Augusta GEORGIA

Procurement Department

Mrs. Geri Sams, Director

CERTIFIED MAILED

TO: All Vendors
Tywanna Scott, Interim, Procurement Assurance Analyst
Hameed Malik, Augusta Engineering Department

FROM: Geri A. Sams
Director of Procurement

DATE: May 10, 2022

SUBJ: **New RFP Opening Date and Responses to Vendor's Questions**

RFP ITEM: **RFP Item #22-195 13th Street Improvement Project and Telfair Street Improvement for Augusta, GA – Engineering Department**

NEW RFP OPENING DATE: Thursday, May 19, 2022 @ 3:00 p.m.

ADDENDUM NO. 2

This Addendum shall form a part of the referenced RFP Item #22-195 13th Street Improvement Project and Telfair Street Improvement for Augusta, GA – Engineering Department and any agreement entered into in connection therewith equally as if bound into the original document. Acknowledge receipt of all Addendums on Attachment "B" within the Specifications package.

The RFP Opening Date for RFP Item #22-195 13th Street Improvement Project and Telfair Street Improvement for Augusta, GA – Engineering Department has been changed:

From: Thursday, May 12, 2022 @ 3:00 p.m.

To: Thursday, May 19, 2022 @ 3:00 p.m.

Responses to Vendor's Questions:

1. Question: Will both projects (13th Street and Telfair Street) be awarded to one single contractor or is there a chance the projects will be awarded separately to 2 different contractors?
   Answer: It will be awarded to one contractor.
2. Question: Is the Grand Total the basis of low bid?
   Answer: This will be a Qualification based award, Fee Proposal price is one of the scoring criteria. Evaluation Criteria is outlined in RFP.
3. Question: Will NTP be given on the same date for both projects?
   Answer: Assume NTP will be given on the same date for both projects. 13th street improvement shall commence and substantially completed first followed by Telfair St. Improvements. However, Utility and Storm sewer work at Telfair Street can commence prior to substantial completion of 13th street improvement project as approved by Augusta Engineering Project Manager.
4. Question: Is the 540 Calendar Day's time of completion for both projects combined? If NTP is given separately for each project, can the completion time for each project be independent of one another?
   Answer: Completion Duration for both projects has been revised to 960 calendar days. Assume, 14 months for 13th street project and 18 months for Telfair Street Project. Schedule shall be discussed with the selected contractor for construction staging on each project to minimize the interruption of traffic and business.

5. Question: Have utility relocations on each project started? What is the expected utility relocation schedule for each project?
   Answer: Yes, NTP has been given to the utility contractor. Utility Relocation plan shall be discussed with the selected contractor, Contractor will be responsible to coordinate the utility relocation. AED is open to discuss the Utility adjustment schedule with the selected contractor.
6. Question: The grading complete note at the end of the bid form mentions several items that would be difficult for the contractor to quantify at bid time. If any of these items mentioned need to be completed, can pay items be added?
   Answer: Assume, No
7. Question: Will all storm pipes get 6" of foundation backfill material type II per GC-26 or will this pay item be as directed?
   Answer: Yes, the 6" is the minimum requirement; however, and additional quantity has been included to be used as directed.
8. Question: Does the contractor have to submit an itemized breakdown of only grading complete lump sum items? Can this be completed after the bid is awarded to a contractor?
   Answer: Breakdown is required with the fee proposal.
9. Question: Will a field office be required for this project? If so, can a pay item be added?
   Answer: Assume, not required.
10. Question: What are the allowable work hours?
    Answer: Please refer GC – 67.
11. Question: Can a pay item be added for the removal of all existing street lighting systems?
    Answer: Assume, removal of existing lighting systems will be part of grading complete.
12. Question: What is the specification for the required local sand or sand-gravel backfill required under the new sidewalks?
    Answer: See Special Provision 213 included in the proposal documents.
13. Question: Also, can a typical detail be provided for all excavation and backfill of storm pipe under existing pavement that is to remain and/or be resurfaced?
    Answer: See attached GDOT standard drawing 1401.
14. Question: Fee Proposal Form currently is ten pages that must be hand filed: Can you provide this in fillable PDF or excel?
    Answer: No.
15. Question: Fee Proposal form numbering does not match AUD Measurement & Payment 2017 section numbering.
    Answer: Disregard AUD Measurement & Payment 2017 in the proposal Specifications. Refer to Special Provisions 660 and 670 for water and sewer specifications.
16. Question: What is the Measurement and Payment definition for items 207-0203 and 213-1000 on page 2 0f 12 of the Fee Proposal?
    Answer: See GDOT section 207 special provision 213 for 213-1000.
17. Question: Is there a missing header and/or items middle of page 8 of 12 Fee Proposal after line item 654-1003?
    Answer: No.
18. Question: AUD Measurement & Payment 2017 lists Item LS-6 As -built GPS Survey but this does not appear on the Fee Proposal.
    Answer: Disregard AUD Measurement & Payment 2017 in the Proposal Specifications. Refer to Special Provisions 660 and 670 for water and sewer specifications.
19. Question: Drawing 27-0007 13th Street lists line items for Traffic Signals but they do not appear on the Fee Proposal.

Answer: All signal quantities are in the fee proposal, some pay items are the same items used in other groups (conduits, directional bores) so the quantities may be combined. Assume, Traffic hand hold to be part of Grading Complete.

20. Question: Drawing 27-0001 Telfair Street lists actives for Traffic Signals but they do not appear on the Fee Schedule.
Answer: See note 5 on sheet 27-0001 for Telfair.

21. Question: AUD Measurement & Payment lists LS-2 Bonds but these are not listed on the Fee Schedule. Payment and Performance Bond are 100% paid for and complete at contract award.
Answer: Disregard AUD Measurement & Payment 2017 in the RFP Specifications.

22. Question: Statement page 11 of 12 Fee Proposal on GRADING COMPLETE attempts to limit or eliminate concealed conditions. While these item cover what normally would be expected to be encountered. Do truly concealed conditions warrant and contractual change?
Answer: In urban downtown areas, unknown concealed conditions are inevitable. The removal and disposal of unknown concealed objects will be included in the item of grading complete and will not warrant a contractual change unless it is determined that the encountered object cannot be removed using normal demolition means and methods. An example of a condition that would warrant a contractual change would include hazardous materials, asbestos, historical or archeological artifacts, or similar objects that require special removal and handling procedures. Any natural features such as rock, or typical items to be expected when excavating in urban downtown areas and should be accounted for in the proposal price for grading complete.

23. Question: Are there any restrictions on detours?
Answer: See 20-series sheets and traffic control note 1 on sheet 04-0002.

24. Question: Does the Traffic Control Plan need to be submitted or approved by any authority other than the Department?
Answer: No, Assume, AED Traffic is only responsible to approve the traffic control plans.

25. Question: Are there any impacted School Zones?
Answer: Yes, there are schools on both project, contractor is responsible to check with the school and work around school pickup and drop off time.

26. Question: Are there any special conditions regarding railroads?
Answer: See general note 23 on plan sheet 04-0001. Assume, contractor shall be responsible to Encroachment and Right of Entry permit.

27. Question: Page 12 of 12 Fee Proposal *** LS (Lump Sum) is reference to what? **Answer:**
Answer: Assume, for any LS item in the fee proposal, Itemized breakdown in required.

28. Question: GC-16-2 Calls for joints at existing pavement to be paid for under item Sawed Joints per Linear Foot. Item does not appear in the Fee Proposal.
Answer: All saw cutting is included in grading complete.

29. Question: How is the Bid Bond to be submitted? Is the original submitted with the original proposal and copies included in the seven copies to be submitted, or is one original sufficient?
Answer: There should be a bid bond in the original packet and the 7 copies packet.

30. Question: How are LSBOP forms to be submitted? Are the originals submitted with the original proposal and copies included in the seven copies to be submitted, or is one original sufficient?
Answer: All LSBOP Forms should be in a separate seal enveloped marked with LSBOP Forms.

31. Question: Typically, on scored proposals pricing is held in the sealed envelope until all technical/evaluation proposals are scored. Once these are scored submitters are notified of their score, and sometimes of other submitters scores. Price proposals are then unsealed, oftentimes in a public opening. This provides complete transparency and prevents the possible suggestion that price proposals were opened while the technical/qualifications proposals are being scored and possibly affecting the score of the technical/qualification proposals. At what stage of evaluations will

technical/qualification proposal scores be provided to submitters and the public. At what stage of evaluations will prices be unsealed and be provided to submitters and the public?
Answer: The names of the respondents of the RFP will be identified at the proposal opening; however, no proposal will be handled to permit disclosure of the detailed contents of the responses until after award of contract. The fee proposal is disclosed as part of Phase II Criteria.
Phase Two Criteria
(Rank the company that best address scope of service/ technical proposal as outlined in the specifications to be in the best interest of Augusta, Georgia).
After an initial screening process, a technical question and answer conference or interview will be conducted, if deemed necessary, to clarify or verify the offeror's proposal and to develop a comprehensive assessment of the proposal. Offerors will present their proposals and demonstrate their offered products to the Evaluation Committee. This process will result in the selection of the successful vendor who, through contractual agreements will undertake the scope of work.
Price information shall be separated from the proposal in a sealed envelope and opened only after the proposals have been reviewed and ranked. The names of the respondents will be identified at the proposal opening; however, no proposal will be handled to permit disclosure of the detailed contents of the responses until after award of contract.
Following the tabulation of phase 2 screening process, technical questions and answer conference or interview scoring, if deemed necessary. The fees are then disclosed and added to the Phase II scoring as the final step.

32. Question: General Note 12 on both plan sets state "The owner reserves the right to salvage any existing items or materials to be removed from the project." Please provide a list of items that may require salvaging including any milled/removed asphalt and/or concrete.
Answer: Does not include RAP. The decision to salvage removed items will be on a case-by-case basis but will include objects like granite curbs, light poles, fire hydrants, and may also include manhole rings, and sections of removed pipes, etc. if the object is suitable for salvaging

33. Question: Is a soil survey or other geotechnical evaluations available?
Answer: A pavement evaluation was performed for several of the downtown TIA projects. A geotechnical study was completed for the bridge area on 13th Street. These can be provided. Refer attachment

34. Question: Have utility companies been coordinated with?
Answer: Yes. Refer to question #5 listed above.

35. Question: Is a Utility Adjustment Schedule available?
Answer: Utilities adjustment schedule will be provided to selected contractor. Refer to question #5 listed above.

36. Question: Has the railroad been coordinated with?
Answer: Yes, see general note 23 on the 13th Street and general note 24 on Telfair St

37. Question: Who provides and pays for railroad flagging? If it is the contractor, please provide sufficient information (company name, flagging hours, notice requirements, costs, etc. to determine appropriate costs to include in his bid.
Answer: Assume, Contractor is responsible for railroad encroachment and right of entry permit. Contractor shall coordinate with CSX railroad.

38. Question: Is contractor required to provide railroad insurance? If yes, please provide sufficient information to determine coverages required including number of trains per day, how many trains per day are passenger and how many are freight, speed of trains, etc.
Answer: Assume yes. Contractor is responsible to coordinate with CSX for the details.

39. Question: Who is responsible for completing work within the railroad right of way? Who is responsible for completing work between the railroad tracks?

Answer: For 13th the contractor awarded for this RFP is responsible. A paving exception over the railroad tracks is shown on the E/A profiles in the 18 series of the plans. There is no paving between the tracks. For Telfair Street the contractor will pave up to 1' beyond the curb and gutter limits. The work between the tracks will be handle with the 6th project.

40. Question: What impacts, if any, of the current supply chain issues were contemplated when determining construction time? If none, should contract time be reconsidered in light of the current supply chain issues?
Answer: See question# 4 for construction days extension. AED is open to additional time extension if such situation arises. AED will require detailed memo from contractor

41. Question: Given the current supply chain issues and reinforced concrete pipe supplier's inability to adequately and timely supply material are alternates to reinforced concrete pipe allowed? If yes, please provide any required additional backfill and bedding requirements.
Answer: No, concrete pipe is required

42. Question: Given the current commodities market can the GDOT AC index be included in this project?
Answer: No, see note 13 on sheet 04-0001.

43. Question: How are sidewalks to be constructed when they intersect driveways. Project plans show instances of having ADA ramps, and not having ADA ramps. Please clarify if there is a standard method of construction or per plans.
Answer: Contractor to construct per plans.

44. Question: Driveway construction appears to show header curb from the street curb & gutter to the right-of way. It is assumed this is paid under the line item for Header Curb. Please confirm
Answer: See GDOT standard drawings A-1 and A-2 for driveway payment limits.

45. Question: There are no line items for Water Quality Monitoring or Water Quality Inspections as required per specifications provided in the proposal.
Answer: Assume this is being covered either by AED or a 3rd party during construction.

46. Question: There is no line item for Convert Existing Catch Basin to Manhole as required per project plans.
Answer: This is covered under Pay Item 611-3030.

47. Question: There is no line item for Convert Existing Catch Basin to Junction Box as required per project plans
Answer: This is covered under Pay Item 611-3000.

48. Question: There are no line items for Aggregate Surface Course. Given the nature of this work this material will be required
Answer: Permanent aggregate surfaces warranting an aggregate surface course item will not be required. Material needed for temporary purposes can utilize item 213-1000.

49. Question: There are no line items for concrete driveway construction.
Answer: Per GDOT details A1 & A2, the valley gutter quantity includes up to the back of the sidewalk. The driveways are accounted for in the valley gutter line items (441-402 or 441-440).

50. Question: On the Thirteenth St bid form there is no line item for 611-8170 Adjust Hand Hole Box to Grade as required per project plans
Answer: Assume, Traffic handhole will be part of Grading Complete, However Utilities companies are responsible for their handhole box.

51. Question: Specifications state Owner may require Contractor provide a field office. Is a field office required for this project? If so, please provide minimum requirements.
Answer: No, not required.

52. Question: Can the voltage drop for this project can be 5% or less instead of 3%? The wire sizing will be significantly bigger if we are required to have less than 3% voltage drop and 5% is typically acceptable.
Answer: No.

53. Question: Please provide Silva Cell layouts for each planting bed.
Answer: No layout will be provided for Silva Cells as part of this proposal set. If selected as an alternate, LA will review and approve shop drawings.

54. Question: Plans state structural backfill is an approved equal to Silva Cells. Please provide material requirements for the structural backfill as well as dimensions and depths for the structural backfill.
Answer: Columbia University (CU) Structural Soils are an approved equal. See chart for recommended root area per tree based on size (Small, medium, Large) in tree schedule.

55. Question: Stalk flowers are not listed in the plant list but are on the plans and no size is given? Please clarify.
Answer: Provide all plants in stalk flower mix in 1-gallon containers, excluding allium which should be provided as a 20-22cm bulb.

56. Question: Please provide material specifications for root barriers.
Answer: Provide Deep root UB 18-2 or equivalent.

57. Question: Daffodils shown on the plant list for the daffodil mix lists them as 4" pots. Should these be listed as bulbs instead of 4" pots?
Answer: Yes. Daffodils shall be provided as DN1 Bulbs.

58. Question: On the relocation of water meters – Will AUD allow us to connect on as shown of the plans and extend to new location? Or will these service lines need to be replaced complete back to corp stop?
Answer: Replace back to corp stop, the service line shall be laid in a straight line and be of a continuous piece of pipe from corporation to curb cock and shall not exceed 100 feet in length from the main to the meter. No service line fittings shall be placed under the roadway. If the connection is to the end of the curb cock as an extension out of the roadway that adjustment is allowable just no connector or fitting underneath the roadway on a service line

59. Question: Will Fernco connectors be allowed for connections to existing clay sewer mains & services?
Answer: No fernco style connectors, for main-to-main connections use of max adaptors for material and differences and/or PVC connectors for services is allowable.

60. Question: Will we be allowed to detour traffic around streets while working in the roadway? Or will these need to be lane closures?
Answer: Details for detours and lane closures are included in the plans. Staging was intended to maintain traffic as much as possible. Assume, traffic must be maintained at any times, no complete closure is allowed.

61. Question: Where a proposed new manhole will be going on an existing brick arch culvert – will a doghouse be allowed for this installation?
Answer: No

62. Question: On Telfair St Plan Sheet 24-0007 there is a hatched area at approximate Sta. 129+00 Left. Please clarify what the hatching is supposed to designate
Answer: See legend at bottom of sheet

63. Question: Is AUD going to make the contractor bring existing utilities up to spec? Say for instance, the meter vaults that need to be adjusted. Will we adjust the existing vault hatch? Or will we need to provide a new hatch that meets the current AUD specifications. Same can be said for the services they show to connect on to and extend. If these for some reason are poly, will we need to take copper back to corp stop?
Answer: Yes, the existing will need to be brought up to current standards and specifications to include but not limited to any changes to meet current safety and traffic ratings if the item is within the roadway or just off the roadway.

64. Question: New storm drain lines come in very close contact with existing vitrified clay sewer lines. Will any work to these lines be required other than the locations shown in the plans? If so, please provide relevant line items.

Answer: See 660-pay items and special provision 660.

65. Question: Will bypass pumping of the existing 12" clay sewer pipe replacement between Strs. H5 & H6 be required? If so, please provide flow characteristics so pumps can be adequately sized.
Answer: It's the responsibility of the contractor to observe the flow conditions in the field and make their determination if a bypass pump is needed.

66. Question: Will bypass pumping of the existing 30" brick sewer replacement between Strs. I16 & existing storm drain manhole be required? If so, please provide flow characteristics so pumps can be adequately sized.
Answer: It's the responsibility of the contractor to observe the flow conditions in the field and make their determination if a bypass pump is needed.

67. Question: It is assumed line item 647-1000 Traffic Signal Head Modification-Signal Head Adjustments is paid per head per adjustment. If not, please clarify.
Answer: See note 5 on sheet 27-0001.

68. Question: Can 19"x30" elliptical pipe be substituted for the required 18"x29
Answer: Yes, barring it does not create any additional utility conflict.

69. Question: Can 24"x38" elliptical pipe be substituted for the required 23"x36"?
Answer: Yes, barring it does not create any additional utility conflict.

70. Question: What is the intended use for line item 500-3101 Class A Concrete?
Answer: As directed.

71. Question: In the pre-bid meeting it was noted that a SUE Level A was performed, however, the plans note it as Level B & C. Please clarify
Answer: Levels B & C represent the lines shown, level A are the test holes performed to confirm utility pipes, sizes, type, and depth. Test hole labels are shown in the 24 series as small, checkered boxes with a "TH" label. The SUE (A) Test Hole Data Tables can be provided for both projects upon request to the selected contractor.

72. Question: Brick pavers are paid by the sf. How is the concrete underneath the pavers and the 12" concrete header around the pavers paid?
Answer: See note 6 on sheet 05-0004 and Special Provision 900. Concrete for brick pavers is included in pay items 900-0039 and 900-0040.

73. Question: There is a pay item for "Reset Granite Curb" and the notes state the granite curb may come from the project or from a stockpile at the county maintenance office. Should a line item be added for "Remove & Stockpile Granite Curb" to cover expenses of granite curb that is to be removed but will not be utilized on the project?
Answer: All granite curb and removal and handling requirements are included in grading complete.

74. Question: How are the manholes required to replace the 12" clay with 12" DIP and 30" brick with 18" DIP and other unspecified sewer mains paid?
Answer: Manholes not required at 12" clay. At 30" brick, replacement begins at a manhole, the downstream manhole is paid as item 668-3300.

75. Question: Specifications for brick paver state "provide mortar that matches existing brick color mortar in previous downtown streetscapes". However, there is both white and gray mortar in previous streetscape projects. There is a significant price difference between the two, please clarify which color to use
Answer: Assume to use grey mortar.

76. Question: General Note 7 on Sheet 36-003 in the 13th Street plans state: The contractor shall submit a scaffolding/shoring system details for approval by the engineer prior to the start of work." What scaffolding/shoring systems were anticipated causing the inclusion of this note?

Answer: Scaffolding/shoring may be needed to construct the brick finish along the barrier wall. If needed, please submit shop drawings for the proposed scaffolding/shoring system for review and approval by the engineer.

77. Question: Are there any land disturbance or other permits required to work adjacent to the bridge to install the soil nail wall.
Answer: Limiting land disturbance is recommended and all work to be within R/W and TCE limits. For permitting, please refer to Augusta Engineering Department for details.

78. Question: Is the purpose of the soil nail repair to cover deteriorating wall conditions or stabilize vertical and/or vertical movement?
Answer: The purpose of proposed the soil nail mat is to cover wall cracks and limit further movement.

79. Question: Are there any design limitations for vertical or horizontal deflection?
Answer: Vertical and horizontal deflection limitations of soil nail wall to be determined by the Contractor's Design Engineer of Record during design.

80. Question: Is lateral wall movement an issue with respect to repair option. Is a pretensioned anchor required to prevent further movement?
Answer: It is recommended that repair options focus on stabilizing and preventing further wall movement. Design and construction techniques to prevent further movement to be determined by the Contractor's Design Engineer of Record during the design/construction phases.

81. Question: Is there any active monitoring currently installed? If so, is there any data available?
Answer: There are no active monitoring devices currently installed or any data available.

82. Question: Can shotcrete face be installed before soil nails are drilled to stabilize the brick?
Answer: Construction techniques utilized to furnish the soil nail retaining walls per plan details to be determined by the Contractor and the Design Engineer of Record.

83. Question: Can formed/poured concrete be substituted for either the initial or final layer of shotcrete?
Answer: Formed/poured concrete may be utilized in lieu of initial or final layer of shotcrete.

84. Question: Is the existing wall foundation capable of supporting the added weight of a shotcrete veneer? If so, what is the maximum permitted thickness of shotcrete veneer?
Answer: There are no existing bridge design plans providing details on the existing wall foundations. Given unknow foundation details, it is recommended to minimize the added weight while providing adequate design strength. Refer to Special Provision 628.3.05 for structural thickness requirements.

85. Question: Can the existing brick wall resist the force applied by load test reaction?
Answer: There are no existing plans detailing the existing brick walls. It is advised that the Contractor and Design Engineer of Record inspect the existing brick walls to determine the minimum reaction area needed to safely perform the soil nail load test. (Refer to Special Provision 628.3.05. C1).

86. Question: Is there a minimum reaction area for spreading the load of each test nail?
Answer: There are no existing plans detailing the existing brick walls. It is advised that the Contractor and Design Engineer of Record inspect the existing brick walls to determine the minimum reaction area needed to safely perform the soil nail load test. (Refer to Special Provision 628.3.05. C1).

87. Question: Is there a maximum nail test load permitted based on the condition of the existing walls?
Answer: There are no existing plans detailing the existing brick walls. It is advised that the Contractor and Design Engineer of Record inspect the existing brick walls to determine the maximum permitted nail test load. (Refer to Special Provision 628.3.05.C1.

88. Question: Can verification test nails be installed adjacent to the existing wall as opposed to through the existing wall face?

Answer: The Contractor may install verification test nails adjacent to the exiting wall provided that they do not interfere with the installation of the permanent nails or in conflict with utilities (existing or proposed) of any exiting existing features. The location of test nails shall be reviewed and approved by the Engineer (See Special Provision 628.3.06).

89. Question: Can a separate pay item be added for the concrete steps instead of bidding it under the concrete sidewalk 4 in item?
Answer: No.

90. Question: Design Note 9 on Sheet 36-003 states "refer to geotechnical & assessment of distressed walls by Matrix Engineering dated Dec. 2020 for additional details." Please provide this complete document as the only information provided is one drill hole log (4 bores were taken according to the map but only one log provided, and a dynamic cone penetrometer test result, which may be a part of the assessment but not the full document.
Answer: See attached Geotechnical Exploration & Assessment of Distressed Walls.

91. Question: There are gas plans provided in the 13th Street project, but no pay items are provided. Is the Contractor responsible for this work? If so, can pay items be added?
Answer: The gas plans provided are for information only. They were provided by the utility owner and the work will be performed by the utility owner.

92. Question: Are the Flowable Fill pay items for abandoning existing storm pipe and drainage structures?
Answer: Yes, see general note 19 on sheet 04-0001 for both projects.

93. Question: It is not clear the work associated around the railroad crossing. Will the Contractor be resurfacing the existing asphalt pavement within the railroad ROW? Is there any work associated with the rails? Please clarify.
Answer: 13th Street: See sheet 18-0002 the left and right E/A profiles. There is a paving exception. Telfair Street: The contractor will pave up to 1-foot beyond the curb and gutter limits. The work between the tracks will be handle with the 6th project

94. Question: What is the allowable duration traffic can run on milled surfaces?
Answer: Milled asphalt can be used as a temporary riding surface for a maximum of 5 days.

95. Question: Is the GAB for each project required only under the new curb & gutter and class B widening sections?
Answer: Yes, unless otherwise directed to by the Engineer to use it in other specific situations.

Please acknowledge addendum in your submittal
END OF ADDENDUM

Attachments:
Structural Soil Type Notes
Pavement Evaluation (Downtown Streets)
Subsurface Exploration 13th Street Over Hawks Gully
Revised 13th Street Final Plans
Traffic Control
Revised Fee Proposal

NOTES:

1. CORNELL UNIVERSITY RECOMMENDS THAT 2 CUBIC FEET OF UNCOMPACTED SOIL VOLUME BE PROVIDED FOR EVERY 1 SQUARE FOOT OF PROJECTED CANOPY AREA.
2. MINIMUM TYPICAL DEPTH FOR EACH APPLICATION OF CU STRUCTURAL SOIL IS 3'-0". DEPTH MAY BE INCREASED TO MEET RECOMMENDED VOLUMES.
3. BREAKOUT ZONES ARE NOT SUBJECT TO THIS REQUIREMENT. THE PURPOSE OF BREAKOUT ZONES IS TO PROVIDE ROOTS ACCESS TO EXISTING UNCOMPACTED SOIL BEYOND HARDSCAPE AREAS.
4. TYPICAL CU AREAS UNDER PAVEMENT FOR THIS PROJECT ARE AS FOLLOWS:

TYPICAL CU AREA CALCULATIONS					
TREE CLASS	CANOPY SF	SOIL VOLUME REQ.	DEPTH	WIDTH	LENGTH
LARGE	1400	2800	3	10	93
MEDIUM	750	1500	3	10	50
SMALL	300	600	3	10	20

8 TYP. STRUCTURAL SOIL NOTES

3/4" = 1'-0"

329335-06

REPORT OF
PAVEMENT CONDITION SURVEY

COMPREHENSIVE DOWNTOWN CONCEPT PLAN

FOR THE CITY OF AUGUSTA, GEORGIA

Broad, Green, Telfair, 13th, 9th, 6th and 5th Streets

RICHMOND COUNTY, GEORGIA

Prepared for:

Cooper Carry
191 Peachtree Street, NE
Suite 2400
Atlanta, Georgia 30303

Prepared by:

Amec Foster Wheeler Environment & Infrastructure, Inc.
2677 Buford Highway
Atlanta, Georgia 30324
(404) 873-4761

April 25, 2016

Project No. 6166-16-0040

April 25, 2016

Cooper Carry
191 Peachtree Street, NE
Suite 2400
Atlanta, Georgia 30303

Attn: Mr. Gary Warner
Director of Planning and Landscape Architecture

Re: Report of Pavement Condition Survey
Comprehensive Downtown Concept Plan
Augusta, Georgia
Amec Foster Wheeler Project No. 6166160040

Dear Mr. Warner:

Amec Foster Wheeler Consultants, Inc. (Amec Foster Wheeler) has completed the pavement condition survey for the above referenced project. These services were performed in general accordance with our proposal dated June 30, 2015. This report presents the results of our evaluation and provides a brief discussion of pavement options based on our current understanding of the project and the City of Augusta requirements.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,

Amec Foster Wheeler Environment & Infrastructure, Inc.

GEORGIA REGISTERED No. PE25484 PROFESSIONAL ENGINEER J. TODD JACKSON 4/25/16

Daimia T. Gunning, P.E.
Senior Engineer

J. Todd Jackson, P.E.
Associate Engineer

Amec Foster Wheeler Environment & Infrastructure, Inc.
2677 Buford Highway, Atlanta, Georgia 30324
Tel: (404) 873 4761
Fax: (404) 817 0207
www.amecfw.com

TABLE OF CONTENTS

PAVEMENT CONDITION SURVEY
BROAD, GREEN, TELFAIR, 13TH, 9TH, 6TH AND 5TH STREETS
AUGUSTA, GEORGIA

Amec Foster Wheeler Project No. 6166160040
April 25, 2016

1.0 INTRODUCTION

This report presents the results of our pavement condition survey for Broad, Green, Telfair, 13th, 9th, 6th and 5th Streets in Augusta, Georgia. Our scope of work for this project included performing 28 pavement cores and shallow auger borings to assess the soil subgrade. The purpose of these services is to provide information and pavement repair recommendations.

2.0 PROJECT INFORMATION

2.1 Site Location and Description

ITEM	DESCRIPTION
Location	Portions of seven streets in downtown Augusta, Georgia.
Existing Improvements	Two and four lane roads. Some with divided medians.

2.2 Project Description

ITEM	DESCRIPTION
Site layout	Refer to the Boring Location Plan (Figure 1 in the Appendix)
Finished grades	Match existing.
Grading	Limited to drainage improvement along the edge of the roadway.

3.0 PAVEMENT CONDITIONS

3.1 Typical Subsurface Profile

Based on the results of the site visual survey, cores, borings, and subsurface conditions on the project site are summarized in the following sections. Thirty cores were planned in total; however two locations (C-18 and C-22) were omitted due to conflicts with utilities.

The core locations are shown in Figure 1, attached. At each core location the thicknesses of the pavement materials were recorded by our field personnel. Photographs of the individual cores are located in the Appendix (Photographs 1 through 28). The approximate existing pavement section thicknesses at the individual test locations are detailed in the table below.

	Pavement Section			Soil Subgrade		
	Asphalt (Inches)	Concrete (Inches)	GAB (inches)	Visual Classification	"N"- value*	Moisture Content (%)
C-1	9	--	--	--	OHP/UL***	--
C-2	4	7	--	--	OHP/UL	--
C-3	4	4	--	Wood – poss. RR tie	--	--
C-4	4 ¼	6	--	Brown silty clay	4	27
C-5	6	--	6	Brown fine sand	11	14
C-6	2	7 ½	--	Brown fine sand	11	13
C-7	5	3 ½ (Pavers)	3	Brown sand	14	6
C-8	5 ½	--	--	Brown silty fine sand	34	9
C-9	6	3	--	--	OHP/UL	--
C-10	3 ¾	5	--	Brown silty fine sand	7	12
C-11	5	3 ½	--	Brown fine sand	15	13
C-12	6	--	--	Concrete rubble	28	9
C-13	8	--	--	Brown clayey sand	8	6
C-14	8	--	--	--	OHP/UL	--
C-15	1	6	--	Brown clayey sand	5	17
C-16	3	--	--	--	OHP/UL	--
C-17	7 ½		3	Brown clayey sand	12	12
C-18**	--					
C-19	5 ½	5	--	Gravelly sand	14	6
C-20	5	--	--	--	OHP/UL	--
C-21	3 ½	5 Pavers	--	Brown sand	12	12
C-22**	--					
C-23	4	--	8	--	OHP/UL	--
C-24	5	--	24	Gravel	20	--
C-25	3	--	--	--	OHP/UL	--
C-26	4	--	--	--	OHP/UL	--
C-27	5	--	6	--	OHP/UL	--
C-28	1 ½	4	--	--	OHP/UL	--

	Pavement Section			Soil Subgrade		
	Asphalt (Inches)	Concrete (Inches)	GAB (inches)	Visual Classification	"N"- value*	Moisture Content (%)
C-29	2 ½	10	--	--	OHP/UL	--
C-30	3	5 ½	--	Orange sand	17	7

* Standard penetration test performed just below pavement
** Eliminated due to utility conflicts
*** Overhead Power/Underground Utility prevented standard penetration test of subgrade

3.2 Typical Surface Conditions

A visual pavement condition survey was conducted on March 21, 2016 in general accordance with typically accepted pavement engineering practices. The pavement was divided by our representative into several general areas having the same apparent functional and structural characteristics. Our representative noted the presence and severity of any of the following typical asphalt pavement distresses:

- Longitudinal and Transverse Cracking
- Alligator Cracking
- Block Cracking
- Rutting
- Patches

These types of distresses are briefly discussed below:

- **Longitudinal and transverse cracking:** Usually the result of climate or pavement durability related factors. This type of distress is usually caused by poorly constructed paving lane joints or hardening of the pavement due to daily temperature cycling. Without proper maintenance or rehabilitation, this type of cracking can progress to more severe forms of pavement distress including potholes or alligator cracking as was observed in some areas of the roadway.
- **Block cracking:** Interconnected cracks that divide the pavement into approximately rectangular pieces where observed in major areas of the road. This type of cracking is caused mainly by shrinkage of the asphalt concrete and daily temperature cycling, which results in daily stress/strain cycling. However, it is not load associated; it usually indicates that the asphalt has hardened significantly.
- **Rutting:** Rutting is caused by displacement of material which allows channels to form which are typically in the wheel paths. Compaction or displacement of unstable materials is the cause of rutting. Unstable materials could consist of granular base and/or the soil subgrade. Typically, minor rutting is due to displacement of the granular base and more severe rutting has affected the soil subgrade. This distress was observed in a small area in the northern portion of the roadway.

- **Patches:** An area of pavement that has been replaced with new materials to repair the existing pavement. A patch is considered a defect no matter how well it is performing (a patched area or adjacent area does not usually perform as well as an original pavement section). Generally some roughness is always associated with this distress.
- **Alligator cracking:** A structural distress caused by fatigue failure of the asphalt concrete under repeated traffic loading. The majority of this distress observed was of medium to high severity, and mostly limited to the north drive lane. Cracking begins at the bottom of the asphalt surface where tensile stress and strain are highest under a wheel load. The cracks propagate to the surface initially as a series of parallel longitudinal cracks. After repeated traffic loading, the cracks connect, forming many-sided, sharp-angled pieces. This type of condition is typical of the pavements in the northern end of the roadway.

3.3 Drainage Observations

In addition to pavement conditions, general surface drainage conditions along the roadway were noted. The overall surface drainage appeared to be good to fair. In general it appears the roadways drains per sheet flow into inlet structures.

3.4 Groundwater

The boreholes were observed while drilling and after completion for the presence and level of groundwater. Groundwater was not observed in the borings while drilling, or for the short duration that the borings were allowed to remain open. However, this does not necessarily mean perched water conditions due not occur under different conditions. These water level observations provide an approximate indication of the groundwater conditions existing at the time the borings were drilled.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. In addition, perched water can develop over low permeability strata. Therefore, groundwater levels during construction or at other times in the life of the pavements may be higher or lower than the levels indicated here in. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 General Pavement Condition

The existing asphalt is generally in fair to good condition over the roadway sections surveyed. The condition of each section and relevant photographs are summarized in the following table.

Street Name	Photographs (See Appendix)	Primary Distress Types	Pavement Rating
Broad Street	29 to 44	Longitudinal/Transverse, Block Cracking	Satisfactory to Good
Green Street	45 to 52	Longitudinal/Transverse, Block Cracking	Satisfactory to Good
Telfair Street	53 to 60	Longitudinal/Transverse Cracking	Satisfactory
9th Street/James Brown Boulevard	61 to 65	Longitudinal/Transverse, Block, Alligator Cracking	Fair to Satisfactory
13th Street	66 to 71	Longitudinal/Transverse, Block Cracking	Satisfactory to Good
6th Street	72 to 76	Longitudinal/Transverse Cracking	Satisfactory
5th Street	77 to 80	Longitudinal/Transverse Cracking	Satisfactory

4.2 Pavements

4.2.1 Repair Recommendations

In general, the overall asphalt pavement surface condition along the surveyed areas are considered Fair to Good depending on the area. Future life expectancy and based on pavement section and anticipated traffic loading was beyond the scope of this survey. For general reference, we recommend a variety of repairs based on the pavements function and present state.

Cracking: Non- structural cracking such as longitudinal, transverse, joint or block cracking can be sealed to prevent infiltration of water and foreign materials that can accelerate the degradation of the pavements.

Alligator Cracked Areas: The asphalt should be removed and the granular subgrade assessed and repaired as needed to provide a stable working platform for reconstruction of the pavement section required.

Rutting Areas: We recommend the asphalt be stripped in this area and the stability of the granular base assessed. If the granular base cannot be stabilized by harrow, drying and compaction this material will need to be removed and the soil subgrade further assess. Limited remediation of the soil subgrade is

anticipated and may be more extensive in areas where the poorest pavement conditions were observed.

Once alligator cracked areas and rutting have been repaired by full depth replacement the remainder of the roadway can be overlaid with a minimum 1½ inch surface course overlay as provided in the Pavement Materials discussed below.

4.2.2 Subgrade Preparation

In areas where full depth asphalt replacement is required we recommend the exposed granular subgrade be evaluated by proofrolling and remediation be performed in areas observed to be unstable prior to commencement of actual paving operations. Where rutting was observed removal of the existing granular base and remediation of soil subgrade will be required. Areas where unsuitable conditions are located should be repaired by removing and replacing with additional granular base or as recommended by the Geotechnical Engineer based conditions observed during construction.

If precipitation occurs after the evaluation or if the surface becomes disturbed, the subgrade should be reassessed by qualified personnel immediately prior to paving. The subgrade should be in its finished form at the time of the final assessment.

4.2.3 Pavement Material Recommendations

Material	Thickness (inches)	GDOT
Subgrade	Upper 12 inches of existing soil or engineered fill	98% of Standard Proctor MMD, -2 to +3% OMC
Aggregate Base	8 inches minimum	GAB, Section 815 and 310
Asphalt Binder Course	3	SP19 - Section 400, 424, 824 and 828
Asphalt Surface Course	2	SP12.5 and SP9.5 - Section 400, 424, 824 and 828

The listed pavement component thicknesses should be used as a guide in order to obtain what would be an anticipated minimum pavement sections for new pavements for many similar sized municipalities. However this pavement section should be evaluated based on actual traffic data prior to acceptance as a design section. Aggregates and base course materials should conform to the Georgia Department of Transportation (GDOT) "Standard Specifications for Construction of Transportation System". In addition, surface preparation and tack coat should also confirm to current GDOT standards.

The graded aggregate base should be compacted to a minimum of 98 percent of the material's modified Proctor (ASTM D-1557, Method C) maximum dry density. Where base course thickness

exceeds 6 inches, the material should be placed and compacted in two or more lifts of equal thickness. After properly compacting the existing granular base it may be used in-situ for the recommended granular base layer.

Portland cement concrete should be designed with proper air-entrainment and have a minimum compressive strength of 4,500 psi after 28 days of laboratory curing. Adequate reinforcement and number of longitudinal and transverse control joints should be placed in the rigid pavement in accordance with ACI requirements. The joints should be sealed as soon as possible (in accordance with sealant manufacturer's instructions) to minimize infiltration of water into the soil.

4.2.4 Pavement Drainage

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section.

4.2.5 Pavement Maintenance

Preventive maintenance should be planned and provided for through an on-going pavement management program. Preventive maintenance activities are intended to slow the rate of pavement deterioration, and to preserve the pavement investment. Preventive maintenance consists of both localized maintenance (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing). Preventive maintenance is usually the first priority when implementing a planned pavement maintenance program and provides the highest return on investment for pavements. Prior to implementing any maintenance, additional engineering observation is recommended to determine the type and extent of preventive maintenance. Even with periodic maintenance, some movements and related cracking may still occur and repairs may be required.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations:

- Final grade adjacent to parking lots and drives should slope down from pavement edges at a minimum 2%;
- Install joint sealant and seal cracks immediately;
- Seal all landscaped areas in, or adjacent to pavements to reduce moisture migration to subgrade soils;
- Place compacted, low permeability backfill against the exterior side of curb and gutter; and,
- Place curb, gutter and/or sidewalk directly on low permeability subgrade soils rather than on unbound granular base course materials.

4.3 Earthwork

The following presents recommendations for subgrade preparation and placement of engineered fills, if needed. Earthwork on the project should be observed and evaluated by a qualified geotechnical engineer or his representative. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation and other geotechnical conditions exposed during the construction of the project.

4.3.1 Materials Types

Engineered fill should consist of approved materials, free of organic material, debris and particles larger than about 4 inches. The maximum particle size criteria may be relaxed by the geotechnical engineer of record depending on construction techniques, material gradation, allowable lift thickness and observations during fill placement. Soils for use as engineered fill material should conform to the following specifications:

Gradation	Percent Finer by Weight (ASTM C 136)
4"	100

- Liquid Limit ..... 45 (max)
- Plasticity Index ..... 25 (max)
- Any well graded granular soil

4.3.2 Compaction Requirements

Where undercutting is required the material may be replaced with engineered fill as designated herein. Recommended compaction and moisture content criteria for engineered fill materials are as follows:

Material Type and Location	Per the Standard Proctor Test (ASTM D 1557)		
	Minimum Compaction Requirement (%)	Range of Moisture Contents for Compaction	
		Minimum	Maximum
Acceptable soil or approved imported fill soils:			
Beneath pavements:	95	-2%	+3%
	Per the Modified Proctor Test (ASTM D 1557)		
Aggregate base (beneath pavements)	98	-3%	+3%

Engineered fill materials should be placed in horizontal, loose lifts not exceeding 9 inches in thickness and should be thoroughly compacted. Where light compaction equipment is used, as is customary in confined spaces, the lift thickness may need to be reduced to achieve the desired degree of compaction. Soils removed which will be used as engineered fill should be protected to aid in preventing an increase in moisture content due to rain.

4.3.3 Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of pavements. The site should also be prepared to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become frozen, desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted prior to floor slab and pavement construction and observed by a qualified geotechnical engineer or his representative.

Surface water should not be allowed to pond on the site and soak into the soil during construction. Construction staging should provide drainage of surface water and precipitation away from the excavations. Any water that collects over or adjacent to construction areas should be promptly removed, along with any softened or disturbed soils.

Groundwater was not encountered in any of the borings during our exploration. Based on our understanding of the proposed development, we do not expect groundwater to affect construction. If groundwater is encountered during construction, some form of temporary dewatering may be required. Conventional dewatering methods, such as pumping from sumps, should likely be adequate for temporary removal of any groundwater encountered during excavation at the site.

All excavations should be sloped or braced as required by OSHA regulations to provide stability and safe working conditions. Temporary excavations will probably be required during grading operations. The grading contractor, by his contract, is usually responsible for designing and constructing stable, temporary excavations and should shore, slope or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. All excavations should comply with applicable local, state and federal safety regulations, including the current Occupational Health and Safety Administration (OSHA) Excavation and Trench Safety Standards.

Construction site safety is the sole responsibility of the contractor who controls the means, methods and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean that Amec Foster Wheeler is assuming any responsibility for construction site safety or the contractor's activities; such responsibility shall neither be implied or inferred.

5.0 QUALIFICATIONS OF RECOMMENDATIONS

Our evaluation of foundation design and construction conditions has been based on our understanding of the site, the available project information, our assumptions and the data obtained during our field exploration as described herein. The general subsurface conditions used were based on interpolation of the subsurface data at our borings. The design recommendations in this report have been developed on the basis of the previously described project characteristics and subsurface conditions. If project criteria or locations change, we must be permitted to determine if our recommendations are still applicable or if they must be modified. The findings of such a review will be presented in a supplemental report.

Subsurface conditions in unexplored locations may vary from those encountered at specific boring location. The nature and extent of variations may not become evident until the course of construction. If such variations then appear evident, it will be necessary to re-evaluate the recommendations of this report after on-site observations of the conditions.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Regardless of the thoroughness of a subsurface exploration, there is the possibility that conditions will differ from those at the boring location, that conditions are not as anticipated by the designers, or that the construction process has altered the soil conditions. Therefore, experienced geotechnical engineers must observe earthwork and foundation construction to assess if the conditions anticipated in design actually exist.

Our professional services have been performed, our findings derived, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties either express or implied. This company is not responsible for the conclusions, opinions or recommendations of others based on these data.

amec
foster
wheeler

APPENDIX

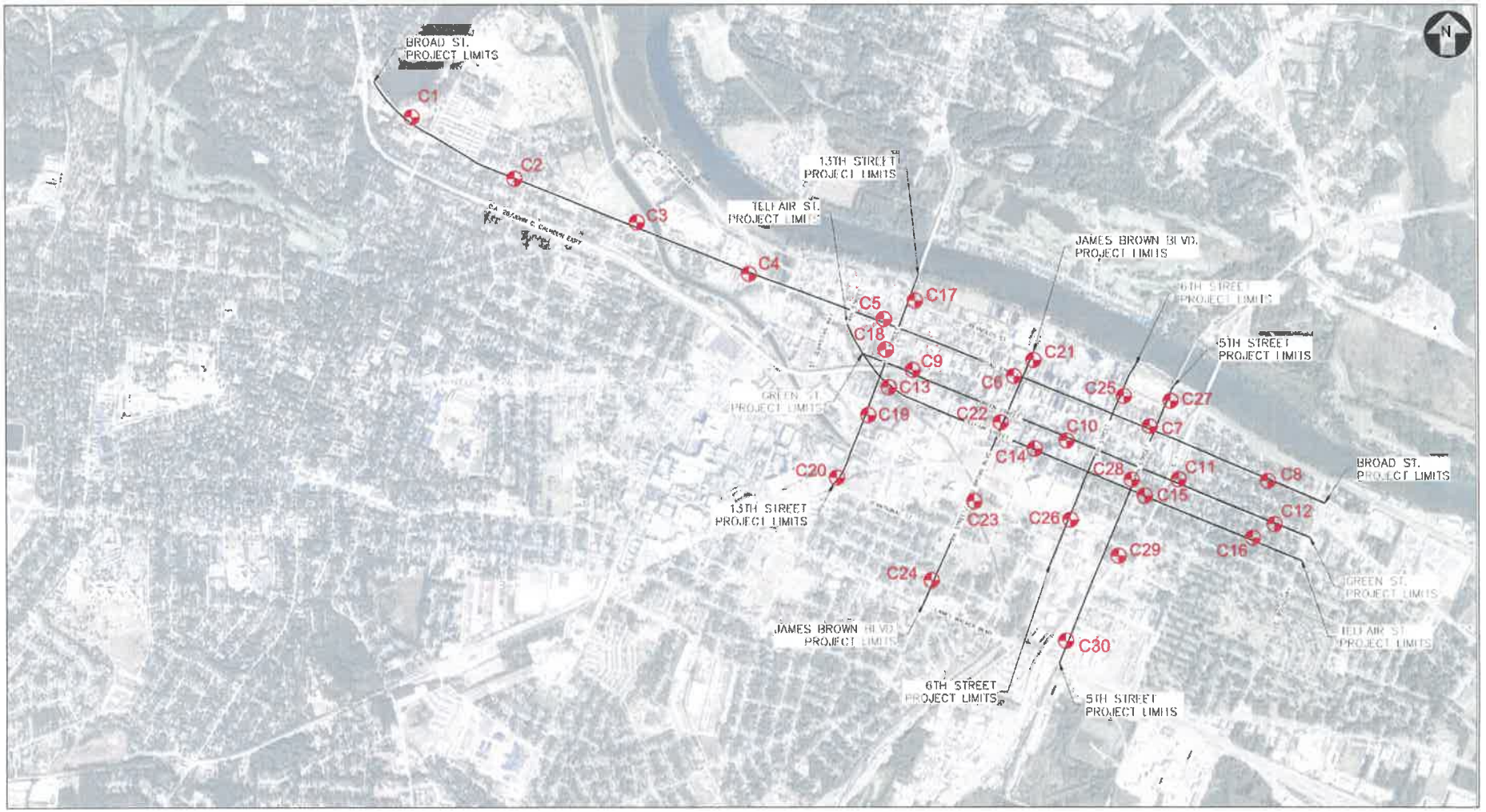
Boring Location Plan

Photographs

1 to 28 – Pavement Cores

29 to 80 – Pavement Condition

C:\Users\martha.herrera\Desktop\Augusta\Boring Location Plan.dwg – Layout1 04/22/2016 3:55pm martha.herrera



LEGEND
APPROXIMATE SOIL TEST BORING LOCATION

AUGUSTA DOWNTOWN REDEVELOPMENT
AUGUSTA, GEORGIA

amec foster wheeler
Environment & Infrastructure, Inc.
2677 BUFORD HIGHWAY
ATLANTA, GEORGIA 30324 (404) 873-4761

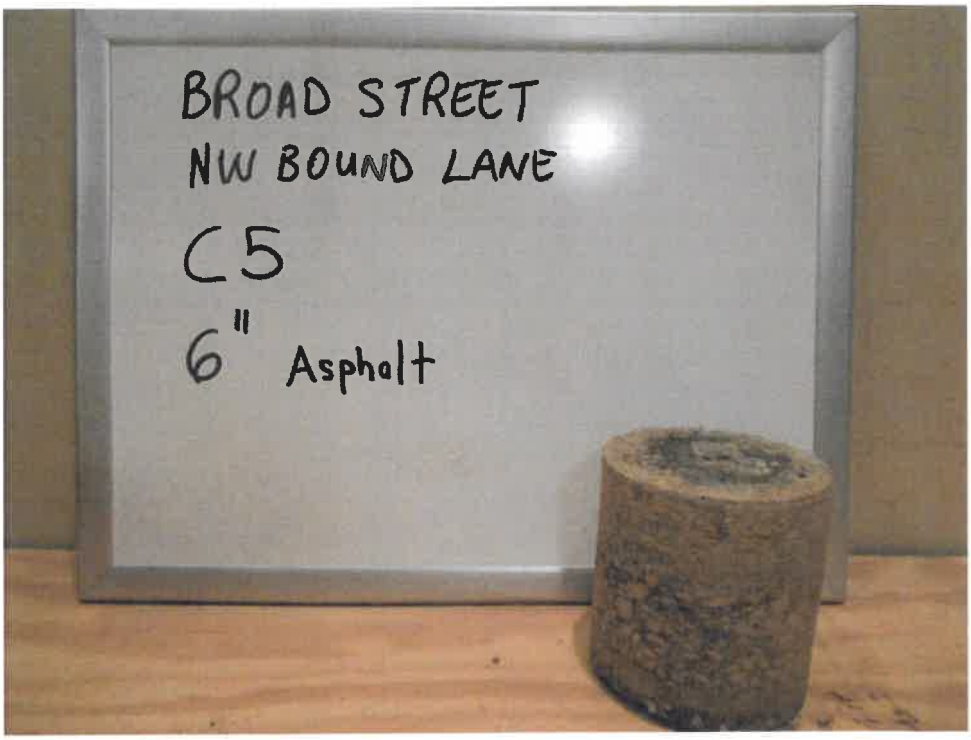
BORING LOCATION PLAN

JOB NO. 6166160040.01.05 FIGURE 1

PREPARED BY/DATE MLH 04-22-2016
CHECKED BY/DATE JTJ 04-22-2016

Photograph 1 - Core C1

Photograph 2 - Core C3



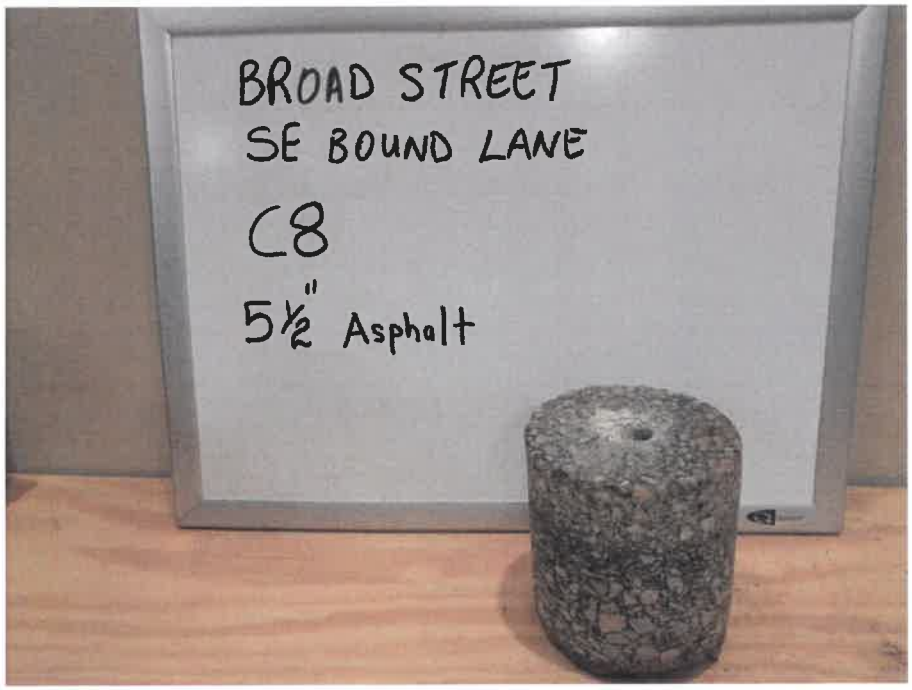
Photograph 3 - Core C5

Photograph 4 - Core C7

Photograph 5 - Core C2

Photograph 6 - Core C4

Photograph 7 - Core C6

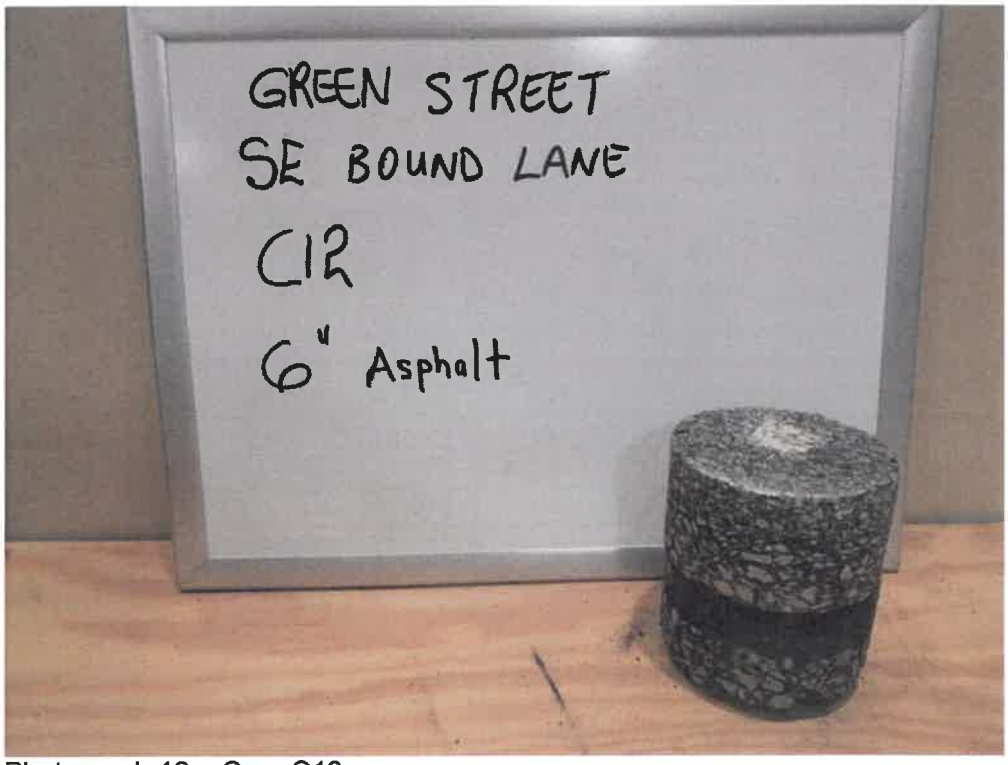


Photograph 8 - Core C8

Photograph 9 - Core C9

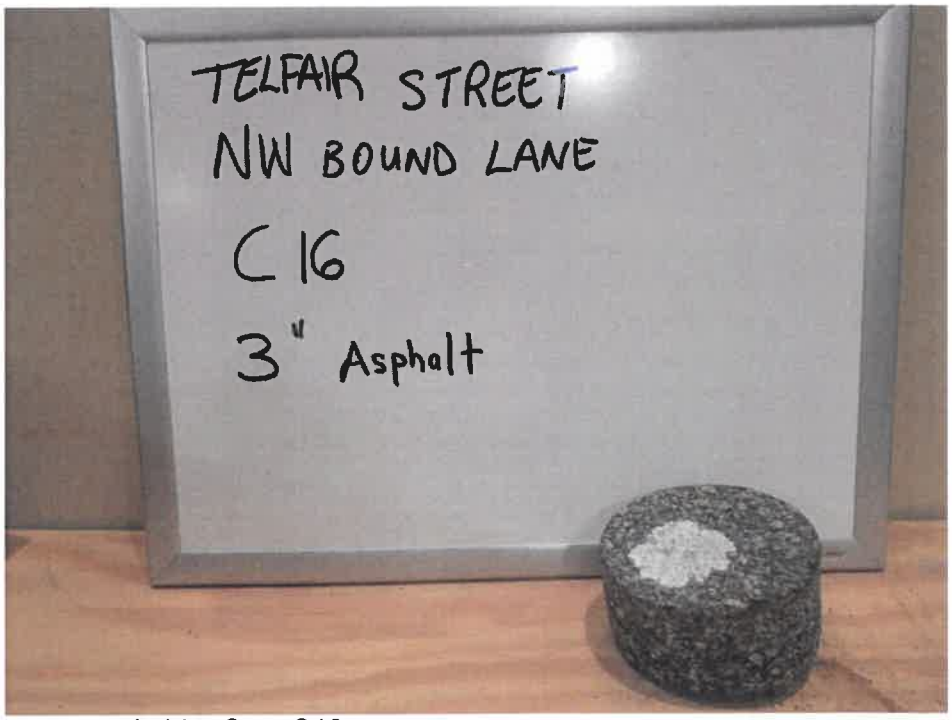
Photograph 10 – Core C11

Photograph 11 – Core C10



Photograph 12 – Core C12

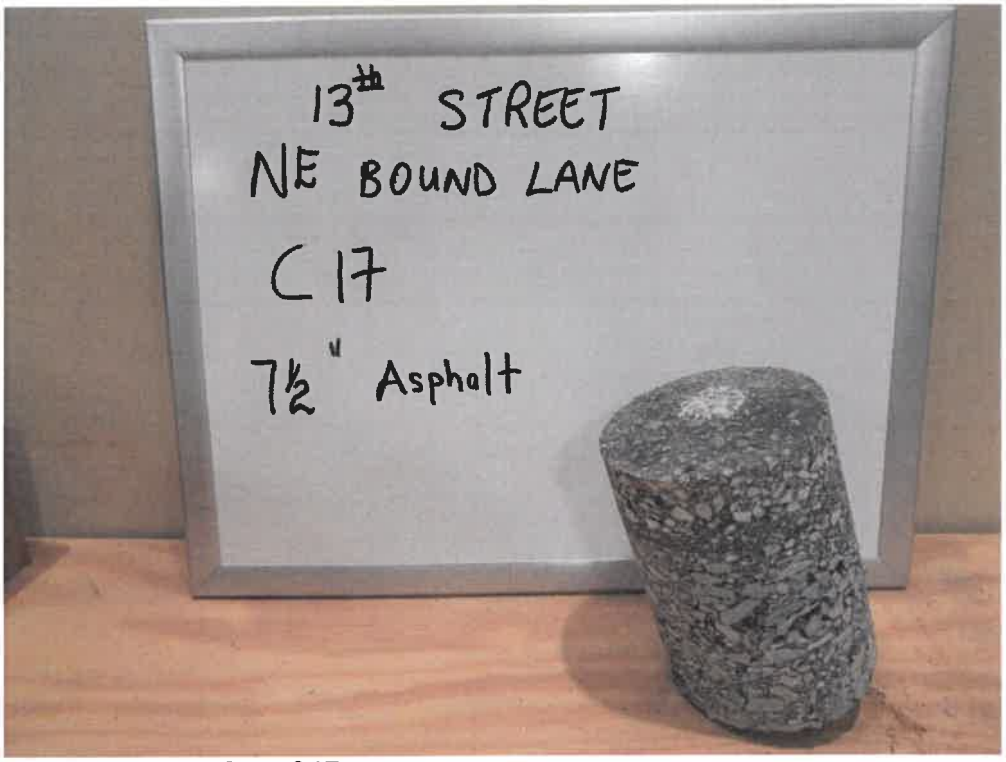
Photograph 13 – Core C14



Photograph 14 – Core C16

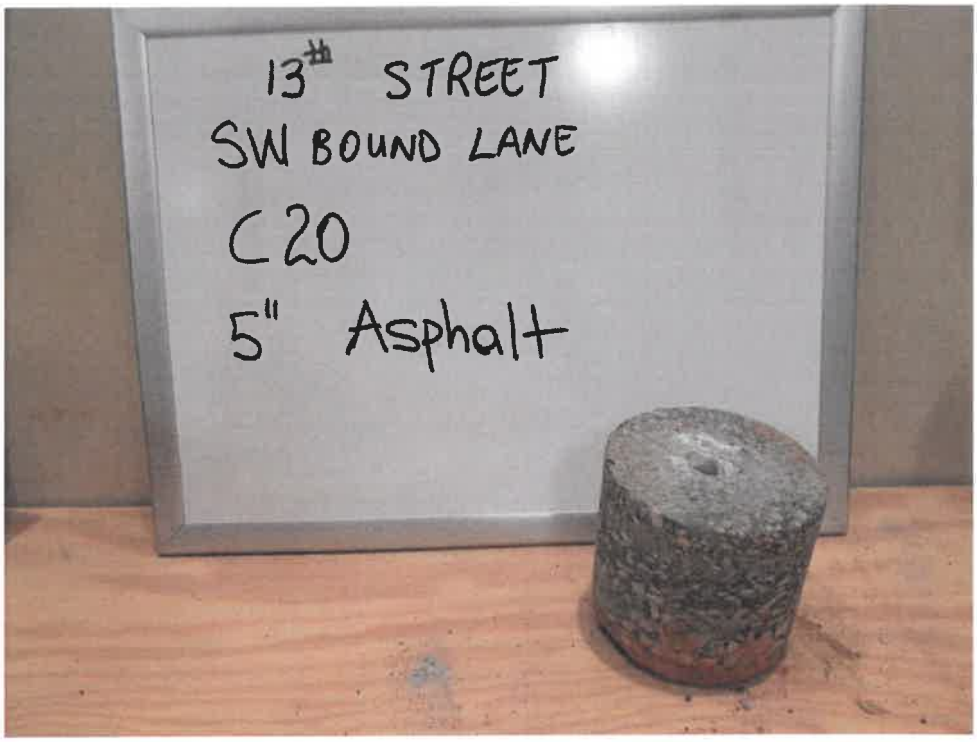
Photograph 15 – Core C13

Photograph 16 – Core C15

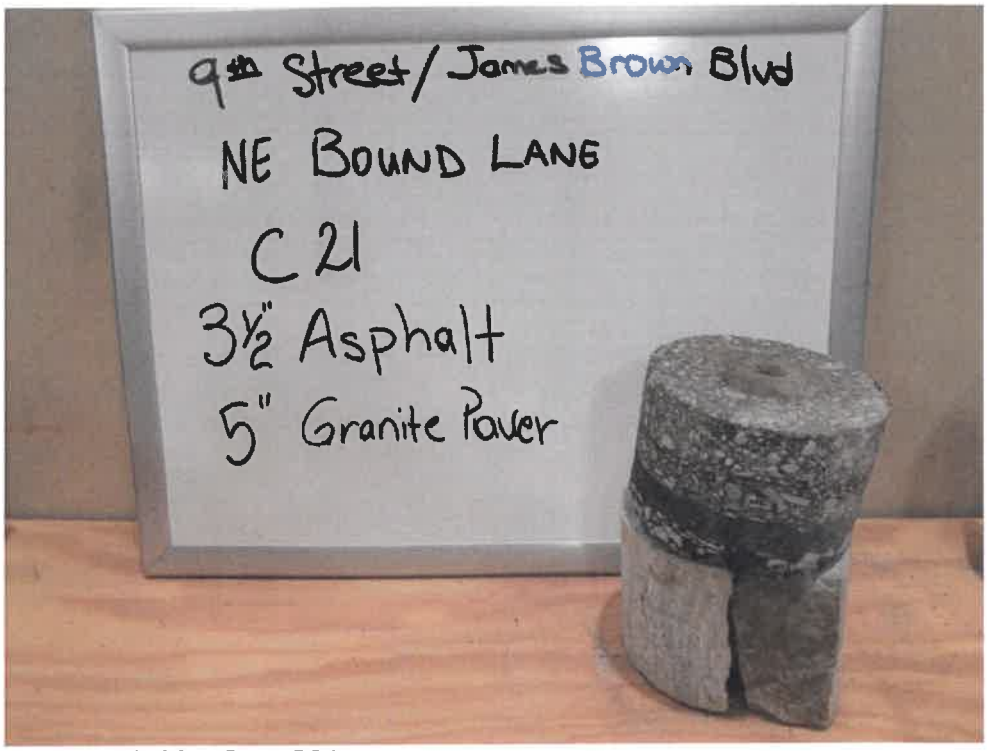


Photograph 17 – Core C17

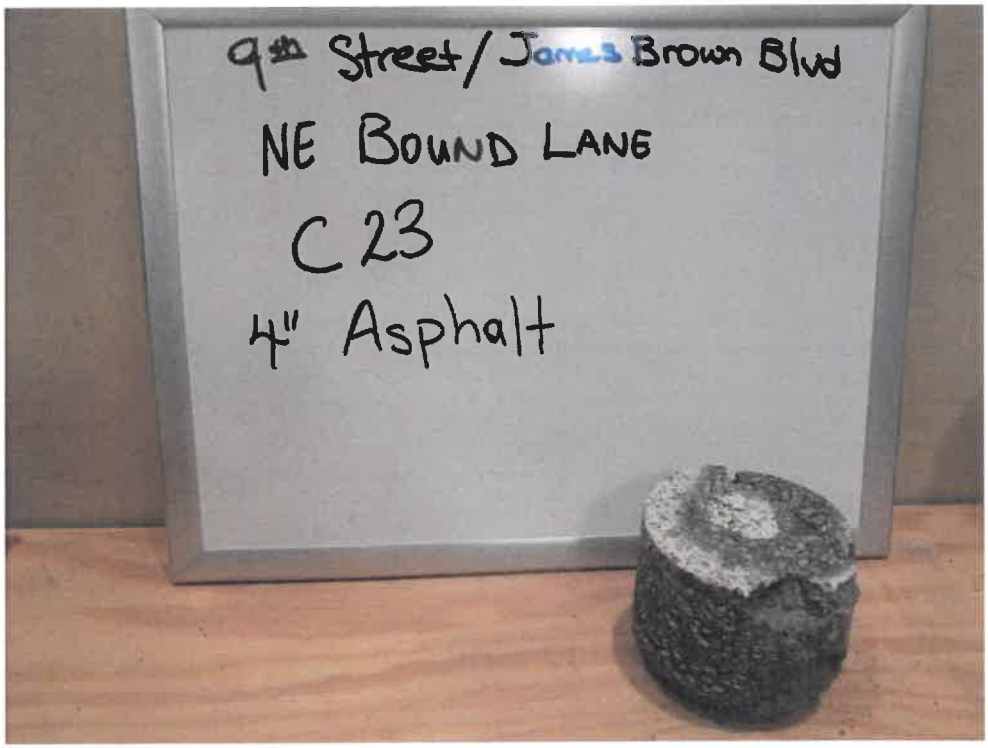
Photograph 18 – Core C19



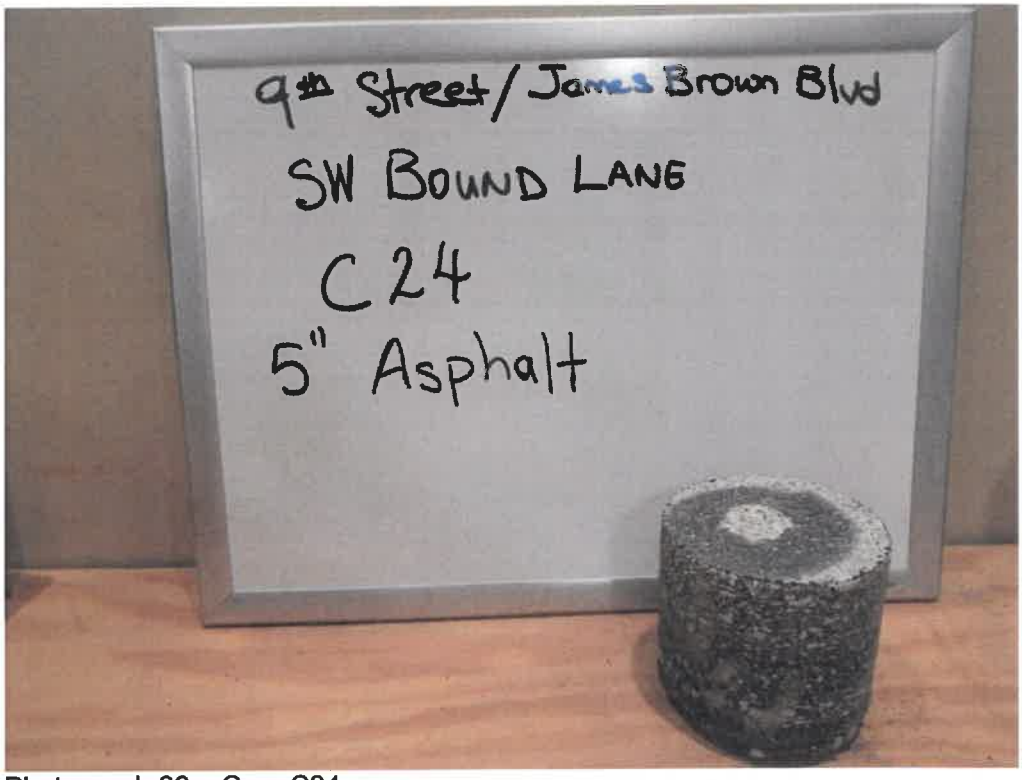
Photograph 19 – Core C20



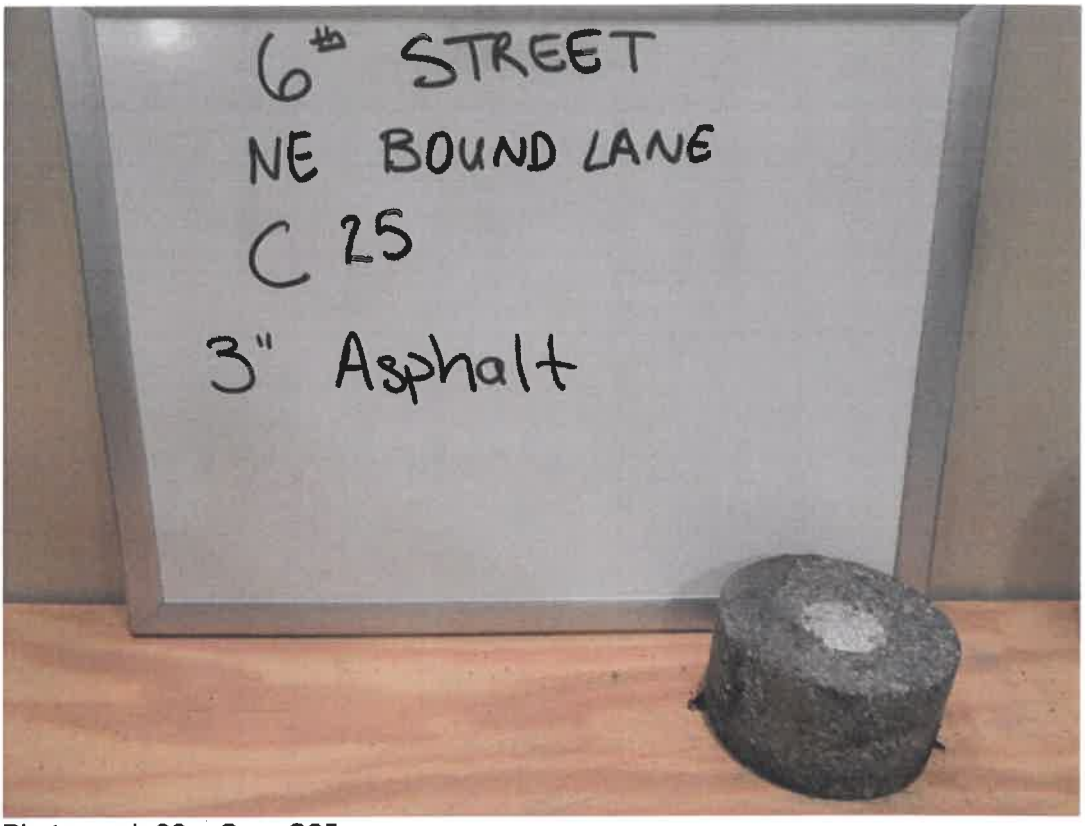
Photograph 20 – Core C21



Photograph 21 – Core C23

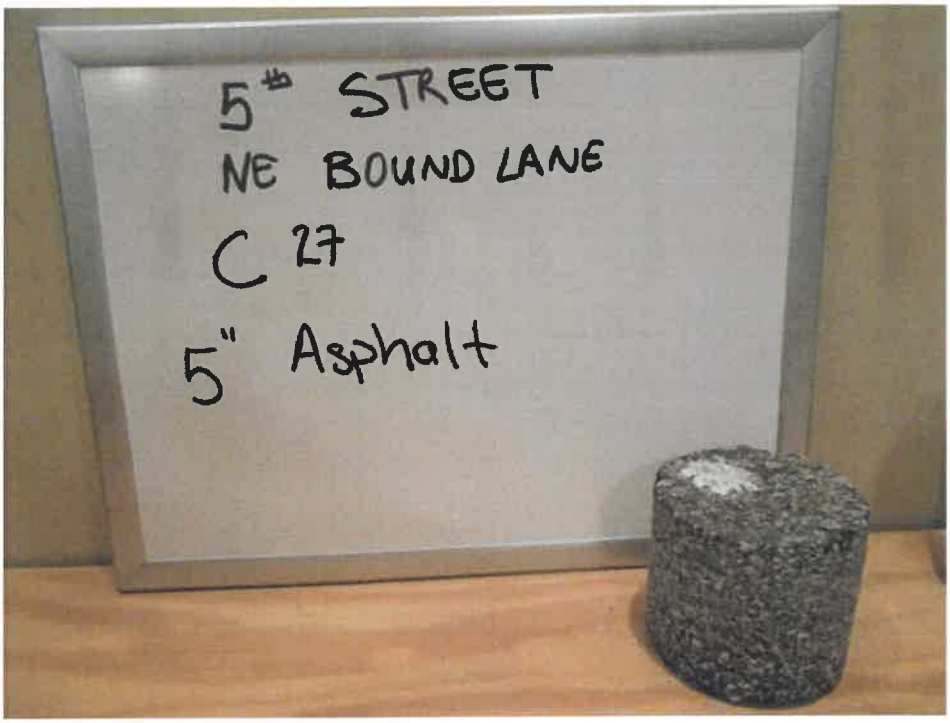


Photograph 22 – Core C24

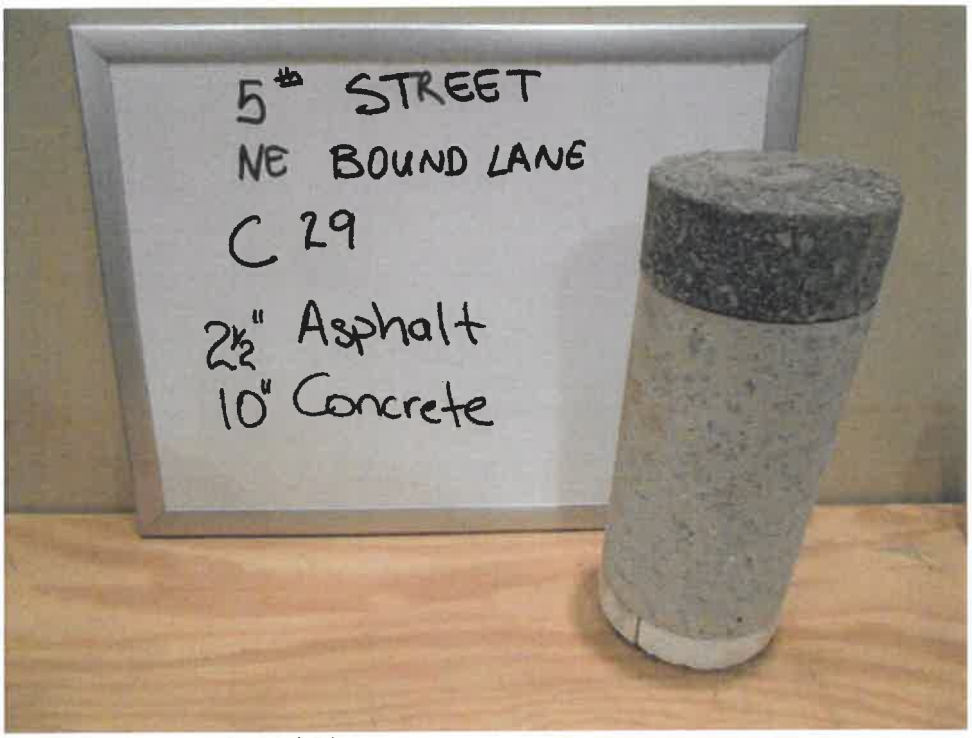


Photograph 23 – Core C25

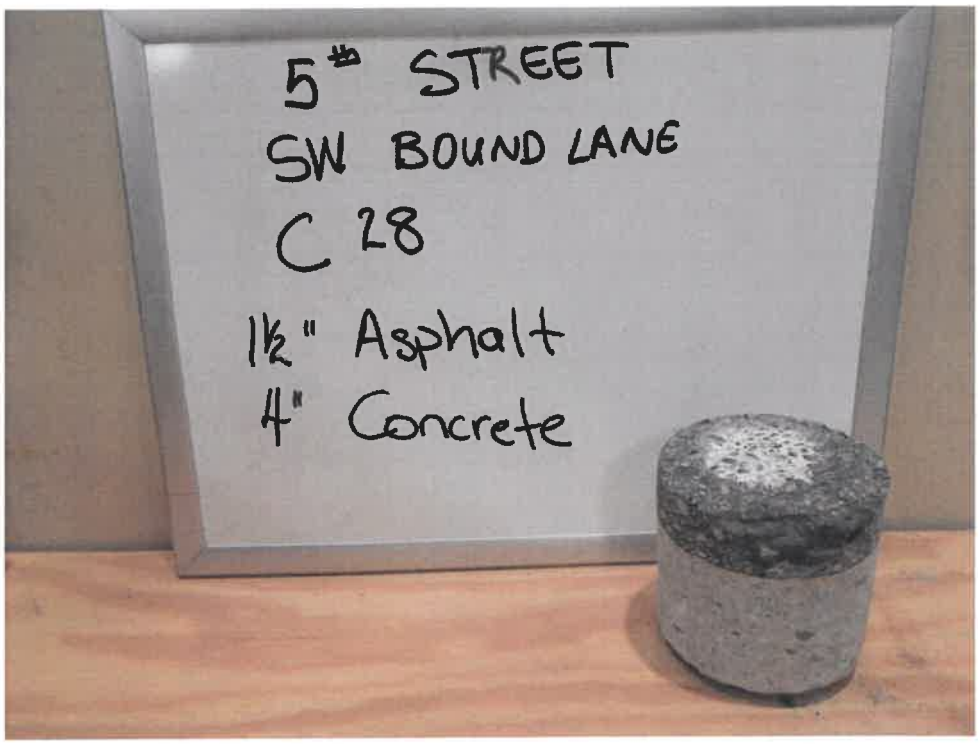
Photograph 24 – Core C26



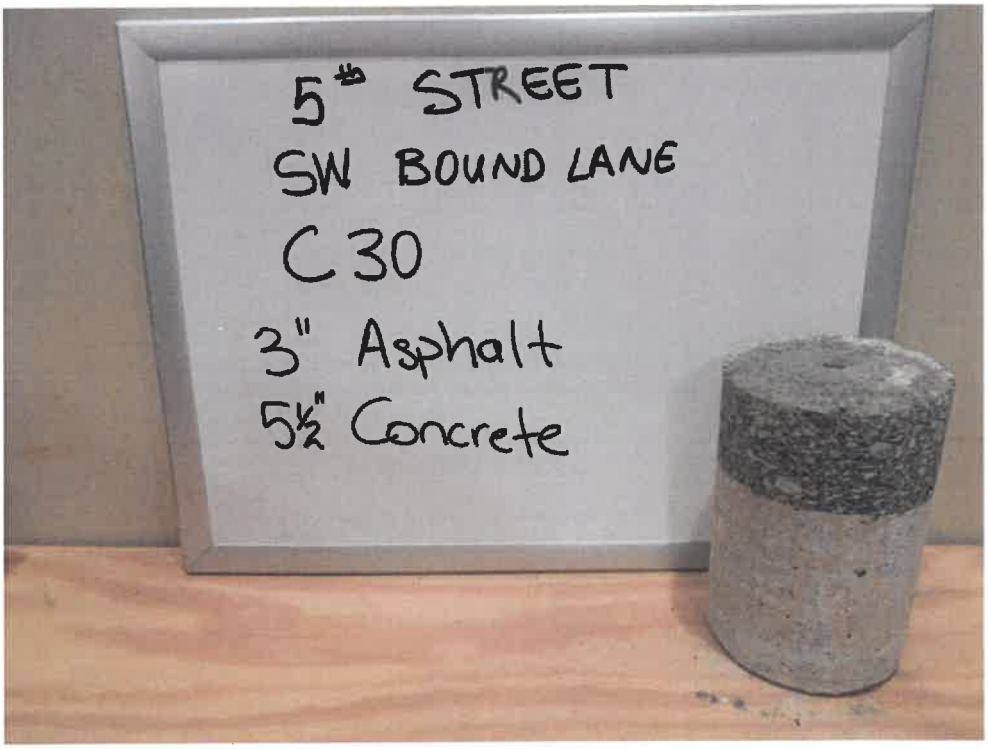
Photograph 25 – Core C27



Photograph 26 – Core C29



Photograph 27 – Core C28



Photograph 28 – Core C30

Photograph 29: Broad Street – View facing southeast of low severity block cracking near C-1.

Photograph 30: Broad Street – View facing southeast of low severity longitudinal cracking near C-2.

Photograph 31: Broad Street – View facing northwest of low severity longitudinal and transverse cracking and several medium severity patches at intersection of Curry Street.

Photograph 32: Broad Street – View facing northwest of low severity longitudinal cracking in the vicinity of Core C3.

Photograph 33: Broad Street – View facing east of pavement in Good condition near intersection of Eve Street between Cores C1 and C2.

Photograph 34: Broad Street – View facing east of pavement in Good condition at intersection with 15th Street looking east.

Photograph 35: Broad Street – View facing northwest of low severity longitudinal cracks and a medium severity patch near Core C4.

Photograph 36: Broad Street – View facing northwest of low severity longitudinal and joint cracks near Core C5.

Photograph 37: Broad Street – View facing southeast of low severity block cracking near 14th Street.

Photograph 38: Broad Street – View facing southeast of medium severity longitudinal cracking and low severity utility patch at intersection with James Brown Blvd near Core C-6.

Photograph 39: Broad Street – View facing southeast between 6th Street and 7th Streets of low severity longitudinal and transverse.

Photograph 40: Broad Street – View facing southeast of low severity weathering of pavement in Good condition near intersection with 4th Street.

Photograph 41: Broad Street – View facing southeast of low severity weathering of pavement in Good condition near Core C8.

Photograph 42: Broad Street – View facing northwest of low severity weathering of pavement in Good condition at intersection of East Boundary Street.

Photograph 43: Broad Street – View facing northwest of medium severity longitudinal and transverse cracking of pavement in Satisfactory condition near Core C7.

Photograph 44: Broad Street – View facing northwest approaching 8th Street of reflective cracking around manhole collar (typical).

Photograph 45: Green Street – View facing northwest of pavement in Good condition near Core C9.

Photograph 46: Green Street – View facing southeast of single low severity transverse crack of pavement in Good condition between 11th Street and 12th Streets.

Photograph 47: Green Street – View facing southeast of pavement in Good condition near Core C10.

Photograph 48: Green Street – View facing southeast of pavement in Good condition near Core C10.

Photograph 49: Green Street – View facing southeast of pavement in Good condition near intersection with 5th Street.

Photograph 50: Green Street – View facing southeast of low severity block cracking near Core C12.

Photograph 51: Green Street – View facing northwest of low severity block cracking in pavement in Satisfactory condition near Core C11.

Photograph 52: Green Street – View facing northwest of pavement in Good condition between 6th Street and 7th Street.

Photograph 53: Telfair Street – View facing northwest of low severity joint crack and medium severity weathering near intersection of Green Street.

Photograph 54: Telfair Street – View facing southeast of pavement in Good condition near Core C13 looking.

Photograph 55: Telfair Street – View facing southeast of low to medium severity block cracking near intersection with 9th Street.

Photograph 56: Telfair Street – View facing southeast of low severity joint cracking in pavement between 6th Street and 5th Street.

Photograph 57: Telfair Street – View facing southeast of low severity alligator cracking near East Boundary Street.

Photograph 58: Telfair Street – View facing northwest of low severity block cracking.

Photograph 59: Telfair Street – View facing northwest near US 1 of low severity longitudinal and transverse cracks.

Photograph 60: Telfair Street – View facing northwest of pavement in Satisfactory condition near Core C14.

Photograph 61: 9th Street/James Brown Blvd – View facing north of low severity transverse cracking near Telfair Street intersection.

Photograph 62: 9th Street/James Brown Blvd – View facing north of pavement in Satisfactory Condition near Core C21.

Photograph 63: 9th Street/James Brown Blvd – View facing south of low severity block cracking and medium severity patches approximately 250 north of Green Street.

Photograph 64: 9th Street/James Brown Blvd – View facing south of low to medium severity block cracking in pavements of Fair condition near Core C24.

Photograph 65: 9th Street/James Brown Blvd – View facing north of medium severity patch and medium severity alligator cracking Core C23.

Photograph 66: 13th Street – View facing north of pavement in Good condition at intersection with Green Street.

Photograph 67: 13th Street – View facing north of pavement in Good condition near Core C17.

Photograph 68: 13th Street – View facing north of pavement in Good condition near intersection of Broad Street.

Photograph 69: 13th Street – View facing south of pavement in Good condition near Core C19.

Photograph 70: 13th Street – View facing north of low severity transverse cracks near Core C19.


Photograph 71: 13th Street – View facing south of low severity longitudinal and transverse cracking along with shallow rutting in right wheel lane near Core C20. Pavement in Satisfactory condition.

Photograph 72: 6th Street – View facing north of medium severity joint crack and medium severity weathering near Taylor Street. Pavement in Fair condition.

Photograph 73: 6th Street – View facing north of medium severity longitudinal cracking near Telfair Street.

Photograph 74: 6th Street – View facing north near of low severity longitudinal cracking near Core C25.

Photograph 75: 6th Street – View facing south of pavement in Satisfactory condition near intersection of Ellis Street.

Photograph 76: 6th Street – View facing south of medium severity longitudinal cracking near Core C26.

Photograph 77: 5th Street – View facing south of medium severity weathering and low severity longitudinal cracking near Core C30.

Photograph 78: 5th Street – View facing north of medium severity joint cracking near Core C29 looking north.

Photograph 79: 5th Street – View facing north of pavement in Satisfactory condition near intersection of Reynolds Street.

Photograph 80: 5th Street – View facing south of medium severity joint cracking near Core C28.

Geotechnical Exploration & Assessment of Distressed Walls

@

13TH STREET BRIDGE OVER HAWKES GULLEY
AUGUSTA, GEORGIA

Submitted to

Civil Services, Inc.
Consulting Engineers

CIVIL SERVICES, INC.
2394 St. Johns Bluff Road, S.
Jacksonville, FL 32246

December 2020

MEG 30485

Matrix Engineering Group, Inc.

engineers | special inspectors | construction consultants

December 4, 2020

Mr. Fares E. Tannous, P.E.
Sr. Bridge Engineer / Project Manager
CIVIL SERVICES, INC.
2394 St. Johns Bluff Road, S.
Jacksonville, FL 32246

Re: Geotechnical Exploration and Assessment of Distressed Walls
13th Street Bridge Over Hawkes Gulley
Augusta, Georgia
Matrix Engineering Group Project Number MEG-302485

Dear Mr. Tannous:

Matrix Engineering Group, Inc. has completed the authorized Subsurface Exploration for the proposed Demolition and Replacement of the existing sidewalks and brick parapet walls. The scope of this work included the drilling of four (4) soil test borings, conducting a visual survey of the existing bridge's brick wingwalls, and providing the findings and recommendations regarding the geotechnical aspects of the proposed project.

This report describes our investigative procedures and presents our findings, conclusions and engineering recommendations.

Matrix Engineering Group, Inc. appreciates the opportunity to have worked with Civil Services, Inc. on this project and looks forward to our continued association. If you have any questions or need further assistance, please do not hesitate to call.

Best Regards,

MATRIX ENGINEERING GROUP, INC.

Ahmad NasrAllah
Project Manager
anasrallah@matrixengineeringstaff.com

GEORGIA REGISTERED No. 24443 PROFESSIONAL ENGINEER AMIN ADNAN TOMEH

Amin Tomeh, PE, PMP, D.GE
Senior Geotechnical Engineer
Principal
amin@matrixengineeringgroup.com

Distribution (email .PDF): Mr. Ali A. Najafi, PE – Civil Services, Inc.

M:\1.0 MATRIX PROJECTS FOLDER\13th St. Bridge over Hawkes Gulley (Civil Services, Inc.)\1.0 GEOTECHNICAL - MEG 302485\Subsurface Exploration_ 13th Street Over Hawks Gully.docx

SUMMARY OF GEOTECHNICAL FINDINGS & RECOMMENDATIONS

–THIS SUMMARY DOES NOT REPLACE THE REPORT. THE READER IS URGED TO REFER TO THE APPROPRIATE SECTION IN THE BODY OF THE REPORT–

ITEM	DESCRIPTION/FINDINGS/RECOMMENDATIONS
PROJECT	13th Street Crossing over Hawks Gulley, Augusta, GA
DATE OF REPORT	12/4/2020
PLANNED DEVELOPMENT	Replacement of Existing 4 ft. Brick Parapet Wall with a cast-in-place Brick-Veneered Concrete Wall/Sidewalk
FINISHED FLOOR ELEVATIONS	Not provided at the time of writing this report. Expected to match existing sidewalk grades.
EXISTING GRADE ELEVATIONS	Not provided at the time of writing this report.
NO. OF BORINGS	Three (3) Hand Auger Borings & Dynamic Cone Penetrometer & One (1) Mechanical Soil Test Borings
EXISTING CONDITIONS	⌖ An existing sidewalk consisting of Concrete is located within areas where the Parapet Wall and Sidewalk will be removed and replaced. The concrete sidewalk appears to have brick as aggregate. The thickness of which measured 4 to 5 inches (based on 2 cores). ⌖ The Existing Parapet Walls consist of unreinforced Brick and Mortar construction, exhibiting several vertical cracks. ⌖ East Parapet Wall – curved wingwall exhibited a diagonal crack, likely due to differential settlement of wall foundation. ⌖ East Parapet Wall – Southern wingwall (south of the arched aqueduct) is inclined (out of plumb) in an easterly direction. ⌖ Existing underground utilities that were identified within the sidewalks include Electrical/Power and Gas. All were at approximately 3 ft below existing grades (BGS), as determined by RHD.
SUBSURFACE CONDITIONS	⌖ Shallow auger refusal was encountered within the two cored sidewalk locations B1 and B2, at 8 inches and at 18 inches, respectively. The soil at both locations was man-made fill, consisting of mottled (Tannish Brown & Gray), Silty Clay. Elsewhere, at the third hand augered location, B3, located adjacent to the curved part of the West Parapet Wall. The encountered soils consisted of Gray, Loose, Medium to Fine, Sand with auger refusal encountered at 68 inches BGS ⌖ Mechanical augered Boring B4 encountered 18.5 ft of Fill that was underlain by Residual, Hard Clayey and Sandy Silt (ML). Below the existing 4 inches of Asphalt pavement, 6 inches of concrete was encountered. This was underlain by cemented soils (possible FDR) and gravelly Clayey Silt.
GROUNDWATER	⌖ Groundwater was not encountered at any of the soil test borings. However, moist soils were encountered at B4 at 18 ft BGS.
FOUNDATIONS	⌖ Recommended Allowable Bearing Capacity: **1,500 psf** for the proposed Parapet Wall/Sidewalk Foundation. ⌖ Ultimate Coefficient of Friction = **0.4** to calculate resistance to sliding.
SUBGRADE PREPARATION & STRUCTURAL BACKFILL	⌖ Inherent in the heterogeneity of man-made fill is the possibility of unsuitable soils presence at the time of grading and/or excavation for underground utilities. ⌖ After the existing sidewalks have been demolished, and the existing utilities are relocated, the soil subgrade's firmness and soil type should be evaluated confirmed by a qualified geotechnical engineer. The upper **12 inches** below the proposed foundations, should consist of granular soil fill compacted to **98% of Maximum Dry Density** as determined by the **Standard Proctor (ASTM D698).**
SPECIAL CONDITIONS	**East Wingwall** ⌖ The wall face can be stabilized by utilizing Soil Nails covered with colored and/or stamped Shotcrete, to match the existing brick color and texture. Matrix recommends one of the following specialized contractors, or other qualified contractor who can demonstrate proficiency in restoration/stabilization of similar brick walls: ➢ http://www.wursterinc.com/services-we-offer/soil-nail-walls/ ➢ https://www.atlaspiers.com/soil-nails/ ➢ www.keller-na.com/expertise/techniques/soil-nailing

TABLE OF CONTENTS

Cover Letter
Summary of Geotechnical Findings & Recommendations
Table of Contents

APPENDIX

1.0 INTRODUCTION

Matrix Engineering Group, Inc. (Matrix) has completed the authorized Geotechnical Engineering Evaluation and Distressed Wall Assessment for the 13th Street Bridge Over Hawks Gully in Augusta, Georgia, The objective was to explore the subsurface conditions, to assess the bridge's brick wing walls and to provide the findings and recommendations regarding the geotechnical aspects of the proposed project. This report describes our investigative procedures and presents our findings, conclusions and engineering recommendations.

This work was performed in general accordance with Matrix Proposal Number 060820-1, dated 6/8/2020 and the subsequent authorization to proceed by Mr. Ali Najafi during a conference call on 10/9/2020.

2.0 PROJECT DESCRIPTION

It is our understanding that the existing 13th Street Bridge will undergo rehabilitation and improvements to include the following:

- Removal of existing brick parapet walls and demolition of existing sidewalk.
- Replacement of brick parapet wall and sidewalk with reinforced concrete sidewalk and concrete wall with brick fascia.
- Repair and stabilization of existing brick wing walls.

3.0 SCOPE OF WORK

The scope of work for this project consisted of:

- Performing a limited Underground Utility Locate mainly along the sidewalks.
- Performing soil test borings including obtaining asphalt and concrete cores.
- Field and laboratory testing to determine the characteristics of the soils encountered in the soil borings.
- Perform a visual assessment of the eastern wing walls where a diagonal crack is visible and along a part that exhibited a tilt
- Preparation of this geotechnical report based on the data gathered during the exploration.

4.0 EXPLORATION AND TESTING PROGRAM

4.1 Subsurface Exploration

The geotechnical exploration program consisted of the drilling and sampling of four (4) soil test borings along the existing western sidewalk and northbound travel lane. The underground utility survey revealed the presence of buried utilities including gas and communication lines along the eastern sidewalk.

Communication lines were identified along the western sidewalk. The presence and location of the utility lines limited access for soil test borings to the western sidewalk, specifically adjacent to the curb. The approximate locations of the soil borings are shown on Figure 1 below. Refer to the Appendix for a depiction of the encountered utilities:

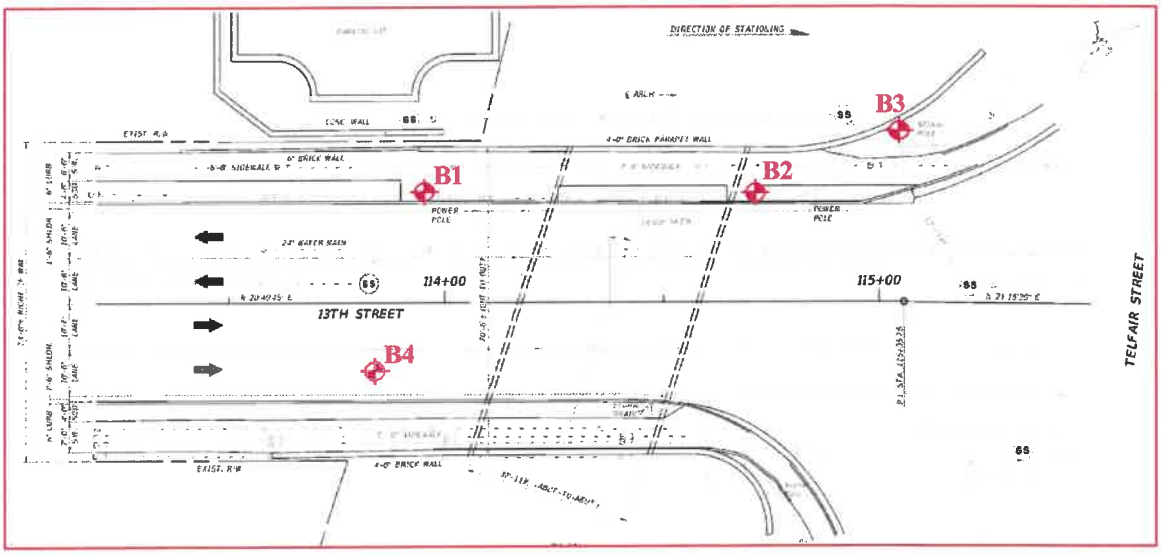


Figure 1: Approximate Soil Test Locations

Concrete cores were obtained at locations B1 and B2 in order to access the subsurface soils. B3 was located within the vegetated gently sloping subgrade near the intersection of 13th Street and Telfair Street. Soil testing was conducted in accordance with ASTM STP399 using a hand auger and dynamic cone penetrometer, as shown in the photograph below:

Figure 2: (L) Concrete Coring. (R) Hand Auger & Dynamic Cone Penetrometer Testing

Soil Test Boring B4 was performed utilizing a track mounted Geoprobe Drill rig mounted with a drilling apparatus equipped with an automatic hammer in general accordance with ASTM D1586 standards. The Boring were advanced to a total depth of 30 ft BGS by auguring through the soils with continuous flights of 3 $^{1}/_{4}$-inch ID augers. At regular intervals, soil samples were obtained through the center of the auger flights with a standard 1.4-inch I.D., 2-inch O.D., split-tube sampler. The sampler is first seated 6 inches to penetrate loosened strata before sampling, and then driven an additional foot with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final foot is recorded and is designated as the Standard Penetration Resistance (N-Value). The penetration resistance, when properly evaluated, is an index of the soil strength, consistency and ability to support foundations.

Figure 3: Mechanical Drilling and Standard Penetration Testing

Representative soil samples were obtained using split-spoon sampling techniques. The samples were classified in the field in general accordance with ASTM D2488 (Visual-Manual Procedure for Description of Soils). Representative portions of the soil samples were placed in sealable, plastic bags and transported to our laboratory. During the field operations, Matrix staff maintained a continuous log of the subsurface conditions including changes in the stratigraphy and any observed groundwater levels. Soil descriptions and penetration resistance values are presented graphically on the Soil Boring Records included in the Appendix of this report.

All borings were backfilled with the soil cuttings by Matrix Engineering at the conclusion of the field drilling. Boring B4 was sealed with a cold asphalt patch. Some consolidation of the backfilled soil column should be expected.

4.2 Laboratory Testing

The laboratory testing program for this project consisted of performing soil classifications in accordance with ASTM D2488 (Visual-Manual Method for Identification of Soils). The soil samples were examined in the laboratory by a geotechnical engineer and visually classified based on texture and plasticity in accordance with the Unified Soil Classification System (ASTM D2487).

5.0 SITE DESCRIPTION AND GENERAL SITE GEOLOGY

5.1 Site Description

The subject site is the brick arched bridge over Hawkes Gully and is located at the intersection of Telfair Street and 13th Street (GA SR4). Public records suggest that the bridge was constructed around 1917 (ref. https://bridgehunter.com/ga/richmond/bh48078/).

5.2 General Site Geology

The subject site is near the Fall Line in the Piedmont Geologic Province, which contains the oldest rock formations in the Southeastern United States. A search of the USGS database (https://mrdata.usgs.gov/geology/state/map.html), indicates that Stream Alluvial soils are present

6.0 GENERAL SUBSURFACE CONDITIONS

The subsurface conditions were characterized by visual-manual examination of the soils obtained from the split-spoon sampler and observation from the auger cutting during the drilling and auguring operations. The soil boring logs, designated as B1 to B4, are provided in the Appendix of this report. The subsurface conditions within the drilled borings are characterized as follows:

6.1 Surface Materials and Man-Made Fill

The drilled surfaces at the subject site are covered with the existing concrete sidewalk and asphalt pavement. The concrete sidewalk was measured at 4 & 5 inches thick at borings B1 and B2, respectively. The cored concrete appeared to have broken brick as aggregate.

Figure 4: Concrete Cores @ B1 and B2

The soil at both locations is man-made fill, consisting of mottled (Tannish Brown & Gray), Silty Clay. Elsewhere, at the third hand augered location, B3, located adjacent to the curved part of the West Parapet Wall. The drilled soils consisted of Gray, medium to fine, Sand. Auger refusal was encountered at 18 inches, 8 inches, and 68 inches below existing grades (BGS).

The asphalt pavement, at boring B4, was measured at 4 inches and was underlain by 6 inches of concrete. At 12 inches BGS, Gravelly Silty Sand was encountered up to 4 ft BGS. Cemented soils (possibly soil-cement or a pre-existing full-depth reclaimed pavement) containing fragments of asphalt were encountered. At 6 ft BGS, the soil consisted of Silty Clay, which was underlain by grayish brown Clayey Silt at 13.5 ft BGS.

6.2 Residual Material

Residual soils are those which have weathered in place from the parent rock. Residual soils were encountered at boring B4 at 18.5 ft BGS consisting of Hard, Olive Green, Clayey Silt changing to Very Stiff, Greenish Gray, Silty Clay. The soil test boring was terminated at 30 ft BGS.

6.3 Groundwater

Groundwater was not encountered at any of the test borings within the explored depths at the time of drilling. However, moist soils were encountered at Boring B4 at a depth of 18.0 ft BGS which could be indicative of the presence of groundwater at or near that elevation. The boreholes were backfilled with the drilled soil cuttings at the conclusion of our field testing. Some settlement of the backfilled soil columns should be anticipated.

7.0 FINDINGS AND RECOMMENDATIONS

7.1 Visual Assessment of Bridge Wing Walls & Repairs

The general conditions of the bridge wingwalls were visually examined, and the degree of tilt was measured using a 2 ft long level. The following was noted:

- The Existing Parapet Walls on both the East and West sides of the bridge consist of unreinforced Brick with Mortar joints, exhibiting several vertical cracks.

- East Wingwall (South End) is inclined (out of plumb) in an easterly direction. Based on our measurements, the degree of tilt was estimated to be on the order of 8° to 9° from vertical.

- East Curved Wingwall (North End) exhibited a diagonal crack, likely due to differential settlement of wall foundation. The degree of tilt was estimated to be on the order of 3° from vertical.

- West Wingwall (South End) is inclined (out of plumb) in a westerly direction. The degree of tilt was estimated to be on the order of 2° from vertical.

- West Curved Wingwall (North End) exhibited some vertical cracks within the parapet section of the wall and no observable tilt within the wing wall.

Refer to the following photographs for a sampling of the observed conditions. They are not intended to be exhaustive but rather are presented to show the general condition of the bridge wingwalls and parapet walls at the time of our visits during the months of October and November of 2020:

Figure 5: (L) View of Wing and Spandrel Walls along Western Side. (R) Measuring Degree of Tilt

Figure 6: (L) View of Wing and Spandrel Walls along Eastern Side. (R) Diagonal Crack in Brick Wingwall at North End of Eastern Wall.

Figure 7: (L) View of Wall Along Eastern Side where Tilt is Visible. (R) Vertical Crack and Separation of Parapet Wall on Eastern Side

Figure 8: (L) View of Parapet Wall Along Eastern Side where Tilt is visible. (R) View of Curved Parapet Wall Along Western Side North End.

Based on the observed tilt that was observed along the southern end of the Eastern Wingwall, Matrix recommends the stabilization and preservation of the exposed part of the wingwall by using Permanent Soil Nailing in general accordance with GDOT 628, as applicable. This technique utilizes a series of thread bars that are drilled at an inclined angle (through a cored hole) into the face of the brick wall and are then grouted into the drilled hole. This is repeated over a row at a typical spacing of 5 ft apart. The repaired wall section receives steel reinforcement and/or welded wire with wailer rebar along each row of soil nails and

is then shotcreted. A steel plate is then affixed over each thread bar using a cone nut or a nut with beveled washer that goes over the thread bar. The installed thread bars (soil nails) are 20 to 25 ft long and the angle of inclination is on the order of 15° from horizontal. The shotcrete face can be installed in a manner to correct the current tilt of the brick wall and can be applied using colored cement that can be stamped with a matching brick pattern.

Matrix recommends one of the following specialized contractors, or other qualified contractor who can demonstrate proficiency in restoration/stabilization of similar brick walls:

- http://www.wursterinc.com/services-we-offer/soil-nail-walls/
- https://www.atlaspiers.com/soil-nails/
- www.keller-na.com/expertise/techniques/soil-nailing

7.2 Groundwater & Dewatering

We do not anticipate groundwater to impact the construction of the proposed project. If encountered, groundwater levels should be maintained at a minimum of 3 feet below the bottom of any proposed excavation (only during construction) in order to protect the exposed subgrade's integrity. If groundwater is encountered during the installation of any utility lines, the water should be controlled with a localized sump and pump system, as required at the time of construction.

7.3 Subgrade Preparation

Subgrade preparation for the proposed development is expected to entail the demolishing of the existing sidewalks and brick parapet walls. **Any deleterious materials, buried debris, or underground utility lines that may be encountered during the grading operation should be treated on an individual basis.** If utility lines are relocated, the resulting trenched should be backfilled properly in accordance with GDOT Section 812.

After removal of the surface materials, the suitability of the exposed subgrade should be confirmed by qualified geotechnical engineer in order to discern any localized soft zones in the subgrade. We anticipate that the existing subgrades will require scarifying and recompaction with the potential of having to remove and replace soft localized areas, if encountered.

Provided the fill material and/or existing subgrade is installed to a minimum of **98% of the Standard Proctor's maximum dry density**, a modulus of subgrade reaction **(k) of 125 pci** can be used for designing the floor slab-on-grade.

The proposed reinforced concrete parapet wall foundations should be situated in well compacted and properly tested soils and be designed for a maximum net allowable soil bearing pressure **not to exceed 1,500 pounds per square foot (psf)**.

8.0 LIMITATIONS & QUALIFICATION OF RECOMMENDATIONS

The following recommendations are based on the information furnished to us, the data obtained from the subsurface exploration, and our past experience with similar projects. They were prepared in general accordance with established and accepted professional geotechnical engineering practice in this region. Our recommendations are based on findings from the dates referenced within this report and do not reflect any variations that would likely exist at later dates or between the pre-designated borings or unexplored areas.

If information becomes available which may impact our recommendations, Matrix Engineering Group shall be afforded the opportunity to review this information and re-evaluate the recommendations contained within this report and make any alterations deemed necessary by a Georgia Registered professional engineer. This report is intended for the use of ***Civil Services, Inc****. and its client and team members. No other warranty is expressed or implied. Matrix Engineering Group, Inc. is not responsible for conclusions, opinions, or recommendations made by others based on this report.*

Experienced geotechnical personnel from Matrix Engineering Group should observe and document the construction procedures used and the conditions encountered.

The Limited Utilities Survey was produced while providing clearance for Matrix soil test borings and should not be relied upon for any other purposes. It is provided for information only.

APPENDIX

Correlation of Standard Penetration Resistance with Relative Compactness and Consistency

Soil Boring Logs

RHD Utility Map & Photographs

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES
COARSE-GRAINED SOILS (More Than 1/2 of Soil > #200 Sieve)	**GRAVELS** (More Than 1/2 of Coarse Fraction > #4 Sieve)	GW	Well Graded Gravels or Gravel-Sand Mixtures; Little or no fines
		GP	Poorly Graded Gravels or Gravel-Sand Mixtures; Little or no fines
		GM	Silty Gravels, Gravel-Sand-Silt Mixtures
		GC	Clayey Gravels, Gravel-Sand-Clay Mixtures
	SANDS (MORE Than 1/2 of Coarse Fraction < #4 Sieve)	SW	Well Graded Sands or Gravelly Sands; Little or no fines
		SP	Poorly Graded Sands or Gravelly Sands; Little or no fines
		SM	Silty Sands, Sand-Silt Mixtures
		SC	Clayey Sands, Sand-Clay Mixtures
FINE-GRAINED SOILS (More Than 1/2 of Soil < #200 Sieve)	**SILTS & CLAYS** Liquid Limit Less Than 50	ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
		CL	Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
		OL	Organic Silts and Organic Silty Clays of Low Plasticity
	SILTS & CLAYS Liquid Limit Greater Than 50	MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sandy or Silty Soils, Elastic Silts
		CH	Inorganic Clays of High Plasticity, Fat Clays
		OH	Organic Clays or Medium to High Plasticity, Organic Silty Clays, Organic Silts
HIGHLY ORGANIC SOILS		PT	Peat and Other Highly Organic Soils

CLASSIFICATION CHART

Relative Density of Cohesionless Soils from Standard Penetration Test	
Very Loose	≤ 4 bpf
Loose	5-10 bpf
Medium Dense	11-30 bpf
Dense	31-50 bpf
Very Dense	> 50 bpf
(bpf=blows per foot; ASTM D1586)	

Consistency of Cohesive Soils	
Very Soft	≤ 2 bpf
Soft	3-4 bpf
Firm	5-8 bpf
Stiff	9-15 bpf
Very Stiff	16-30 bpf
Hard	30-50 bpf
Very Hard	> 50 bpf

Relative Hardness of Rock	
Very Soft	Hard rock disintegrates or easily compresses to touch; can be hard to very hard soil
Soft	May be broken with fingers
Moderately Soft	May be scratched with a nail, corners and edges may be broken with fingers
Moderately Hard	Light Blow of hammer required to break samples
Hard	Hard blow of hammer required to break sample

Particle Size Identification	
Boulders	Larger than 12"
Cobbles	3"-12"
Gravel	
Coarse	3/4"-3"
Fine	4.76mm-3/4"
Sand	
Coarse	2.0-4.76 mm
Medium	0.42-2.00 mm
Fine	0.42-0.074 mm
Fines (Silt or Clay)	Smaller than 0.074 mm

Rock Continuity

RECOVERY (%) = Total Length of Core x 100 / Length of Core Run

Description	Core Recovery (%)
Incompetent	Less than 40
Competent	40-70
Fairly Continuous	71-90
Continnuous	91-100

Relative Quality of Rocks

RQD (%) =((Total core, counting only pieces >4" long)/(Length of Core Run)) x 100

Description	RQD (%)
Very Poor	0-25
Poor	25-50
Fair	50-75
Good	75-90
Excellent	90-100

Matrix Engineering Group, Inc.
engineers | special inspectors | construction consultants

Correlation of Penetration Resistance with Relative Density and Consistency Sheet and Soil Classification Chart

Matrix Engineering Group, Inc.
engineers | special inspectors | construction consultants

4358 Chamblee Tucker Rd, Ste 3 - Tucker, GA 30084
Tel. (770) 448-3124, Fax (770) 448-5324

DYNAMIC CONE PENETROMETER TEST RESULTS
(ASTM STP399)*

Project: 13th Street Bridge (Geotechnical)
Client: Civil Services, Inc.
Contractor: -
Bearing Capacity: - PSF

Project Number: 302485
Date: 10/15/2020
Inspector: Ahmad NasrAllah

Test Boring No. B1

Depth (inch)	Blow Count	Description
0	-	4 inch Concrete Sidewalk
4	-	Brown Silty Sand
8	7	Mottled (Tannish Brown/Gray) Silty Clay
17	9	Mottled (Tannish Brown/Gray) Silty Clay
18	-	Auger refusal

Test Boring No. B2

Depth (inch)	Blow Count	Description
0	-	5 inch. Concrete Sidewalk
5	14	Mottled (Tannish Brown/Gray) Silty Clay
8	-	Auger refusal (Possibly Roots)

Test Boring No. B3

Depth (inch)	Blow Count	Description
32	5	Gray medium to Fine Sand
43	5	Gray medium to Fine Sand
54	5	Gray Medium to Fine Sand
64	5	Gray Medium to Fine Sand
68	-	Auger Refusal

Test Boring No.

Depth (inch)	Blow Count	Description

Test Boring No.

Depth (inch)	Blow Count	Description

Test Boring No.

Depth (inch)	Blow Count	Description

*The portable cone penetrometer device utilizes a 15-lb steel ring weight falling 20 inches on an E-rod slide device. The penetration test is performed through an augered hole 4 to 6 inches in diameter. After augering to the test depth, the penetrometer's cone point is seated 2 inches into the undisturbed bottom of the hole to ensure complete point embedment. The cone is further driven 1.75 inches using the ring weight hammer falling freely 20 inches. The number of blows are counted and recorded above.

MATRIX ENGINEERING GROUP, INC.
Geotechnical, Environmental & Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B4

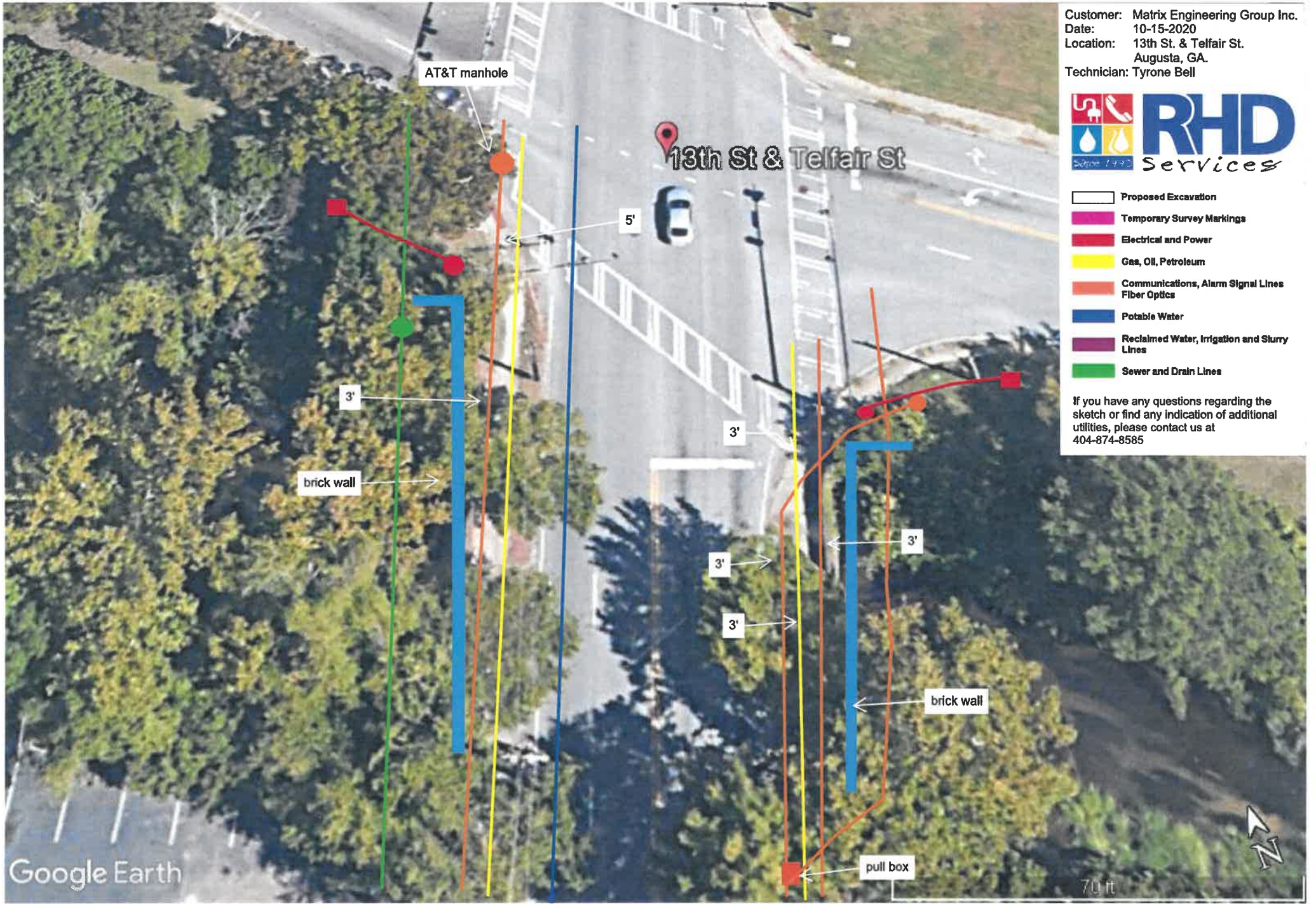
File: Borings Date Printed: 12/4/2020

PROJECT: 13th Street bridge **PROJECT NO.:** MEG 302485
CLIENT: Civil Services, Inc. **DATE:** 11/19/2020
LOCATION: Northbound Travel Lane **ELEVATION:**
DRILLER: GeoLab Drilling **LOGGED BY:** Ahmad NasrAllah
DRILLING METHOD: ASTM D1586 w/ automatic hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ ____ **After 24+ Hours:** ▽ ____ **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%) ▲ / Penetration ● (10 20 30 40 50)	N-Value Blows/ft (ASTM D1586)
	0	Approximately 4-inches of Asphalt, underlain by approximately 6-inches of concrete.					
		FILL - Medium Dense, Light Brown, Gravelly, Silty Sand.	FILL				21
		Very Dense, Light Brown, soil-cement with Asphalt.					50/4"
	6	Very Stiff, Light Brown, Silty Clay.					22
		Stiff, Light Brown, Silty Clay.					12
	12	Stiff, Grayish Brown, Clayey Silt. Moist @ 18 ft BGS.					15
	18	Residual - Hard, Olive Green, Clayey Silt.	ML				34
	24	Very Stiff, Greenish Gray, Sandy Silt.	ML				25
							15
	30	Boring was terminated at 30-feet BGS.					
	36						
	42						

No groundwater was encountered within the drilled depth at the time of drilling. Boring was backfilled using soil cuttings and patched with a cold asphalt patch.

This information pertains only tothis boring and should not be interpreted as being indicitive of the site.



Customer: Matrix Engineering Group Inc.
Date: 10-15-2020
Location: 13th St. & Telfair St.
Augusta, GA.
Technician: Tyrone Bell

RHD Services

- Proposed Excavation
- Temporary Survey Markings
- Electrical and Power
- Gas, Oil, Petroleum
- Communications, Alarm Signal Lines Fiber Optics
- Potable Water
- Reclaimed Water, Irrigation and Slurry Lines
- Sewer and Drain Lines

If you have any questions regarding the sketch or find any indication of additional utilities, please contact us at 404-874-8585


Finish Crossing
DON'T CROSS
TO CROSS


ONE WAY

CITY OF AUGUSTA ENGINEERING DEPARTMENT

P.I. NO. 0011409 – TELFAIR STREET IMPROVEMENTS

SPECIAL PROVISION

Section 150.6 – Traffic Control (Special Conditions)

Retain Section 150 of the Project Special Provisions as written and add the following:

150.6 Special Conditions

A. Work Hours:

This project requires the following restricted work hours:
Lane closures will not be permitted between the hours of 6:00 am to 9:00 am; and 4:00 pm to 7:00 pm without prior approval by the engineer.

Failure by the contractor to reopen the lane by the times specified will result in damages assessed in accordance with Sub-Section 108.08.C of Section 108 included herein as a Special Provision of this contract.

B. Traffic Control Plan:

A Traffic Control Plan shall be submitted two (2) weeks prior to any work for review and approval by the Engineer.

C. Holiday Work:

No work shall be allowed during the following dates due to holidays:

December 31st thru January 2nd - New Year's Day Holiday

Saturday thru Monday - Martin Luther King, Jr. Day Holiday

Saturday thru Monday - Memorial Day Holiday

July 3rd thru July 5th – Independence Day Holiday

Saturday thru Monday – Labor Day Holiday

Saturday thru Monday - Columbus Day Holiday

November 10th – November 12th – Veterans Day Holiday

Thursday thru Sunday - Thanksgiving Holiday

December 23rd thru December 26th – Christmas Holiday

Lane closures shall also not be allowed during the weekends of the Georgia Tax Free Weekends.

SECTION 3: UPDATED FEE PROPOSAL

Date: _____

Gentlemen:

In compliance with your invitation for bids dated _____, 2022, the undersigned hereby proposed to furnish all labor, equipment, and materials, and to perform all work for the installation of roadway improvements, and appurtenances referred to herein as:

13th STREET IMPROVEMENT PROJECT PI#0011424
TELFAIR STREET IMPROVEMENT PROJECT PI#0011409

In strict accordance with the Contract Documents and in consideration of the amounts shown on the Bid Schedule attached hereto and totaling:

_____**DOLLARS**

($_____)

The undersigned hereby agrees that, upon written acceptance of this bid, he will within 10 days of receipt of such notice execute a formal contract agreement with the OWNER, and that he will provide the bond or guarantees required by the Contract Documents.

The undersigned hereby agrees that, if awarded the contract, he will commence the work within **10** calendar days after the date of written notice to proceed, and that he will complete all work within **540** calendar days.

The undersigned acknowledges receipt of the following addenda:

Addendum Number:	**Addendum Date:**
_____	_____
_____	_____

Respectfully submitted:

_____
(Name of the Firm)

_____
(Business Address)

By: _____

Title: _____

BID PROPOSAL 13TH STREET PI 0011424

ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL COST
000-0000	FORCE ACCOUNT	**1**	**LS**	**$ 600,000.00**	**$ 600,000.00**
	ROADWAY				
150-1000	TRAFFIC CONTROL - 0011424	1	LS		
207-0203	FOUND BKFILL MATL, TP II	750	CY		
210-0100	GRADING COMPLETE – 0011424*	1	LS		
213-1000	LOCAL SAND OR SAND-GRAVEL BACKFILL	750	CY		
310-1101	GR AGGR BASE CRS, INCL MATL	750	TN		
402-1801	RECYCLED ASPH CONC PATCHING, INCL BITUM MATL	50	TN		
402-1812	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	250	TN		
402-3130	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME	2100	TN		
413-0750	TACK COAT	2000	GL		
432-0206	MILL ASPH CONC PVMT, 1-1/2 IN DEPTH	22500	SY		
441-0104	CONC SIDEWALK, 4 IN	3450	SY		
441-4020	CONC VALLEY GUTTER, 6 IN	450	SY		
441-4040	CONC VALLEY GUTTER WITH CURB, 6 IN	150	SY		
441-5004	CONCRETE HEADER CURB, 10 IN, TP 4	400	LF		
441-6002	CONC CURB & GUTTER, 6 IN X 18 IN, TP 2	3000	LF		
441-6012	CONC CURB & GUTTER, 6 IN X 24 IN, TP 2	265	LF		
441-6022	CONC CURB & GUTTER, 6 IN X 30 IN, TP 2	1800	LF		
500-3800	CLASS A CONCRETE, INCL REINF STEEL	2	CY		
500-9999	CLASS B CONC, BASE OR PVMT WIDENING	250	CY		
550-1120	STORM DRAIN PIPE, 12 IN, H 1-10	30	LF		
550-1150	STORM DRAIN PIPE, 15 IN, H 1-10	55	LF		
550-1180	STORM DRAIN PIPE, 18 IN, H 1-10	632	LF		
550-1240	STORM DRAIN PIPE, 24 IN, H 1-10	910	LF		
550-3000	ELLIPTICAL PIPE - 14 IN X 23 IN, CLASS III	96	LF		
573-1006	UNDDR PIPE ONLY, 6 IN	36	LF		
573-2006	UNDDR PIPE INCL DRAINAGE AGGR, 6 IN	250	LF		

600-0001	FLOWABLE FILL	25	CY		
603-1300	ROCK RIP RAP	10	TN		
603-6006	SAND-CEMENT BAG RIP RAP, 6 IN	245	SY		
611-3000	RECONSTR CATCH BASIN, GROUP 1	3	EA		
611-3030	RECONSTR STORM SEW MANHOLE, TYPE 1	2	EA		
611-3100	RECONSTR JUNCTION BOX	1	EA		
668-1100	CATCH BASIN, GP 1	34	EA		
668-1110	CATCH BASIN, GP 1, ADDL DEPTH	12	LF		
668-4300	STORM SEWER MANHOLE, TP 1	8	EA		
668-4311	STORM SEWER MANHOLE, TP 1, ADDL DEPTH, CL 1	10	LF		
				SUBTOTAL	
	BRIDGE				
501-2001	STR STEEL	136	LB		
511-1000	BAR REINF STEEL	14685	LB		
500-1011	SUPERSTR CONCRETE, CL D, BR NO - 1	180	CY		
610-9006	REM PORTIONS OF EXISTING WINGWALLS & PARAPETS	1	LS		
611-5360	RESET HIGHWAY SIGN	28	EA		
603-7000	PLASTIC FILTER FABRIC	116	SY		
608-1000	BRICK MASONRY	33	CY		
628-0100	PERMANENT SOIL-NAILED WALL, NO - 1	1	LS		
				SUBTOTAL	
	SIGNING & MARKING AND SIGNAL				
150-0008	REMOVE AND RESET EXISTING SPCL GUIDE SIGN, GROUND MOUNTED, COMPLETE-IN-PLACE	4	EA		
636-1033	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 9	12	SF		
636-1036	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 11	40	SF		
636-2070	GALV STEEL POSTS, TP 7	504	LF		
643-8200	BARRIER FENCE (ORANGE), 4 FT	1000	LF		
647-1000	TRAFFIC SIGNAL INSTALLATION NO - 1	1	LS		
647-6057	PEDESTAL POLE - RESET	2	EA		
647-6058	PEDESTAL POST - RESET	2	EA		
653-0100	THERMOPLASTIC PVMT MARKING, RR/HWY CROSSING SYMBOL	4	EA		
653-0110	THERMOPLASTIC PVMT MARKING, ARROW, TP 1	2	EA		

653-0120	THERMOPLASTIC PVMT MARKING, ARROW, TP 2	8	EA		
653-0130	THERMOPLASTIC PVMT MARKING, ARROW, TP 3	3	EA		
653-0210	THERMOPLASTIC PVMT MARKING, WORD, TP 1	4	EA		
653-1704	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	697	LF		
653-1804	THERMOPLASTIC SOLID TRAF STRIPE, 8 IN, WHITE	2007	LF		
653-2501	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	1	LM		
653-2502	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	1	LM		
653-4501	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	1	GLM		
653-6004	THERMOPLASTIC TRAF STRIPING, WHITE	278	SY		
653-6006	THERMOPLASTIC TRAF STRIPING, YELLOW	100	SY		
654-1001	RAISED PVMT MARKERS TP 1	135	EA		
654-1003	RAISED PVMT MARKERS TP 3	225	EA		
				SUBTOTAL	
	UTILITY				
611-8050	ADJUST MANHOLE TO GRADE	7	EA		
611-8120	ADJUST WATER METER BOX TO GRADE	15	EA		
611-8140	ADJUST WATER VALVE BOX TO GRADE	3	EA		
611-8150	ADJUST SEWER LATERAL CLEANOUT TO GRADE	1	EA		
611-8160	ADJUST GAS VALVE TO GRADE	10	EA		
670-4000	FIRE HYDRANT ASSEMBLY, INCL TAPPING SLEEVE & VALVE	4	EA		
670-5000	UTILITY CONFLICT ADJUSTMENT - WATER SERVICE LINE (ALL SIZES)	50	LF		
660-2050	UTILITY CONFLICT ADJUSTMENT - SEWER LATERAL (ALL SIZES)	50	LF		
670-9730	RELOCATE EXIST WATER METER, INCL BOX	3	EA		
				SUBTOTAL	
	LIGHTING				
681-4120	LIGHTING STD, 12 FT MH, POST TOP	81	EA		
682-1306	CABLE, TP THHN, AWG NO 6	135965	LF		
682-2110	ELECTRICAL SERVICE POINT	2	EA		

682-6110	CONDUIT, RIGID, 1 IN	200	LF		
682-6120	CONDUIT, RIGID, 2 IN	200	LF		
682-6221	CONDUIT, NONMETL, TP 2, 1-1/2 IN	19647	LF		
682-9020	ELECTRICAL JUNCTION BOX	25	EA		
682-9950	DIRECTIONAL BORE - 3 IN	2467	LF		
682-9950	DIRECTIONAL BORE - 5 IN	200	LF		
				SUBTOTAL	
	LANDSCAPE				
700-7000	AGRICULTURAL LIME	1	TN		
700-8000	FERTILIZER MIXED GRADE	0.1	TN		
700-9300	SOD	270	SY		
702-0063	AZALEA HYBRIDS - SOUTHERN INDICA AZALEA, 7 GAL	47	EA		
702-0183	CORNUS KOUSA - KOUSA DOGWOOD, 2 IN CAL	14	EA		
702-0236	DISTYLIUM - VINTAGE JADE DISTYLIUM, 3 GAL	246	EA		
702-0358	ILEX CORNUTA - CARISSA HOLLY, 3 GAL	189	EA		
702-0678	MULLENBERGIA CAPILLARIS - PINK MUHLY GRASS, 3 GAL	141	EA		
702-0718	PARROTIA PERSICA - STREETWISE PERSIAN PARROTIA, 4 IN CAL	60	EA		
702-0897	QUERCUS NUTTALLI - NUTTALL OAK, 3 IN CAL	15	EA		
702-1121	YUCCA - SPINELESS YUCCA, 3 GAL	253	EA		
702-9025	LANDSCAPE MULCH	1700	SY		
708-1000	PLANT TOPSOIL	260	CY		
766-7020	IRRIGATION SYSTEM	1	LS		
900-0039	BRICK PAVERS	19000	SF		
937-6050	INTERSECTION VIDEO DETECTION SYSTEM ASSEMBLY, TYPE A	5	EA		
				SUBTOTAL	
	EROSION CONTROL				
163-0232	TEMPORARY GRASSING	1	AC		
163-0240	MULCH	1	TN		
163-0550	CONSTRUCT AND REMOVE INLET SEDIMENT TRAP - FILTER BLANKET	29	EA		
163-0550	CONTRUCT AND REMOVE INLET SEDIMENT TRAP - PIGS-N-BLANKET	20	EA		

165-0010	MAINTENANCE OF TEMPORARY SILT FENCE, TP A	3400	LF		
165-0105	MAINTENANCE OF INLET SEDIMENT TRAP	49	EA		
171-0010	TEMPORARY SILT FENCE, TYPE A	3400	LF		
-	-	-	-	SUBTOTAL	
				GRAND TOTAL	

BID PROPOSAL FOR TELFAIR STREET PI 0011409

ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL COST
000-000	FORCE ACCOUNT	1	LS	$ 900,000.00	$ 900,000.00
	ROADWAY				
150-1000	TRAFFIC CONTROL - 0011409	1	LS		
163-0232	TEMPORARY GRASSING	3	AC		
207-0203	FOUND BKFILL MATL, TP II	6500	CY		
210-0100	GRADING COMPLETE – 0011409*	1	LS		
213-1000	LOCAL SAND OR SAND-GRAVEL BACKFILL	2500	CY		
310-1101	GR AGGR BASE CRS, INCL MATL	3000	TN		
402-1801	RECYCLED ASPH CONC PATCHING, INCL BITUM MATL	100	TN		
402-1812	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	625	TN		
402-3130	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME	4500	TN		
413-0750	TACK COAT	4300	GL		
432-0206	MILL ASPH CONC PVMT, 1- 1/2 IN DEPTH	48500	SY		
441-0104	CONC SIDEWALK, 4 IN	13250	SY		
441-3999	CONCRETE GUTTER , 6 IN	1000	LF		
441-4020	CONC VALLEY GUTTER, 6 IN	175	SY		
441-4040	CONC VALLEY GUTTER WITH CURB, 6 IN	4750	SY		
441-5002	CONCRETE HEADER CURB, 6 IN, TP 2	500	LF		
441-6012	CONC CURB & GUTTER, 6 IN X 24 IN, TP 2	350	LF		
441-6022	CONC CURB & GUTTER, 6 IN X 30 IN, TP 2	14250	LF		
500-3101	CLASS A CONCRETE	50	CY		
500-9999	CLASS B CONC, BASE OR PVMT WIDENING	750	CY		
550-1150	STORM DRAIN PIPE, 15 IN, H 1-10	52	LF		

550-1180	STORM DRAIN PIPE, 18 IN, H 1-10	4445	LF		
550-1240	STORM DRAIN PIPE, 24 IN, H 1-10	2556	LF		
550-1300	STORM DRAIN PIPE, 30 IN, H 1-10	514	LF		
550-1360	STORM DRAIN PIPE, 36 IN, H 1-10	1058	LF		
550-1361	STORM DRAIN PIPE, 36 IN, H 10-15	71	LF		
550-3000	ELLIPTICAL PIPE - 18 IN X 29 IN, CLASS III	26	LF		
550-3000	ELLIPTICAL PIPE - 23 IN X 36 IN, CLASS III	55	LF		
573-2006	UNDDR PIPE INCL DRAINAGE AGGR, 6 IN	500	LF		
600-0001	FLOWABLE FILL	75	CY		
603-7000	PLASTIC FILTER FABRIC	250	SY		
611-3000	RECONSTR CATCH BASIN, GROUP 1	9	EA		
611-3002	RECONSTR CATCH BASIN, GROUP 2	1	EA		
611-3030	RECONSTR STORM SEW MANHOLE, TYPE 1	3	EA		
611-3100	RECONSTR JUNCTION BOX	1	EA		
611-5280	RESET GRANITE CURB	1000	LF		
611-5360	RESET HIGHWAY SIGN	22	EA		
				SUBTOTAL	
	TRAFFIC SIGNING MARKING AND SIGNAL				
636-1033	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 9	133	SF		
150-0008	REMOVE AND RESET EXISTING SPCL GUIDE SIGN, GROUND MOUNTED, COMPLETE-IN-PLACE	2	EA		
636-1036	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 11	192	SF		
636-2070	GALV STEEL POSTS, TP 7	1330	LF		
647-1100	TRAFFIC SIGNAL MODIFICATION - SIGNAL HEAD ADJUSTMENTS	8	EA		
653-0095	THERMOPLASTIC PVMT MARKING, HANDICAP SYMBOL	11	EA		
653-0100	THERMOPLASTIC PVMT MARKING, RR/HWY CROSSING SYMBOL	2	EA		
653-0110	THERMOPLASTIC PVMT MARKING, ARROW, TP 1	63	EA		
653-0120	THERMOPLASTIC PVMT MARKING, ARROW, TP 2	7	EA		
653-0210	THERMOPLASTIC PVMT MARKING, WORD, TP 1	2	EA		
653-0320	THERMOPLASTIC PVMT MARKING, SYMBOL, TP 4	63	EA		

653-1704	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	983	LF		
653-1804	THERMOPLASTIC SOLID TRAF STRIPE, 8 IN, WHITE	4967	LF		
653-2501	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	5	LM		
653-2502	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	3	LM		
653-3501	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	900	GLF		
653-6004	THERMOPLASTIC TRAF STRIPING, WHITE	273	SY		
653-6006	THERMOPLASTIC TRAF STRIPING, YELLOW	396	SY		
653-6008	THERMOPLASTIC TRAF STRIPING, GREEN	1393	SY		
654-1001	RAISED PVMT MARKERS TP 1	462	EA		
654-1003	RAISED PVMT MARKERS TP 3	32	EA		
660-1510	UTILITY CONFLICT ADJUSTMENT - GRAVITY SEWER MAIN, PVC (8 IN TO 15 IN)	250	LF		
660-1635	SEWER MAIN, DUCTILE IRON, 12 IN	20	LF		
660-1650	SEWER MAIN, DUCTILE IRON, 18 IN	45	LF		
668-1100	CATCH BASIN, GP 1	103	EA		
668-1110	CATCH BASIN, GP 1, ADDL DEPTH	8	LF		
668-2100	DROP INLET, GP 1	2	EA		
668-3300	SAN SEWER MANHOLE, TP 1	1	EA		
668-3311	SAN SEWER MANHOLE, TP 1, ADDL DEPTH, CL 1	3	LF		
668-4300	STORM SEWER MANHOLE, TP 1	62	EA		
668-4311	STORM SEWER MANHOLE, TP 1, ADDL DEPTH, CL 1	36	LF		
668-4400	STORM SEWER MANHOLE, TP 2	1	EA		
668-4412	STORM SEWER MANHOLE, TP 2, ADDL DEPTH, CL 2	5	LF		
				SUBTOTAL	
	UTILITY				
611-8050	ADJUST MANHOLE TO GRADE	6	EA		
611-8120	ADJUST WATER METER BOX TO GRADE	58	EA		
611-8140	ADJUST WATER VALVE BOX TO GRADE	11	EA		
611-8150	ADJUST SEWER LATERAL CLEANOUT TO GRADE	5	EA		
611-8170	ADJUST HAND HOLE BOX TO GRADE	49	EA		

611-9995	ADJUST WATER VALVE VAULT TO GRADE	2	EA		
660-2050	UTILITY CONFLICT ADJUSTMENT - SEWER LATERAL (ALL SIZES)	1000	LF		
670-1010	UTILITY CONFLICT ADJUSTMENT - WATER MAIN, DUCTILE IRON (6 IN TO 8 IN)	750	LF		
670-4000	FIRE HYDRANT ASSEMBLY, INCL TAPPING SLEEVE & VALVE	8	EA		
670-5000	UTILITY CONFLICT ADJUSTMENT - WATER SERVICE LINE (ALL SIZES)	2500	LF		
670-9710	RELOCATE EXIST FIRE HYDRANT ASSEMBLY, INCL VALVE	4	EA		
670-9720	RELOCATE EXIST IRRIGATION CONTROL VALVE ASSEMBLY, INCL BOX	1	EA		
670-9730	RELOCATE EXIST WATER METER, INCL BOX	25	EA		
				SUBTOTAL	
	LIGHTING				
681-4120	LIGHTING STD, 12 FT MH, POST TOP	196	EA		
682-1306	CABLE, TP THHN, AWG NO 6	230214	LF		
682-2110	ELECTRICAL SERVICE POINT	7	EA		
682-6221	CONDUIT, NONMETL, TP 2, 1-1/2 IN	46279	LF		
682-9020	ELECTRICAL JUNCTION BOX	50	EA		
682-9950	DIRECTIONAL BORE - 3 IN	2053	LF		
				SUBTOTAL	
	LANDSCAPING				
700-7000	AGRICULTURAL LIME	4	TN		
700-8000	FERTILIZER MIXED GRADE	0.4	TN		
700-9300	SOD	2525	SY		
701-0011	SEEDING - DAFFODIL MIX	38537	SF		
701-0012	SEEDING - LIROPE MIX	38670	SF		
701-0013	SEEDING - SEDGE MIX	15254	SF		
702-0044	ALLIUM X - MILLENIUM ORNAMENTAL ONION, 4 IN POT	2680	EA		
702-0118	CAREX PENSYLVANICA - PENNSYLVANIA SEDGE, 4 IN POT	4932	EA		
702-0120	CARPINUS CAROLINIANA - ORANGE CRUSH AMERICAN HORNBEAM, 3 IN CAL	186	EA		
702-0178	COREOPSIS LANCEOLATA - LANCELEAF TICKSEED, 4 IN POT	1508	EA		
702-0222	CROCUS FLAVUS - GOLDEN	1057	EA		

	YELLOW CROCUS, 4 IN POT				
702-0337	HOSTA X - LEMON DELIGHT HOSTA, 4 IN POT	595	EA		
702-0358	ILEX CORNUTA - CARISSA HOLLY, 3 GAL	552	EA		
702-0471	ILEX VOMITORIA - DWARF YAUPON HOLLY, 7 GAL	110	EA		
702-0542	LAGERSTROEMIA INDICA - CRAPE MYRTLE, 3 IN CAL	283	EA		
702-0558	LIROPE DENSIFLORA - LILYTURF, 4 IN POT	26743	EA		
702-0678	MULLENBERGIA CAPILLARIS - PINK MUHLY GRASS, 3 GAL	677	EA		
702-0682	NARCISSUS MINOR - DAFFODIL, 4 IN POT	72089	EA		
702-0888	QUERCUS MICHAUXII - SWAMP CHESTNUT OAK, 3 IN CAL	11	EA		
702-0910	QUERCUS VIRGINIANA - SOUTHERN LIVE OAK, 3 IN CAL	23	EA		
702-1016	RUDBECKIA HIRTA - BLACK-EYED SUSAN, 1 GAL	540	EA		
702-1017	RUDBECKIA MAXIMA - LARGE CONEFLOWER, 1 GAL	44	EA		
702-1057	TAXODIUM DISTICHUM - BALD CYPRESS, 3 IN CAL	7	EA		
702-1122	YUCCA GLORIOSA - SPANISH DAGGER, 3 GAL	467	EA		
702-9025	LANDSCAPE MULCH	9552	SY		
708-1000	PLANT TOPSOIL	1065	CY		
766-7020	IRRIGATION SYSTEM	1	LS		
900-0039	BRICK PAVERS	38000	SF		
900-0040	BRICK PAVERS RESET	1000	SF		
				SUBTOTAL	
	EROSION CONTROL				
643-8200	BARRIER FENCE (ORANGE), 4 FT	2500	LF		
163-0240	MULCH	6	TN		
163-0550	CONSTRUCT AND REMOVE INLET SEDIMENT TRAP - FILTER BLANKET	63	EA		
163-0550	CONSTRUCT AND REMOVE INLET SEDIMENT TRAP - PIGS-N-BLANKET	151	EA		
165-0010	MAINTENANCE OF TEMPORARY SILT FENCE, TP A	8125	LF		
165-0105	MAINTENANCE OF INLET SEDIMENT TRAP	214	EA		
171-0010	TEMPORARY SILT FENCE, TYPE A	8125	LF		
				SUBTOTAL	

GRAND TOTAL	

"GRADING COMPLETE: Removal and disposal of all miscellaneous roadway items, utility items, and drainage items (i.e. demolition items) shall be included in the item of grading complete unless otherwise established as separate contract items. This work shall include but not be limited to the removal of pavement, concrete, curbs, gutters, drainage structures, light poles, concrete foundations, abandoned utilities, abandoned street car tracks, and any other miscellaneous removal items whether shown on the plans or not. The items of grading complete shall also include other miscellaneous items of construction not otherwise shown as a separate pay item such as Mob/Demob, general clearing, cut and fill, constructing shoulder and subgrade, saw cutting, finish grading, construction layout, the hauling and disposal of undesirable or surplus materials, the removal and storage of salvaged materials, removing and/or resetting irrigation sprinkler heads, bonds and insurance etc."

****LS (Lump Sum) – For all Lump Sum items, attach itemized break of lump sum amount on separate sheet***

TOTAL 13th STREET IMPROVEMENT PROJECT PI#0011424

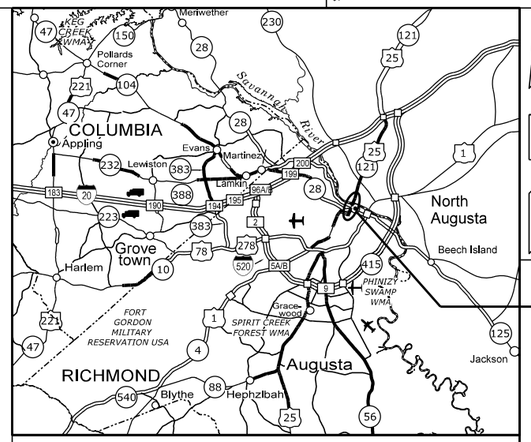
_____

TOTAL TELFAIR STREET IMPROVEMENT PROJECT PI#0011409

_____

GRAND TOTAL

_____



LOCATION SKETCH

DESIGN DATA:

TRAFFIC A.D.T.:	15,937 (2022)
TRAFFIC A.D.T.:	19,446 (2042)
TRAFFIC D.H.V.:	2,844 (PM)
DIRECTIONAL DIST:	51.5%
% TRUCKS:	0.1% (PM)
24 HR.TRUCKS %:	5.2%
SPEED DESIGN:	45 MPH

LOCATION & DESIGN APPROVAL DATE: N/A

FUNCTIONAL CLASS:
URBAN PRINCIPAL ARTERIAL

THIS PROJECT IS 100% IN RICHMOND COUNTY AND IS 100% IN CONG.DIST.NO.12.

PROJECT DESIGNATION: T/A FUNDED

DESIGNED IN U.S.CUSTOMARY UNITS.

THIS PROJECT HAS BEEN PREPARED USING THE HORIZONTAL GEORGIA COORDINATE SYSTEM OF 1984 (NAD 1983)/94 EAST ZONE, AND THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

BRIDGE DESCRIPTION
SERIAL NO.245-0100-0
13TH STREET / SR-4
BEGIN BRIDGE STA: 114+16.60
END BRIDGE STA: 114+58.60
N:1264342.5794
E: 714049.1198

THE DATA,TOGETHER WITH ALL OTHER INFORMATION SHOWN ON THESE PLANS OR IN ANYWAY 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 DEPARTMENT OF TRANSPORTATION IN ANY WAY. THE ATTENTION OF BIDDER IS SPECIFICALLY DIRECTED TO SUBSECTIONS 102.04,102.05, AND 104.03 OF THE SPECIFICATIONS.

CITY OF AUGUSTA
ENGINEERING DEPARTMENT

PLAN AND PROFILE OF PROPOSED

13TH STREET IMPROVEMENTS
FROM WALTON WAY TO REYNOLDS STREET

TIA PROJECT RC07-001223

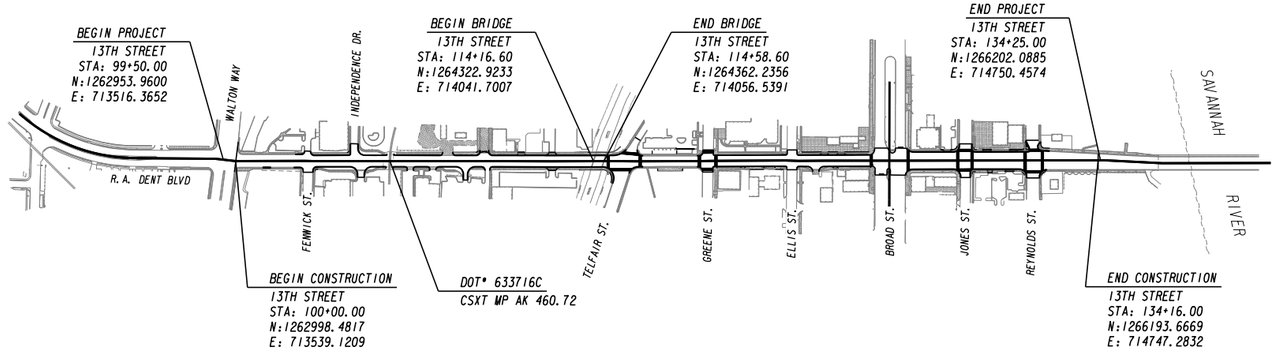
RICHMOND COUNTY

FEDERAL ROUTE * N/A
STATE ROUTE * SR-4
P.I.NO. 0011424

THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH THE 2022 CONSTRUCTION STANDARDS AND DETAILS BOOK AND ATTACHED APPLICABLE REVISIONS.
THE 2022 CONSTRUCTION STANDARDS AND DETAILS BOOK IS AVAILABLE AT:
http://mydocs.dot.ga.gov/info/gdotpubs/ConstructionStandardsAndDetails/Forms/AllItems.aspx
ANY REVISIONS CONTAINED WITHIN THIS PLAN SET SUPERSEDE THE 2022 CONSTRUCTION STANDARDS AND DETAILS BOOK WHICH THEY REVISE OR IN WHICH THERE IS A CONFLICT.

TIA
TRANSPORTATION INVESTMENT ACT
TIA PROGRAM MANAGEMENT

NOTE :
ALL REFERENCES IN THIS DOCUMENT,WHICH INCLUDES ALL PAPERS,WRITINGS, DOCUMENTS,DRAWINGS,OR PHOTOGRAPHS USED,OR TO BE USED IN CONNECTION WITH THIS DOCUMENT,TO "STATE HIGHWAY DEPARTMENT OF GEORGIA","STATE HIGHWAY DEPARTMENT","GEORGIA STATE HIGHWAY DEPARTMENT","HIGHWAY DEPARTMENT",OR "DEPARTMENT" WHEN THE CONTEXT THEREOF MEANS THE STATE HIGHWAY DEPARTMENT OF GEORGIA,AND SHALL BE DEEMED TO MEAN THE DEPARTMENT OF TRANSPORTATION.



LENGTH OF PROJECT	COUNTY No. 245 Project No. 0011424
	MILES
NET LENGTH OF ROADWAY	0.650
NET LENGTH OF BRIDGES	0.008
NET LENGTH OF PROJECT	0.658
NET LENGTH OF EXCEPTIONS	0.000
GROSS LENGTH OF PROJECT	0.658

GEORGIA REGISTERED PROFESSIONAL ENGINEER Jeff Fennell 02-10-22 JEFF B. FENNELL

PREPARED BY: JEFF B. FENNELL - GOODWYN MILLS CAWOOD, LLC
DESIGN ENGINEER

GMC
801 Broad Street, Suite 900 | Augusta, GA 30901
T 706.251.9099 | GMCNETWORK.COM

APPROVED:

AUGUSTA ENGINEERING DEPARTMENT — DATE

PLANS COMPLETED 02-10-2022	
REVISIONS	
02/24/2022	
04/21/2022	

DRAWING No. 01-0001

DRAWING NO.	DESCRIPTION
1-0001	Cover
2-0001	Index
3-0001	Revision Summary
4-0001 to 4-0005	General Notes
5-0001 to 5-0005	Typical Sections
6-0001 to 6-0005	Summary Quantities
11-0001 to 11-0007	Construction Layout/Stakeout
12-0001 to 12-0006	Demolition Plan
13-0001 to 13-0006	Mainline Plan
18-0001 to 18-0006	Special Grading
19-0001 to 19-0012	Construction Staging Plans
20-0001 to 20-0002	Construction Staging Details
22-0001 to 22-0007	Drainage Profiles
24-0001 to 24-0020	Utility Plans and Details
25-0001 to 25-0008	Lighting Plans and Details
26-0001 to 26-0006	Signing and Marking Plans
27-0001 to 27-0007	Traffic Signal Plans
29-0001 to 29-0016	Landscaping & Irrigation Plans and Details
36-0001 to 36-0024	Bridge Repair and Restoration Over Hawks Gully
38-0001	Special Construction Details
44-0001 to 44-0007	Utility Relocation - Atlanta Gas Light
50-0001	Erosion Control Cover Sheet
51-0001	ESPC General Notes
52-0001	Erosion Control Legend and Uniform Code Sheet
53-0001 to 53-0002	Erosion Control Drainage Area Map
54-0001 to 54-0018	BMP Location Details
55-0001 to 55-0002	NPDES Checklist
56-0001 to 56-0003	Erosion Control Construction Standards and Details
60-0001 to 60-0008	Right Of Way Map
	THE FOLLOWING ARE GEORGIA DEPARTMENT OF TRANSPORTATION CONSTRUCTION
	STANDARDS AND DETAILS THAT ARE APPLICABLE TO THIS PROJECT AND SHALL BE
	CONSIDERED TO BE INCLUDED AS REFERENCE TO THESE CONSTRUCTION DOCUMENTS.
	GEORGIA DETAILS — Rev Date
A-1	Driveways with Tapered Entrances-Concrete Valley Gutters (7-02)
A-2	Concrete Valley Gutter at Street Intersection; 6" or 8" Concrete Valley Gutter at Drive; Placing Pavement Adjacent to Gutter; Additional Paving at Street Intersection; 4' Corrugated Concrete Median (7-11)
A-3	Concrete sidewalk Details; Curb Cut (Wheelchair) Ramps (9-16)
A-4	Detectable Warning Surface; Truncated Dome Size; Spacing and Alignment Requirements (6-09)
D-24A	Temporary Silt Fence (Sheet 1 of 4) (1-11)
D-24B	Temporary Silt Fence Berm Ditch, Installation, Brush Barrier (Sheet 2 of 4) (1-11)
D-24C	Temporary Silt Fence J-Hook, Inlet Sediment Traps (Sheet 3 of 4) (1-11)
D-34	Pipe/Box Culvert Collar Connection Detail (3-88)
D-40	Culvert Plugs (3-08)
D-41	Construction Exits (11-20)
D-42	Inlet Sediment Traps (5-08)
D-54	Sod Installation (4-16)
T-1	Details of Sign Plates (1-00)
T-2	Details for Typical Framing (3-00)
T-3A	Type 7, 8 and 9 Square Tube Post Installation Detail (7-02)
T-3B	Details of Square Tube Post (Breakaway Sign Support) (7-02)

DRAWING NO.	DESCRIPTION
T-11A	Details of Pavement Marking Placement Non-Limited Access Roadway (9-16)
T-12A	Details of Pavement Marking Arrow Location (1-00)
T-12B	Details of Pavement Markings - Arrows (11-20)
T-13A	Details of Pavement Markings - Words Sheet 1 of 2 (11-20)
T-13B	Details of Pavement Markings - Words Sheet 2 of 2 (9-16)
T-13C	Details of Pavement Marking Words Placement (9-19)
T-14	Detail of Pavement Marking Hatching (11-08)
T-15A	Details of Raised Pavement Marker Location Non-Limited Access Roadway (9-16)
T-15C	Details of Raised Pavement Markers (9-11)
T-20	Traffic Control Pedestrian Accessibility Around Workzone - Sidewalk Diversion (10-08)
T-21	Traffic Control Pedestrian Accessibility Around Workzone - Sidewalk Detour (10-08)
T-22	Traffic Control Pedestrian Accessibility Around Workzone - Midblock Crossing and Sidewalk Detour (10-08)
TS-03	Pedestrian Facilities Installation (11-20)
TS-04A	Traffic Signal Support Structures (11-20)
TS-06	Grounding For Traffic Signal Support Structures (11-20)
	GEORGIA STANDARDS — Rev Date
1011-A	Brick Manholes (10-81)
1011-A	Precast Reinforced Concrete Manhole Precast (6-75)
1030-D	Concrete and Metal Pipe Culverts Sheet 1 of 3 (9-01)
1030-D	Concrete and Metal Pipe Culverts Sheet 2 of 3 (9-01)
1030-D	Concrete and Metal Pipe Culverts Sheet 3 of 3 (9-01)
1033-D	Catch Basins (For Use with 6" or 8" Ht. Curb and Gutter) (8-82)
1033-D	Precast Catch Basins (For Use with 6" or 8" Ht. Curb and Gutter) Precast (9-82)
1034-D	Catch Basins (For Use with 6" or 8" Curb and Gutter in Sags or Low Points) (8-82)
1034-D	Precast Catch Basins (For Use with 6" or 8" Precast Curb and Gutter in Sags or Low Points) (9-82)
1040	Circular Base Units and Risers For Catch Basins and Drop Inlets (11-99)
1125	Tapered Inlet Headwall - Outlet Headwall (10-99)
1401	Pavement Patching Details (Storm Drain or Utility Installations by Open Cut Across Existing Pavement) (8-99)
9021-A	Railroad Grade Crossing Paving (and Signal Conduit Locations) (9-16)
9024-A	Railroad Grade Crossing - Railroad Signing and Marking at Crossing with RR Signals and /or Gates (2-17)
9029-B	Perforated Underdrain (8-83)
9031-R	Placing Roof Drain Pipe under Sidewalk - Ramp Type Barricade - Pipe Handrail for Retaining Wall - Pipe Handrail for Concrete Steps (10-88)
9031-U	Junction Boxes (Precast or Built-in-Place) Pipe Collars, Pipe Elbow and Pipe Curved Alignment (7-85)
9032-B	Concrete Curb and Gutter, Concrete Curbs, Concrete Medians (1-21)
9033	Mileposts (3-06)
9100	Traffic Control General Notes, Standard Legend and Miscellaneous Details (Replaces Const. Detail T-9) (3-06)
9107	Traffic Control Detail for Lane Closure on Multi-Lane Undivided Highway (3-06)
9110	Detail for Oversize Truck Detour in Construction Areas (11-99)

GMC
801 Broad Street, Suite 900 | Augusta, GA 30901
T 706.251.9099 | GMCNETWORK.COM

REVISION DATES
04/21/22

INDEX

13TH STREET IMPROVEMENTS

CHECKED: | DATE: | DRAWING No. 02-0001
BACKCHECKED: | DATE:
CORRECTED: | DATE:
VERIFIED: | DATE:

DATE	DRAWING NO.	REVISION
02/24/2022	06-0001, 36-0003, 36-00017	NOTES REVISED
	36-0019, 36-022	
02/24/2022	01-0001	CSXT CALLOUT ADDED
	02-0001	UPDATED FOR NEW GENERAL NOTES SHEET
	04-0005	NEW CSXT GENERAL NOTES SHEET
	12-0002	NOTE ADDED TO PROTECT RAILROAD SIGNALS

DATE	DRAWING NO.	REVISION

GMC
801 Broad Street, Suite 900 | Augusta, GA 30901
T 706.251.9099 | GMCNETWORK.COM

REVISION DATES

REVISION SUMMARY

13TH STREET IMPROVEMENTS

CHECKED:		DATE:		DRAWING No.
BACKCHECKED:		DATE:		03-0001
CORRECTED:		DATE:		
VERIFIED:		DATE:		

CSXT GENERAL NOTES

1. All work on, over, under, or adjacent to CSXT right-of-way shall be done in accordance with the CSXT Special Provisions, which can be found within the CSXT Public Projects Manual, available at: https://www.csx.com/index.cfm/about-us/property/.

2. Railroad Insurance is required prior to commencement of construction activities on CSXT right of way. Submit Railroad Insurance to CSXT at Insurancedocuments@csx.om for CSXT review an approval work will not be allowed within the CSXT right of way without the insurance approval from CSXT and a railroad Flagman cannot be scheduled. Note approval of Insurance can take up to 30 to 45 days.

3. No work shall take place within 50 feet of the centerline of the CSXT track without a railroad flagman being present. Provide the CSXT field representative with at least thirty (30) business days advance notice of beginning work within this area to allow for the scheduling of the railroad flagman.

4. All work within 5 ft of the centerline of track at the crossing will be performed by the railroad or their sub-contractor.

5. Contractor shall maintain all ditches and drainage structures free of silt or other obstructions that may result from their operations. Contractor, upon completion of the Project, shall leave CSXT Property in neat a condition, satisfactory to the CSXT Representative.

6. The Contractor may not use CSXT right-of-way for storage of materials or equipment during construction without prior approval from CSXT.

7. All drainage work within the CSXT right of way must comply with CSXT drainage criteria found within the CSXT Public Project Manual.

8. "One Call" services do not locate buried railroad signal and communications lines. The contractor shall contact the railroads representative two (2) days in advance of those places where excavation, pile driving, or heavy loads may damage railroad underground lines on railroad property. Upon request from the contractor or agency, railroad signal forces will locate and paint mark or flag railroad underground signal, communication, and power lines in the area to be disturbed for the contractor. The contractor shall avoid excavation or other disturbance of these lines which are critical to the safety of the railroad and the public. If disturbance or excavation is required near a buried railroad signal, communication, or power line, the line shall be potholed manually with careful hand excavation by the contractor and protected by the contractor during the course of the disturbance under the supervision and direction of a railroad signal representative.

9. All soils excavated within CSX's railroad right-of-way shall remain on CSX's right-of-way. For any excavated soil that requires off-site disposal, the licensee is required to use only CSX approved laboratories, transporters, and disposal facility that are in compliance with all applicable environmental laws and CSX's policies and procedures. Soil resulting from excavation outside of CSX's railroad right-of-way or railroad owned property shall not be brought onto CSX's property and therefore must be stored off CSX property. CSXT shall not incur any costs related to the disposal of soils generated due to construction activity related to this project.

GMC
801 Broad Street, Suite 900 | Augusta, GA 30901
T 706.251.9099 | GMCNETWORK.COM

NOT TO SCALE

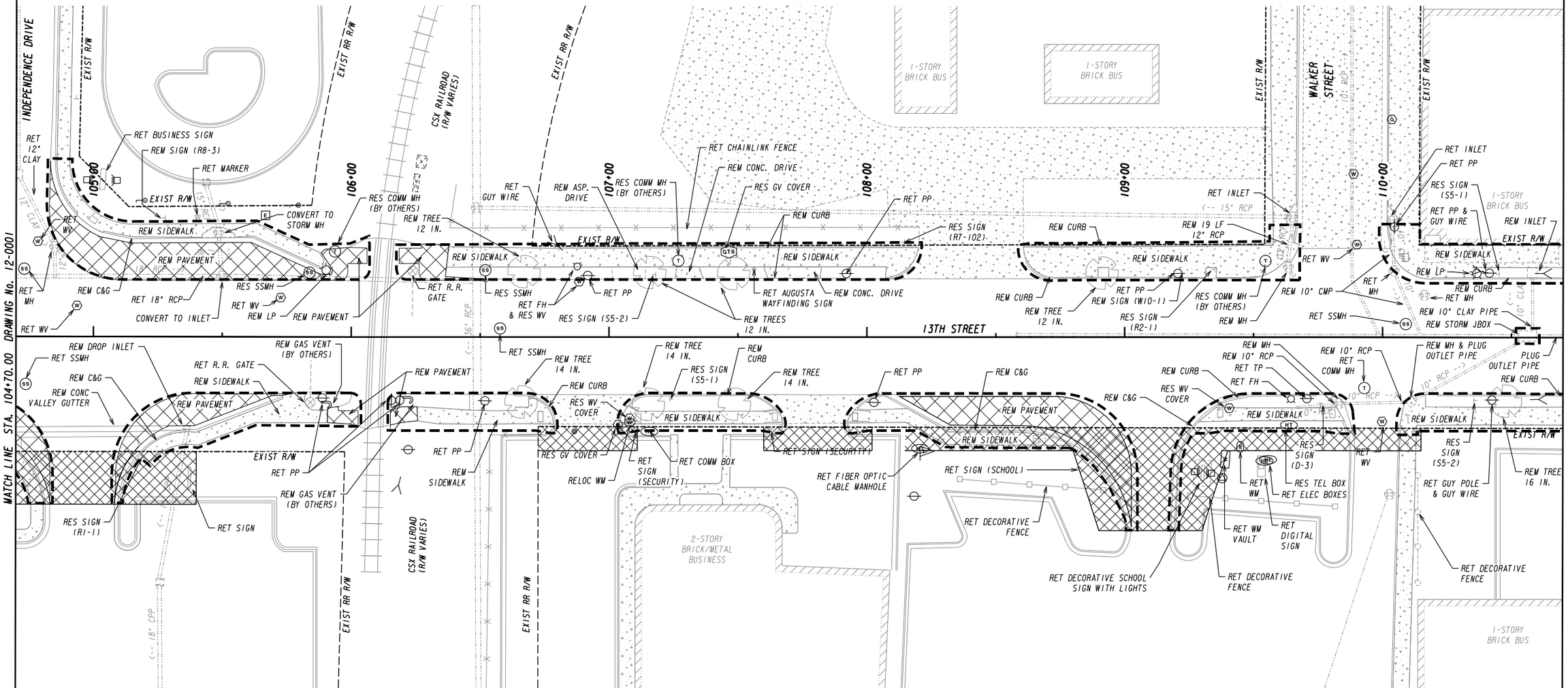
REVISION DATES
04/21/22

GENERAL NOTES

13TH STREET IMPROVEMENTS

TRAFFIC SIGNAL GENERAL NOTES

CHECKED:		DATE:		DRAWING No.
BACKCHECKED:		DATE:		04-0005
CORRECTED:		DATE:		
VERIFIED:		DATE:		



PROTECT ALL EXISTING RAILROAD CROSSING SIGNALS FROM DAMAGE AT ALL TIMES DURING DEMOLITION AND CONSTRUCTION

RET ..... RETAIN IN CURRENT LOCATION
REM ..... REMOVE
RES ..... RESET IN CURRENT LOCATION
RELOC ..... RELOCATE TO NEW LOCATION
LIMITS OF DEMOLITION .....

WV ..... WATER VALVE
FH ..... FIRE HYDRANT
PP ..... POWER POLE
LP ..... LIGHT POLE
TEL MH .... TELEPHONE MANHOLE
COMM MH ... COMMUNICATION MANHOLE
SSMH ..... SANITARY SEWER MANHOLE
WM ..... WATER METER
GV ..... GAS VALVE
TS ... TRAFFIC SIGNAL
C&G ... CURB & GUTTER

GMC
801 Broad Street, Suite 900 | Augusta, GA 30901
T 706.251.9099 | GMCNETWORK.COM

SCALE IN FEET
0 20 40 80

REVISION DATES
04/21/22

DEMOLITION PLAN
13TH STREET IMPROVEMENTS
FROM STA 104+70.00 TO STA 110+70.00

CHECKED: DATE:
BACKCHECKED: DATE:
CORRECTED: DATE:
VERIFIED: DATE:

DRAWING No. 12-0002

10/23/2015 GPLN