



CITY OF DALTON, GEORGIA



CONTRACT DOCUMENTS

For
PROJECT:

**CHATTANOOGA AVENUE BRIDGE REPAIR PROJECT
OVER MILL CREEK
CITY OF DALTON PROJECT NO. PW-CAB-REPAIR-2019**

**CITY OF DALTON PUBLIC WORKS DEPARTMENT
PO BOX 1205
DALTON, GEORGIA 30722**

TABLE OF CONTENTS

	<u>PAGE</u>
<u>SECTION 0100 – INFORMATION FOR BIDDERS</u>	
RECEIPT AND OPENING OF BIDS	0100-1
PREPARATION OF BID.....	0100-1
TELEGRAPHIC MODIFICATION.....	0100-2
QUALIFICATIONS OF BIDDERS.....	0100-2
BID SECURITY	0100-2
LIQUIDATED DAMAGES AND FAILURE TO ENTER INTO CONTRACT.....	0100-3
TIME OF COMPLETION AND LIQUIDATED DAMAGES	0100-3
CONDITION OF WORK.....	0100-3
ADDENDA AND INTERPRETATIONS.....	0100-3
SECURITY FOR FAITHFUL PERFORMANCE.....	0100-4
POWER OF ATTORNEY	0100-4
NOTICE OF SPECIAL CONDITIONS	0100-4
LAWS AND REGULATIONS	0100-4
METHOD OF AWARD	0100-4
OBLIGATION OF BIDDER.....	0100-5
CORRELATION AND INTENT OF DOCUMENTS	0100-5
CLAIMS.....	0100-5
ORDER OF WORK	0100-5
SUBCONTRACTS.....	0100-6
TIMELY EXECUTION	0100-6
<u>SECTION 0200 – BID PROPOSAL</u>	
BID BOND.....	0200-1
BID PROPOSAL	0200-3
CONSTRUCTION PAYMENT BOND.....	0200-6
CONSTRUCTION PERFORMANCE BOND	0200-11
CONTRACT	0200-16
<u>SECTION 0300 – GENERAL CONDITIONS</u>	
CONTRACT AND CONTRACT DOCUMENTS.....	0300-1
DEFINITIONS	0300-1
Contractor	0300-1
Contract.....	0300-1
Project Representative	0300-1

	<u>PAGE</u>
Owner.....	0300-1
Subcontractor	0300-1
Work on (at) the Project.....	0300-1
CORRELATION AND INTENT OF DOCUMENTS.....	0300-2
MATERIALS, SERVICES AND FACILITIES	0300-2
CONTRACTOR'S TITLE TO MATERIALS.....	0300-2
MATERIALS FURNISHED BY THE CONTRACTOR.....	0300-2
INSPECTION AND TESTING OF MATERIALS	0300-3
PATENTS.....	0300-3
SURVEYS, PERMITS AND REGULATIONS	0300-4
CONTRACTOR'S OBLIGATIONS.....	0300-4
CONTRACTOR'S RESPONSIBILITY	0300-4
WEATHER CONDITIONS.....	0300-5
SAFETY PROVISIONS.....	0300-5
SANITARY PROVISIONS	0300-5
PUBLIC CONVENIENCE AND SAFETY.....	0300-5
PROTECTION OF WORK AND PROPERTY – EMERGENCY	0300-6
INSPECTION	0300-6
REPORTS, RECORDS AND DATA.....	0300-6
SUPERINTENDENCE BY CONTRACTOR.....	0300-6
COMPETENT LABOR.....	0300-7
CONSTRUCTION EQUIPMENT	0300-7
CHANGES IN THE WORK.....	0300-7
CHANGE IN CONTRACT PRICE.....	0300-8
CHANGE OF THE CONTRACT TIME	0300-12
CORRECTION OF WORK.....	0300-12
EXISTING UNDERGROUND UTILITIES AND STRUCTURES	0300-13
SUBSURFACE CONDITIONS FOUND DIFFERENT.....	0300-13
CLAIMS FOR EXTRA WORK	0300-13
RIGHT OF THE OWNER TO TERMINATE CONTRACT.....	0300-13
CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES.....	0300-14
PAYMENTS TO CONTRACTORS.....	0300-14
ACCEPTANCE AND FINAL PAYMENT.....	0300-16
PAYMENTS BY CONTRACTORS	0300-16
CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE.....	0300-17
CONTRACT SECURITY	0300-21
ADDITIONAL OR SUBSTITUTE BOND.....	0300-21

	<u>PAGE</u>
LIEN	0300-22
ASSIGNMENTS	0300-22
MUTUAL RESPONSIBILITY OF CONTRACTORS.....	0300-22
COORDINATION WITH OTHER CONTRACTORS	0300-22
SUBCONTRACTING.....	0300-23
USE OF PREMISES AND REMOVAL OF DEBRIS	0300-23
QUANTITIES OF ESTIMATE.....	0300-24
RIGHTS-OF-WAY AND SUSPENSION OF WORK	0300-24
GUARANTY	0300-25
CONFLICTING CONDITIONS	0300-25
NOTICE AND SERVICE THEREOF	0300-25
PROVISIONS REQUIRED BY LAW DEEMED INSERTED	0300-25
SUSPENSION OF WORK.....	0300-25
PROTECTION AND RESTORATION OF PROPERTY.....	0300-26
RESPONSIBILITY FOR DAMAGE CLAIMS	0300-26
INTEREST OF FEDERAL, STATE OR LOCAL OFFICIALS	0300-27
OTHER PROHIBITED INTERESTS.....	0300-27
USE OF CHEMICALS	0300-27
MAINTENANCE OF TRAFFIC	0300-27
ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE.....	0300-28
OWNER'S RIGHT TO SUSPEND WORK.....	0300-28
TIME FOR COMPLETION AND LIQUIDATED DAMAGES.....	0300-28
AFFIDAVIT FOR FINAL PAYMENT AND RELEASE OF LIENS.....	0300-30

SECTION 0400 – GENERAL NOTES

EXHIBIT A – PLANS DEVELOPED BY PONT ENGINEERING DATED 06-03-2019

EXHIBIT B – SPECIAL PROVISIONS 150, 519, 521 AND 528

SECTION 0100 – INFORMATION FOR BIDDERS

0101 RECEIPT AND OPENING OF BIDS

The CITY OF DALTON, GEORGIA (*hereinafter called the Owner*), invites bids on the form attached hereto, all blanks of which must be appropriately filled in. Bids will be received by the Owner at the CITY OF DALTON FINANCE DEPARTMENT
300 W. WAUGH STREET, DALTON, GEORGIA 30722 until JULY 16, 2019 AT 2
PM and then at said office publicly opened and read aloud. The envelope containing the bids must be sealed and designated as the bid for the construction of the project entitled:

CHATTANOOGA AVENUE BRIDGE REPAIR PROJECT
OVER MILL CREEK
CITY OF DALTON PROJECT NO. PW-CAB-REPAIR-2019

The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities to reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 60 days after the actual date of the opening thereof.

0102 PREPARATION OF BID

Each bid must be submitted on the prescribed form. All blank spaces for bid prices must be filled in, in ink or typewritten, in numerals for unit prices and for total amounts.

Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his address, and the name of the project for which the bid is submitted. **ALL SEALED BIDS MUST INCLUDE AN EXECUTED E-VERIFY AFFIDAVIT, THIS DOCUMENT CAN BE FOUND IN THE BID PROPOSAL SECTION.** If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the bid form. Any bid which is not properly prepared and accompanied by required certifications may be rejected by the Owner.

Each bidder will be required to certify compliance with the Immigration Reform and Control Act of 1986 (IRCA), D.L. 99-603 and the Georgia Security and Immigration Compliance Act O.C.G.A. §13-10-90 et seq. by doing the following: registering at <https://www.vis-dhs.com/EmployerRegistration> to verify information of all newly hired employees in order to comply with the Immigration Reform and Control Act of 1986 (IRCA), D.L. 99-603 and the Georgia Security and Immigration Compliance Act. Each firm must submit a completed and notarized E-verify (Exhibit A) affidavit with their bid submittal. During the entire duration of this contract, Contractor and all sub-contractors must remain in compliance with Georgia Security and Immigration Compliance Act of 2007 and Georgia code §13-10-91 and §50-36-1.

0103 TELEGRAPHIC MODIFICATION

Any bidder may modify his bid by telegraphic communication at any time prior to the scheduled closing time for receipt of bids, provided such telegraphic communication is received by the Owner prior to the closing time, and, provided further, the Owner is satisfied that a written confirmation of the telegraphic modification over the signature of the bidder was mailed prior to the closing time. If written confirmation is not received within two days from the closing time, no consideration will be given to the telegraphic modification.

0104 QUALIFICATIONS OF BIDDERS

The Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. By submission of his Bid, the Bidder acknowledges the right of the Owner to make such investigations, to contact references and utilize this information as a basis of determining award of the contract. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

Written information pertaining to the Bidder's qualifications may be requested by the Owner. Failure of the Bidder to provide such information within fifteen days of notification will be grounds for disqualification.

0105 BID SECURITY

Each bid must be accompanied by a certified check or bid bond prepared on the form of bid bond attached hereto, duly executed by the bidder as principal and having as surety thereon a surety company approved by the Owner, in the amount

of five (5)% of the bid. Such certified checks or bid bonds will be returned to all except the three lowest bidders within three days after the opening of bids, and the remaining certified checks or bid bonds will be returned promptly after the Owner and the accepted bidder have executed the contracts, or, if no award has been made within 60 days after the date of the opening of bids, upon demand of the bidder at any time thereafter, so long as he has not been notified of the acceptance of his bid.

0106 LIQUIDATED DAMAGES AND FAILURE TO ENTER INTO CONTRACT

The successful bidder, upon his failure or refusal to execute and deliver the contract and bonds required within 10 days after he has received notice of the acceptance of his bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his bid.

0107 TIME OF COMPLETION AND LIQUIDATED DAMAGES

Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project within 90 consecutive calendar days thereafter. Completion date is estimated to be October 25, 2019. Bidders must agree also to pay as liquidated damages the sum of \$300.00 per each consecutive calendar day thereafter.

0108 CONDITION OF WORK

Each bidder must inform himself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Insofar as possible the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor.

0109 ADDENDA AND INTERPRETATIONS

Oral interpretations of the meaning of plans, specifications or other contract documents shall not be binding over written material.

Every request for such interpretation should be in writing addressed to City of Dalton Public Works, P.O. Box 1205, Dalton, Georgia 30722 or by email to Megan Elliott (melliott@daltonga.gov) and to be given consideration must be received at least ten days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications, which, will be emailed to all prospective bidders. Failure of any bidder to receive any such addendum or interpretations shall not relieve such bidder from any obligation under his bid as submitted. All addenda so

issued shall become part of the contract documents.

0110 SECURITY FOR FAITHFUL PERFORMANCE

Simultaneously with his delivery of the executed contract, the Contractor shall furnish a surety bond or bonds as security for faithful performance of his contract and for the payment of all persons performing labor on the project under this contract, and furnishing materials in connection with his contract, as specified in the General Conditions included herein. Surety companies executing Bonds must appear on the Treasury Department's most current list (*Circular 570 as amended*) and be authorized to transact business in the state where the project is located.

0111 POWER OF ATTORNEY

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

0112 NOTICE OF SPECIAL CONDITIONS

Attention is particularly called to those parts of the contract documents and specifications which are identified subsequently under Special Conditions.

0113 LAWS AND REGULATIONS

The bidders' attention is directed to the fact that all applicable federal and state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

0114 METHOD OF AWARD

If the Contract is awarded, it will be awarded to the lowest Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the project. The Owner shall have complete discretion in making this determination and may consider factors such as, but not limited to the following:

0114.01 Unit bid prices of various items as they relate to total bid price.

0114.02 Proximity of the Bidder's permanent place of business as it may relate to Bidder's responsiveness in carrying out the contract.

0114.03 Litigation record of the Bidder.

0114.04 Satisfactory completion of similar projects.

0114.05 Resources pertaining to management, personnel and equipment.

0114.06 Financial history, credit rating and current resources.

0115 OBLIGATION OF BIDDER

At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents (*including all addenda*). The failure or omission of any bidder to examine any form, instrument, or document shall in no way relieve any bidder from any obligation in respect to his bid.

0116 CORRELATION AND INTENT OF DOCUMENTS

The contract documents are complementary, and what is called for by one shall be as binding as if called for by all.

The intent of the documents is to describe in detail all construction entailed in this project. The contractor will furnish all labor, materials, equipment, transportation, tools and appurtenances such as may be reasonably required under the terms of the contract to make each part of the work complete.

The drawings are intended to conform and agree with the specifications. If, however, discrepancies occur, the Owners will decide which shall govern. Special specifications stated on the drawings govern that particular piece of construction and have equal weight and importance as the printed specifications. In the event of any discrepancies between the drawings and the figures written thereon, the figures are to be taken as correct.

0117 CLAIMS

The Owner reserves the right to refuse to issue any voucher and to direct that no payment shall be made the contractor in the case they have reason to believe that said contractor has neglected or failed to pay any subcontractor, material dealer, worker or employee for work performed on or about the project including work as set forth in these specifications, until the Owner is satisfied that such subcontractors, material dealers, worker, or employees have been fully paid. However this provision shall not obligate the Owner to intervene in any claim.

0118 ORDER OF WORK

The work shall be started at such points as the Owner shall designate and shall be prosecuted in the order he directs. This applies to both location and items of construction.

0119 SUBCONTRACTS

If required by the Owner, the apparent Successful Bidder, and any other Bidder so requested, will within seven days after the day of the Bid opening submit to Owner a list of all Subcontractors and other persons and organizations (*including those who are to furnish the principal items of material and equipment*) proposed for those portions of the Work as to which such identification is so required. If the Owner, after due investigation, has reasonable objection to any proposed Subcontractor, other person or organization, may, before giving the Notice of Award, request the apparent Successful Bidder to submit an acceptable substitute without an increase in Bid price. If the apparent Successful Bidder declines to make any such substitution, the contract shall not be awarded to such Bidder, but his declining to make any such substitution will not constitute grounds for sacrificing his Bid Security. Any Subcontractor, other person or organization so listed and to whom the Owner does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner.

0120 TIMELY EXECUTION

When the Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by at least five unsigned counterparts of the Agreement and all other Contract Documents. Within ten days thereafter, the Contractor shall sign and deliver at least five counterparts of the Agreement to Owner with all other Contract Documents attached. Thereafter, the Owner will deliver two fully signed counterparts to Contractor.

..... END OF SECTION



SECTION 0200 – BID PROPOSAL

BID BOND
(Five Percent of Bid)

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned Massana
Construction, Inc.

of the City of Tyrone State of GA and County of Fayette

as Principal and Travelers Casualty and Surety Company of America

as Surety, are hereby held and firmly bound unto the CITY OF DALTON, GEORGIA as

Owner in the penal sum of Five Percent of Amount Bid (5%)

Dollars (\$ 29,326⁷⁵) for the payment of which, well and truly to be made,

we hereby jointly and severally bind ourselves, our heirs, executors, administrators,
successors and assigns.

Signed this 11th day of July, 2019.

The condition of the above obligation is such that whereas the Principal has submitted to
the CITY OF DALTON, GEORGIA a certain bid attached hereto and hereby made a part
hereof to enter into a contract in writing for the construction of the project entitled:

CHATTANOOGA AVENUE BRIDGE REPAIR PROJECT
OVER MILL CREEK
CITY OF DALTON PROJECT NO. PW-CAB-REPAIR-2019

NOW, THEREFORE,

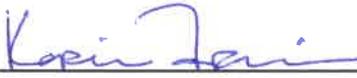
- (a) If said bid shall be rejected or in the alternate,
- (b) If said bid shall be accepted and the Principal shall execute and deliver a contract
in the Form of Contract attached hereto (*properly completed in accordance with
said bid*) and shall furnish a bond for his faithful performance of

BID BOND
(Continued)

said contract and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be void; otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such Bids, and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.



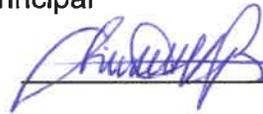
Witness As To Principal
Karin Francis
By



Witness As To Surety
Neal Creech
By

Massana Construction, Inc.

Principal



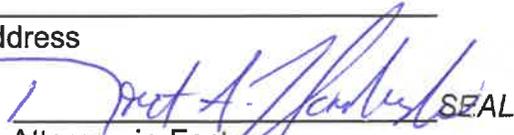


Travelers Casualty and Surety Company of America

Surety

One Tower Square, Hartford, CT 06183

Address



Attorney-in-Fact
Robert A. Yarbrough





**Travelers Casualty and Surety Company of America
Travelers Casualty and Surety Company
St. Paul Fire and Marine Insurance Company**

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company are corporations duly organized under the laws of the State of Connecticut (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint **Robert A. Yarbrough** of **ATLANTA Georgia**, their true and lawful Attorney-in-Fact to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed, and their corporate seals to be hereto affixed, this **3rd** day of **February, 2017**.



State of Connecticut

City of Hartford ss.

By: 
Robert L. Raney, Senior Vice President

On this the **3rd** day of **February, 2017**, before me personally appeared **Robert L. Raney**, who acknowledged himself to be the Senior Vice President of Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

In Witness Whereof, I hereunto set my hand and official seal.

My Commission expires the **30th** day of **June, 2021**




Marie C. Tetreault, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

FURTHER RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

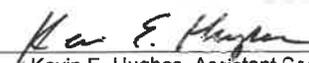
FURTHER RESOLVED, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

FURTHER RESOLVED, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, **Kevin E. Hughes**, the undersigned, Assistant Secretary of Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company, do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which remains in full force and effect.

Dated this 11th day of July, 2019




Kevin E. Hughes, Assistant Secretary

**To verify the authenticity of this Power of Attorney, please call us at 1-800-421-3880.
Please refer to the above-named Attorney-in-Fact and the details of the bond to which the power is attached.**

BID PROPOSAL

Place Tyrone, GA
Date July 16, 2019

Proposal of Massana Construction, Inc. (hereinafter called
"Bidder") a contractor organized and existing under the laws of the City of Tyrone
State of Georgia and County of Fayette, * ~~an individual~~, a
corporation, or ~~a partnership~~ doing business as Massana Construction, Inc.

TO: CITY OF DALTON, GEORGIA
(Hereinafter called "Owner")

Gentlemen:

The Bidder in compliance with your invitation for bids for the construction of Chattanooga Avenue Bridge Repair Project Over Mill Creek having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the contract documents, within the time set forth herein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under this contract, of which this proposal is a part.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project by October 25, 2019 as stipulated in the specifications. Bidder further agrees to pay as liquidated damages the sum of \$300.00 for each consecutive calendar day thereafter as hereinafter provided in the General Conditions under "Time of Completion and Liquidated Damages."

Bidder acknowledges receipt of the following addenda:

Addenda #01, dated 07-11-2019

*Strike out inapplicable terms



BID PROPOSAL
(Continued)

Amount shall be shown in figures.

The prices submitted shall include all labor, materials, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receiving bids.

The undersigned further agrees that, in case of failure on his part to execute said contract and bond within ten (10) days after the award thereof, the check or bond accompanying his bid and the money payable thereon shall become the property of the Owner; otherwise, the check or bond accompanying this proposal shall be returned to the Bidder.

The Bidder declares that he understands that the quantities shown on the proposal are subject to adjustment by either increase or decrease, and that should the quantities of any of the items of work be increased, the undersigned proposes to do the additional work at the unit prices stated herein; and should the quantities be decreased, he also understands that payment will be made on actual quantities at the unit price bid and will make no claim for anticipated profits for any decrease in the quantities and that actual quantities will be determined upon completion of work, at which time adjustment will be made to the contract amount by direct increase or decrease.

Attached hereto is a bid bond ~~or certified check~~ on the 11th of July in the amount of \$29,326²⁵ according to conditions under "Information For Bidders" and the provisions therein.

The full name and residence of persons or parties interested in the foregoing bids, as principals, are named as follows:

Jarod R. Cheney, 214 Hurt St., Atlanta GA 30307



BID PROPOSAL
(Continued)

Dated at:

Sydney, GA

The 16th day of July, 2019

Jarod R. Cheney
Principal

By Jarod R. Cheney
President



CONSTRUCTION PAYMENT BOND

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR *(Name and Address):*

Massana Construction, Inc.

115 Howell Road

Tyrone, Ga 30290

OWNER *(Name and Address):*

CITY OF DALTON

P.O. BOX 1205

DALTON, GEORGIA 30722

CONSTRUCTION CONTRACT:

Date: 08/05/2019

Amount: \$586,535.00

Description *(Name and location):*

CHATTANOOGA AVENUE BRIDGE REPAIR PROJECT

OVER MILL CREEK

CITY OF DALTON PROJECT NO. PW-CAB-REPAIR-2019

SURETY *(Name and Principal place of Business):*

BOND:

Date: _____

Amount: _____

Bond Number: _____

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner and for the use and protection of all subcontractors and persons supplying labor, materials, machinery, and

CONSTRUCTION PAYMENT BOND
(Continued)

equipment in the prosecution of the Work involved in this Construction Contract.

2. With respect to the Owner, this obligation shall be null and void if the Contractor:
 - 2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2. Defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity whose claim, demand, lien or suit is for payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, provided the Owner has promptly notified the Contractor and the Surety (*at the address described in Paragraph 11*) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.
4. The Surety shall have no obligations to Claimant unless the Claimant has substantially complied with the requirements of O.C.G.A. 36-82-104 by giving the notices provided for therein. Each Claimant failing to substantially comply with said Code Section shall be deemed to have waived the protection of the payment bond. No Claimant shall file an action for payment against the Owner, Contractor or Surety, except in accordance with this section.
 - 4.1. Claimants who are employed by or have a direct contract with the Contractor have given notice to the Surety (*at the address described in Paragraph 12*) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2. Claimants who do not have a direct contract with the Contractor:
 1. Have furnished written notice to the Contractor and sent a copy, or notice thereof, to the Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed: and
 2. Have either received a rejection in whole or in part from the Contractor, or not received within 30 days of furnishing the above notice any communication from the Contractor by which the Contractor has indicated the claim will be paid directly or indirectly; and
 3. Not having been paid within the above 30 days, have sent a written notice

CONSTRUCTION PAYMENT BOND
(Continued)

to the Surety (*at the address described in Paragraph 12*) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the Contractor.

5. If a notice required by Paragraph 4 is given by the Owner to the Contractor or to the Surety, that is sufficient compliance.
6. When the Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:
 - 6.1. Send an answer to the Claimant, with a copy to the Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and that basis for challenging any amounts that are disputed.
 - 6.2. Pay or arrange for payment of any undisputed amounts.
7. The Surety's total obligation shall not exceed the amount of this Bond and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
8. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any Construction Performance Bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
9. The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.
11. No suit or action on this bond shall be instituted by a Claimant after expiration of one (1) year from the completion of the contract and the acceptance of the work by the public entity responsible therefor.

CONSTRUCTION PAYMENT BOND
(Continued)

12. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page. Actual receipt of notice by Surety, the Owner or the Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on this Bond.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in the Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is, that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. DEFINITIONS

- 15.1. Claimant: An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.
- 15.2. Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 15.3. Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

CONTRACTOR AS PRINCIPAL

Company: Massana Construction, Inc.

(Corp. Seal)

Signature: _____

Name and Title: _____

SURETY

Company: _____

(Corp. Seal)

Signature: _____

Name and Title: _____



CONSTRUCTION PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR *(Name and Address):*

Massana Construction, Inc.
115 Howell Road
Tyrone, Ga 30290

OWNER *(Name and Address):*

CITY OF DALTON
P.O. BOX 1205
DALTON, GEORGIA 30722

CONSTRUCTION CONTRACT:

Date: 08/05/2019

Amount: \$586,535.00

Description *(Name and location):*

CHATTANOOGA AVENUE BRIDGE REPAIR PROJECT
OVER MILL CREEK
CITY OF DALTON PROJECT NO. PW-CAB-REPAIR-2019

SURETY *(Name and Principal place of Business):*

BOND:

Date: _____

Amount: _____

Bond number: _____

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor

CONSTRUCTION PERFORMANCE BOND

(Continued)

shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 3.1.

3. If there is no Owner Default, the Surety's obligation under this Bond shall arise after:
 - 3.1. The Owner has notified the Contractor and the Surety at its address described in Paragraph 10 below, that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Construction Contract. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default; and
 - 3.2. The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete the contract. Such Contractor Default shall not be declared earlier than twenty days after the Contractor and the Surety have received notice as provided in Subparagraph 3.1; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the contract with the Owner.

4. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 4.1. Arrange for the Contractor, with consent of the Owner, to perform and complete the Construction Contract; or
 - 4.2. Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or
 - 4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and the contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor's default; or
 - 4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:
 1. After investigation, determine the amount for which it may be liable to the

CONSTRUCTION PERFORMANCE BOND
(Continued)

- Owner and, as soon as practicable after the amount is determined, tender payment therefore to the Owner; or
2. Deny liability in whole or in part and notify the Owner citing reasons therefor.

 5. If the Surety does not proceed as provided in Paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Subparagraph 4.4, and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

 6. After the Owner has terminated the Contractor's right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. To the limit of the amount of this Bond, but subject to commitment by the Owner of the Balance of the Contract Price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:
 - 6.1. The responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - 6.2. Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 4; and
 - 6.3. Liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

 7. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, or successors.

 8. The Surety hereby waives notice of any change, including changes of time to the Construction Contract or to related subcontracts, purchase orders and other obligations.

CONSTRUCTION PERFORMANCE BOND
(Continued)

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

10. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page.

11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12. Definitions.

- 12.1. Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
- 12.2. Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 12.3. Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.
- 12.4. Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

CONTRACTOR AS PRINCIPAL

Company: Massana Construction, Inc.
_____ (Corp. Seal)

Signature: _____

Name and Title: _____

SURETY

Company: _____
_____ (Corp. Seal)

Signature: _____

Name and Title: _____



CONTRACT

THIS AGREEMENT made this the 5th day of August, 2019, by and between the CITY OF DALTON, GEORGIA, hereinafter called "Owner", and Massana Construction, Inc.

a contractor doing business as an individual, a partnership, or a corporation* of the City of Tyrone, County of Fayette, and State of Georgia hereinafter called "Contractor".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the Owner, the Contractor hereby agrees to commence and complete the construction of the project entitled:

CHATTANOOGA AVENUE BRIDGE REPAIR PROJECT
OVER MILL CREEK
CITY OF DALTON PROJECT NO. PW-CAB-REPAIR-2019

hereinafter called the "Project", for the sum of \$586,535.00 Dollars (Five hundred eighty six thousand five hundred thirty five dollars and no cents) and all extra work in connection therewith, under the terms as stated in the Contract Documents, and at his (*its or their*) own proper cost and expense to furnish all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance and other accessories and services necessary to complete the said project in accordance with the conditions and prices stated in the proposal, the General Conditions of the Contract, the specifications and contract documents therefore as prepared by the Owner and as enumerated in Paragraph 2 of the General Conditions, all of which are made a part hereof and collectively constitute the Contract.

The Contractor hereby agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project by October 25, 2019 as stipulated in the specifications. The Contractor further agrees to pay as liquidated damages the sum of \$300.00 for each consecutive calendar day thereafter as hereinafter provided in the General Conditions under "Time of Completion and Liquidated Damages."

*Strike out inapplicable terms.

CONTRACT
(Continued)

The Owner agrees to pay the Contractor in current funds for the performance of the contract, subject to additions and deductions as provided in the General Conditions of the Contract, and to make payments on account thereof as provided in "Payments to Contractor," of the General Conditions.

IN WITNESS WHEREOF, the parties to those presents have executed this contract in five (5) counterparts, each of which shall be deemed an original, in the year and day first above mentioned.

ATTEST:

CITY OF DALTON, GEORGIA

City Clerk

By: _____ SEAL

Witness

Title

ATTEST:

Massana Construction, Inc.

Secretary

By: _____ SEAL

Witness

Title

Secretary of Owner should attest. If Contractor is corporation, secretary should attest.

Give proper title of each person executing contract.



CONTRACTOR AFFIDAVIT AND AGREEMENT

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

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

The undersigned Contractor is using and will continue to use the federal work authorization program throughout the contract period.

139279

EEV/Basic Pilot Program* User Identification Number

Christell K. Bakken
BY: Authorized Officer or Agent
(Contractor Name) *Massana Construction*

7.12.19

Date

Secretary

Title of Authorized Officer or Agent of Contractor

Christell K. Bakken

Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN
BEFORE ME ON THIS THE

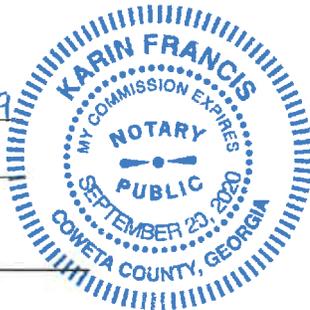
12th DAY OF July, 2019

Karin Francis

Notary Public

My Commission Expires:

9.20.2020



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



CONTRACT ADDENDUM

ADDENDUM NO.: 001

DATE ISSUED: July 11, 2019

BID DATE: Tuesday, July 16, 2019

BID TIME: 2 PM ET

BID LOCATION: Dalton City Hall Finance Department

CONTRACTOR ACTION:

1. Acknowledge receipt of this addendum by writing in "Addendum No. 1" on page 0200-3 of bid proposal.
2. Please remove and discard the original bid form from the bid proposal. Each Contractor should record their bid on the revised bid form which is attached to this document.

INTERPRETATIONS:

Responses by the City of Dalton follow the questions in red font.

1. Is the City going to cover the price for permanent striping after completion of the contract? **Thermoplastic striping has been added to the contract as a bid item. Please see the updated Bid Form.**
2. The plans call for pavement markings to be replaced after the work is completed. There are pay items for the RPM's but not for the actual striping. Will the city add pay items for the striping? **See response to Question #1.**
3. Is the quantity for Pay Item #511-3000 and Pay Item #500-1005 unit of measurement (UOM) supposed to be broken out or lump sum (LS)? **The unit of measurement is to be LS (lump sum) for both items, and quantities should show as 1. Please see updated Bid form.**
4. Drawing #19-0001 show Chenille Drive closed. Is the City going to provide Detour Signs? Is the Contractor only to place Drums, Type III Barricades and Closed Road sign? **The City will be responsible for any necessary detour signage associated with the closing of Chenille Drive. Contractor will be responsible for drums, Type III Barricades, and Road Closed signage.**

5. The staging plans show closing Chenille Drive during construction but there is no detour shown. Will the contractor be responsible for providing a detour for this road? If so, can you please provide the detour plan? **See response to Question #4.**
6. Can the Contractor use Type III Rip Rap to complete the erosion control repairs under the Bridge? **Due to potential scour concerns, the City chooses to keep the requirement for TP 1 Rip Rap.**
7. Can 24 HR Concrete mix be used for all of the concrete work? **Yes, however the contractor's proposed accelerated concrete mix design shall receive a review and approval by the City before use to ensure it matches GDOT's strength requirements in the Standard Specifications.**
8. Is the City going to complete all concrete testing and breaking of cylinders? **Yes, the City partners with Whitfield County inspectors to perform necessary concrete testing and breaking of cylinders.**
9. In section 0107 of the Proposal the time to complete the project is listed as 90 consecutive calendar days with an estimated completion date of 10/25/19. In the Bid Proposal form the completion date is specified as 10/25/19. Which of these is correct? **Total duration of contract completion time will be 90 consecutive calendar days from the issuance of Notice to Proceed. The City anticipates issuing Notice to Proceed for this project during the first week of August 2019. This would result in a completion date sometime in early November.**
 - a. If the intent is to specify a firm completion date then we must ask that this date be extended beyond 10/25/19. The proposal allows for a 60 day award duration which means we could be starting as late as the middle of September. That would not allow sufficient time to complete the work. **(See response to question #9 above)**
 - b. If the intent is to allow 90 days from NTP to complete the work then there is no issue. This would be our preference. **(see response to question #9 above)**
10. Is pay item 632-0003 Changeable Message Sign intended for the "mobile traffic control devices" listed in the plans? Or will 3 actual message boards be required in addition to the "mobile traffic control devices"? **Three (3) changeable message signs are required to alert motorists of current work conditions taking place at any given time. The mobile traffic control devices outlined in the construction staging plan shall be included in the price for "Traffic Control". Please note that contractor shall submit construction staging approach to the City of Dalton prior to starting work. Acceptance of construction staging plan is required prior to the contractor beginning work.**

11. The plans call for Temp Barrier method 2. This stipulates barrier that must be bolted through the bridge deck and is used where the vertical edge of the bridge is within 6' of the barrier centerline. At this location, the vertical edge will be more than 6' from the barrier centerline allowing the use of Temp Barrier Method 1. Please confirm that Temp Barrier Method 1 will be acceptable? **Yes, Method 1 is acceptable since bolting to the deck should not be necessary. See revised plan sheet 04-0001 which shows Method 1 instead of Method 2.**
12. Is the City open to using high early strength concrete on the end wall and wing wall reconstruction to allow for backfilling to begin quicker? **See response to Question #7.**
13. Is the contractor required to re-grade the shoulders to meet current guardrail requirements or can the guardrail be installed on the existing shoulders? **The Contractor is expected to ensure grading at the posts meets the specification developed by the guardrail manufacturer. The Contractor is responsible for determining if re-grade of the shoulders is required to meet that specification and including it in their bid.**
14. Does the city know if there is an existing concrete approach slab at this bridge? If there is, please add a removal and replacement item for the concrete approach slab as portions of it will have to be removed and replaced to complete the end wall reconstruction. **The City has confirmed through coring that there are no approach slabs on this bridge.**
 - a. If the city is unsure as to whether approach slabs are present or not, would this work be considered incidental or would it be eligible for a change order? **(see response above)**
15. Will the city please add pay items for the erosion control devices and grassing shown in the plans? **Yes, pay items for erosion control devices and grassing have been added. Please see the updated Bid Form.**
16. By replacing the existing asphalt overlay with a polymer overlay we will be creating a situation where water will "pond" at the bridge. The polymer overlay is not as thick as the asphalt overlay which will create a new low point in the road. Is this acceptable to the city as a final condition? **This bridge is in a flat section of tangent roadway that has normal crown. The Contract calls for installation of deck drain pipes to accommodate drainage on the bridge. Additionally, the contract calls for milling so that the asphalt elevation can be transitioned down gradually to the polymer overlay elevation.**

BY:
Megan Elliott
Project Engineer

###

**Bid Proposal Form - Dalton Project No. PW-CAB-REPAIR-2019
Chattanooga Avenue Bridge Repair Project Over Mill Creek**

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
ROADWAY ITEMS					
150-1000	TRAFFIC CONTROL -	LS	1	25,257 ⁰⁰	25,257 ⁰⁰
163-0232	TEMPORARY GRASSING	AC	0.1	2,500 ⁰⁰	250 ⁰⁰
163-0240	MULCH	TN	2	400 ⁰⁰	800 ⁰⁰
163-0300	CONSTRUCTION EXIT	EA	1	1,500 ⁰⁰	1,500 ⁰⁰
165-0030	MAINTENANCE OF TEMPORARY SILT FENCE, TYPE C	LF	200	0 ¹⁰	20 ⁰⁰
165-0101	MAINTENANCE OF CONSTRUCTION EXIT	EA	1	1 ⁰⁰	1 ⁰⁰
171-0030	TEMPORARY SILT FENCE, TYPE C	LF	400	4 ⁰⁰	1,600 ⁰⁰
210-0100	GRADING COMPLETE -	LS	1	40,000 ⁰⁰	40,000 ⁰⁰
402-1812	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	TN	100	90 ⁰⁰	9,000 ⁰⁰
402-3130	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME	TN	100	250 ⁰⁰	25,000 ⁰⁰
413-1000	BITUM TACK COAT	GL	160	3 ⁵⁰	560 ⁰⁰
432-5010	MILL ASPH CONC PVMT, VARIABLE DEPTH	SY	2360	6 ⁰⁰	14,160 ⁰⁰
620-0100	TEMPORARY BARRIER, METHOD NO. 1	LF	370	30 ⁰⁰	11,100 ⁰⁰
632-0003	CHANGEABLE MESSAGE SIGN, PORTABLE, TYPE 3	EA	3	10,000 ⁰⁰	30,000 ⁰⁰
641-1100	GUARDRAIL, TP T	LF	84	95 ⁰⁰	7,980 ⁰⁰
641-1200	GUARDRAIL, TP W	LF	195	40 ⁰⁰	7,800 ⁰⁰
641-5001	GUARDRAIL ANCHORAGE, TP 1	EA	2	1,500 ⁰⁰	3,000 ⁰⁰
641-5012	GUARDRAIL ANCHORAGE, TP 12	EA	1	3,800 ⁰⁰	3,800 ⁰⁰
653-0220	THERMOPLASTIC PVMT. MARKING, WORD, TYPE 2	EA	2	100 ⁰⁰	200 ⁰⁰
653-1704	THERMOPLASTIC SOLID TRAFFIC STRIPE, 24 IN., WHITE	LF	36	7 ⁰⁰	252 ⁰⁰
653-1501	THERMOPLASTIC SOLID TRAFFIC STRIPE, 5 IN., WHITE	LF	866	1 ⁰⁰	866 ⁰⁰
653-1502	THERMOPLASTIC SOLID TRAFFIC STRIPE, 5 IN., YELLOW	LF	766	1 ⁰⁰	766 ⁰⁰
654-1001	RAISED PVMT MARKERS TP 1	EA	14	5 ⁰⁰	70 ⁰⁰
654-1003	RAISED PVMT MARKERS TP 3	EA	5	5 ⁰⁰	25 ⁰⁰
700-6910	PERMANENT GRASSING	AC	0.1	3,000 ⁰⁰	300 ⁰⁰
SUB TOTAL					184,307⁰⁰

**Bid Proposal Form - Dalton Project No. PW-CAB-REPAIR-2019
Chattanooga Avenue Bridge Repair Project Over Mill Creek**

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
BRIDGE ITEMS					
432-0350	MICRO-MILL ASPHALTIC CONCRETE PAVEMENT, VARIABLE DEPTH	SY	233	25 ⁰⁰	5,825 ⁰⁰
449-1350	PREFORMED SILICONE JOINT SEAL, BR. NO. -1, BENT NO - 1	LF	31	75 ⁰⁰	2,325 ⁰⁰
449-1350	PREFORMED SILICONE JOINT SEAL, BR. NO. -1, BENT NO - 2	LF	31	75 ⁰⁰	2,325 ⁰⁰
500-1005	SUPERSTR CONCRETE, CL A, BR NO - 1	LS	1	65,000 ⁰⁰	65,000 ⁰⁰
500-3101	CLASS A CONCRETE	CY	17	1700 ⁰⁰	28,900 ⁰⁰
511-1000	BAR REINF STEEL	LB	2290	1 ⁰⁰	2,290 ⁰⁰
511-3000	SUPERSTR REINF STEEL, BR NO -	LS	1	3000 ⁰⁰	3,000 ⁰⁰
519-0515	SURFACE PREPARATION	SY	233	40 ⁰⁰	9,320 ⁰⁰
519-0225	POLYMER OVERLAY	SY	233	80 ⁰⁰	18,640 ⁰⁰
521-1000	PATCHING CONCRETE BRIDGE DECK	SF	30	105 ⁰⁰	3,150 ⁰⁰
521-3000	PATCHING CONCRETE BRIDGE	SF	105	250 ⁰⁰	26,250 ⁰⁰
528-0501	EPOXY PRESSURE INJECTION OF CONCRETE CRACKS	LF	18	100 ⁰⁰	1,800 ⁰⁰
535-1105	PAINT EXISTING STEEL STRUCTURE, BR ID -	LS	1	150,000 ⁰⁰	150,000 ⁰⁰
540-1202	REMOVAL OF PARTS OF EXISTING BR, BR NO - 1	LS	1	20,203 ⁰⁰	20,203 ⁰⁰
603-2024	STN DUMPED RIP RAP, TP 1, 24 IN	SY	400	155 ⁰⁰	62,000 ⁰⁰
603-7000	PLASTIC FILTER FABRIC	SY	400	3 ⁰⁰	1,200 ⁰⁰
SUB TOTAL					402,228⁰⁰

TOTAL \$586,535 ⁰⁰

Company Name: Massana Construction, Inc.

Authorized Bid Rep. Signature: Paul R. Cheng

Authorized Bid Rep. Title: President

SECTION 0300 - GENERAL CONDITIONS

0301 CONTRACT AND CONTRACT DOCUMENTS

The Contract Documents as hereinafter enumerated in Paragraph 2 of the General Conditions, shall form this Contract and the provisions thereof shall be as binding upon the parties hereto as if they were fully set forth. The Table of Contents, Titles, Headings, Running Headlines and Marginal Notes contained herein and in said documents are solely to facilitate reference to various provisions of the Contract Documents and in no way effect, limit or cast light on the interpretation of the provisions to which they refer.

0302 DEFINITIONS

The following terms as used in this contract are respectively defined as follows:

- 0302.01 Contractor - A person, firm or corporation with whom the contract is made by the Owner.
- 0302.02 Contract Documents - The Contract Documents are composed of the Advertisement for Bids; Instructions to Bidders; Bid Package; Form of Proposal, General Conditions, Supplementary Conditions, Detail Specifications, Form of Contract, Form of Bond(s), Addenda and the drawings including all changes incorporated herein before their execution.
- 0302.03 Project Representative - Refers to the authorized representative of the Owner, who is assigned to the site or any part thereof.
- 0302.04 Owner - The party of the First Part in the accompanying Contract, and meaning the CITY OF DALTON, GEORGIA.
- 0302.05 Subcontractor - A person, firm or corporation supplying labor and materials or only labor for work at the site of the project for, and under separate contract or agreement with the contractor for performance of a part of the work at the site.
- 0302.06 Work on (at) the Project - Work to be performed at the location of the project, including the transportation of materials and supplies to or from the location of the project by employees of the Contractor and any Subcontractor.

0303 CORRELATION AND INTENT OF DOCUMENTS

The contract documents are complementary, and what is called for by any one shall be as binding as if called for by all.

0303.01 The intent of the documents is to describe all construction entailed in this project. The contractor will furnish all labor and materials, equipment, transportation, tools and appurtenances such as may be reasonably required under the terms of the contract to make each part of the work complete.

0303.02 The Drawings are intended to conform and agree with the Specifications; if, however, discrepancies occur, the Owner will decide which shall govern. Special specifications stated on the Drawings govern that particular piece of construction and have equal weight and importance as the printed specifications. In the event of any discrepancies between the Drawings and the figures written thereon, the figures are to be taken as correct.

0304 MATERIALS, SERVICES AND FACILITIES

0304.01 It is understood that except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities of every nature whatsoever necessary to execute, complete, and deliver the work within the specified time.

0304.02 Any work necessary to be performed by the Contractor to complete the project on time after regular working hours, on Sundays or Legal Holidays, shall be performed without additional expense to the Owner.

0305 CONTRACTOR'S TITLE TO MATERIALS

No materials or supplies for the work shall be purchased by the Contractor or by any Subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies used by him in the work, free from all liens, claims and/or encumbrances.

0306 MATERIALS FURNISHED BY THE CONTRACTOR

All materials used in the work including equipment shall be new and unused materials of a reputable U.S. Manufacturer conforming to the applicable requirements of the Specifications, and no materials shall be used in the work until

they have been approved by the Owner. The Contractor shall furnish all materials necessary except as otherwise specifically noted or specified.

0307 INSPECTION AND TESTING OF MATERIALS

All materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with accepted standards. The laboratory or inspection agency shall be selected by the Owner. Materials of construction, particularly those upon which the strength and durability of the structure may depend, shall be subject to inspection and testing to establish conformance with specifications and suitability for uses intended.

0308 PATENTS

- 0308.01 The Contractor shall hold and save the Owner and its officers, agents, servants, and employees harmless from liability of any nature or kind, including cost and expenses for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the contract, including its use by the Owner, unless otherwise specifically stipulated in the Contract Documents.
- 0308.02 License and/or Royalty Fees for the use of a process which is authorized by the Owner of the project must be reasonable, and paid to the holder of the patent, or his authorized licensee, direct by the Owner and not by or through the Contractor.
- 0308.03 If the Contractor uses any design, device or materials covered by letters, patent or copyright, he shall provide for such use by suitable agreement with the Owner of such patented or copyrighted design, device or material. It is mutually agreed and understood, that, without exception, arising from the use of such design, device, or materials or in any way involved in the work, the Contractor and/or his Sureties shall indemnify and save harmless the Owner of the project from all claims for infringement by the reason of the use of such patented or copyrighted design, device or materials or any trademark or copyright in connection with work agreed to be performed under this contract and shall indemnify the Owner for any cost, expense or damage which it may be obliged to pay by reason of such infringement at any time during the prosecution of the work or after completion of the work.

0309 SURVEYS, PERMITS AND REGULATIONS

- 0309.01 Unless otherwise expressly provided for in the Specifications, the Owner will furnish to the Contractor any control alignment and bench mark data from previous engineering surveys.
- 0309.02 The Contractor shall procure and pay all permits, licenses and approvals necessary for the execution of his contract. The Contractor shall comply with all laws, ordinances, rules, orders, and regulations relating to performance of the work, the protection of adjacent property, and the maintenance of passageways, guard fences or other protective facilities.

0310 CONTRACTOR'S OBLIGATIONS

- 0310.01 The Contractor shall and will, in good workmanlike manner do and perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete all the work required by this contract, within the time herein specified, in accordance with the plans and drawings covered by this contract, any and all supplemental plans and drawings and in accordance with the directions of the Owner as given from time to time during the progress of the work. He shall furnish, erect, maintain and remove such construction plant and such temporary works as may be required. He alone shall be responsible for the safety, efficiency and adequacy of his plant, appliances, and methods, and for any damage which may result from their failure of their improper construction, maintenance or operation.
- 0310.02 The Contractor shall observe, comply with and be subject to all terms, conditions, requirements, and limitations of the Contract and specifications and shall do, carry on, and complete the entire work to the satisfaction of the Owner.

0311 CONTRACTOR'S RESPONSIBILITY

The Contractor shall be responsible for all material and work until they are finally accepted by the Owner and shall repair at his own expense any damage that they sustain before their final acceptance. The Contractor shall be responsible for all damages caused by him of whatever nature and must settle all claims arising from such damage without cost to the Owner; he shall act as defendant in, and bear the expense of each and every suit of any and every nature which may be brought against him or the Owner, by reason of, or connected with the work under the Contract. Should any claim arise, the Owner may hold back sufficient money to meet said claims or until the Contractor has satisfied the Owner that all claims

against him as the result of his work have been adjusted. He must also show that there are no claims or liens whatsoever outstanding at the completion of his contract before final payment is made.

0312 WEATHER CONDITIONS

In the event of temporary suspension of work, or during inclement weather, or whenever the Owner shall direct, the Contractor will, and will cause his subcontractors to protect carefully his and their work and materials against damage or injury from the weather. If, in the opinion of the Owner, any work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of his subcontractors so to protect his work, such materials shall be removed and replaced at the expense of the Contractor.

0313 SAFETY PROVISIONS

0313.01 The Contractor shall comply with the Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (*PL 91-596*) and under Sec.107 of the Contract Work Hours and Safety Standards Act (*PL 91-54*).

0313.02 The Contractor shall be responsible for the Safety, efficiency and adequacy of his plant, appliances and methods, and for any damage which may result from their failure of their improper construction, maintenance and operation.

0313.03 The Contractor shall employ, when necessary, watchmen on the work and shall, when necessary, erect and maintain such strong and suitable barriers and such light as will effectually prevent the happening of any accident to health, limb or property.

0314 SANITARY PROVISIONS

The Contractor shall provide and maintain in a neat and sanitary condition such accommodations for the use of his employees as may be necessary to comply with the regulations of the State Board of Health and all local ordinances. No nuisance will be permitted.

0315 PUBLIC CONVENIENCE AND SAFETY

Materials stored at the site of the work shall be so placed and the work shall, at all times, be so conducted as to cause no greater obstruction to traffic than is considered permissible by the Owner. No roadway shall be closed or opened except by express permission of the Owner and the Contractor's proper notification of local fire and police departments. Precaution shall be exercised at all times for

the protection of persons and property. The safety provisions of applicable laws, building and construction codes shall be observed. Machinery, equipment and other hazards shall be guarded in accordance with the safety provisions of the manual of Accident Prevention in Construction, published by the Associated General Contractors of America to extent that such provisions are not in contravention of applicable laws.

0316 PROTECTION OF WORK AND PROPERTY - EMERGENCY

The Contractor shall at all times safely guard the Owner's property from injury or loss in connection with this contract. He shall at all times safely guard and protect his own work, and that of adjacent property from damage. The Contractor shall replace or make good any such damage, loss or injury unless such be caused directly by errors contained in the contract or by the Owner, or his duly authorized representative.

0316.01 In case of an emergency which threatens loss or injury of property, and/or safety of life, the Contractor will be allowed to act, without previous instructions from the Owner in a diligent manner. He shall notify the Owner immediately thereafter. Any claim for compensation by the Contractor due to such extra work shall be promptly submitted to the Owner for approval.

0316.02 Where the Contractor has not taken action but has notified the Owner of an emergency threatening injury to persons or damage to the work or any adjoining property, he shall act as instructed or authorized by the Owner.

0316.03 The amount of reimbursement claimed by the Contractor on account of any emergency action shall be determined in the manner provided in Paragraph 0323 of the General Conditions.

0317 INSPECTION

The authorized representatives and agents of the Owner shall be permitted to observe all work, materials, payrolls, records of personnel, invoices of materials and other relevant data and records.

0318 REPORTS, RECORDS AND DATA

The Contractor shall submit to the Owner such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the Owner may request concerning work performed or to be performed under this contract.

0319 SUPERINTENDENCE BY CONTRACTOR

At the site of the work, the Contractor shall employ a construction superintendent or foreman who shall have full authority to act for the Contractor. It is understood that such representative shall be acceptable to the Owner and shall be one who can be continued in that capacity for the particular job involved unless he ceases to be on the Contractor's payroll.

0320 COMPETENT LABOR

0320.01 The Contractor shall employ only competent and skilled workers on the project. The Contractor shall have a competent superintendent or foreman present at all times when the work is in progress and with authority to receive orders and execute the work.

0320.02 The Contractor shall, upon demand from the Owner, immediately remove any superintendent, foreman or worker whom the Owner may consider incompetent or undesirable.

0321 CONSTRUCTION EQUIPMENT

The Contractor shall provide all necessary equipment in good repair for the expeditious construction of the work. Any equipment not adapted for the work, in such repair as to be dangerous to the project or workers, shall not be used.

0322 CHANGES IN THE WORK

0322.01 Without invalidating the Agreement, the Owner may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by Change Orders. Upon receipt of a Change Order, the Contractor will proceed with the Work involved. All such Work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, an equitable adjustment will be made as provided in Paragraph 0328. A Change Order signed by the Contractor indicates his agreement therewith.

0322.02 The Owner may authorize minor changes or alterations in the Work not involving extra cost and not inconsistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order. If the Contractor believes that any Field Order authorized by the Owner entitles him to an increase in the Contract Price or extension of Contract Time, he shall inform the Owner in writing of the amount of increased price or time associated with the Field Order, and he shall include reference to appropriate contract documents supporting the basis for the claim, and he

shall not proceed with the work in question until a written decision has been rendered by the Owner.

- 0322.03 Any changes or additional work performed by the Contractor without authorization of a Change Order will not entitle him to an increase in the Contract Price or an extension of the Contract Time, except in the case of an emergency.
- 0322.04 It is the Contractor's responsibility to notify his surety of any changes affecting the general scope of the Work or change in the Contract Price and the amount of the applicable bonds shall be adjusted accordingly. The Contractor will furnish proof of such adjustment to the Owner.
- 0322.05 The term Change Order is defined as a written order to the Contractor signed by the Owner which authorizes a change in the work or the contract price or the contract time issued after execution of the Agreement.
- 0322.06 The Contract Price constitutes the total compensation payable to the Contractor for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by the Contractor shall be at his expense without changing the Contract Price, except where authorized by Change Order.

0323 CHANGE IN CONTRACT PRICE

- 0323.01 The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:
- 0323.01.1 Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.
- 0323.01.2 By mutual acceptance of a lump sum (*which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 0323.04.2.1*).
- 0323.01.3 On the basis of the Cost of the Work (*determined as provided in Paragraphs 0323.04 and 0323.05*) plus a Contractor's Fee for overhead and profit (*determined as provided in Paragraphs 0323.4 and 0323.05*).
- 0323.02 The term Cost of the Work means the sum of all costs necessarily incurred and paid by the Contractor in the proper performance of the Work. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall

include only the following items and shall not include any of the costs itemized in Paragraph 0323.03.

- 0323.02.1 Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workmen's compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. Such employees shall include superintendents and foremen at the site. The expenses of performing work after regular working hours, on Sunday or legal holidays shall be included in the above to the extent authorized by Owner.
- 0323.02.2 Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and manufacturers' field services required in connection therewith.
- 0323.02.3 Payments made by Contractor to the Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from Subcontractors acceptable to him and shall deliver such Bids to Owner who will then determine which Bids will be accepted.
- 0323.02.4 Costs of special consultants (*including, but not limited to, engineers, architects, testing laboratories, surveyors, lawyers, and accountants*) employed for services specifically related to the Work.
- 0323.02.5 Supplemental costs including the following:
 - 0323.02.5.1 The proportion of necessary transportation, traveling and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - 0323.02.5.2 Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workmen, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of Contractor.
 - 0323.02.5.3 Rentals of all construction equipment and machinery and the parts

thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner and the costs of transportation, loading, unloading, installation, dismantling and removal thereof - all in accordance with terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

0323.02.5.4 Sales, use or similar taxes related to the Work, and for which Contractor is liable, imposed by any governmental authority.

0323.02.5.5 Deposits lost for causes other than Contractor's negligence, royalty payments and fees for permits and licenses. Costs for permits and licenses must be shown as a separate item.

0323.02.5.6 Losses, damages and expenses, not compensated by insurance or otherwise, sustained by Contractor in connection with the execution of, and to, the Work, provided they have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's Fee.

0323.02.5.7 The cost of utilities, fuel and sanitary facilities at the site.

0323.02.5.8 Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

0323.02.5.9 Cost of premiums for additional Bonds and Insurance required because of changes in the Work.

0323.03 The term Cost of the Work shall not include any of the following:

0323.03.1 Payroll costs and other compensation of Contractor's officers, executives, principals (*of partnership and sole proprietorships*), general managers, engineers, architects, estimators, lawyers, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by Contractor whether at the site or in his principal or a branch office for general administration of the Work and not specifically included in the schedule referred to in subparagraph 0323.02.1 - all of which are to be considered administrative costs covered by the Contractor's Fee.

- 0323.03.2 Expenses of Contractor's principal and branch offices other than his office at the site.
 - 0323.03.3 Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 - 0323.03.4 Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective work, disposal of materials or equipment wrongly supplied and making good any damage to property.
 - 0323.03.5 Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 0323.04.
- 0323.04 The Contractor's Fee which shall be allowed to Contractor for his overhead and profit shall be determined as follows:
- 0323.04.1 a mutually acceptable firm fixed price; or if none can be agreed upon.
 - 0323.04.2 a fee based on the following percentages of the various portions of the Cost of the Work.
 - 0323.04.2.1 for costs incurred under paragraphs 0323.02.1 and 0328.02.2, the Contractor's Fee shall be fifteen percent.
 - 0323.04.2.2 for costs incurred under paragraph 0328.02.3, the Contractor's Fee shall be five percent; and if a subcontract is on the basis of Cost of the Work Plus a Fee, the maximum allowable to Contractor on account of overhead and profit of all Subcontractors shall be fifteen percent:
 - 0323.04.2.3 no fee shall be payable on the basis of costs itemized under paragraphs 0323.02.4, 0323.02.5, and 0323.03;
 - 0323.04.2.4 the amount of credit to be allowed by Contractor to Owner for any such change which results in a net decrease in cost will be the amount of the actual net decrease plus a deduction in Contractor's Fee by an amount equal to ten percent of the net decrease; and
 - 0323.04.2.5 when both additions and credits are involved in any one change, the adjustment in Contractor's Fee shall be computed on the basis of the net change in accordance with paragraphs 0323.04.2.1 through 0328.04.2.4, inclusive.

0323.05 Whenever the cost of any Work is to be determined pursuant to Paragraph 0323.02 or 0323.03. Contractor will submit in form acceptable to Owner an itemized cost breakdown together with supporting data.

0324 CHANGE OF THE CONTRACT TIME

The Contract Time may only be changed by a Change Order. Any claim for an extension in the Contract Time shall be based on written notice delivered to Owner within ten days of the occurrence of the event giving rise to the claim. Notice of the extent of the claim with supporting data shall be delivered within forty-five days of such occurrence unless Owner allows an additional period of time to ascertain more accurate data. Any change in the Contract Time resulting from any such claim shall be incorporated in a Change Order.

0324.01 The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of CONTRACTOR if he makes a claim therefor as provided in Paragraph 0323.01. Such delays shall include, but not be restricted to, acts or neglect by any separate contractor employed by Owner, fires, floods, labor disputes, epidemics, abnormal weather conditions, or acts of God.

0324.02 All time limits stated in the Contract Documents are of the essence of the Agreement. The provisions of this Paragraph 0328 shall not exclude recovery for damages (*including compensation for additional professional services*) for delay by either party.

0325 CORRECTION OF WORK

All work, all materials, whether incorporated in the work or not, all processes of manufacture, and all methods of construction shall be at all times and places subject to the review of the Owner who shall be the final judge of the quality and suitability of the work, material, processes of manufacture and methods of construction for the purposed for which they are used. Should they fail too meet his approval, they shall be forthwith reconstructed, made good, replaced and/or corrected, as the case may be, by the Contractor at his own expense. Rejected material shall immediately be removed from the site. If, in the opinion of the Engineer, it is undesirable to replace any defective or damaged materials or to reconstruct or correct any portion of the work injured or not performed in accordance with the Contract Documents, the compensation to be paid to the Contractor hereunder shall be reduced by such amount as in the judgment of the Engineer shall be equitable. It is not intended that the Engineer should be liable for the Contractor's performance of the work nor for safety during construction.

0326 EXISTING UNDERGROUND UTILITIES AND STRUCTURES

- 0326.01 The Owners and/or operators of private or public utilities shall have access to such utility at all times, for the installation, maintenance, adjustment, repair and operation of said utility. No extra compensation will be allowed because of the delay or interference caused by such work.
- 0326.02 Wherever existing utilities are encountered which conflict in actual position and location with the proposed work, the Contractor shall promptly notify the Owner for resolution of the conflict.
- 0326.03 The Contractor shall be solely and directly responsible to the Owner and/or other operator of such utility properties for any damage, injury, expense, loss, inconvenience or delay, or for any suits, actions, claims of any character brought on account of any injuries or damages which may result from the carrying out of the work.

0327 SUBSURFACE CONDITIONS FOUND DIFFERENT

Should the Contractor encounter sub-surface and/or latent conditions at the site materially differing from those shown on the plans or indicated in the specifications, he shall immediately give notice to the Owner of such conditions before they are disturbed. The Owner will thereupon promptly investigate the conditions, and if he finds that they materially differ from those shown on the plans or indicated in the specifications, he will at once make such changes in the plans and/or specifications as he may find necessary, any increase or decrease of cost resulting from such changes to be adjusted in the manner provided in Paragraph 0326 of the General Conditions.

0328 CLAIMS FOR EXTRA WORK

No claim for extra work or cost shall be allowed unless the same was one in pursuance of a written order of the Owner and approved by the Owner, as aforesaid, and the claim presented with the first estimate after the changed or extra work is done. When work is performed under the terms of Subparagraph 0326 of the General Conditions, the Contractor shall furnish satisfactory bills, payrolls and vouchers covering all items of cost and when requested by the Owner, give the Owner access to accounts relating thereto.

0329 RIGHT OF THE OWNER TO TERMINATE CONTRACT

In the event that any of the provisions of this contract are violated by the Contractor or by any of his Subcontractors, the Owner may serve written notice upon the

Contractor and the surety of its intention to terminate the contract, such notices to contain the reasons for such intention to terminate the contract, and unless within ten (10) days after the serving of such notice upon the Contractor such violation or delay shall cease and satisfactory arrangement of correction be made, the contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination the Owner shall immediately serve notice thereof upon the Surety and the Contractor and the Surety shall have the right to take over and perform the contract; provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date of the mailing to such Surety of notice of termination, the Owner may take over the work and prosecute the same to completion by contract or by force account for the account and at the expense of the Contractor and the Contractor and his Surety shall be liable to the Owner for any excess cost occasioned the Owner thereby, and in such event the Owner may take possession of and utilize in completing the work, such materials, appliances and plant as may be on the site of the work and necessary therefor.

0330 CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES

Immediately after execution and delivery of the contract, and before the first partial payment is made, the Contractor shall deliver to the Owner an estimated construction progress schedule in form satisfactory to the Owner showing the proposed dates of commencement and completion of each of the various subdivisions of work required under the contract documents and the anticipated amount of each monthly payment that will become due the Contractor in accordance with the progress schedule. The Contractor shall also furnish on forms to be supplied by the Owner, (a) a detailed estimate giving a complete breakdown of the contract price and (b) periodic itemized estimate of work done for the purpose of making partial payments thereon. The costs employed in making up any of these schedules will be used only for determining the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the contract price.

0331 PAYMENTS TO CONTRACTORS

- 0331.01 No later than thirty (30) days after submittal of a progress payment request the Owner shall make a progress payment to the Contractor on the basis of a duly certified and approved estimate of the work performed during the preceding calendar month under this contract, but to insure the proper performance of this contract, the Owner shall retain ten percent (10%) of the amount of each estimate until final completion and acceptance of all work covered by this contract. Provided, that the Contractor shall submit his estimate not later than the first day of the month; provided, further, that the Owner at any time after fifty percent (50%) of the work has been completed, if it finds that satisfactory progress is being made, *may* reduce the retainage to 5%.

- 0331.02 Where a project is under the jurisdiction of a Force Account Agreement between the Owner and the Georgia Department of Transportation, the Contractor shall maintain a *daily* report of the amount of completed work as shown in the bid proposal. A copy of the accepted report appears in Appendix A at the end of this section and may be reproduced for use on this project. The Contractor's representative shall certify by signature that the report is accurate on behalf of the Contractor for the Owner (*shown as "Utility" on the report*). The Project Engineer representing the Georgia Department of Transportation shall certify by signature that the report is accurate for the "State". A copy of each days report properly certified as required by this part shall accompany each progress payment request by the Contractor. The quantity of work completed shown on the progress payment request *must* be supported by an equal quantity shown on the daily report for that progress payment period. Payment requested for quantities of work not supported by a properly certified daily report(s) may *not* be recommended for payment by the Owner.
- 0331.03 In preparing estimates, the material delivered on the site and preparatory work done may be taken into consideration. Where a project is under the jurisdiction of a Force Account Agreement between the Owner and the Georgia Department of Transportation, however, material delivered on the site and preparatory work done may *not* be taken into consideration.
- 0331.04 All material and work covered by partial payments made shall thereupon become the sole property of the Owner, but this provision shall not be construed as relieving the Contractor from the sole responsibility for the care and protection of materials and work upon which payments have been made or the restoration of any damaged work, or as a waiver of the right of the Owner to require the fulfillment of all of the terms of the contract.
- 0331.05 The Contractor agrees that he will indemnify and save the Owner harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, material men, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary incurred in the furtherance of the performance of this contract. The Contractor shall, at the Owner's request, furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged, or waived. If the Contractor fails to do so, then the Owner may, after having served written notice on the said Contractor, either pay unpaid bills, of which the Owner has written notice, direct, or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor shall be resumed, in accordance with the terms of this

contract, but in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor or his Surety. In paying any unpaid bills of the Contractor, the Owner shall be deemed the agent of the Contractor, and any payment so made by the Owner shall be considered as a payment made under the contract by the Owner to the Contractor and the Owner shall not be liable to the Contractor for any such payments made in good faith.

0331.06 If at any time the Owner shall determine that the amount of work completed at that time is lagging behind the expired contract time by more than 20 percent, the Owner may determine that the Contractor is not faithfully performing on the contract and therefore the Owner may elect to withhold all monies and refrain from making any additional payments to the Contractor until such time as the Owner determines the work to be progressing satisfactorily.

0332 ACCEPTANCE AND FINAL PAYMENT

When the project provided for under this contract shall have been completed by the Contractor, and all parts of the work have been approved by the Owner according to the contract, the Owner shall, within ten (10) days unless otherwise provided, make final inspection and advise the Contractor as to preparing a final estimate, showing the value of work as soon as the necessary measurements and computations can be made, all prior certificates or estimates upon which payments have been being made are approximately only, and subject to correction in the final payment. The amount of the final estimates, less any sums that may have been deducted or retained under the provisions of this contract, will be paid to the Contractor within sixty (60) days after approval by the Owner, provided that the contractor has properly maintained and operated the project as specified under these specifications, and provided, that he has furnished to the Owner a sworn affidavit to the effect that all bills are paid and no suits are pending in connection with the work done or labor and material furnished under this contract. A sample affidavit appears at the end of this section to be considered as an example of an acceptable affidavit.

0333 PAYMENTS BY CONTRACTORS

The Contractor shall pay (a) for all transportation and utility services not later than the 20th day of the calendar month following that in which such services are rendered, (b) for all materials, tools, and other expendable equipment to the extent of 90 percent of the cost thereof, not later than the 20th day of the calendar month following that in which such materials, tools and equipment are delivered at the site of the project, and the balance of the cost thereof not later than the 30th day following the completion of that part of the work in or on which such materials, tools and equipment are incorporated or used, and (c) to each of his Subcontractors,

not later than the 5th day following each payment to the Contractor, the respective amounts allowed the Contractor on account of the work performed by his Subcontractors to the extent of each Subcontractor's interest therein.

0334 CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE

0334.01 The Contractor shall not commence work under this Contract until he has obtained all the insurance required under this paragraph and such insurance has been reviewed by the Owner, nor shall the Contractor allow any Subcontractor to commence work on his subcontract until the insurance has been so obtained and reviewed.

0334.01.1 Contractor's Liability Insurance: Contractor shall purchase and maintain such comprehensive general liability and other insurance as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the work and Contractor's other obligations under the Contract Documents, whether such performance is indirectly employed by any of them, or by anyone for whose acts any of them may be liable.

0334.01.1.1 Claims under workers' or workmen's compensation, disability benefits and other similar employees benefit acts;

0334.01.1.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

0334.01.1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

0334.01.1.4 Claims for damages insured by personal injury liability coverage which are sustained (i) by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or (ii) by any other person for any other reason.

0334.01.1.5 Claims for damages, other than to the work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom; and

0334.01.1.6 Claims for damages because of bodily injury or death of any person or property damage arising out of the Ownership, maintenance or use of any motor vehicle.

The insurance required by this paragraph shall include the specific coverages and be written for not less than the limits of liability and

coverages provided in these specifications, or required by law, whichever is greater. The comprehensive general liability insurance shall include completed operations insurance. All such insurance shall contain a provision that the coverage afforded will not be cancelled, materially changed or renewal refused until at least thirty days prior written notice has been given to Owner. All such insurance shall remain in effect until final payment and at all times thereafter when Contractor may be correcting, removing or replacing defective work. In addition, Contractor shall maintain such completed operations insurance for at least one year after final payment and furnish Owner with evidence of continuation of such insurance at final payment. Renewal certificates shall be sent to the Owner 30 days prior to the expiration date of any policy required herein.

0334.02 Contractual Liability Insurance: The comprehensive general liability insurance required by paragraph 0334.01.1 will include contractual liability insurance applicable to Contractor's obligations under separate contract and subcontracting.

0334.03 Unless otherwise provided in these General Conditions, Contractor shall purchase and maintain property insurance upon the work at the site to the full insurable value thereof (*subject to such deductible amounts as may be provided in these general conditions or required by law*). This insurance shall include the interest of Owner, Contractor and Subcontractors in the work, shall provide "all risk" insurance for physical loss and damage including but not limited to fire, lightning, windstorms, hail, smoke, explosion, riot, aircraft, vehicles, falling objects, flood, earthquake, theft, vandalism, malicious mischief, collapse, water damage and other perils, and shall include damages, losses and expenses arising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (*including fees and charges of engineers, architects, attorneys and other professionals*). If not covered under the "all risk" insurance or otherwise provided in these General Conditions, Contractor shall purchase and maintain similar property insurance on portions of the work stored on and off the site or in transit when such portions of the work are to be included in an Application for Payment. The policies of insurance required to be purchased and maintained by Contractor in accordance with paragraphs c and d shall contain a provision that the coverage afforded will not be cancelled, materially changed or renewal refused until at least thirty days prior written notice has been given to the Owner.

0334.04 Contractor shall purchase and maintain such boiler and machinery insurance as may be required by these General Conditions or by law. This insurance shall include the interest of Owners, Contractor and

Subcontractors in the work and shall provide coverage for all installed and functional mechanical equipment for the full replacement value of the equipment.

0334.05 Owner shall not be responsible for purchasing and maintaining any property insurance to protect the interests of Contractor or Subcontractors in the work to the extent of any deductible amounts that are provided in the supplemental conditions. If Contractor wishes property insurance coverage within the limits of such amounts, Contractor may purchase and maintain it at his own expense.

0334.06 If Owner has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by Contractor in accordance with paragraphs 0334.01.1. through 0334.01.1.4., Owner will notify Contractor thereof within ten days of the date of delivery of such certificates, to Owner. Contractor will provide to the Owner such additional information in respect of insurance provided by him as Owner may reasonably request. The right of the Owner to review and comment on Certificates of Insurance is not intended to relieve the Contractor of his responsibility to provide insurance coverage as specified nor to relieve the Contractor of his liability for any claims which might arise.

0334.07 Partial Utilization - Property Insurance: If Owner finds it necessary to occupy or use a portion or portions of the work prior to Substantial Completion of all the work, such use or occupancy may be accomplished provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected the changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be cancelled or lapse on account of any such partial use or occupancy.

0334.08 The Contractor shall carry and maintain Combined Excess Liability (*Umbrella*) Insurance for a limit of not less than the following:

Each Occurrence:	\$3,000,000
Aggregate:	\$3,000,000

0334.09 The limits of liability for the insurance required in the General Conditions shall provide coverage for not less than the following amounts or greater where required by law:

For claims under paragraph 0338.01.1.1. and 0338.01.1.2., Worker's Compensation:

State	Statutory
Federal	Statutory
Employer's Liability – Each Accident:	\$1,000,000
Employer's Liability – Disease – Each Employee:	\$1,000,000
Employer's Liability – Disease – Policy Limit:	\$1,000,000

If the Contractor chooses to maintain a policy with a maximum of the state mandated amounts of \$100,000 per accident, \$100,000 for disease per employee and a disease policy limit of \$500,000, the Contract required minimum of \$1,000,000 can be achieved by the excess liability policy required by paragraph 0334.08 above.

For claims under 0334.01.1.1. through 0334.01.1.5. (*General Liability*),

General Liability Provided Per Occurrence

Each Occurrence (Bodily and Property Damage Included):	\$1,000,000
Fire Damage (<i>Any One Fire</i>):	\$50,000
Medical Expense (<i>Any One Person</i>):	\$5,000
Personal and Adv Injury, With Employment Exclusion Deleted:	\$1,000,000
General Aggregate (<i>Per Project</i>):	\$2,000,000
Products and Completed Operations Aggregate:	\$1,000,000

Notes: Property Damage Liability Insurance will provide explosion, collapse and underground hazard coverages where applicable. Each detonation of blasting shall be considered a single occurrence. General Liability shall include Contractual Liability as stipulated in Paragraph 0334.02. above.

Comprehensive Automobile Liability:

Combined Single Limit Per Occurrence, For Any and All Autos, Including Bodily Injury and Property Damage:	\$1,000,000
---	-------------

0334.10 Scope of Insurance and Special Hazards - The amounts stated in subparagraph 0334.09. above are minimum amounts of insurance to be carried. The Contractor shall carry such additional insurance as may be required to provide adequate protection of the Contractor and his

Subcontractors, respectively, against any and all damage claims which may arise from operations under this Contract, whether such operations be by the insured or by anyone directly or indirectly employed by his and, also, against any of the special hazards which may be encountered in the performance of this Contract.

0334.11 Certificate Holder should read:

**CITY OF DALTON
P.O. BOX 1205
DALTON, GEORGIA 30722**

0334.12 Insurance company must have an A.M. Best Rating of A-6 or higher. Insurance company must be licensed to do business by the Georgia Secretary of State. Insurance company must be authorized to do business in the State of Georgia by the Georgia Insurance Department.

0335 CONTRACT SECURITY

The Contractor shall furnish a Construction Performance Bond in an amount at least equal to one hundred percent (100%) of the contract prices as security for the faithful performance of this contract and also a Construction Payment Bond in an amount at least equal to one hundred percent (100%) of the contract price or in a penal sum not less than that prescribed by State, Territorial or local law, as security for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract. The performance bond and the payment bond may be in one or in separate instruments in accordance with local law.

0336 ADDITIONAL OR SUBSTITUTE BOND

If at any time the Owner for justifiable cause shall be or become dissatisfied with any Surety or Sureties, then upon the Construction Performance or Payment Bonds, the Contractor shall within five (5) days after notice from the Owner to do so, substitute an acceptable bond (*or bonds*) in such form and sum and signed by such other Surety or Sureties as may be satisfactory to the Owner. The premiums on such bond shall be paid by the Contractor. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished such an acceptable bond to the Owner.

0337 LIEN

Neither the final payment nor any part of the retained percentage will become due until the Contractor, if required, shall furnish the Owner a complete release from any liens which may arise out of this contract, or receipts in full in lieu thereof, and if required in either case, an affidavit that insofar as he has knowledge or information, the release and receipts include all materials, for which a lien might be filed. The Contractor may, if any Subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Owner to indemnify it against any lien. If a lien shall remain unsatisfied after all payments are made, then the Contractor shall refund to the Owner all monies which the latter may be compelled to pay in discharging such lien, including all incidental costs and attorney's fees.

0338 ASSIGNMENTS

The Contractor shall not assign the whole or any part of this contract or any money due to or to become due hereunder without written consent of the Owner. In case the Contractor assigns all or part of any money due or to become due under this contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assigned in and to any money due or to become due to the Contractor shall be subject to prior liens of all persons, firms and corporations for services rendered or materials supplied for the performance of the work called for in this contract.

0339 MUTUAL RESPONSIBILITY OF CONTRACTORS

If through acts of neglect on the part of the Contractor, any other Contractor or subcontractor, shall suffer loss or damage on the work, the Contractor agrees to settle with such other Contractor or subcontractor by agreement or arbitration, if such other contractor or subcontractor will so settle. If such other Contractor or subcontractor shall assert any claim against the Owner on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor, who shall indemnify and save harmless the Owner against any such claim.

0340 COORDINATION WITH OTHER CONTRACTORS

The Contractor shall coordinate his operations with those of other contractors. Cooperation will be required in the arrangement for the storage of materials and in the detailed execution of the work. The Contractor, including his Subcontractors shall keep informed of the progress and the detail work of other Contractors and shall notify the Owner immediately of lack of progress or defective workmanship on the part of other contractors. Failure of a Contractor to keep informed of the work progressing on the site and failure to give notice of lack of progress or defective workmanship by others shall be construed as acceptance by him of the status of the work as being satisfactory for proper coordination with his own work.

0341 SUBCONTRACTING

The Contractor shall utilize the service of specialty subcontractor on those parts of the work which, under normal contracting practices, are performed by specialty Subcontractors. Provided - that if the Owner shall determine that the specialty work in question has been customarily performed by the Contractor's own organization and that such organization is presently competent to perform such work, the Contractor shall be permitted to do so. Provided, further - that if the Owner shall determine that the performance of any specialty work by specialty Subcontractors will result in materially increased costs or inordinate delays, the requirements of this paragraph shall not apply.

- 0341.01 The Contractor shall not be allowed to award work to any subcontractor prior to written approval of the Owner, which approval will not be given until the Contractor submits to the Owner, a written statement concerning the proposed award to the subcontractor, which statement shall contain such information as the Owner may require.
- 0341.02 The Contractor shall be as fully responsible to the Owner for the acts and omissions of his Subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.
- 0341.03 The Contractor shall cause appropriate provisions to be inserted in all Subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions and other contract documents insofar as applicable to the work of subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.
- 0341.04 Nothing contained in this Contract shall create any contractual relation between any Subcontractor and the Owner.

0342 USE OF PREMISES AND REMOVAL OF DEBRIS

The Contractor expressly undertakes at his own expense:

- 0342.01 To take every precaution against injuries to persons or damage to property;
- 0342.02 To store his apparatus, materials, supplies and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or the work of any other Contractors;

- 0342.03 To place upon the work or any part thereof only such loads as are consistent with the safety of that portion of the work.
- 0342.04 To clean up frequently all refuse, rubbish, scrap materials, and debris caused by his operations, to the end that at all times the site of the work shall present a neat, orderly and workmanlike appearance;
- 0342.05 Before final payment to remove all surplus material, false work, temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from his operations, and to put the site in a neat orderly condition;

0343 QUANTITIES OF ESTIMATE

Wherever the estimated quantities of work to be done and materials to be furnished under this contract are shown in any of the documents including the proposal, they are given for use in comparing bids and the right is especially reserved except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the work contemplated by this Contract, and such increase or diminution shall in no way vitiate this Contract, nor shall any such increase or diminution give cause for claims or liability for damages.

0344 RIGHTS-OF-WAY AND SUSPENSION OF WORK

The Owner shall furnish all land and rights-of-way necessary for the carrying out of this Contract and the completion of the work herein contemplated and will use due diligence in acquiring said land and rights-of-way as speedily as possible. But it is possible that all lands and rights-of-way may not be obtained as herein contemplated before construction begins, in which event the Contractor shall begin his work upon such land and rights-of-way as the Owner may have previously acquired, and no claim for damages whatsoever will be allowed by reason of the delay in obtaining the remaining lands and rights-of-way. Should the Owner be prevented or enjoined from proceeding with the work, or from authorizing its prosecution, either before or after the commencement, by reason of any litigation, or by reason of its inability to procure any lands or rights-of-way for the said work, the Contractor shall not be entitled to make or assert claim for damage by reason of said delay, or, to withdraw from the contract except by consent of the Owner, but time for completion of the work will be extended to such time as the Owner determines will compensate for the time lost by such delay, such determination to be set forth in writing.

0345 GUARANTY

- 0345.01 **All work constructed under this contract shall be fully guaranteed by**

the Contractor for a period of one year from the date of final inspection and acceptance by the Owner. This guarantee shall cover any and all defects in workmanship or materials that may develop in this specified time, and any failure in such workmanship or materials shall be repaired or replaced to the satisfaction of the Owner by the Contractor at his own expense.

0345.02 Neither the final certificate of payment nor any provision in the contract documents nor partial or entire occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with the contract documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship.

0346 CONFLICTING CONDITIONS

Any provisions in any of the contract documents which may be in conflict or inconsistent with any of the paragraphs in these General Conditions shall be void to the extent of such conflict or inconsistency.

0347 NOTICE AND SERVICE THEREOF

Any notice to any Contractor from the Owner relative to any part of this contract shall be in writing and considered delivered and the service thereof completed, when said notice is posted, by certified or registered mail, to the said Contractor at his last given address, or delivered in person to the said Contractor or his authorized representative on the work.

0348 PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the contract shall forthwith be physically amended to make such insertion or correction.

0349 SUSPENSION OF WORK

Should the Owner be prevented or enjoined from proceeding with work either before or after the start of construction by reason of any litigation or other reason beyond the control of the Owner, the Contractor shall not be entitled to make or assert claim for damage by reason of said delay; but time for completion of the work will be extended to such reasonable time as the Owner may determine will compensate for time lost by such delay with such determination to be set forth in writing.

0350 PROTECTION AND RESTORATION OF PROPERTY

- 0350.01 The Contractor shall not enter upon private property for any purpose without first obtaining permission, and he shall use every precaution necessary to prevent damage or injury to any public or private property, trees, fences, monuments, underground structures, etc., on and adjacent to the site of the work. He shall protect carefully, from disturbance or damage, all land monuments and property marks until an authorized agent has witnessed or otherwise referenced their location, and shall not remove them until directed.
- 0350.02 Except as specifically provided in the Contract Documents, the Contractor shall not do any work that would affect any railway track, pipeline, telephone, telegraph, or electric or transmission line, or other structure nor enter upon the right-of-way or other lands appurtenant thereto, until authority therefore has been secured from the proper parties. The Contractor shall not be entitled to any extension of time or any extra compensation on account of any postponement, interference, or delay resulting from his requirement, except as specifically provided in the contract.
- 0350.03 The Contractor shall be responsible for all damage or injury to property of any character resulting from any act, omission, neglect, or misconduct in his manner or method of executing said work, or due to his nonexecution of said work, or at any time due to defective work or materials, and he shall not be released from said responsibility until the work shall have been completed and accepted.
- 0350.04 When or where any direct or indirect damage or injury is done to public or private property by, or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof on the part of the Contractor, he shall restore at his own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring, as may be directed, or he shall make good such damage or injury in an acceptable manner.

0351 RESPONSIBILITY FOR DAMAGE CLAIMS

The Contractor shall be responsible for all injury or damage of any kind resulting from his work, to persons or property. The Contractor hereby assumes the obligation to indemnify and save harmless the Owner including associates, agents and representatives, from every expense, liability, or payment arising out of or through injury to any person or persons including death and loss of services, or

damage to property, regardless of who may be the Owner of the property, suffered through any cause whatsoever in the construction work involved in the contract and to defend on their behalf any suit brought against them arising from any such cause.

0352 INTEREST OF FEDERAL, STATE OR LOCAL OFFICIALS

No Federal, State or Local official shall be admitted to any share or part of this contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

0353 OTHER PROHIBITED INTERESTS

No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept or approve or to take part in negotiating, making, accepting, or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the project, shall become directly or indirectly interested personally in this contract or in any part hereof. No officer, employee, architect, attorney, engineer or inspector of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the project, shall become directly or indirectly interested personally in this contract or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the project.

0354 USE OF CHEMICALS

All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either E.P.A., or U.S.D.A. Use of all such chemicals and disposal of residues shall be in strict conformance with instructions.

0355 MAINTENANCE OF TRAFFIC

- 0355.01 The Contractor shall notify the Owner and the appropriate department of transportation prior to performing any work which disrupts normal flow of traffic, and shall utilize appropriate warning signs, flagmen and other procedures necessary to ensure safety and minimize inconvenience to the public.

0356 ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE

The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor for all things done or furnished in connection with this work and for every act and neglect of the Owner and others relating to or arising out of this work. No payment, however, final or otherwise, shall operate to release the Contractor or his sureties from any obligations under this contract or the Construction Performance and Payment Bond.

0357 OWNER'S RIGHT TO SUSPEND WORK

The Owner shall have the authority to suspend the work, wholly or in part as he may deem necessary because of conditions unsuitable for proper prosecution of the work or failure on the part of the Contractor to carry out the provisions or to meet the specified requirements. The Contractor shall not suspend operations without the Owner's permission.

0358 TIME FOR COMPLETION AND LIQUIDATED DAMAGES

0358.01 It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the date of beginning and the time for completion as specified in the contract of the work to be done hereunder are ESSENTIAL CONDITIONS of this contract; and it is further mutually understood and agreed that the work embraced in this contract shall be commenced on a date to be specified in the "NOTICE TO PROCEED."

0358.02 The Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

0358.03 If the said Contractor shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the Owner, then the Contractor does hereby agree, as a part consideration for the awarding of this contract, to pay to the Owner the amount specified in the contract, not as a penalty but as liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day that the Contractor shall be in default after the time stipulated in the contract for completing the work.

0358.04 The said amount is fixed and agreed upon by and between the Contractor

and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amount is agreed to be the amount of damages which the Owner would sustain and said amount shall be retained from time to time by the Owner from current periodical estimates.

0358.05 It is further agreed that time is of the essence of each and every portion of this contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where, under the contract, an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this contract. Provided, that the Contractor shall not be charged with liquidated damages or any excess cost when the Owner determines that the Contractor is without fault and the Contractor's reasons for the time extension are acceptable to the Owner; provided, further, that the Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due:

0358.05.1 To any preference, priority or allocation order duly issued by the Government;

0358.05.2 To unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including but not restricted to, acts of God, or of the public enemy, acts of the Owner, acts of another contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather; and

0358.05.3 To any delays of Subcontractors or suppliers occasioned by any of the causes specified in subsections 0358.05.1 and 0358.05.2 of this article.

0358.06 Provided, further, that the Contractor shall, within ten (10) days from the beginning of such delay, unless the Owner shall grant a further period of time prior to the date of final settlement of the contract, notify the Owner, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay, and notify the Contractor within a reasonable time of its decision in this matter.

..... END OF SECTION



AFFIDAVIT FOR FINAL PAYMENT AND RELEASE OF LIENS

STATE OF: _____

COUNTY OF: _____

FROM: _____ (Contractor)

TO: CITY OF DALTON, GEORGIA (Owner)

RE: Contract entered into the ____ day of _____, _____ between the above mentioned parties for the construction of the project entitled DALTON PROJ. NO. PW-CAB-REPAIR-2019.

KNOW ALL MEN BY THESE PRESENTS:

1. The undersigned hereby certifies that all work required under the above Contract has been performed in accordance with the terms thereof, that all material-men, sub-contractors, mechanics, and laborers have been paid and satisfied in full and that there are not outstanding claims of any character arising out of the performance of the Contract which have been paid and satisfied in full.
2. The undersigned further certifies that to the best of their knowledge and belief there are not unsatisfied claims for damages resulting from injury or death to any employees, sub-contractors, or the public at large arising out of the performance of the Contract or any suits or claims for any other damage of any kind, nature or description on which might constitute a lien upon the property of the Owner.
3. The undersigned makes this final affidavit as provided by the Contract and agrees that acceptance of final payment shall constitute full settlement of all claims against the Owner arising under or by virtue of the Contract.
4. IN WITNESS WHEREOF, the undersigned has signed and sealed this instrument this day of _____, _____.

SIGNED: _____ (SEAL)

BY: _____

TITLE: _____

Personally appeared before the undersigned who after being duly sworn, deposes and says that the facts stated in the above affidavit are true.

This ____ day of _____, _____.

Notary Public: _____ SEAL

My Commission Expires: _____,

_____ County,

SECTION 0400 – GENERAL NOTES

1. All work associated with this contract shall be completed in accordance with the most current Georgia Department of Transportation Standard Specifications, Special Provisions, and Construction Details.
2. The basis for this project is the repair plans developed by Pont Engineering included in these contract documents. All work associated with this contract shall be completed as per the repair plans.
3. Temperature – Some items in the scope of work are weather and temperature sensitive. Contractor shall complete work in accordance with the ambient temperature requirements referenced in the Standard Specifications. A general rule of thumb is that temperature sensitive work should only be completed when the ambient temperature is 50 degrees Fahrenheit and rising.
4. Construction Schedule – The Contractor's detailed construction schedule must be provided to and approved in advance by the City of Dalton. This schedule must include the tentative start date, duration, hours/days of work, etc.
5. In addition to the GDOT Standard Specifications, there are additional Special Provisions included in these contract documents (e.g. 150, 519, 521, and 528) pertaining to work items in the repair plans.
6. Submittals - All submittals for this project must be reviewed and approved in advance by the City of Dalton. **Paint Containment, work platforms, and shoring plan are required and shall be prepared by a licensed P.E. in the state of Georgia.** Potential submittals include means and methods, access to site, emergency action plan with protocols for storing of equipment at end of each day, debris containment plans, etc.
7. Traffic Control shall meet the requirements of the 2009 Manual of Uniform Traffic Control Devices for Streets and Highways and Special Provision Section 150-Traffic Control of GDOT Specifications. **Please note the plan requirements for mobile traffic control devices.**
8. Time of Work Restrictions – There are no time of work restrictions for this project.
9. Single lane closure – The Contractor shall keep at least one travel lane open at all times for North/South travel on the bridge. Liquidated damages for failure to maintain North/South travel across the bridge shall be assessed to the Contractor at the rate of \$500 per hour.
10. This project does not require an NOI. **However, there is an erosion control plan included in the construction plans developed by Pont Engineering.** A GSWCC certified personnel Blue Card holder must be present on site during all land disturbing activities to represent the Contractor.

11. The data, together with all other information shown on these plans, or in any way indicated thereby, whether by drawings or notes, or in any other manner, are based upon field investigations and are believed to be indicative of actual conditions. However, the same are shown as information only, are not guaranteed, and do not bind the City of Dalton in any way. The attention of the bidder is specifically directed to GDOT Specification Sections 102.04, 102.05, and 104.03.
12. Sandblasting debris shall be analyzed for lead content and disposed of in regulation with all Federal and State laws.
13. Chain of Custody documentation shall be provided upon the removal of all lead-containing debris.
14. Special consideration should be given to the gas main in close proximity to the construction limits on East side of the bridge. Contractor shall be responsible for installing any necessary structural protection to prevent debris or equipment from damaging active utilities. **Contractor shall be solely responsible for costs associated with the repair of damaged utilities.**
15. Contractor is required to call GA 811 or file online utility locate request prior to commencing work, and maintain active locate for duration of the project.

EXHIBIT A:

PONT ENGINEERING PLANS

DATED JUNE 3, 2019

FOR THE

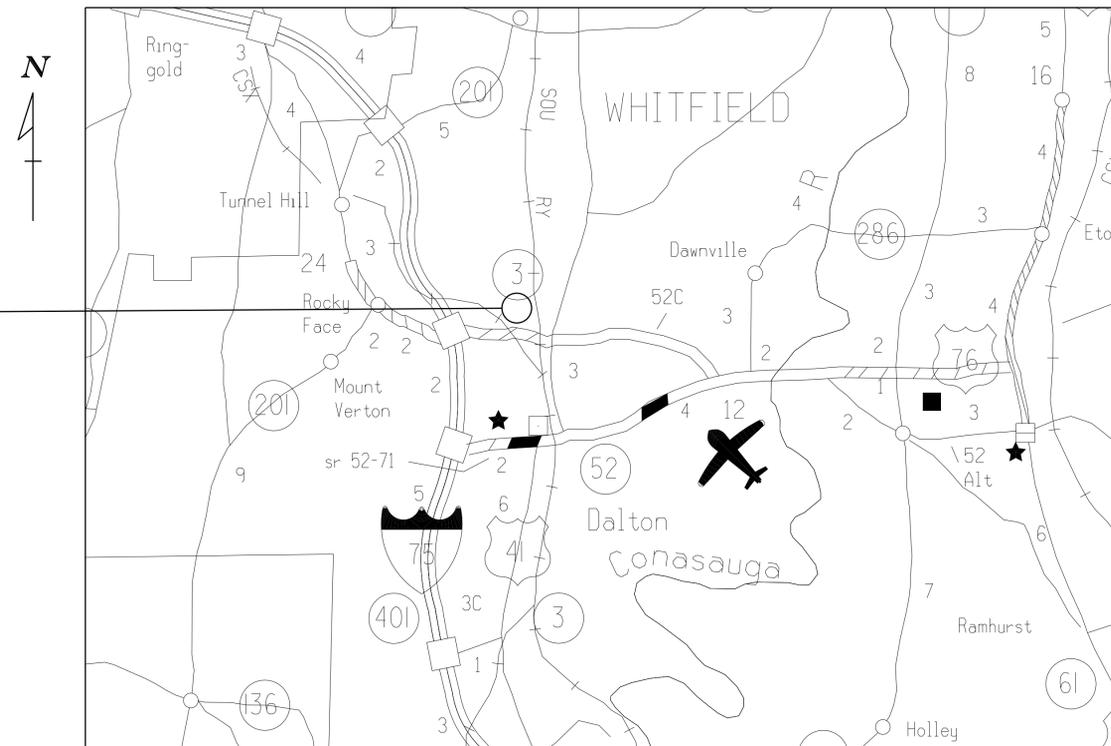
CHATTANOOGA AVENUE BRIDGE
REPAIR PROJECT

CITY OF DALTON
DEPARTMENT OF PUBLIC WORKS

PLAN OF PROPOSED REPAIRS TO
CHATTANOOGA AVENUE BRIDGE
OVER MILL CREEK

WHITFIELD COUNTY

BRIDGE NO. 1: 313-5051-0
WHITFIELD COUNTY
CHATTANOOGA AVE. BRIDGE
AT MILL CREEK
LATITUDE: 34.791994
LONGITUDE: -84.98084
ID # 313-00874X-000.39N



LOCATION MAP

THE DATA TOGETHER WITH OTHER INFORMATION SHOWN ON THESE PLANS, OR IN ANY WAY INDICATED THEREBY, WHETHER BY DRAWINGS OR NOTES, OR IN ANY OTHER MANNER, ARE BASED UPON FIELD INVESTIGATIONS AND BELIEVED TO BE INDICATIVE OF ACTUAL CONDITIONS. HOWEVER, THE SAME ARE SHOWN AS INFORMATION ONLY, ARE NOT GUARANTEED, AND DO NOT BIND THE DEPARTMENT OF PUBLIC WORKS IN ANY WAY. THE ATTENTION OF THE BIDDER IS SPECIFICALLY DIRECTED TO SUBSECTIONS 102.04, 102.05, AND 104.3 OF GDOT STANDARD SPECIFICATIONS.



PREPARED BY: 401 Augusta Drive, Marietta, GA 30067
DESIGN



TRAFFIC CONTROL	
TOTAL	LUMP

GRADING COMPLETE	
TOTAL	LUMP

CHANGEABLE MESSAGE SIGN, PORTABLE, TYPE 3	
TOTAL	3 EA

TEMPORARY BARRIER METHOD 2 - STD. 4960 & 4961	
LOCATION	LF
BRIDGE 1 - CHATTANOOGA AVENUE OVER MILL CREEK	370
TOTAL	370

UTILITIES	
GAS LINE	

BRIDGE 1 - CHATTANOOGA AVENUE OVER MILL CREEK		
PAY ITEM	UNIT	QUANTITY
MICRO-MILL ASPHALTIC CONCRETE PAVEMENT, VARIABLE DEPTH	SY	233
PREFORMED SILICONE JOINT SEAL, BR NO - 1, BENT NO - 1	LF	31
PREFORMED SILICONE JOINT SEAL, BR NO - 1, BENT NO - 2	LF	31
SUPERSTR CONCRETE, CL A, BR NO - 1 (7)	LS	LUMP
CLASS A CONCRETE	CY	17
BAR REINF STEEL	LB	2290
SUPERSTR REINF STEEL, BR NO - 1 (1160)	LS	LUMP
SURFACE PREPARATION	SY	233
POLYMER OVERLAY	SY	233
PATCHING CONCRETE BRIDGE DECK	SF	30
PATCHING CONCRETE BRIDGE	SF	105
EPOXY PRESSURE INJECTION OF CONCRETE CRACKS	LF	18
PAINT EXISTING STEEL STRUCTURE, BR ID - 313-5051-0	LS	LUMP
REMOVAL OF PARTS OF EXISTING BR, BR NO - 1	LS	LUMP
STN DUMPED RIP RAP, TP 1, 24 IN	SY	400
PLASTIC FILTER FABRIC	SY	400

PAVEMENT MARKERS (EACH)				
LOCATION	REFLECTIVE-RAISED			TOTAL
	YELLOW	CLEAR	CLEAR/RED	
	TYPE 1	TYPE 2	TYPE 3	
BRIDGE 1 - CHATTANOOGA AVENUE OVER MILL CREEK STA. 9+50 - STA. 11+50	14		5	
TOTAL	14		5	

GUARDRAIL QUANTITIES			
GA. STD. 4388			
GUARDRAIL "T" & "W" BEAM		TOTALS	
LOCATION & SIDE	LIN. FT.	T-BEAM	W-BEAM
*T*STA. 9+79.00 TO 10+00.00 LT	21'	84'	195'
*T*STA. 9+79.00 TO 10+00.00 RT	21'		
*T*STA. 10+70.00 TO 10+91.00 LT	21'		
*T*STA. 10+70.00 TO 10+91.00 RT	21'		
*W*STA. 9+53.00 TO 9+79.00 LT	26'	ANCHORAGES	
*W*STA. 9+53.00 TO 9+79.00 RT	26'		
*W*STA. 10+91.00 TO 11+70.00 LT	79'	TP 1	TP 12A
*W*STA. 10+91.00 TO 11+55.00 RT	64'	2	1

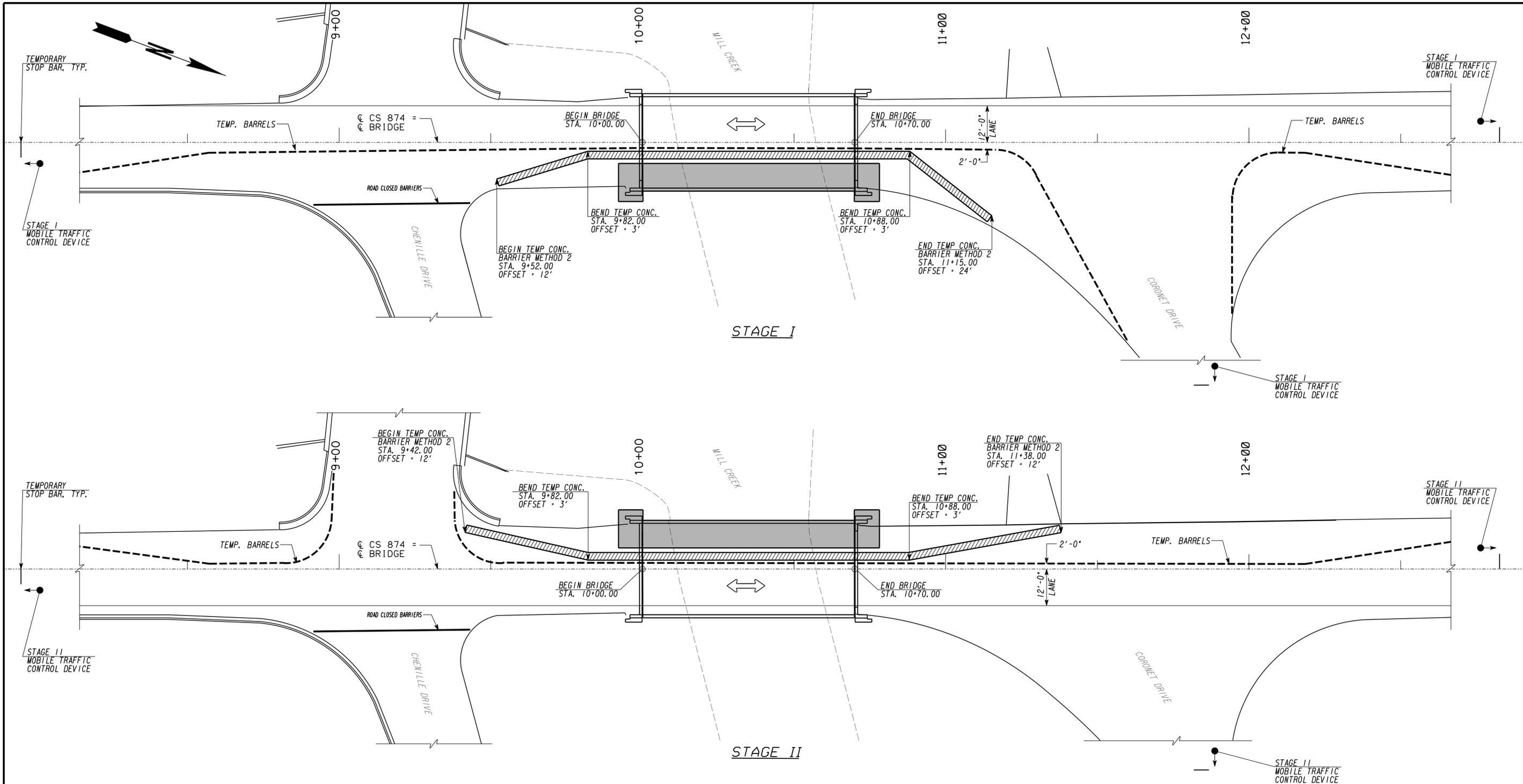
SURFACING QUANTITIES					
ITEMS	UNIT	STAGE I	STAGE II	AS DIR. BY ENGINEER	TOTALS
RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	TN	100			100
RECYCLED ASPH CONC 12.5 MM SUPERPAVE GP 2 ONLY, INCL BITUM MATL & H LIME	TN		100		100
TACK COAT	GL	80	80		160
MILL ASPH CONC PVMT, VARIABLE DEPTH	SY	1180	1180		2360

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION


PONT ENGINEERING
 401 Augusta Drive
 Marietta GA 30067
 (770) 499-1161

DRAWN BY: SHG	DATE: JUNE 2019
CHECKED BY: SHG	DATE: JUNE 2019

CHATTANOOGA AVE OVER MILL CREEK, CITY OF DALTON, GEORGIA	DRAWING NUMBER 04-0001
SUMMARY OF QUANTITIES	



- STAGE I**
1. PLACE TEMPORARY CONCRETE BARRIERS & TEMPORARY BARRELS. MAINTAIN ONE LANE OF SIGNAL CONTROLLED TRAFFIC.
 2. TEMPORARY OPERATING SPEED SHALL BE 35 MPH.
 3. PERFORM BRIDGE WORK.
 4. REMOVE TEMPORARY BARRIER.

- STAGE II**
1. PLACE TEMPORARY CONCRETE BARRIERS & TEMPORARY BARRELS. MAINTAIN ONE LANE OF SIGNAL CONTROLLED TRAFFIC.
 2. TEMPORARY OPERATING SPEED SHALL BE 35 MPH.
 3. PERFORM BRIDGE WORK.
 4. REMOVE TEMPORARY BARRIER.

LEGEND	
	WORK AREA
	TEMPORARY CONCRETE BARRIER
	TEMPORARY BARRELS
	ROAD CLOSED BARRIERS

- NOTES:**
1. CONTRACTOR SHALL SUBMIT CONSTRUCTION STAGING APPROACH TO THE CITY OF DALTON. ACCEPTANCE OF CONSTRUCTION STAGING PLAN IS REQUIRED PRIOR TO THE CONTRACTOR BEGINNING WORK.
 2. REFER TO LATEST EDITION OF MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES FOR ADDITIONAL CHANNELIZATION GUIDELINES, SIGNALIZATION, AND SIGNING REQUIREMENTS.
 3. ALL RELOCATION AND SETUP OF MOBILE TRAFFIC DEVICES SHALL BE INCLUDED IN PRICE BID FOR "TRAFFIC CONTROL".
 4. PLACE TEMPORARY STOP BAR USING TEMPORARY STRIPE TAPE. COST SHALL BE INCLUDED IN PRICE BID FOR "TRAFFIC CONTROL".

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

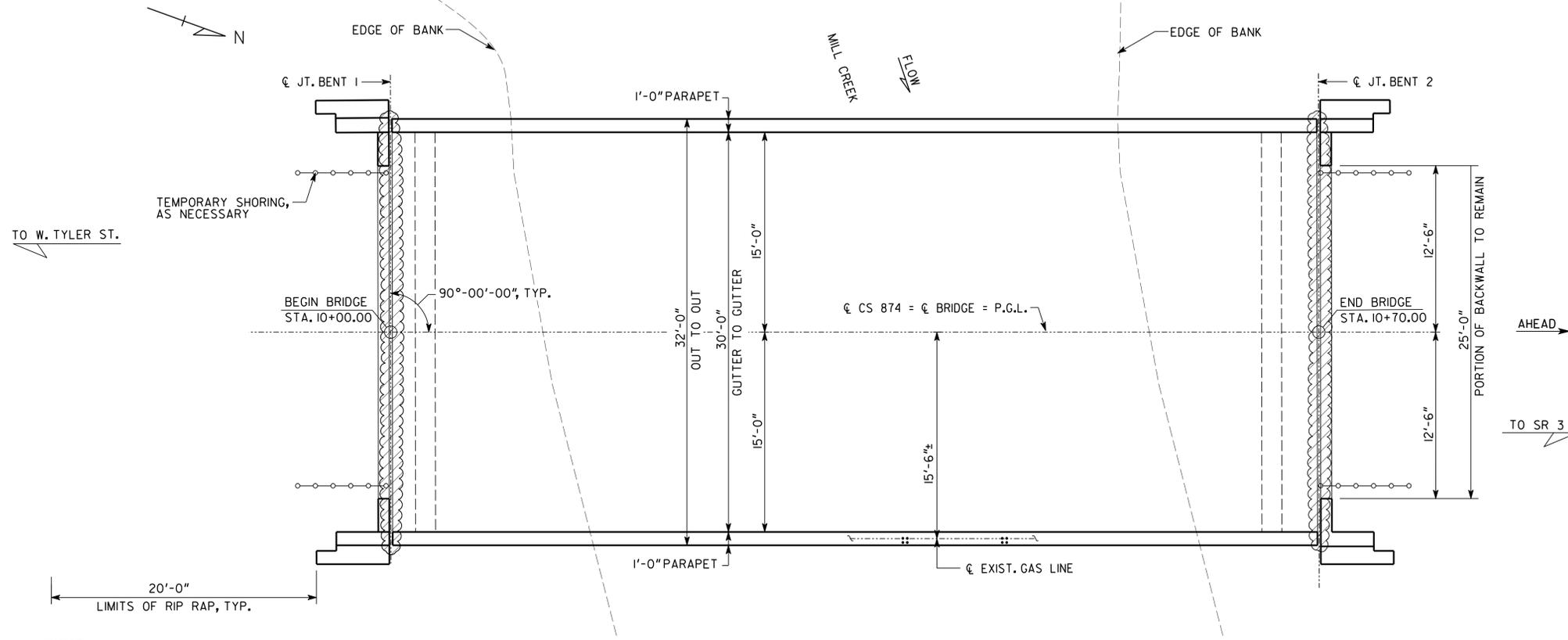
PONT ENGINEERING
 401 Augusta Drive
 Marietta GA 30067
 (770) 499-1161

DRAWN BY: SHG
 CHECKED BY: SHG

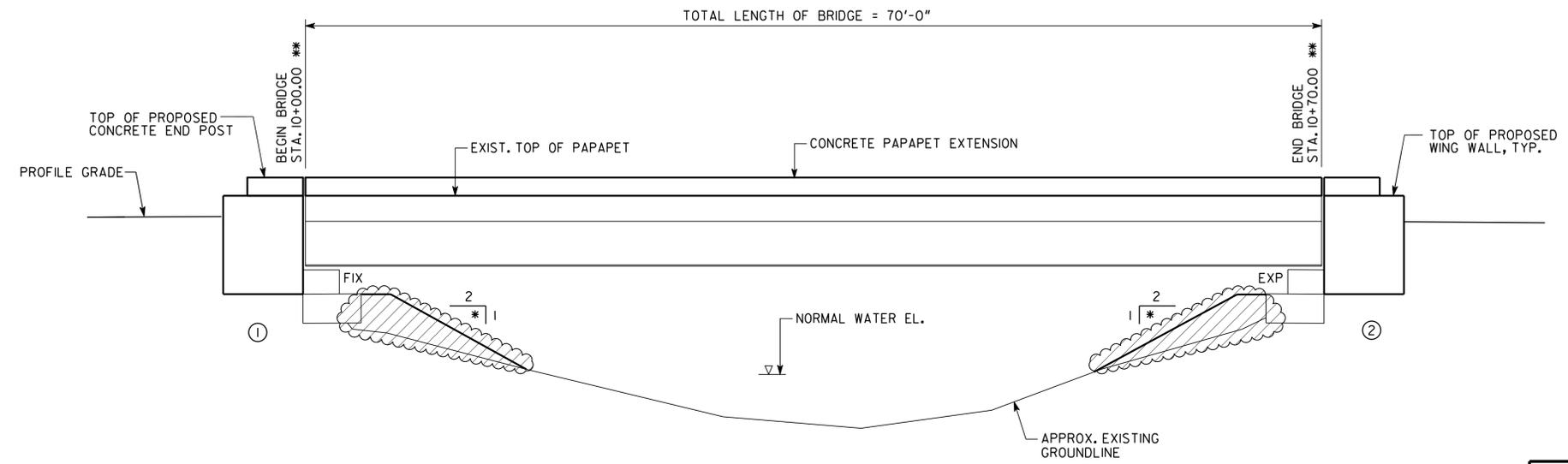
DATE: JUNE 2019
 DATE: JUNE 2019

CHATTANOOGA AVE. (CS 874) OVER MILL CREEK, CITY OF DALTON, GEORGIA
CONSTRUCTION STAGING PLAN

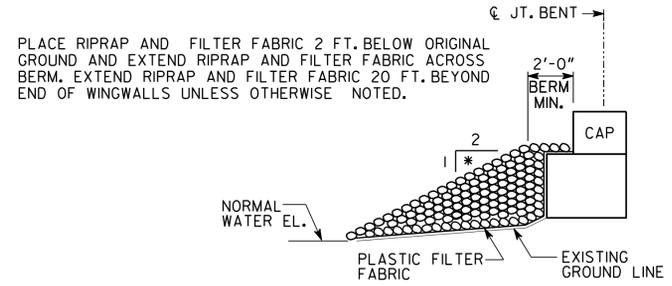
DRAWING NUMBER
 19-0001



PLAN



ELEVATION



RIP RAP DETAIL
NO SCALE

BRIDGE SERIAL NO. 313-5051-0
BRIDGE I.D. NO. 313-00874X-000.39N

BRIDGE NO. 1

PE PONT ENGINEERING
401 Augusta Drive
Marietta GA 30067
(770) 499-1161

CITY OF DALTON
DEPARTMENT OF PUBLIC WORKS

PLAN AND ELEVATION
CHATTANOOGA AVENUE (CS 874) OVER MILL CREEK

WHITFIELD COUNTY

SCALE: 1" = 5'-0" (UNLESS NOTED OTHERWISE) JUNE 2019



DRAWING NO. 35-0001
BRIDGE SHEET 1 OF 5

REVISIONS	DATE

DESIGNED: SHG	CHECKED: DESIGN GROUP	REVIEWED: APPROVED
DRAWN: SHG		

- NOTES:
- * SLOPE NORMAL TO END BENTS.
 - ** STATIONS ARE AT THE INTERSECTION OF ϕ BRIDGE AND BFPR.
 - DIMENSIONS AND STATIONS ARE FROM FIELD MEASUREMENTS.

WORK CONSISTS OF

1. REMOVE EXISTING ASPHALT OVERLAY ON ENTIRE BRIDGE DECK.
2. REMOVE EXISTING WINGWALLS.
3. CONSTRUCT NEW END POSTS AND WINGWALLS.
4. REPLACE BRIDGE DECK JOINTS.
5. EXTEND EXISTING CONCRETE PARAPETS.
6. INSTALL DECK PIPES ALONG BRIDGE SHOULDERS.
7. REPAIR SECTIONS OF SPALLED CONCRETE ON DECK OVERHANG.
8. PAINT THE STEEL SUPERSTRUCTURE.
9. REDRESS SLOPE PROTECTION (RIP RAP) AT EACH BENT.
10. EPOXY INJECTION OF CRACKS.
11. INSTALL POLYMER OVERLAY ON ENTIRE BRIDGE DECK

TRAFFIC DATA

TRAFFIC ----- ADT = 1768 (2011)
 ADT = 2652 (2031)
 TRUCKS ----- 1%

UTILITIES

GAS LINE ATTACHED TO RIGHT SIDE (BEAM 5) OF EXISTING BRIDGE

PAINTING NOTES

1. CLEAN AND PAINT ALL EXPOSED EXISTING SUPERSTRUCTURE STEEL (AS SHOWN ON PLANS), INCLUDING EXISTING BEARING ASSEMBLIES, IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
2. THE EXISTING STEEL STRUCTURE IS 70 FT.+ LONG WITH TOTAL ESTIMATED AREA OF STEEL TO BE PAINTED OF 3,100 SF. PRIOR TO BIDDING IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MEASURE AND VERIFY THE AREA OF STEEL TO BE PAINTED.
3. REPAIR ANY DAMAGES TO THE STRUCTURAL STEEL CAUSED BY THE BLAST CLEANING OR ANY OTHER RELATED OPERATIONS, AT NO CHARGE TO THE CITY OF DALTON. ALL REPAIRS ARE TO BE APPROVED BY THE ENGINEER.
4. ALL CONCRETE WORK SHALL BE COMPLETED PRIOR TO BEGINNING PAINTING WORK.
5. AFTER THE PAINTING IS COMPLETED, STENCIL THE SERIAL NUMBER OF THE BRIDGE (313-5051-0) ON THE INSIDE FACE OF THE WEB ON THE FAR RIGHT BEAM NEAR BOTH ENDS OF BRIDGE. USE A 5" HIGH NUMBER STENCIL AND BLACK PERMANENT PAINT. COSTS ASSOCIATED WITH THIS WORK, INCLUDING MATERIALS AND LABOR, ARE TO BE INCLUDED IN THE OVERALL BID SUBMITTED.
6. THE COST OF PAINTING EXISTING STRUCTURAL STEEL SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 535-1105 "PAINT EXISTING STEEL STRUCTURE".

GENERAL NOTES

SPECIFICATIONS - GEORGIA STANDARD SPECIFICATIONS, 2013 EDITION, AS MODIFIED BY CONTRACT DOCUMENTS.

REINFORCING STEEL - PLACE AND TIE ALL REINFORCING STEEL IN ACCORDANCE WITH THE GEORGIA DOT SPECIFICATIONS. DO NOT WELD REINFORCING STEEL.

CHAMFER - CHAMFER ALL EXPOSED CONCRETE EDGES 3/4" UNLESS OTHERWISE NOTED.

TEMPORARY SHORING - INCLUDE THE COST OF TEMPORARY SHORING AS NECESSARY FOR BRIDGE CONSTRUCTION IN THE OVERALL BID SUBMITTED.

TRAFFIC CONTROLS - SEE ROADWAY PLANS FOR TRAFFIC CONTROLS AND TRAFFIC CONTROL PAYMENT.

EXISTING BRIDGE PLANS - ORIGINAL BRIDGE PLANS ARE NOT AVAILABLE.

DIMENSIONS AND ELEVATIONS - VERIFY ALL DIMENSIONS AND ELEVATIONS IN THE FIELD PRIOR TO ORDERING MATERIALS OR BUILDING FORMS. LIGHT LINES INDICATE THE EXISTING STRUCTURE AND HEAVY LINES INDICATE THE NEW STRUCTURE.

EPOXY RESIN ADHESIVE - APPLY EPOXY RESIN ADHESIVE TYPE II TO ALL HARDENED CONCRETE SURFACES JUST PRIOR TO POURING THE CONCRETE FOR THE NEXT STAGE OF CONSTRUCTION, SEE SECTION 886 OF THE GEORGIA DOT SPECIFICATIONS. INCLUDE THE COST OF EPOXY ADHESIVE AND ITS APPLICATION IN THE OVERALL BID SUBMITTED.

EPOXY PRESSURE INJECTION OF CONCRETE CRACKS - ESTIMATED QUANTITY OF CRACK INJECTION IN THE END WALLS AND BENTS IS 18 LF. ALL PRESSURE INJECTION OF CRACKS SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 528 OF THE GEORGIA DOT SPECIFICATIONS. INCLUDE COST OF MATERIALS AND INSTALLATION IN THE PRICE BID FOR PAY ITEM 528 "EPOXY PRESSURE INJECTION OF CONCRETE CRACKS".

SPALL REPAIR - REPAIR SPALLS IN ACCORDANCE WITH SECTION 521 OF THE SPECIAL PROVISIONS. CARE SHALL BE TAKEN TO AVOID DAMAGING EXISTING REINFORCING STEEL. REINFORCEMENT DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT NO ADDITIONAL COST TO THE CITY OF DALTON. INCLUDE THE COST FOR THIS WORK IN THE PAY ITEM 521 "PATCHING CONCRETE BRIDGE".

EXISTING REINFORCEMENT - BEND EXISTING REINFORCEMENT TO BE UTILIZED IN NEW CONSTRUCTION IN A MANNER TO PROVIDE THE MAXIMUM LAP POSSIBLE OR AS SHOWN ON THE PLANS. THOROUGHLY CLEAN EXISTING REINFORCEMENT OF CONCRETE SCALE AND RUST BEFORE BONDING INTO NEW CONSTRUCTION. ANY REINFORCEMENT DAMAGED DURING DEMOLITION OPERATIONS SHALL BE REPLACED BY THE CONTRACTOR AT NO COST TO THE DEPARTMENT.

EXISTING RIP RAP - INCLUDE THE COST OF REMOVING, RELAYING, AND/OR REPLACING RIP RAP IN THE OVERALL BID SUBMITTED.

EXISTING BRIDGE JOINTS - CLEAN EXISTING BRIDGE EXPANSION JOINTS OF ALL DIRT, REFUSE, AND EXISTING SEALANT AND SEAL JOINTS USING THE PREFORMED SILICONE COATED SELF-EXPANDING SEALANT AS PER THE SPECIAL PROVISIONS. INCLUDE THE COST OF MATERIALS AND INSTALLATION IN THE PRICE BID FOR PAY ITEM 449.

PAINT - CLEAN AND PAINT ALL NEW AND EXISTING STRUCTURAL STEEL AS PER SECTION 535 OF THE GEORGIA DOT SPECIFICATIONS. USE PAINT SYSTEM VII FOR NEW STRUCTURAL STEEL AND SYSTEM VII/VII FOR EXISTING STRUCTURAL STEEL. EXISTING STRUCTURAL STEEL HAS BEEN PAINTED WITH LEAD PAINT.

SPECIAL SURFACE COATING FOR CONCRETE- COAT NEW AND EXISTING PORTIONS OF PARAPETS, END POSTS, AND WING WALLS IN ACCORDANCE WITH SECTION 836 OF THE GEORGIA DOT SPECIFICATIONS. INCLUDE THE COST FOR THIS WORK IN THE OVERALL BID SUBMITTED.

SALVAGE MATERIAL - NO MATERIAL REMOVED FROM THE EXISTING STRUCTURE SHALL BE SALVAGED FOR USE BY THE CITY OF DALTON.

REMOVAL OF PARTS OF EXISTING BRIDGE - COST FOR REMOVAL OF PORTIONS OF EXISTING SUBSTRUCTURE SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 540 "REMOVAL OF PARTS OF EXISTING BRIDGE".

POLYMER OVERLAY - AFTER ALL DECK WORK IS COMPLETE, THE SURFACE OF THE BRIDGE DECK FROM GUTTER LINE TO GUTTER LINE SHALL BE OVERLAPPED WITH A TWO-PART POLYMER BRIDGE DECK OVERLAY. THE OVERLAY SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

VEGETATION - CUT AND REMOVE VEGETATION FROM AROUND SUBSTRUCTURE AND APPROACHES, 5 FT FROM OUTSIDE EDGE OF BRIDGE OPENING. CUT AND REMOVE TREES TO GROUNDLINE. INCLUDE COST OF REMOVAL AND MATERIALS IN THE OVERALL BID SUBMITTED.

ENDPOST GUARDRAIL ATTACHMENT - ATTACH NEW GUARDRAIL TO END POSTS. LOCATE BOLT TYPE, SIZE, LAYOUT, AND INSTALL ACCORDING TO GDOT STANDARD 3054.

EXISTING UTILITIES - MAINTAIN AND PROTECT EXISTING UTILITIES AT ALL TIMES DURING CONSTRUCTION. INCLUDE COST FOR THIS WORK IN THE OVERALL BID SUBMITTED.

INCIDENTAL ITEMS - INCLUDE THE COST INCIDENTAL TO THE WORK THAT IS NOT SPECIFICALLY COVERED BY THE GEORGIA STANDARD SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND/OR SPECIAL PROVISIONS IN THE OVERALL BID SUBMITTED. THIS INCLUDES THE COST OF CLEANING AND BENDING OF EXISTING REINFORCEMENT, JOINT FILLER, SAWCUTS, DECK DRAINS AND OTHER INCIDENTAL ITEMS NECESSARY TO COMPLETE THE WORK.

DESIGN DATA

SPECIFICATIONS ----- AASHTO 17TH EDITION, 2002
 TYPICAL H-15 LOADING ----- IMPACT ALLOWED
 REINFORCEMENT STEEL: ----- GRADE 60, f_y = 60,000 PSI
 CONCRETE: ----- CLASS A, f_c = 3,000 PSI

SUMMARY OF QUANTITIES

PAY ITEM NUMBER	QUANTITY	UNIT	PAY ITEM
432-0350	233	SY	MICRO-MILL ASPHALTIC CONCRETE PAVEMENT, VARIABLE DEPTH
449-1350	31	LF	PREFORMED SILICONE JOINT SEAL, BR NO - 1, BENT NO - 1
449-1350	31	LF	PREFORMED SILICONE JOINT SEAL, BR NO - 1, BENT NO - 2
500-1005	LUMP	LS	SUPERSTR CONCRETE, CL A, BR NO - 1 (7)
500-3101	17	CY	CLASS A CONCRETE
511-1000	2290	LB	BAR REINF STEEL
511-3000	LUMP	LS	SUPERSTR REINF STEEL, BR NO - 1 (1160)
519-0515	233	SY	SURFACE PREPARATION
519-0225	233	SY	POLYMER OVERLAY
521-1000	30	SF	PATCHING CONCRETE BRIDGE DECK
521-3000	105	SF	PATCHING CONCRETE BRIDGE
528-0501	18	LF	EPOXY PRESSURE INJECTION OF CONCRETE CRACKS
535-1105	LUMP	LS	PAINT EXISTING STEEL STRUCTURE, BR ID - 313-5051-0
540-1202	LUMP	LS	REMOVAL OF PARTS OF EXISTING BR, BR NO - 1
603-2024	400	SY	STN DUMPED RIP RAP, TP 1, 24 IN
603-7000	400	SY	PLASTIC FILTER FABRIC

BRIDGE NO. 1

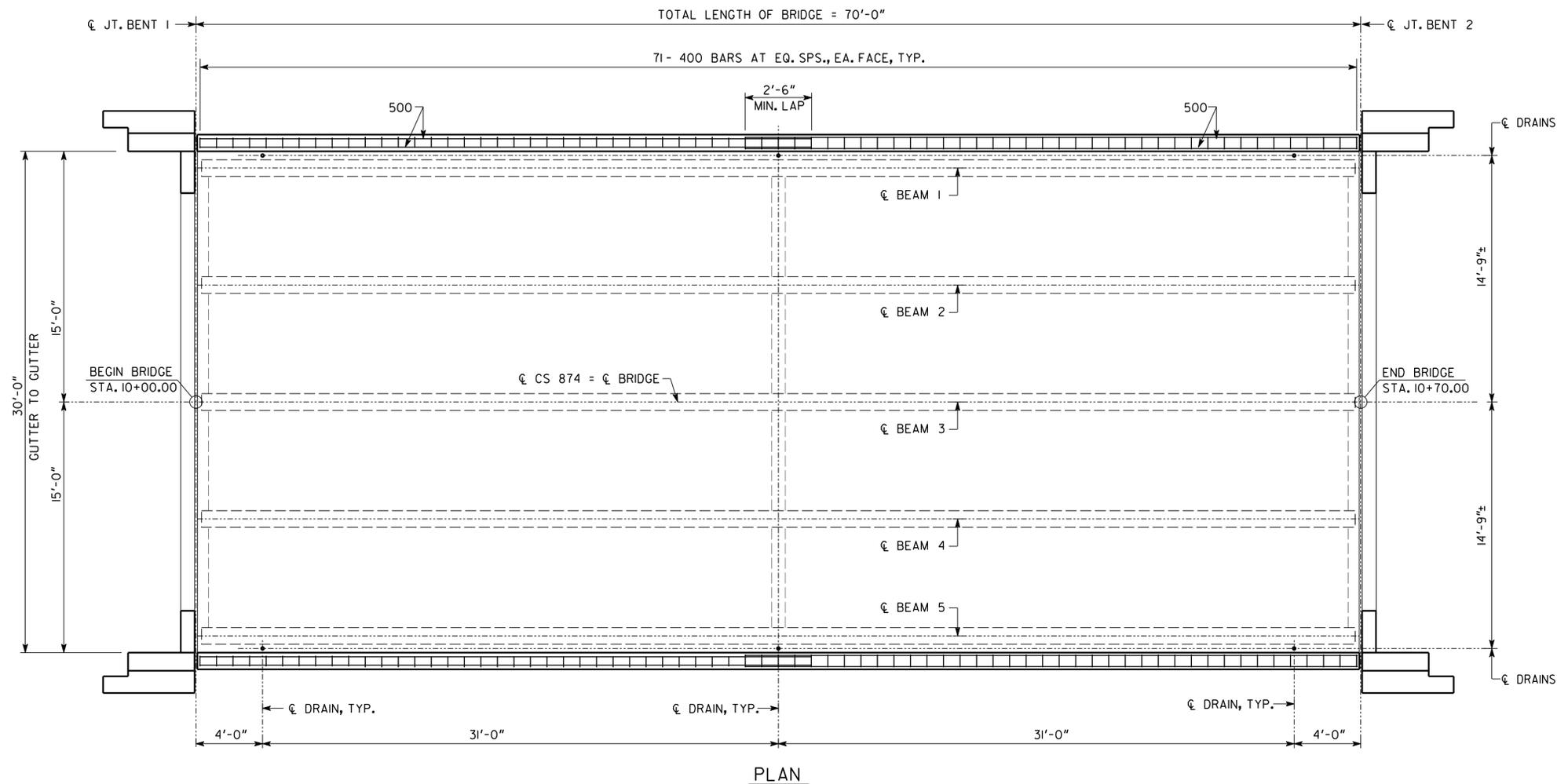


CITY OF DALTON
 DEPARTMENT OF PUBLIC WORKS

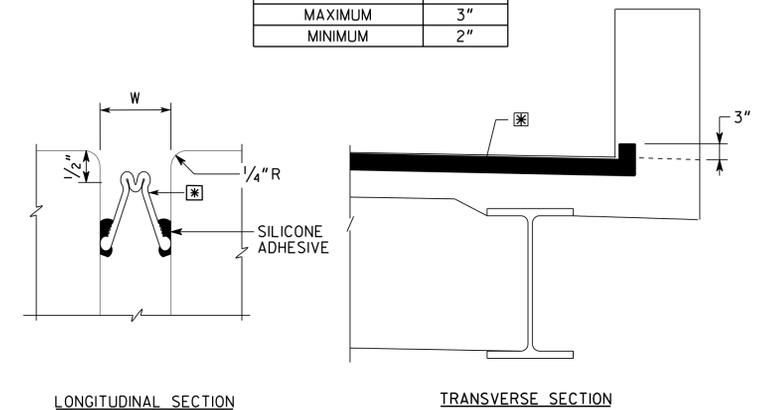
GENERAL NOTES
 CHATTANOOGA AVENUE (CS 874) OVER MILL CREEK

WHITFIELD COUNTY

DRAWING NO. 35-0002	SCALE: NO SCALE	JUNE 2019
BRIDGE SHEET 2 OF 5	DESIGNED: SHG DRAWN: SHG	CHECKED: _____ DESIGN GROUP: _____
	REVIEWED: _____	APPROVED: _____



JOINT OPENING	
TEMPERATURE (°F)	W (IN.)
MAXIMUM	3"
MINIMUM	2"



EXPANSION JOINT DETAILS

NOTES:

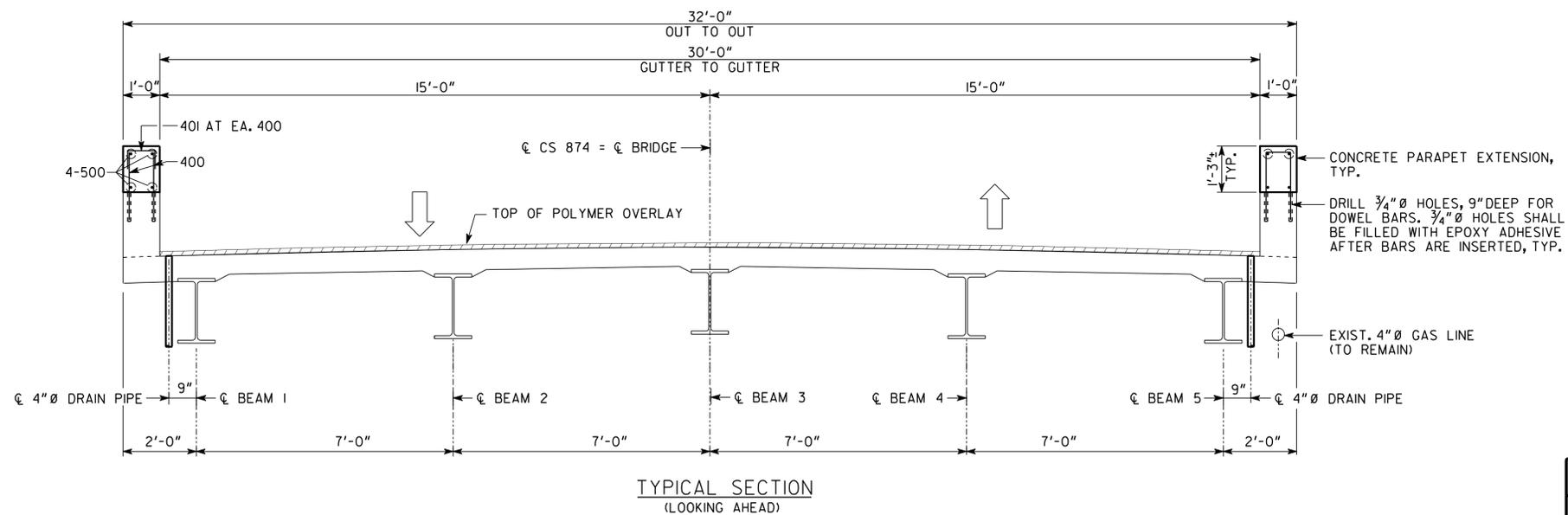
- "W" (JOINT WIDTH) SHALL BE BASED ON THE AVERAGE BEAM TEMPERATURE.
- ASSUME NORMAL TEMPERATURE IS 60°F.
- * CONSTRUCTION SHALL NOT DEVIATE FROM THIS DETAIL UNLESS APPROVED BY THE STATE BRIDGE MAINTENANCE ENGINEER.
- "W" (JOINT WIDTH) BETWEEN APPROACH SLAB AND B.F.P.R. SHALL MATCH EXISTING JOINT WIDTH.
- SEE SPECIAL PROVISION - SECTION 449 "BRIDGE DECK JOINT SEALS" FOR FURTHER REQUIREMENTS.

SUPERSTRUCTURE QUANTITIES	
ITEM	SPAN 1
LUMP - CY SUPERSTR CONCRETE, CLASS A	6.5
LUMP - LB SUPERSTR REINF STEEL	1,160

NOTE: SUPERSTRUCTURE QUANTITIES INCLUDE CONCRETE PARAPET EXTENSION AND REINFORCEMENT.

NOTES:

- MAINTAIN 2" MINIMUM CLEARANCE ON REINFORCEMENT UNLESS OTHERWISE NOTED.
- COST FOR AND INSTALLATION OF DECK DRAIN PIPES SHALL BE INCLUDED IN THE OVERALL BID SUBMITTED.



BRIDGE NO. 1



401 Augusta Drive
Marietta GA 30067
(770) 499-1161

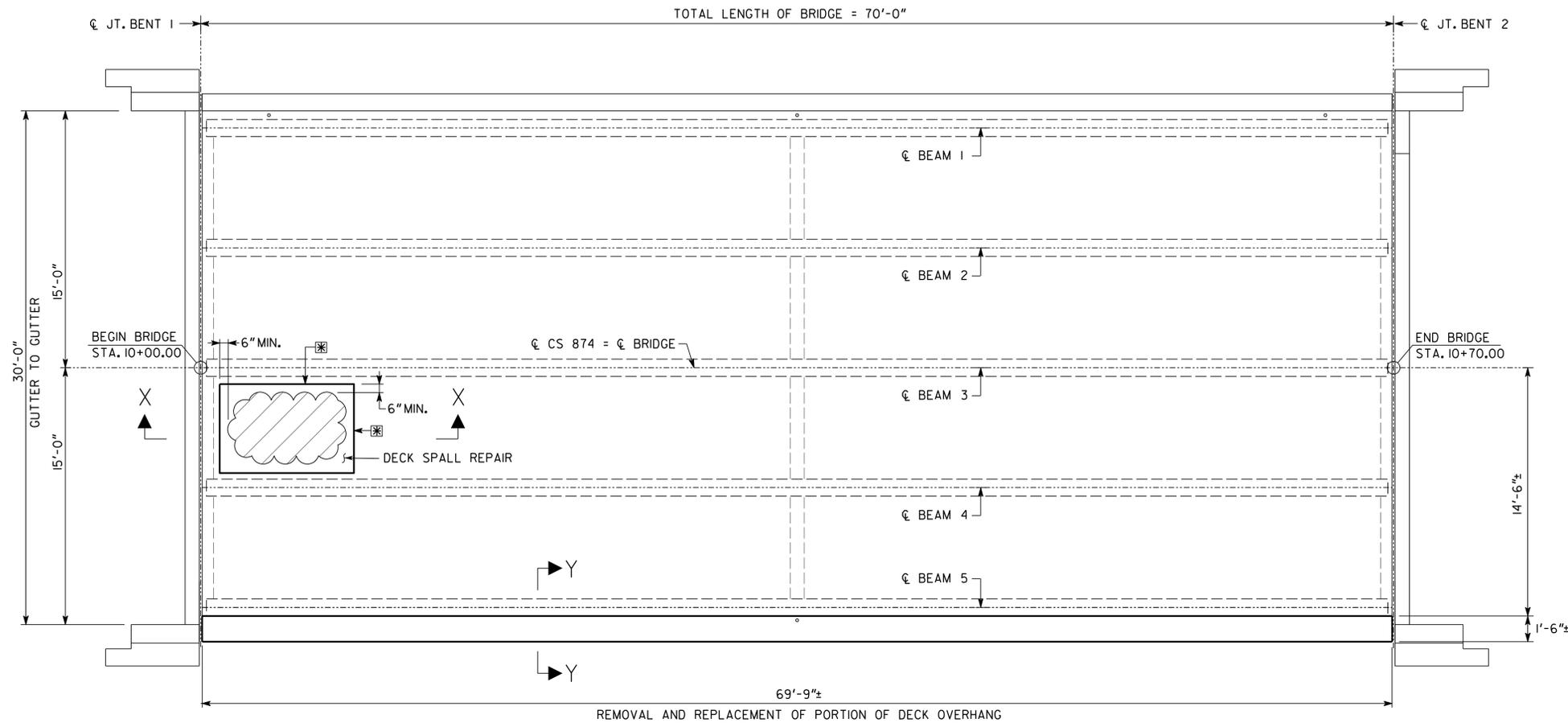
CITY OF DALTON
DEPARTMENT OF PUBLIC WORKS

DECK PLAN AND DECK SECTION
CHATTANOOGA AVENUE (CS 874) OVER MILL CREEK

WHITFIELD COUNTY

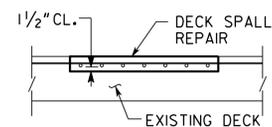
SCALE: 1/4" = 1'-0" (UNLESS NOTED OTHERWISE) JUNE 2019

DRAWING NO. 35-0003	DESIGNED SHG	CHECKED DESIGN GROUP	REVIEWED APPROVED
BRIDGE SHEET 3 OF 5	DRAWN SHG		

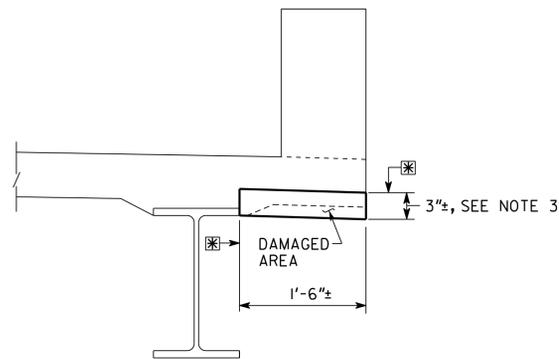


PLAN

DENOTES AREA OF DECK REPAIR



SECTION X-X



SECTION Y-Y

SPALL REPAIR INFORMATION		
LOCATION	QUANTITY (SF)	DESCRIPTION
DECK OVERHANG (RT. SIDE)	105	BRIDGE OVERHANG - NORTH SIDE

CONCRETE SPALL REPAIR NOTES:

1. MAINTAIN 2" MINIMUM CLEARANCE ON REINFORCEMENT UNLESS OTHERWISE NOTED.
2. REQUIRED 1" SQUARED SAW CUT.
3. SPALLED AREAS SHALL BE SAW CUT AND SQUARED UP ALL AROUND THE FRACTURED AREA TO A DEPTH OF AT LEAST 2" BEYOND THE INITIAL MAT OF REINFORCING STEEL. SPALLS SHALL BE REPAIRED AS SPECIFIED IN SPECIAL PROVISION 521. COST FOR REPAIRS SHALL BE INCLUDED IN THE PRICE BID FOR PAY ITEM 521-3000, "PATCHING CONCRETE BRIDGE".
4. CARE SHALL BE EXERCISED IN REMOVAL OF EXISTING CONCRETE TO MAKE CUTS VERTICAL AND TO RETAIN EXISTING REINFORCEMENT. ANY EXISTING REINFORCEMENT STEEL DAMAGED DURING REMOVAL SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST.
5. SPALLS IN THE CONCRETE DECK SHALL BE SAW CUT AND SQUARED UP ALL AROUND THE FRACTURED AREA TO A DEPTH OF AT LEAST 2" BEYOND THE INITIAL MAT OF REINFORCING STEEL. SPALLS SHALL BE REPAIRED AS SPECIFIED IN SPECIAL PROVISION 521. COST FOR REPAIRS SHALL BE INCLUDED IN THE PRICE BID FOR PAY ITEM 521-1000, "PATCHING CONCRETE BRIDGE DECK".

BRIDGE NO. 1



401 Augusta Drive
Marietta GA 30067
(770) 499-1161

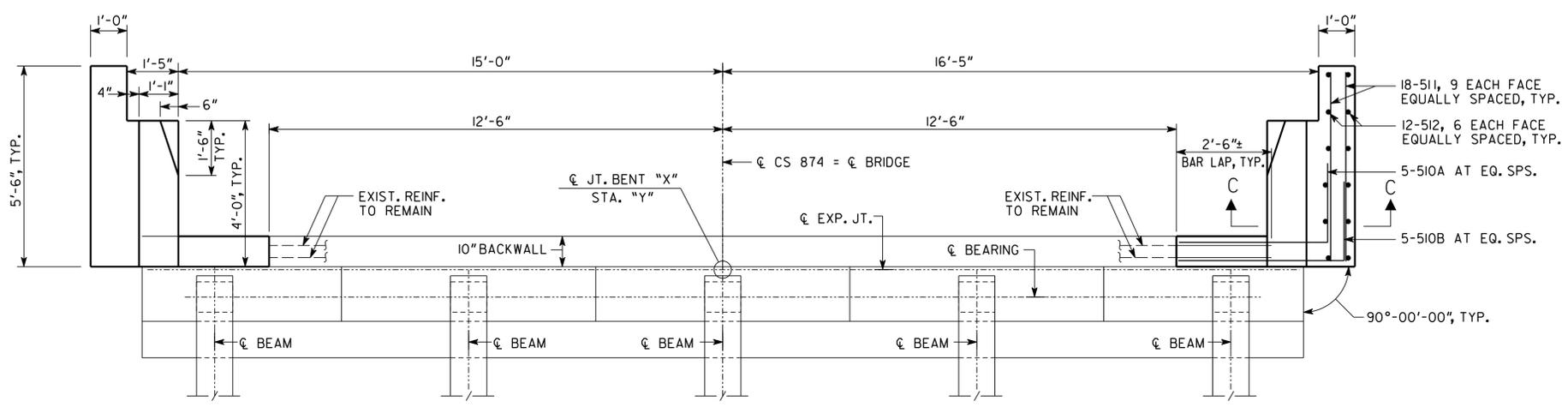
CITY OF DALTON
DEPARTMENT OF PUBLIC WORKS

DECK REPAIR DETAILS
CHATTANOOGA AVENUE (CS 874) OVER MILL CREEK

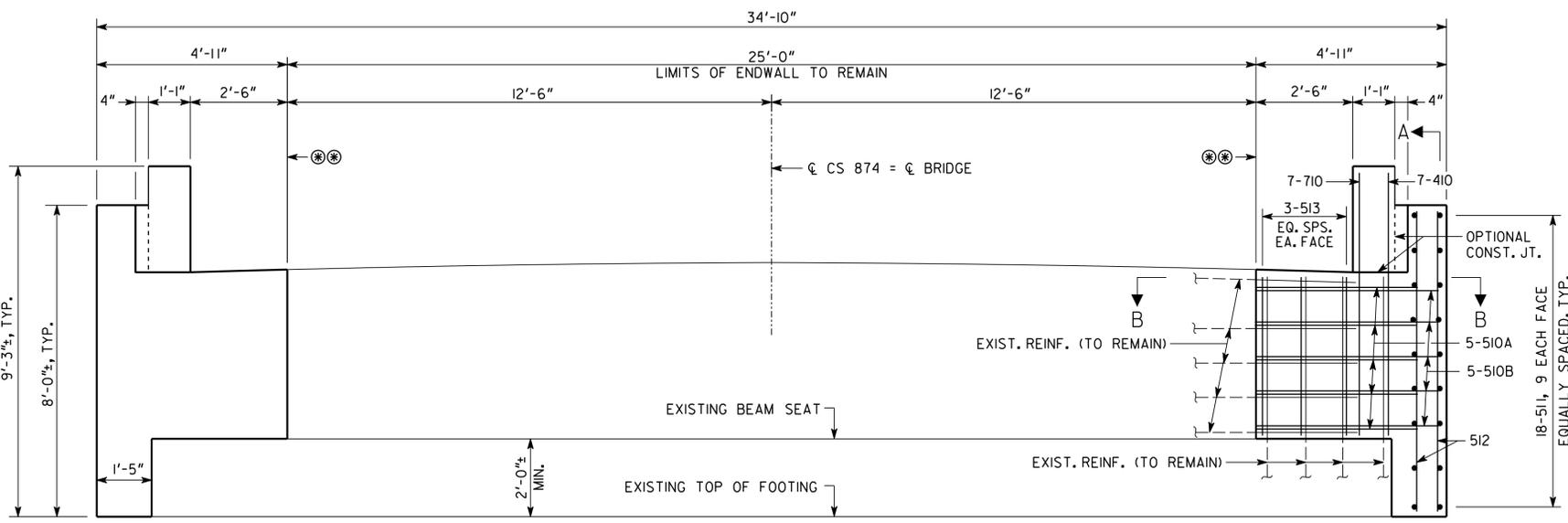
WHITFIELD COUNTY

SCALE: 1/4" = 1'-0" (UNLESS NOTED OTHERWISE) JUNE 2019

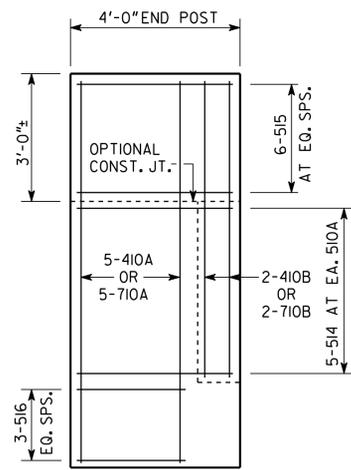
DRAWING NO. 35-0004	DESIGNED SHG	CHECKED DESIGN GROUP	REVIEWED APPROVED
BRIDGE SHEET 4 OF 5	DRAWN SHG		



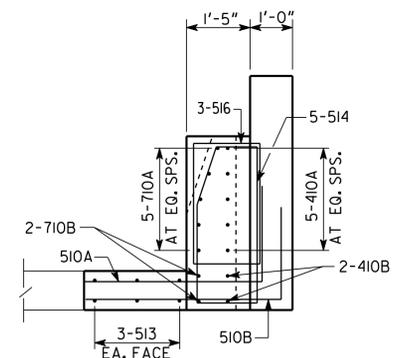
PLAN



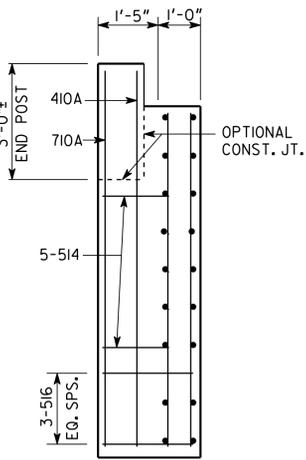
ELEVATION



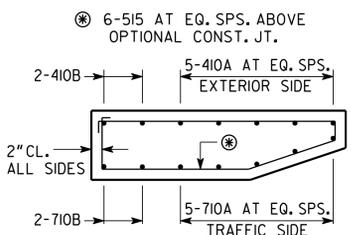
SECTION A-A
NO SCALE



SECTION B-B
NO SCALE



SECTION C-C
NO SCALE



END POST DETAIL
NO SCALE

SUBSTRUCTURE QUANTITIES		
ITEM	BENT 1	BENT 2
CY CLASS A CONCRETE	8.5	8.5
LB BAR REINF STEEL	1,145	1,145

NOTE: END POST CONCRETE QUANTITY INCLUDED IN SUBSTRUCTURE QUANTITIES.

LOCATION	NO. OF LOC.	MARK	LENGTH		NO. BARS REQ'D	TYP	AG	B		C		D		E		F		H				
			FT.	IN.				FT.	IN.													
SPAN 1	1																					
		400	1-10	284	1																	
		401	2-2	142	2				0-8	0-9	0-9											
		500	36-2	16	1																	
BENTS 1 OR 2	2																					
		410A	8-11	10	1																	
		410B	6-11	2	1																	
		510A	6-1	10	3				4-1	2-0												
		510B	6-7	10	3				4-7	2-0												
		511	5-2	36	1																	
		512	7-8	24	1																	
		513	4-2	12	1																	
		514	11-6	10	50	4	4		3-8	1-4	2-4	0-5	1-4	1-9								
		515	9-6	12	50	4	4		3-8	1-4	2-4	0-5	0-4	0-9								
516	9-0	6	25	4	4		2-8	1-4														
710A	8-11	10	1																			
710B	6-11	2	1																			

LOCATIONS REQUIRING EPOXY INJECTION			
BENT	LOCATION	APPROX. LENGTH	APPROX. WIDTH
1	FACE OF END WALLS	6'	0.010" - 0.020"
	FACE OF BENT CAP	3'	0.010" - 0.020"
2	FACE OF END WALLS	6'	0.010" - 0.020"
	FACE OF BENT CAP	3'	0.010" - 0.020"

- NOTES:
- ⊗⊗ REQUIRED 1" SAW CUT. CARE SHALL BE EXERCISED SO THAT THE EXISTING REINFORCEMENT IS NOT DAMAGED. ANY REINFORCEMENT DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT NO COST TO THE CITY OF DALTON.
 - CLEAN ALL EXPOSED REINFORCING STEEL OF RUST AND CORROSIVE PRODUCTS INCLUDING OIL, DIRT, CONCRETE FRAGMENTS, LOOSE SCALE AND ANY OTHER COATING THAT WOULD DESTROY OR INHIBIT THE BOND WITH THE CONCRETE.
 - MAINTAIN 2" CLEARANCE ON ALL REINFORCEMENT UNLESS NOTED OTHERWISE.
 - COST OF REINFORCEMENT SHALL BE INCLUDED WITH PRICE BID FOR PAY ITEM 511-1000, BAR REINF STEEL.
 - COST OF CONCRETE SHALL BE INCLUDED WITH PRICE BID FOR PAY ITEM 500-3101, CLASS A CONCRETE.
 - CONCRETE REMOVAL AT BACKWALL AND WINGWALL SHALL BE INCLUDED IN PRICE BID FOR PAY ITEM 540-1202, REMOVAL OF PARTS OF EXISTING BRIDGE.
 - SEE GA. STD. 3054 FOR GUARDRAIL ATTACHMENT AND END POST DETAILS. MODIFY STANDARD TO DELETE BARS P40I, P50I AND P70I.

BRIDGE NO. 1

401 Augusta Drive
Marietta GA 30067
(770) 499-1161

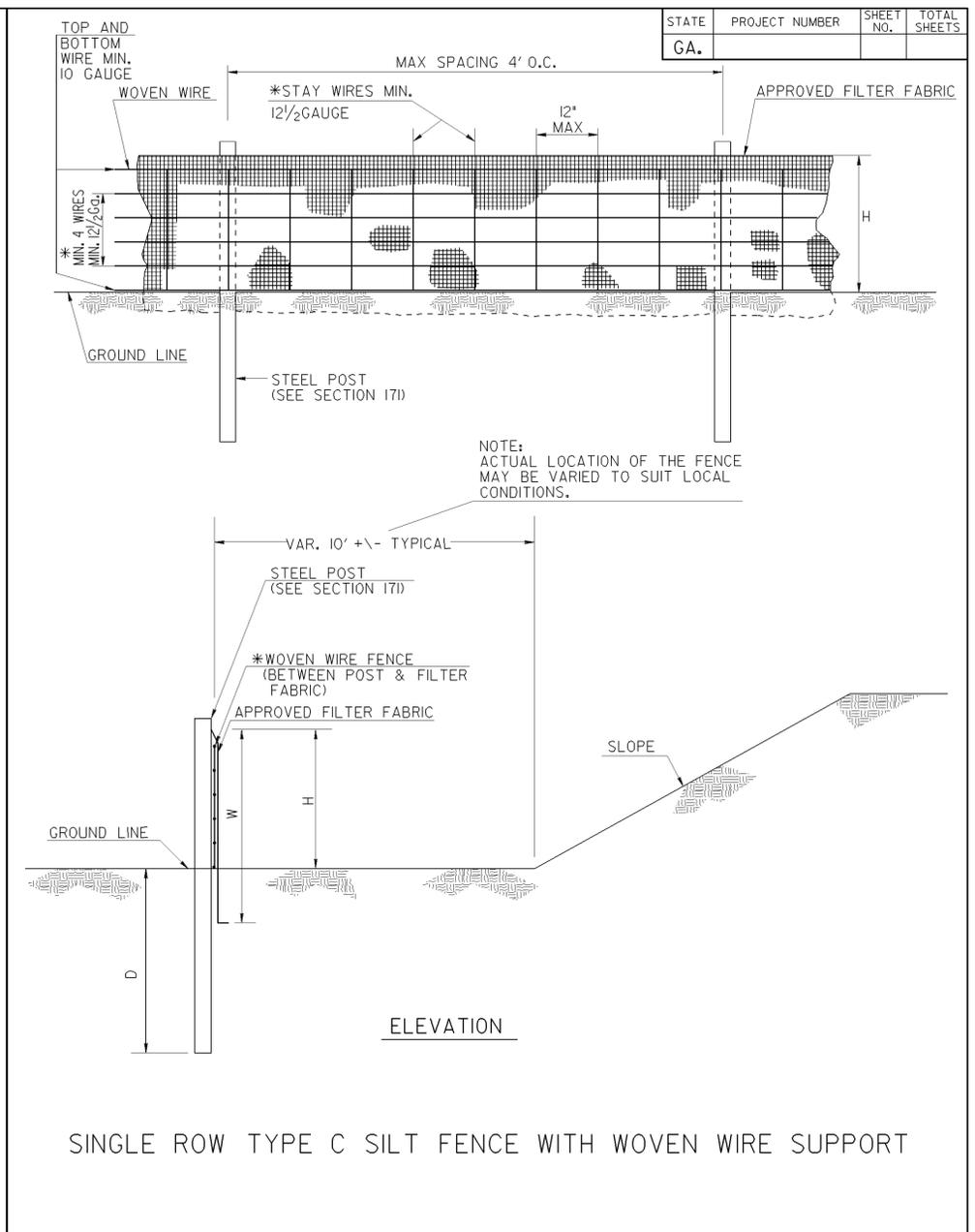
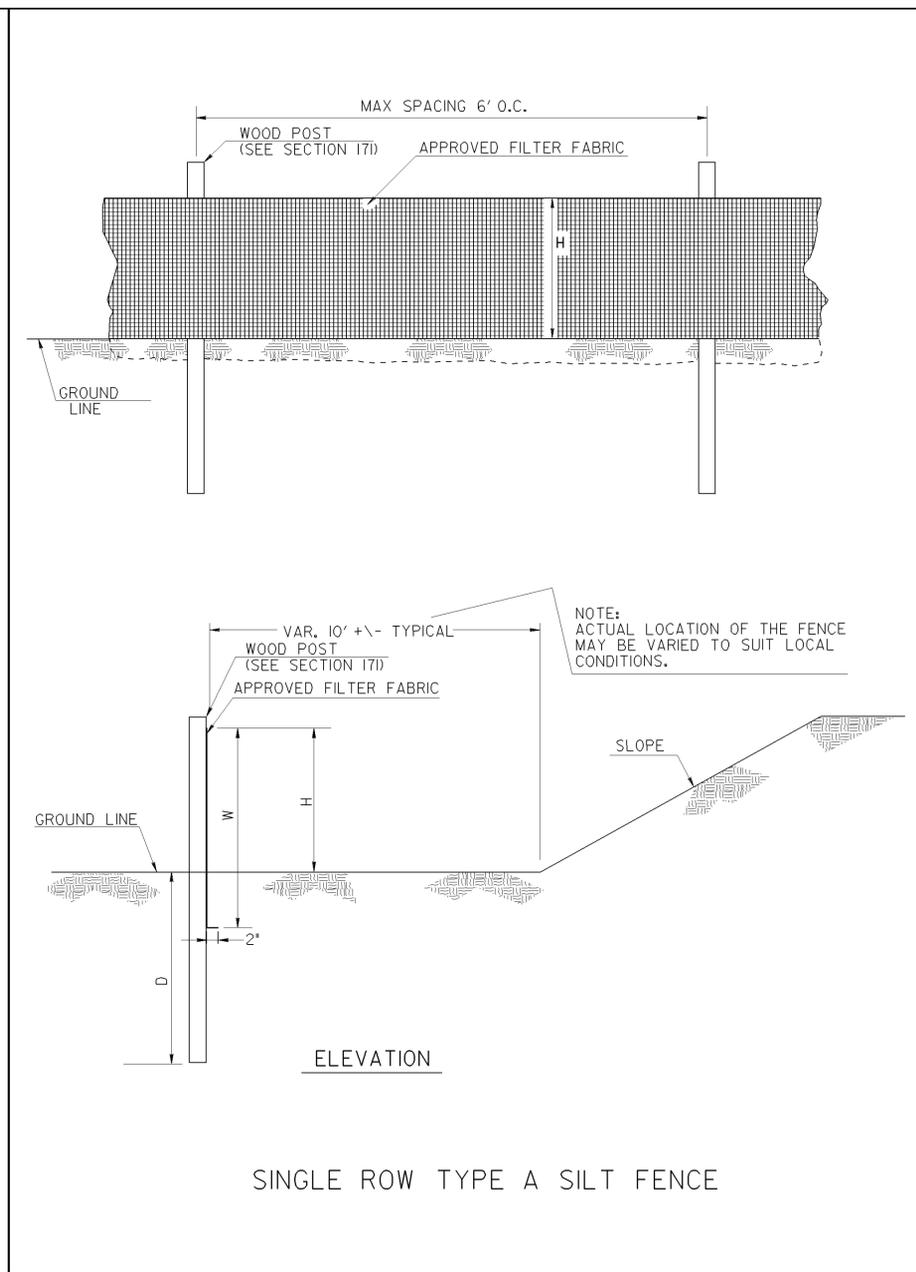
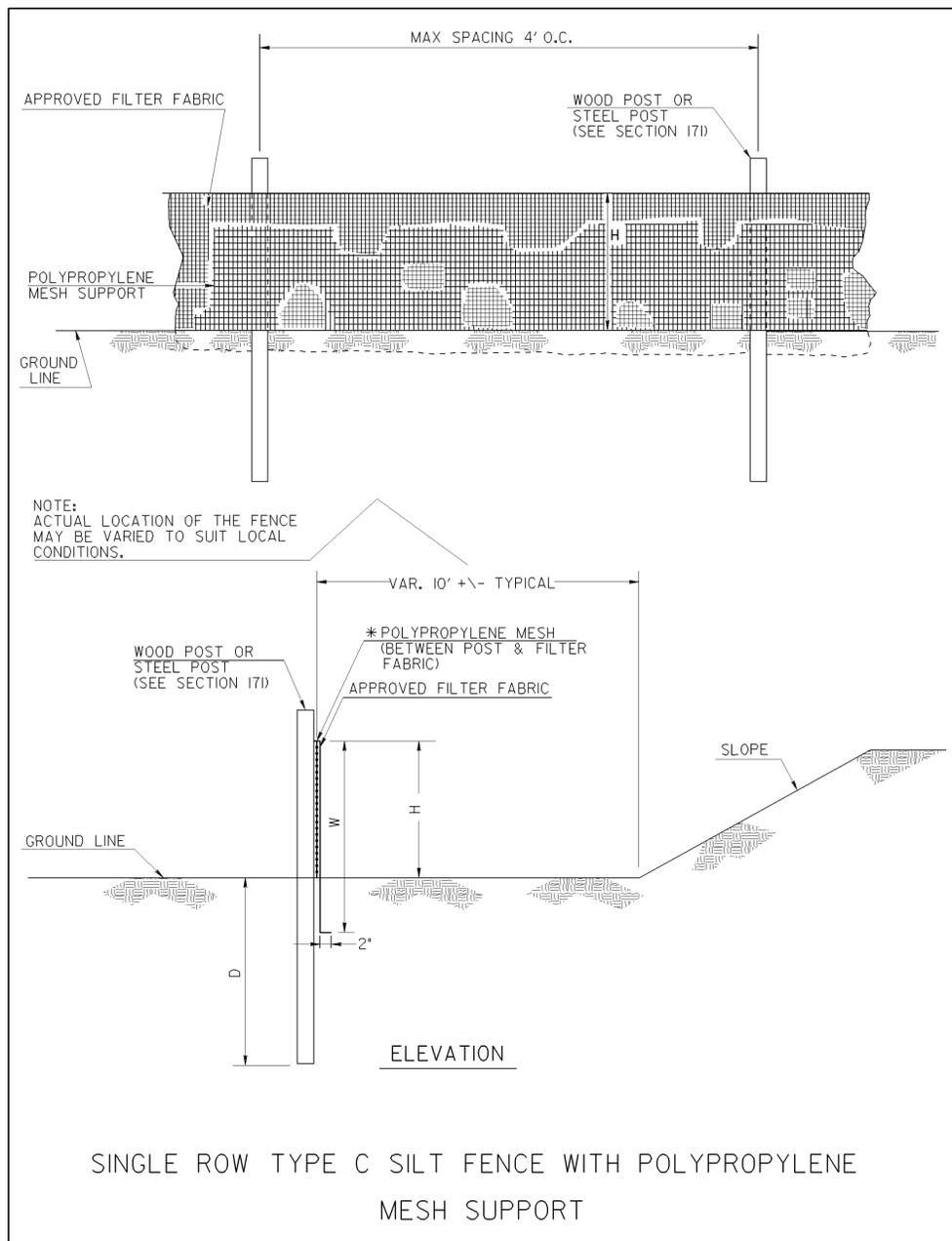
CITY OF DALTON
DEPARTMENT OF PUBLIC WORKS

BACKWALL & WINGWALL EXT. AND REPAIRS
CHATTANOOGA AVENUE (CS 874) OVER MILL CREEK

WHITFIELD COUNTY

SCALE: 1/2" = 1'-0" (UNLESS NOTED OTHERWISE) JUNE 2019

DRAWING NO. 35-0005	DESIGNED SHG	CHECKED DESIGN GROUP	REVIEWED APPROVED
BRIDGE SHEET 5 OF 5	DRAWN SHG		

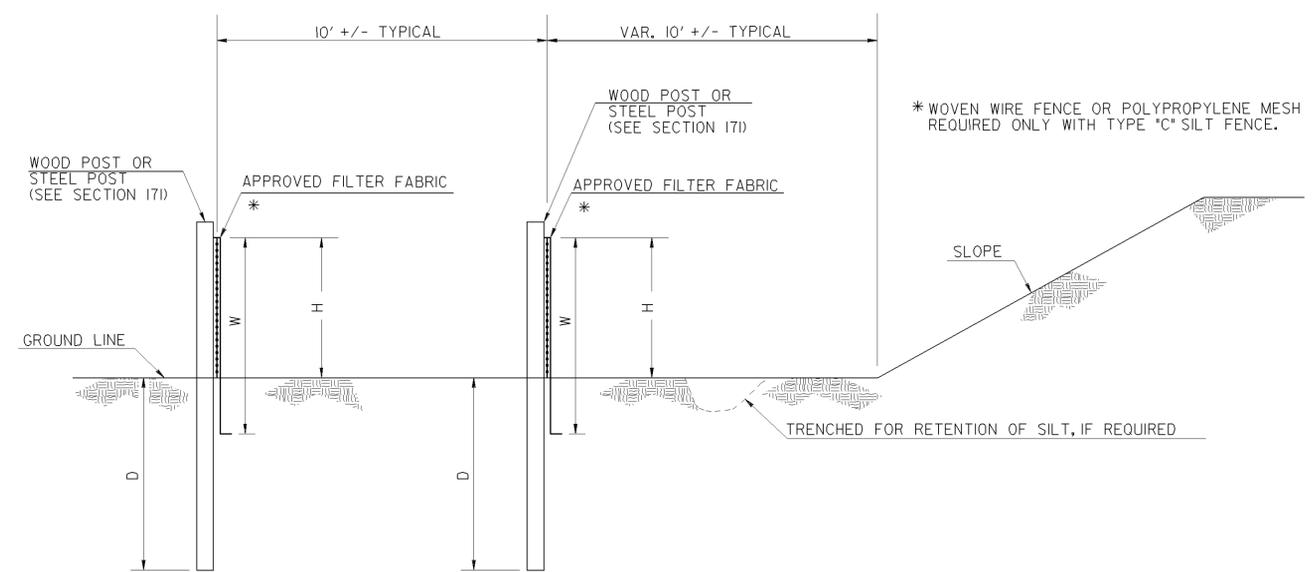


FENCE TYPE	POST LENGTH	H	D	W	TYPICAL USES
TYPE "A"	4 FT.	2'-4"	1'-6"	3'-0"	
TYPE "C"	4 FT.	2'-4"	1'-6"	3'-0"	AT BRIDGE END ROLLS, DOUBLE ROW ALONG STREAMS, WETLANDS AND ENVIRONMENTALLY SENSITIVE AREAS FOR USE OF THIS MATERIAL IN FABRIC CHECKDAMS SEE D-24D.

- NOTES:
1. WIRE STAPLES SHALL BE AT LEAST 17 GAUGE, WITH LEGS AT LEAST 1/2 INCHES LONG AND A CROWN AT LEAST 3/4 INCHES WIDE. NAILS SHALL BE AT LEAST 14 GAUGE, 1 INCH LONG, WITH BUTTON HEADS AT LEAST 3/4 INCHES WIDE.
 2. NAILS OR STAPLES SHALL BE EVENLY PLACED WITH AT LEAST 5 PER POST FOR TYPE A FENCE AND 4 PER POST FOR TYPE C FENCE.
 3. THE VERTICAL WIRES FOR THE WOVEN WIRE SUPPORT FENCE SHALL HAVE A MAXIMUM SPACING OF 12 INCHES. THE TOP AND BOTTOM WIRES SHALL BE AT LEAST 10 GAUGE AND ALL OTHER WIRES SHALL BE AT LEAST 12 1/2 GAUGE.
 4. TEMPORARY SILT FENCE INSTALLATION IS DIFFERENT THAN THE SILT RETENTION BARRIER INSTALLATION.
 5. SEE SECTION 171 FOR SILT FENCE SPECIFICATIONS.
 6. SEE SECTION 894 FOR FENCING SPECIFICATIONS.
 7. SEE QPL-36 FOR A LIST APPROVED SILT FENCE FABRIC.
 8. TEMPORARY SILT FENCE SHALL NOT BE PLACED WITHIN STATE WATERS UNLESS PERMITTED.

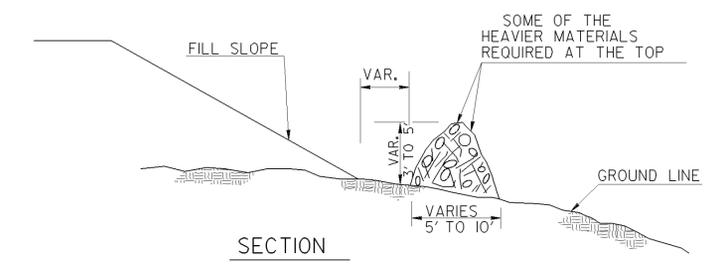
DATE		DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA	
REVISION		CONSTRUCTION DETAILS TEMPORARY SILT FENCE	
BY		NO SCALE	REV. AND REDRAWN JAN. 2011
		NUMBER D-24A (SHEET 1 OF 4)	

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS



ELEVATION
DOUBLE ROW SILT FENCE

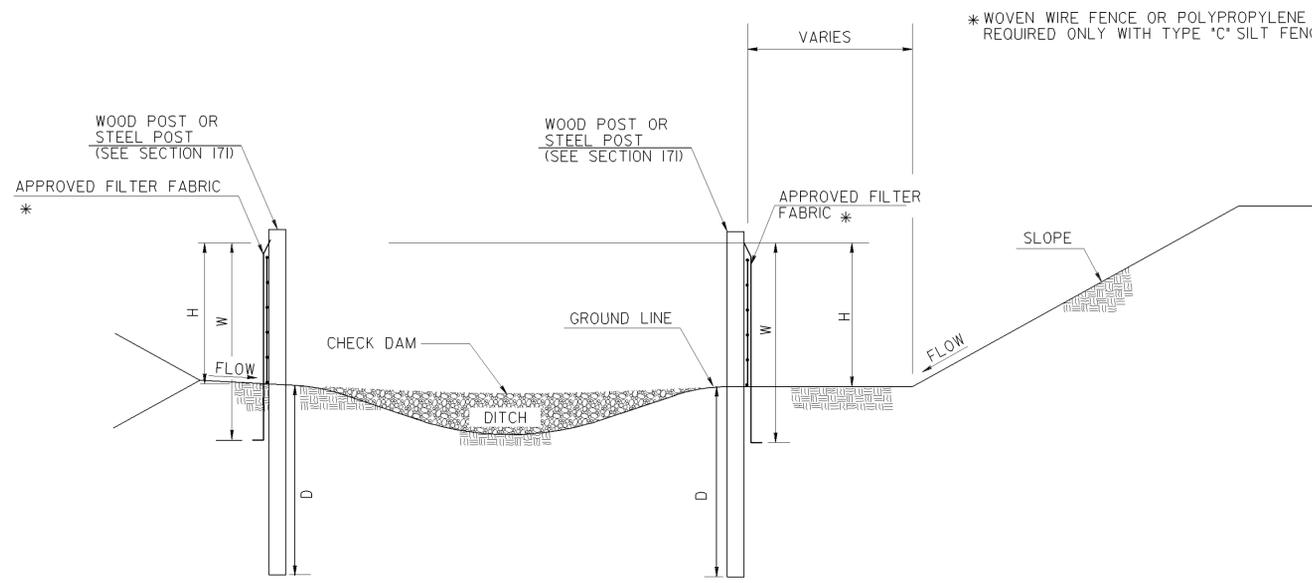
FENCE TYPE	POST LENGTH	H	D	W	TYPICAL USES
TYPE "A"	4 FT.	2'-4"	1'-6"	3'-0"	
TYPE "C"	4 FT.	2'-4"	1'-6"	3'-0"	AT BRIDGE END ROLLS, DOUBLE ROW ALONG STREAMS, WETLANDS AND ENVIRONMENTALLY SENSITIVE AREAS FOR USE OF THIS MATERIAL IN FABRIC CHECKDAMS SEE D-24D.



NOTE: INTERMINGLE BRUSH, LOGS, ETC. SO AS NOT TO FORM A SOLID DAM.



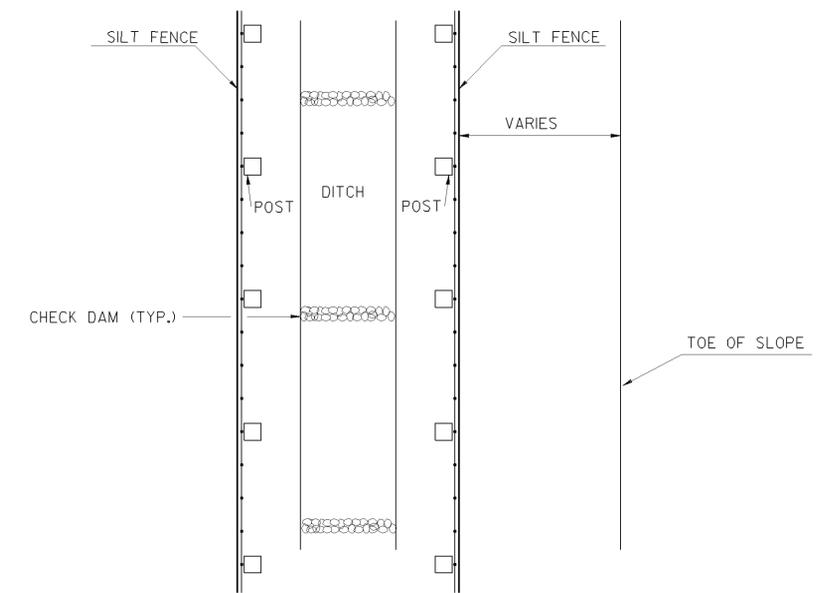
SECTION
FRONT VIEW
NOTE: BRUSH BARRIER(S) WILL BE INCLUDED IN PAYMENT FOR CLEARING & GRUBBING.
BRUSH BARRIER DETAILS
(FOR USE IN RURAL AREAS)



ELEVATION

SILT FENCE
PERIMETER INSTALLATION ALONG DITCH SECTION

FENCE TYPE	POST LENGTH	H	D	W	TYPICAL USES
TYPE "A"	4 FT.	2'-4"	1'-6"	3'-0"	
TYPE "C"	4 FT.	2'-4"	1'-6"	3'-0"	AT BRIDGE END ROLLS, DOUBLE ROW ALONG STREAMS, WETLANDS AND ENVIRONMENTALLY SENSITIVE AREAS FOR USE OF THIS MATERIAL IN FABRIC CHECKDAMS SEE D-24D.

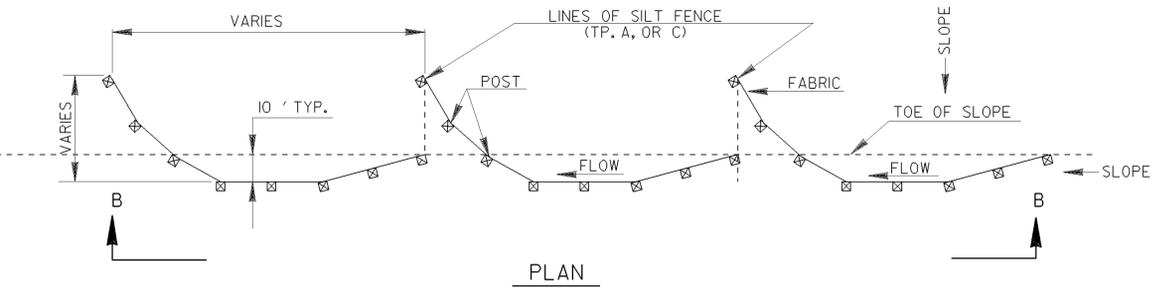
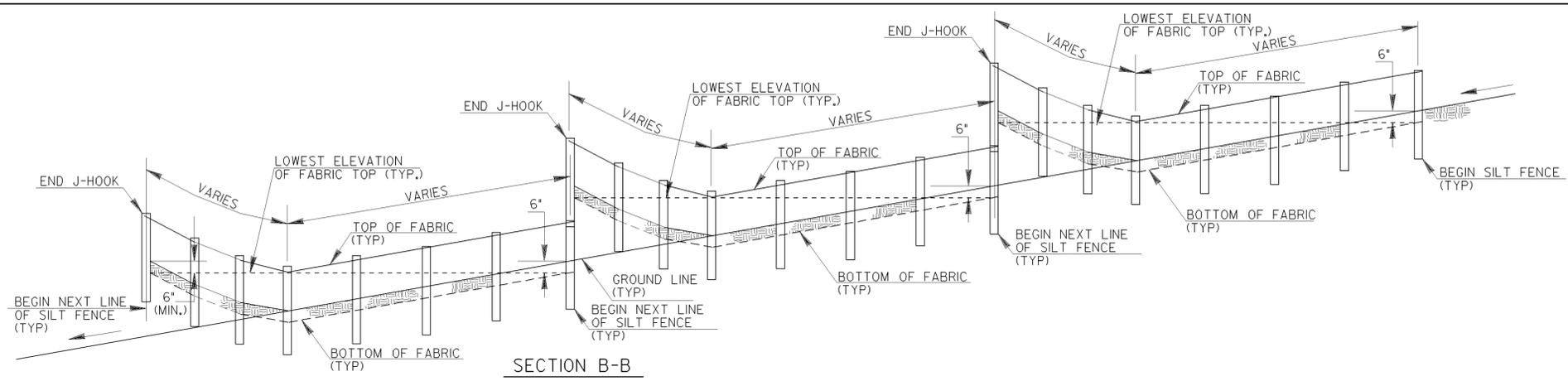


PLAN

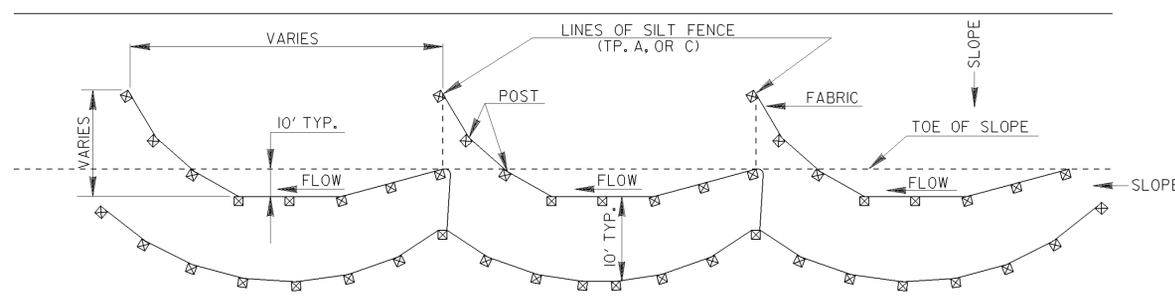
NOTE: TEMPORARY SILT FENCE SHALL NOT BE PLACED WITHIN STATE WATERS.

DATE		DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA	
REVISION		CONSTRUCTION DETAILS TEMPORARY SILT FENCE BERM DITCH, INSTALLATION, BRUSH BARRIER	
BY		NO SCALE	REV. AND REDRAWN JAN. 2011
		NUMBER D-24B (SHEET 2 OF 4)	

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			



PLAN
SINGLE ROW SILT FENCE

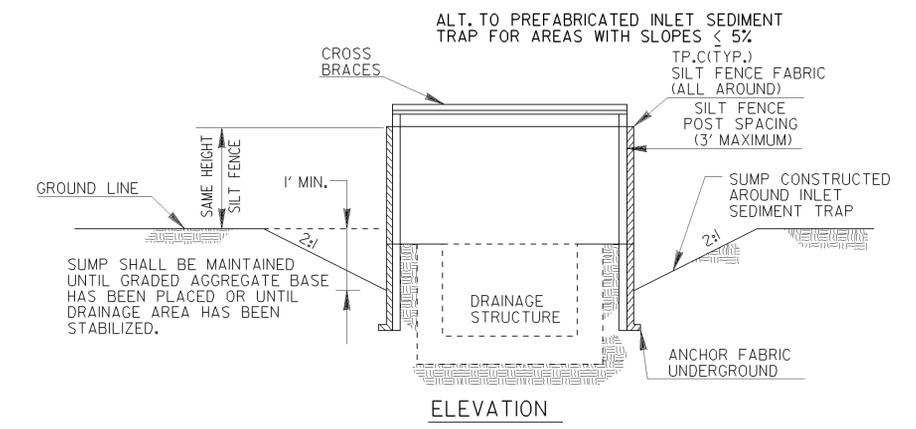


PLAN
DOUBLE ROW SILT FENCE

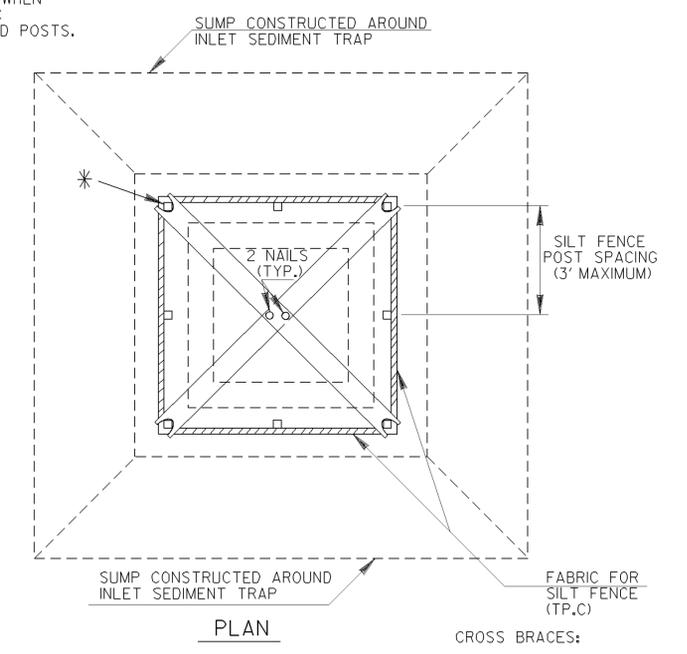
TYPICAL J HOOK SPACING		
SLOPE PERCENT	TYPE OF SILT FENCE	MINIMUM SPACING (FEET)
1% TO 2%	TYPE A	100' ±
2% TO 3%	TYPE A	50' ±
3% TO 4%	TYPE C	50' ±
4% TO 5%	TYPE C	25' ±

NOTE:
1. IF THE GRADE IS BETWEEN 0 TO 1 PERCENT, THE SILT FENCE SHALL BE PLACED ACROSS THE DITCH.
2. TEMPORARY SILT FENCE SHALL NOT BE PLACED WITHIN STATE WATERS.

TYPICAL LOCATION AROUND DROP INLETS

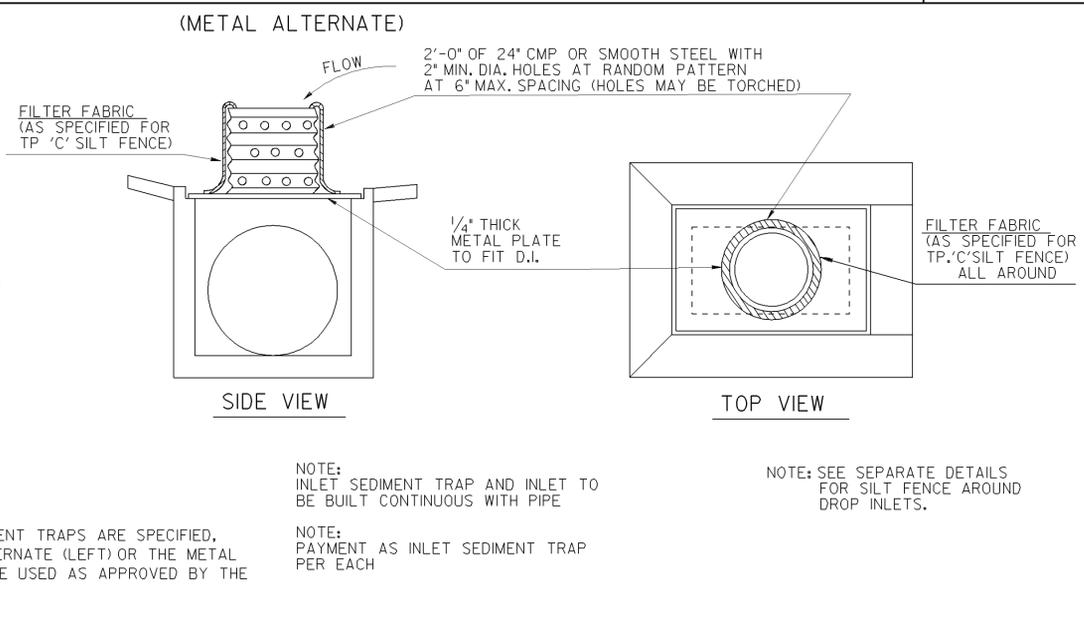
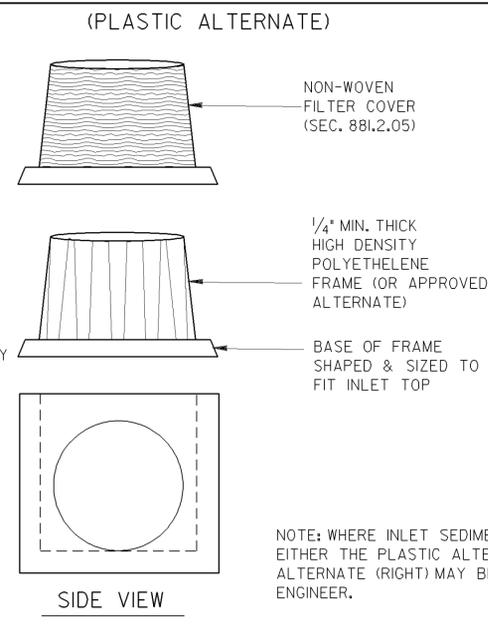


* CROSS BRACING REQUIRED WHEN USING "ALTERNATE" TYPE C PRODUCTS WHICH USE WOOD POSTS.



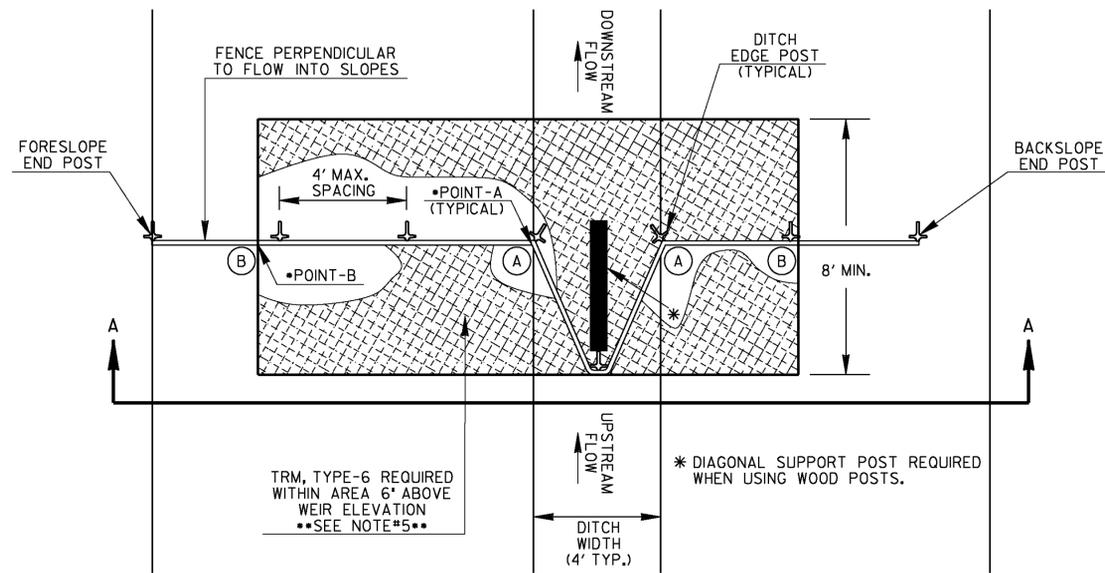
NOTE: PAYMENT AS INLET SEDIMENT TRAP PER EACH.
NOTE: SEE SEPARATE SHEET ENTITLED "TEMPORARY SILT FENCE DETAILS" FOR SILT FENCE ERECTION DETAILS.

NOTE: THE DRAINAGE AREA ENTERING THE INLET SEDIMENT TRAP SHALL BE NO GREATER THAN ONE ACRE.
TYPICAL CONSTRUCTION SEQUENCE FOR INLET SEDIMENT TRAP ALTERNATE
1. EXCAVATE APPROXIMATELY 4" TO 6" BELOW THE TOP OF THE INLET STRUCTURE.
2. PLACE THE FRAME ONTO THE INLET STRUCTURE, ENSURING PROPER SEATING OF FRAME TO STRUCTURE.
3. SLIDE THE FILTER OVER THE FRAME.
4. FILL THE FILTER POCKETS WITH SOIL, #57 GRAVEL OR EQUIVALENT. THE FILTER POCKETS SHOULD BE COMPLETELY FILLED TO ENSURE A GOOD SEAL BETWEEN THE GROUND AND INLET STRUCTURE.
5. BACK FILL AROUND THE FRAME AND FILTER ASSEMBLY IS NOT REQUIRED TO COMPLETE INSTALLATION; HOWEVER, BACK FILLING MAY BE NECESSARY TO COMPLETE EXCAVATION REQUIREMENTS FOR THE SITE.
NOTE: INLET SEDIMENT TRAP ALTERNATE SHALL BE AS APPROVED BY THE GA. D.O.T. OFFICE OF MATERIALS & RESEARCH. DETAILS & SPECIFICATIONS NOT SHOWN ARE PER THE MANUFACTURER'S REQUIREMENTS.



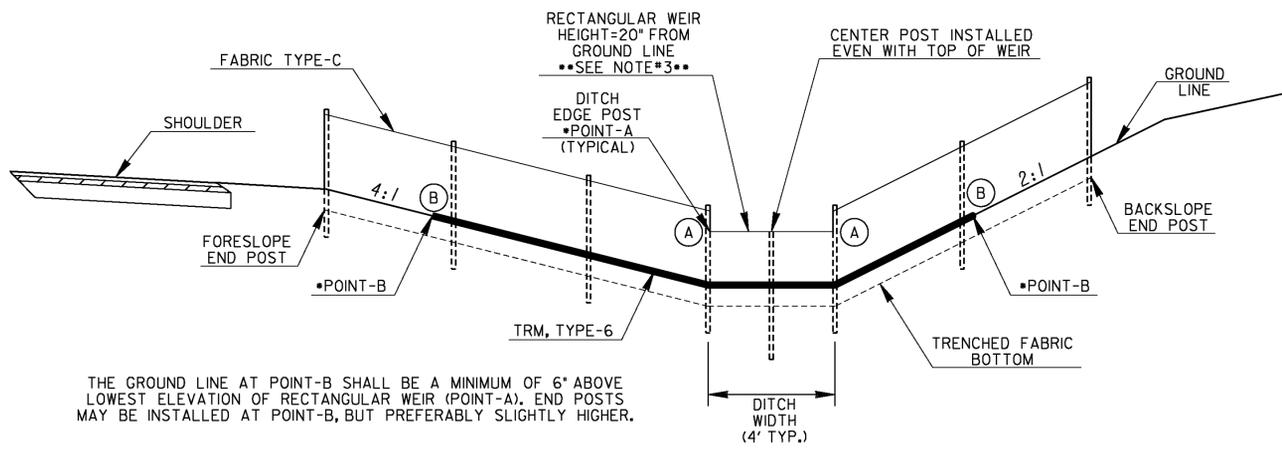
INLET SEDIMENT TRAP - FOR DROP INLETS

DATE		DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA	
REVISION		CONSTRUCTION DETAILS TEMPORARY SILT FENCE J-HOOK, INLET SEDIMENT TRAPS	
BY		NO SCALE	JANUARY 2011
		NUMBER D-24C (SHEET 3 OF 4)	



PLAN VIEW

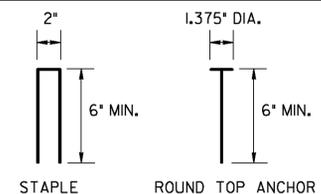
GRADE OF DITCH	MINIMUM SPACING (FEET)
LESS THAN 1%	100' ±
1% TO 3%	75' ±
3% TO 6%	50' ±
6% TO 8%	25' ±



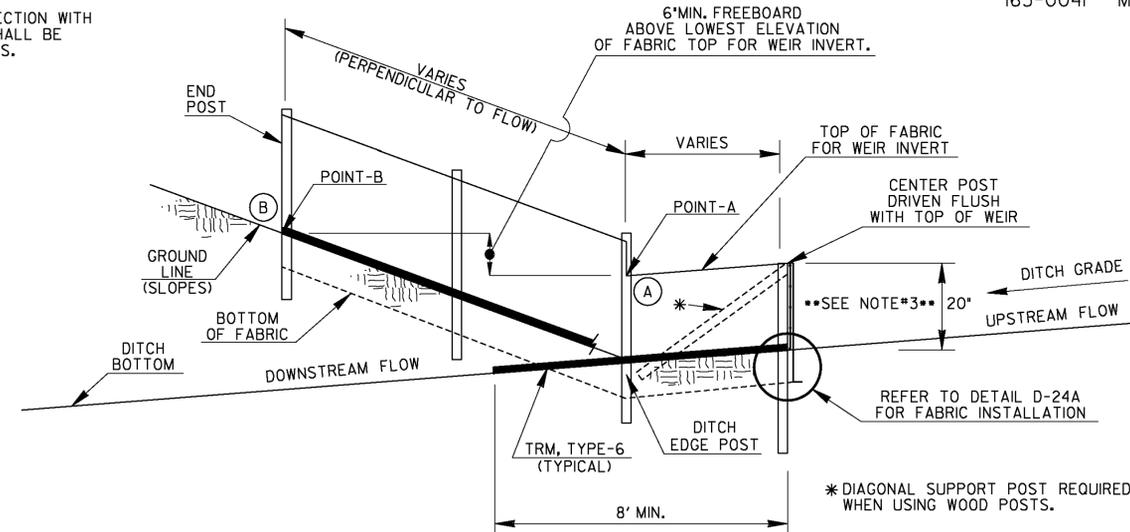
SECTION A-A

NOTE: CROSS-SECTION SHOWN IS AN EXAMPLE OF A TYPICAL CUT SECTION WITH A 4-FT FLAT BOTTOM DITCH. ACTUAL FABRIC CHECK DAMS SHALL BE INSTALLED SIMILARLY ACCORDING TO ROADWAY CROSS-SECTIONS.

TURF REINFORCEMENT MATTING ANCHOR



NOTE: TURF REINFORCEMENT MATTING SHALL BE ANCHORED WITH 8-GAUGE METAL STAPLES OR ROUND TOP ANCHORS. ANCHORS SHALL BE LONG ENOUGH TO PROVIDE SUFFICIENT GROUND PENETRATION TO RESIST PULL OUT.



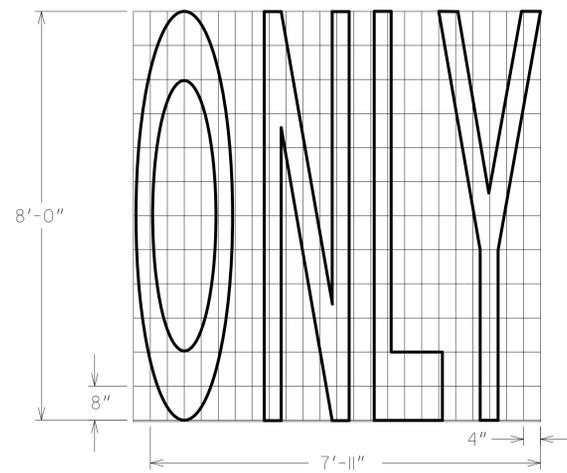
NOTES:

- FABRIC CHECK DAMS MAY BE USED FOR FLOWS UP TO 2.0-CFS. A ROCK FILTER DAM SHALL BE USED AT THE DOWNSTREAM POINT FOR FLOWS GREATER THAN 2.0-CFS.
- FABRIC CHECK DAMS SHALL NOT BE PLACED WITHIN FLOWING STATE WATERS.
- FABRIC CHECK DAMS MAY BE USED IN DITCHES WITH DEPTHS AT LEAST 26-IN. IF DITCH DEPTH IS LESS THAN 26-IN, THE WEIR INVERT MAY BE LOWERED SLIGHTLY IN THE FIELD TO PROVIDE 6-IN MINIMUM FREEBOARD ABOVE POINT-A OR TO MATCH SPACING OF WIRE SUPPORT. THE WEIR HEIGHT SHALL BE NO LESS THAN 15-IN. THE DESIGNER SHALL CONSIDER OTHER APPROPRIATE BMPs FOR CONCENTRATED FLOW FOR DITCH DEPTHS LESS THAN 26-IN.
- THE FOLLOWING STEPS ARE RECOMMENDED FOR PROPER FABRIC CHECK DAM INSTALLATION:
 - DETERMINE DITCH CENTERLINE AND USE A LINE LEVEL OR OTHER MEANS TO FIND POINT-B WITHIN THE DITCH FORESLOPE AND BACKSLOPE TO PROVIDE 6-IN MINIMUM FREEBOARD ABOVE POINT-A.
 - CREATE TRENCH 6-IN BELOW DITCH GRADE TO FIT LAYOUT FROM STEP-A WITH MINIMAL SOIL DISTURBANCE.
 - LAYOUT TURF REINFORCEMENT MATTING (TRM), TYPE-6 TO PROVIDE PROTECTION A MINIMUM LENGTH OF 8-FT DOWNSTREAM OF CENTER POST TO FUNCTION AS A SPLASH PAD TO PREVENT SCOURING. ADDITIONAL NECESSARY TRM SHALL BE OVERLAPPED 3-FT. THE WIDTH SHALL BE THE DISTANCE BETWEEN POINT-B ON THE DITCH FORESLOPE AND POINT-B ON BACKSLOPE.
 - INSTALL FENCE POSTS THROUGH TRM WITHIN TRENCH. CENTER POST AND POSTS WITHIN WEIR AREA SHALL BE INSTALLED FLUSH WITH WEIR. CUT TRM WITHIN TRENCH FOLLOWING CHECK DAM LAYOUT AND SAVE UPSTREAM PORTION OF TRM FOR FURTHER USE.
 - PROPERLY INSTALL TYPE-C SILT FENCE. TRENCH BACKFILL SHALL BE COMPACTED WITH A HAND TAMPER, JUMPING JACK COMPACTOR, OR PLATE COMPACTOR TO PREVENT UNDERMINING.
 - INSTALL PREVIOUSLY CUT TRM FROM STEP-D UPSTREAM AGAINST CHECK DAM. INSTALLING UPSTREAM AND DOWNSTREAM TRM ACCORDING TO DETAIL D-35 FOR THIS TEMPORARY APPLICATION IS NOT REQUIRED. HOWEVER, TRM SHALL HAVE PROPER CONTACT WITH GROUND SURFACE, ANCHORED 6-IN MAXIMUM SPACING ALONG THE EDGES, AND ADEQUATELY WITHIN THE MATTED AREA.
- TEMPORARY INSTALLATION OF TRM WITH FABRIC CHECK DAMS SHALL BE INCLUDED IN THE LINEAR COST OF THE CONSTRUCTION, REMOVAL, AND MAINTENANCE OF EACH FABRIC CHECK DAM. NO ADDITIONAL PAYMENT WILL BE MADE.

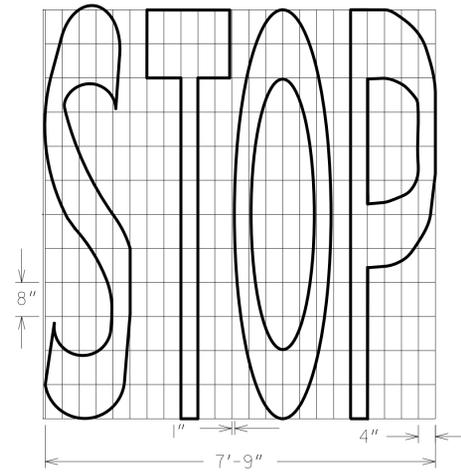
PAY ITEMS:

- 163-0528 CONSTRUCT & REMOVE FABRIC CHECK DAM, TYPE-C SILT FENCE (LF)
- 165-0041 MAINTENANCE OF CHECK DAMS - ALL TYPES (LF)

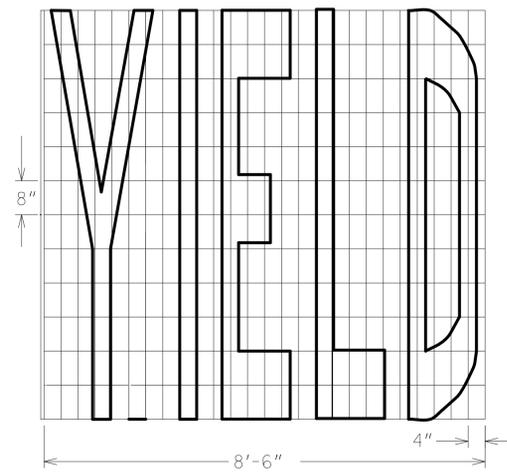
DATE		DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA	
REVISION		CONSTRUCTION DETAILS TEMPORARY SILT FENCE FABRIC CHECK DAM	
BY		NO SCALE	REV. AND REDRAWN, JULY 2015
		NUMBER D-24D (SHEET 4 OF 4)	



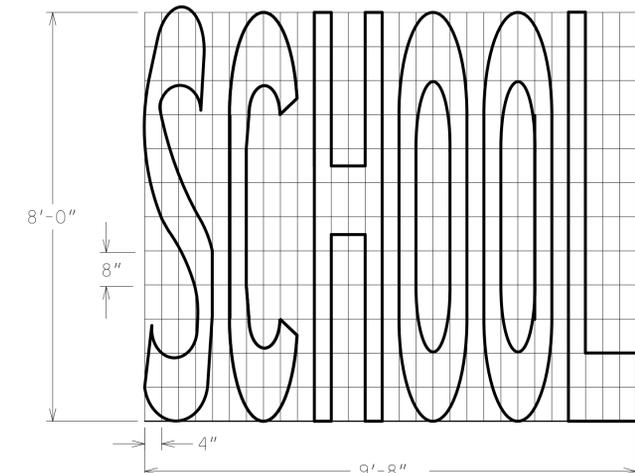
TYPE 1
AREA = 20.8 FT²



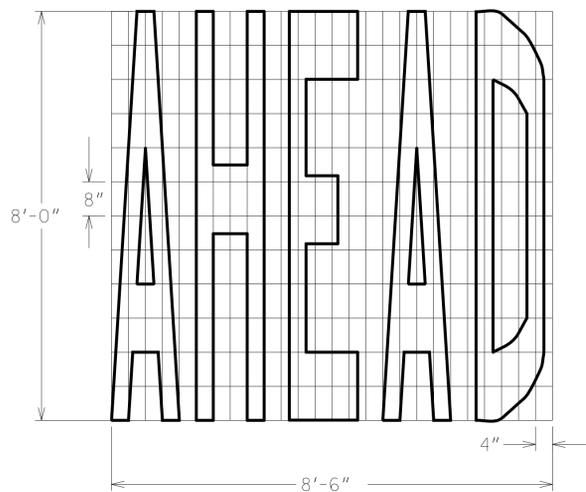
TYPE 2
AREA = 25.4 FT²



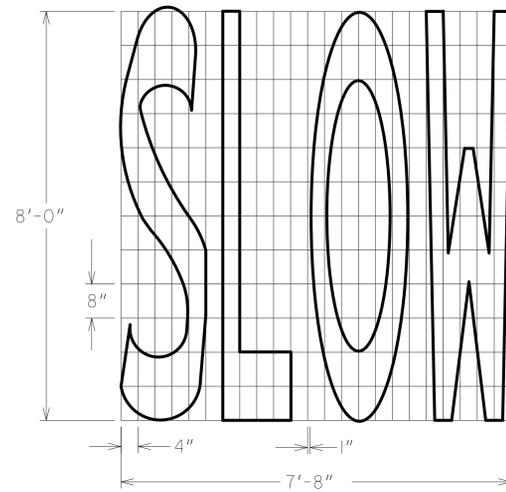
TYPE 15
AREA = 25.4 FT²



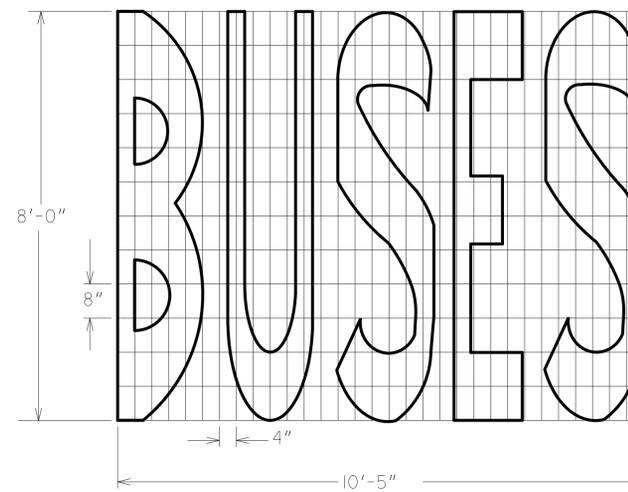
TYPE 3A
(SINGLE LANE)
AREA = 33.5 FT²



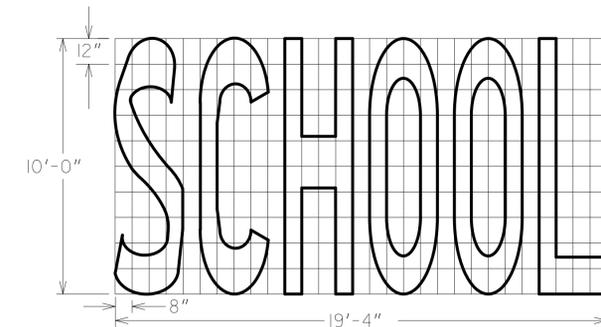
TYPE 4
AREA = 29.1 FT²



TYPE 5
AREA = 25.4 FT²



TYPE 6
AREA = 38.1 FT²

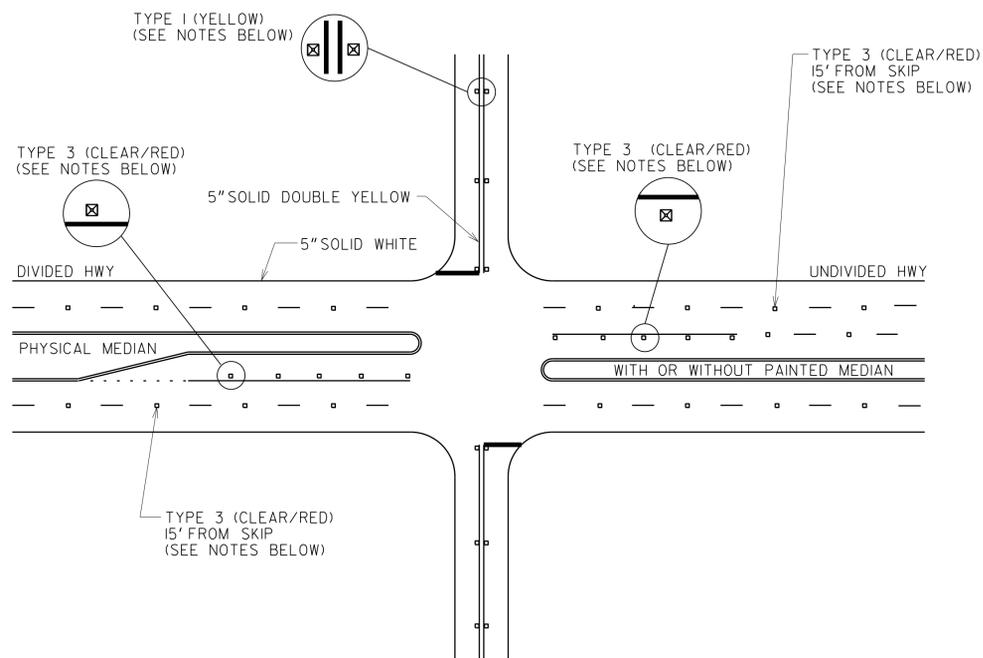


TYPE 3B
(TWO LANES)
AREA = 85.0 FT²

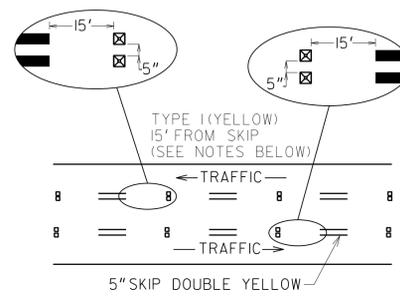
REVISION	9-15-16	DATE	DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA	
	3		CONSTRUCTION DETAILS	
REVISION			DETAILS OF PAVEMENT MARKING WORDS	
			NO SCALE	SHEET 1 OF 3
CDR			JANUARY 2000	
	BY		DESIGNED _____	NUMBER T-13A
			DRAWN _____	
			TRACED _____	
			CHECKED _____	

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

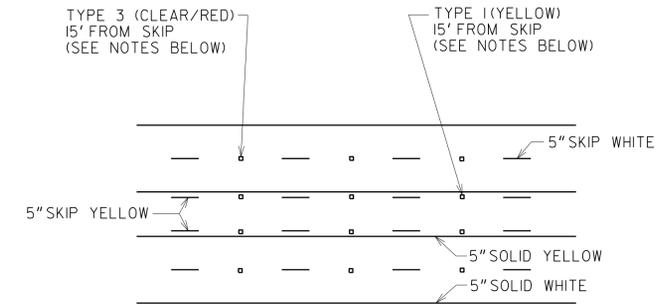
DIVIDED / UNDIVIDED HIGHWAY



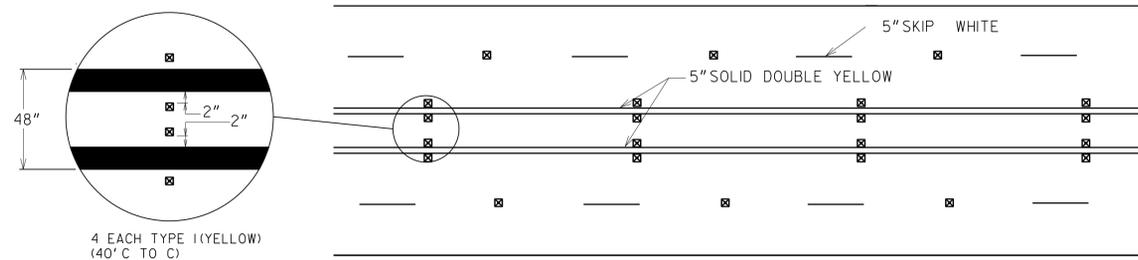
REVERSIBLE LANE



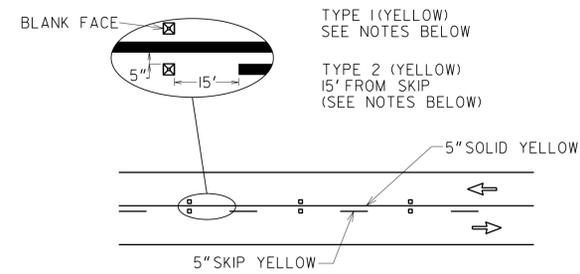
TWO WAY LEFT TURN LANE



4'-0" STRIPED FLUSH MEDIAN



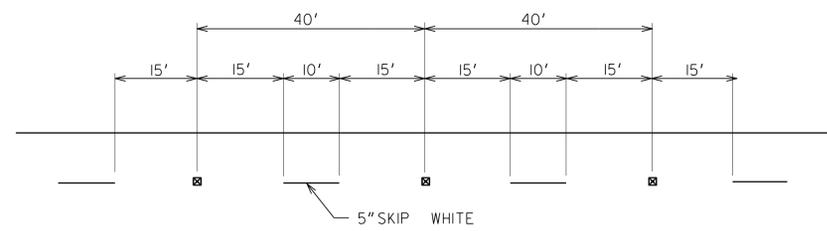
NO PASSING ZONE



GENERAL NOTES:

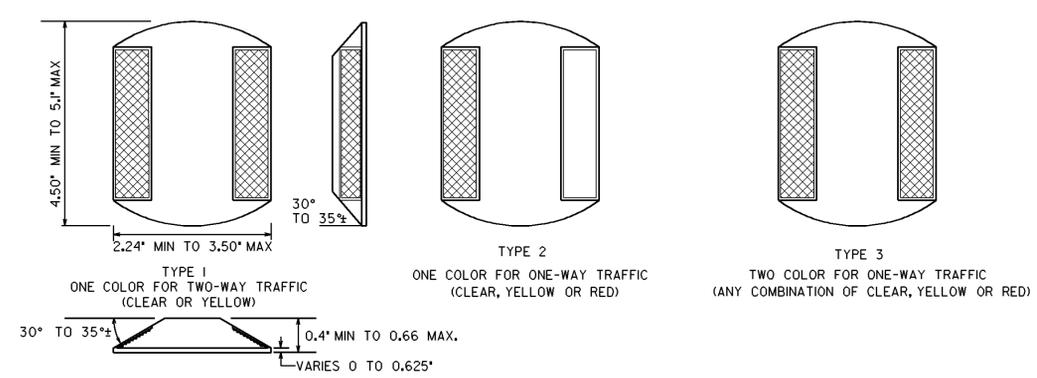
1. RAISED PAVEMENT MARKERS SHALL BE SPACED EVERY 40 FT UNLESS OTHERWISE SPECIFIED.
2. ON SOLID WHITE TURN BAY LINES, SPACING SHALL BE 20 FT.
3. RAISED PAVEMENT MARKERS SHALL BE OFFSET 5 INCHES FROM SOLID LANE LINES.
4. CLEAR FACE OF TYPE 3 RAISED PAVEMENT MARKERS SHALL BE ORIENTED TOWARD ONCOMING TRAFFIC.

TYPICAL RPM/STRIPE SPACING

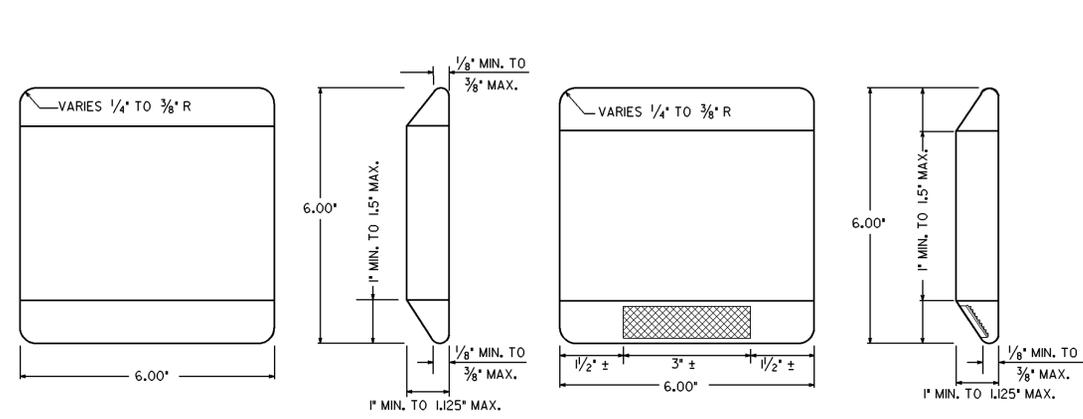
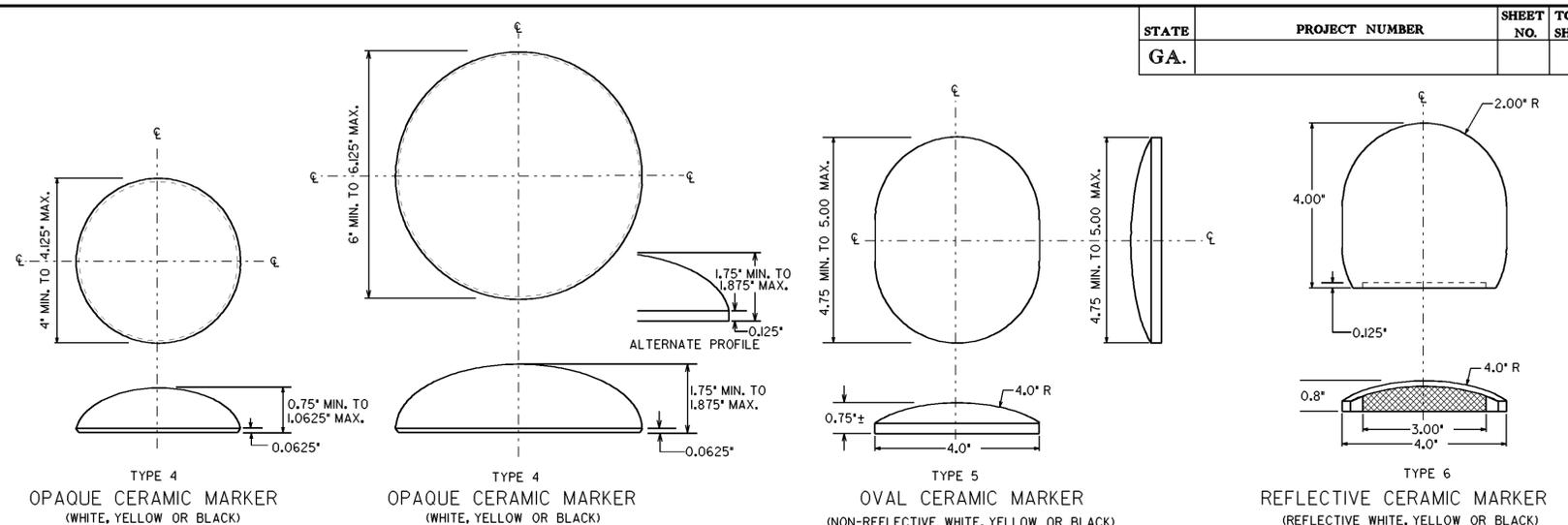


9-15-2016		DATE		DEPARTMENT OF TRANSPORTATION	
STATE OF GEORGIA				CONSTRUCTION DETAILS	
REV. RPM SPACING TO 40'		REVISION		RAISED PAVEMENT MARKER LOCATION	
				NON-LIMITED ACCESS ROADWAY	
NO SCALE		REV. AND REDRAWN, JUNE 2015			
CDR	BY	DESIGNED	_____	NUMBER	T-15A
		DRAWN	_____		
		TRACED	_____		
		CHECKED	_____		

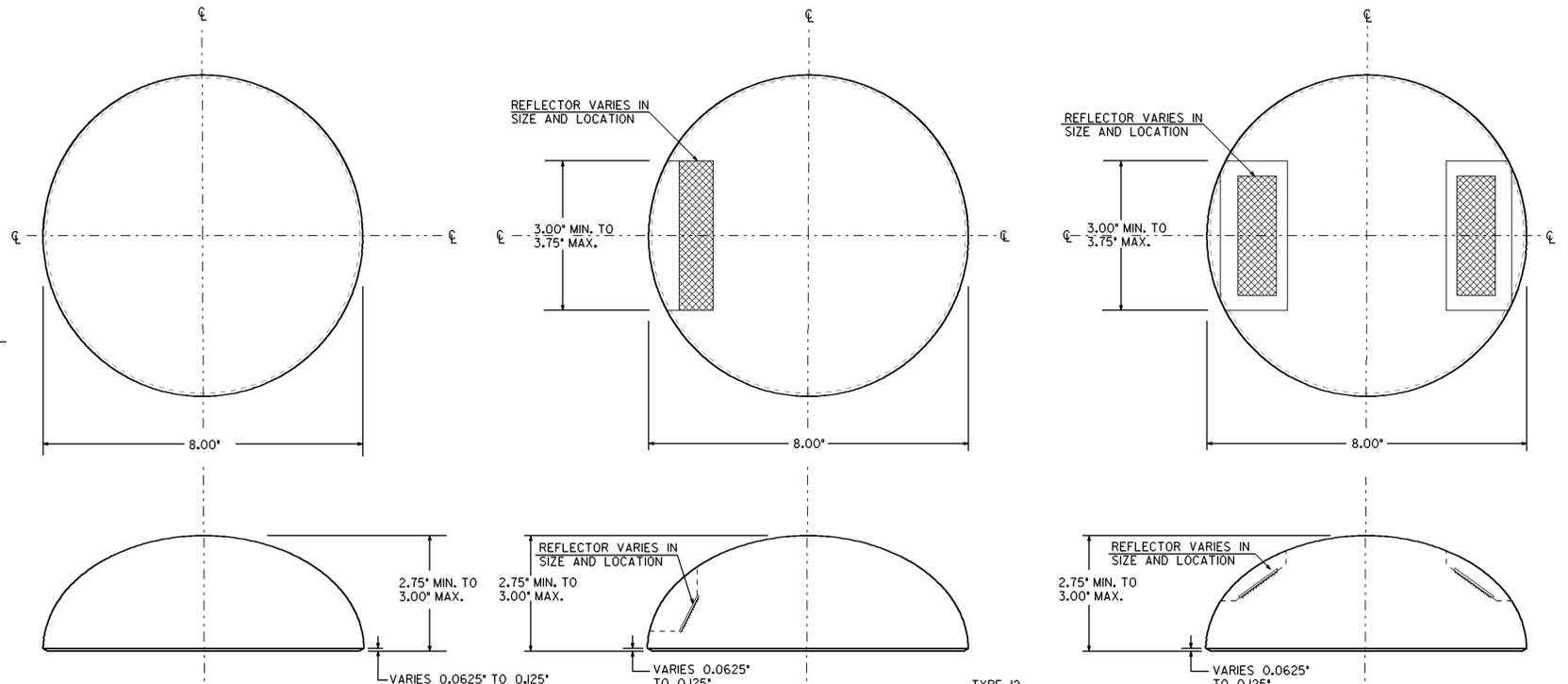
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			



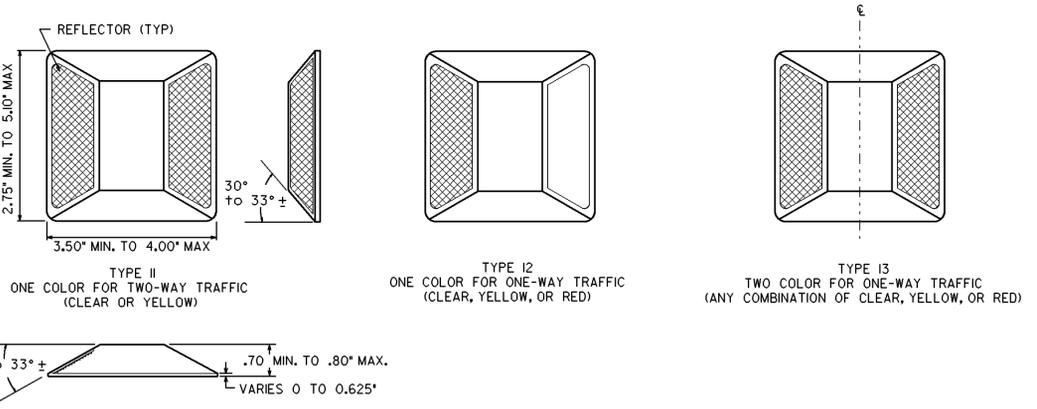
RAISED REFLECTIVE MARKERS



CERAMIC JIGGLE BAR MARKER



CERAMIC CHANNEL MARKER



ALTERNATE RAISED REFLECTIVE MARKERS

- GENERAL NOTES:
- SPECIFICATIONS: GEORGIA STANDARD, CURRENT EDITION, AND SUPPLEMENTS THERE TO.
 - THE CONTRACTOR SHALL USE RAISED PAVEMENT MAKER SOURCES AS LISTED IN OPL 76.
 - COLORS FOR REFLECTIVE ELEMENTS SHALL BE EITHER CLEAR, YELLOW, OR RED AS SPECIFIED.
 - THE SHELL OF THE REFLECTIVE MARKERS SHALL BE OF ONE COLOR OR OF A COMBINATION OF TWO COLORS, WHICH SHALL BE THE SAME AS THE REFLECTIVE ELEMENT.
 - THE SURFACE OF OPAQUE CERAMIC MARKERS SHALL BE GLAZED AND OF THE COLOR SPECIFIED IN THE PLANS WITH A WHITE, VITREOUS, CERAMIC BASE.
 - COLORS FOR ALL RAISED PAVEMENT MARKERS SHALL BE AS SPECIFIED IN THE PLANS.

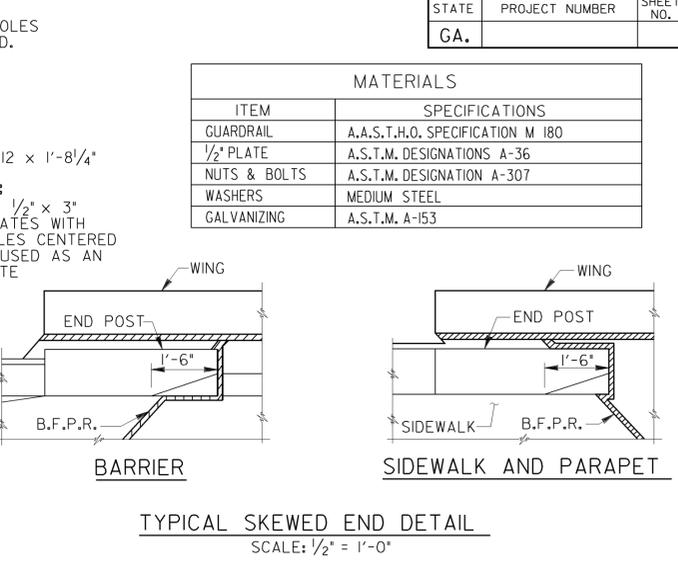
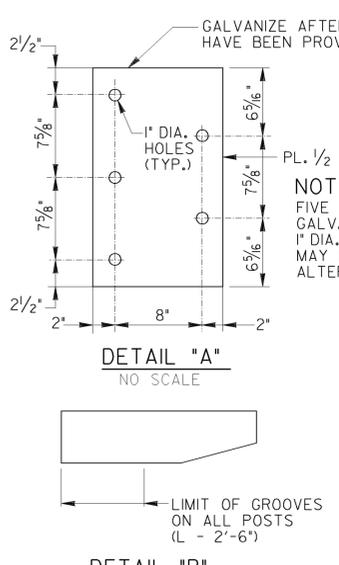
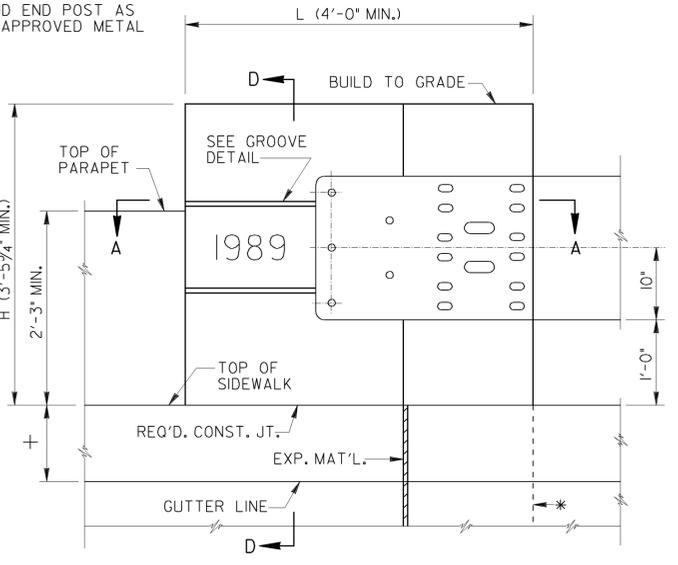
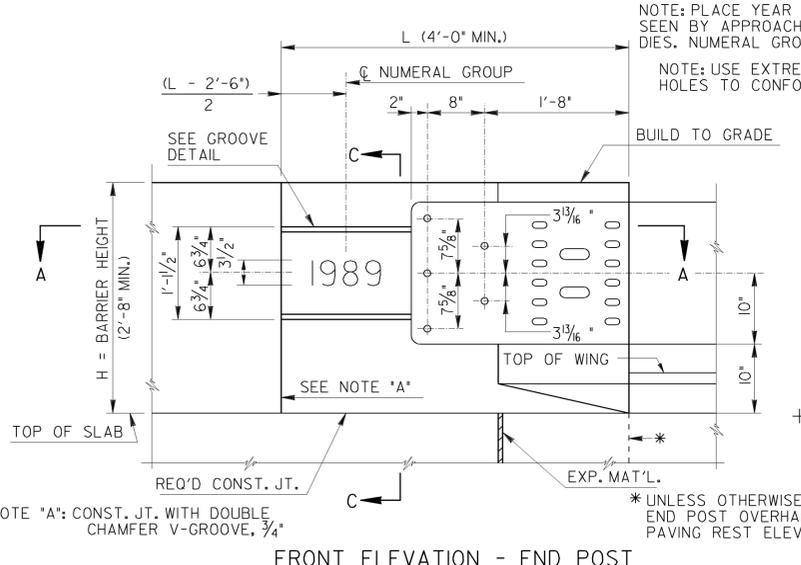
DATE	REVISIONS	GEORGIA DEPARTMENT OF TRANSPORTATION OFFICE OF TRAFFIC SAFETY & DESIGN
9-22-11	REV. DIMENSIONS, ADDED NOTES TO MARKERS AND REV. GEN. NOTES.	
		DETAILS OF RAISED PAVEMENT MARKERS
		NO SCALE
		JANUARY 2000

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

NOTE: PLACE YEAR BRIDGE IS BUILT ON EACH RIGHT-HAND END POST AS SEEN BY APPROACHING TRAFFIC. FORM NUMERALS WITH APPROVED METAL DIES. NUMERAL GROUP, ETC., TO BE ON GRADE.

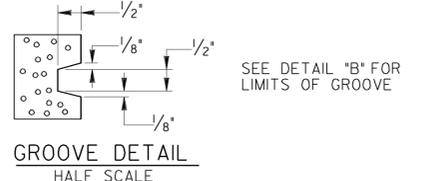
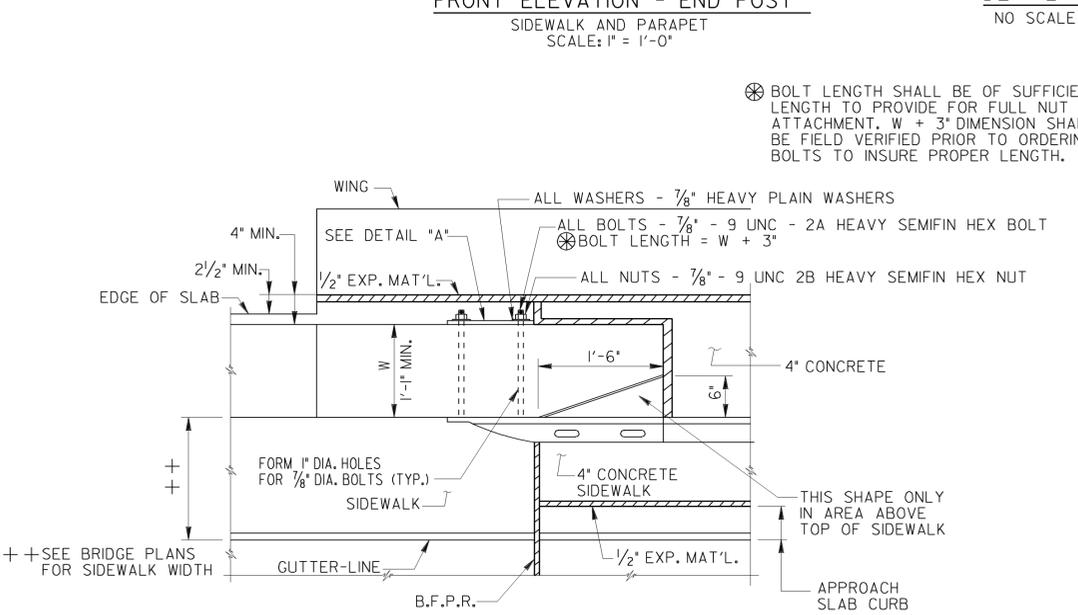
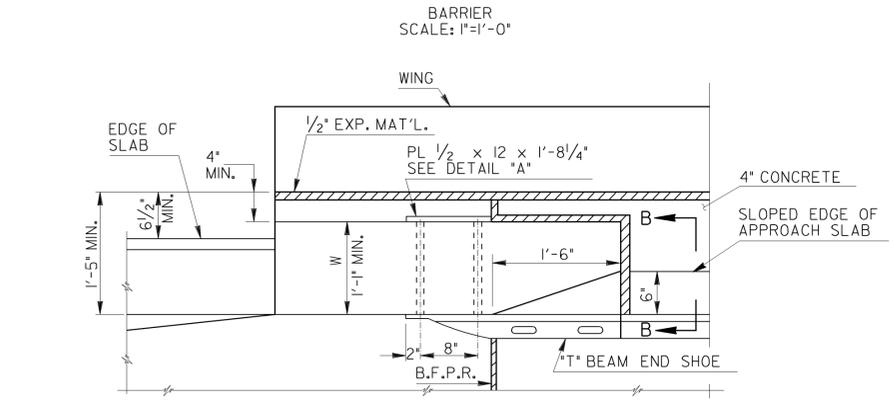
NOTE: USE EXTREME CARE IN PLACING FORMED HOLES TO CONFORM TO PATTERN EXACTLY.

* UNLESS OTHERWISE SHOWN OR NOTED, CARRY END POST OVERHANG DOWN TO TOP OF PAVING REST ELEVATION.



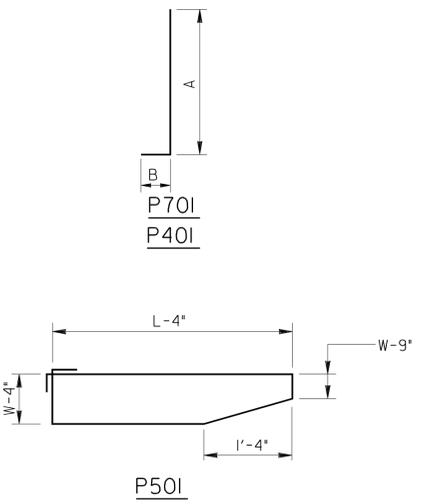
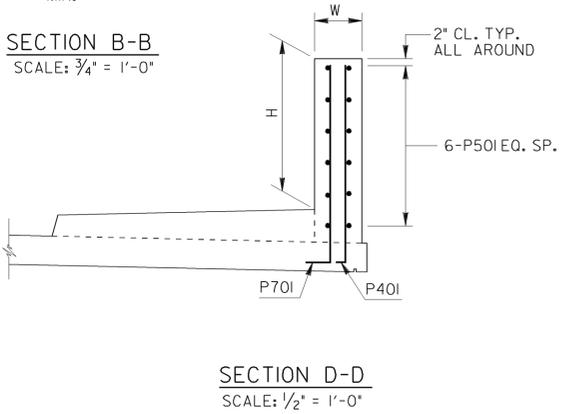
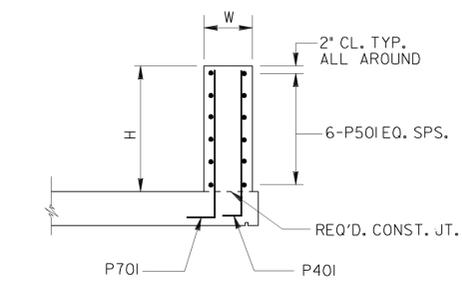
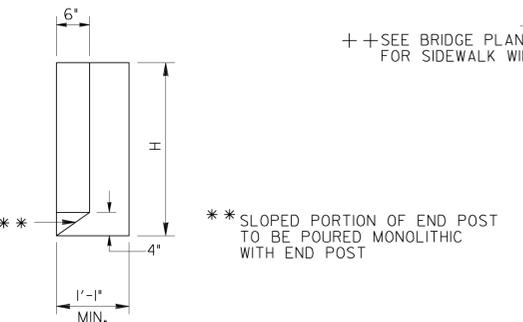
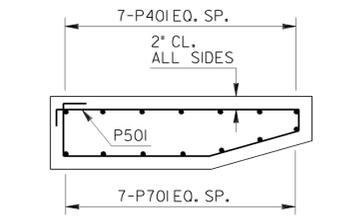
MATERIALS	
ITEM	SPECIFICATIONS
GUARDRAIL	A.A.S.T.H.O. SPECIFICATION M 180
1/2" PLATE	A.S.T.M. DESIGNATIONS A-36
NUTS & BOLTS	A.S.T.M. DESIGNATION A-307
WASHERS	MEDIUM STEEL
GALVANIZING	A.S.T.M. A-153

NOTE: FIVE 3" x 1/2" x 3" GALV. PLATES WITH 1" DIA. HOLES CENTERED MAY BE USED AS AN ALTERNATE



GENERAL NOTES

- SPECIFICATIONS - GEORGIA STANDARD.
- LOCATION - ALL END POSTS UNLESS NOTED ON BRIDGE PLANS.
- CHAMFER - CHAMFER ALL EXPOSED EDGES 3/4".
- GALVANIZING - ALL METAL PARTS SHALL BE GALVANIZED AFTER FABRICATION.
- PAYMENT FOR MISCELLANEOUS HARDWARE - COST OF 1/2" PLATE AND MISCELLANEOUS HARDWARE SHALL BE INCLUDED IN THE PRICES BID FOR CONTRACT ITEMS.
- PAYMENT FOR THE END POST - IF END POST IS A PORTION OF THE SUBSTRUCTURE, CONCRETE AND REINFORCEMENT ARE COMPUTED AND INCLUDED IN THE END BENT QUANTITIES. IF END POST IS A PORTION OF THE SUPERSTRUCTURE, CONCRETE AND REINFORCEMENT ARE COMPUTED AND INCLUDED IN THE END SPAN QUANTITIES.
- RESPONSIBILITY - WHEN THE BRIDGE CONTRACT IS SEPARATE FROM THE CONTRACT CONTAINING THE APPROACHING GUARDRAIL, THE BRIDGE CONTRACTOR SHALL ONLY BE RESPONSIBLE FOR THE CONSTRUCTION OF THE END POSTS AND FORMING OF THE 1" DIAMETER BOLT HOLES. THE CONTRACT CONTAINING THE APPROACHING GUARDRAIL SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING THE SPECIAL END SHOE, PLATE, NUTS, WASHERS, AND BOLTS.
- DIMENSIONS - FOR DIMENSIONS "L", "H", AND "W" AND OTHER DIMENSIONS, SEE BRIDGE PLANS.
- END POST - END POST TO BE CONSTRUCTED AFTER HANDRAIL IS IN PLACE. END POST TO BE CONSTRUCTED AFTER BARRIER IS CONSTRUCTED WHEN NO HANDRAIL IS USED.



NO. BARS REQ'D		
MARK	BARRIER	SIDEWALK
P40I	7	7
P50I	6	6
P70I	7	7

FOR END POST ON SUPERSTRUCTURE:
A = H - 4" + SLAB DEPTH (FOR BARRIER)
A = H - 4" + SIDEWALK DEPTH + SLAB DEPTH (FOR SIDEWALK AND PARAPET)
B = 1'-0"

FOR END POST ON SUBSTRUCTURE:
A = H - 2"
B = 0"

NOTE: ROTATE P70I AND P40I AS NECESSARY TO MAINTAIN 2" MIN. CL. IN CONCRETE.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

STANDARD
END POST AND
END POST GUARDRAIL ATTACHMENT DETAILS

SCALE: AS SHOWN

MAY 1989

NUMBER
3054

DESIGNED H.W.C. (SUBMITTED)
DRAWN E.R.M. STATE ROAD
CHECKED H.W.C. (APPROVED)

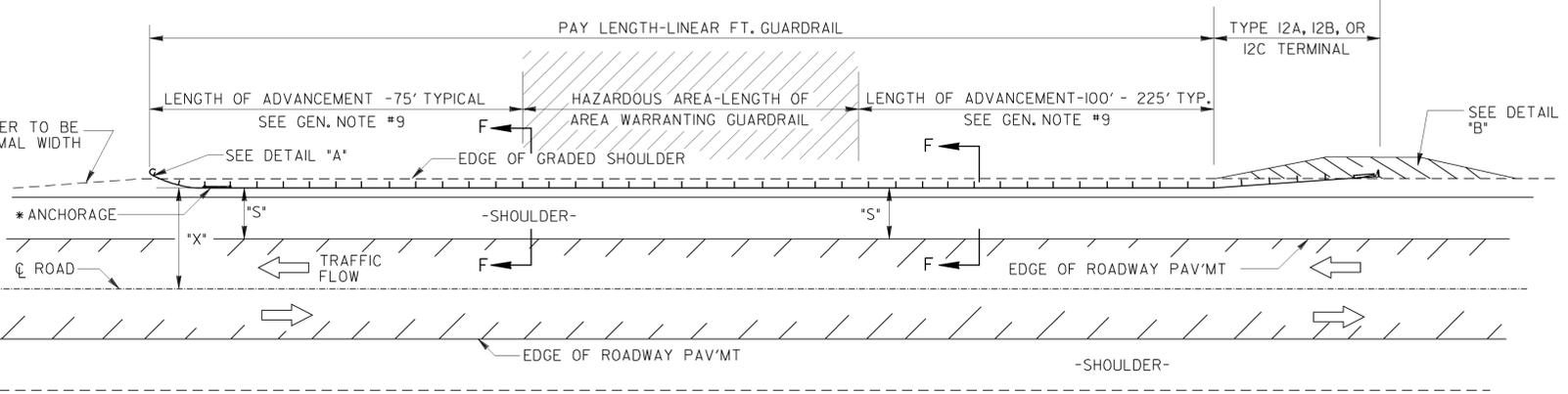
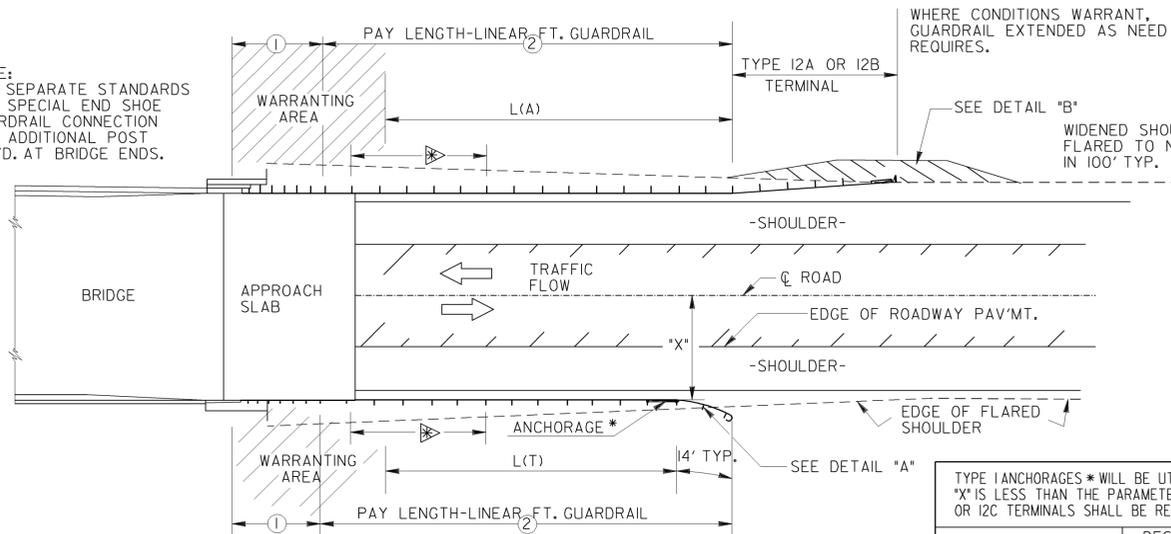
James A. Bannell
Albert Design Engineer

David L. Carberry
Chief Engineer

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

NOTE: FOR MINIMAL REDUCTION (TO 2') OF SHOULDER ACROSS BRIDGE, ALIGNMENT SHALL BE STRAIGHT FOR SHORT INSTALLATIONS (LESS THAN 200' TOTAL) AS SHOWN HEREON. FOR LONGER INSTALLATIONS, OR GREATER REDUCTION OF SHOULDER WIDTH, GUARDRAIL INSTALLATION SHALL BE AS PER DETAIL AT BOTTOM MIDDLE.

NOTE: SEE SEPARATE STANDARDS FOR SPECIAL END SHOE GUARDRAIL CONNECTION AND ADDITIONAL POST REQ'D. AT BRIDGE ENDS.



TRAFFIC VOLUME	MIN. L(T)	MIN. L(A)
DHV OVER 400	100'-0"	137'-6"
DHV 200-400	87'-6"	125'-0"
DHV 100-200	75'-0"	112'-6"
ADT 400 & OVER	62'-6"	100'-0"
ADT UNDER 400	50'-0"	87'-6"

① = 20'-7 3/4" OF "T" BEAM (STD. 4382)
 ② = VARIABLE LENGTH OF "W" BEAM (6'-3" POST SPA.)
GUARDRAIL LOCATION AT BRIDGE ENDS



TYPE I ANCHORAGES * WILL BE UTILIZED AT THE TRAILING END, UNLESS THE DISTANCE "X" IS LESS THAN THE PARAMETER GIVEN IN THIS TABLE IN WHICH CASE TYPE I2A, I2B, OR I2C TERMINALS SHALL BE REQUIRED.

DESIGN TRAFFIC VOLUME	DESIGN SPEEDS (AS SHOWN ON COVER SHEET)				
	40 MPH	50 MPH	55 MPH	60 MPH	70 MPH
OVER 6000 A.D.T.	14'	20'	22'	30'	30'
1500 - 6000 A.D.T.	12'	16'	20'	26'	28'
750 - 1500 A.D.T.	10'	14'	16'	20'	24'
UNDER 750 A.D.T.	7'	10'	12'	16'	20'

GUARDRAIL LOCATION ALONG ROADWAY

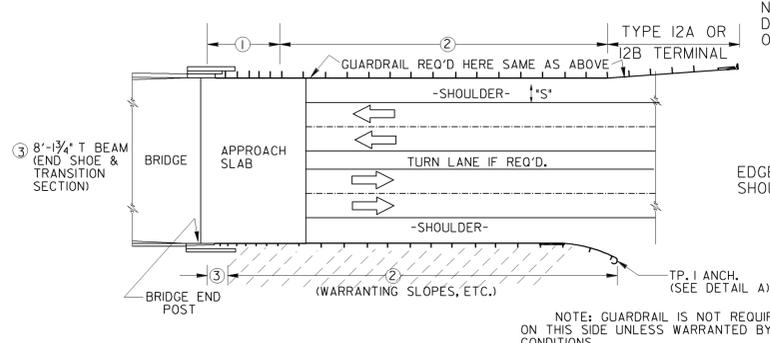
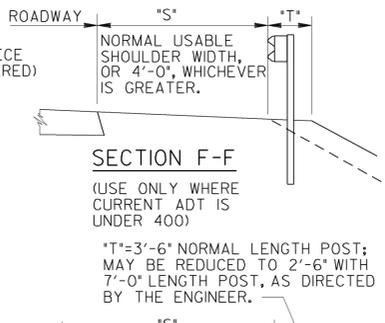
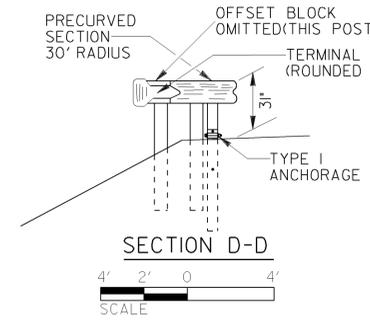
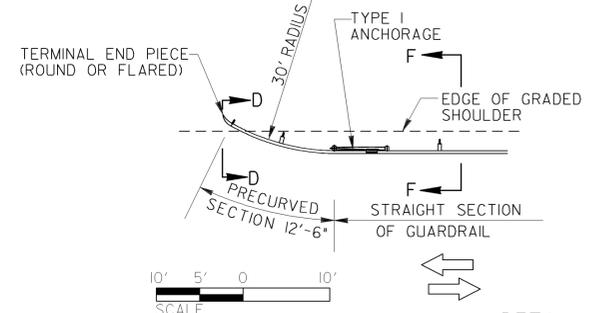


"S" IS THE OFFSET TO THE FACE OF THE GUARDRAIL; THIS WILL BE TWO(2) FEET GREATER THAN THE USABLE SHOULDER WIDTH (PER AASHTO MINIMUM SHOULDER REQUIREMENTS) EXCEPT WHERE THE CURRENT A.D.T. IS UNDER 400, IN WHICH CASE "S" MAY BE EQUAL TO THE USABLE OR GRADED SHOULDER WIDTH (NOT LESS THAN 4).

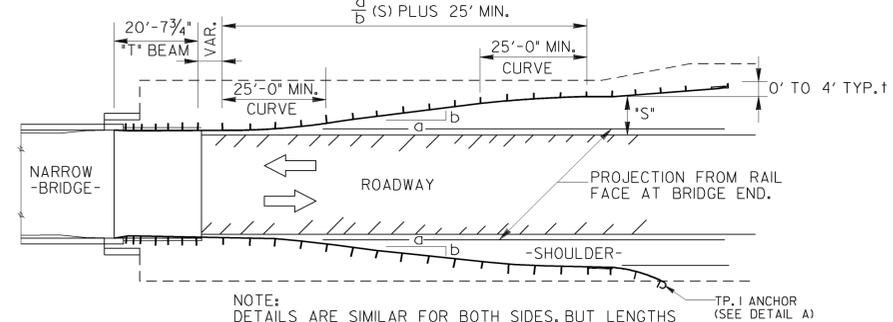
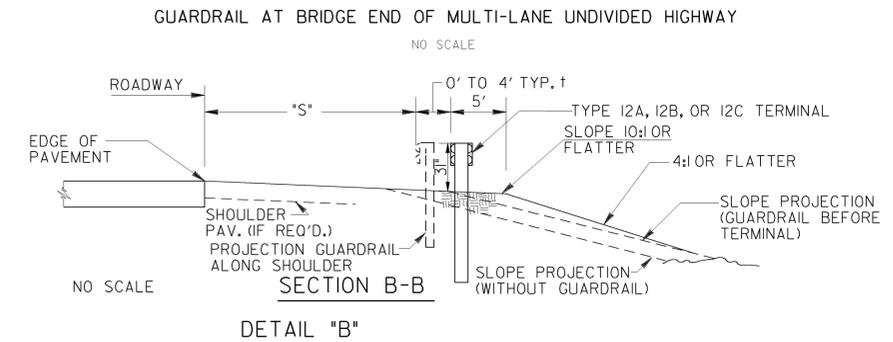
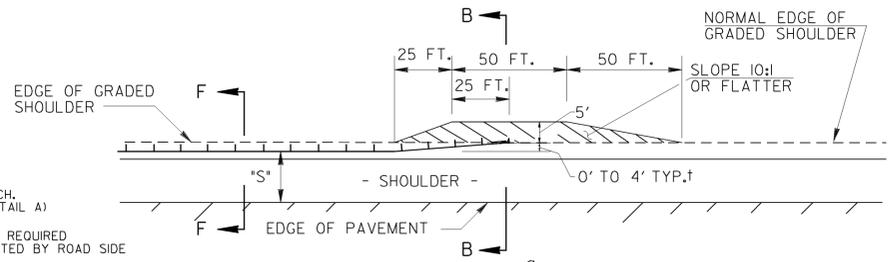
GENERAL NOTES:

- GUARDRAIL, ITS FITTINGS, PARTS, ETC. ARE TO BE IN ACCORDANCE WITH GEORGIA STANDARD SPECIFICATIONS AND/OR SPECIAL PROVISIONS.
- FOR DETAILS OF BEAM TYPE GUARDRAIL, ACCESSORIES, GUARDRAIL POST, OFFSET BLOCKS, GUARDRAIL ANCHORAGE TYPE I, TERMINALS TYPE I2A, I2B, AND I2C, & BRIDGE END CONNECTION DETAILS, SEE APPLICABLE GEORGIA STANDARD PLANS AND/OR CONSTRUCTION DETAILS.
- ALL OFFSET AND LENGTHS HERE SHOWN ARE APPLIED TO FACE OF GUARDRAIL.
- POST SPACING SHALL BE 6'3" C. TO C., UNLESS OTHERWISE NOTED.
- TYPE I2A, I2B, AND I2C TERMINALS SHOULD BE TERMINATED ON SLOPES 10:1 OR FLATTER, WHERE NORMAL SLOPE IS STEEPER, A 10:1 OR FLATTER SLOPE SHOULD BE CONSTRUCTED.
- GUARDRAIL SHALL NOT BE ERECTED ON SLOPES WHICH ARE STEEPER THAN 10:1, EXCEPT FOR THE PORTION OF PRECURVED (SHOP CURVED) SECTION THAT EXTENDS BACK OF THE SHOULDER AS SHOWN IN DETAIL "A" WHICH IS ERECTED ON NORMAL SLOPES OR EXCEPT WHERE SHOWN OTHERWISE IN PLANS.
- PAY LENGTH SHALL BE MEASURED ALONG FACE OF GUARDRAIL.
- W. BEAM GUARDRAIL WILL HAVE A CONSTANT TOP OF RAIL HT. OF 3' THROUGHOUT INSTALLATION EXCEPT WHERE A PORTION OF THE PRECURVED SECTION SHOWN IN DETAIL "A" EXTENDS BACK OF THE GRADED SHOULDER.
- GUARDRAIL WILL EXTEND PAST HAZARD ON BOTH THE APPROACH & TRAILING ENDS TO PREVENT VEHICLE PENETRATION BEHIND THE RAIL INTO THE HAZARDOUS AREA. THE TYPICAL LENGTHS OF ADVANCEMENT SHOWN MAY BE INCREASED OR DECREASED WHEN SHOWN IN THE PLANS, OR WHERE DIRECTED BY THE ENGINEER BECAUSE OF SPEED DESIGN, ROADSIDE GEOMETRY, SIZE OF HAZARD, OR OTHER CONDITIONS. IF FURTHER INFORMATION IS DESIRED; SEE THE AASHTO "ROADSIDE DESIGN GUIDE".

NOTE: THESE MINIMUM LENGTHS ARE FOR STRAIGHT ALIGNMENTS IN ADVANCE OF WARRANTING AREA.



NOTE: DETAIL "A" IS FOR USE ONLY WHERE TYPE I ANCHORAGES ARE PERMITTED AS SHOWN ABOVE OTHERWISE, SEE DETAIL "B" FOR PROPER INSTALLATION OF TYPE I2A, I2B, OR I2C TERMINAL.



NOTE: DETAILS ARE SIMILAR FOR BOTH SIDES, BUT LENGTHS AND ANCHORAGE/TERMINAL TYPES MAY DIFFER.

GUARDRAIL LOCATION AT END OF NARROW BRIDGE
 (NOTE: DETAILS NOT SHOWN HERE ARE SIMILAR TO THOSE AT TOP LEFT.)

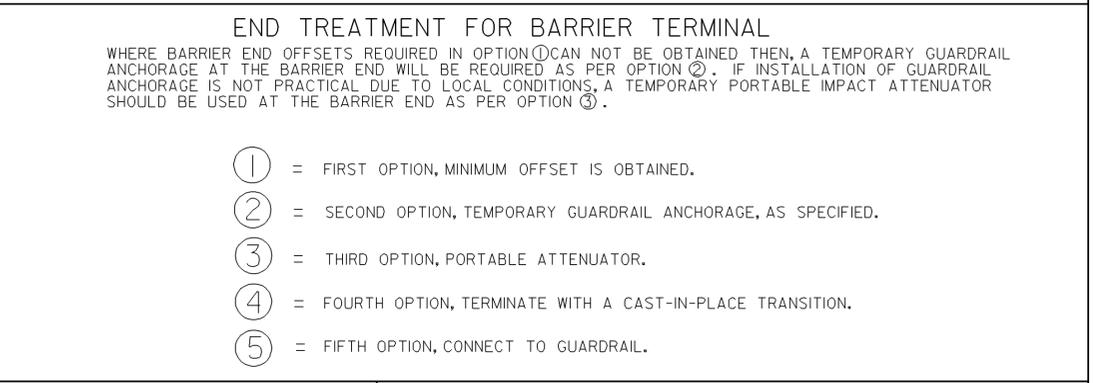
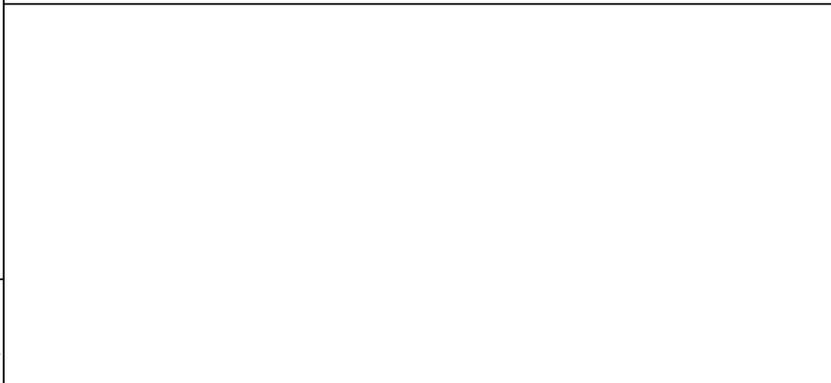
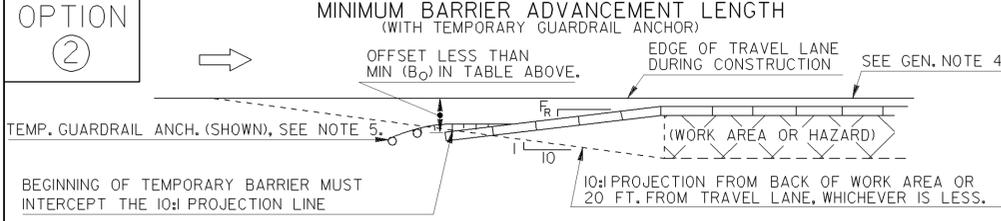
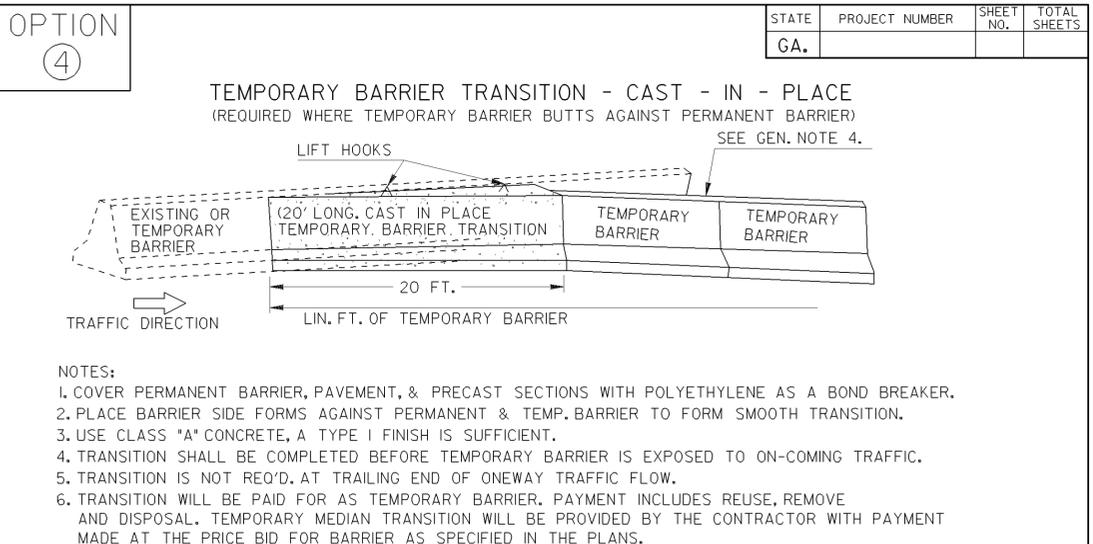
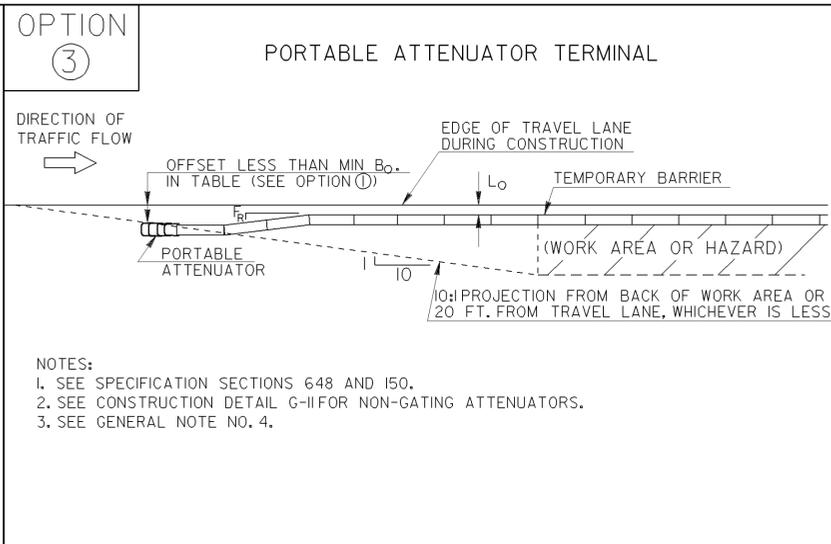
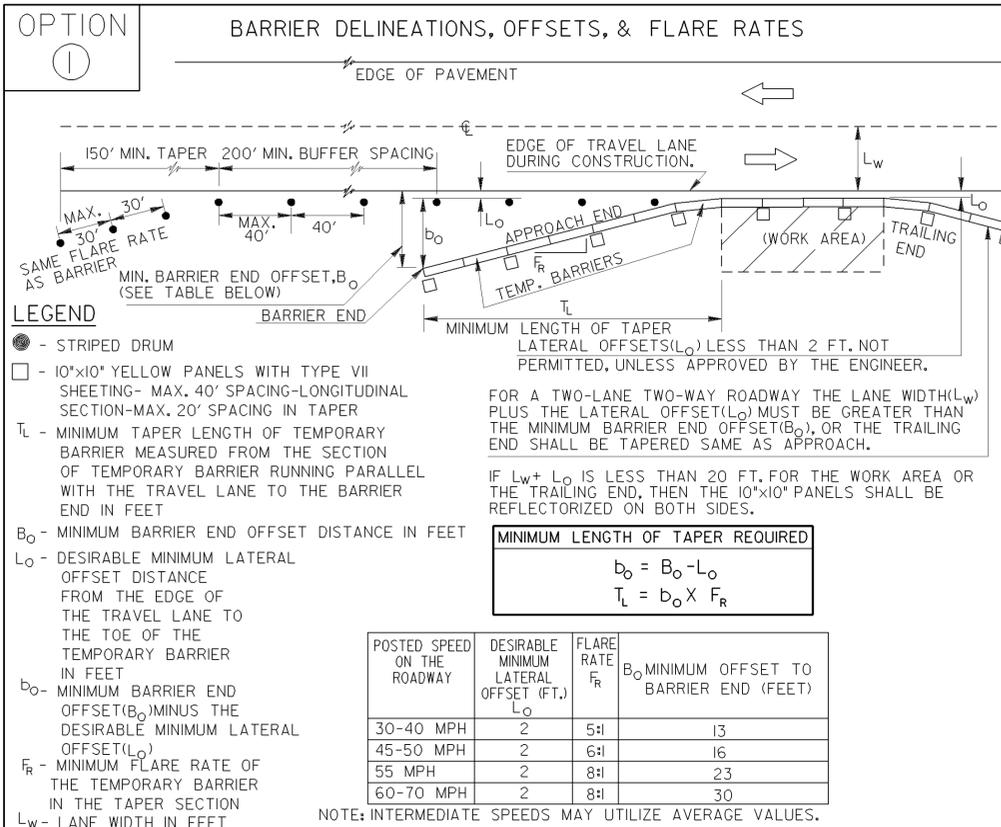
DESIGN SPEED (mph)	SHY-LINE OFFSET (ft)	FLARE RATE (a/b)	
		BARRIER INSIDE SHY-LINE	BARRIER AT OR BEYOND SHY-LINE
70	9	30	15
60	8	26	14
55	7	24	12
50	6.5	21	11
45	6	18	10
40	5	16	8
30	4	13	7

IF THE OFFSET FROM THE EDGE OF THE TRAVEL LANE TO THE FACE OF THE GUARDRAIL AT ANY POINT ALONG THE INSTALLATION IS LESS THAN THE SHY-LINE OFFSET, USE THE FLATTER RATES GIVEN IN THE TABLE.

† SEE GA STANDARD 4384 FOR OFFSETS AND FLARE RATES FOR TYPE I2A, I2B, AND I2C TERMINALS.

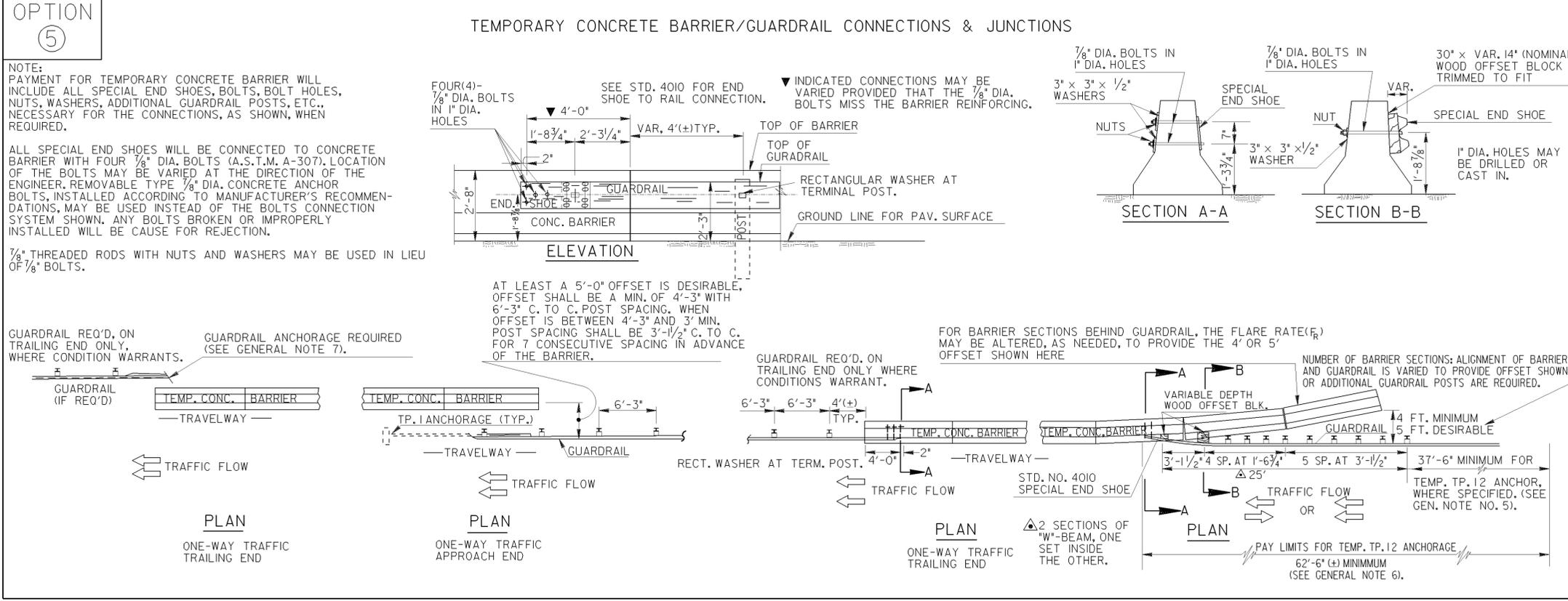
REV. TP. 12 TO I2A/B/C;		DATE		DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA STANDARD GUARDRAIL LOCATION DETAILS FOR UNDIVIDED HIGHWAYS AND ROADS (WITH SHOULDERS ADJACENT TO THE ROADWAY) 3 INCH GUARDRAIL HEIGHT	
REV. TP. 12 TO I2A/B/C;		DATE			
DES.	G.L.O.	(SUBMITTED)		SCALE AS SHOWN AUGUST 2011 NUMBER 4388	
DRW.	G.L.O.	(APPROVED)			
CHK.	B.R.E.				
REVIEW	B.A.S.				

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			



GENERAL NOTES:

- BARRIERS SHALL BE PLACED SUCH THAT OPENINGS BETWEEN INDIVIDUAL SECTIONS SHALL BE KEPT TO A MAXIMUM. ALL JOINTS BETWEEN PRECAST SECTIONS SHALL BE CONNECTED AS REQUIRED BY GA. STANDARD 4961 AND/OR MANUFACTURERS RECOMMENDATIONS.
- THE BARRIER IS NOT TO BE CONNECTED TO THE BRIDGE DECK BY CONNECTING PINS OR REBAR UNLESS AN APPROVED METHOD FOR CONNECTION IS REQUIRED.
- PRECAST BARRIER SECTIONS SHALL CONFORM TO THE DIMENSIONAL REQUIREMENTS IN GA. STANDARD 4961 AND/OR MANUFACTURERS RECOMMENDATIONS.
- TRAFFIC CONTROL NOT SHOWN ON THIS STANDARD SHALL BE IN ACCORDANCE WITH CURRENT EDITION OF SECTION 150, STANDARDS, CONSTRUCTION DETAILS AND/OR PLAN SHEETS, DRUMS, ETC. SHOWN FOR OPTION 1 SHALL BE APPLICABLE FOR THE OTHER OPTIONS AS WELL. DRUMS SHALL BE PROVIDED IN ADVANCE OF TEMPORARY BARRIERS INSTALLATION AND SHALL BE IN PLACE BEFORE THE BARRIER IS INSTALLED AND REMOVED AFTER THE BARRIER IS REMOVED.
- WHERE TEMPORARY GUARDRAIL ANCHORAGE IS SPECIFIED, THE FIRST BREAKAWAY SHALL BE 37'-6" MINIMUM IN ADVANCE OF BEGINNING THE TEMPORARY BARRIER INSTALLATION.
- PAYMENT FOR TEMPORARY GUARDRAIL ANCHORS INCLUDES END SHOE, CONNECTING BOLTS, NUTS AND WASHERS, ADDITIONAL POSTS AND OFFSETS BLOCKS, 25 FT. ADDITIONAL "W"-BEAM WITH THE DOUBLE NESTED SECTION PLUS STANDARD ANCHORAGE COMPONENTS. (TOTAL LENGTH=62'-6" (+) MIN.
- UNACCEPTABLE OR NON-STANDARD END TREATMENT WILL NOT BE LEFT IN PLACE AFTER REMOVAL OF THE TEMPORARY BARRIER, ALL GUARDRAIL AND ALL ANCHORAGES LEFT IN PLACE WILL BE TREATED AS NECESSARY TO CONFORM WITH CURRENT STANDARDS IMMEDIATELY AFTER REMOVAL OF THE TEMPORARY BARRIER.



DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

STANDARD
TEMPORARY BARRIER
(END TREATMENT OPTIONS)

NO SCALE REV. & REDR. MAY, 1999

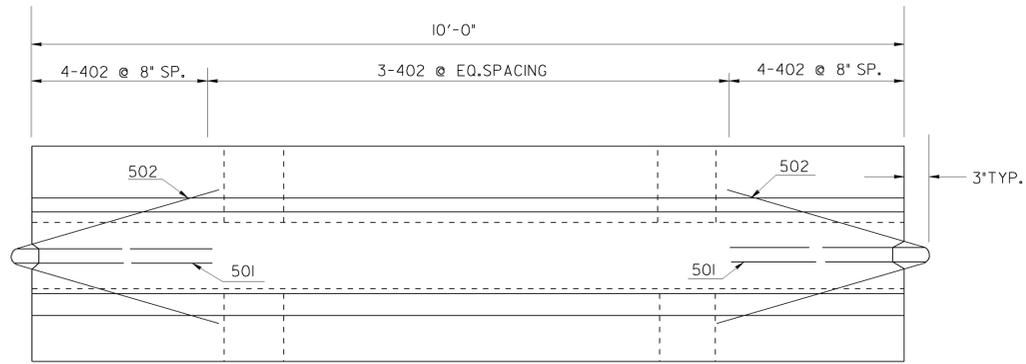
REVISED ALL OPTIONS AND REV. REFLECTIVE SHEETING TYPE AND GENERAL NOTES.	DATE	REVISION
5-10-07	2-1-01	

DES. (SUBMITTED) *[Signature]*
STATE ROAD & AIRPORT DESIGN ENGINEER
TRA. (APPROVED) *[Signature]*
CHK. CHIEF ENGINEER

NUMBER
4960

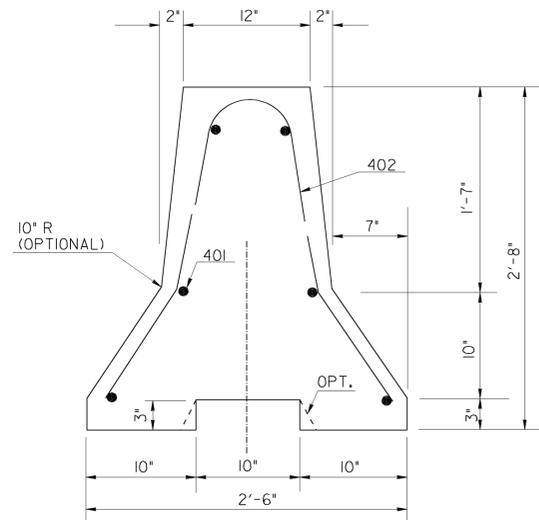
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

PRECAST CONCRETE BARRIER DETAILS

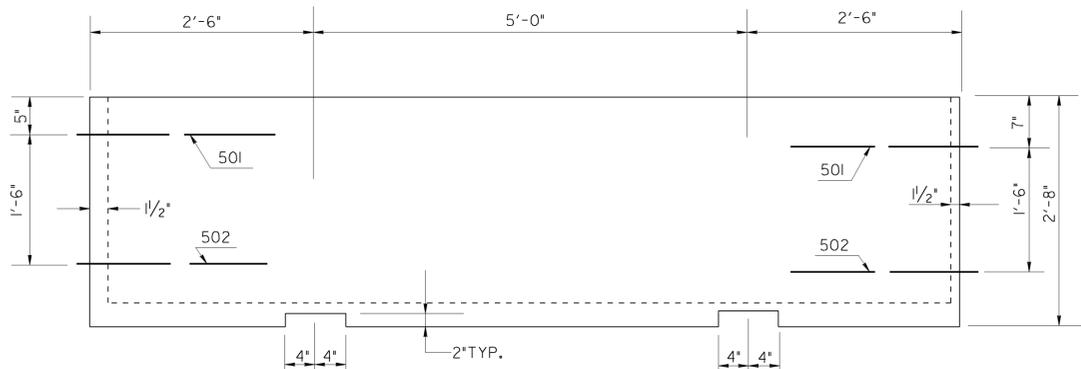


PLAN

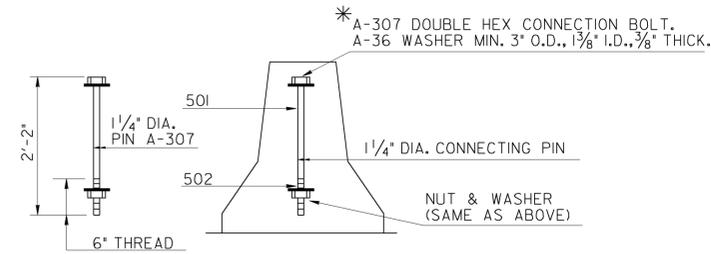
NOTE:
BARRIER SECTIONS SHALL BE CONNECTED TOGETHER WITH THE 1 1/4" DIA. A-307 DOUBLE HEX CONNECTION BOLT. THE BOTTOM NUT & WASHER SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF THE BARRIER INSTALLATION.



END ELEVATION



SIDE VIEW

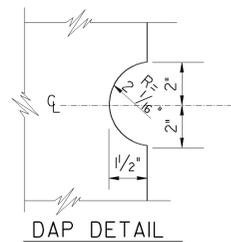
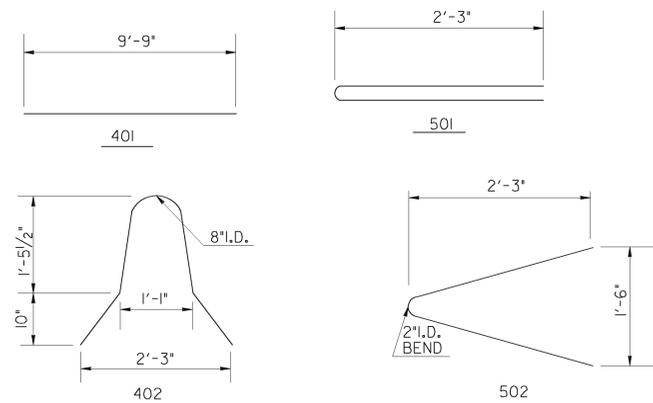


PIN CONNECTION

GENERAL NOTES:

- 1-MATERIALS: CLASS 'A' CONCRETE AND 40 STEEL.
- 2-SEE GA. SPECIFICATIONS FOR BASIS OF PAYMENT AND METHOD NO. ___.
- 3-REINFORCEMENT, HAVING AN AREA AT LEAST EQUAL TO REBARS SHOWN, MAY BE USED AS AN ALTERNATE.
- 4-BARRIERS SHALL BE PLACED SUCH THAT OPENINGS BETWEEN INDIVIDUAL SECTIONS SHALL BE KEPT TO A MAXIMUM.

* AN ALTERNATE CONNECTING PIN WITH A FUSED NUT ON THE TOP THREADED PORTION AND NUT AND WASHER AS SPECIFIED ON THE BOTTOM MAY ALSO BE USED.



DAP DETAIL

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA			
STANDARD DETAILS OF PRECAST TEMPORARY BARRIERS			
REV. CONNECTION WASHER AND REV. GEN. NOTE NO. 4.	9-8-06	NO SCALE	
REV. REBAR & PIN CONN.	5-2-01		
COTTER PIN REQUIREMENT	5-10-96		
BY	DATE	AUG., 1995	
G.L.O.	DES. _____	NUMBER 4961	
R.M.J.	DRW. _____	STATE ROAD & AIRPORT DESIGN ENGR.	
BY	CHK. _____	CHIEF ENGINEER	

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

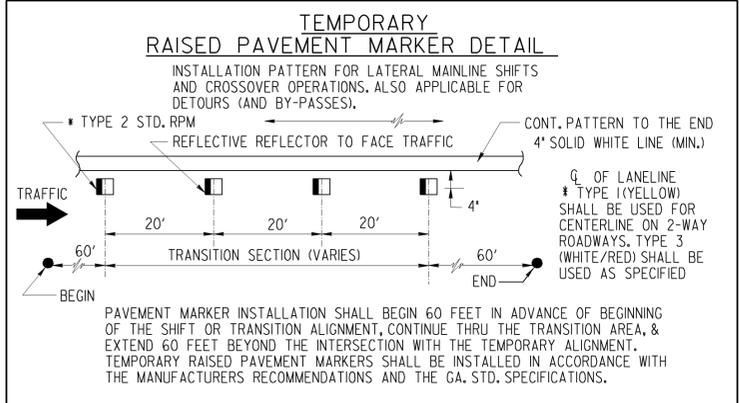
GENERAL NOTES :

- ALL TRAFFIC CONTROL DEVICES SHALL BE MADE AND ERECTED IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS; THE MUTCD; THE GEORGIA STANDARD SPECIFICATIONS, AND/OR SPECIAL PROVISIONS. (SEE SECTION 150)
- ALL TRAFFIC CONTROL DEVICES SHALL BE AS SHOWN, OR AS DIRECTED BY THE ENGINEER. ADDITIONAL DEVICES MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.
- ALL PORTABLE SIGNS SHALL BE MOUNTED A MINIMUM OF 1 FOOT ABOVE THE LEVEL OF PAVEMENT EDGE FOR DIRECTIONAL TRAFFIC OF TWO (2) LANES OR LESS AND A MINIMUM OF 7 FEET FOR DIRECTIONAL OF THREE (3) OR MORE LANES. ALL PORTABLE SIGNS AND SIGN MOUNTING DEVICES UTILIZED IN THE WORK SHALL BE NCHRP 350 COMPLIANT. PORTABLE SIGNS MAY BE USED WHEN THE DURATION OF THE WORK IS LESS THAN 3 DAYS.
- WHEN THE CONSTRUCTION AREA HAS ENTRANCE/EXIT RAMP OR INTERSECTIONS, WORK WILL BE PERFORMED IN SUCH A MANNER TO PERMIT TRAFFIC TO OPERATE WITH THE LEAST AMOUNT OF INCONVENIENCE AS POSSIBLE. ADDITIONAL CHANNELIZATION AND SIGNING SHALL BE INSTALLED, AS REQUIRED, TO ALLOW TRAFFIC TO REMAIN AS OPERATIONAL AS POSSIBLE. WHEN ENTRANCE RAMP/INTERSECTIONS ARE INOPERABLE, FLAGGERS WILL BE UTILIZED TO CONTROL AND PROHIBIT MOVEMENT INTO THE PROJECT AT THAT POINT UNTIL CONSTRUCTION HAS CLEARED THE RESTRICTION SUFFICIENT TO RETURN TO OPERATIONAL STATUS.
- FOR NIGHT TIME OPERATIONS, DRUMS SHALL HAVE, FOR THE LENGTH OF THE TAPER ONLY, A SIX (6") INCH ORANGE REFLECTIZED TOP STRIPE ON EACH DRUM IN THE TAPER AS REQUIRED IN SECTION 150. SPACING OF DEVICES SHALL BE AS SHOWN. DURING DAYLIGHT HOURS, CONES (28" MIN.) MAY BE USED IN ADVANCE OF AND THROUGHOUT WORK AREA.
- SIGN LOCATIONS ARE APPROXIMATE AND MAY BE ADJUSTED TO MEET FIELD CONDITIONS BUT MUST BE WITHIN THE LIMITATIONS SET FORTH IN THE MUTCD.
- A PORTABLE SELF-SUSTAINED SEQUENTIAL OR FLASHING ARROW SIGN SHALL BE USED AT THE BEGINNING OF EACH LANE CLOSURE ON MULTI-LANE HIGHWAYS. ARROW PANELS SHALL NOT BE USED ON TWO-LANE TWO-WAY HIGHWAYS EXCEPT IN CAUTION MODE.
- WHEN NOT IN USE, PORTABLE SIGNS SHALL BE REMOVED FROM THE TRAVELWAY SO THAT THE MESSAGE IS NOT VISIBLE TO THE MOTORIST. INTERIM SIGNS THAT ARE PERMANENTLY MOUNTED SHALL BE COVERED WHEN NOT APPLICABLE. SEE SECTION 150.
- PROJECT SIGNS W20-1, G20-1 & G20-2 FOR THIS PROJECT SHALL BE COORDINATED WITH ADJACENT CONSTRUCTION PROJECTS. ONLY ONE SET OF SIGNS IS REQUIRED IN EACH DIRECTION FOR THE TOTAL LENGTH OF ALL PROJECTS- AT THE BEGINNING OF THE FIRST PROJECT AND AT THE ENDING OF THE LAST PROJECT. ADVANCE CONSTRUCTION SIGNS ARE NOT REQUIRED ON INTERMEDIATE PROJECTS, UNLESS CONSTRUCTION ON THE ADJACENT PROJECTS IS COMPLETED BEFOREHAND, THEN PROJECT CONSTRUCTION SIGNS WILL BE ADDED AS NECESSARY.
- ALL THE COST OF THE MATERIALS, LABOR AND EQUIPMENT NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED IN THE PRICE BID FOR TRAFFIC CONTROL SECTION 150, LUMP SUM, WHEN SHOWN AS A PAYMENT ITEM IN THE PROPOSAL. OTHERWISE, ALL THE COST WILL BE INCLUDED IN THE OVER-ALL BID SUBMITTED, EXCEPT ON CERTAIN PROJECTS SOME ITEMS MAY BE PAID FOR SEPARATELY BY THE UNIT WHEN SPECIFIED ON THE PLANS AND IN THE PROPOSAL.
- FOR FREEWAY CONSTRUCTION THE CONTRACTOR SHALL ARRANGE HIS WORK SO THAT THERE IS AN EXIT GORE SIGN AND AN EXIT DIRECTION SIGN IN PLACE FOR ALL EXIT RAMP AT ALL TIMES.
- ALL CROSSROADS, SIDEROADS, RAMPS OR OTHER ENTRANCES TO MAINLINE CONSTRUCTION SHALL REQUIRE W20-1 SIGNS LOCATED AS SHOWN IN THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- MARKINGS AND/OR SIGNS IN CONFLICT WITH INTERIM TRAFFIC CONTROL SHALL BE REMOVED, RELOCATED OR COVERED; APPLICABLE EXISTING AND INTERIM MARKINGS AND/OR SIGNING SHALL BE MAINTAINED PER SECTION 150.
- ANY CHANNELIZING DEVICES (DRUMS OR BARRICADES) IN CONFLICT WITH CONCRETE BARRIERS SHALL BE OMITTED.
- CONTRACTOR SHALL PROVIDE THE NECESSARY TRAFFIC CONTROL DURING THE TIE-IN OPERATION.
- THE TRAFFIC CONTROL DEVICES SHOWN FOR ANY STAGE CONSTRUCTION SHALL REMAIN IN PLACE AND BE UTILIZED SO LONG AS NECESSARY FOR THE FOLLOWING STAGES AND SHALL BE REMOVED IMMEDIATELY WHEN NO LONGER REQUIRED. THE DEVICES MAY OR MAY NOT BE SHOWN ON THE PLANS FOR THESE FOLLOWING STAGES, REFER TO THE PLAN SHEET FOR THE INITIAL STAGE FOR THESE TRAFFIC CONTROLS.
- EXISTING GUIDE SIGNS SHALL REMAIN IN PLACE SO LONG AS THEY DO NOT CONFLICT WITH THE CONSTRUCTION OF THIS PROJECT. WHEN IN CONFLICT, THEY SHALL BE RELOCATED ON TEMPORARY POSTS AT THE LOCATION AS DIRECTED BY THE ENGINEER. ANY DISTANCE SHOWN ON THE SIGN SHALL BE ADJUSTED ACCORDINGLY. IF THE SIGNS CANNOT BE RELOCATED, THEN THE SIGN SHALL BE REMOVED AND STORED AT A PLACE DESIGNATED BY THE ENGINEER. IF NEITHER OF THE ABOVE CAN BE DONE, THEN THE CONTRACTOR SHALL PROVIDE INTERIM GUIDE SIGNS AS COVERED IN SECTION 150.
- (a) ON PROJECTS WITH LOW OR SOFT SHOULDERS, THE CONTRACTOR SHALL ERECT IMMEDIATELY AHEAD OF CONSTRUCTION OPERATIONS "LOW/SOFT SHOULDER" WARNING SIGNS AT THE PROJECT TERMINII, AT INTERVALS NOT TO EXCEED 1 MILE AND IMMEDIATELY PAST EACH CROSSROAD.

(b) WHERE THE CONTRACTOR IS NOT RESPONSIBLE FOR SHOULDER CONSTRUCTION, THE DEPARTMENT WILL FURNISH THESE SIGNS FOR THE CONTRACTOR TO PICK UP, TRANSPORT, AND ERECT. THE DEPARTMENT WILL LATER REMOVE AND RETAIN THE SIGNS.

STANDARD LEGEND

-  STRIPED DRUM
-  TYPE III BARRICADES
-  SPECIAL BARRICADE WITH BI-DIRECTIONAL, TYPE 'C' STEADY BURNING LIGHT OR HIGHWAY SIGN AS SPECIFIED (SEE DETAIL)
-  SEQUENTIAL OR FLASHING ARROW
-  PORTABLE CHANGEABLE MESSAGE SIGN
-  PERMANENT TYPE POST MOUNTED SIGN
-  TEMPORARY POST MOUNTED SIGN
-  PORTABLE MOUNTED SIGN - FLAGS NOT REQUIRED
-  WORK AREA
-  TRAFFIC CONE - 28" MIN. - (DAYTIME USE ONLY)
-  FLAGGER WITH STOP-SLOW PADDLE
-  TRAFFIC IMPACT ATTENUATOR (CRASH CUSHION)
-  TYPE I CLEAR (WHITE) DELINEATOR - SINGLE FACE
-  TYPE I YELLOW DELINEATOR - SINGLE FACE
-  TYPE I CLEAR (WHITE) DELINEATOR DOUBLE FACE
-  TYPE I YELLOW DELINEATOR DOUBLE FACE



3-30-06		4-24-01		DATE		DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA	
REVISED GENERAL NOTES AND LEGEND, DELETED TWO DETAILS.		SPEC. BAR. SH. SPEC.		REVISION		STANDARD TRAFFIC CONTROL GENERAL NOTES, STANDARD LEGEND, MISCELLANEOUS DETAILS	
GLO		BY		NO SCALE			
DES. _____		(SUBMITTED) <i>[Signature]</i>		STATE ROAD & AIRPORT DESIGN ENGINEER		NUMBER 9100	
DRW. _____		(APPROVED) <i>[Signature]</i>		CHIEF ENGINEER			
TRA. _____							
CHK. _____							

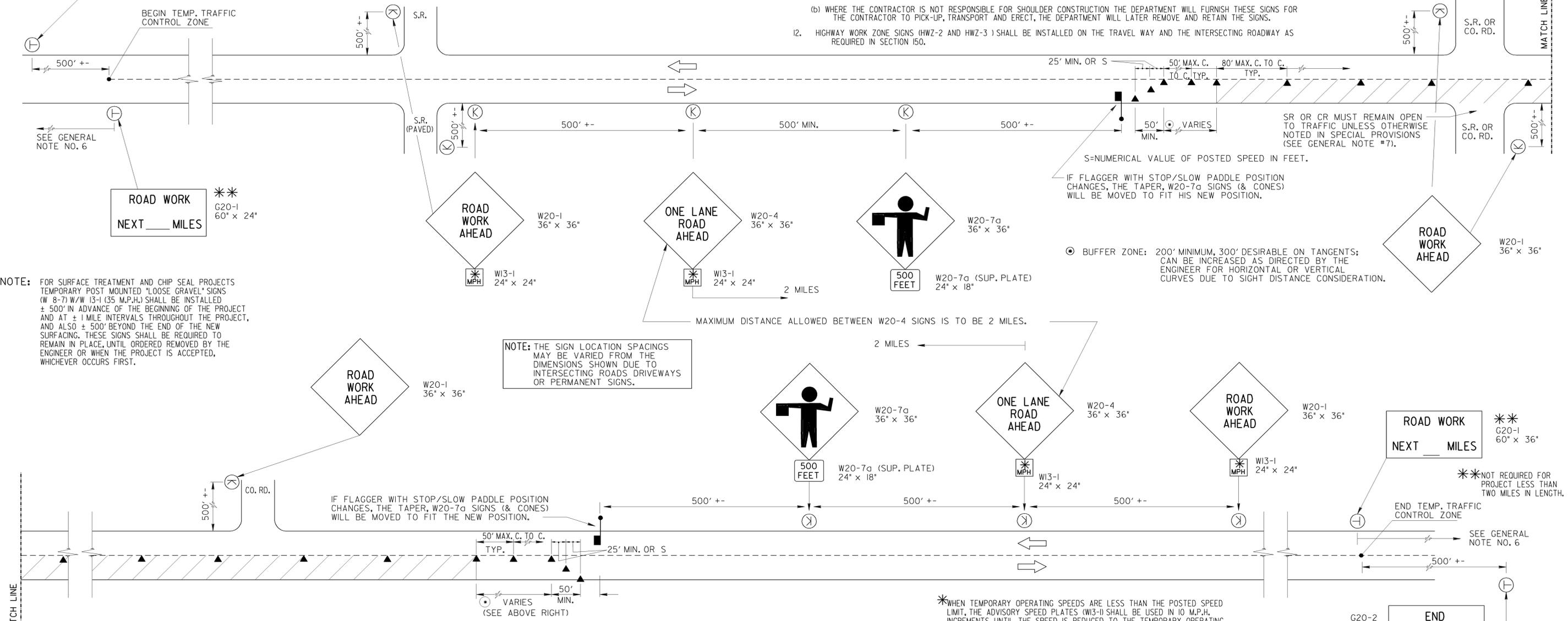
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

GENERAL NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL BE MADE AND ERECTED IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS; THE MUTCD; THE GEORGIA STANDARD SPECIFICATIONS, AND/OR SPECIAL PROVISIONS. (SEE SECTION 150)
- ALL TRAFFIC CONTROL DEVICES SHALL BE AS SHOWN, OR AS DIRECTED BY THE ENGINEER. ADDITIONAL DEVICES MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.
- ALL PORTABLE SIGNS SHALL BE MOUNTED A MINIMUM OF 1 FOOT ABOVE THE LEVEL OF PAVEMENT EDGE FOR DIRECTIONAL TRAFFIC OF TWO (2) LANES OR LESS AND A MINIMUM OF 7 FEET FOR DIRECTIONAL OF THREE (3) OR MORE LANES. ALL PORTABLE SIGNS AND SIGN MOUNTING DEVICES UTILIZED IN THE WORK SHALL BE NCHRP 350 COMPLIANT. PORTABLE SIGNS MAY BE USED WHEN THE DURATION OF THE WORK IS LESS THAN 3 DAYS.
- WHEN THE CONSTRUCTION AREA HAS ENTRANCE/EXIT RAMP OR INTERSECTIONS, WORK WILL BE PERFORMED IN SUCH A MANNER TO PERMIT TRAFFIC TO OPERATE WITH THE LEAST AMOUNT OF INCONVENIENCE AS POSSIBLE. ADDITIONAL CHANNELIZATION AND SIGNING SHALL BE INSTALLED, AS REQUIRED, TO ALLOW TRAFFIC TO REMAIN AS OPERATIONAL AS POSSIBLE. WHEN ENTRANCE RAMP/INTERSECTIONS ARE INOPERABLE, FLAGGERS WILL BE UTILIZED TO CONTROL AND PROHIBIT MOVEMENT INTO THE PROJECT AT THAT POINT UNTIL CONSTRUCTION HAS CLEARED THE RESTRICTION SUFFICIENT TO RETURN TO OPERATIONAL STATUS.

- FOR NIGHT TIME OPERATIONS, DRUMS SHALL HAVE, FOR THE LENGTH OF THE TAPER ONLY, A SIX (6) INCH ORANGE REFLECTORIZED TOP STRIPE ON EACH DRUM IN THE TAPER AS REQUIRED IN SECTION 150. SPACING OF DEVICES SHALL BE AS SHOWN. DURING DAYLIGHT HOURS, CONES (28" MIN.) MAY BE USED IN ADVANCE OF AND THROUGHOUT WORK AREA.
- SIGNS SHOWN HERE ARE IN ADDITION TO ALL ADVANCE WARNING SIGNS REQUIRED IN SECTION 150.
- FLAGGERS SHALL BE PROVIDED AS NECESSARY TO PROHIBIT WRONG DIRECTION OF TRAFFIC THRU WORK AREAS.
- WHEN NOT IN USE, PORTABLE SIGNS SHALL BE REMOVED FROM THE TRAVELWAY SO THAT THE MESSAGE IS NOT VISIBLE TO THE MOTORIST. INTERIM SIGNS THAT ARE PERMANENT MOUNTED SHALL BE COVERED WHEN NOT APPLICABLE. SEE SECTION 150.
- PAYMENT FOR TRAFFIC CONTROL SHALL BE PER SECTION 150.
- PAVEMENT MARKINGS FOR TEMPORARY TRAFFIC CONTROL, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SECTION 150 AND AS DIRECTED BY THE ENGINEER OR SHOWN IN THE PLANS.
- (a) ON PROJECTS WITH LOW OR SOFT SHOULDERS, THE CONTRACTOR SHALL ERECT IMMEDIATELY AHEAD OF CONSTRUCTION OPERATIONS "LOW/SOFT SHOULDER" WARNING SIGNS AT THE PROJECT TERMINI, AT INTERVALS NOT TO EXCEED ONE MILE AND IMMEDIATELY PAST EACH CROSSROAD.
- (b) WHERE THE CONTRACTOR IS NOT RESPONSIBLE FOR SHOULDER CONSTRUCTION THE DEPARTMENT WILL FURNISH THESE SIGNS FOR THE CONTRACTOR TO PICK-UP, TRANSPORT AND ERECT, THE DEPARTMENT WILL LATER REMOVE AND RETAIN THE SIGNS.
- HIGHWAY WORK ZONE SIGNS (HWZ-2 AND HWZ-3) SHALL BE INSTALLED ON THE TRAVEL WAY AND THE INTERSECTING ROADWAY AS REQUIRED IN SECTION 150.

G20-2
48" x 24"
END ROAD WORK

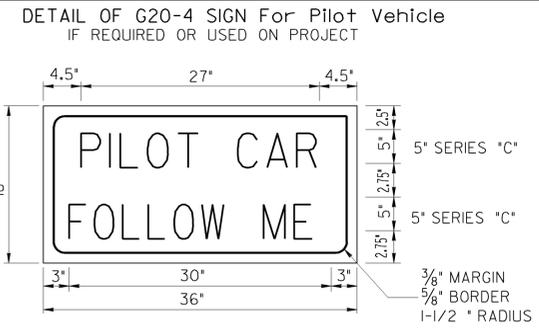


NOTE: FOR SURFACE TREATMENT AND CHIP SEAL PROJECTS TEMPORARY POST MOUNTED "LOOSE GRAVEL" SIGNS (W 8-7) W/W 13-1 (35 M.P.H.) SHALL BE INSTALLED ± 500' IN ADVANCE OF THE BEGINNING OF THE PROJECT AND AT ± 1 MILE INTERVALS THROUGHOUT THE PROJECT, AND ALSO ± 500' BEYOND THE END OF THE NEW SURFACING. THESE SIGNS SHALL BE REQUIRED TO REMAIN IN PLACE, UNTIL ORDERED REMOVED BY THE ENGINEER OR WHEN THE PROJECT IS ACCEPTED, WHICHEVER OCCURS FIRST.

NOTE: THE SIGN LOCATION SPACINGS MAY BE VARIED FROM THE DIMENSIONS SHOWN DUE TO INTERSECTING ROADS DRIVEWAYS OR PERMANENT SIGNS.

⊙ BUFFER ZONE: 200' MINIMUM, 300' DESIRABLE ON TANGENTS; CAN BE INCREASED AS DIRECTED BY THE ENGINEER FOR HORIZONTAL OR VERTICAL CURVES DUE TO SIGHT DISTANCE CONSIDERATION.

*WHEN TEMPORARY OPERATING SPEEDS ARE LESS THAN THE POSTED SPEED LIMIT, THE ADVISORY SPEED PLATES (W13-1) SHALL BE USED IN 10 M.P.H. INCREMENTS, UNTIL THE SPEED IS REDUCED TO THE TEMPORARY OPERATING SPEED. TEMPORARY OPERATING SPEED SHALL BE 35 M.P.H. UNLESS OTHERWISE DETERMINED BY THE ENGINEER.



STANDARD LEGEND

- STRIPED DRUM
- ┆ PERMANENT TYPE POST MOUNTED SIGN (7' MOUNT HEIGHT)
- ⊕ TEMPORARY POST MOUNTED SIGN - (7' MOUNT HEIGHT)
- Ⓚ PORTABLE MOUNTED SIGN - MINIMUM HEIGHT OF 1 FT. ABOVE THE EDGE OF PAVEMENT; INSTALLED AS PER NCHRP 350 TESTING REQUIREMENTS.
- ▨ WORK AREA
- ▲ TRAFFIC CONE - 28" MIN. - DAYTIME USE ONLY
- FLAGGER WITH STOP-SLOW PADDLE

REMOVED FLAGS AND REV. 3-30-06		DATE	
GENERAL NOTES REV. SIGN G20-2A TO G20-2.		REVISION	
GLO		BY	
DES. _____		STATE ROAD & AIRPORT DESIGN ENGINEER	
DRW. _____		(APPROVED) <i>[Signature]</i>	
TRA. _____		CHIEF ENGINEER	
CHK. _____			

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

STANDARD TRAFFIC CONTROL DETAIL FOR LANE CLOSURE ON TWO-LANE HIGHWAY

NO SCALE REV. & REDR. JULY, 1999

NUMBER
9102

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
	ORANGE BARRIER FENCE		ORANGE BARRIER FENCE DELINEATES ENVIRONMENTALLY SENSITIVE AREAS WHERE THE CONTRACTOR SHALL NOT CLEAR, GRUB, OR PLACE CONSTRUCTION MATERIALS OR EQUIPMENT WITHIN THIS AREA.
		LINE CODE 	
ESA	ENVIRONMENTALLY SENSITIVE AREA		AN ENVIRONMENTALLY SENSITIVE AREA (ESA) CONTAINS RESOURCES THAT ARE ENVIRONMENTALLY, CULTURALLY, OR HISTORICALLY SENSITIVE. ESAs INCLUDE, BUT ARE NOT LIMITED TO: STATE WATER BUFFERS, HISTORIC SITES, ARCHAEOLOGICAL SITES, AND PROTECTED ANIMAL AND PLANT SPECIES HABITATS. IF WORK IS AUTHORIZED IN THIS AREA, THE WORK MUST BE PERFORMED IN ACCORDANCE WITH SECTION 107 AND ANY OTHER APPLICABLE SPECIAL PROVISIONS AND APPLICABLE PLAN NOTES.
		LINE CODE 	
		ESA-25' (OR 50') STREAM BUFFER, ETC.	
Bf	BUFFER ZONE		A STRIP OF UNDISTURBED ORIGINAL VEGETATION, ENHANCED OR RESTORED EXISTING VEGETATION, OR THE RE-ESTABLISHMENT OF VEGETATION SURROUNDING AN AREA OF DISTURBANCE OR BORDERING STREAMS, PONDS, WETLANDS, LAKES, AND COASTAL WATERS. WHEN NECESSARY, BUFFER ZONES ARE TO BE PROTECTED BY ORANGE BARRIER FENCE.
		SYMBOL 	
Ds1	MULCH SECTION 163		THIS IS AN APPLICATION OF STRAW MULCH USED TO REDUCE SOIL EROSION AND STABILIZE THE SOIL. IT IS USED TO CONTROL EROSION IN AREAS WHERE PERMANENT VEGETATION IS OUT OF SEASON OR TO TEMPORARILY STABILIZE AREAS PRIOR TO FINAL GRADING. MULCHING REQUIREMENTS ARE ADDRESSED BY STANDARD SPECIFICATIONS AND/OR THE PROJECT ENGINEER.
		SYMBOL 	THE BMP SYMBOL FOR APPLICABLE AREAS AND/OR A NOTE SHALL BE INCLUDED ON APPLICABLE SHEETS IN SECTION 54.
Ds2	TEMPORARY GRASSING SECTION 163, 700		THE SOWING OF A QUICK GROWING SPECIES OF GRASS SUITABLE TO THE AREA AND SEASON. IT IS TYPICALLY USED TO CONTROL EROSION IN AREAS LONGER THAN MULCHING IS EXPECTED TO LAST. TEMPORARY GRASSING SHOULD BE USED ON ALL PROJECTS ACCORDING TO THE STANDARD SPECIFICATIONS.
		SYMBOL 	THE BMP SYMBOL FOR APPLICABLE AREAS AND/OR A NOTE SHALL BE INCLUDED ON APPLICABLE SHEETS IN SECTION 54.

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Ds3	PERMANENT GRASSING SECTION 700		THE SOWING OF PERMANENT VEGETATION, SUCH AS GRASS, SUITABLE TO THE AREA AND SEASON. PERMANENT VEGETATION SHALL BE USED ON ALL PROJECTS ACCORDING TO THE STANDARD SPECIFICATION. THE BMP SYMBOL FOR APPLICABLE AREAS AND/OR A NOTE SHALL BE INCLUDED ON APPLICABLE SHEETS IN SECTION 54.
		SYMBOL 	
Ds4	SODDING CONSTRUCTION DETAIL D-54 SECTION 700, 890		THE INSTALLATION OF A SPECIES OF GRASS SODDING SUITABLE TO THE AREA AND SEASON TO PROVIDE IMMEDIATE PERMANENT VEGETATION. SODDING MAY BE SHOWN FOR HIGHLY SENSITIVE AREAS, TO IMPROVE AESTHETICS, OR FOR SPECIAL PLANTING REQUIREMENTS ON THE BASIS OF ENVIRONMENTAL COMMITMENTS OR LANDSCAPING REQUIREMENTS.
		PATTERN 	THE BMP PATTERN FOR APPLICABLE AREAS AND/OR A NOTE SHALL BE INCLUDED ON APPLICABLE SHEETS IN SECTION 54.
Fl-Co	FLOCCULANTS COAGULANTS SECTION 163, 700, 895		FLOCCULANTS AND COAGULANTS ARE USED TO SETTLE SUSPENDED SEDIMENT, HEAVY METALS, AND HYDROCARBONS (TSS) IN SLOW MOVING RUNOFF FROM CONSTRUCTION SITES FOR WATER CLARIFICATION. ANIONIC POLYACRYLAMIDES (PAM) MAY BE USED IN CONJUNCTION WITH BMPs WITHIN CHANNELS UPSTREAM OF A POST-CONSTRUCTION POND, TEMPORARY SEDIMENT BASIN, OR TEMPORARY SEDIMENT TRAP. FLOCCULANTS SHALL NOT BE USED DOWNSTREAM OF AFOREMENTIONED BMPs!
		SYMBOL 	FLOCCULANTS/COAGULANTS ARE TO BE SHOWN ON PLANS WITH APPLICABLE BMP IF NEEDED. PAYMENT FOR PAM AS A FLOCCULANT WILL BE INCLUDED IN THE PRICE FOR THE INSTALLATION AND/OR MAINTENANCE OF THE BMP IT IS USED IN CONJUNCTION WITH. NO SEPARATE PAYMENT WILL BE MADE.
Sb	STREAMBANK STABILIZATION SECTION 702		STREAMBANK STABILIZATION IS THE USE OF READILY AVAILABLE NATIVE PLANT MATERIALS TO MAINTAIN AND ENHANCE STREAMBANKS, OR TO PREVENT, OR RESTORE AND REPAIR SMALL STREAMBANK EROSION PROBLEMS. STREAMBANK STABILIZATION AREAS SHOULD BE SHOWN ON THE PLANS WHEN APPLICABLE TO THE PROJECT. REFER TO THE PROJECT'S STREAM AND STREAM BUFFER MITIGATION PLANS FOR PLANT SPECIES, LOCATIONS, AND OTHER PLANTING DETAILS.
		PATTERN 	

NOTE:

- DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
- FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs), REFER TO THE LATEST EDITION OF THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION'S, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".



NO SCALE

REVISION DATES

DATE	DESCRIPTION
3/2/2017	

EROSION CONTROL LEGEND
UNIFORM CODE SHEET
SHEET 1 OF 7

CHECKED:	DATE:	DRAWING No.
D. EAGLETON	01/01/16	
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	52-0001

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Ss	SLOPE STABILIZATION CONSTRUCTION DETAIL D-35 SECTION 716		SLOPE STABILIZATION (EROSION CONTROL MATTING) IS A PROTECTIVE COVERING USED TO PREVENT EROSION AND ESTABLISH TEMPORARY OR PERMANENT VEGETATION ON STEEP SLOPES, SHORE LINES, OR CHANNELS. SLOPE STABILIZATION MAY BE A ROLLED EROSION CONTROL PRODUCT (RECP) OR A HYDRAULIC EROSION CONTROL PRODUCT (HECP). SLOPE STABILIZATION SHALL BE USED ON ALL CUT OR FILL SLOPES OF 2.5:1 OR STEEPER AND WITHIN 50 FEET OF ALL CROSS DRAINS AND CULVERTS. NOTE: ONLY COCONUT FIBER BLANKET OR WOOD FIBER BLANKET SHALL BE USED AS SLOPE STABILIZATION WITHIN BUFFERED AREAS.
		PATTERN 	
Tac	TACKIFIERS SECTION 163, 700, 895		TACKIFIERS HYDRATE IN WATER AND READILY BLEND WITH OTHER SLURRY MATERIALS AND ARE USED TO TIE-DOWN FOR SOIL, COMPOST, SEED, STRAW, HAY OR MULCH. TACKIFIERS REQUIREMENTS, SUCH AS ANIONIC POLYACRYLAMIDES (PAM) ARE ADDRESSED BY STANDARD SPECIFICATIONS AND ARE NOT TYPICALLY SHOWN ON THE PLANS. PAM IS TYPICALLY USED BY THE CONTRACTOR FOR TEMPORARY OR PERMANENT GRASSING. REFER TO THE LATEST EDITION OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR CRITERIA.
		SYMBOL 	POLYACRYLAMIDE
Cd-F	FABRIC CHECK DAM CONSTRUCTION DETAIL D-24D SECTION 171		A CHECK DAM COMPOSED OF SYNTHETIC FIBER FABRIC, WIRE REINFORCED, POST, OVERFLOW WEIR, AND TURF REINFORCEMENT MATTING (TRM) SPLASHPAD PLACED IN DITCHES IN A SPECIAL CONFIGURATION WHICH CONTROLS ENERGY DISSIPATION AND FILTRATION OF STORM WATER. SEE CONSTRUCTION DETAIL D-24D FOR ADDITIONAL INFORMATION AND SPACING REQUIREMENTS. THIS ITEM IS SUITABLE FOR USE IN ROADSIDE DITCHES THAT ARE PART OF INFRASTRUCTURE CONSTRUCTION PROJECTS AND WITHIN THE CLEAR ZONE. IF THIS ITEM IS USED IN AN AREA WITH FLOWS GREATER THAN 2.0-CFS OR WITHOUT A SEDIMENT BASIN, A MINIMUM OF ONE ROCK FILTER DAM SHALL BE USED AT THE DOWNSTREAM DISCHARGE POINT.
		SYMBOL 	
Cd-Fs	COMPOST FILTER SOCK CHECK DAM CONSTRUCTION DETAIL D-52 SECTION 163		A COMPOST FILTER SOCK CHECK DAM IS COMPOSED OF A PHOTODEGRADABLE OR BIODEGRADABLE KNITTED MESH MATERIAL CONTAINING A WEED FREE FILLER MATERIAL DERIVED FROM A WELL-DECOMPOSED SOURCE OF ORGANIC MATTER. THEY SHALL BE PROPERLY STAKED FOR DITCH APPLICATIONS. REFER TO THE LATEST EDITION OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR MATERIAL SPECIFICATIONS. IF THIS ITEM IS USED IN AN AREA WITH FLOWS GREATER THAN 2.0-CFS OR WITHOUT A SEDIMENT BASIN, A MINIMUM OF ONE ROCK FILTER DAM SHALL BE USED AT THE DOWNSTREAM DISCHARGE POINT.
		SYMBOL 	
Cd-Hb	BALED STRAW CHECK DAM CONSTRUCTION DETAIL D-52 SECTION 163		A BALE STRAW CHECK DAM IS COMPOSED OF BALES PREFERABLY BOUND WITH WIRE OR NYLON INSTEAD OF TWINE. BALES SHOULD BE PLACED IN ROWS WITH BALE ENDS TIGHTLY ABUTTING ADJACENT BALES. THE DOWNSTREAM ROW OF BALES SHALL BE PLACED IN A TRENCH TO ALLOW THE TOP OF THE BALE'S LONG, WIDE SIDE TO BE LEVEL WITH THE GROUND AS A NON-ERODIBLE SPLASH PAD. PROPER STAKING IS ALSO REQUIRED FOR DITCH APPLICATIONS. IF THIS ITEM IS USED IN AN AREA WITH FLOWS GREATER THAN 2.0-CFS OR WITHOUT A SEDIMENT BASIN, A MINIMUM OF ONE ROCK FILTER DAM SHALL BE USED AT THE DOWNSTREAM DISCHARGE POINT.
		SYMBOL 	

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Cd-S	STONE CHECK DAM OR SANDBAG CHECK DAM CONSTRUCTION DETAIL D-56 SECTION 163.603		STONE CHECK DAMS ARE CONSTRUCTED OF TYPE-3 RIP-RAP WITH GEOTEXTILE UNDERLINER. STONE CHECK DAMS ARE PREFERRED IN ROADWAY DITCHES OUTSIDE THE CLEAR ZONE. CONSIDERATION SHOULD BE GIVEN TO USING OTHER APPROPRIATE CHECK DAMS AND/OR BMPs WITHIN THE CLEAR ZONE. SANDBAG CHECK DAMS ARE RECOMMENDED IN CONCRETE LINED CHANNELS FOR TEMPORARY VELOCITY CONTROL ONLY. ENSURE DISCHARGE POINT IS PROPERLY STABILIZED AND INCLUDE APPROPRIATE BMPs FOR SEDIMENT STORAGE UPSTREAM AND/OR DOWNSTREAM OF CONCRETE LINED CHANNELS. IF THIS ITEM IS USED IN AN AREA WITH FLOWS GREATER THAN 2.0-CFS OR WITHOUT A SEDIMENT BASIN, A MINIMUM OF ONE ROCK FILTER DAM SHALL BE USED AT THE DOWNSTREAM DISCHARGE POINT.
		SYMBOL 	
Ch-1	VEGETATED CHANNEL STABILIZATION SECTION 700		A NEW OR EXISTING CHANNEL MAY BE LINED WITH PERMANENT VEGETATION ONLY FOR VELOCITIES UP TO 5.0 fps. THIS MEASURE SHALL BE DESIGNED IN ACCORDANCE WITH THE GDOT CHANNEL LINING DESIGN PROGRAM. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED. TYPICALLY NOT SHOWN IN PLANS.
		LINE CODE 	
Ch-2R1	CHANNEL STABILIZATION RIP-RAP, TYPE 1 CONSTRUCTION DETAIL D-49 SECTION 603		THIS ITEM CONSISTS OF LINING A CHANNEL WITH TYPE 1 RIP-RAP 24" THICK (UNLESS SPECIFIED OTHERWISE) PLACED ON TOP OF A GEOTEXTILE UNDERLINER. THE RIP-RAP SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED. "Dp" SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
		LINE CODE 	
Ch-2R3	CHANNEL STABILIZATION RIP-RAP, TYPE 3 CONSTRUCTION DETAIL D-49 SECTION 603		THIS ITEM CONSISTS OF LINING A CHANNEL WITH TYPE 3 RIP-RAP 24" THICK (UNLESS SPECIFIED OTHERWISE) PLACED ON TOP OF A GEOTEXTILE UNDERLINER. THE RIP-RAP SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED. "Dp" SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
		LINE CODE 	

NOTE:

- DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
- FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs), REFER TO THE LATEST EDITION OF THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION'S, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".



NO SCALE

REVISION DATES		EROSION CONTROL LEGEND	
3/2/2017		UNIFORM CODE SHEET	
11/28/2018		SHEET 2 OF 7	
CHECKED:	D. EAGLETON	DATE:	01/01/16
BACKCHECKED:		DATE:	
CORRECTED:		DATE:	
VERIFIED:		DATE:	
			DRAWING No.
			52-0002

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Ch-2T1	TURF REINFORCEMENT MAT (TRM) CONSTRUCTION DETAIL D-35 SECTION 711		THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN CONJUNCTION WITH PERMANENT VEGETATION IN CHANNELS TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-2 psf. THE TRM SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM.
		LINE CODE 	"Dp" SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
Ch-2T2	TURF REINFORCEMENT MAT (TRM) CONSTRUCTION DETAIL D-35 SECTION 711		THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN CONJUNCTION WITH PERMANENT VEGETATION IN CHANNELS TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-4 psf. THE TRM SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM.
		LINE CODE 	"Dp" SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
Ch-2T3	TURF REINFORCEMENT MAT (TRM) CONSTRUCTION DETAIL D-35 SECTION 711		THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN CONJUNCTION WITH PERMANENT VEGETATION IN CHANNELS TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-6 psf. THE TRM SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM.
		LINE CODE 	"Dp" SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
Ch-2T4	TURF REINFORCEMENT MAT (TRM) CONSTRUCTION DETAIL D-35 SECTION 711		THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN CONJUNCTION WITH PERMANENT VEGETATION IN CHANNELS TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-8 psf. THE TRM SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM.
		LINE CODE 	"Dp" SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
Ch-2T5	TURF REINFORCEMENT MAT (TRM) CONSTRUCTION DETAIL D-35 SECTION 711		THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN CONJUNCTION WITH PERMANENT VEGETATION IN CHANNELS TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-10 psf. THE TRM SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM.
		LINE CODE 	"Dp" SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Ch-2T6	TURF REINFORCEMENT MAT (TRM) CONSTRUCTION DETAIL D-35 SECTION 711		THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN CONJUNCTION WITH PERMANENT VEGETATION IN CHANNELS TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-12 psf. THE TRM SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM.
		LINE CODE 	"Dp" SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
Ch-3	CONCRETE CHANNEL STABILIZATION		CHANNELS ARE LINED WITH CONCRETE FOR VELOCITIES >= 10 fps. THIS ITEM CONSISTS OF CONSTRUCTING A 4" THICK CONCRETE CHANNEL. THE CONCRETE SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM.
	CONSTRUCTION DETAIL D-10, D-49 SECTION 441	LINE CODE 	"Dp" SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN. RIP-RAP SHOULD BE USED TO DISSIPATE ENERGY DOWNSTREAM OF CONCRETE LINED CHANNELS.
Co	CONSTRUCTION EXIT		A CONSTRUCTION EXIT IS A STONE STABILIZED PAD THAT REDUCES OR ELIMINATES THE TRANSPORT OF MUD FROM CONSTRUCTION AREAS ONTO PUBLIC ROADS BY EQUIPMENT OR RUNOFF. BEST USED AT ACCESS POINTS, I.E. NEW LOCATION PROJECTS, BORROW PITS, WASTE PITS, ACCESS ROADS, ETC. SHOULD BE MINIMUM 20' WIDE, 50' LONG, 6" THICK, AND REQUIRES A GEOTEXTILE UNDERLINER. ON SITES WHERE THE GRADE TOWARD A PAVED AREA IS GREATER THAN 2%, A FULL WIDTH DIVERSION RIDGE 6" TO 8" HIGH WITH 3:1 SLOPES SHALL BE CONSTRUCTED APPROXIMATELY 15' UPSTREAM OF PAVED AREA. A TIRE WASHING AREA TO REMOVE MUD MAY ALSO BE REQUIRED PRIOR TO ENTRANCE ONTO PUBLIC ROADWAYS.
	CONSTRUCTION DETAIL D-41 SECTION 163, 800	SYMBOL 	ALL CONSTRUCTION EXIT REQUIREMENTS ARE INCLUDED IN THE PRICE OF THE CONSTRUCTION EXIT.
Dc-A	STREAM DIVERSION CHANNEL GEOTEXTILE, POLYETHYLENE FILM		A TEMPORARY CHANNEL CONSTRUCTED TO CONVEY FLOW AROUND A CONSTRUCTION SITE WHILE A PERMANENT DRAINAGE STRUCTURE IS BEING CONSTRUCTED IN A NATURAL STREAM. THIS IS A MEASURE USED TO PROTECT STREAM BEDS FROM EROSION. LINE THE CHANNEL WITH GEOTEXTILE OR POLYETHYLENE FILM. INSTALL TWO ROWS OF Sd1-S PARALLEL TO THE CHANNEL TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE STREAM. THE SIZE OF THE CHANNEL WILL DEPEND ON THE DISCHARGE, CHANNEL GEOMETRY, CHANNEL SLOPE AND ROUGHNESS. IT IS ACCEPTABLE FOR VELOCITIES BETWEEN 0 - 2.5 fps.
	SECTION 163	LINE CODE 	THE DRAINAGE AREA SHALL BE NOT GREATER THAN 1 SQUARE MILE. CONSTRUCTION OF THE DIVERSION CHANNEL IS INCLUDED IN THE COST OF THE STRUCTURE.

NOTE:

- DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
- FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs), REFER TO THE LATEST EDITION OF THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION'S, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".



NO SCALE

REVISION DATES

3/2/2017	

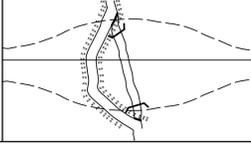
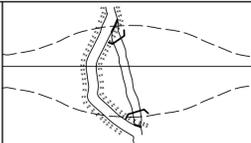
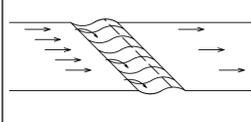
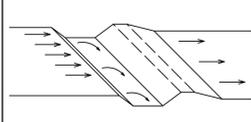
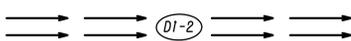
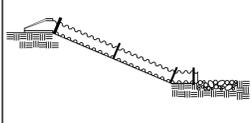
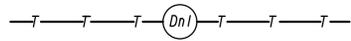
EROSION CONTROL LEGEND

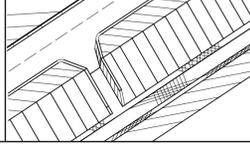
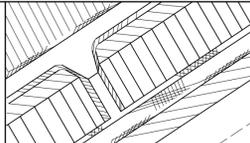
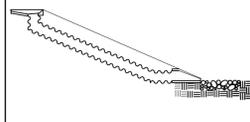
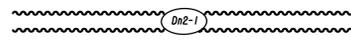
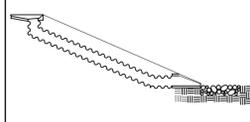
UNIFORM CODE SHEET

SHEET 3 OF 7

CHECKED:	D. EAGLETON	DATE:	01/01/16	DRAWING No.
BACKCHECKED:		DATE:		
CORRECTED:		DATE:		
VERIFIED:		DATE:		

52-0003

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Dc-B	STREAM DIVERSION CHANNEL GEOTEXTILE ONLY SECTION 163		A TEMPORARY CHANNEL CONSTRUCTED TO CONVEY FLOW AROUND A CONSTRUCTION SITE WHILE A PERMANENT DRAINAGE STRUCTURE IS BEING CONSTRUCTED IN A NATURAL STREAM. THIS IS A MEASURE USED TO PROTECT STREAM BEDS FROM EROSION. LINE THE CHANNEL WITH GEOTEXTILE ONLY. INSTALL TWO ROWS OF Sd1-S PARALLEL TO THE CHANNEL TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE STREAM. THE SIZE OF THE CHANNEL WILL DEPEND ON THE DISCHARGE, CHANNEL GEOMETRY, CHANNEL SLOPE AND ROUGHNESS. IT IS ACCEPTABLE FOR VELOCITIES BETWEEN 2.5 - 9.0 fps. THE DRAINAGE AREA SHALL BE NOT GREATER THAN 1 SQUARE MILE. CONSTRUCTION OF THE DIVERSION CHANNEL IS INCLUDED IN THE COST OF THE STRUCTURE.
	LINE CODE 		
Dc-C	STREAM DIVERSION CHANNEL RIP-RAP & GEOTEXTILE SECTION 163		A TEMPORARY CHANNEL CONSTRUCTED TO CONVEY FLOW AROUND A CONSTRUCTION SITE WHILE A PERMANENT DRAINAGE STRUCTURE IS BEING CONSTRUCTED IN A NATURAL STREAM. THIS IS A MEASURE USED TO PROTECT STREAM BEDS FROM EROSION. LINE THE CHANNEL WITH RIP-RAP AND GEOTEXTILE. INSTALL TWO ROWS OF Sd1-S PARALLEL TO THE CHANNEL TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE STREAM. THE SIZE OF THE CHANNEL WILL DEPEND ON THE DISCHARGE, CHANNEL GEOMETRY, CHANNEL SLOPE AND ROUGHNESS. IT IS ACCEPTABLE FOR VELOCITIES BETWEEN 9.0 - 13.0 fps. THE DRAINAGE AREA SHALL BE NOT GREATER THAN 1 SQUARE MILE. CONSTRUCTION OF THE DIVERSION CHANNEL IS INCLUDED IN THE COST OF THE STRUCTURE.
	LINE CODE 		
D1-1	DIVERSION BERM CONSTRUCTION DETAIL D-47 SECTION 205		A NON-DESIGNED TEMPORARY EARTHEN BERM WITH A COMPACTED SUPPORTING RIDGE ON THE LOWER SIDE TO BE USED AT THE EDGE OF EMBANKMENT DURING THE GRADING OPERATION. THE BERMS ARE ALSO CONSTRUCTED ABOVE, ACROSS OR BELOW A SLOPE TO REDUCE THE LENGTH OF A SLOPE. THEY ARE USED TO INTERCEPT RUNOFF, PREVENTING SLOPE EROSION AND TO DIRECT THE RUNOFF TO A STABLE OUTLET, DOWN DRAINS *Dn1* OR CATCHMENT AREAS AND ON ALL GRADING PROJECTS.
	LINE CODE 		
D1-2	DIVERSION CHANNEL SECTION 205		A DESIGNED TEMPORARY OR PERMANENT CHANNEL WITH A COMPACTED SUPPORTING RIDGE ON THE LOWER SIDE TO DIVERT OFFSITE RUNOFF AWAY FROM DISTURBED AREAS WITHIN THE PROJECT AREA. CHANNEL FOR OFFSITE RUNOFF SHALL BE STABILIZED WITH APPROPRIATE CHANNEL STABILIZATION. REFER TO THE LATEST EDITION OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR DESIGN CRITERIA. A DIVERSION CHANNEL DETAIL MUST ALSO BE PROVIDED IN THE ESPCP. RUNOFF FROM DISTURBED AREAS WITHIN THE PROJECT AREA SHALL NOT BE ALLOWED TO CONVERGE WITH OFFSITE RUNOFF WITHIN THIS DIVERSION.
	LINE CODE 		
Dn1	TEMPORARY DOWNDRAIN STRUCTURE FLEXIBLE CONSTRUCTION DETAIL D-19 SECTION 163		A TEMPORARY PIPE SLOPE DRAIN IS A PLASTIC FLEXIBLE PIPE TO CARRY WATER FROM THE WORK AREA TO A LOWER ELEVATION. TEMPORARY SLOPE DRAINS SHOULD BE PLACED AT INTERVALS OF 350 FEET ON 0% - 2% GRADES, 200 FEET ON STEEPER GRADES AND MORE FREQUENTLY AS DICTATED BY FIELD CONDITIONS. THE TYPICAL PIPE SIZE IS A CORRUGATED 10". THE PIPE WILL BE ANCHORED WITH STAKES AT INTERVALS NOT TO EXCEED 10'. THE OUTLET AREA SHALL BE STABILIZED FOR VELOCITY DISSIPATION AND EROSION CONTROL.
	LINE CODE 		

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Dn2-A	PERMANENT DOWNDRAIN STRUCTURE CONCRETE CONSTRUCTION DETAIL D-9 SECTION 441		A CONCRETE FLUME TYPE "A" IS USED TO DIRECT SURFACE RUNOFF DOWN A ROADWAY SLOPE INTO ANOTHER FORM OF CONTROL. IT IS USED IN ALL DEPRESSED AREAS WHERE WATER WILL FLOW DOWN THE SLOPE. IT IS DESIGNED FOR A 25-YEAR STORM AND MUST HAVE SOME FORM OF OUTLET PROTECTION. ADDITIONAL LABELING IS NOT REQUIRED IF SHOWN AS A PERMANENT DRAINAGE STRUCTURE ON THE CONSTRUCTION PLANS. INLETS SHALL BE SPACED ACCORDING TO GDOT GUIDELINES (REGARDING GUTTER SPREAD AND OTHER CRITERIA).
	LINE CODE 		
Dn2-B	PERMANENT DOWNDRAIN STRUCTURE CONCRETE CONSTRUCTION DETAIL D-9 SECTION 441		A CONCRETE FLUME TYPE "B" IS USED TO DIRECT SURFACE DITCH RUNOFF DOWN A BACK SLOPE INTO ANOTHER FORM OF CONTROL. IT IS USED IN DEPRESSED AREAS WHERE CONCENTRATED OFFSITE WATER REACHES THE CUT SLOPE. IT IS DESIGNED TO SAFELY CONVEY WATER DOWN THE CUT SLOPE. IT IS DESIGNED FOR A 25-YEAR STORM AND MUST HAVE SOME FORM OF OUTLET PROTECTION. ADDITIONAL LABELING IS NOT REQUIRED IF SHOWN AS A PERMANENT DRAINAGE STRUCTURE ON THE CONSTRUCTION PLANS. INLETS SHALL BE SPACED ACCORDING TO GDOT GUIDELINES (REGARDING GUTTER SPREAD AND OR OTHER CRITERIA).
	LINE CODE 		
Dn2-1	PERMANENT DOWNDRAIN STRUCTURE GA. STD 9013 TP1, 9017J TP1, DETAIL D-26 TP1 SECTION 576, 577		CONCRETE DRAIN INLET WITH METAL PIPE IS USED TO DRAIN CURBS, ON A GRADE, DOWN TO A LOWER ELEVATION. THIS IS A PERMANENT STRUCTURE, REQUIRING OUTLET PROTECTION, TEMPORARY AND PERMANENT. INLETS SHALL BE SPACED ACCORDING TO GDOT GUIDELINES (REGARDING GUTTER SPREAD AND OR OTHER CRITERIA).
	LINE CODE 		
Dn2-2	PERMANENT DOWNDRAIN STRUCTURE GA. STD 9013 TP2, 9017J TP2, DETAIL D-26 TP2 SECTION 576, 577		CONCRETE DRAIN INLET AND METAL PIPE IS USED TO DRAIN CURB, IN A SAG, DOWN TO A LOWER ELEVATION. THIS IS A PERMANENT STRUCTURE, REQUIRING OUTLET PROTECTION, TEMPORARY AND PERMANENT. INLETS SHALL BE SPACED ACCORDING TO GDOT GUIDELINES (REGARDING GUTTER SPREAD AND OR OTHER CRITERIA).
	LINE CODE 		

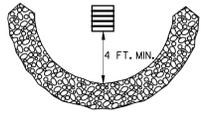
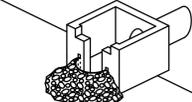
NOTE:

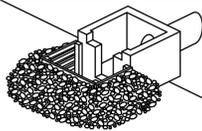
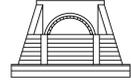
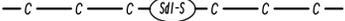
- DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
- FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs), REFER TO THE LATEST EDITION OF THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION'S, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".



NO SCALE

REVISION DATES		EROSION CONTROL LEGEND	
3/2/2017		UNIFORM CODE SHEET	
		SHEET 4 OF 7	
CHECKED:	D. EAGLETON	DATE:	01/01/16
BACKCHECKED:		DATE:	
CORRECTED:		DATE:	
VERIFIED:		DATE:	
			DRAWING No.
			52-0004

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Fr	FILTER RING CONSTRUCTION DETAIL D-46 SECTION 163		A TEMPORARY STONE BARRIER CONSTRUCTED AT DRAINAGE STRUCTURE INLETS AND POST-CONSTRUCTION POND OUTLETS. IT REDUCES RUNOFF VELOCITY AND HELPS PREVENT SEDIMENT FROM LEAVING SITE PRIOR TO PERMANENT STABILIZATION OF THE DISTURBED AREA. REFER TO THE LATEST EDITION OF THE 'MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA' FOR ADDITIONAL INFORMATION ON USAGE.
	SYMBOL 		
Rd	ROCK FILTER DAM CONSTRUCTION DETAIL D-43 SECTION 163, 603		ROCK FILTER DAMS ARE CONSTRUCTED OF TYPE 3 STONE RIP-RAP FACED WITH #57 STONE ON THE UPSTREAM SIDE. THEY ARE PLACED ACROSS DRAINAGEWAYS WHICH DRAIN 50 ACRES OR LESS. GEOTEXTILE UNDERLINER SHALL BE USED WHEN PLACING ROCK FILTER DAMS. THE DAM SHOULD NOT BE HIGHER THAN THE CHANNEL BANKS. ROCK FILTER DAMS SHOULD BE USED IN DITCHES PRIOR TO DISCHARGING INTO STREAMS, WETLANDS, OPEN-WATERS, OR OTHER ESAs.
	SYMBOL 		
Rd-B	STONE FILTER BERM CONSTRUCTION DETAIL D-50 SECTION 163, 603		STONE FILTER BERMS ARE CONSTRUCTED SIMILAR TO ROCK FILTER DAMS FOR A LINEAR APPLICATION. THEY ARE CONSTRUCTED OF TYPE-3 STONE RIP-RAP FACED WITH #57 STONE ON THE UPSTREAM SIDE. GEOTEXTILE UNDERLINER SHALL BE USED WHEN PLACING STONE FILTER BERMS. STONE FILTER BERMS ARE IDEAL ALONG THE PERIMETER FOR SHEET FLOW AND/OR SHALLOW CONCENTRATED FLOW TO A COMMON LOW AREA WHERE PERIMETER SILT FENCE ALONE MAY BE INSUFFICIENT. THERE IS NO WELL-DEFINED CHANNEL FOR A STANDARD ROCK FILTER DAM, AND/OR CONSTRUCTING A ROCK OUTLET TEMPORARY SEDIMENT TRAP IS NOT APPLICABLE.
	LINE CODE 		
Rp	RIP-RAP SECTION 603		RIP-RAP IS A FLEXIBLE PERMANENT BLANKET FOR PROTECTION OF FILL SLOPES AND BRIDGE END ROLLS. RIP-RAP TYPE-1 SHOULD BE PLACED ON TOP OF A GEOTEXTILE UNDERLINER AT A MINIMUM 24" THICKNESS OR AS INDICATED ON THE PLANS. RIP-RAP MAY ALSO BE USED AT DRAINAGE STRUCTURE OUTLETS WITHIN THE RIGHT-OF-WAY. HOWEVER, APPROPRIATE OUTLET PROTECTION SHOULD BE PROVIDED AT OUTFALLS. REFER TO STORM DRAIN OUTLET PROTECTION FOR ADDITIONAL INFORMATION ON USING RIP-RAP AT OUTFALLS.
	PATTERN 		
Rt-P	RETROFITTING PERFORATED HALF-ROUND PIPE CONSTRUCTION DETAIL D-44 SECTION 163		A PERFORATED HALF-ROUND PIPE WITH STONE FILTER PLACED IN FRONT OF A PERMANENT STORMWATER DETENTION POND OUTLET STRUCTURE TO SERVE AS A TEMPORARY SEDIMENT FILTER. SHOULD BE USED ONLY IN DETENTION PONDS WITH LESS THAN 30 ACRES TOTAL DRAINAGE AREA. SHALL ONLY BE USED IN DETENTION BASINS LARGE ENOUGH TO STORE 67 CUBIC YARDS OF SEDIMENT PER ACRE OF DISTURBED AREA. REFER TO THE LATEST EDITION OF THE 'MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA' FOR DESIGN CRITERIA.
	SYMBOL 		

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Rt-B	RETROFITTING SLOTTED BOARD DAM CONSTRUCTION DETAIL D-45 SECTION 163		A SLOTTED BOARD DAM CONSISTS OF STONE AND/OR FILTER FABRIC AND BOARDS WITH 0.5' - 1.0' SPACING TO SERVE AS A TEMPORARY SEDIMENT FILTER. PERMANENT STORMWATER DETENTION POND OUTLET: -DRAINAGE AREA UP TO 100 ACRES -DETENTION BASINS LARGE ENOUGH TO STORE 67 CUBIC YARDS OF SEDIMENT PER ACRE OF DISTURBED AREA ROADWAY DRAINAGE STRUCTURE: -OPEN END PIPES, WINGED HEADWALLS, OR CONCRETE WEIR OUTLETS WITH DRAINAGE AREA LESS THAN 30 ACRES REFER TO THE LATEST EDITION OF THE 'MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA' FOR DESIGN CRITERIA.
	SYMBOL 		
Rt-Sg1 Rt-Sg2 Rt-Sg3	RETROFITTING SILT CONTROL GATES CONSTRUCTION DETAIL D-20 SECTION 163		A SILT CONTROL GATE CONSISTS OF BOARDS WITHOUT SPACING AND FILTER FABRIC TO BE USED FOR TEMPORARY SEDIMENT STORAGE ON ROADWAY PROJECTS AT THE INLET OF STRUCTURES WITH A DRAINAGE AREA UP TO 50 ACRES. THE DISTURBED AREA WITHIN THE DRAINAGE AREA SHALL NOT EXCEED 5 ACRES. SILT CONTROL GATES SHOULD NOT BE USED ALONE, BUT WITH ANOTHER BMP DOWNSTREAM PRIOR TO DISCHARGE LEAVING PROJECT AREA. DO NOT USE SILT GATES IN STATE WATERS. Rt-Sg1-TYPE 1: USED ON BOX CULVERTS Rt-Sg2-TYPE 2: USED ON STRAIGHT HEADWALLS Rt-Sg3-TYPE 3: USED ON FLARED END SECTIONS AND TAPERED HEADWALLS
	SYMBOL 		
	FRONT VIEW		
SdI-NS	SEDIMENT BARRIER (NON-SENSITIVE) SILT FENCE TYPE A CONSTRUCTION DETAIL D-24 SECTION 171		SEDIMENT BARRIERS MINIMIZE AND PREVENT SEDIMENT CARRIED BY SHEET FLOW FROM LEAVING THE PROJECT AREA BY CAUSING DEPOSITION AND/OR FILTRATION OF SEDIMENT. SILT FENCE USED AS PERIMETER CONTROL SHALL NOT BE INSTALLED ACROSS CONCENTRATED FLOW. TYPE-A SILT FENCE IS TYPICALLY USED IN NON-ENVIRONMENTALLY SENSITIVE AREAS (ESAs) OR IN AREAS WITH FILLS LESS THAN 10'. IT SHOULD BE PLACED A MINIMUM OF 10' FROM CONSTRUCTION LIMITS OR ALONG THE RIGHT-OF-WAY LINE.
	LINE CODE 		
SdI-S	SEDIMENT BARRIER (SENSITIVE) SILT FENCE TYPE C CONSTRUCTION DETAIL D-24 SECTION 171		SEDIMENT BARRIERS MINIMIZE AND PREVENT SEDIMENT CARRIED BY SHEET FLOW FROM LEAVING THE PROJECT AREA BY CAUSING DEPOSITION AND/OR FILTRATION OF SEDIMENT. SILT FENCE USED AS PERIMETER CONTROL SHALL NOT BE INSTALLED ACROSS CONCENTRATED FLOW. TYPE-C SILT FENCE IS TYPICALLY USED IN ENVIRONMENTALLY SENSITIVE AREAS (ESAs) OR IN AREAS WITH FILLS 10' AND GREATER. ALL ENVIRONMENTALLY SENSITIVE AREAS (ESAs) SHALL BE PROTECTED WITH A DOUBLE-ROW OF TYPE-C SILT FENCE REGARDLESS OF FILL HEIGHT. A SINGLE-ROW MAY BE USED FOR OTHER APPLICATIONS. IT SHOULD BE PLACED A MINIMUM OF 10' FROM CONSTRUCTION LIMITS OR ALONG THE RIGHT-OF-WAY LINE.
	LINE CODE 		

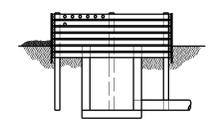
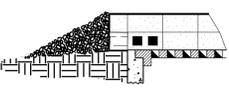
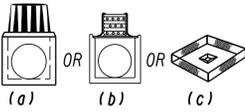
NOTE:

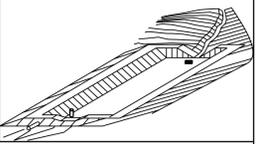
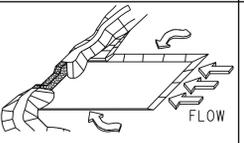
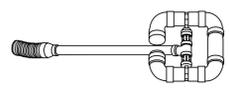
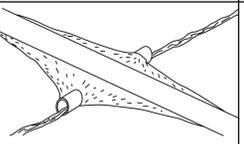
- DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
- FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs), REFER TO THE LATEST EDITION OF THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION'S, 'MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA'.



NO SCALE

REVISION DATES		EROSION CONTROL LEGEND	
3/2/2017		UNIFORM CODE SHEET	
		SHEET 5 OF 7	
CHECKED:	B. EAGLETON	DATE:	01/01/16
BACKCHECKED:		DATE:	
CORRECTED:		DATE:	
VERIFIED:		DATE:	
		DRAWING No.	
		52-0005	

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Sd1-BB	SEDIMENT BARRIER BRUSH BARRIER CONSTRUCTION DETAIL D-24B SECTION 201		THIS ITEM CONSISTS OF INTERMINGLED BRUSH, LOGS, ETC. SO AS NOT TO FORM A SOLID DAM. CONSTRUCTED AT THE TOE OF FILL SLOPES ONLY DURING THE CLEARING AND GRUBBING OPERATION. THE BARRIER SHOULD BE USED AT THE TOE OF FILL SLOPES ON GRADING PROJECTS IN RURAL AREAS WHERE SUFFICIENT RIGHT OF WAY OR EASEMENT IS AVAILABLE (10 FEET OR MORE). THE BARRIER SHOULD RUN ROUGHLY PERPENDICULAR TO THE FLOW OF WATER WHERE THIS DOES NOT CONFLICT WITH RIGHT-OF-WAY OR EASEMENT LIMITS. THEY WILL NOT BE PLACED IN WETLANDS. TYPICALLY NOT SHOWN ON PLANS. PAYMENT FOR THIS ITEM IS INCLUDED IN THE CLEARING AND GRUBBING COST. NO SEPARATE PAYMENT SHALL BE MADE.
	LINE CODE * * * Sd1-BB * * *		
Sd2-B	INLET SEDIMENT TRAP (BAFFLE BOX) CONSTRUCTION DETAIL D-42 SECTION 163		BAFFLE BOX INLET SEDIMENT TRAP USED FOR INLETS RECEIVING HIGH FLOW RATE AND/OR VELOCITY. A GUIDE FOR USE WILL BE FOR AN INLET RECEIVING FLOW RATES 7 cfs AND GREATER.
	SYMBOL Sd2-B		
Sd2-Bg	INLET SEDIMENT TRAP (BLOCK & GRAVEL) CONSTRUCTION DETAIL D-42 SECTION 163		BLOCK AND GRAVEL DROP INLET PROTECTION USED FOR WHERE HEAVY FLOWS ARE EXPECTED AND WHERE OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE. CAN BE USED AT CULVERT INLETS. A GUIDE FOR USE WILL BE FOR AN INLET RECEIVING FLOW RATES THAT RANGE FROM 5 - 7 cfs.
	SYMBOL Sd2-Bg		
Sd2-F	INLET SEDIMENT TRAP (FILTER FABRIC) CONSTRUCTION DETAIL D-24C SECTION 163		(a) A SEDIMENT BARRIER CONSISTING OF A PREFABRICATED FRAME WITH FILTER FABRIC USED AROUND A DROP INLET OR CATCH BASIN. (b) A SEDIMENT BARRIER CONSISTING OF A PERFORATED METAL STAND PIPE WITH FILTER FABRIC USED AROUND A DROP INLET OR CATCH BASIN. (c) TYPE C SILT FENCE WITH SUPPORTING FRAME CAN BE USED AS AN ALTERNATE TO INLET SEDIMENT TRAP FOR AREAS WITH SLOPES < 5%.
	SYMBOL Sd2-F		THIS ITEM IS USED TO PREVENT SILT FROM ENTERING THE PIPE SYSTEM. SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS. RECOMMENDED FOR INLET RECEIVING FLOW RATES THAT RANGE FROM 0 - 4 cfs.
Sd2-G	INLET SEDIMENT TRAP (GRAVEL) CONSTRUCTION DETAIL D42 SECTION 163		GRAVEL DROP INLET PROTECTION USED WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED. STONE AND GRAVEL ARE USED TO TRAP SEDIMENT. THE SLOPE TOWARD THE INLET SHALL BE NO MORE THAN 3:1. A GUIDE FOR USE WILL BE FOR AN INLET RECEIVING FLOW RATES THAT RANGE FROM 3 - 5 cfs.
	SYMBOL Sd2-G		

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Sd3	TEMPORARY SEDIMENT BASIN CONSTRUCTION DETAIL D-22A, D-22B SECTION 163		A BASIN CREATED BY EXCAVATING AN AREA, DAMMING CONCENTRATED FLOW, OR A COMBINATION OF BOTH. THE BASIN IS DESIGNED TO STORE 67 CUBIC YARDS OF SEDIMENT PER ACRE OF DRAINAGE AREA. THE DRAINAGE AREA SHOULD NOT EXCEED 150 ACRES. BASINS TYPICALLY CONSISTS OF A DAM, PRINCIPAL SPILLWAY, AND AN EMERGENCY SPILLWAY. A FLOATING SURFACE SKIMMER SHALL BE REQUIRED AS PART OF THE PRINCIPAL SPILLWAY UNLESS INFEASIBLE. SUFFICIENT RIGHT-OF-WAY OR EASEMENT IS NEEDED FOR BASIN CONSTRUCTION AND MAINTENANCE ACCESS. SEDIMENT BASINS SHALL BE CONSIDERED ON ALL PROJECTS, BUT MAY NOT BE PRACTICAL. BASINS SHOULD BE LOCATED TO MINIMIZE INTERFERENCE WITH CONSTRUCTION ACTIVITIES AND UTILITIES. REFER TO THE LATEST EDITION OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR DESIGN CRITERIA.
	SYMBOL Sd3		
Sd4-C	ROCK OUTLET TEMPORARY SEDIMENT TRAP CONSTRUCTION DETAIL D-53 SECTION 163		TEMPORARY POND WITH ROCK OUTLET DESIGNED TO STORE 67 CUBIC YARDS OF SEDIMENT PER DRAINAGE AREA. DRAINAGE AREA SHALL NOT EXCEED 5 ACRES. DISTINGUISHED FROM TEMPORARY SEDIMENT BASIN BY LACK OF PRINCIPAL SPILLWAY. MAXIMUM POND DEPTH FROM BOTTOM OF POND TO EMERGENCY SPILLWAY IS 4 FEET. A TEMPORARY SEDIMENT BASIN SHALL BE EVALUATED PRIOR TO CONSIDERING A TEMPORARY SEDIMENT TRAP. A TEMPORARY SEDIMENT TRAP IS IDEAL FOR SMALL AREAS WITH NO UNUSUAL DRAINAGE FEATURES AND EFFECTIVE AGAINST COARSE SEDIMENT, BUT NOT AGAINST SILT OR CLAY PARTICLES THAT REMAIN SUSPENDED. REFER TO THE LATEST EDITION OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR DESIGN CRITERIA.
	SYMBOL Sd4-C		
Sk	FLOATING SURFACE SKIMMER CONSTRUCTION DETAIL D-22A, D-22B SECTION 163		A BUOYANT DEVICE THAT DRAINS WATER FROM THE SURFACE OF A TEMPORARY SEDIMENT BASIN AT A CONTROLLED FLOW RATE. THE INLET/ORIFICE SIZE IS DESIGNED TO DRAIN THE BASIN WITHIN 24 - 48 HOURS. THE SKIMMER INFORMATION SHALL BE PROVIDED IN CONJUNCTION WITH THE SEDIMENT BASIN INFORMATION IN PLANS. IF A SKIMMER IS INFEASIBLE, THE DESIGNER SHALL PROVIDE A WRITTEN JUSTIFICATION IN THE PLANS. SKIMMERS ARE ATTACHED TO A RISER WITHOUT PERFORATIONS AND ACTS AS THE PRIMARY SPILLWAY. THE SKIMMER BMP SYMBOL SHALL BE SHOWN IN CONJUNCTION WITH THE TEMPORARY SEDIMENT BASIN BMP SYMBOL WHEN APPLICABLE. REFER TO THE LATEST EDITION OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR ADDITIONAL INFORMATION.
	SYMBOL Sk		
Sr	TEMPORARY STREAM CROSSING SECTION 107		A TEMPORARY STRUCTURE INSTALLED ACROSS A FLOWING STREAM OR WATERCOURSE FOR USE BY CONSTRUCTION EQUIPMENT. THIS BMP PROVIDES A MEANS TO CROSS STREAMS OR WATERCOURSES WITHOUT MOVING SEDIMENT INTO STREAMS, DAMAGING THE STREAM BED OR CHANNEL, OR CAUSING FLOODING. THIS BMP SHOULD NOT BE USED ON STREAMS WITH DRAINAGE AREAS GREATER THAN ONE SQUARE MILE, UNLESS SPECIFICALLY DESIGNED TO ACCOMMODATE THE ADDITIONAL DRAINAGE AREA BY THE DESIGN PROFESSIONAL. A CERTIFICATION STATEMENT AND SIGNATURE SHALL ACCOMPANY THE DESIGN. THIS BMP SHALL BE DESIGNED ACCORDING TO THE LATEST EDITION OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA". FOR CONTRACTOR'S USE ONLY!
	SYMBOL Sr		

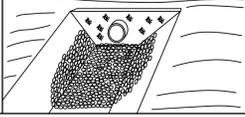
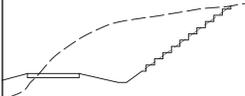
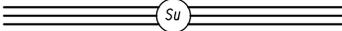
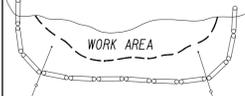
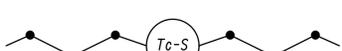
NOTE:

- DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
- FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs), REFER TO THE LATEST EDITION OF THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION'S, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".



NO SCALE

REVISION DATES		EROSION CONTROL LEGEND	
3/2/2017		UNIFORM CODE SHEET	
11/28/2018		SHEET 6 OF 7	
CHECKED:	D. EAGLETON	DATE:	01/01/16
BACKCHECKED:		DATE:	
CORRECTED:		DATE:	
VERIFIED:		DATE:	
		DRAWING No.	
		52-0006	

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
St	STORM DRAIN OUTLET PROTECTION GA. STD. 1125 & 2332		A PIPE OR BOX CULVERT OUTLET HEADWALL WITH AN APRON AND DISSIPATOR BLOCKS IS USED TO REDUCE VELOCITY AT THE OUTLET OF A PIPE PRIOR TO ENTERING AN EXISTING STREAM OR PUBLICLY MAINTAINED DRAINAGE SYSTEM. IT IS USED ON THE OUTLET OF ALL BOX CULVERTS AND ON 48" AND LARGER PIPES. MAY BE USED ON INLET FOR FLOWING STREAMS. USE ON SMALL PIPES WHEN OUTLET VELOCITY OF THE 25-YEAR STORM IS 12 fps AND GREATER.
	SYMBOL 		
St-Rp	STORM DRAIN OUTLET PROTECTION (RIP-RAP) CONSTRUCTION DETAIL D-55 SECTION 603		RIP-RAP OUTLET PROTECTION IS USED TO REDUCE VELOCITY AT THE OUTLET OF A PIPE, CHANNEL, OR STRUCTURE PRIOR TO ENTERING AN EXISTING STREAM OR PUBLICLY MAINTAINED DRAINAGE SYSTEM. THE MINIMUM DESIGN OF RIP-RAP OUTLET PROTECTION SHALL BE THE 25-YEAR STORM PEAK FLOW, BUT LARGER STORMS ARE RECOMMENDED. TYPE-1 RIP-RAP AT A DEPTH OF 36" AND PLACED ON FILTER FABRIC IS PREFERRED FOR ALL d50 ≤ 1.2 FEET. TYPE-3 RIP-RAP AT A DEPTH OF 18" AND PLACED ON FILTER FABRIC MAY BE USED FOR d50 ≤ 0.7 FEET.
	PATTERN 		REFER TO THE LATEST EDITION OF THE 'MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA' FOR REQUIRED DESIGN DIMENSIONS AND OTHER INFORMATION TO BE INCLUDED IN THE PLANS.
Su	SURFACE ROUGHENING SERRATED SLOPES CONSTRUCTION DETAIL S-7 SECTION 205		PROVIDING A ROUGH SOIL SURFACE WITH HORIZONTAL DEPRESSIONS, BY OPERATING A CLEATED DOZER ON THE SLOPE IN A VERTICAL DIRECTION. CREATING SERRATED SLOPES IN THE GRADING PROCESS TO CONSTRUCT BENCHES WILL REDUCE RUNOFF VELOCITY AND INCREASE INFILTRATION OF WATER. IN MOST CASES THIS BMP IS NOT REQUIRED TO BE SHOWN ON THE PLANS, BUT REQUIRED TO BE COMPLETED BY THE CONTRACTOR UNDER ALL PROJECTS.
	LINE CODE 		IF SERRATED SLOPES ARE SPECIFIED BY THE SOIL SURVEY, THEN THIS BMP SHALL BE SHOWN ON THE PLANS WHERE SERRATED SLOPES ARE TO BE USED.
Tc-F	TURBIDITY CURTAIN FLOATING CONSTRUCTION DETAIL D-51 SECTION 170		A FLOATING TURBIDITY CURTAIN IS USED TO PREVENT SEDIMENT FROM MOVING IN WATER BY ALLOWING IT TO DROP OUT OF SUSPENSION AND REMAIN WITHIN THE CONSTRUCTION AREA. IT IS TYPICALLY USED WHERE CONSTRUCTION IS REQUIRED IN A LARGE BODY OF WATER SUCH AS LAKES AND RIVERS. IT SHOULD BE USED AS DIRECTED BY THE ENGINEER. THIS BMP IS ONLY TO BE USED WHEN PERMITTED FILL IS BEING PLACED INTO A STATE WATER, OR AS A SUPPLEMENT TO ADEQUATELY PLACED PERIMETER BMPs.
	LINE CODE 		IT MAY ALSO BE REFERRED TO AS A FLOATING BOOM, SILT BARRIER, OR SILT CURTAIN.
Tc-S	TURBIDITY CURTAIN STAKED CONSTRUCTION DETAIL D-51 SECTION 170		A STAKED TURBIDITY CURTAIN IS USED TO PREVENT SEDIMENT FROM MOVING IN WATER BY ALLOWING IT TO DROP OUT OF SUSPENSION AND REMAIN WITHIN THE CONSTRUCTION AREA. IT IS TYPICALLY USED IN SHALLOW INUNDATED AREAS. IT MAY BE USED TO PROTECT A SMALL STREAM BEING REALIGNED OR RESTORED. IN THIS CASE, CURTAIN SHOULD EXTEND TO BOTTOM OF STREAMBED. THE HEIGHT SHOULD BE LIMITED TO 5 FEET UNLESS DIRECTED AND EXTEND 2 FEET ABOVE NORMAL WATER ELEVATION. IT SHOULD BE USED AS DIRECTED BY THE ENGINEER. THIS BMP IS ONLY TO BE USED WHEN PERMITTED FILL IS BEING PLACED INTO A STATE WATER, OR AS A SUPPLEMENT TO ADEQUATELY PLACED PERIMETER BMPs.
	LINE CODE 		IT MAY BE REFERRED TO AS A SILT BARRIER OR SILT CURTAIN.

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION

NOTE:

- DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
- FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs), REFER TO THE LATEST EDITION OF THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION'S, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".



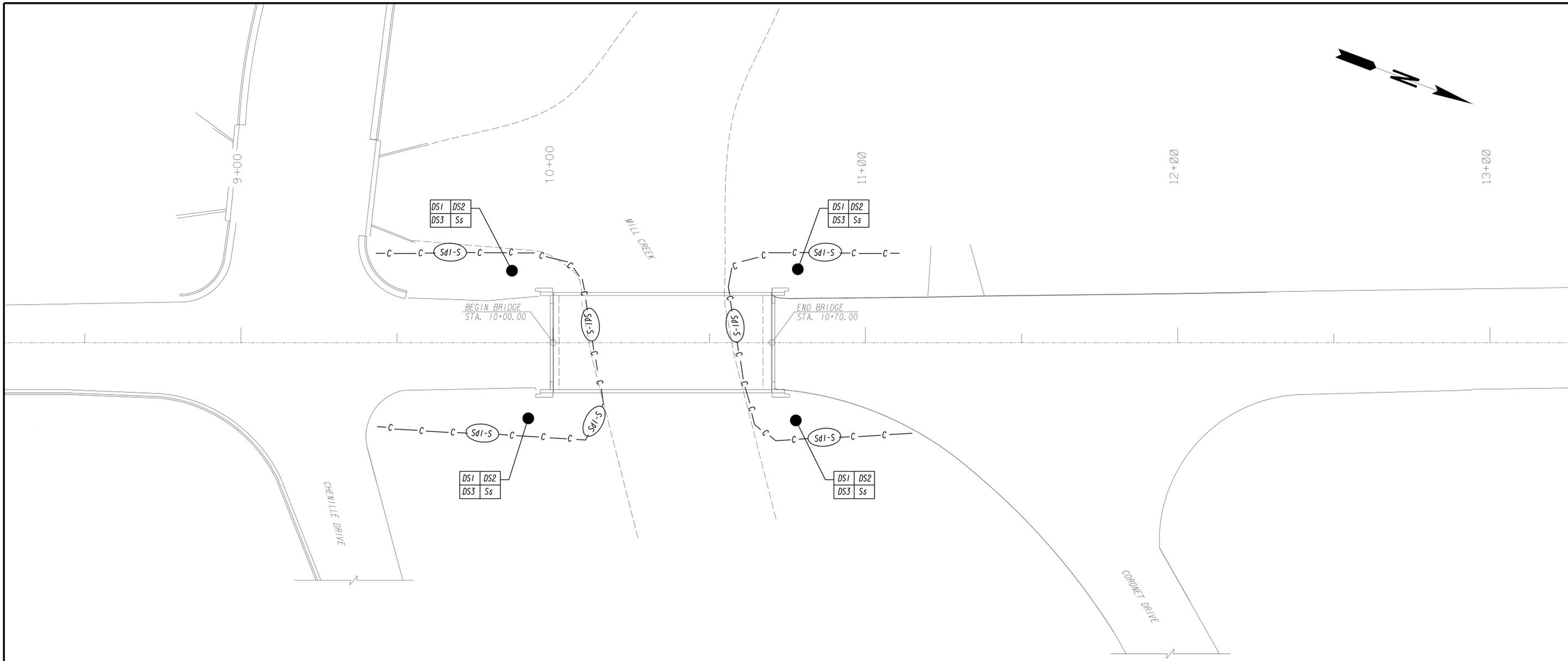
NO SCALE

REVISION DATES

3/2/2017		

EROSION CONTROL LEGEND
UNIFORM CODE SHEET
SHEET 7 OF 7

CHECKED:	D. EAGLETON	DATE:	01/01/16	DRAWING No.
BACKCHECKED:		DATE:		
CORRECTED:		DATE:		
VERIFIED:		DATE:		52-0007



EROSION CONTROL STAGING NOTES

THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING THE CONSTRUCTION SCHEDULE FOR THE PROJECT. THE CONSTRUCTION SCHEDULE FOR THIS PROJECT SHALL BE SUBMITTED AFTER THE PROJECT IS AWARDED. A COPY OF THE CONSTRUCTION SCHEDULE SHALL BE MAINTAINED AT THE PROJECT SITE.

THE PROJECT BUDGET INCLUDES SUFFICIENT FUNDS FOR THE PAYMENT OF CONSTRUCTION EXITS. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AT LEAST ONE (1) CONSTRUCTION EXIT PER SPECIFICATIONS OF THE CONSTRUCTION EXIT DETAIL INCLUDED IN THIS ESPCP. TO FACILITATE PROJECT LOGISTICS, THE CONTRACTOR IS ALSO RESPONSIBLE FOR SELECTING THE LOCATION(S) OF THE CONSTRUCTION EXIT(S).

INITIAL BMPS (STAGE 1): WORK IN THIS STAGE INCLUDES CLEARING, GRUBBING, AND INSTALLING INITIAL BMPS. INSTALL THE FOLLOWING BMPS PRIOR TO CONSTRUCTION:

1. INSTALL PERIMETER SILT FENCE AS SHOWN PRIOR TO CLEARING AND GRUBBING OPERATIONS INCLUDING J-HOOKS ALONG THE TOES OF SLOPE AS DIRECTED IN GDOT CONSTRUCTION DETAIL D-24C AND ADJUST SILT FENCE WHERE REQUIRED.
2. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING CONSTRUCTION EXITS.

INTERMEDIATE BMPS (STAGE 2): WHILE EARTHWORK IS PROGRESSING DO THE FOLLOWING:

1. PLACE TEMPORARY GRASSING AND MULCH AS NEEDED.
2. ADJUST PERIMETER SILT FENCE AS NEEDED.

FINAL BMPS (STAGE 3): AS SOON AS FINAL GRADE IS ESTABLISHED IN ANY AREA OF THE PROJECT INSTALL THE FOLLOWING:

1. PERMANENT GRASSING AND MULCH THROUGHOUT LIMITS OF CONSTRUCTION.

DISTURBED AREA = 0.10 ACRES



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

PONT ENGINEERING
 401 Augusta Drive
 Marietta GA 30067
 (770) 499-1161

DRAWN BY: SHG
 CHECKED BY: SHG

DATE: JUNE 2019
 DATE: JUNE 2019

CHATTANOOGA AVE. (CS 874) OVER MILL CREEK, CITY OF DALTON, GEORGIA
BMP LOCATION DETAILS

DRAWING NUMBER
 54-0001

EXHIBIT B:

SPECIAL PROVISIONS

150, 519, 521 AND 528

FOR THE

**CHATTANOOGA AVENUE BRIDGE
REPAIR PROJECT**

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

SPECIAL PROVISION

**Project: Chattanooga Avenue Bridge over Mill Creek,
Whitfield County; Bridge Serial No. 333-5051-0**

Section 150 – Traffic Control

Add the following Subsection to Section 150:

150.11 Special Conditions

- A. For this project, the advance warning signs specified in Subsection 150.03.G shall be portable signs. These signs shall be in place only during times that construction is in progress or as conditions warrant as directed by the Engineer. Signs shall be removed at all other times.
- B. Wing wall replacement work must be completed in one direction (Northbound or Southbound) prior to beginning the wing wall replacement work in the opposite direction.
- C. The Contractor shall submit a work plan that shows how the work will be accomplished. Standby equipment shall be provided to ensure the completion of the work by the specified time.
- D. The Contractor shall provide three (3) changeable message signs for use as needed. Cost for changeable message signs shall be paid for under Pay Item 632-0003 Variable Message Sign, Portable, Type 3. The Contractor shall also provide as dictated by field conditions, sequential flashing arrow signs in accordance with Special Provision 150 as included in the contract, applicable Georgia Standards and the MUTCD. See attached Georgia Standards Numbered 9106.
- E. A minimum concrete strength of 2500 psi is required on all concrete work prior to opening the bridge to traffic. If necessary, the contractor shall make modifications to the specified concrete class mix as allowed by the specifications to obtain the strength necessary to meet the required schedule.

Payment will be made under:

Item No. 150	Traffic Control -	Lump Sum
--------------	-------------------	----------

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

SPECIAL PROVISION

**Project: Chattanooga Avenue Bridge over Mill Creek,
Whitfield County; Bridge Serial No. 333-5051-0**

Add the following:

Section 519—TWO-PART POLYMER BRIDGE DECK OVERLAY

519.1 General Description

This work includes preparation of the bridge deck and furnishing and placing of a two-part polymer bridge deck overlay at the location and thickness as indicated on the plans. This bridge deck overlay system consists of a minimum 3/8 " (9.5mm) thick application to provide complete waterproofing as well as providing a non-skid surface that withstands continuous heavy traffic and extreme changes in weather conditions.

519.1.01 Definitions

A. Standard Specifications

General Provision 101 through 150.

[Section 107 – Legal Regulations and Responsibility to the Public](#)

[Section 504—Twenty-Four Hour Accelerated Strength Concrete](#)

[Section 886—Epoxy Resin Adhesives](#)

[Section 934—Rapid Setting Patching Materials for Portland Cement Concrete](#)

519.2 Materials

- A. Submittals:** Submit the bridge deck overlay materials to the Office of Materials and Research for approval. The Office of Materials and Research will grant approval based on laboratory test results and on the system's performance during a 2 year field evaluation.
- B. Pre-treatment:** Use pre-treatment only when recommended by the overlay manufacturer. Use pre-treatment consisting of a two-part hybrid polymer that is free of any fillers or volatile solvents and formulated to provide simple volumetric ratio of two components such as one to one or two to one by volume. Formulate the two-part hybrid polymer to provide a unique combination of extremely low viscosity and low surface tension coupled with an affinity for concrete and steel. Use two-part hybrid polymer pre-treatment having the following physical requirements when cured:

PHYSICAL PROPERTIES FOR CURED PRE-TREATMENT SYSTEM		
TEST	REQUIREMENTS	TEST METHOD
Compressive Strength	5,500 PSI (38MPa) min.	ASTM C 109
Tensile Strength	3,100 PSI (21MPa) min.	ASTM D 638
Tensile Elongation	30% min.	ASTM D 638
Water Adsorption	0.10% max.	ASTM D 570
Shore "D" Hardness	65 min.	ASTM D 2240
Pot Life	40-70 minutes	GDT-58
Adhesion to Concrete	100% failure in concrete	ACI-503-R (Pull Out Test)

- C. **Bridge Deck Overlay:** Use a bridge deck overlay consisting of a two-part polymer that is free of any fillers or volatile solvents and formulated to provide simple volumetric mixing ratio of two components such as one to one or two to one by volume. Use a two-part polymer system formulated to provide flexibility in the system without any sacrifice of the hardness, chemical resistance or strength of the system. Do not use external or conventional plasticizers. Introduce flexibility by interaction of elastomers to chemically link in the process of curing so that the flexibility of the molecule is minimally affected during the low temperature conditions that are confronted in actual use. Use a two-part polymer overlay system having the following physical properties when cured:

PHYSICAL PROPERTIES FOR CURED TWO-PART POLYMER OVERLAY SYSTEM		
TEST	REQUIREMENTS	TEST METHOD
Compressive Strength	7,000 PSI (48MPa) min.	ASTM C 109
Tensile Strength	2,500 PSI (17MPa) min.	ASTM D 638
Tensile Elongation	30% min.	ASTM D 638
Water Adsorption	0.20% max.	ASTM D 570
Shore "D" Hardness	60 min.	ASTM D 2240
Pot Life	15-40 minutes	GDT-58
Flexural Creep	0.0065" (0.17mm) in 7 days	California Method 419
Adhesion to Concrete	100% failure in concrete	ACI-503-R (Pull Out Test)

- D. **Aggregate:** Use bauxite, crushed porphyry, aluminum oxide or other similarly hard durable aggregates as recommended by the manufacturer and approved by the Engineer. Use embedded exposed aggregate conforming to the following gradation.

FINE AGGREGATE GRADATION	
SIEVE SIZE	% PASSING BY WEIGHT
No. 4	100
No. 20	0 – 5
No. 200	0 – 1.0

Broadcast coarse aggregate conforming to the following gradation over the first layer of-polymer, immediately prior to broadcasting fine aggregate.

COARSE AGGREGATE GRADATION	
SIZE	% PASSING BY WEIGHT
5/8"	98 - 100
1/2"	55 – 60
3/8"	12 – 14
1/4"	0 - 1

519.2.01 Delivery, Storage and Handling

Deliver all materials in their original containers, bearing the manufacturer's label, specifying date of manufacture, batch number, trade name brand, quantity and mixing ratio.

Store all materials to prevent damage from the elements and to insure the preservation of its quality and fitness for the work. Avoid contact with flame.

Inspect all stored materials, although accepted before storage, prior to their use in the work. Ensure that all stored materials meet the requirements of the Contract at the time of use.

Remove from the site of the work immediately, any material rejected because of failure to meet the required tests or rejected because of damage. Replace all removed material at no additional cost to the Department.

519.3 Construction Requirements

519.3.01 Preparation

A: Removal and Preparation of Repair Area

Sound all visual bridge deck defects of greater than 1" X 6" (25mm X 150mm) to determine the limits of the damaged areas. Strike the deck surface around the defect with a hammer, chain drag, or other similar tool to detect unsound concrete having a "flat" or "hollow" sound. Mark the limits of the defective areas on the deck by making a rectangular area 2 inches (50mm) beyond the outer limits of the unsound concrete area to serve as a guide for sawing. Mark spalled areas within less than 6 inches (150mm) of each other as one spall area.

Saw the rectangular marked areas with near vertical faces not less than one inch (25mm) in depth. Exercise extreme care not to saw or damage the reinforcing steel. Remove all unsound material within the sawed areas. Remove concrete to a minimum depth of $\frac{1}{2}$ inch (13mm) below the top mat of reinforcing steel by power chipping or hand tools. Do not use pneumatic hammers heavier than a 15 lb. class (nominal). Do not operate pneumatic hammers and chipping tools at an angle exceeding 60 degrees relative to the surface of the deck slab. Such tools may be started in the vertical position but must be immediately tilted to a 60 degree operation angle. Clean all exposed reinforcing steel of all rust, corrosion products, oil, dirt, concrete fragments, loose scale and any other coating of any character that would destroy or inhibit the bond with the patching material. Exercise utmost care not to damage or fracture the sound concrete substrate left on the bottom of the spall repair area. Do not use sharp pointed bits.

Hold "over-cutting" of the bridge deck beyond marked areas to the minimum amount possible. Thoroughly clean all "over-cutting" of "saw slurry" and other contaminants. Then repair by filling full-depth with an approved Type II epoxy adhesive as specified in Section 886. Make such repairs as soon as possible.

Just prior to placing the patching material, thoroughly clean the surfaces within the repair areas by abrasive blasting and air blasting to remove any oil, dust, dirt, slurry from saw operation, and other contaminants. Remove abrasives from the blasting operation from the bridge deck. During blasting, protect traffic in adjacent lanes.

B. Placement of Patching Material

Ensure that the Contractor uses Repair Method No. 1 or Method No. 2 as described below. For both repair methods, ensure that the surface within the repair areas is dry and thoroughly cleaned of all contaminants immediately before placement. Ensure that air compressors used for cleaning repair areas are equipped with suitable traps capable of removing all surplus water and oil in the compressed air. Do not use contaminated air. Ensure that the compressor is capable of delivering compressed air at a continuous pressure of 90 psi (620kPa).

Ensure that the finished surface meets a surface tolerance of $\frac{1}{16}$ inch (1.6mm). Utilize such approved measures as necessary to keep the deck surface adjacent to the patching operation reasonably clean of excess grout and other materials at all times. Unless otherwise specified, complete all patching operations and open all lanes to traffic before sunset each day.

1. **Repair Method No. 1 (24 Hour Accelerated Strength Concrete)**

After the repair area preparation is complete, completely coat all concrete surfaces within the repair area with a film of Type II epoxy at a thickness of 10 to 20 mils (0.25 to 0.50mm).

Use concrete that meets the requirements of Section 504. Mix the concrete on site. Use a mix design and mixing method approved by the Laboratory. Deposit concrete in the repair area while the epoxy is still tacky and vibrate sufficiently to form a dense, homogeneous mass of concrete, completely filling the area of the patch. Scream the concrete to the proper grade and allow to remain undisturbed until the water sheen disappears from the surface. Then cover the concrete with wet burlap or membrane curing compound. Ensure that curing continues for a minimum of 3 hours. The Engineer may require a longer curing time to ensure sufficient strength development of the concrete prior to opening to traffic.

2. **Repair Method No. 2 (Rapid Setting Patching Material)**

Follow the above requirements for Repair Method No. 1. Additionally, prepare the surfaces in the repair areas in accordance with the manufacturer's written recommendations. Ensure that handling, mixing, placement, consolidation, screeding, and curing of the patching material are in accordance with the manufacturer's written instructions as approved by the Laboratory. Ensure that curing continues for at least one hour and until the section is opened to traffic.

519.3.02 Construction

A: Surface Preparation: Clean the bridge deck by shotblasting to remove any oil, dirt, rubber or any other potentially detrimental material such as curing compound and laitance which may prevent proper bonding and curing of the material.

The Contractor is directed to Section 107 of the Standard Specifications giving the Contractor responsibility for the work site, and requiring conformance to all federal, state, and local laws relating to pollution control and worker protection. In particular, ensure that the Contractor is familiar with and in full compliance with the provisions of the laws concerning the management of waste and worker protection.

Do not allow construction traffic on any portion of the deck that has been shotblasted or on the overlay without specific approval of the Engineer. Overlay the deck surface-within 24 hours of the surface preparation operation.

Ensure that all surfaces to be overlaid are dry at the time of application. Immediately before applying the overlay system, clean all prepared surfaces with compressed air (or vacuum) to remove dust and debris. Ensure that the compressor is equipped with a filter to prevent oil in the air supply. Do not apply the overlay system when rain is forecast to occur within 24 hours of application. Do not apply the overlay system unless the minimum ambient temperature is 50° and rising.

If, in the opinion of the Engineer, the surface has become soiled or contaminated prior to the application of the overlay, re-clean the surface to the satisfaction of the Engineer at no additional cost to the Department.

B. Field Test: Prior to commencing the overlay operation, place a test area of overlay on the bridge deck. Prepare the area for the test overlay as described above. Ensure that the test is large enough so that the cleaning equipment and methods to be employed in the full-scale operation can be used for the field test. Ensure that the degree of cleaning used on the test area is the minimum used on the remainder of the structure. Use the application of the overlay system to the test area to establish proper procedures and techniques for applying the overlay to the full structure.

After the test area has cured for 72 hours, check adhesion in accordance with ACI 503R-1980. Test a minimum of three sample areas. Ensure that no adhesion test has an adhesive strength less than 250 psi (1725kPa) and that the minimum average value for the 3 tests is greater than 300 psi (2070kPa).

If the test of a sample area fails to meet the above requirements due to a cohesive failure of the concrete substrate, the adhesive strength of the sample area will be considered acceptable. Successful completion of the adhesive strength tests will be required before the full-scale overlay operation is to begin.

- C. Application:** Provide suitable coverings, such as heavy duty drop cloths, to protect all exposed areas not to be overlaid, such as curbs, railings, parapets, deck drains, locations of expansion joints that are to receive expansion joint membranes, etc. Clean or repair any damage or defacement resulting from the application, at the Contractor's expense, to the satisfaction of the Engineer.

Ensure that application of the overlay system is done by the supplier, or by a factory trained or licensed applicator, with written approval from the manufacturer of the overlay system.

Ensure that each component of the two-part polymer is metered, mixed together, and distributed onto the deck by machine. Ensure that the dispensing machine is capable of ratio check verification at the pump outlets as well as cycle counting to monitor output. Ensure that the in line mixing is motionless so as not to overly shear the material. Ensure that the machine makes maximum use of the working time of the polymer by mixing it immediately prior to dispensing onto the deck.

Ensure that the number of layers and the application rates of the materials in the various layers are as recommended by the manufacturer in order to achieve a minimum $\frac{3}{8}$ " (9.5mm) and maximum $\frac{1}{2}$ " (13mm) overlay thickness when measured from the top of the concrete substrate to the top of the polymer (not the peaks of the aggregate). Ensure that the application of the overlay system is as follows:

1. **APPLICATION OF POLYMER:** After mixing of the components, evenly distribute on the clean, dry deck surface at the rate recommended by the manufacturer.
2. **APPLICATION OF AGGREGATE:** After application of each layer of polymer, allow a minimum lapse period as required by the manufacturer's instructions before broadcasting the aggregate. Ensure that the method and rate of aggregate application is in accordance with the manufacturer's recommendations.
3. **CONSOLIDATION:** If required by the manufacturer, use a hand operated roller as approved by the Engineer and the manufacturer within 10 minutes of the aggregate application to evenly consolidate the aggregate into the polymer.
4. **REMOVAL OF EXCESS AGGREGATE:** After initial cure, remove excess aggregate by a power vacuum or other Engineer approved method prior to the application of subsequent layers of polymer.
5. **APPLICATION OF ADDITIONAL LAYERS:** Additional layers may be applied immediately after the initial set of the preceding layer (as determined by the Manufacturer and Engineer) and removal of all excess aggregate. The maximum time allowed between each layer shall be at the discretion of the Engineer and the Manufacturer and may vary depending on the temperature and circumstances of the project. Ensure that joints are staggered and overlapped between successive layers so that no ridges will appear.
6. **TRAFFIC CONSIDERATIONS:** Traffic may be allowed on the final layer after the polymer has reached its final cure (as determined by the Manufacturer) and after removal of all excess, loose aggregate.
7. **OVERLAY SURFACE:** Ensure that the finished surface consists of a uniform coat of imbedded exposed aggregate.

519.3.03 Quality Acceptance

A: Thickness Verification

Ensure that the overlay is at least $\frac{3}{8}$ " (9.5mm) thick as measured from the concrete substrate to the top of the polymer at three random locations for every 1000 yd² (830 m²) of surface area. Recoat thin areas as described above and re-verify thickness at no additional cost to the Department. This verification may consist of cores, holes, etc., but in all cases repair any areas tested to destruction before final acceptance.

In thin areas that have been recoated to obtain the required minimum thickness, the Engineer may require additional adhesion strength tests in accordance with ACI 503R-29 to verify the Contractor's procedure for recoating existing overlay.

519.3.04 Contractor Warranty and Maintenance

The polymer manufacturer and the Contractor, by acceptance of the work described in this Specification, shall jointly agree to guarantee the wearing surface against all defects incurred during normal traffic use for a period of ten years. Submit this agreement in writing to the Engineer signed by both the polymer manufacturer and the Contractor. Commence the ten year period on the date of acceptance of the work. The guarantee shall cover all labor and materials required by the Department to satisfactorily repair and replace the wearing surface.

519.4 Measurement

519.4.01 Surface Preparation:

Measure the area of the deck acceptably repaired and blast cleaned prior to installation of the overlay in square yards (meters) computed from surface measurements taken to the nearest 0.1 foot (30mm). Do not measure the blast cleaning of any longitudinal or transverse construction joints or vertical surfaces for payment.

519.4.02 Polymer Overlay:

Measure the area of the deck acceptably overlaid with polymer and broadcast spread crushed aggregate in square yards (meters) computed from surface measurements taken to the nearest 0.1 foot (30mm).

519.5 Payment

519.5.01 Surface Preparation:

Surface preparation is paid for by the square yard (meter) of the deck acceptably repaired and blast cleaned prior to installation of the overlay. Payment includes all expenses associated with removal of existing concrete, repair and blast cleaning operations.

519.5.02 Polymer Overlay:

Polymer overlay is paid for by the square yard (meter) of the deck overlaid, complete in place and accepted, provided, however, that the specified minimum overlay thickness requirement is met. The individual layers necessary to attain the specified thickness will not be paid for individually. Payment includes all labor and material cost, procurement, handling, hauling and processing, coring for thickness verification, guarantee, and includes all equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

Item No. 519	Surface Preparation	Per square yard (meter)
Item No. 519	Concrete Overlay	Per square yard (meter)

Item No. 519-0515 Surface Preparation per Square Yard (Meter)

Item No. 519-0530 Polymer Overlay per Square Yard (Meter)

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

SPECIAL PROVISION

**Project: Chattanooga Avenue Bridge over Mill Creek,
Whitfield County; Bridge Serial No. 333-5051-0**

SECTION 521 – PATCHING CONCRETE BRIDGE

Add the following:

521.1 General Description

This work includes patching of substructure or superstructure concrete bridge components by removing the concrete, cleaning existing reinforcement, adding supplemental reinforcement when required, and patching with approved conventional or accelerated Portland cement concrete or rapid setting patching materials according to this Specification and as shown on the Plans.

521.1.01 Definitions

General Provisions 101 through 150.

“Sound” – the act of striking a concrete surface with a chipping hammer or similar tools to detect unsound concrete.

521.1.02 Related References

A. Standard Specifications

Section 500—Concrete Structures

Section 504—Twenty-Four Hour Accelerated Strength Concrete

Section 511—Reinforcement Steel

Section 853—Reinforcement and Tensioning Steel

Section 886—Epoxy Resin Adhesives

Section 934—Rapid Setting Patching Materials for Portland Cement Concrete

B. Referenced Documents

QPL 10

QPL 27

521.1.03 Submittals

General Provisions 101 through 150.

521.2 Materials

Ensure that the materials used to repair and patch bridge components meet the following requirements:

A. Portland Cement Concrete Patching Materials

1. Conventional Portland Cement Concrete (Repair Method 1)
 - a. Use Class “A” or Class “AA” concrete or as indicated on the Plans.
 - b. Meets the requirements of Section 500 of the Specifications.
 - c. Use concrete manufactured at plants that qualify as approved sources according to the Standard Operating Procedure for Ready Mix Concrete. See QPL 10 for a list of approved plants.
2. Twenty-Four Hour Accelerated Strength Concrete (Repair Method 2)
 - a. Meets the requirements of Section 504 of the Specifications, except that the use of a portable concrete mixer is required.

B. Rapid Setting Patching Materials (Repair Method 3)

1. Use rapid setting patching materials meeting the requirements of Section 934. See QPL 27 for a list of approved patching materials. Patching materials not listed on QPL 27 will require testing and approval by the Office of Materials and Research before use.
2. When shown on the Plans, use Type III rapid setting patching material to patch vertical and overhead repair areas.

521.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

521.3 Construction Requirements

521.3.01 Personnel

General Provisions 101 through 150.

521.3.02 Equipment

To clean the repair areas, use air compressors equipped with traps that can remove surplus water and oil in the compressed air. Ensure that the compressor can deliver compressed air at a continuous pressure of at least 90 psi (620 kPa).

The Engineer will check the compressed air daily for contamination. Do not use contaminated air.

521.3.03 Preparation

A. Limits of Repair

Repair all patches as shown on the Plans and as directed by the Engineer.

B. Concrete Removal

1. Remove concrete to a minimum depth of 3¾” inches or as shown on the Plans with power chipping or hand tools. Pneumatic hammers heavier than 15 lb. class nominal (30 lb. maximum) are not permitted. Exercise extreme care not to saw or damage the reinforcing steel.
2. Operate pneumatic hammers and chipping tools at an angle not to exceed 60 degrees relative to the surface of the concrete. After starting the tool in the vertical position, immediately tilt the tool to a 60 degree operating angle.
3. Do not damage or fracture the sound concrete substrate to be left on the bottom of the patch area. Do not use sharp pointed bits.

C. Surface Preparation

1. Clean all exposed reinforcing steel of all rust and corrosive products including oil, dirt, concrete fragments, loose scale and any other coating of any character that would destroy or inhibit the bond with the patching material.
2. Immediately before placing the patching material, thoroughly clean the surfaces within the repair areas by sandblasting and air blasting to remove oil, dust, dirt, slurry from saw operation, and other contaminants.
3. Place formwork as required to complete patch repair. Provide access in formwork for placement of patch material.
4. Ensure that the finished surface meets a surface tolerance of 1/16 in. (1.5 mm).
5. Use approved measures as necessary to keep the adjacent concrete surfaces free of excess grout and other materials.

521.3.04 Fabrication

General Provisions 101 through 150.

521.3.05 Construction

A. Concrete Patching

Patch concrete safely and rapidly to minimize inconvenience to the traveling public.

1. Accomplish this work with other operations in progress within an area if possible.
2. Remove and replace completed patches that contain cracks, shrinkage, compression failures, or are damaged by construction or traffic before Final Acceptance at no cost to the Department.

B. Placing Patching Material

Only use Repair Method 1 with the class of concrete on bridge components designated on the Plans.

Use Repair Method 2 unless the Engineer gives written approval to use Repair Method 3. Use Repair Method 1 and 2 when the average daily temperature is 50 °F (10 °C) or above. Use of Repair Method 3, if approved, is limited to the manufacturer's written recommendations.

For the following repair methods, begin the placement when the surface within the repair area is dry and thoroughly free of contaminants.

1. Repair Method 1: Conventional Portland Cement Concrete
 - a. Completely coat the concrete surface areas within the repair area with a film of Type II epoxy adhesive as specified in Section 886 approximately 10 to 20 mils (0.25 to 0.50 mm) thick or according to the manufacturer's written recommendations.
 - b. Deposit the concrete in the repair area while the epoxy is still tacky. Vibrate it to form a dense, homogeneous mass of concrete that completely fills the patch area.
 - c. Screed the concrete to the proper grade and do not disturb it until the water sheen disappears from the surface.
 - d. Cover the concrete with wet burlap or membrane curing compound. Allow the curing to continue until the required minimum design compressive strength is achieved as designated by the class of concrete used or as shown on the Plans. Complete curing prior to transferring load to the repaired section.
2. Repair Method 2: Twenty-Four Hour Accelerated Strength Concrete
 - a. Prepare, remove and place as outlined in Subsections 521.3.03 and 521.3.05.B and 521.3.05.B.1.
 - b. Mix the concrete on site in a portable mixer of adequate capacity. Obtain approval for the mix design and mixing method from the Office of Materials and Research.

- c. The material must meet a slump range of 1.0 to 3.0 in. (25 to 75 mm).
3. Repair Method 3: Rapid-Setting Patching Material
- a. In addition to the requirements outlined in Subsection 521.3.03, prepare the surfaces in the repair areas according to the manufacturer’s written recommendations.
 - b. Perform the patching material handling, mixing, placing, consolidating, finishing, and curing according to the manufacturer’s written recommendations as approved by the Office of Materials and Research.
 - c. Continue curing until a minimum design compressive strength of 3,500 psi (20 MPa) or as shown on the Plans is achieved. Complete curing prior to transferring load to the repaired section.

C. Special Requirements

The following special requirements apply to this work:

- 1. During sandblasting, protect traffic in adjacent travel lanes.
- 2. After the sandblasting operations:
 - a. Thoroughly clean the area to be repaired with compressed air.
 - b. Remove sand from the sandblasting operation from adjacent concrete surfaces.
- 3. Do not “over-cut” concrete surfaces beyond marked areas whenever possible.
- 4. Remove saw slurry and other contaminates from the over-cutting.
- 5. Repair the over-cuts by filling full-depth with an approved low-viscosity epoxy compound using a Type II epoxy adhesive specified in Section 886. Make these repairs as soon as possible.

521.3.06 Quality Acceptance

General Provisions 101 through 150.

521.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

521.4 Measurement

The area measured for payment is the number of square feet (meters) of patching complete in place and accepted.

521.4.01 Limits

General Provisions 101 through 150.

521.5 Payment

The area measured as specified above will be paid for at the Contract Unit Price per square foot (meter). Payment is full compensation for equipment, tools, labor, incidentals to complete the work, including but not limited to:

- Removing existing patching material or the spalled, broken, or damaged concrete
- Cleaning the open area by sandblasting
- Furnishing, placing, finishing, and curing the patching material
- Supplemental reinforcement

Payment will be made under:

Item No. 521	Patching concrete bridge	Per square foot (meter)
--------------	--------------------------	-------------------------

521.5.01 Adjustments

General Provisions 101 through 150.

Bridge Management Unit

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

SPECIAL PROVISION

**Project: Chattanooga Avenue Bridge over Mill Creek,
Whitfield County; Bridge Serial No. 333-5051-0**

Section 528 – Epoxy Pressure Injection of Concrete Cracks

528.1 General Description

This work consists of labor, material, equipment, and services necessary for repairing concrete cracks. The Plans will specify or the Engineer will determine the extent of repair. The work shall comply with the Specifications including Special Provisions where applicable.

528.1.01 Definitions

General Provisions 101 through 150.

528.1.02 Related References

A. Standard Specifications

[Section 886-Epoxy Resin Adhesives](#)

B. Referenced Documents

General Provisions 101 through 150.

528.1.03 Submittals

General Provisions 101 through 150.

528.2 Materials

Ensure epoxy used for crack repair complies with the requirements of Section 886, Type V epoxy adhesive.

Ensure epoxy used for sealing cracks at the surface is strong enough to withstand injection pressures up to 250 psi (2 MPa).

528.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

528.3 Construction Requirements

528.3.01 Personnel

General Provisions 101 through 150.

528.3.02 Equipment

A. Injection Equipment

Ensure that dispensing equipment for the injection complies with the following performance requirements:

- Self-monitor pressures of 250 psi (2 MPa) for extended periods under flow.
- Maintain a ratio of accuracy of one percent at the required pressures.
- Mix in-line using a static mixing head.

When using screen wire, wire brushes, or other elements for mixing, provide independent certification that the material is mixing thoroughly at the flow rate and temperatures for the job. Also demonstrate that the unit will not dispense resin if the material line is blocked on the supply or dispense side of the system.

528.3.03 Preparation

Before repairing the cracks specified on the Plans, prepare the concrete surfaces next to the cracks by exposing clean and sound concrete.

The exact procedures for exposing clean and sound concrete shall be the Contractor's option and responsibility. However, the procedures must comply with any traffic handling and construction sequencing requirements for the Project.

528.3.04 Fabrication

General Provisions 101 through 150.

528.3.05 Construction

Seal concrete cracks as follows:

1. After preparing the concrete surfaces, seal the cracks at the surface with epoxy. Port spacing, location, and port type shall be the Contractor's option and responsibility.
2. If the voids are not thoroughly penetrated, use the following procedure:
 - a. Wet core on 8 in (200 mm) centers the holes that are 1/2 in (13 mm) diameter and 3/4 in (19 mm) to 1 in (25 mm) depth.
 - b. Insert into the cored holes to the full depth copper or plastic tubes 1/2 in (13 mm) diameter and notched at the base.
 - c. Seal the circumference of the ports at the surface.
 - d. Inject the epoxy at a constant pressure not to exceed 250 psi (2 MPa) for at least 10 minutes or until penetration occurs.
3. After the injection operation is complete, clean the sealed cracks to the original concrete surface.
4. Remove nipple devices and surface sealers over the injection holes.

528.3.06 Quality Acceptance

General Provisions 101 through 150.

Section 528 – Epoxy Pressure Injection of Concrete Cracks

528.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

528.4 Measurement

Epoxy pressure injection of concrete cracks is measured for payment by lineal foot of concrete crack repaired, and includes all materials, equipment and labor necessary to complete the work.

528.4.01 Limits

General Provisions 101 through 150.

528.5 Payment

Payment for epoxy pressure injection of concrete cracks as specified above is paid for at the Contract Unit price bid per lineal foot. Such payment is full compensation for furnishing all equipment, labor and materials and performing the work in accordance with the Plans and Specifications. Payment will be made under:

Item No. 528	Epoxy Pressure Injection of Concrete Cracks	Per lineal foot
--------------	---	-----------------

OFFICE OF MAINTENANCE