICATION AS TO THE ACCURACY AND COMPLETENESS OF THE LOCATIONS SHOWN HEREON.
2. DATE OF FIELD SURVEY: NOVEMBER 2012 (REVISED NOVEMBER 2013)
3. THE SURVEY WAS PERFORMED USING A LEICA GPS SMART ROVER, WITH DUAL FREQUENCY RECEIVERS. AND A LEICA TOTAL STATION T403.
4. THE TYPE OF GPS SURVEY THAT WAS PERFORMED: NETWORK ADJUSTED REAL TIME KINEMATIC. (EGPS SOLUTIONS)
5. THE PRECISION OF THE GPS IN RELATIVE POSITIONAL ACCURACY WITHIN 0.07 FEET (OR 20 MM) + 50 PPM, GIVEN AT THE 95 PERCENT CONFIDENCE LEVEL.
6. THE FIELD DATA UPON WHICH THIS MAP OR PLAT IS BASED HAS A CLOSURE PRECISION OF ONE FOOT IN +10,000 FEET, AND AN ANGULAR ERROR OF 02 PER ANGLE POINT, AND WAS ADJUSTED USING COMPASS RULE.
7. HORIZONTAL AND VERTICAL DATUM IS MEAN SEA LEVEL BASED ON NAD 83/94 STATE PLANE COORDINATE SYSTEM (GEORGIA WEST ZONE), US FOOT AND NAVD 88, USING A NETWORK OF REFERENCED STATIONS.
8. CONTOUR INTERVAL IS TWO (2) FOOT.
9. THIS SURVEY IS NOT A BOUNDARY SURVEY. IT IS INTENDED FOR TOPOGRAPHIC, UTILITY AND STRUCTURAL IMPROVEMENT LOCATION ONLY. NO RECORD OF TITLE RESEARCH HAS BEEN PERFORMED.

U:\02116 - Pond\0007 - Flowery Branch\06-Drawings\04-Survey\021160007-TOPO, 3/10/2014 1:03 PM, PSANCHEZ



CADIS GERAGHTY & MILLER

ces Ferry Road
0, Atlanta, GA 30339
/431-8666 Fax: 770/435-2666

Reuse Water System – Part B
Water Transmission Main

OWNER / DEVELOPER:
Hall County Commissioners
Hall County, Georgia

DRAWN B. Martz 2/00	DATE February 2000	PROJECT MANAGER G. Gann 2/00	DEPARTMENT MANAGER J. Dean 2/00
Reuse Water Main Plan & Profile STA 42+20 to 57+40		LEAD DESIGN PROF. B. Martz 2/00	CHECKED G. Gann 2/00
		PROJECT NUMBER 62211-13B	DRAWING NUMBER 6.0

1171.5871	1106.26
1204.0184	1107.67
1245.7269	1094.30
1286.3279	1094.61
1346.9414	1095.47
1196.2541	1104.45
1157.7020	1098.63
1196.2571	1108.00
1267.4752	1106.31
1171.9121	1105.90
1024.3256	1107.46

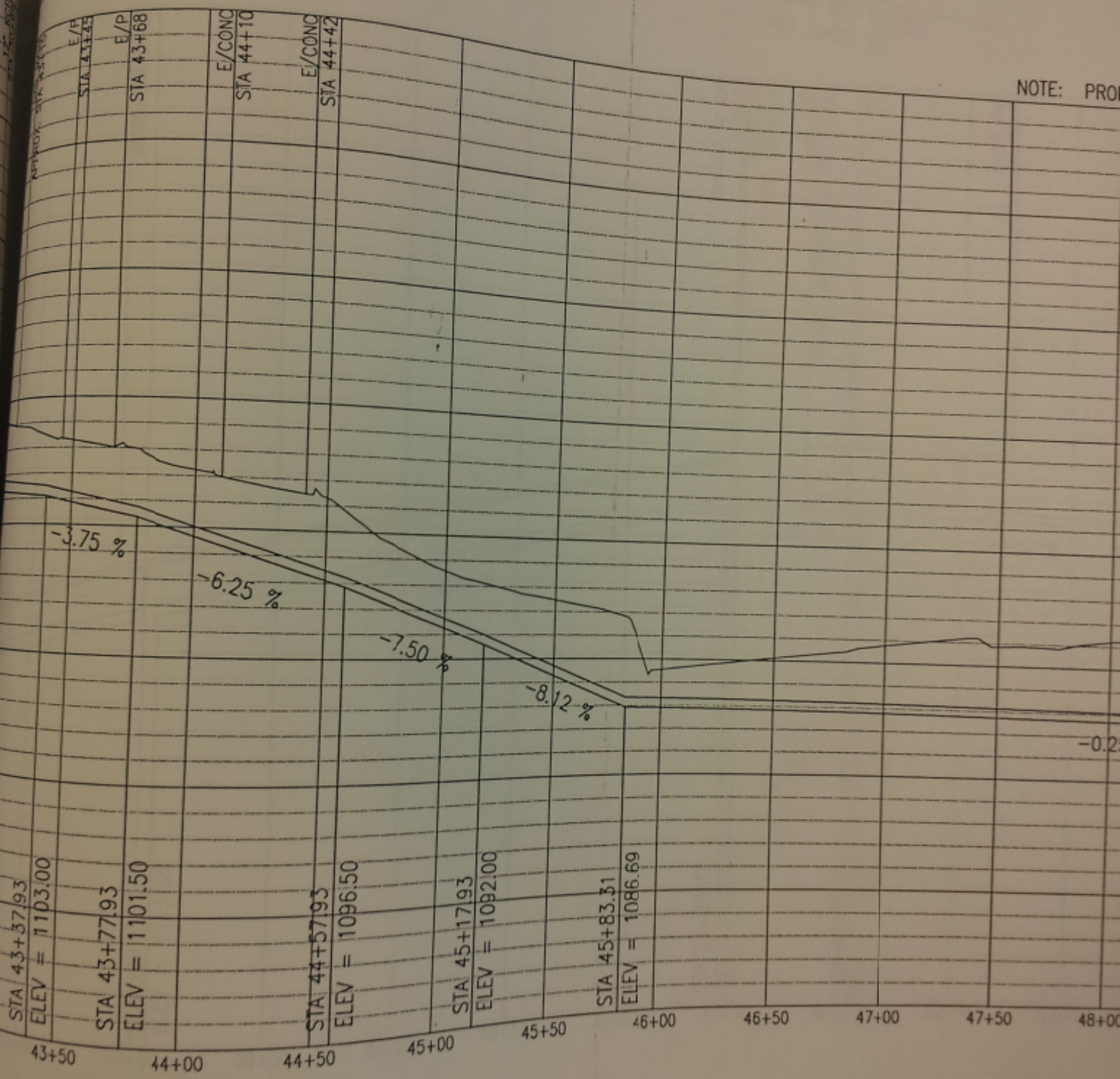
PI 45+83.32
90° BEND, M.J.

TOP OF BANK

78" CMP
INV 1084.54

WILEY
8-1

NOTE: PRO



AST	ELEV
70514.4138	1108.17
70537.6749	1107.29
70555.3673	1106.51
70574.4545	1106.04
0589.6810	1104.64
2370649.1380	1100.22
2370939.1356	1100.99

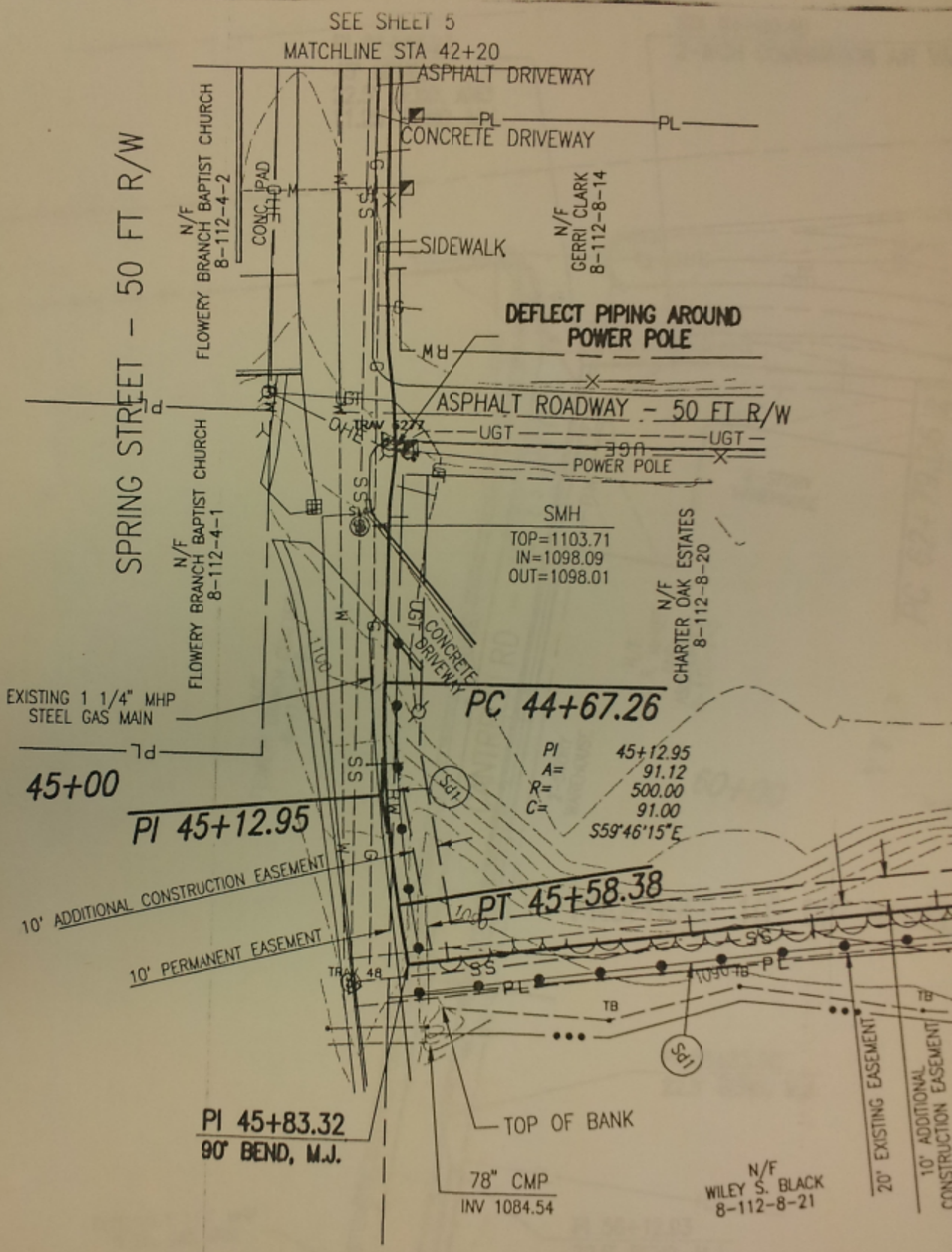
ITION

0727.7622	1094.69
0750.4691	1093.62
370877.3299	1093.28
2371099.2847	

TION

893.9976	1094.00
964.1890	1092.95
076.7628	1096.12
114.7288	1096.16
170.4948	1097.35
190.8361	1097.73
240.1347	1102.55
267.1089	

LEV
06.26
07.67
094.30
094.61
095.47
104.45
098.63
108.00
106.31
105.90
107.46



NOTE: PROFILE ELEVATIONS ARE R

APPENDIX E

BRIDGE FOUNDATION INVESTIGATION REPORT PREPARED BY S&ME

BRIDGE FOUNDATION INVESTIGATION REPORT
SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

S&ME Project No. 1801-13-364

Prepared For:

Pond & Company
3500 Parkway Lane
Suite 600
Norcross, GA 30092

Prepared By:

S&ME, Inc.
11420 Johns Creek Parkway
Duluth, Georgia 30097

January 6, 2014

January 6, 2014

Pond & Company
3500 Parkway Lane
Suite 600
Norcross, GA 30092

Attention: Mr. Andrew Swift

Subject: **Bridge Foundation Investigation Report**
Spring Street Culvert Replacement with Short Span Bridge
Flowery Branch, Georgia
S&ME Project No. 1801-13-364

Dear Mr. Swift:

S&ME, Inc. is pleased to provide this Bridge Foundation Investigation (BFI) Report for the Spring Street culvert replacement project in Flowery Branch, Georgia. Our services were provided in general accordance with our Proposal No. AG1-13-278, dated September 3, 2013, as authorized by you on November 26, 2013.

S&ME, Inc. appreciates the opportunity to provide the geotechnical engineering services for Pond & Company on this project and looks forward to our continued working relationship. If you have any questions regarding the contents of this report or if we may be of assistance in any way, please contact us.

Sincerely,

S&ME, Inc.

Jacob T. David, E.I.T.
Staff Geotechnical Engineer

Richard Mockridge, P.E.
Principal Geotechnical Engineer
Reg. Ga. 12692

JTD/RM/ab

Enclosure

BRIDGE FOUNDATION INVESTIGATION REPORT
FOR

SPRING STREET CULVERT REPLACEMENT
FLOWERY BRANCH, GEORGIA

GENERAL INFORMATION

Location/ Description

This project includes removal of the culvert located along Spring Street over the Flowery Branch Creek in Hall County, Georgia. The culvert will be removed and replaced with a single span bridge.

The existing headwalls of the culvert are severely distressed and broken. The roadway embankment has failed and begun to cave in. A portion of the failed asphalt pavement has been replaced with crushed stone. Signs of settlement are visible along the roadway across the culvert. The culvert is filled above the springline with siltation.

Geologic Formation

This project is geologically located in Georgia's Piedmont physiographic province. Geologic mapping indicates the site is located in a unit of ductilely sheared rocks (Brevard Zone) including button schists, near the contact with the Sandy Springs Group. The Sandy Springs Group unit is comprised of micaceous quartzite, mica schist, and graphitic schist.

Subsurface Features

Boring 1 initially penetrated approximately 3 inches of topsoil and 3 inches of asphalt. Below the surface veneer were 5 ½ ± feet of fill soils comprised of sandy silts with some clay exhibiting standard penetration resistance values of 6 to 8 blows per foot (bpf). Alluvial soils comprised of sandy silts and sands with standard penetration resistance values of 6 to 9 bpf were encountered from depths of 5 ½ feet to 11 feet. Partially weathered rock was penetrated from a depth of 11 to 14 feet before meeting refusal at 14 feet.

Boring 1 was subsequently offset by approximately 7 feet to the northeast, and it penetrated similar soils. Refusal was met at 23 feet after penetrating partially weathered rock from a depth of 14 feet to 23 feet.

Boring 2 initially penetrated approximately 2 feet of asphalt with some soils intermixed. Fill comprised of sandy silts with a trace of clay were penetrated to a depth of about 6 feet. The fill exhibited standard penetration resistance values of 11 bpf. Below the fill was a 5 foot thick layer of alluvium that transitioned from a clayey silt to a silty sand. Standard penetration resistances in the alluvium ranged from 4 to 10 bpf. At 11 feet residual soils consisting of silty sands were penetrated to a depth of 33 feet. The residuum exhibited standard penetration values of 4 to 8 bpf. Partially weathered rock was encountered from 33 to 38 ½ feet. Auger refusal was met at 38½ feet.

At the time of drilling, groundwater was encountered in Boring 1 at 8 ½ feet (approximate elevation 1086 feet), Boring 1A at 6 feet (approximate elevation 1086 feet), and Boring 2 at 8 feet (approximate elevation 1084 feet). After drilling, the borings were immediately backfilled for safety reasons; therefore, delayed groundwater levels were not measured. We note that groundwater levels fluctuate with the nearby creek's water level, and with seasonal and cyclical temperature and precipitation variations. Therefore, groundwater may be at different levels in the future.

The preceding is a generalized description of subsurface conditions. Test Boring Records in the Appendix contain soil descriptions and test results for each exploratory boring.

MAXIMUM PILE DESIGN LOADS

East Bent	Friction = 35% to 45%	HP 10x42 = 55 Tons HP 12x53 = 70 Tons HP 14x73 = 96 Tons HP 14x89 = 101 Tons
	End Bearing = 55% to 65%	
West Bent	Friction = 20% to 30%	HP 10x42 = 45 Tons HP 12x53 = 62 Tons HP 14x73 = 84 Tons
	End Bearing = 70% to 80%	HP 14x89 = 85 Tons

FOUNDATION RECOMMENDATIONS

BENTS	PILE BENT (PILE TYPE)
All Bents	**H-pile**

ELEVATIONS

BENTS	MINIMUM TIP	ESTIMATED TIP
West	**1077**	**1072**
East	**1056**	**1051**

NOTES

Elevations Elevations are based on the City of Flower Branch Flowery Branch Creek Stormwater Culvert Study Topographic Survey (Dated December 30, 2012) provided to us by Pond and Company, Inc.

Pile Driving Driving resistance after Minimum Tip Elevations are achieved.

Objective	Minimum Tip Elevations are based on a minimum 3-foot pile penetration into dense to very dense material.
Waiting Period	None required.
Erosion	We recommend use of 2 feet of Type I riprap and filter fabric to protect the toe of any slopes at the abutments.
Pilot Holes	Pilot holes may need to be set up for H-piles at the West Abutment if the minimum tip elevation is not achieved by driving. Use a maximum pilot hole diameter of 24 inches. Use of pilot holes should be at the direction of the Engineer.
Points	Pile points are recommended for all piles due to the potential of a sloping rock surface and to aid in achieving adequate penetration into dense/very dense soils and partially weathered rock.
Temporary Shoring	We do not expect that shoring will be required on this project.
Obstructions	No subsurface obstructions were encountered at the time of exploration.
Special Problems	Residences are located close to the construction limits of this project. Vibrations caused by construction activities may cause some concern with property owners. We recommend that prior to construction the city evaluate the need for crack surveys and vibration monitoring.

Prepared by Jacob T. David, E.I.T.
Staff Geotechnical Engineer

Reviewed by _____
Richard Mockridge, P.E.
Senior Geotechnical Engineer
Reg. Ga. 12692

APPENDIX

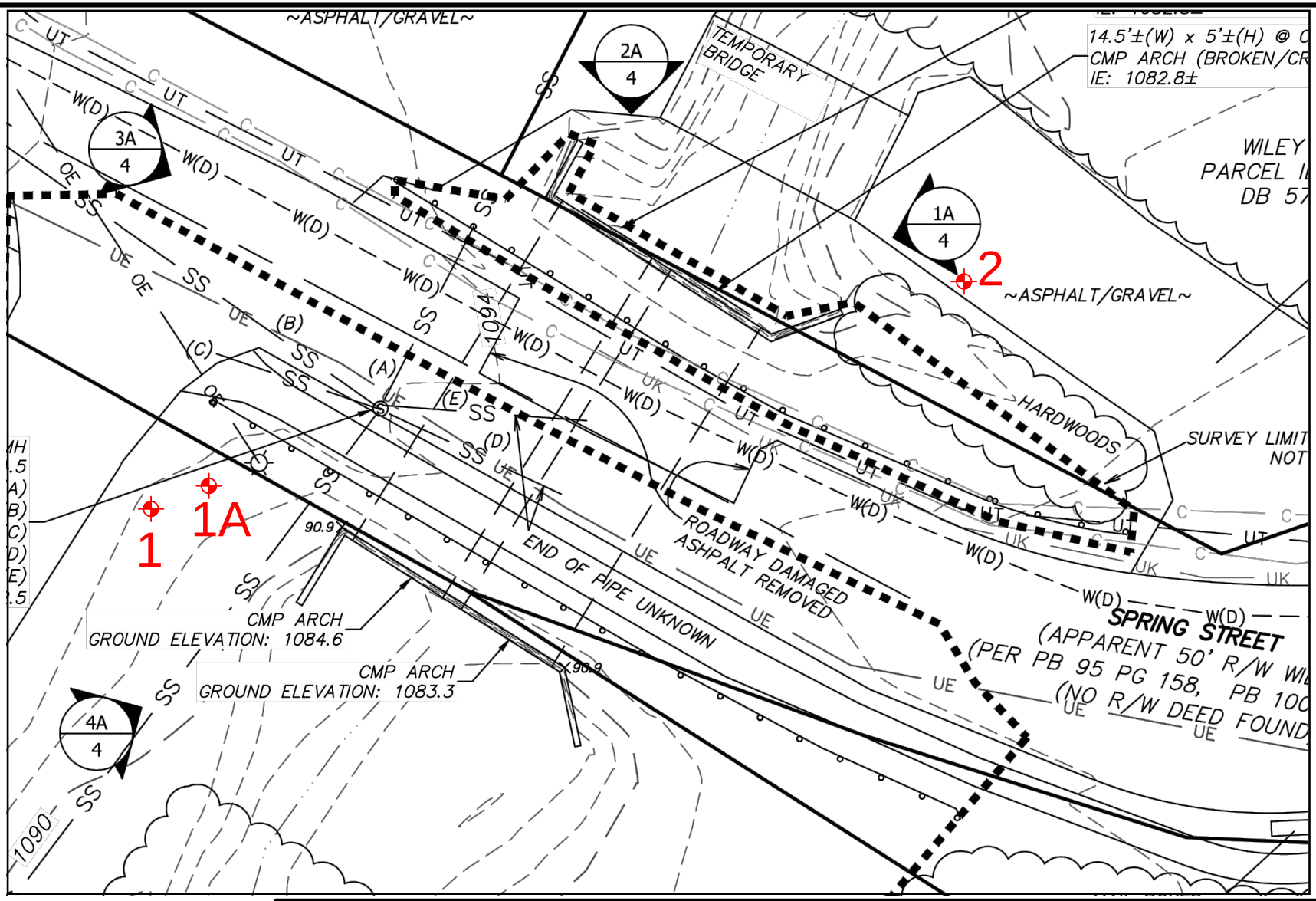
BORING LOCATION PLAN

GEOTECHNICAL EXPLORATION FIELD PROCEDURES

LEGEND TO SOIL CLASSIFICATION & SYMBOLS

TEST BORING RECORDS

LIMITATIONS



PROJECT NO.:	REPORT NO.:	DATE:	VERTICAL SCALE:	HORIZONTAL SCALE:	CAD FILE:	DRAWN BY:	REVIEWED BY:	PLATE NO.:
1801-13-364		12/31/2013	N/A	N/A	Boring.dwg	JTD	RM	1

LEGEND:

- APPROXIMATE SOIL TEST BORING LOCATION

0 20

1"=20'

S&ME

BORING LOCATION PLAN
FLOWERY BRANCH CREEK CULVERT
SPRING STREET
FLOWERY BRANCH, GA

CORRELATION OF STANDARD PENETRATION RESISTANCE WITH RELATIVE COMPACTNESS AND CONSISTENCY

Sand and Gravel

Standard Penetration Resistance Blows/Foot	Relative Compactness
0-4	Very Loose
5-10	Loose
11-30	Medium Dense
31-50	Dense
Over 50	Very Dense

Silt and Clay

Standard Penetration Resistance Blows/Foot	Consistency
0-2	Very Soft
3-4	Soft
5-8	Firm
9-15	Stiff
16-30	Very Stiff
31-50	Hard
Over 50	Very Hard

FIELD PROCEDURES

SOIL TEST BORING, ASTM D-1586

The borings were made with a hollow-stem auger powered by a 125-horsepower drill rig. At regular intervals, soil samples were obtained through the hollow augers with a standard 1.4-inch I.D., 2.0-inch O.D. split-tube sampler.

The sampler was initially seated 6 inches to penetrate any loose cuttings; then driven an additional foot with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final foot was recorded and is designated as the *standard penetration resistance*. Penetration resistance, when properly evaluated, is an index to soil strength and density.

The samples were classified in the field by a geotechnical engineer as they were obtained. Representative portions of each soil sample were then sealed in labeled glass jars and transported to our laboratory. The samples were examined by the project or senior geotechnical engineer to visually check the field classification. Boring data, including sample intervals, penetration resistances, soil descriptions, and groundwater level are shown on the attached Test Boring Records.

LEGEND TO SOIL CLASSIFICATION AND SYMBOLS

SOIL TYPES

(Shown in Graphic Log)

- Fill
- Asphalt
- Concrete
- Topsoil
- Gravel
- Sand
- Silt
- Clay
- Sandstone
- Silty Sand
- Interbedded Sandstone/Shale
- Shale
- Clayey Silt
- Sandy Clay
- Silty Clay
- Partially Weathered Rock
- Mine Spoil

WATER LEVELS

(Shown in Water Level Column)

▽ = Water Level At Termination of Boring
▼ = Water Level Taken After 24 Hours
◄ = Loss of Drilling Water
HC = Hole Cave

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	STD. PENETRATION RESISTANCE BLOWS/FOOT
Very Soft	0 to 2
Soft	3 to 4
Firm	5 to 8
Stiff	9 to 15
Very Stiff	16 to 30
Hard	31 to 50
Very Hard	Over 50

RELATIVE DENSITY OF COHESIONLESS SOILS

RELATIVE DENSITY	STD. PENETRATION RESISTANCE BLOWS/FOOT
Very Loose	0 to 4
Loose	5 to 10
Medium Dense	11 to 30
Dense	31 to 50
Very Dense	Over 50

SAMPLER TYPES

(Shown in Samples Column)

- Shelby Tube
- Split Spoon
- Rock Core
- No Recovery

TERMS

Standard Penetration Resistance - The Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in. I.D. Split Spoon Sampler 1 Foot. As Specified in ASTM D-1586.

REC - Total Length of Rock Recovered in the Core Barrel Divided by the Total Length of the Core Run Times 100%.

RQD - Total Length of Sound Rock Segments Recovered that are Longer Than or Equal to 4" (mechanical breaks excluded) Divided by the Total Length of the Core Run Times 100%.

S&ME
ENGINEERING • TESTING
ENVIRONMENTAL SERVICES

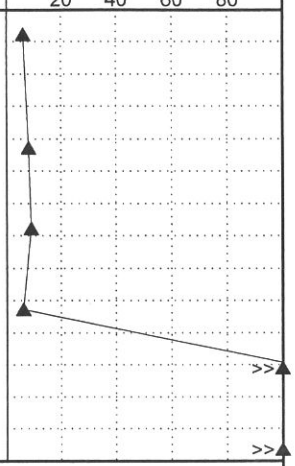
BORING NUMBER 1

S&ME, Inc.

CLIENT Pond & Company
PROJECT NAME Flowery Branch Culvert Replacement
PROJECT NUMBER 1801-13-364
PROJECT LOCATION Spring Street
DATE STARTED 12/17/13 **COMPLETED** 12/17/13
DRILLING CONTRACTOR Sunrise Drilling Company
GROUND ELEVATION 1094 ft **HOLE SIZE** 6 inches
DRILLING METHOD CME 45, Rope and Cathead
GROUND WATER LEVELS:
LOGGED BY Jacob David **CHECKED BY** Rich Mockridge
∇ **AT TIME OF DRILLING** 8.50 ft / Elev 1085.50 ft
NOTES West abutment.
24hrs AFTER DRILLING Not checked

DEPTH (ft)	ELEV. (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0	1094.0		TOPSOIL	SS 1		3-3-3 (6)		
			ASPHALT					
			SANDY SILT, tan and brown, firm, with some clay, FILL					
	1091.0		SANDY SILT, red - brown and tan, firm, with mica, FILL	SS 2		3-4-4 (8)		
5	1088.5		SANDY SILT, dark brown, stiff, with clay, POSSIBLE ALLUVIUM, (moist)	SS 3		4-4-5 (9)		
	1086.0		∇ SAND, tan and gray, fine to coarse grained, loose, ALLUVIUM, (wet)	SS 4		2-2-4 (6)		
10	1083.0		SANDY SILT, multi-colored, very hard, micaceous, PARTIALLY WEATHERED ROCK	SS 5		50/2"		
				SS 6		50/3"		

▲ SPT N VALUE ▲ 20 40 60 80
PL MC LL 20 40 60 80
☐ FINES CONTENT (%) ☐ 20 40 60 80



Refusal at 14.0 feet.
Bottom of borehole at 14.0 feet.

BORING LOG PLOTS - GINT STD US LAB.GDT - 1/3/14 15:24 - S:\ADMIN\LISA\EGINTW\PROJECTS\1801-13-364 FLOWERY BRANCH CULVERT - BORING LOGS.GPJ

BORING NUMBER 1A

S&ME, Inc.

CLIENT Pond & Company
PROJECT NAME Flowery Branch Culvert Replacement
PROJECT NUMBER 1801-13-364
PROJECT LOCATION Spring Street
DATE STARTED 12/17/13 **COMPLETED** 12/17/13
DRILLING CONTRACTOR Sunrise Drilling Company
GROUND ELEVATION 1092 ft **HOLE SIZE** 6 inches
DRILLING METHOD CME 45, Rope and Cathead
GROUND WATER LEVELS:
LOGGED BY Jacob David **CHECKED BY** Rich Mockridge
AT TIME OF DRILLING 6.00 ft / Elev 1086.00 ft
NOTES Offset 7 ft northeast from Boring 1. (West abutment).
24hrs AFTER DRILLING Not checked

DEPTH (ft)	ELEV. (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
0	1092.0								
5			▽						
10									
	1078.5		SILTY SAND, medium to coarse grained, soft, ALLUVIUM, (wet)	SS 1		2-50/3"			>>▲
15	1077.0		SANDY SILT, multi-colored, PARTIALLY WEATHERED ROCK, (moist)						
				SS 2		50/1"			>>▲
20									

Refusal at 23.0 feet.
Bottom of borehole at 23.0 feet.

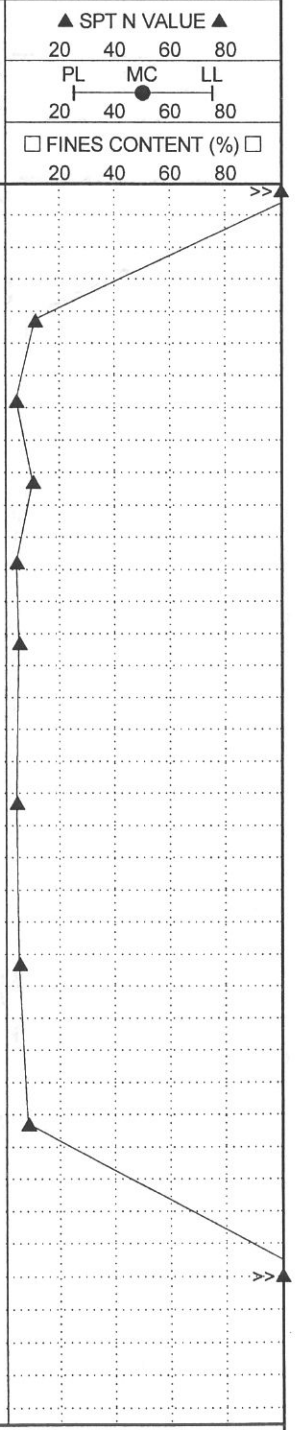
BORING LOG PLOTS - GINT STD US LAB.GDT - 1/3/14 15:24 - S:\ADMIN\LISA\GINTW\PROJECTS\1801-13-364 FLOWERY BRANCH CULVERT - BORING LOGS.GPJ

BORING NUMBER 2

S&ME, Inc.

CLIENT Pond & Company
PROJECT NAME Flowery Branch Culvert Replacement
PROJECT NUMBER 1801-13-364
PROJECT LOCATION Spring Street
DATE STARTED 12/17/13 **COMPLETED** 12/17/13
DRILLING CONTRACTOR Sunrise Drilling Company
GROUND ELEVATION 1092 ft **HOLE SIZE** 6 inches
DRILLING METHOD CME 45, Rope and Cathead
GROUND WATER LEVELS:
LOGGED BY Jacob David **CHECKED BY** Rich Mockridge
∇ **AT TIME OF DRILLING** 8.00 ft / Elev 1084.00 ft
NOTES East abutment.
24hrs AFTER DRILLING Not encountered

DEPTH (ft)	ELEV. (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0	1092.0	ASPHALT (with soil mix)	SS 1		50/6"		
	1090.0	SANDY SILT, tan and greenish brown, soft to firm, with a trace of clay, FILL					
5			SS 2		7-6-5 (11)		
	1086.0	CLAYEY SILT, brown, soft, POSSIBLE ALLUVIUM, (moist)	SS 3		2-2-2 (4)		
	1084.0	SILTY SAND, gray - brown and tan, fine to coarse grained, loose, with a trace of organics, ALLUVIUM, (wet)	SS 4		5-5-5 (10)		
10	1081.0	SANDY SILT, brown and tan, fine to medium grained, soft to firm, with a trace of mica, RESIDUUM, (moist)	SS 5		1-2-2 (4)		
15			SS 6		2-2-3 (5)		
20			SS 7		2-2-2 (4)		
	1069.0	SILTY SAND, multi-colored, fine to medium grained, very loose to loose, (wet)	SS 8		2-2-3 (5)		
25	1066.0	SILTY SAND, white and tan, fine grained, loose, (wet)					
30			SS 9		4-4-4 (8)		
35	1059.0	SILTY SAND, white and tan, fine to medium grained, very dense, PARTIALLY WEATHERED ROCK, (moist)	SS 10		20-50/4"		



Refusal at 38.5 feet.
Bottom of borehole at 38.5 feet.

BORING LOG PLOTS - GINT STD US LAB.GDT - 1/3/14 15:25 - S:\ADMIN\LISA\EGINTW\PROJECTS\1801-13-364 FLOWERY BRANCH CULVERT - BORING LOGS.GPJ

LIMITATIONS OF CONCLUSIONS AND RECOMMENDATIONS

This report has been prepared for the exclusive use of Pond and Company for specific application to the project previously discussed. Our conclusions and recommendations have been rendered using generally accepted standards of geotechnical engineering practice in the State of Georgia. No other warranty is expressed or implied. This company is not responsible for the conclusions, opinions, or recommendations of others based on these data.

Our conclusions and recommendations are based on the design information furnished to us, the data obtained from the previously described subsurface exploration, and our past experience. They do not reflect variations in the subsurface conditions which are likely to exist intermediate of our borings and in unexplored areas of the site due to the inherent variability of the subsurface conditions in this geologic region as well as past alluvial deposit and existing roadway/bridge construction. Should such variations become apparent during construction, it will be necessary to re-evaluate our conclusions and recommendations based upon on-site observation of the conditions.

If changes are made in the plans, the recommendations presented in this report must not be considered valid unless the changes are reviewed by our firm and our recommendations modified or verified in writing. We should be given the opportunity to review the foundation plan, grading plan, and applicable portions of the project specifications when the design is finalized. This review will allow us to check whether these documents are consistent with the intent of our recommendations.

APPENDIX F

COURTESY LETTER TO USACE FOR NATIONWIDE COVERAGE PREPARED BY CORBLU, INC.

corblu
ECOLOGY GROUP

March 14, 2014

Ms. Kathrine M. Freas
U.S. Army Corps of Engineers, Savannah District
Regulatory Division, Piedmont Branch
Buford Dam Field Office
P.O. Box 528
Buford, GA 30515

VIA E-MAIL

Subject: **Courtesy Letter**
Spring Street Culvert Replacement
Flowery Branch, Georgia
Project No. 02-080613

Dear Ms. Freas:

On behalf of our client, The City of Flowery Branch, Corblu Ecology Group, LLC (CEG) in conjunction with Pond & Company (Pond) is submitting this courtesy letter prior to replacement of an existing culvert on the Spring Street crossing of *Flowery Branch* (stream) in the downtown area of the city. In our opinion, the proposed work is consistent with Nationwide Permit (NWP) 3 for maintenance, repair, or rehabilitation of a currently serviceable structure, and is beneath Pre-Construction Notification (PCN) thresholds. However, the applicant wishes to advise the U.S. Army Corps of Engineers (USACE) of the pending work in case questions arise from citizen inquiry after the work commences. Below we provide a brief overview of the project history, proposed plan, and permit compliance for your informational purposes.

The Spring Street culvert on Flowery Branch is located just east of Atlanta Highway (GA HWY 13) at 34 deg. 11 min. 6 sec. N.; 83 deg. 55 min 16 sec. W. The existing crossing consists of twin 14.5 by 5.0-foot corrugated metal arched pipes (CMP) with concrete headwalls. This structure was heavily damaged and partially collapsed during localized flooding in May 2013 (Pond Site Plans attached, with photographs). The proposed repair effort consists of demolition and removal of the culvert system (CMP's, headwalls, earthen material, roadway pavement

770-591-9990
3225 South Cherokee Lane, Bldg. 800, Woodstock, GA 30188
corblu.com

section) and replacement with a clear span bridge. The post-repair condition will include little to no regulated fill with jurisdictional waters, which are limited to the stream channel below the ordinary high water mark (OHWM). Regulated activities during the course of the work may include some minor grading in the immediate vicinity of the crossing to reshape the stream banks following removal of the culvert debris and earthen fill. Following installation of the clear span bridge, the stream banks and channel bed immediately below the bridge may be riprapped to prevent future scouring in the shaded (thus, non-vegetated) area underneath the span.

The proposed work will result in less than 100 linear feet of stream impact and 0.1 acre of waters impact. The area does not support federally threatened or endangered species, nor will it impact any known or suspected cultural resources. Based on this assessment, our review of other federal and regional conditions, and our meeting with you, CEG and Pond believe the proposed activity can proceed without submittal of a formal PCN to the USACE. Finally, we will be submitting the Non-Notifying NWP Form to the Georgia Environmental Protection Division as a part of our services.

In summary, we are providing this courtesy letter to the USACE to avoid unnecessary confusion once the activity proceeds in the near future. On behalf of the City of Flowery Branch, we have appreciated the North Area Field Office's willingness to meet with us on several occasions. If you have any questions regarding this report or project, please contact the undersigned at (770) 591-9990.

Sincerely,

CORBLU ECOLOGY GROUP, LLC

John T. Vermont, PWS, CE
Senior Principal

Attachments: Construction Plans for Spring Street Culvert Replacement (Pond & Co., 01/30/2014)

c: Mr. Andrew Swift, P.E., Pond & Company – via e-mail

Swift, Andrew

From: Freas, Kathrine M SAS <Kathrine.M.Freas@usace.army.mil>
Sent: Wednesday, April 02, 2014 11:30 AM
To: John Vermont
Cc: Swift, Andrew
Subject: RE: Courtesy Letter for Spring Street Culvert Replacement (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Mr. Vermont,

I am in receipt of a letter dated March 14, 2014, by which you make this office aware that the City of Flowery Branch intends to perform work on the Spring Street culvert. It is your belief that the project, as proposed, would qualify for use of NWP 3 for maintenance, repair, or rehabilitation of a currently serviceable structure. Due to the minimal impacts associated with the proposed work, it is also your belief that the project does not require an official pre-construction notification (PCN) package be submitted to this office. As you know, my office cannot make an official, final decision regarding a project's qualification for a NWP without a complete PCN submittal. Based on my review of the letter and information submitted on March 14, 2014, as well as on our meeting and discussion on February 28, 2014, I am inclined to agree that this project, as proposed, would likely qualify for a NWP 3. However, if the proposal were to change, or if the information I've reviewed to date was not correct or accurate, the project may not qualify; in order to obtain a final and official decision, you would need to submit a completed PCN package. If I can be of further assistance, please feel free to contact me.

Sincerely,

Katie Freas
US Army Corps of Engineers
Project Manager, Piedmont Branch

1025 Buford Dam Road, Buford, Georgia 30518 (Physical) Post Office Box 528, Buford, Georgia 30515 (Mailing) Phone (678) 804-5226 Fax (770) 904-2342

Thank you in advance for completing our Customer Survey Form. This can be accomplished by visiting our website at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0, and completing the survey online. We value your comments and appreciate your taking time to complete a survey each time you interact with our office.

Please see our Avatar website for additional information concerning the Savannah District's Regulatory Program: http://www.sas.usace.army.mil/Missions/Regulatory.aspx

Classification: UNCLASSIFIED
Caveats: NONE

APPENDIX G

DRAFT CONTRACT AGREEMENT
PERFORMANCE BOND
PAYMENT BOND

AGREEMENT BETWEEN OWNER AND CONTRACTOR

THIS AGREEMENT, made this _____ day of _____, 2014, by and between the City of Flowery Branch, Georgia, hereinafter called "Owner," and _____, hereinafter called "Contractor."

NOW THEREFORE, the Owner and Contractor agree as follows:

ARTICLE 1 - CONTRACT DOCUMENTS

The Contract Documents between the Owner and the Contractor concerning the Work consist of the following:

a. This agreement;

b. Request for Proposal prepared by Pond & Company;

c. Bid form(s);

d. Drawings, plans and specifications prepared by Pond & Company;

e. Addenda issued prior to the execution of this agreement; and,

f. Modifications as may be agreed upon in writing by the parties after the execution of this agreement.

The Contract Documents represent the entire and fully integrated Agreement between the parties and supersedes prior negotiations, representations or agreements whether written or oral.

ARTICLE 2 – WORK TO BE PERFORMED

The Contractor shall complete the construction of the Work in strict accordance with the Contract Documents. The "Work" means furnishing all labor, materials, permits, construction operations, details, supervision and coordination of all trades, utility suppliers, governmental inspections and approvals to complete the construction, installation and coordination for the Spring Street Bridge Construction in Flowery Branch, Georgia. Work shall include but not be limited to demolition, clearing, grading, erosion control, utility systems, storm drainage, pavement, road improvements, bridge construction, sidewalks, concrete work, maintenance of traffic, curbs, guard rail, stripping and signage, site furnishings, clean up and restoration. The disturbed limits for the Work will be located within the newly acquired and existing Flowery Branch, Georgia rights-of-way.

ARTICLE 3 – DATE OF COMMENCEMENT AND COMPLETION

3.1 The Contractor will commence the Work required by the Contract Documents on the date specified in a written Notice to Proceed.

3.2 The Contractor shall achieve Substantial Completion of the entire Work not later than one hundred eighty (180) calendar days from the date of commencement.

3.3 The Contractor represents that it has taken all difficulties due to weather conditions into consideration in preparing the proposed contract sum and in establishing the time for completion of the Work. The completion time will not be extended for normal bad weather. Time for completion of the Work includes an allowance for calendar days on which work cannot be performed out-of-doors. For the purposes of this Agreement, the Contractor agrees that it expects to lose working days to weather in accordance with the following table:

January – 14 days	May – 6 days	September - 2 days
February - 14 days	June – 3 days	October – 3 days
March – 10 days	July – 4 days	November – 5 days
April – 7 days	August – 2 days	December – 9 days

3.3 If the total number of calendar days lost per month due to bad weather exceeds the total monthly calendar days identified in the above table, the contract time will be extended by the number of calendar days needed to include the excess number of days lost. However, the Owner will not be obligated to pay any additional sums resulting from such a delay, including but not limited to overhead and profit.

3.4 Time is of the essence and is an essential element of this Contract and the Contractor shall pay to the Owner, not as a penalty, but as liquidated damages, the sum of one hundred fifty and no/100 dollars ($150.00) for each calendar day that there is default of completing the Work within the time limit named herein. If the Contractor abandons the Contract before commencement of the Work or defaults in completion of all the Work after commencement thereof, the Contractor shall be liable for such liquidated damages. These fixed liquidated damages are not established as a penalty but are calculated and agreed upon in advance by the Owner and The Contractor due to the uncertainty and impossibility of making a determination as to the actual and consequential damages incurred by the Owner and the general public of the City of Flowery Branch, Georgia as a result of the failure on the part of the Contractor to complete the Work on Time. Such liquidated damages referred to herein are intended to be and are cumulative and shall be in addition to every other remedy now or hereafter enforceable at law, in equity, by statute, or under this Agreement.

ARTICLE 4 – CONTRACT SUM

The Owner agrees to pay the Contractor for the performance of the entire Work the sum of _____ and ___/100Dollars ($_____), payable in current funds, subject to adjustments, if any, as provided in the Contract Documents.

ARTICLE 5 – PAYMENT

5.1 Based on Applications for Payment submitted to and certified by the Owner's Engineer, the Owner will make progress payments to the Contractor in the manner and at such times as provided in this Agreement.

5.2 The period covered by each Application for Payment shall be one calendar month.

5.3 If an Application for Payment is received by the Owner's Engineer not later than the last day of a month, the Owner shall make payment to the Contractor not later than the fifteenth (15th) day of the next month. If an Application for Payment is received by the Owner's Engineer after the last day of a month, the Owner shall make payment to the Contractor not later than fifteen (15) days after the Owner's Engineer certifies the Application for Payment.

5.4 The amount of each progress payment shall be computed as follows:

a. Take the portion of the Contract Sum properly allocable to the completed Work as determined by multiplying the percentage completion of each portion of the Work by the Contract Sum, less retainage of ten percent (10%);

b. Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, less retainage of ten percent (10%);

c. Subtract the aggregate of previous payments made by the Owner; and

d. Subtract amounts, if any, for which the Owner's Engineer has withheld or nullified.

5.5 The Owner's Engineer may withhold payment amounts if, based on his evaluation of the Work, he determines that the quality of the Work is not in accordance with the Contract Documents or reasonable construction practices, that the quantity of the Work is inaccurately stated in the Contractor's Application for Payment, or any information contained in the Contractor's Application for Payment is inaccurate or inconsistent with Contractor's bid proposal.

5.6 Each Application for Payment shall be made on the form attached hereto as Addendum A.

5.7 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

5.8 Upon substantial completion of the Work, the Owner may withhold payment amounts as the Owner may determine for incomplete Work or for Work that is not the quality required by the Contract Documents or reasonable construction practices. Substantial Completion of the Work is the stage in the progress of the Work when the Work is sufficiently complete in accordance with the Contract Documents so that the Owner can utilize the Work for its intended use. The date of Substantial Completion shall be so certified in writing by the Owner's Engineer.

5.9 Final payment, constituting the entire unpaid balance of the contract sum shall be made by the Owner to the Contractor when:

a. the Contractor has fully completed the Work with such quality as required by the Contract Documents and reasonable construction practices, removed all temporary

facilities and services, and removed all surplus materials, rubbish and similar elements; and,

b. the Owner's Engineer certifies in writing that all above-stated conditions have been met by the Contractor.

ARTICLE 6 – INSURANCE

6.1 The Contractor shall purchase from and maintain in a company or companies authorized to do business in the State of Georgia such insurance as will protect the Contractor from the following claims which may arise out of the Contractor's operations:

a. Workers' compensation, disability benefit and other similar employee benefit act claims which are applicable to the Work to be performed;

b. Bodily injury, occupational sickness or disease, or death claims of the Contractor's employees;

c. Bodily injury, occupational sickness or disease, or death claims of persons other than the Contractor's employees;

d. Damages claims insured by usual personal injury liability coverage;

e. Damages claims other than to the Work itself, because of injury to or destruction of tangible property, including loss of uses resulting there from;

f. Damages claims for bodily injury or death of a person or property damage arising out of the ownership, maintenance or use of a motor vehicle; and,

g. Bodily injury or property damage claims arising out of completed operations.

6.2 The insurance required by section 6.1 shall be written for not less than the following limits, or greater if required by law:

a. Worker's Compensation

1. State:	Statutory
2. Applicable federal:	Statutory
3. Employer's liability:	$100,000 per accident $500,000 disease, policy limit $100,000 disease, each employee

b. Comprehensive or Commercial General Liability (including Premises-Operations; Owners' and Contractors' Protective; Products and Completed Operations; Broad Form Property Damage):

1. Bodily Injury: $1,000,000 each occurrence
$2,000,000 aggregate

2. Property Damage: $1,000,000 each occurrence
$2,000,000 aggregate

3. Products and Completed Operations to be maintained for one (1) year after final payment: $200,000 aggregate

4. Property Damage Liability Insurance shall provide X, C and U coverage

5. Broad Form Property Damage Coverage shall included Completed Operations

c. Contractual Liability

1. Bodily Injury: $1,000,000 each occurrence

2. Property Damage: $1,000,000 each occurrence

d. Personal Injury, with Employment Exclusion deleted: $1,000,000 aggregate

e. Business Auto Liability (included owned, non-owned and hired vehicles):

1. Bodily Injury: $1,000,000 each occurrence

2. Property Damage: $1,000,000 each occurrence

f. If the General Liability coverages are provided by a Commercial Liability policy, the:

1. General Aggregate shall not be less than $2,000,000 and it shall apply, in total, to this Work only;

2. Fire Damage Limit shall not be less than $300,000 on any one fire; and,

3. Medical Expenses shall not be less than $10,000 for any one person.

ARTICLE 7 – INDEMNITY AND HOLD HARMLESS

The Contractor shall indemnify and hold harmless the Owner and any of its employees, agents or representatives from and against claims, damages, losses and expenses, including but not limited to attorneys' fees and costs of litigation, arising out of or resulting from the performance of the Work, provided that such claim, damage loss or expense is attributable to bodily injury, sickness, disease or

death, or to injury to or destruction of property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a subcontractor, or anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder.

ARTICLE 8 – WARRANTY AND CORRECTION OR WORK

8.1 The Contractor warrants that the materials and equipment will be new, of good quality and free of defects, that the Work will be free from defects, and that the Work will conform to the requirements of the Contract Documents.

8.2 The Contractor shall promptly correct Work rejected by the Owner's Engineer or failing to conform to the requirements of the Contract Documents, whether discovered before or after substantial completion. The Contractor shall be responsible for all costs of correcting rejected or non-conforming Work.

8.3 In addition to the Contractor's obligations set forth in paragraph 8.2, if, within one (1) year of the date of substantial completion of the Work, any of the Work is found to not be within the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of the Owner's written notice to do so. If the Owner fails to so notify the Contractor within one (1) year and if the Owner fails to give the Contractor the opportunity to make the correction, the Owner waives the right to require correction by the Contractor and to make a claim for breach of warranty.

8.4 The one (1) year warranty period is extended with respect to any portion of the Work performed after Substantial Completion by the amount of time between Substantial Completion and the completion of the Work performed after Substantial Completion.

ARTICLE 9 – PERFORMANCE BOND AND PAYMENT BOND

9.1 The Contractor shall furnish bonds covering faithful performance of the Agreement and payment obligations arising hereunder. Bonds may be obtained through the Contractor's usual source and the cost thereof shall be included in the Contract Sum. The amount of each bond shall be equal to 100% of the Contract Sum.

9.2 The Contractor shall deliver the required bonds to the Owner not less than three (3) days following the date the Agreement is entered into, or if the work is to be commenced prior thereto in response to a letter of intent, the Contractor shall, prior to the commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished.

9.3 The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

ARTICLE 10 – MISCELLANEOUS PROVISIONS

10.1 The Owner's Representative is:

John McHenry
Director of Community Planning
City of Flowery Branch
5517 Main Street
Flowery Branch, Georgia 30542
(770) 967-6378

10.2 The Owner's Engineer is:

Andrew Swift, P.E.
Pond & Company
3500 Parkway Lane #600
Norcross, Georgia 30092
(678) 336-7740

10.3 The Contractor's Representative is:

10.4 The Owner is subject to the requirements of the Georgia Security and Immigration Compliance Act. Accordingly, the requirements of O.C.G.A. §13-10-91 and Georgia Department of Labor Rule 300-10-1-.02 are conditions of the Agreement. Compliance with these requirements shall be attested by the execution of the Contractor Affidavit attached hereto as Addendum B, which shall become a part of the Agreement. In the event the Contractor employs or contracts with any subcontractor(s) in connection with the Work, the Contractor shall secure from such subcontractor(s) attestation of the subcontractor's execution of the Subcontractor Affidavit attached hereto as Addendum C, which shall also become a part of the awarded contract and also a part of the Contractor/subcontractor agreement. Contractor shall maintain records of such attestation for inspection by the Owner at any time. Contractor shall be required to provide copies to the Owner upon request. Failure to comply with these rules will result in the termination of the Agreement, where it is subsequently determined that there has been a violation of any provision of the Act or implementing rules and regulations.

10.5 The Owner and the Contractor each binds itself, its partners, successors, assigns and legal representatives to the other party thereto, its partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Agreement.

10.6 The Agreement shall be governed by the laws of the State of Georgia. Any dispute arising under the Agreement shall be heard in the Superior Court of Hall County, Georgia, and the parties consent to jurisdiction and venue in that Court. The parties waive any defenses they may have to

lack of jurisdiction or improper venue and agree to have all disputes resolved in the Superior Court of Hall County, Georgia.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this agreement in two (2) copies, each of which shall be deemed an original on the date first above written.

CITY OF FLOWERY BRANCH, GEORGIA

_____
James M. Miller, Mayor

ATTEST:

_____
Melissa McCain, City Clerk

[CONTRACTOR]

_____ _____
Witness: (Seal)

State of Georgia
County of _____

On this ____ day of _____, 2014,
before me appeared the above signed officer of
[CONTRACTOR].

_____
NOTARY PUBLIC

ADDENDUM A

APPLICATION FOR PAYMENT
CITY OF FLOWERY BRANCH SPRING STREET BRIDGE CONSTRUCTION

Application is made for payment, as shown below, in connection with the Contract.

1. ORIGINAL CONTRACT SUM		$_____
2. Net change by Modification		$_____
3. CONTRACT SUM TO DATE (Line1 + 2)		$_____
4. TOTAL COMPLETED & STORED TO DATE		$_____
5. RETAINAGE		
a. 10% of Complete Work	$_____	
b. 10% of Stored Material	$_____	
6. TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$_____
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$_____
8. CURRENT PAYMENT DUE		$_____
9. BALANCE TO FINISH, INC. RETAINAGE (Line 3 less Line 6)	$_____	

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been competed in accordance with the Contract Documents, and that all amounts have been paid by the Contractor for Work for which Certificates for Payment were issued and payments received from the Owner and that the current payment shown herein is now due.

Contractor: _____ Date: _____

By: _____

Over for Engineer's Certificate for Payment

ENGINEER'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Owner's Engineer certifies that to the best of the Engineer's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the amount certified.

AMOUNT CERTIFIED: $_____

Engineer: _____ Date: _____

ADDENDUM B

CONTRACTOR'S AFFIDAVIT
GEORGIA SECURITY AND IMMIGRATION COMPLIANCE ACT
CITY OF FLOWERY BRANCH SPRING STREET BRIDGE CONSTRUCTION

1. Contractor verifies that Contractor has complied with the Georgia Security and Immigration Compliance Act by registering at https://www/vis-dhs.com/EmployerRegistration and verifying information of all new employees; and by executing any affidavits required by the rules and regulations issued by the Georgia Department of Labor set forth at Rule 300-10-1-.01 et.seq.

2. Contractor warrants that if it contracts with any subcontractor(s) to physically perform services in connection with the Flowery Branch, Georgia Spring Street Bridge Construction Project, the Contractor will secure from such subcontractor(s) similar verification of compliance with the Georgia Security and Immigration Compliance Act and rules and regulations issued by the Georgia Department of Labor set forth at Rule 300-10-1-.01 et.seq.

By: _____ Date: _____
Authorized Agent

Address: _____ E-Verify No.: _____

_____

_____

Sworn to and subscribed before me on
this _____ day of _____, 2014.

_____
NOTARY PUBLIC

My commission expires: _____

ADDENDUM C

SUBCONTRACTOR'S AFFIDAVIT
GEORGIA SECURITY AND IMMIGRATION COMPLIANCE ACT
CITY OF FLOWERY BRANCH SPRING STREET BRIDGE CONSTRUCTION

1. The subcontractor states that it is engaged in the performance of physical services under a subcontract with _____ which has contracted to construct the City of Flowery Branch Spring Street Bridge.

2. The subcontractor verifies that the subcontractor has complied with the Georgia Security and Immigration Compliance Act by registering at https://www/vis-dhs.com/EmployerRegistration and verifying information of all new employees; and by executing any affidavits required by the rules and regulations issued by the Georgia Department of Labor set forth at Rule 300-10-1-.01 et.seq.

By: _____ Date: _____
Authorized Agent

Address: _____ E-Verify No.: _____

_____

_____

Sworn to and subscribed before me on
this ___ day of _____, 2014.

_____
NOTARY PUBLIC

My commission expires: _____

FLOWERY BRANCH, GEORGIA
SPRING STREET BRIDGE CONSTRUCTION

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS _____, a _____ of the State of Georgia with its principal place of business located at_____ (hereinafter called the "Principal") and _____, Phone _____ (hereinafter called the "Surety"), are held and firmly bound unto the City of Flowery Branch, Georgia, 5517 Main Street, Flowery Branch, Georgia 30542 (hereinafter called the "Owner") and their successors and assigns in the penal sum of _____[100%]_____ /100 Dollars ($_____), lawful money of the United States of America, for the payment of which the Principal and the Surety bind themselves, their administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered, or is about to enter, into a certain written contract with the Owner, dated _____, 2014 which is incorporated herein by reference in its entirety (hereinafter called the "Construction Contract"), for the Flowery Branch, Georgia Spring Street Bridge Construction, more particularly described in the Construction Contract (hereinafter called the "Project"); and

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

If the Principal shall fully and completely perform all the undertakings, covenants, terms, conditions, warranties and guarantees contained in the Construction Contract, including all modifications, amendments, changes, deletions, additions, and alterations thereto that may hereafter be made, then this obligation shall be void; otherwise, it shall remain in full force and effect.

Whenever the Principal shall be, and declared by the Owner to be, in default under the Construction Contract, the Surety shall promptly remedy the default as follows:

(1) Complete the Construction Contract in accordance with the terms and conditions; or

(2) Obtain a bid or bids for completing the Construction Contract in accordance with its terms and conditions, and upon determination by the Surety and the Owner of the lowest responsible bidder, arrange for a contract between such bidder and Owner and make available as the work progresses (even though there should be a default or succession of defaults under the Construction Contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the penal sum set

forth in the first paragraph hereof, as may be adjusted, and the Surety shall make available and pay to the Owner the funds required by this paragraph prior to the payment of the Owner of the balance of the contract price[1], or any portion thereof; or, at the option of the Owner,

(3) Allow Owner to complete the work and reimburse the Owner for all reasonable costs incurred in completing the work.

In addition to performing as required in the above-paragraphs, the Principal and/or Surety shall indemnify and hold harmless the Owner from any and all losses, liability and damages, claims, judgments, liens, costs, and fees of every description, including reasonable attorney's fees, litigation costs and expert witness fess, which the Owner may incur, sustain, or suffer by reason of the failure or default on the part of the Principal in the performance of any or all of the terms, provisions and requirements of the Construction Contract, including any and all amendments and modification thereto, or incurred by the Owner in making good any failure of performance on the part of the Principal.

The Surety hereby waives notice of any and all modifications, omissions, additions, changes, alterations, extensions of time, changes in payment terms, and any other amendments in or about the Construction Contract, and agrees that the obligations undertaken by this Bond shall not be impaired in any manner by reason of any such modifications, omissions, additions, changes, alterations, extensions of the time, change in payment terms and amendments.

The Surety hereby agrees that this Bond shall be deemed amended automatically and immediately, without formal or separate amendments hereto, upon any amendment to the Construction Contract, so as to bind the Principal and the Surety to the full and faithful performance of the Construction Contract as so amended or modified, and so as to increase the penal sum to the adjusted Contract Price of the Construction Contract.

This Bond is intended to comply with the applicable provisions of the Official Code of Georgia, Annotated, including but not limited to O.C.G.A. §36-91-1 et seq., and shall be interpreted so as to comply with the minimum requirements thereof. However, in the event the express language of this Bond extends protection to the Owner beyond that contemplated by any statutory law applicable to this Project, then the additional projection shall be enforced in favor of the Owner, whether or not such protection is found in the applicable statutes.

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[1] The term "balance of the contract price" shall mean the total amount payable by the Owner to the Contractor under the Construction Contract, and any amendments thereto, less the amount paid by the Owner to the Contractor.

IN WITNESS WHEREOF the undersigned have caused this instrument to be executed and their respective corporate seals to be affixed and attested by their duly authorized representatives this _____ day of _____, 2014.

_____(Seal)
(Principal)

By: _____

Attest:

_____
Secretary

_____(Seal)
(Surety)

By: _____
(Attorney-in-Fact)

Attest:

_____
Resident Agent

IMPORTANT: Surety must attach a power of attorney.

Surety executing this Bond must (1) provide a current certificate of authority to transact business in Georgia; or (2) be on the U.S. Department of the Treasury list of approved bond sureties (Circular 570 of the Federal Register, as amended).

FLOWERY BRANCH, GEORGIA
SPRING STREET BRIDGE CONSTRUCTION

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS _____, a _____ of the State of Georgia with its principal place of business located at _____ (hereinafter called the "Principal") and _____ Phone _____ (hereinafter called the "Surety"), are held and firmly bound unto the City of Flowery Branch, Georgia, 5517 Main Street, Flowery Branch, Georgia 30542 (hereinafter called the "Owner") and their successors and assigns in the penal sum of _____[100%] _____/100 Dollars ($_____), lawful money of the United States of America, for the payment of which the Principal and the Surety bind themselves, their administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered, or is about to enter, into a certain written contract with the Owner, dated _____, 2014 which is incorporated herein by reference in its entirety (hereinafter called the "Construction Contract"), for the Flowery Branch, Georgia Spring Street Bridge Construction, more particularly described in the Construction Contract (hereinafter called the "Project"); and

NOW THEREFORE, the conditions of this obligation is such that if the Principal shall promptly make payment to all persons working on or supplying labor or materials under the Construction Contract, and any amendments thereto, with regard to labor or materials furnished and used in the Project, and with regard to labor or materials furnished but not so used, then this obligation shall be void; but otherwise it shall remain in full force and effect.

(1) A "Claimant" shall be defined herein as any subcontractor, person, party, partnership, corporation or other entity furnishing labor, services, or materials used, or reasonably required for use, in the performance of the Construction Contract, without regard to whether such labor, services, or materials were sold, leased, or rented, and without regard to whether such Claimant is or is not in privity of contract with the Principal or any subcontractor performing work on the Project, including, but not limited to, the following labor, services, or materials: water, gas, power, light, heat, oil, gasoline, telephone service, or rental of equipment directly applicable to the Construction Contract.

(2) In the event a Claimant files a claim against the Owner, or the property of the Owner, and the Principal fails or refuses to satisfy or discharge it promptly, the Surety shall satisfy or discharge the claim promptly upon written notice from the Owner, either by bond or as otherwise provided in the Construction Contract.

(3) The Surety hereby waives notice of any and all modifications, omissions, additions, changes, alterations, extensions of time, changes in payment terms, and any other amendments in or about the Construction Contract and agrees that the obligations undertaken by this Bond shall not be impaired in any manner by reason of any such modifications, omissions, additions, changes, alterations, extensions of time, changes in payment terms, and amendments.

(4) The Surety hereby agrees that this Bond shall be deemed amended automatically and immediately, without formal or separate amendments hereto, upon any amendment or modification to the Construction Contract, so as to bind the Principal and Surety, jointly and severally, to the full payment of any Claimant under the Construction Contract, as amended or modified, provided only that the Surety shall not be liable for more than the penal sum of this Bond, as specified in the first paragraph hereof.

(5) This Bond is made for the use and benefit of all persons, firms and corporations who or which may furnish any materials or perform any labor for or on account of the construction to be performed or supplied under the Construction Contract, and any amendments thereto, and they and each of them may sue hereon.

(6) No action may be maintained on this Bond after one (1) year from the date the last services, labor, or materials were provide under the Construction Contract by the Claimant prosecuting said action.

(7) This Bond is intended to comply with the applicable provisions of the Official Code of Georgia, Annotated, including but not limited to O.C.G.A. §36-91-1 et seq., and shall be interpreted so as to comply with the minimum requirements thereof. However, in the event the express language of this Bond extends protection to the Owner beyond that contemplated by any statutory law applicable to this Project, then the additional protection shall be enforced in favor of the Owner, whether or not such protection is found in the applicable statutes.

IN WITNESS WHEREOF the undersigned have caused this instrument to be executed and their respective corporate seals to be affixed and attested by their duly authorized representatives this _____ day of _____, 2014.

_____(Seal)
(Principal)

By: _____

Address: _____

_____

Telephone: _____

Attest:

_____
Secretary

_____(Seal)
(Surety)

By: _____
(Attorney-in-Fact)

Address: _____

_____

Telephone: _____

Attest:

_____
Resident Agent

IMPORTANT: Surety must attach a power of attorney.

Surety executing this Bond must (1) provide a current certificate of authority to transact business in Georgia; or (2) be on the U.S. Department of the Treasury list of approved bond sureties (Circular 570 of the Federal Register, as amended).