RICHLAND COUNTY

TRANSPORTATION AD HOC COMMITTEE

AGENDA

THURSDAY NOVEMBER 21, 2024

4:00 PM

COUNCIL CHAMBERS

Richland County Council
2024

Jason Branham
District 1

Derrek Pugh
District 2
Vice Chair

Jesica Mackey
District 9
Chair

Overture E. Walker
District 8

Gretchen D. Barron
District 7

Yvonne McBride
District 3

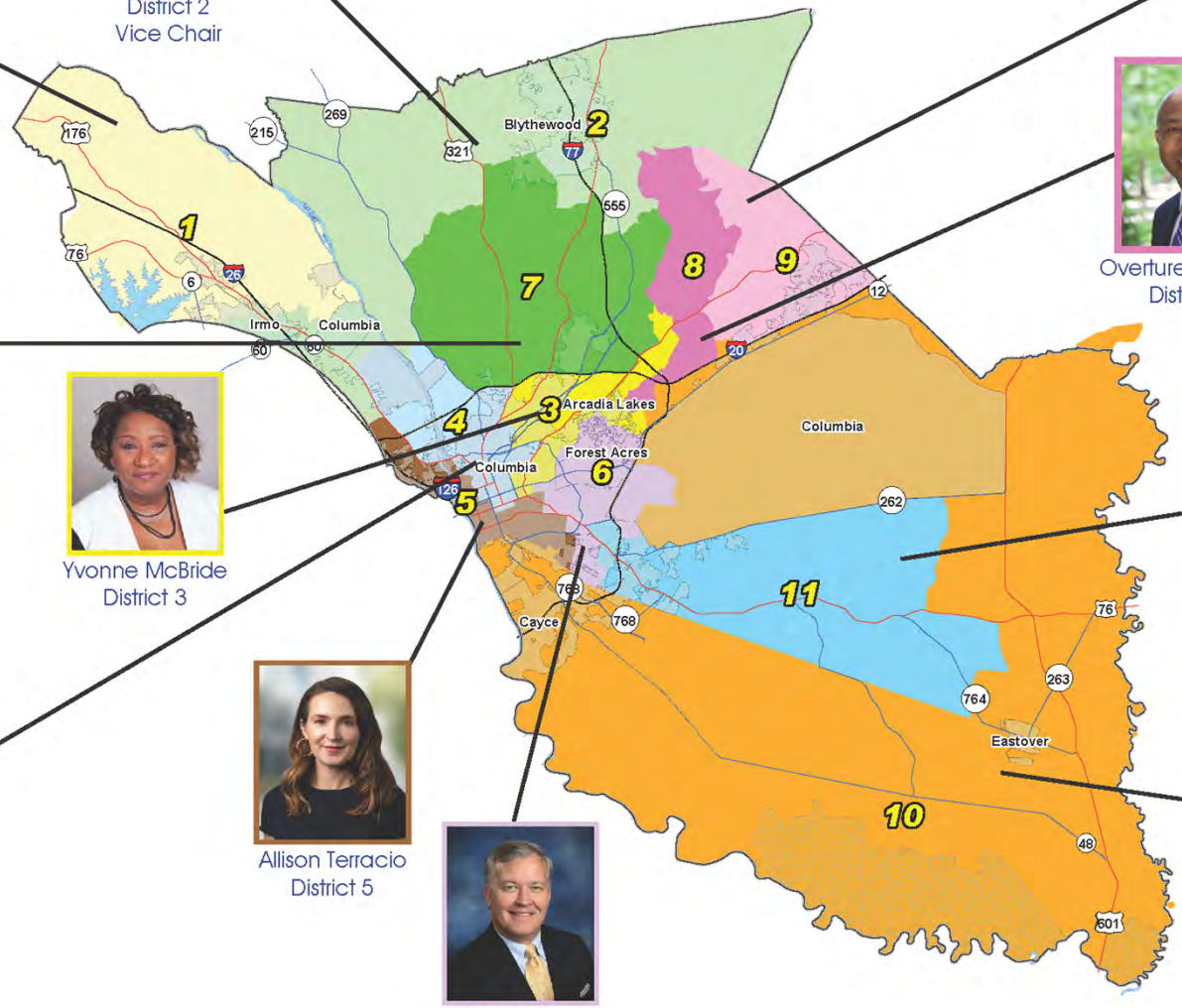
Chakisse Newton
District 11

Paul Livingston
District 4

Allison Terracio
District 5

Don Weaver
District 6

Cheryl D. English
District 10



Richland County
Transportation Ad Hoc Committee

AGENDA

November 21, 2024 - 4:00 PM
2020 Hampton Street, Columbia, SC 29204

The Honorable Yvonne McBride	The Honorable Paul Livingston	The Honorable Don Weaver	The Honorable Overture Walker, Chair	The Honorable Jesica Mackey
County Council District 3	County Council District 4	County Council District 6	County Council District 8	County Council District 9

1. CALL TO ORDER — The Honorable Overture Walker

2. APPROVAL OF MINUTES — The Honorable Overture Walker

a. October 22, 2024 **[PAGES 5-7]**

3. ADOPTION OF AGENDA — The Honorable Overture Walker

4. ITEMS FOR DISCUSSION/ACTION — The Honorable Overture Walker

a. Shop Rd Extension Phase 2 Service Order Approval **[PAGES 8-64]**

5. ADJOURNMENT — The Honorable Overture Walker

Special Accommodations and Interpreter Services Citizens may be present during any of the County's meetings. If requested, the agenda and backup materials will be made available in alternative formats to persons with a disability, as required by Section 202 of the Americans with Disabilities Act of 1990 (42 U.S.C. Sec. 12132), as amended and the federal rules and regulations adopted in implementation thereof. Any person who requires a disability-related modification or accommodation, including auxiliary aids or services, in order to participate in the public meeting may request such modification, accommodation, aid or service by contacting the Clerk of Council's office either in person at 2020 Hampton Street, Columbia, SC, by telephone at (803) 576-2061, or TDD at 803-576-2045 no later than 24 hours prior to the scheduled meeting.

Richland County Council
Transportation Ad Hoc Committee
MINUTES
October 22, 2024 – 4:00 PM
Council Chambers
2020 Hampton Street, Columbia, SC 29204

COMMITTEE COUNCILMEMBERS PRESENT: Overture Walker, Chair; Paul Livingston, Don Weaver, and Jesica Mackey

NOT PRESENT: Yvonne McBride

OTHERS PRESENT: Allison Terracio, Jason Branham, Michael Maloney, Angela Weathersby, Anette Kirylo, Patrick Wright, Ashiya Myers, Lori Thomas, Leonardo Brown, Jackie Hancock, Aric Jensen, Michelle Onley, John Thompson, Kenny Bowen, and Quinton Epps

1. **CALL TO ORDER** – Chairman Overture Walker called the meeting to order at approximately 4:00 PM.

2. **APPROVAL OF MINUTES**

   a. September 24, 2024 – Mr. Weaver moved to approve the minutes as distributed, seconded by Ms. Mackey.

      In Favor: Livingston, Weaver, Walker, and Mackey

      Not Present: McBride

      The vote in favor was unanimous.

3. **ADOPTION OF AGENDA** – Mr. Livingston moved to adopt the agenda as published, seconded by Ms. Mackey.

   In Favor: Livingston, Weaver, Walker, and Mackey

   Not Present: McBride

   The vote in favor was unanimous.

4. **ITEM FOR DISCUSSION**

   a. Transportation Penny Update – Mr. Maloney provided a brief update on the Transportation Penny Projects.

      Projects in Construction
      - Blythewood Road Widening – The project started construction in April 2023 and completion shall occur in September 2025.
      - Sunset Drive Sidewalk Construction – The project construction started in May 2024 and completion shall occur in February 2025.
      - Dirt Road Package "O" Construction – The project of improving Nathan Ridge Lane, Jackson Road, Sara Mathews Road, and Howard Coogler Road.
      - Alpine Road Resurfacing and Sidewalk Improvement – The project construction started in February 2024; they are completed the final punchlist items.
      - Atlas Road Widening – The preconstruction meeting occurred on October 11, 2024, project start is November 4, 2024.
      - Percival Road Sidewalk – The preconstruction meeting will occur in November 2024.

      Projects Preparing for Construction Bidding
      - Resurfacing Package "U" Construction – The project consists of $6M in improvements.

Projects in Right-of-Way Acquisition

- Broad River Road Widening: The right-of-way acquisition is underway. All the property owners have been in communication with the project team. Twenty parcel owners committed small pieces of property to the needs of the public project. Others are in negotiation.
- Pineview Road Widening: The right-of-way acquisition is underway. All the property owners have received information regarding the project. This project began acquisition in April.
- Smith/Rocky Branch Greenway: The property owners have received information on the project easement needs and will receive offers within the next two months.
- Dirt Road Paving Program: Several roads in Richland County, with emphasis on District 10, are receiving consent/denial checks, appraisals, and right-of-way contact meetings with our staff augmentation and on-call engineering team.
- Received authorization to proceed into right-of-way acquisition from SCDOT for Spears Creek Church Road Widening Project, Lower Richland Boulevard Widening Project, and Broad River Road Corridor Neighborhood Improvement Project.
- Decker/Woodfield NIP: Performing land acquisition for Brookfield Road and Hunt Club Road.

Projects In Design

- Bluff Road Improvements Phase 2: Design details are being completed.
- Polo Road Widening: Design review and adjustments are occurring based on SCDOT comments.
- Blythewood Road Area Improvements: Awaiting 60% plans for authorization to proceed to right-of-way acquisition.
- Shop Road Widening: Awaiting approval of 60% plans for authorization to proceed to right-of-way acquisition.
- Clemson Road & Sparkleberry Lane Intersection: Awaiting SCDOT approval of 60% plans.
- Kelly Mill Road Special Project: SCDOT reviewed the 30% design. Design development continues.
- Shop Road Extension Phase 2, Special Project: Preliminary Design/Concepts has commenced for support in upcoming public meetings.
- Crane Creek Greenway: We contacted the property owner on this project regarding the easement required for the trail.
- Gills Creek Greenway: Completing the design and acquisition process.
- Columbia Mall Greenway: Completing the design process.
- Neighborhood Improvement Projects – Trenholm/New Castle, Crane Creek, and South East Rural Neighborhood Phase 2: Awaiting an encroachment permit from SCDOT.
- Dirt Road Paving Program: Several projects are in design and land acquisition.
- Three Rivers Greenway Phase 2: The Penny will bid the project out to contractors. We received the final plans, are awaiting the specifications, and are checking on two permits.
- Bikeways: Awaiting a request from the City of Columbia for the funds for eight bikeways.

Mr. Weaver inquired about the specifics of the Decker/Woodfield Neighborhood Improvement Project.

Mr. Maloney responded it is the installation of a sidewalk from Decker Boulevard to Richland Northeast High School. There is also a portion that is a greenway, which they are working out with the Recreation Commission.

Mr. Livingston inquired if the road would remain closed until the Sunset Drive sidewalk construction is completed in February 2025.

Mr. Maloney responded in the affirmative.

Ms. Terracio inquired if we consulted with a specialist regarding the bike lane installation associated with the Atlas Road Widening Project. She noted that a previous Penny Project had a painted bike lane on a busy roadway. Motorists were not used to it, so they ended up grinding up the road and removing the bike lane.

Mr. Maloney replied that it was a road diet project. It involved tearing down a four-lane road to create a bike lane. The difference between the two projects is that Atlas Road is going from a 2-lane rural road to a 5-lane road with 5-ft. bike lanes and 5-ft. sidewalks on both sides. He noted he had someone come in with expertise in bike operation, who suggested extending out the sidewalks instead of installing bike lanes. He pointed out that Council had previously taken action not to utilize shared-use paths and strictly utilize bike lanes.

Ms. Terracio indicated she continues to hear about ensuring bikers' protection. She inquired if we had consulted an expert on the greenways.

Mr. Maloney stated they looked to the On-Call Engineering teams that Council approved to utilize for the design of the greenways.

Mr. Walker inquired if SCDOT is managing any of the projects in construction.

Mr. Maloney replied that he had no projects managed by SCDOT on the project update list, but SCDOT is managing Hard Scrabble and Leesburg roads.

5. **ADJOURNMENT** – Mr. Weaver moved to adjourn the meeting, seconded by Ms. Mackey.

In Favor: Livingston, Weaver, Walker, and Mackey

Not Present: McBride

The vote in favor was unanimous.

The meeting adjourned at approximately 4:22 PM.

RICHLAND COUNTY ADMINISTRATION
2020 Hampton Street, Suite 4069
Columbia, SC 29204
803-576-2050

Agenda Briefing

Prepared by:	Michael Maloney, PE	**Title:**	Director
Department:	Transportation	**Division:**	
Date Prepared:	October 31, 2024	**Meeting Date:**	November 21, 2024
Legal Review	Patrick Wright via email	**Date:**	November 12, 2024
Budget Review	Maddison Wilkerson via email	**Date:**	November 12, 2024
Finance Review	Stacey Hamm via email	**Date:**	November 6, 2024
Approved for consideration:	Assistant County Administrator	John M. Thompson, Ph.D., MBA, CPM, SCCEM	
Meeting/Committee	Transportation Ad Hoc		
Subject	Approve On-Call Engineering Team Design Contract		

RECOMMENDED/REQUESTED ACTION:

The Transportation Penny Department recommends approval of the Service Order for Phase 2 of Shop Road Extension with CECS, Inc. in the amount of $2,576,542.03.

Request for Council Reconsideration: ☒ Yes

FIDUCIARY:

Are funds allocated in the department's current fiscal year budget?	☒	Yes	☐	No
If not, is a budget amendment necessary?	☐	Yes	☐	No

ADDITIONAL FISCAL/BUDGETARY MATTERS TO CONSIDER:

The Project Budget for Shop Road Extension, Phase 2 is $24,196,621.00. This contract represents 10.6% of the project budget and aligns with a suitable fee for the services to be rendered.

Applicable fund, cost center, and spend category:

Fund: 1332 Transportation Tax Roadways,
Cost Center: 9950 Capital Projects
Spend Category: Professional Services

OFFICE OF PROCUREMENT & CONTRACTING FEEDBACK:

A Request for Qualifications was issued in 2019 for Transportation On-Call Engineering; CECS was established as one of the short-listed engineers.

COUNTY ATTORNEY'S OFFICE FEEDBACK/POSSIBLE AREA(S) OF LEGAL EXPOSURE:

There are no legal concerns regarding this matter.

REGULATORY COMPLIANCE:

None.

MOTION OF ORIGIN:

There is no associated Council motion of origin

STRATEGIC & GENERATIVE DISCUSSION:

The Shop Road extension will deliver a three-lane roadway from Longwood Road to Montgomery Road. The 7,300 linear feet (1.4 miles) road extension will cross Mill Creek and its adjacent flood plain. The professional services anticipate the design of a bridge crossing over the creek and floodplain area.

Richland County Transportation Penny has coordinated with the Community Planning and Development and Economic Development Departments to review concept alignments that will service the public and to ensure the least impact.

Richland County Transportation Penny will pause production when concepts are available to provide an update to the public by holding a Public Information Meeting.

Services to be rendered include the following tasks:

Task 1	Project Management
Task 2	Environmental Services / Permitting
Task 3	Field Surveys
Task 4	Roadway Design
Task 5	Pavement Marking and Signing Design
Task 6	Traffic Analysis and Traffic Signal Design
Task 7	Transportation Management Plan
Task 8	Stormwater Management / Hydraulic Design
Task 9	Sediment & Erosion Control / NPDES Permitting
Task 10	Geotechnical Investigations and Engineering Services
Task 11	Roadway Structures Design and Plans
Task 12	Bridge Design and Plans
Task 13	Subsurface Utilities Engineering (SUE)
Task 14	Utility Coordination
Task 15	Utility Relocation Design
Task 16	Right of Way Coordination and Acquisition
Task 17	Railroad Coordination
Task 18	Construction Phase Services

ASSOCIATED STRATEGIC GOAL, OBJECTIVE, AND INITIATIVE:

Goal: Plan for Growth through Inclusive and Equitable Infrastructure

Objective: Coordinate departments to prepare for anticipated growth in areas by providing water, sewer, and roads in necessary locations

ATTACHMENTS:

1. Service Order CECS #10
2. Shop Two concept image

RICHLAND COUNTY GOVERNMENT
DEPARTMENT OF TRANSPORTATION
400 Powell Rd, Columbia, SC 29203
T 803-766-5605 | TDD 803-576-2045
richlandpenny.com

Attachment 1

Purchase Order Request

Date of Request: 10/29/2024

Project Name: Shop Road Extension Ph2

Vendor: CECS

Amount: $2,834,196.23

Select One

- o Right-A-Way
- x Professional Services
- o Construction

Description: This PO covers the design work for Shop Road Extension Ph2.

Project Reference #:
(Provided after set up)

*Attach Supporting Documentation

Michael Green
Project Manager

Date 10/29/2024

Transportation Finance

Date

Service Order
For
On Call Engineering Services Agreement

SERVICE ORDER NO. CECS#10

Date: October 31, 2024

This Service Order No. CECS #10 for Shop Road Extension Phase 2, is issued by Richland County, South Carolina (the "County"), to CECS (the "Consultant") pursuant to that Agreement dated January 10, 2020 between the County and the Consultant called "On Call Engineering Services Agreement Related to the Richland County, South Carolina Sales Tax Public Transportation Improvement Plan" (the "Agreement").

This Service Order, together with the Agreement, form a Service Agreement. A Service Agreement represents the entire and integrated agreement between the parties and supersedes prior negotiations, representations, or agreements, either written or oral. A Service Agreement may be amended or modified only by a Change Order or Change Directive as provided for in the Agreement.

I. Scope of Services.

A. Unless otherwise provided in an exhibit to this Service Order, this Service Order and the Service Agreement are based on the information set forth below:

See Exhibit A – Scope of Services

B. Unless otherwise provided in an exhibit to this Service Order, the Consultant's Services to be provided pursuant to this Service Order are:

See Exhibit A – Scope of Services

C. Unless otherwise provided in an exhibit to this Service Order, the County's anticipated dates for commencement of the Services and Completion of the Services are set forth below:

1. Commencement Date: November 08, 2024
2. Completion Date: *See Exhibit A – Scope of Services - Schedule*

D. Key personnel assigned by Consultant to this Service Scope of Work:

1. Paul Raad, PE, CECS (Principal-in-Charge)
2. Brian Nickerson, PE, CECS (Project Manager)

II. Insurance

The Consultant shall maintain insurance as set forth in the Agreement. If the Consultant is required to maintain insurance exceeding the requirements set forth in the Agreement, those additional requirements are as follows:

N/A

III. Owner's Responsibilities.

In addition to those responsibilities the County may have as stated in the Agreement, the County in connection with this Service Order only shall:

N/A

IV. Consultant's Compensation.

A. The Consultant shall be compensated for Services provided under this Service Order as follows:

Lump Sum -	*$2,426,051.38*
Approved Direct Expenses -	*$141,490.65*
	$2,576,542.03

*Contingency – Not to Exceed $257,654.20**
**Requires approval from Richland County to authorize contingency*

B. Additional Services. Unless otherwise provided in an exhibit to this Service Order, any Additional Services by the Consultant shall be paid as Additional Services as provided in the Agreement.

V. Additional Exhibits.

The following exhibits and/or attachments are incorporated herein by reference thereto:

Exhibit A – Scope of Services

VI. Execution of Service Agreement

The Execution of this Service Order by the County below constitutes a Service Order to the Consultant. The execution of this Service Order by the Consultant creates the Service Agreement.

NOW, THEREFORE, in consideration of the foregoing, the sufficiency of which is hereby acknowledged by the parties, this Service Agreement is entered into Under Seal as of the Effective Date of July 22, 2015.

WITNESS:

_____

RICHLAND COUNTY, SOUTH CAROLINA

By:_____(L.S.)

Its:_____

Date: _____

CONSULTANT:

CECS, LLC

WITNESS:

_____

By:_____(L.S.)

Its:_____

Date: _____

EXHIBIT A: SCOPE OF SERVICES

Subconsultant Fee Summary

Subconsultant Fees Broken Down by Task

Task	Cox & Dinkins	F&ME	New South & Associates	Property Acquisitions & Negotiations						Total
01	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
02	$ -	$ 32,566.24	$ 20,105.64	$ -	$ -	$ -	$ -	$ -	$ -	$ 52,671.88
03	$ 304,654.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 304,654.00
04	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
05	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
06	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
07	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
08	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
09	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
10	$ -	$ 347,887.67	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 347,887.67
11	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
12	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
13	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
14	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
15	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
16	$ -	$ -	$ -	$ 209,800.00	$ -	$ -	$ -	$ -	$ -	$ 209,800.00
17	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
18	$ -	$ 12,041.02	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 12,041.02
19	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
20	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Totals	$ 304,654.00	$ 392,494.93	$ 20,105.64	$ 209,800.00	$ -	$ -	$ -	$ -	$ -	$ 927,054.57 (G)

Fee Breakdown by Firm

CECS, Inc.	$	1,649,487.46	64.0%
Cox & Dinkins	$	304,654.00	11.8%
F&ME	$	392,494.93	15.2%
New South & Associates	$	20,105.64	0.8%
Property Acquisitions & Negotiations	$	209,800.00	8.1%
	$	-	-
	$	-	-
	$	-	-
	$	-	-
	$	-	-
	$	-	-
Project Totals	$	2,576,542.03	

Project Fee Summary

Fee Totals Broken Down by Task

Task	Task Description	Labor	Directs	Subs	Total	
01	Project Management	$ 118,574.19	$ -	$ -	$ 118,574.19	4.6%
02	Environmental Services / Permitting	$ 66,497.37	$ 3,907.85	$ 52,671.88	$ 123,077.10	4.8%
03	Field Surveys	$ 2,546.40	$ -	$ 304,654.00	$ 307,200.40	11.9%
04	Roadway Design	$ 358,485.35	$ -	$ -	$ 358,485.35	13.9%
05	Pavement Marking and Signing Design	$ 29,374.09	$ -	$ -	$ 29,374.09	1.1%
06	Traffic Signal Design	$ 43,737.38	$ 1,340.00	$ -	$ 45,077.38	1.7%
07	Transportation Management Plan	$ 61,262.46	$ -	$ -	$ 61,262.46	2.4%
08	Stormwater Management / Hydraulic Design	$ 241,164.45	$ 15,393.00	$ -	$ 256,557.45	10.0%
09	Sediment & Erosion Control / NPDES Permitting	$ 34,222.30	$ -	$ -	$ 34,222.30	1.3%
10	Geotechnical Investigations & Engineering Services	$ 9,909.43	$ -	$ 347,887.67	$ 357,797.10	13.9%
11	Roadway Structures Design and Plans	$ -	$ -	$ -	$ -	-
12	Bridge Design and Plans	$ 312,067.39	$ -	$ -	$ 312,067.39	12.1%
13	Subsurface Utilities Engineering (SUE)	$ 2,942.49	$ 99,309.60	$ -	$ 102,252.09	4.0%
14	Utility Coordination	$ 89,341.51	$ 40.20	$ -	$ 89,381.71	3.5%
15	Utility Relocation Design	$ -	$ -	$ -	$ -	-
16	Right of Way Coordination & Acquisition	$ 8,706.69	$ -	$ 209,800.00	$ 218,506.69	8.5%
17	Railroad Coordination	$ 13,606.36	$ 21,500.00	$ -	$ 35,106.36	1.4%
18	Construction Phase Services	$ 115,558.95	$ -	$ 12,041.02	$ 127,599.97	5.0%
		$ -	$ -	$ -	$ -	-
		$ -	$ -	$ -	$ -	-
	Totals	$1,507,996.81	$ 141,490.65	$ 927,054.57	$ 2,576,542.03	

CECS, Inc.

Task	Task Description	Direct Labor	Overhead	Profit	FCCM	Labor Total	Directs	Total
01	Project Management	$ 41,246.78	$ 66,345.45	$ 10,759.22	$ 222.74	$ 118,574.19	$ -	$ 118,574.19
02	Environmental Services / Permitting	$ 23,131.53	$ 37,207.07	$ 6,033.86	$ 124.91	$ 66,497.37	$ 3,907.85	$ 70,405.22
03	Field Surveys	$ 885.78	$ 1,424.78	$ 231.06	$ 4.78	$ 2,546.40	$ -	$ 2,546.40
04	Roadway Design	$ 124,701.40	$ 200,582.21	$ 32,528.36	$ 673.38	$ 358,485.35	$ -	$ 358,485.35
05	Pavement Marking and Signing Design	$ 10,217.96	$ 16,435.59	$ 2,665.36	$ 55.18	$ 29,374.09	$ -	$ 29,374.09
06	Traffic Signal Design	$ 15,214.32	$ 24,472.24	$ 3,968.66	$ 82.16	$ 43,737.38	$ 1,340.00	$ 45,077.38
07	Transportation Management Plan	$ 21,310.54	$ 34,278.00	$ 5,558.86	$ 115.06	$ 61,262.46	$ -	$ 61,262.46
08	Stormwater Management / Hydraulic Design	$ 83,890.58	$ 134,938.00	$ 21,882.86	$ 453.01	$ 241,164.45	$ 15,393.00	$ 256,557.45
09	Sediment & Erosion Control / NPDES Permitting	$ 11,904.44	$ 19,148.29	$ 3,105.28	$ 64.29	$ 34,222.30	$ -	$ 34,222.30
10	Geotechnical Investigations & Engineering Services	$ 3,447.06	$ 5,544.60	$ 899.16	$ 18.61	$ 9,909.43	$ -	$ 9,909.43
11	Roadway Structures Design and Plans	$ -	$ -	$ -	$ -	$ -	$ -	$ -
12	Bridge Design and Plans	$ 108,554.62	$ 174,610.11	$ 28,316.47	$ 586.19	$ 312,067.39	$ -	$ 312,067.39
13	Subsurface Utilities Engineering (SUE)	$ 1,023.56	$ 1,646.40	$ 267.00	$ 5.53	$ 2,942.49	$ 99,309.60	$ 102,252.09
14	Utility Coordination	$ 31,078.01	$ 49,988.98	$ 8,106.70	$ 167.82	$ 89,341.51	$ 40.20	$ 89,381.71
15	Utility Relocation Design	$ -	$ -	$ -	$ -	$ -	$ -	$ -
16	Right of Way Coordination & Acquisition	$ 3,028.68	$ 4,871.63	$ 790.03	$ 16.35	$ 8,706.69	$ -	$ 8,706.69
17	Railroad Coordination	$ 4,733.06	$ 7,613.12	$ 1,234.62	$ 25.56	$ 13,606.36	$ 21,500.00	$ 35,106.36
18	Construction Phase Services	$ 40,197.92	$ 64,658.36	$ 10,485.61	$ 217.06	$ 115,558.95	$ -	$ 115,558.95
		$ -	$ -	$ -	$ -	$ -	$ -	$ -
		$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Totals	$ 524,566.24 (A)	$ 843,764.83 (B)	$ 136,833.11 (C)	$ 2,832.63 (D)	$ 1,507,996.81 (E)	$ 141,490.65 (F)	$ 1,649,487.46

Summary of DBE Qualifying Fees

	Total Fee	Qual. Percentage	Qualifying Fee
CECS, Inc.	$ 1,649,487.46	9.1%	$ 150,665.31
Cox & Dinkins	$ 304,654.00		$ -
F&ME	$ 392,494.93		$ -
New South & Associates	$ 20,105.64	100.0%	$ 20,105.64
Property Acquisitions & Negotiations	$ 209,800.00		$ -
	$ -		$ -
	$ -		$ -
	$ -		$ -
	$ -		$ -
	$ -		$ -
	$ -		$ -

Fee Summary

A - Direct Labor	**$ 524,566.24**
B - Overhead [A x 1.6085]	**$ 843,764.83**
C - Profit [(A+B) x 0.1]	**$ 136,833.11**
D - FCCM [A x 0.0054]	**$ 2,832.63**
E - Labor Total	**$ 1,507,996.81**
F - Total Non-Salary Direct Expenses	**$ 141,490.65**
G - Subconsultant Fees	**$ 927,054.57**
Fee Total	**$ 2,576,542.03**

fee total less profit: $2,439,708.92

Attachment B - Manhour and Fee Estimate
Pumpkin Patch Avenue Improvements (Red Baron Road to Marcie Street)
Tall Weeds County
CM 3 (Marcie Street Relocation)

Peanuts Engineering, Incorporated
Prime Consultant

1/22/2013

Task Matrices for the Current Estimate (Apple 1)

Consultant Team Fee Totals

Task		CECS, Inc.	Cox & Dinkins	F&ME	New South & Associates	Property Acquisitions & Negotiations							Totals
01	Project Management	$ 118,574.19	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 118,574.19
02	Environmental Services / Permitting	$ 70,405.22	$ -	$ 32,566.24	$ 20,105.64	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 123,077.10
03	Field Surveys	$ 2,546.40	$ 304,654.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 307,200.40
04	Roadway Design	$ 358,485.35	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 358,485.35
05	Pavement Marking and Signing Design	$ 29,374.09	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 29,374.09
06	Traffic Signal Design	$ 45,077.38	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 45,077.38
07	Transportation Management Plan	$ 61,262.46	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 61,262.46
08	Stormwater Management / Hydraulic Design	$ 256,557.45	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 256,557.45
09	Sediment & Erosion Control / NPDES Permit	$ 34,222.30	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 34,222.30
10	Geotechnical Investigations & Engineering Sc	$ 9,909.43	$ -	$ 347,887.67	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 357,797.10
11	Roadway Structures Design and Plans	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
12	Bridge Design and Plans	$ 312,067.39	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 312,067.39
13	Subsurface Utilities Engineering (SUE)	$ 102,252.09	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 102,252.09
14	Utility Coordination	$ 89,381.71	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 89,381.71
15	Utility Relocation Design	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
16	Right of Way Coordination & Acquisition	$ 8,706.69	$ -	$ -	$ -	$ 209,800.00	$ -	$ -	$ -	$ -	$ -	$ -	$ 218,506.69
17	Railroad Coordination	$ 35,106.36	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 35,106.36
18	Construction Phase Services	$ 115,558.95	$ -	$ 12,041.02	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 127,599.97
19		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
20		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Totals	$ 1,649,487.46	$ 304,654.00	$ 392,494.93	$ 20,105.64	$ 209,800.00	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,576,542.03

Consultant Team Manhour Totals

Task		CECS, Inc.	Cox & Dinkins	F&ME	New South & Associates	Property Acquisitions & Negotiations							Totals
01	Project Management	578											578
02	Environmental Services / Permitting	494		139	205								838
03	Field Surveys	14	1,706										1,720
04	Roadway Design	2,309											2,309
05	Pavement Marking and Signing Design	180											180
06	Traffic Signal Design	316											316
07	Transportation Management Plan	332											332
08	Stormwater Management / Hydraulic Design	1,394											1,394
09	Sediment & Erosion Control / NPDES Permit	202											202
10	Geotechnical Investigations & Engineering Sc	42		876									918
11	Roadway Structures Design and Plans												
12	Bridge Design and Plans	1,875											1,875
13	Subsurface Utilities Engineering (SUE)	20											20
14	Utility Coordination	753											753
15	Utility Relocation Design												
16	Right of Way Coordination & Acquisition	36											36
17	Railroad Coordination	70											70
18	Construction Phase Services	547		96									643
19													
20													
	Totals	9,162	1,706	1,111	205								12,184

Project Non-salary Direct Expense Summary

Expense Description	Total Units	Total Cost	Task 01 Project Management	02 Environmental Services / Permitting	03 Field Surveys	04 Roadway Design	05 Pavement Marking and Signing Design	06 Traffic Signal Design	07 Transportation Management Plan	08 Stormwater Management / Hydraulic Design	09 Sediment & Erosion Control / NPDES Permitting	10 Geotechnical Investigations & Engineering Services	11 Roadway Structures Design and Plans	12 Bridge Design and Plans	13 Subsurface Utilities Engineering (SUE)	14 Utility Coordination	15 Utility Relocation Design	16 Right of Way Coordination & Acquisition	17 Railroad Coordination	18 Construction Phase Services	19	20
Per Diem, with Overnight Stay	days	$ -																				
Per Diem, without Overnight Stay	3 days	$ 45.00		3																		
Lodging	nights	$ -																				
Mileage	915 miles	$ 613.05		855												60						
Shipping, Standard	shipments	$ -																				
Shipping, Overnight	shipments	$ -																				
SUE LV A	8 EAs	$ 12,000.00													8							
SUE LV A ATTEMPTED	EAs	$ -																				
SUE LV B	32900 foots	$ 49,021.00													32900							
SUE LV C	3290 foots	$ 1,612.10													3290							
SUE AERIAL	44 foots	$ 7,781.40													44							
SUE TRAFFIC CONTROL	2 days	$ 2,140.00													2							
CLOMR REVIEW FEE	1 EA	$ 6,750.00								1												
LOMR REVIEW FEE	1 EA	$ 8,250.00								1												
FEMA DATA REQUEST	1 EA	$ 393.00								1												
SUE SURVEY (HLA)	1 EA	$ 24,330.50													1							
Color 8.5x11 Prints (for public involvement)	300 sheets	$ 210.00		300																		
Color 11x17 Prints (thicker for public involvemer	150 sheets	$ 285.00		150																		
24" x 36" public meeting displays	4 boards	$ 2,120.00		4																		
Uniformed officer PIM	1 shift	$ 175.00		1																		
Venue rental (if needed)	1 day	$ 500.00		1																		
Turning Movement Count (13 hour)	1 EA	$ 630.00						1														
RR Liability Insurance	1 EA	$ 15,000.00																	1			
Railroad Flagmen	3 days	$ 4,500.00																	3			
Railroad Entry Permits	1 EA	$ 2,000.00																	1			
Utility Relocation Design	EAs	$ -																				
Standard Turning Movement Count (4 hour)	1 EA	$ 360.00						1														
High Volume Turning Movement Count (4 hour)	EAs	$ -																				
1-3 Lanes Class, Volume, Speed	1 EA	$ 350.00						1														
SUE LV D	3290 LFs	$ 1,645.00													3290							
Gravity Sewer Manhole	5 EAs	$ 779.60													5							
		$ -																				
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ATTACHMENT "A"
SCOPE OF SERVICES AND SCHEDULE
SHOP ROAD EXTENSION – PHASE 2

Introduction

CECS, Inc. (CONSULTANT) has been authorized by Richland County (COUNTY) to provide engineering services for the Shop Road Extension – Phase 2 project in Richland County, South Carolina. This project will consist of extending SC 768 (Shop Road) on new location, from its Phase 1 terminus at S-960 (Longwood Road), east and south easterly to a new intersection Montgomery Lane. The intent is to design Shop Road Extension – Phase 2 as a two-lane, shoulder and ditch section roadway. No bicycle or pedestrian accommodations are proposed to be included with the design of this project. The proposed scope of work also includes the design of one new location bridge for a crossing of Mill Creek.

Proposed Project Scope – Preliminary through Final Construction plans will be developed for the two-lane Phase 2 Extension of Shop Road.

- 45 mph design speed (minimum);
- 12-foot wide travel lanes;
- One (1), New location bridges;
- One (1) new location at-grade railroad crossing;
- Intersection improvements and relocations, as necessary, for side roads;
- Traffic signal warrant analyses and recommendations;
- 1.3 miles of new location roadway and improvements at intersecting roads.

Summary of Anticipated Services - The SUBCONSULTANT will perform the following services for this project;

Task 1 - Project Management
Task 2 - Environmental Services / Permitting
Task 3 - Field Surveys
Task 4 - Roadway Design
Task 5 - Pavement Marking and Signing Design
Task 6 - Traffic Analysis and Traffic Signal Design
Task 7 - Transportation Management Plan
Task 8 - Stormwater Management / Hydraulic Design
Task 9 - Sediment & Erosion Control / NPDES Permitting
Task 10 - Geotechnical Investigations and Engineering Services
Task 11 - Roadway Structures Design and Plans
Task 12 - Bridge Design and Plans
Task 13 - Subsurface Utilities Engineering (SUE)
Task 14 - Utility Coordination
Task 15 - Utility Relocation Design
Task 16 - Right of Way Coordination and Acquisition
Task 17 - Railroad Coordination
Task 18 - Construction Phase Services

Task 1

PROJECT MANAGEMENT

The CONSULTANT shall institute a program for conformance with COUNTY requirements for monitoring and controlling project engineering budget, schedule and invoicing procedures. The CONSULTANT's subconsultants shall be included in this program. Proposed dates of submittals, completion of Tasks, and final completion of pre-construction services as noted in this agreement will be negotiated with the COUNTY. Included in management of the project will be:

- Project meetings between the COUNTY, South Carolina Department of Transportation (SCDOT), and CONSULTANT for clarification of scope, discussion of concepts, review of submittals, etc. at the discretion of the COUNTY.

- The CONSULTANT will prepare meeting agenda and meeting materials as well as record the minutes of each meeting in which it participates and distribute to the appropriate COUNTY personnel.

- Prepare monthly invoices, status reports, and schedule updates. Assume a 48-month design schedule which will impact the duration of preparing invoices, status reports, and schedule updates. Assume a 30-month construction schedule which will impact the duration of invoicing for Construction Phase Services.

- The CONSULTANT will provide coordination with its SUB-CONSULTANTS during the execution of their work. Assume a 48-month design schedule.

- The CONSULTANT will include the COUNTY in any discussions concerning the project prior to submittal of deliverables if that process has the advantage of expediting the completion of any task of the project.

The CONSULTANT will attend meetings with the COUNTY and stakeholders from various municipal organizations affected by this project in order to incorporate the needs and desires of these organizations into the decision-making process. It is assumed that the CONSULTANT will attend 50 project meetings (1 per month and 2 review coordination meetings with the SCDOT and County). The CONSULTANT will be in attendance at these meetings and will prepare all necessary agendas, meeting minutes, and display materials.

Task 2

ENVIRONMENTAL SERVICES/PERMITTING

The CONSULTANT will be responsible for the required coordination with Local, State and Federal agencies regarding environmental services to ensure the program is in compliance with appropriate environmental regulations to obtain a Wetlands Permit and Land Disturbance Permit. The CONSULTANT will provide specific documentation, including but not limited to project information, applications and drawings as necessary for acquisition of the required permits.

Within two weeks of the date that the COUNTY provides a Notice to Proceed (NTP) for the subject project, and prior to commencement of design, the CONSULTANT shall make a determination of the environmental and/or navigational permits expected to be required for the subject project on a permit determination form. This information will inform the COUNTY of the anticipated permits and will be incorporated in the project schedule to ensure compliance.

Permits – The CONSULTANT will coordinate with the COUNTY and may attend coordination meetings with state and federal resource agencies and document all discussions and understandings that are reached.

The CONSULTANT shall perform Jurisdictional Delineations utilizing the three-parameter approach (hydric soils, hydrophytic vegetation and wetland hydrology) set forth in the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual, and subsequent Regional Supplements. The upland/wetland boundaries will be appropriately flagged in the field and surveyed using sub-meter GPS or survey data. The study corridor will be 100' each side of the existing and new location roadway centerlines. The CONSULTANT will plot the wetland boundaries on a surveyed map for inclusion with the JD request. The CONSULTANT shall prepare a request for a preliminary jurisdictional determination (JD) or, at the request of the COUNTY, an approximate JD letter for the project corridor. This submittal will be prepared according to the USACE's "Information Required for Delineation and Jurisdictional Determination Submittal (February 2015)", or subsequent guidance. The completed request

package, including drawings, will be submitted to the COUNTY for final processing and coordination with the agencies.

If applicable, the CONSULTANT shall prepare the Joint Federal and State Permit Application Package in the format specified by the Charleston District Corps of Engineers. The CONSULTANT shall complete all forms, documentation, and drawings as directed by the COUNTY that are part of the permit application package. The COUNTY or SCDOT will execute the application form as the applicant, and may designate the CONSULTANT as the agent in the processing of the permit application, if so desired. It is assumed that any permits would be authorized under a Nationwide or Individual Permit and will be prepared according to current SCDOT standards which include the following:

- Joint Federal and State Application Form

- Permit Drawings: Drawings depicting the proposed impacts to waters of the U.S. on the subject property. The CONSULTANT shall include the surveyed or measured boundaries of jurisdictional waters superimposed on the actual development/grading plans to establish the proposed jurisdictional impacts.

- Impact Assessment Form and Supplemental Information: The CONSULTANT shall include a completed Impact Assessment Form, which includes, but is not limited to the following:

    - Project Information
    - Proposed impacts to WOUS
    - Alternative Analysis
    - Avoidance & Minimization
    - Hydrology & Hydraulics
    - Section 106 of the National Historic Preservation Act
    - Threatened and Endangered Species.

Mitigation Plan: In accordance with regulatory requirements, the CONSULTANT will develop a conceptual mitigation plan and submit it as part of the application package. It is assumed that any mitigation needed for this project will be acquired from the proposed COUNTY Mitigation Site.

The CONSULTANT shall submit the completed permit application package to the COUNTY for final processing and negotiation with the agencies. The CONSULTANT will coordinate directly with the SCDOT, USACE, SCDHEC and other federal, state and local regulatory personnel throughout the course of the permit application process, and coordinate the submission of any additional information as requested by the respective agencies in order to facilitate permit review and approval.

Technical Reports

Limited Phase I ESA–In order to identify potential hazardous materials and/or potential environmental liabilities, CONSULTANT will perform a Limited Phase I ESA for the project corridor, specifically to include properties of environmental concern. This assessment will be performed in general accordance with the ASTM E1527-21, *Standard Practice for Environmental Site Assessments*.

Assessment will focus on sites of environmental concern or where an environmental release would be likely, such as gasoline stations, automotive repair/sales, industrial facilities, dry cleaners, and locations of suspected underground storage tanks. The Limited Phase I ESA involves a visual site inspection; recording observations and taking photographs; reviewing historical mapping and aerial photographs; reviewing government records provided by South Carolina Department of Environmental Services (SCDES), Freedom of Information (FOI) and other sources; and, providing a written report of our findings. The Limited Phase I ESA Report will not include property chain of ownership or title information, ASTM Questionnaire, or interviews with property owners. Property reconnaissance will be conducted from the public thoroughfares where possible, but a portion of the project will require reconnaissance from private property with site visits occurring prior to right-of-way acquisition. Local/historical records review will be confined to minimum search distances from the project corridor limits in general accordance with the intent of the ASTM E1527-21 (i.e., to include sites within 0.10 miles of Project area). Documents such as notices of violation, individual property contamination studies, and individual property remediation reports from state and local agencies be reviewed as available. No sampling or laboratory analysis of any kind is included within this scope of services. For the purposes of this scope, we have assumed that up to six (6) tax parcels will be included in assessment. One (1) Limited Phase I ESA report will be prepared and provide to include all assessed parcels.

Please note the following assumptions apply for the Limited Phase I ESA to be provided by the CONSULTANT:

- Site reconnaissance will be performed from public rights-of-ways where practical, but a portion of the roadway is off alignment and private property permission will be needed ahead of right of way acquisition.
- The County will be responsible for obtaining permission to access private property for site reconnaissance.
- The regulatory database will include sites within 0.10 miles of the Project area, to be identified by COUNTY. A .dwg, .shp, or .kmz file of the Project Area will be provided to Consultant.
- The findings of the Limited Phase I ESA report will include a determination if additional environmental assessment is warranted (i.e., are Phase II ESA activities recommended).

Phase II ESA

A Phase II ESA will be conducted by the CONSULTANT for those sites recommended for additional study in the Limited Phase I ESA, and as agreed on by the COUNTY. It is assumed that the Phase II site investigation will include up to two (2)2 sites.

In this scope of work, CONSULTANT will install subsurface soil borings, collect surface soil samples, and may collect groundwater samples. It is assumed that the most likely contaminants to be encountered are petroleum products, degreasers, and solvents, although other contaminants may be encountered depending on historical operations. For the purposes of this proposal, up to two (2) sites will be further assessed during the Phase II ESA, however, specific sites to be assessed and the actual assessment services will be based upon findings of the Limited Phase I ESA (described above) as well as consultation with the COUNTY regarding what private lands will be acquired or impacted as part of the project. The specifics of the Phase II ESA services will depend on the contaminants of concern, past operation type, and what information is known about each site. However, we assume that the following services will be included as part of the Phase II ESA activities:

- Up to six (6) surface soil samples may be collected from sites with suspected adverse environmental impacts. Analysis may include VOC and/or Target Analyte List (TAL) Metals.

- Up to six (6) subsurface soil samples may be collected using direct push drilling methods. This will include up to six (6) soil borings drilled up to 10-feet in depth (each). A South Carolina licensed driller will perform drilling services. It is estimated that it will take field personnel one (1) workday to complete the drilling and assessment field work. The soil cores generated from drilling will be field screened using an organic vapor analyzer/photoionization device (OVA/PID) if evidence of impacts is observed. Field screening will determine which soil sample from each soil boring will be submitted for laboratory analysis. Drill cuttings will be spread in a non-disruptive location on each property. One subsurface soil sample may be collected from each boring and analyzed for VOC and/or TAL metals (i.e., up to 6 subsurface samples).

If CONSULTANT deems additional soil analysis is warranted beyond what is described above, additional fees will be incurred. If groundwater is encountered within 10-feet of ground surface, one (1) groundwater sample will be collected from a given boring. Ten (10) feet of ground surface is the anticipated depth of road work activities. Up to six (6) groundwater samples will be submitted for VOC analysis. The sampling and assessment methodology, findings, and recommendations of the Phase II ESA will be documented within a technical report to be issued at the completion of work.

The following assumptions apply:

- All drilling and assessment work will be done on private property. No traffic control will be required.
- COUNTY is responsible for obtaining all written property access permissions.
- The drilling locations will be based on access and underground utilities.
- The Statewide Utility One-call Service (SC811) will be contacted, and a utility locate request will be made prior to field work. SC811 may not mark all the subsurface utilities at the site. CONSULTANT is not responsible for damage to unmarked and/or incorrectly marked utility lines.
- Drilling boreholes will be properly abandoned by the driller. Boreholes will be filled to grade. Asphalt patch will be installed where drilling had occurred in paved areas. No concrete repair is anticipated.
- Standard laboratory turnaround time will be requested (i.e., 10 working days).
- One (1) day of drilling services are included. If difficult drilling or auger refusal is encountered, additional drilling fees may be incurred.
- CONSULTANT will obtain necessary monitoring well permits from SCDES prior to Phase II ESA field work. Analytical data will be provided to SCDES at the conclusion of work, as a condition of monitoring well permit conditions.

Cultural Resources (Historical, Archaeological)

Investigations shall be conducted as required. Cultural resource reports will follow the South Carolina Standards and Guidelines for Archaeological Investigations as well as SCDOT guidance. In the instance where 10 or fewer resources are found and no significant resources will be adversely affected, the SCDOT's short form report format will be utilized. If more than 10 resources are found or any resources are deemed Eligible, a full report will be prepared.

Public Coordination/Public Meeting – The CONSULTANT, with input from the COUNTY, shall prepare necessary public meeting materials, (deliverables would include project design displays, project overview boards, project typical sections, right of way data tables, handouts, comment cards, sign-in sheets and public meeting summary to include summary of public comments). The CONSULTANT shall provide draft copies of all materials to be used in the public meeting (handouts, comment cards, sign-in sheets and applicable drawings) to the COUNTY for review a minimum of 10 business days prior to printing. The CONSULTANT will also provide the COUNTY with PDF versions of all necessary deliverables, as stated above, for the public information meeting one week prior to the meeting for posting on the COUNTY website.

The COUNTY will provide security guards from local law enforcement agencies or private security firms for all public meetings. The COUNTY will also be responsible for fabricating and erecting signs to be placed on the projects as well as any directional signage needed at the public meeting venue. The COUNTY will also procure and bring all easels (for project display boards, provided by CONSULTANT, see below) and all other items not specifically mentioned below to be provided by CONSULTANT.

The public meeting is planned as an open-house style meeting. The COUNTY may conduct a brief formal presentation at some time during the public information meeting. The CONSULTANT shall attend the scheduled public meeting and have a minimum of four (4) personnel knowledgeable of the project and its impacts in attendance. The CONSULTANT's role at this meeting is to discuss the project design and impacts with the public in attendance. The CONSULTANT will be responsible for bringing hard copies of the project displays (plan view, typical sections, overview boards, etc) as well as display boards (typical black, foam boards; "GATOR" board, or equivalent) to the meeting; assume three (3) copies of each display to be provided at the meeting.

The public meeting will tentatively be scheduled for 5:00 pm to 7:00 pm on a Tuesday or Thursday at a venue near the project corridor or along the corridor. The COUNTY will be responsible for procuring the venue and determination of date and time, media notices, public notices, public meeting directional signage, coordinating for the presence of public safety officer(s) and general management of the meeting and presentation.

Upon conclusion of the public comment period, the CONSULTANT will prepare a public meeting summary to include a summary of the public comments received. The CONSULTANT will also prepare and provide a document (Word or Excel), in matrix format, which includes the public comment, citizen name and contact info, and space for COUNTY response to each comment. The COUNTY will be responsible for development of all responses and individual response letters.

Assumptions

1. One (1) public information meeting will be scheduled prior to finalizing Right-of-Way plans.
2. USACE Nationwide or Individual Permit. Mitigation costs, if necessary, are not included.
3. The CONSULTANT will conduct all agency coordination and permit negotiations.

Deliverables

1. Permit Determination Form
2. Jurisdictional Determination Request Package
3. USACE Nationwide or Individual Permit Application Package, including supplemental documentation.
4. Threatened and Endangered Species Survey – Short Form
5. Phase 1 and 2 HAZMAT Reports
6. Cultural Resources Report

7. Attendance at one (1) Public Meeting and preparation of all meeting materials (as stated in scope).

Task 3

FIELD SURVEYS

Aerial Photography and LIDAR Survey and Mapping – The COUNTY will provide the CONSULTANT with Aerial Photography and Aerial LIDAR Survey and Mapping, including the control points set, for use during the preparation of the Roadway Plans. Mapping was developed to the contour accuracy of 1 foot (one foot contour interval). The aerial mapping was prepared for use in plans developed to a horizontal scale of 1" = 20'.

Field annotation of aerial topography, supplementary topographic surveys, and verification of mapping accuracy will be performed by the CONSULTANT.

Control Surveys – The CONSULTANT will establish the Primary, Main and Secondary Survey Control Points to be used during the supplemental topographic surveys and the construction of this project. All surveys will be in accordance with SCDOT's *Pre-Construction Survey Manual*. The CONSULTANT will notify the COUNTY of any required temporary traffic control measures (e.g. shoulder/lane closures, etc.) within seven (7) days before such closure due to survey activities.

Control survey and information provided on plans shall be consistent with SCDOT Preconstruction Design Memorandum 08 (PCDM-08) and 2023 SCDOT Preconstruction Survey Manual.

Supplemental Design Surveys **–** Additional field surveys will be performed by the CONSULTANT as necessary during the design phases of the project. All surveys conducted should be adequate for the design, permitting and construction of the project.

Upon receipt of the approved proposed alignment, the CONSULTANT shall survey the proposed corridor for a width of 150' in 100' increments from the predetermined point along Shop Road to the connection with Montgomery Lane. For estimating purposes, approximately 1.3 miles along a new location alignment will be surveyed as shown in Enclosure 1. In addition, the following intersection roads will be surveyed:

- SC 768 (Shop Road) for 700 feet north of Longwood Road
- S-960 (Longwood Road) for 1,000 feet east and west of the intersection with Shop Road
- S-87 (Montgomery Lane) for 1,000 feet north and south of the proposed intersection with Shop Road Extension

Supplemental field surveys, as necessary during design, will be conducted by the CONSULTANT to obtain all topographic and planimetric data within the project corridor for the design and permitting approval of the project (assume approximately 200 hours for a two-man survey crew)

Field surveys and all research necessary will be performed by the CONSULTANT to establish existing rights-of-way and to locate frontal property boundary monumentation (along each side of the road) for developing property maps per the SCDOT format.

Property-owner data will be obtained from county records (plat and deed research) for use in the property surveys and to incorporate property ownership data into the Right-of-Way Plans. The property monumentation and property-owner data will be used to develop a closed-out property drawing.

Level runs between existing primary vertical control points will be performed to establish additional benchmarks to be referenced on the contract drawings.

The existing pavement will be field surveyed in accordance with the SCDOT Preconstruction Survey Manual. Cross sections will be surveyed at a minimum of every 50 feet, including edge of pavement, crown, and other breaks in cross slope or edge of pavement.

Survey data will be shown on Reference Data Sheets in the '5 series sheets' of the plans due to lack of room on the 1"=20' scale plan sheets.

The CONSULTANT will locate all drainage, stormwater, sanitary sewer structures and above ground utility structures within 100 ft. of the proposed roadway alignments. For drainage, stormwater and sanitary sewer structures, the pipe size, pipe type, structure type and invert / rim, and inlet flow line elevations shall be obtained. The CONSULTANT will locate and survey the next connecting structure (if outside the 100 ft. area) in order to determine grades / depths of existing facilities. Survey of existing drainage structures shall also, at a minimum, comply with sections 3.10.08 through 3.10.12 of the previously referenced SCDOT Preconstruction Survey Manual.

The CONSULTANT will horizontally and vertically locate all potential outfall drainage ditches and streams. At these outfalls, cross sections will be obtained 400 feet upstream and downstream at 50-foot intervals, or as necessary to define the channel alignment, from the proposed roadway alignment. All cross sections will be extended from bank to bank of the existing channel plus 10 feet on either side. Survey of potential outfall drainage ditches and streams shall also, at a minimum, comply with section 3.07 through 3.07.02 of the previously referenced SCDOT Preconstruction Survey Manual.

The CONSULTANT will obtain field surveyed cross sections for use in the development of the hydraulic models necessary to study the FEMA hydraulic crossing for Shop Road at Mill Creek – survey of Mill Creek cross sections will extend a minimum of 500 ft. upstream and downstream of the proposed bridge location, with cross-section intervals no greater than on 50 ft stations. Include cross-section data at the proposed centerline and proposed bridge face locations (both upstream face and downstream face). Cross section data will include the following: Top of stream / river banks Toe or bottom of stream / river banks Thalweg (lowest point) of stream / river. All cross sections will be extended from bank to bank of the existing channel plus 25 feet on either

side. The survey shall also note the Normal Water Elevation (NWE) and High Water Elevation (HWE) at the time of survey as described in section 3.10.03 of the previously referenced SCDOT Preconstruction Survey Manual and include any additional topographic survey that may be necessary, specific to channel alignment and proximity to adjacent pavements, etc. Survey of hydraulic crossing for Shop Road at Mill Creek shall also, at a minimum, comply with section 3.10.03 through 3.10.07 of the previously referenced SCDOT Preconstruction Survey Manual.

The CONSULTANT shall update the existing project DTM / topo files (prepared by others and provided to the CONSULTANT) with all supplemental field survey data as shown above.

The CONSULTANT will obtain as-built horizontal coordinates and elevations for all geotechnical borings and other test locations performed on the project by the CONSULTANT. The CONSULTANT should assume (100) borings and other exploration points to be surveyed for this project. CONSULTANT will provide the survey results in tabular format to include latitude, longitude, state plane north, state plane east, elevation, station, and offset for each exploration point.

The CONSULTANT will stake the proposed and present rights-of-way for the total parcels to be affected upon direction. Right-of-way staking will consist of placing 36-inch stakes (or paint in paved areas) at all proposed right-of-way breaks, sight triangles and spaced at 100-foot intervals in tangents and 50-foot intervals in curves. These stakes shall be placed after Final Right-of-Way Plans have been developed and only after the Project Manager contacts the CONSULTANT when a property owner requests the right-of-way to be staked.

The CONSULTANT should assume multiple trips as the staking may involve one or several parcels.

The CONSULTANT will notify the COUNTY's designated Project Manager prior to performing any work on site. The CONSULTANT will not be responsible for obtaining permissions from property owners for surveys outside of the existing Right-of-Way.

Task 4

ROADWAY DESIGN

Design Criteria – Prior to beginning development of preliminary plans, the CONSULTANT will prepare the roadway design criteria in accordance with the SCDOT's *Roadway Design Manual, Standard Drawings for Road Construction*, and all applicable American Association of State Highway Transportation Officials (AASHTO) publications for COUNTY approval. The CONSULTANT will notify the COUNTY of any exceptions and/or deviations from the Design Criteria as soon as identified. It is assumed that the CONSULTANT will prepare one (1) design exception documentation for SCDOT and COUNTY approval.

Conceptual Roadway Study – Prior to developing preliminary roadway plans, the CONSULTANT will perform a roadway alignment study to evaluate the extension of Shop Road

from the current terminus at Longwood Road to a new intersection at Montgomery Lane. This study will be limited to providing plan view alignments and potential impacts based on readily available GIS data. The CONSULTANT will submit a report with recommendations to the COUNTY for approval upon completion of the conceptual roadway alignment study.

Assumptions:

- *A maximum of three (3) alignments will be evaluated.*
- *Alternatives will be developed in plan view only with no profile or cross sections required. No plan sheets will be required.*
- *The COUNTY will provide the CONSULTANT with available data and electronic files associated with any planned developments within close proximity to the planned roadway extension.*
- *A final decision on the conceptual study will be issued within thirty (30) days after submitting to the COUNTY.*

Preliminary Roadway Plans – The CONSULTANT will prepare Preliminary Roadway Plans. The plans will be developed to the level of detail of approximately 30% Complete Construction Plans. The Preliminary Roadway Plans for the project will be prepared at a scale of 1"=20' scale to illustrate pertinent information associated with roadway design. The plans will be sufficiently developed to illustrate the construction limits and right-of-way requirements of the entire project. The plans will incorporate information obtained during the SUE phase of the project, and the design will be adjusted where possible to minimize utility impacts. Additionally, the design will be adjusted to minimize impacts to developed properties and wetlands.

A cost estimate will be prepared by the CONSULTANT and submitted along with the Preliminary Roadway Plans for use by the COUNTY. The COUNTY will use this cost estimate in order to determine whether or not the scope of the project needs to be reduced or expanded due to budgetary constraints.

The CONSULTANT will attend the Preliminary Plans Design Field Review with the COUNTY to review the project design in the field.

The CONSULTANT will provide four staff members to support the COUNTY staff members at the Public Information Meeting. The CONSULTANT will also use its roadway staff to develop the displays to be used at the Public Information Meeting.

Upon completion of the Preliminary Roadway Plans, the CONSULTANT will provide the COUNTY with a PDF file of the plans. The CONSULTANT at this time will also provide the COUNTY with preliminary construction costs and preliminary new right-of-way areas for use in developing an estimated project cost.

It is assumed that the CONSULTANT will prepare for, attend, and summarize one (1) meeting with the COUNTY and SCDOT to coordinate the approval of the proposed concept.

Right-of-Way Plans – Right-of-Way Plans will be developed in accordance with the SCDOT's *Roadway design manual.*

The CONSULTANT will incorporate available SUE data of the project.

The CONSULTANT will provide curb grades for the project as necessary for drainage design and to facilitate construction.

The CONSULTANT will establish horizontal and vertical alignments along with cross sections as needed in order to study the re-connection of driveways to the widened / relocated roadways. This design data will be shown in the plans in order to convey the extent/impact of the re-configuration of driveways necessary to provide access to the property. Driveways that are level with the widened roadway will not have a horizontal or vertical alignment set, but will be handled by only showing their connection in the roadway cross section and plan view based on the roadway cross section.

The CONSULTANT will attend the Right-of-Way Plans Design Review with the COUNTY / SCDOT to review the project design. The CONSULTANT will prepare meeting minutes / summary of discussions from the design review. The design review will be scheduled approximately 2 weeks after submittal of the preliminary right-of-way plans to SCDOT (COUNTY to coordinate review). The design review is typically conducted utilizing desktop-level data (review of aerial imagery and plan data) to review the proposed project limits, typical sections, design and impacts. Field visits to specific locations may be scheduled. CONSULTANT should assume 1 field visit with the COUNTY / SCDOT associated with the design review.

A set of preliminary Right-of-Way Plans will be submitted to the COUNTY for review and comment. Following the review of the preliminary Right-of-Way Plans, the CONSULTANT will submit final Right-of-Way Plans for review and approval. As applicable, the final Right-of-Way plans will address comments on the preliminary Right-of-Way plans. Following review, comment and approval of each of the plan submittals (preliminary R/W and final R/W), the CONSULTANT shall provide the plans to SCDOT for their review, comment and/or concurrence. The CONSULTANT will be responsible for updating all plan deliverables, as applicable and as necessary, per SCDOT reviews. Right-of-way plans as prepared by the CONSULTANT shall be developed to the level of detail necessary of 70% plans and per typical SCDOT plan requirements. The CONSULTANT shall also be responsible for providing responses to all COUNTY and SCDOT comments documented within typical comment matrices.

Electronic media receivables for Right-of-Way Plans will be provided via electronic data storage device or through electronic file transfer and will include the information outlined in the SCDOT's *Roadway Design Manual*.

During the course of completing the final plans for construction, should changes be necessary which will affect right-of-way; these revisions will be promptly made, documented as revisions on plans, and identified to those implementing right-of-way appraisal and acquisition.

The CONSULTANT should assume 30% of the tracts shown with new rights-of-way on the final right-of-way plans to require right-of-way revisions.

The CONSULTANT will develop and provide to the COUNTY an updated cost estimate for the project, to be submitted with the final right-of-way plans.

Final Roadway Design and Plans

Roadway Construction Plans – The construction plans will be a continuation of Right-of-Way Plans. Original Right-of-Way Plans will be retained by the CONSULTANT after appropriate COUNTY reviews and signatures and then developed into construction plans.

Plan and profile sheets will show information necessary to permit construction stakeout and to indicate and delineate details necessary for construction.

The CONSULTANT will attend the Final Roadway Plans Design Field Review with the COUNTY to review the project design in the field. The CONSULTANT will prepare meeting minutes / summary of discussions from the design field review. The final design field review will be scheduled approximately 2 weeks after submittal of the preliminary construction plans (COUNTY to coordinate field review).

A set of Preliminary Construction Plans (assumed 95% complete) will be submitted to the COUNTY for review and comment prior to final plan delivery. Following review of the preliminary construction plans, the CONSULTANT shall finalize the plans and submit the Final Construction plans (signed and sealed by a Professional Engineer licensed in the state of South Carolina). As applicable, the final construction plans will address comments on the preliminary construction plans. Following review, comment and approval of each of the plan submittals (preliminary const and final const), the CONSULTANT shall provide the plans to SCDOT for their review, comment and/or concurrence. The CONSULTANT will be responsible for updating all plan deliverables, as applicable and as necessary, per SCDOT reviews. The CONSULTANT shall also be responsible for providing responses to all COUNTY and SCDOT comments documented within typical comment matrices.

The Preliminary Construction cost estimate will be updated by the CONSULTANT and submitted with the Preliminary Construction Plans for use by the COUNTY.

On or before the contract completion date, the CONSULTANT will deliver to the COUNTY one complete set of Final Construction Plans, an Engineer's Estimate, and "Project Specific" Special Provisions. See Project Special Provisions and Engineer's Estimate for the description of the Engineer's Estimate and "Project Specific" Special Provisions.

Project Special Provisions and Engineer's Estimate – The CONSULTANT will prepare all "Project Specific" Special Provisions and include them in the format compatible with the SCDOT Construction Administration Section. The CONSULTANT will work closely with COUNTY personnel in the COUNTY'S development of the construction document package.

Also, utilizing recent bid data from similar projects in the area, the CONSULTANT will prepare an Engineer's Estimate for construction of this project. The estimates will be based on the final summary of quantities and will be used in the final bid analysis and award.

For this task and all other tasks contained in this scope, the CONSULTANT will utilize the SCDOT standard drawings, specifications, and design manuals that are current as of the first issuance of the task order scope by the COUNTY to the CONSULTANT.

Task 5

PAVEMENT MARKING AND SIGNING

Final pavement marking/signing plans will be prepared at a scale of 1"=50' unless otherwise agreed upon. The plans will consist of an itemized listing of estimated quantities; typicals for installation (SCDOT typicals may be used where applicable), details showing lane lines, edge lines, stop bars, symbol and word messages and other appropriate markings and sign designation numbers and locations. The plans will include dimensions sufficient for field layout. The *Manual on Uniform Traffic Control Devices (MUTCD): 2009 Edition* and SCDOT details will be incorporated into the plans.

Task 6

TRAFFIC ANALYSIS AND TRAFFIC SIGNAL DESIGN

Traffic Analysis – The CONSULTANT will perform a detailed analysis of existing and future conditions of the extension of SC 768 (Shop Road) at the following intersections:

- SC 768 (Shop Road) and SC 768 (Pineview Road)/S-1248 (Pineview Drive)
- SC 768 (Shop Road Extension) and S-960 (Longwood Road)
- Shop Road Extension at S-87 (Montgomery Lane) – future intersection

The CONSULTANT will obtain the following traffic counts to utilize for the traffic analysis:

- AM peak period (7:00AM – 9:00AM) and PM peak period (4:00PM – 6:00PM) turning movement counts in 15-minute intervals at the intersection of SC 768 (Shop Road) and SC 768 (Pineview Road)/S-1248 (Pineview Drive).
- 13-hour (6:00AM – 7:00PM) turning movement counts in 15-minute intervals at the intersection of SC 768 (Shop Road Extension) and S-960 (Longwood Road).
- 24-hour volume and classification count along S-87 (Montgomery Lane).

The CONSULTANT will develop projected traffic volumes and annual growth rates based upon evaluation of historical traffic counts and the COATS regional travel demand model for use in establishing horizon year and background traffic growth. The CONSULTANT will obtain information concerning planned and approved development projects affecting traffic within the corridor area from Richland County and SCDOT District 1 Office. Information concerning projected land uses, zoning, and development planning documents will also be obtained. The CONSULTANT will develop a Volume Development Memorandum for review prior to proceeding with future year traffic analysis.

The CONSULTANT will obtain existing traffic signal timing information from SCDOT for the signalized intersection of SC 768 (Shop Road) and SC 768 (Pineview Road)/S-1248 (Pineview Drive).

The CONSULTANT will identify the opening year and design year peak hour Levels of Service for intersections within the study area using the procedures and methodologies outlined Highway Capacity Manual, latest edition, and traffic analysis software, such as Highway Capacity Software (HCS) or Synchro 11.0/SimTraffic or newer. The results of the traffic analysis will include:

- The number and type of lanes on each approach of the study area
- Length of turn lanes to provide sufficient vehicle storage
- LOS tables
- Traffic control recommendations

The CONSULTANT will evaluate the need to construct exclusive turn lanes at key locations along the corridor. The turn need analysis will be performed using the turning movement counts conducted in 15-minute intervals and/or planned development data.

The CONSULTANT will perform signal warrant analysis per the Manual of Uniform Traffic Control Devices, MUTCD, section 4, for the following intersections:

- SC 768 (Shop Road Extension) and S-960 (Longwood Road)
- Shop Road Extension at S-87 (Montgomery Lane) – future intersection

The CONSULTANT will summarize the findings of the traffic analysis in a report. The report will include recommendations to enhance access management, safety, and traffic operations along the corridor and at key intersections to be incorporated in the design of the roadway improvements.

Traffic Signal Design - The CONSULTANT will prepare up to three (3) traffic signal design plans for the project as required. Traffic signal plans shall be designed in accordance with the latest editions of SCDOT's Traffic Signal Design Guidelines, Standard Signal Specifications and Special Provisions, Standard Drawings, and the Manual on Uniform Traffic Control Devices. The CONSULTANT will prepare signal plans, plotted at a scale not smaller than 1" = 40', based on the Final Roadway Design Plans and the Pavement Marking and Signing Plans. Traffic signal plans shall conform to the *Manual on Uniform Traffic Control Devices (MUTCD): 2009 Edition*, and SCDOT Standard Drawings, SCDOT Traffic Signal Design Guidelines: 2009 edition, SCDOT Standard Signal Specifications and Special Provisions, and SCDOT's latest Traffic Signal Memos. Pedestrian signal features such as pedestrian signal poles, pedestrian signal heads, push-buttons, signs etc. shall be included as per current SCDOT Traffic Signal Design Guidelines. The plans shall also include pedestrian signal timing parameters. The CONSULTANT shall prepare Special Provisions for Traffic Signal Installation based on current SCDOT guidelines.

Traffic Signal plans shall be prepared for the following intersections:

- SC 768 (Shop Road) and SC 768 (Pineview Road)/S-1248 (Pineview Drive) - modifications
- SC 768 (Shop Road Extension) and S-960 (Longwood Road), if warranted

- Shop Road Extension at S-87 (Montgomery Lane) – future intersection, if warranted

For this scope of work, services specific to interconnection of signals is not included. Should these services ultimately be required, a contract modification will be negotiated.

Task 7

TRANSPORTATION MANAGEMENT PLAN

Work Zone Traffic Control Plans – The design and preparation of one set of Work Zone Traffic Control plans will be accomplished for the roadway project. The plans will include a description of the sequential steps to be followed in implementing the plans, and will be developed at a scale of 1"= 50', unless otherwise agreed upon. The traffic control plans will include lane closures, traffic control devices, temporary lane markings, temporary drainage design, and construction signing and sequencing notes. Temporary drainage design will accommodate a 5-year Design Event. The plans will identify lane widths, transition taper widths, and any geometry necessary to define temporary roadway alignments. Also, the plans will address the type of surface to be used for all temporary roadways. Standard traffic control details will be incorporated into the plans for most work activities, but detailed staging plans will be required where impacts upon the normal traffic flow are significant.

Preliminary traffic control plans will be submitted in conjunction with the 95% complete roadway plans, and the final signed and sealed traffic control plans along with quantities will be submitted with the final roadway construction plans.

The Shop Road Extension project should be assumed an ***"Intermediate"*** project per SCDOT's *Rule on Work Zone Safety and Mobility.*

Transportation Operations Plan – The CONSULTANT will prepare a Transportation Operations Plan which will address the traffic operations within the work zone impact area and strategies for minimizing the impact to traffic operations. Some of the Work Zone Management Strategies for use in the Transportation Operations Plan can be found in Table 5B of the SCDOT's *Rule on Work Zone Safety and Mobility.*

Public Information Plan – The CONSULTANT will develop a Public Information Plan in conjunction with the COUNTY which will contain strategies for providing information to the public and other impacted entities. Some Public Information strategies which may be used in the development of the Public Information Plan can be found in Table 5C of the SCDOT's *Rule on Work Zone Safety and Mobility*.

Task 8

STORMWATER MANAGEMENT/HYDRAULIC DESIGN

The CONSULTANT will perform the Stormwater Management and Hydraulic Design for the project based on SCDOT Design Guidelines. Design procedures specified by the South Carolina Department of Health and Environmental Control as well as Richland County will be incorporated as needed. Any conflicts in design criteria for the review agencies will be evaluated with the COUNTY to determine the appropriate design procedure for the project. This task includes inspection of the existing drainage structures, roadway drainage, and hydraulic impact studies for the FEMA floodplain crossings.

Roadway Drainage - The roadway drainage plan will be prepared on replications of the roadway plan sheets at a scale of 1"=20', unless otherwise agreed upon. The roadway drainage design for the project will be completed utilizing design procedures that comply with stormwater management and sediment and erosion control regulations and the NPDES general permit. All drainage calculations will be performed with methods suggested in the SCDOT's *Requirements for Hydraulic Design Studies* dated May 26, 2009 and be made available to the COUNTY for approval.

The CONSULTANT will perform a field review of the project and a visual inspection of the existing drainage systems within the project area. The inspections performed will not include any material testing or structural analysis. The CONSULTANT will document any irregularities in the existing drainage system and provide the data to the COUNTY. If needed, the CONSULTANT will meet with the COUNTY in the field to review and discuss the condition of the existing drainage system prior to reuse in the proposed design. If additional testing or inspection (video pipe inspection) is recommended, the CONSULTANT will prepare the recommendation and submit to the COUNTY for submittal to the SCDOT.

Roadway drainage design for the project is dictated by the project horizontal and vertical geometry. The design will be terminated at available existing outfall locations or at new locations that will be constructed as a part of the project. Drainage areas will be defined from the existing topography as determined from available mapping and field survey. Design year storms will be established in conjunction with SCDOT guidelines for on-site and off-site runoff. For the design year storm, rainfall intensities appropriate for the project area will be determined and the runoff will be calculated for each drainage area. For each contributing sub-area, a structure will be identified to accept the runoff (inlet, cross-pipe, ditch, etc.). Based on accumulation of runoff, appropriate pipe sizes will be chosen to convey the runoff to the outfall. Design discharges will be calculated by SCDOT methods. Smooth Wall Pipe designs will be developed as per SCDOT Engineering Directive Memorandum No. 24.

The hydrologic analysis of each watershed will be performed with the appropriate method for the Sandhills physiographic region. Pre- and post-construction peak discharges will be computed at each outfall. Outfalls will be evaluated in accordance with SCDOT and NPDES regulations. If required to control stormwater quality or quantity, water quality or detention basins will be added using a hydraulic routing method. Energy dissipaters may also be utilized based on HEC-14 procedures. Outfall channel protective measures will be based on design methods in HEC-15 and/or HEC-11.

Roadway cross-lines will be designed and analyzed according to the principles given in FHWA's Hydraulic Design Series No. 5. Cross-line pipes will be sized based on SCDOT criteria and possible backwater effects. To reduce backwater, multiple pipes or multiple barrel culverts may be used in lieu of a single structure. Closed storm sewer systems will be analyzed with GEOPAK Drainage or XP-SWMM. Roadway inlets will be located based on FHWA's Urban Drainage Design Manual HEC-22 and spaced to meet the SCDOT's spread requirements. Any roadway ditches will be sized with Manning's equation, and designed using HEC-15 methodologies.

The stormwater design for the project will be performed to minimize impacts to existing utilities if possible. Existing utility data will be obtained by the COUNTY from the utility owners within the project area. The CONSULTANT will utilize this data as part of the design for the storm sewer systems. The CONSULTANT will adjust pipe locations and inverts if possible. If conflicts cannot be avoided, the CONSULTANT will evaluate the use of utility conflict boxes or other devices to minimize the need for utility relocations. The CONSULTANT and the COUNTY acknowledge not all utility relocations can be avoided.

The CONSULTANT will evaluate the potential impacts from the project on water quality. If dictated by project permitting, the CONSULTANT will utilize water quality best management practices to provide treatment to pavement runoff prior to entering environmentally sensitive areas.

The location of the storm drainage systems will be shown on the roadway plan sheets or replicated drainage sheets. Additional plan information will include pipe and drainage structure size, location, type and elevation; this will be detailed on the SCDOT Alternate Pipe Spreadsheet(s) which will be located in series as the final drainage plan sheets. A Stormwater Management Design Report will be prepared for the project based on SCDOT guidelines and will include a project description, drainage approach and methodology, design calculations, soils descriptions, and location maps.

Hydraulic Analysis – The proposed Shop Road Extension will cross the FEMA-defined Special Flood Hazard Areas associated with Mill Creek. The project will include a detailed hydraulic study to evaluate the existing and proposed hydraulic structures. The hydraulic study will be completed according to local, SCDOT, SCDNR, and Federal Emergency Management Agency (FEMA) regulations.

Mill Creek within the project corridor is designated Zone AE Special Flood Hazard Areas with floodway. The Zone AE designation indicates a detailed hydraulic model has been developed for the streams. The CONSULTANT will obtain and verify all existing hydraulic data and use the existing models as the basis of the studies. The existing models will be updated to reflect field survey data of the project areas. The existing hydraulic model will be utilized to evaluate the potential impacts of roadway and bridge construction at Mill Creek. The proposed conditions models will be developed based on the proposed design to analyze the potential impacts of the project. The analysis of the existing hydraulic data will include a review of the watershed and FEMA calculated design flows to ensure their accuracy with existing conditions. The Hydraulic Design and Risk Assessment will include existing and proposed hydraulic models, hydrological analysis, velocity conditions in the vicinity of the crossing, and any recommendations with regard to stabilization of the waterway. In order to meet Richland County Floodplain regulations, the proposed crossing will be designed to cause no increase in Effective Base Flood elevations. A

Conditional Letter of Map Revision (CLOMR) will be required in order to update the effective FIRM with the new roadway crossing. The CONSULTANT will prepare all necessary documentation and studies for the CLOMR and provide to the COUNTY for approval. The CONSULTANT will also coordinate with FEMA as needed during the preparation of the CLOMR or No-Impact Certification and during the submittal process.

The Consultant will coordinate with the County, the County Floodplain Administrator, and SCDOT as necessary during the course of the hydraulic design.

In addition to the hydraulic studies for the FEMA floodplain impact areas, the CONSULTANT will also prepare any hydraulic studies required by the United States Army Corps of Engineers as part of the environmental permit. The hydraulic studies will be based on SCDOT requirements and will include an evaluation of the impacts from the proposed construction.

Railroad Drainage Coordination – The project includes one at-grade railroad crossing. Coordination will be required throughout the design process including the stormwater design. The roadway design will be developed to minimize impacts to the existing conditions in the area of the railroad. The stormwater conditions within the area of the railroad crossings will be summarized in a separate report and will be utilized during railroad coordination efforts.

Assumptions

- Fill will be allowed to be placed within the floodplain.
- The CONSULTANT will provide all necessary community documentation for completion of the CLOMR application including, but not limited to, documentation of individual legal notice to all affected property owners, explaining the impact of the proposed action on their property; floodway public notice or statement. The COUNTY will sign the letter on COUNTY letterhead and distribute it.
- Hydraulic design for the project assumes that the USACE will allow for a change in headwater elevation for pre to post development conditions at all hydraulic crossings. Detention Waivers will be granted in lieu of detention.

Task 9

SEDIMENT AND EROSION CONTROL/NPDES PERMITTING

Sediment and Erosion Control – The project will include the development of Sediment and Erosion Control Plans as well as the preparation of Supporting Documentation for the Land Disturbance Permit Application.

The erosion control plan will be detailed on the roadway drainage plan sheets and erosion control data sheet(s). The erosion control plans will reflect a proposed design for minimizing erosion and off-site sedimentation during construction. The erosion and sediment control design will include the temporary placement of sediment ponds, sediment dams, silt basins, inlet structure filters, sediment tubes, silt ditches, and diversion dikes at specific locations along the project. The

sediment and erosion control plan will not be phased. The plans will reference the SCDOT's Standard Drawings for Roadway Construction to assist the contractor with the construction of these items. The plans will also identify the need to maintain, clean, and relocate these erosion control measures as the project progresses and address the removal of temporary erosion control devices following construction. The placement of erosion control measures outside proposed right-of-way through the use of temporary easements will be investigated as a possibility if they will not fit within proposed right-of-way. Quantities for erosion and sediment control items will be calculated based on SCDOT typical drawings. Use of SCDOT's sediment and erosion control standard details and design aides shall assume that adequate trapping efficiency will be achieved; additional calculations will not be required. Any required erosion control computations required by the use of alternate erosion control methods will be completed with SCDOT approved methods and submitted to the COUNTY.

NPDES Permitting – The project will require the acquisition of a National Pollutant Discharge Elimination System (NPDES) permit for construction activities. The NPDES permit is required by the South Carolina Department of Health and Environmental Control (SCDHEC) for all land disturbing activities in South Carolina.

The CONSULTANT will develop the NPDES permit application and required supporting data and will submit for processing, review and permitting. The Stormwater Management Report for the project will contain all supporting data developed by the CONSULTANT for the project. The CONSULTANT will provide additional calculations and make revisions to the construction plans as required by the permit reviewer. Pre and post development peak discharges will be compared to the whole CFS.

Task 10

GEOTECHNICAL INVESTIGATIONS AND ENGINEERING SERVICES

General – The CONSULTANT will perform a preliminary and final geotechnical investigation for the bridge, roadway, retaining walls, and culverts. The CONSULTANT shall gather samples, conduct tests, and analyze necessary soil and foundation data for the bridge, roadway embankment, , culvert, and pavement design. The results of the sampling, testing, analysis, and recommendations concerning the design shall be compiled into preliminary & final reports for submittal to the COUNTY. The following design standards will apply:

- 2007 SCDOT Standard Specifications for Highway Construction
- SCDOT Standard Supplemental Specifications and Special Provisions
- 2022 SCDOT Geotechnical Design Manual (GDM)
- 2008 SCDOT Pavement Design Guidelines
- SCDOT Bridge Design Memorandum to RPG Structural Engineers and Design Consultants, issued after April, 2006
- 2008 SCDOT "Seismic Design Specifications for Highway Bridges", Version 2.0.
- AASHTO LRFD Bridge Design Specifications, 6th Edition (2012), with latest interims in

place at the time of contract execution.

Field Exploration (Preliminary Subsurface Exploration) – Prior to beginning the preliminary subsurface field exploration, the CONSULTANT will notify the COUNTY seven (7) days in advance so the COUNTY can coordinate with SCDOT. The CONSULTANT will comply with published SCDOT lane closure restrictions. CONSULTANT has assumed that COUNTY will obtain permission from property owners for CONSULTANT to perform borings outside of the SCDOT right-of-way.

Preliminary boring locations will be located along or adjacent to the proposed alignments of the roadway. A significant portion of the project will be on new alignment outside the SCDOT's right-of-way. Permission for private property access and clearing for drill rig access will be needed. The preliminary boring locations will complement the final boring locations. Boring locations in the final exploration may occur outside and/or inside SCDOT and/or County right-of-way depending on the timing of right-of-way acquisition relative to drilling.

CONSULTANT shall be responsible for providing notification to utility owners prior to geotechnical field work in order to obtain clearance of utilities and marking of utility lines and services. A request for utility marking will be made to the Statewide Utility One-call Service (SC811) at least 3-days prior to field work. Information obtained in Task 13 will be shared with geotechnical staff prior to field exploration work. Proposed boring locations will be determined by the CONSULTANT. The CONSULTANT will provide copies of the proposed preliminary subsurface exploration plans including the anticipated final boring locations to the COUNTY prior to initiation of field work for review and acceptance. See Chapter 4 of the SCDOT GDM for subsurface exploration guidelines. The preliminary subsurface exploration plan will include, as a minimum, the following:

- Description of the soil or rock stratification anticipated
- Description of the proposed testing types
- Depth of tests
- Location of tests

Bridge – Preliminary Subsurface Exploration

It is assumed that there will be one (1) new location bridge along the Shop Road Extension. Based on the preliminary bridge plans, layout of the proposed borings assumes the Mill Creek Bridge will be a nine-span structure with eight interior bents. It is assumed that cut and fill sections will be approximately twenty (20) feet or less. Soil test borings (STB) will be conducted as defined in Chapters 4 and 5 of the GDM. The bridge borings will consist of standard penetration testing on 2-foot intervals in the upper 10 feet and on 5-foot intervals thereafter. One boring at each end bent or bridge embankment will be paired with a companion CPT (see below) and will be continuously sampled to a depth of 50 feet for correlation purposes.

End Bents: Subsurface investigation will include a total of two (2) test boring for each end bent of the proposed bridges. This will consist of four (4) STBs to a depth of 100 feet below the existing

ground surface or practical refusal, whichever is least. A minimum of 10 feet of rock coring is required at practical refusal if encountered before 30 feet. If refusal occurs in the bridge borings prior to reaching a depth of 30 feet, NQ-sized rock coring shall be performed in accordance with the GDM. For quantity estimation purposes, estimate 10 feet of rock coring per end bent bridge boring for a total of 40 feet of rock coring.

Also, a total of four (4) Cone Penetration Test (CPT) soundings will be performed at the proposed bridge approaches to evaluate potential settlement issues. CPT soundings will be performed no further than 5 feet from a bridge end bent or bridge embankment boring location. Each CPT sounding will be performed to a depth of 50 feet or cone refusal, whichever is shallower. The CPT soundings will be performed in accordance with GDM. It is estimated that two hundred (200) feet of CPT sounding will be performed.

Interior Bents: The preliminary subsurface investigation will include one (1) test boring at about mid-span of the bridge. The STB will be extended to a depth of 150 feet below the existing ground surface or practical refusal, whichever is least. The boring will be cased and converted to act as the downhole seismic boring. Consultant will attempt to encounter rock and perform up to ten (10) feet of coring at practical refusal if encountered before 150 feet. If refusal occurs in the interior bridge boring prior to reaching a depth of 150 feet, NQ-sized rock coring shall be performed in accordance with the GDM..

Preliminary Subsurface Exploration

- Roadway soil test borings will be performed in general accordance with the SCDOT Geotechnical Design Manual which references the SCDOT Pavement Design Guidelines for boring frequency. The CONSULTANT has assumed that cut and fill sections will be twenty (20) feet or less for the majority of the roadway improvements.
- Roadway Embankment STBs for new alignment and improvements to existing alignment: Five (5) roadway embankment soil test borings (hand auger borings with dynamic cone penetrometers or Standard Penetration Test (SPT) borings) will be performed up to depths ranging from 5 to 40 feet, auger refusal, or hole collapse (whichever occurs first) outside the SCDOT right-of-way. Preliminary soil test borings will be spaced approximately 1,000 feet along the roadways, and will double as culvert borings, as applicable.
- Bridge Embankment STBs: Two (2) embankment test SPT borings will be performed to a depth of 60 feet or refusal (whichever occurs first) outside the SCDOT right-of-way.
- Cross-Line Pipe/Culvert STBs: Based on preliminary design information, up to fifteen cross-line culverts may be required along the new alignments. Five (5) STBs will be performed at proposed culvert locations along the alignments during the preliminary exploration. The culvert STBs will be advanced to depths ranging from 10 to 25 feet below existing ground surface or practical refusal, whichever is least.
- Twelve (12) bulk samples will be obtained for laboratory testing to be used as part of

new slope analysis. The bulk samples will also be collected from the alignment for the purposes of remolded shear strength, California Bearing Ratio, and classification testing.

- Twenty-four hour water measurements will be made in the SPT and hand auger borings where practical. If twenty-four hour water measurements are not practical, time of boring water level measurements will be obtained.

Other Field Testing Items

- Mobilization: Mobilization will be estimated for two truck or ATV-mounted drill/CPT rigs and will be paid per mile. Unit price includes portal to portal, per rig, with an estimated round trip of 200 miles.
- Mechanized clearing is anticipated to access the bridge, embankment and roadway borings located along the alignment. Assume eighty (80) hours of mechanized clearing.
- At the completion of field work, test locations will be surveyed for latitude and longitude, elevation and station as part of Task 3.
- Standard Penetration Tests (Additional): Payment for SPT in excess of the minimum one per 5-foot interval below a depth of 10 feet. Fifty (50) additional SPT's are estimated to achieve continuous sampling to a depth of 50 feet at four bridge STBs for CPT correlation purposes.
- Measurement of hammer energy (ASTM D4633) for each SPT drill rig used shall be performed or have been performed within the last one year prior to mobilization.
- Soil and rock samples shall be stored for seven years or until completion of substructure installation, whichever is earlier.
- Estimate three hundred (300) feet of 4-inch steel casing in order for sealing zones of drilling fluid loss, and to implement rock coring as described above.

Field Engineering – The CONSULTANT will provide oversight of hand auger borings and drill rig operations by a field engineer and/or field geologist. Soil Classification in accordance with USCS (ASTM D2488) will be performed by a field engineer and/or field geologist who will have a minimum of 3 years of experience in supervision of field equipment and field personnel.

Laboratory Testing – The CONSULTANT will be AASHTO certified in the anticipated laboratory testing outlined below and/or any additional testing that may be required. See Chapter 5 of the SCDOT GDM for AASHTO and ASTM designations. The laboratory testing will be performed on selected samples in order to evaluate the types of soils encountered, confirm visual classifications, and estimate engineering properties for use in design. Laboratory testing for the preliminary exploration will be the following:

- Eighty (80) Natural Moisture Content Tests
- One hundred (100) Grain Size Distribution with wash No. 200 Sieve
- Seven (7) Grain Size Distribution with Hydrometer
- One-hundred (100) Moisture-Plasticity Relationship Determinations (Atterberg Limits)
- Eighteen (18) Standard Proctor Tests
- Nine (9) California Bearing Ratio Tests

- Three (3) Organic Content Tests
- Two (2) Remolded Tri-axial Shear Tests or Direct Shear Tests, depending on soil classification
- One (1) Electro-Chemical (Corrosion Series) Tests
- Three (3) Uniaxial Compressive Strength of rock if encountered

Preliminary Bridge and Roadway Geotechnical Engineering Report – The Preliminary Bridge Geotechnical Engineering Report shall be conducted in general accordance with the procedures outlined in the GDM. The report shall include a subsurface profile for the preliminary geotechnical subsurface explorations in accordance with the GDM Chapter 7. The preliminary geotechnical engineering report shall be written in accordance with the GDM Chapter 21. The preliminary report will be signed and sealed by a registered SC Professional Engineer. The report shall be submitted with the Preliminary Bridge Plans.

The Preliminary Roadway Geotechnical Engineering Report shall be conducted in general accordance with the procedures outlined in the GDM. The report shall include a subsurface profile for the preliminary geotechnical subsurface explorations in accordance with the GDM Chapter 7. The preliminary geotechnical engineering report shall be written in accordance with the GDM Chapter 21 and will also include preliminary pavement thickness recommendations. The preliminary report will be signed and sealed by a registered SC Professional Engineer. The report shall be submitted with the Preliminary Roadway Plans.

Field Exploration (Final Subsurface Exploration) – Prior to beginning the final subsurface field exploration, the CONSULTANT will notify the COUNTY seven (7) days in advance and will coordinate with SCDOT. The CONSULTANT will comply with published SCDOT lane closure restrictions. CONSULTANT has assumed that COUNTY will obtain permission from property owners for CONSULTANT to perform borings outside of the SCDOT right-of-way

CONSULTANT will request an updated SC811 ticket prior to starting field work for the final exploration.

Final boring locations will be determined by the CONSULTANT. The CONSULTANT will provide copies of the proposed final subsurface exploration plans to the COUNTY prior to initiation of field work for review and acceptance. The testing locations will be coordinated with the preliminary exploration to avoid testing in the same location, with both preliminary and final locations shown on the plan. See Chapter 4 of the SCDOT GDM for subsurface exploration guidelines. The final subsurface exploration plan is to include, as a minimum, the following:

- Description of the soil or rock stratification anticipated
- Description of the proposed testing types
- Depth of tests

- Location of tests

Bridges – Final Subsurface Exploration

It is assumed that there will be one (1) new location bridge along the Shop Road Extension. It is assumed that the Mill Creek Bridge will be a nine-span structure with eight interior bents. It is assumed that cut and fill sections will be approximately twenty (20) feet or less. Soil test borings (STB) will be conducted as defined in Chapters 4 and 5 of the GDM. The bridge borings will consist of standard penetration testing on 2-foot intervals in the upper 10 feet and on 5-foot intervals thereafter

Interior Bents: Subsurface investigation will include a total of eight (8) test borings for each of the interior bents to result in one STB at each bridge interior bent. STB's will extend to 100 feet below existing ground surface or practical refusal. A minimum of ten feet of rock coring is required at practical refusal if encountered before 30 feet. If refusal occurs in the bridge borings prior to reaching a depth of 30 feet, rock coring shall be performed in accordance with the GDM.

Embankments, New Slopes, Cross-line Pipes– Final Subsurface Exploration

- Roadway soil test borings will be performed to a depth as specified in the SCDOT Geotechnical Design Manual.
- Roadway Embankment STBs: Six (6) roadway soil test borings (hand auger borings with dynamic cone penetrometers or SPT borings) will be performed up to depths ranging from 5 to 15 feet, auger refusal, or hole collapse (whichever occurs first) inside and/or outside the SCDOT right-of-way. Final soil test borings will be spaced approximately 1,000 feet along the roadways and will double as culvert borings where practical. Final STBs will combine with the preliminary borings to result in a boring every 500 feet in embankments in accordance with the SCDOT GDM.
- Cross-Line Pipe/Culvert STBs: Based on preliminary design information, up to fifteen cross-line culverts may be required along the new alignments. Twenty-five (25) additional STBs will be performed at proposed culvert locations along the alignments during the final exploration. The culvert STBs will be advanced to depths ranging from 10 to 15 feet below existing ground surface or practical refusal, whichever is least.
- Four (4) bulk samples will be obtained from proposed cut or borrow areas for the purposes of remolded shear strength, and classification laboratory testing.
- Undisturbed Soil Sampling: Up to six (6) undisturbed samples will be obtained from selected locations in accordance with ASTM D1587 for laboratory strength or consolidation testing. Undisturbed samples will be paid per attempted sample; unit price includes the use of a standard thin-walled Shelby Tube sampler and sealing and handling of sample and tube.
- Auger Probes: Mud rotary drilling will be performed within 5 feet of selected bridge embankment STBs in order to obtain undisturbed soil samples. Auger probes will be paid per foot. Estimate a total of four (4) auger probe borings to a depth of forty (40) feet each (total of 160 linear feet of auger probe drilling).
- Twenty-four hour water measurements will be made in the SPT and hand auger borings where practical. If twenty-four hour water measurements are not practical, time of

boring water level measurements will be obtained.

Other Field Testing Items

- Mobilization: Mobilization will be estimated for two truck or ATV-mounted drill rigs and will be paid per mile. Unit price includes portal to portal, per rig, with an estimated round trip of 200 miles.
- Mechanized clearing is anticipated to access the bridge, embankment and roadway borings located along the alignment. Assume thirty-two (32) hours of mechanized clearing.
- At the completion of field work, test locations will be surveyed for latitude and longitude, elevation and station as part of Task 3.
- Measurement of hammer energy (ASTM D4633) for each SPT drill rig used shall be performed or have been performed within the last one year prior to mobilization.
- Soil and rock samples shall be stored for seven years or until completion of substructure installation, whichever is earlier.

Field Engineering – The CONSULTANT will provide oversight of hand auger borings and drill rig operations by a field engineer and/or field geologist. Soil Classification in accordance with USCS (ASTM 2488) will be performed by a field engineer and/or field geologist who will have a minimum of 3 years of experience in supervision of field equipment and field personnel.

Laboratory Testing – The CONSULTANT will be AASHTO certified in the anticipated laboratory testing outlined below and/or any additional testing that may be required. See Chapter 5 of the SCDOT GDM for AASHTO and ASTM designations. The laboratory testing will be performed on selected samples in order to evaluate the types of soils encountered, confirm visual classifications, and estimate engineering properties for use in design. Laboratory testing may include, as estimate, the following:

- One-hundred (100) Natural Moisture Content Tests
- One-hundred (100) Grain Size Distributions with wash No. 200 Sieve
- Four (4) Grain Size Distribution with Hydrometer
- One-hundred (100) Moisture-Plasticity Relationship Determinations (Atterberg Limits)
- Two (2) Organic Content Tests
- Two (2) Consolidation tests
- Two (2) Standard Proctor tests
- Four (4) Tri-axial Shear Strength Tests on undisturbed samples
- Two (2) Remolded Tri-axial Shear Tests or Direct Shear Tests depending on soil classification
- One (1) Electro-Chemical (Corrosion Series) Tests
- Eight (8) unconfined compressive strength of hard rock

Final Bridge and Roadway Geotechnical Engineering Report – The Final Bridge Geotechnical Engineering Report shall be conducted in general accordance with the procedures outlined in the GDM. The report shall include a subsurface profile for the final geotechnical subsurface explorations in accordance with the GDM Chapter 7. The final geotechnical engineering report shall be written in accordance with the GDM Chapter 21. The final report will be signed and sealed by a registered SC Professional Engineer. The report shall be submitted with the Final Bridge Plans.

The Final Roadway Geotechnical Engineering Report shall be conducted in general accordance with the procedures outlined in the GDM. The report shall include a subsurface profile for the final geotechnical subsurface explorations in accordance with the GDM Chapter 7. The final geotechnical engineering report shall be written in accordance with the GDM Chapter 21 and will include final pavement thickness recommendations. The final report will be signed and sealed by a registered SC Professional Engineer. The report shall be submitted with the Final Roadway Plans.

The CONSULTANT will notify the COUNTY'S designated Project Manager prior to performing any work on site.

No geotechnical field work will occur inside railroad right of way. The COUNTY will be responsible for obtaining permissions to access private property and for clearing drill rig access on private property.

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Task 11

ROADWAY STRUCTURES DESIGN AND PLANS

It is assumed that no retaining walls, culverts, or noise wall designs are included in this scope of services.

Task 12

BRIDGE DESIGN AND PLANS

This task includes design and plan development criteria for the Shop Road Bridge over Mill Creek. There will be no aesthetic requirements for the bridge.

Bridge Design Criteria – Bridge design criteria will be in accordance with SCDOT's *Bridge Design Manual, 2006; Road Design Plan Preparation Guide* and *Highway Design Manual,* Standard Drawings for Road Construction, *Standard Specifications for Highway Construction*,

2007; SCDOT's Bridge Design Memoranda, and all applicable American Association of State Highway and Transportation Officials (AASHTO) publications.

The following design and construction specifications will be used in the design and preparation of preliminary bridge plans:

- **SCDOT** Bridge Design Manual, 2006 edition;
- **SCDOT** Bridge Design Memoranda to RPG Structural Engineers and Design **CONSULTANT**s, issued after April, 2006;
- AASHTO LRFD Bridge Design Specifications, 9th Edition, with latest Interim
- revisions;
- **SCDOT** Bridge Drawings and Details, latest versions;
- **SCDOT** Road Standard Drawings and Details, latest versions;
- **SCDOT** Geotechnical Drawings and Details, latest versions;
- **SCDOT** Geotechnical Design Manual, 2019, Version 2.0;
- **SCDOT** Seismic Design Specifications for Highway Bridges, 2008 Version 2.0;
- **SCDOT** Standard Specifications for Highway Construction, 2007 edition;
- **SCDOT** Load Rating Guidance Document, latest edition;

The proposed bridges are assumed to have an Operational Classification = II and is in Seismic Design Category "A." No detailed seismic analysis is required.

Conceptual Bridge Plans – Prior to development of preliminary plans, the CONSULTANT will evaluate alternate bridge layouts based on the parameters of the project and submit a drawing showing the preferred layout and any alternates considered. Concurrence from SCDOT on the preferred alternate is necessary prior to development of preliminary plans. Preliminary design for bridge components will be performed to the extent necessary for verification of structure type, determination of approximate component sizes and feasibility of recommended foundations. A construction staging plan will be included if applicable.

Preliminary Bridge Plans – In developing preliminary plans, the CONSULTANT will conform to the proposed roadway alignment, profile, and previously approved bridge alternate. The preliminary plans will be prepared in sufficient detail and in the appropriate format to clearly illustrate significant design features, dimensions and clearances.

Preliminary plans for the bridge will be developed consisting of:

- General drawing showing a plan and elevation view, including existing conditions, proposed geometry, clearances, span arrangement, bridge width, superstructure and substructure type, retaining wall usage (if required) and subsurface investigation information;
- Typical section including bridge width, railing type, superstructure type;
- Elevation showing typical substructure;
- Details and notes necessary to indicate context sensitive features proposed.

Upon completion of preliminary plans, the CONSULTANT will submit one (1) electronic PDF copy of the bridge plans to the COUNTY for review.

95% Bridge Plans – The CONSULTANT will develop final design and plans based on approved preliminary plans. The design specifications as noted in the Bridge Design Criteria section of this scope shall be followed by the CONSULTANT in the final design of bridge components. Upon completion of 95% plans, the CONSULTANT will submit one (1) electronic PDF copy of the bridge plans to the COUNTY for review.

No alternate designs for bid will be included in final plans.

Bridge Construction Plans and Final Quantities - The CONSULTANT will prepare detailed construction plans for the proposed new bridge structure in accordance with the approved 95% plans. The construction specifications as noted in the Bridge Design Criteria section of this scope shall be followed by the CONSULTANT in preparation of construction plans.

Construction plans shall be prepared in conformity with current practices of SCDOT with regard to method of presentation, scales, and special drawings. Standard drawings of SCDOT shall be made use of, to the extent feasible, and shall be furnished by SCDOT to be modified by the CONSULTANT to fit the particular needs of the project.

Detailed estimates of quantities shall be prepared by the CONSULTANT in conformity with current practices of SCDOT with regard to billing of pay items, special payment notes, and summaries thereof.

Construction drawings prepared by the CONSULTANT shall be on bond plots to the size and standard markings utilized by SCDOT, with the CONSULTANT's name and address added above SCDOT's title block on all plan sheets. Scale of drawings and lettering size shall be such as to provide clear and legible reproductions when reduced to half size. The construction plans shall bear the CONSULTANT's seal and signature of a professional engineer registered in the State of South Carolina on each sheet that is not included for information only.

Upon approval of the final plans, the CONSULTANT shall submit to the COUNTY one (1) digitally signed and sealed PDF copy of the final bridge plans.

Special Provisions and Engineer's Opinion of Probable Construction Cost - The CONSULTANT shall prepare detailed specifications and special provisions concerning items of construction and special treatments during construction not covered by SCDOT's standard Supplemental Specifications or standard bridge special provisions. An Engineer's Opinion of Probable Construction Cost will be developed for the bridge based on the final quantities tabulated and estimated unit costs. An Engineer's construction time estimate will also be included.

Task 13

SUBSURFACE UTILITIES ENGINEERING (SUE)

Within 45 days of Notice to Proceed for the contract, the CONSULTANT will provide the COUNTY with a recommendation as to the extent of SUE services to be provided. This should include as much information as can be assembled on utility type, approximate location, owner, and material type. This information will be used to specifically define the limits of the SUE work to be performed.

The CONSULTANT shall perform work in two phases. The first phase consists of designating services (Quality Level B, C and D). For the purpose of this agreement, "designate" shall be defined as indicating (by marking) the presence and approximate horizontal position of the subsurface utilities by the use of geophysical prospecting techniques. The second phase consists of test hole services (Quality Level A). For the purpose of this agreement, "locate" means to obtain the accurate horizontal and vertical position of the subsurface utilities by excavating a test hole. The CONSULTANT shall provide these services as an aide in the design of right-of-way and construction plans for the project.

Unless specifically stated otherwise, the CONSULTANT shall adhere to the ASCE Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data (CI/ASCE 38-02).

Designating shall be estimated on a cost per linear foot basis and shall include all labor, equipment, and materials necessary to provide complete SUE plans. Locating shall be estimated on a per-each basis and shall include all labor, equipment, and materials necessary to provide complete SUE plans. Direct charges for mileage, meals, lodging and reproductions shall be shown separately. Traffic control shall be estimated on a per day basis and shown separately. No separate payment will be made for mobilization and should be included in the per linear foot or per each price for designating or locating.

Designating –

A. In the performing of designating services under this agreement, the CONSULTANT shall,

1. Provide all equipment, personnel and supplies necessary for the completion of **Quality Level B** information for approximately **32,900** LF of underground utilities.
2. Provide all equipment, personnel and supplies necessary for the completion of **Quality Level C** information for approximately **3,290** LF of underground utilities.
3. Provide all equipment, personnel and supplies necessary for the completion of **Quality Level D** information for approximately **3,290** LF of underground utilities.
4. Provide all equipment, personnel and supplies necessary for the accurate recording of information for approximately **5 Gravity Sewer Manhole** utilities.
5. Provide all equipment, personnel and supplies necessary for the accurate recording of information for approximately **44 Aerial utilities**.
6. Conduct appropriate records and as-built plans research and investigate site conditions. Digital copies of records and as-built plans research to be provided to COUNTY.
7. Obtain all necessary permits from city, county, state or any other municipal jurisdictions to allow CONSULTANT personnel to work within the existing streets, roads and rights-of way.

8. Designate the approximate horizontal position of existing utilities by paint markings or pin flags in accordance with the APWA Uniform Color Code scheme along the utility and at all bends in the line in order to establish the trend of the line. All utilities shall be designated as well as their corresponding lateral lines up to the point of distribution, existing right-of-way limits, or whichever is specifically requested and scoped for each individual project.
9. Survey designating marks, which shall be referenced to project control provided by the surveyor of record.
10. Draft survey information using SCDOT CADD guidelines for Subsurface Utility Engineering consultants (latest version).
11. Final review and seal of all appropriate work by a professional engineer and/or land surveyor licensed in South Carolina in responsible charge of the project.

B. In the performing of designating services under this agreement, the COUNTY shall,

1. When requested, provide reasonable assistance to the CONSULTANT in obtaining plans showing the project limits, alignment, centerline, rights-of-way limits (existing and proposed), project controls and other data for selected projects.

The CONSULTANT will notify the COUNTY immediately should additional SUE be recommended. The CONSULTANT will notify the COUNTY'S designated Project Manager prior to performing any work on site.

Locating –

A. In the performance of locating services under this agreement, the CONSULTANT shall,

1. Provide all equipment, personnel and supplies necessary for the completion of Quality Level A test holes for an estimated 8 test holes.
2. Conduct appropriate records and as-built research and investigate site conditions. All records and as-built research to be made available to the COUNTY.
3. Obtain all necessary permits from city, county, state or any other municipal jurisdictions to allow CONSULTANT personnel to work within the existing streets, roads and rights-of-way.
4. Perform electronic or ground penetrating radar sweep of the proposed conflict and other procedures necessary to adequately "set-up" the test hole.
5. Excavate test holes to expose the utility to be measured in such a manner that ensures the safety of excavation and the integrity of the utility to be measured. In performing such excavations, the CONSULTANT shall comply with all applicable utility damage prevention laws. The CONSULTANT shall schedule and coordinate with the utility companies and their inspectors, as required, and shall be responsible for any damage to the utility during excavation.
6. Provide notification to the COUNTY concerning 1) the horizontal and vertical location of the top and/or bottom of the utility referenced to the project survey datum; 2) the elevation of the existing grade over the utility at a test hole referenced to the project survey datum; 3) the estimated outside diameter of the utility and configuration of non-encased, multi-conduit systems; 4) the utility structure material composition, when

reasonably ascertainable; 5) the benchmarks and/or project survey data used to determine elevations; 6) the paving thickness and type, where applicable; 7) the general soil type and site conditions; and 8) such other pertinent information as is reasonable ascertainable from each test hole site.

7. When an attempt to locate a utility line over an area where SUE was performed does not provide valid vertical data, the test hole shall not be reimbursable by the COUNTY. In the following cases, test holes shall be reimbursed by the COUNTY regardless of obtaining valid vertical data:
    a. Utility lines buried in materials that cannot be removed by vacuum techniques other than duct banks,

    The CONSULTANT to provide a separate unit cost for "test holes attempted" and any test holes that do not provide valid vertical data, shall be paid at this rate.

8. Provide permanent restoration of pavement within the limits of the original cut. When test holes are excavated in areas other than roadway pavement, these disturbed areas shall be restored as nearly as possible to the condition that existed prior to the excavation.
9. Draft horizontal location and, if applicable, profile view of the utility on the project plans using CADD standards as outlined above. A station and offset distance and/or northing and easting coordinates (State Plane) with elevations shall be provided with each test hole.
10. Test hole information shall be formatted and presented on CONSULTANT's certification form and listed in a test hole data summary sheet.
11. Certification form shall be reviewed and sealed by a professional engineer and/or land surveyor licensed in South Carolina and in responsible charge of the project.

B. In the performance of locating services under this agreement, the COUNTY shall,

1. When requested, provide reasonable assistance to the CONSULTANT in obtaining plans showing the project limits, alignment, centerline, rights-of-way limits (existing and proposed), project controls and other data for selected projects.

Deliverables –

1. Design file only electronic copy (No pole data and utility data sheet).
2. Provide a Summary Sheet of SUE Quality Level A and certified test hole data sheets.

Assumptions:

- All poles, manholes and other above ground appurtenances will be surveyed by the selected topographic or aerial surveyor of record for the project.

Task 14

UTILITY COORDINATION

General Responsibilities and Duties

1. The CONSULTANT shall have the responsibility of coordinating the Project development with all utilities that may be affected. All utility relocations shall be handled in accordance with the SCDOT's "A Policy for Accommodating Utilities on Highway Rights of Way" and the Code of Federal Regulations, Title 23, Chapter 1, Subchapter G, part 645, subparts A & B.
2. These services shall be performed by individuals skilled and experienced in utility coordination services
3. The CONSULTANT shall work with designers of the Project to avoid conflicts with utilities where possible and minimize impacts where conflicts cannot be avoided. This may include, but is not limited to, utilizing all available utility data, whether obtained from SUE services, as-built plans, or provided by the COUNTY or some other source. The CONSULTANT will be expected to determine utility conflict points, including all work to properly analyze each conflict point, and make recommendations for resolution of the conflict where possible.
4. The utility company shall not begin their relocation work until authorized in writing by the COUNTY.

Early Utility Coordination (0% Final Plan Drawings) (*)

1. Project Preliminary Review: The CONSULTANT shall coordinate with the SCDOT Project Manager to collect and review available project plans and the proposed scope of construction.
2. Utility Introduction Letter: (Required) The CONSULTANT shall develop a Utility Introduction Letter for each utility company. This letter shall be populated by the CONSULTANT with the utility company's information (to include the company's email address) and electronically sent to the COUNTY for signature.
3. Utility Record Collection and Review: The CONSULTANT shall initiate early coordination with all utility companies that are located within the Project limits. Coordination shall include, but shall not be limited to, contacting each utility company to advise the company of the proposed Project, obtaining copies of as-built plans for the existing utility facilities (if available), perform a review of utility as-built plans and determine the utility company's requirements for the relocation of their facilities.
4. Early Utility Coordination Email: The CONSULTANT shall prepare the Early Utility Coordination Email. Email to be used as an informal summary of the Early Utility Coordination tasks.

Preliminary Utility Report (30% Final Plan Drawings) (*)

1. Initial Plan Distribution: The **CONSULTANT** shall provide the utility company with preliminary design plans as soon as the plans have reached a level of completeness adequate to allow the company to begin understanding the Project impacts.

2. Coordination Meeting with Utility Companies: The **CONSULTANT** shall coordinate and conduct a review meeting with the utility companies to assess and explain the impact of the Project to the company. The **SCDOT**'s Project Manager, Resident Construction Engineer (RCE), and Utilities Manager (or designee) shall be included in this meeting.
3. Collection and Review of Prior Right Documentation: The **CONSULTANT** shall request the prior rights documents for each utility company's facilities. If there is a dispute over prior rights with a utility, the **CONSULTANT** shall be responsible for resolving the dispute and making a recommendation to the **SCDOT**. The **CONSULTANT** shall meet with the **SCDOT**'s Project Manager to present the prior rights information gathered. This information must be sufficient for the **SCDOT**'s Project Manager to certify the extent of the utility company's prior rights. The **SCDOT** shall have final approval authority as to the **CONSULTANT**'s determination of whether the utility company has prior rights.
4. Preliminary Utility Report: The **CONSULTANT** shall prepare the Preliminary Utility Report.
5. Progress Review Meeting: The **CONSULTANT** shall conduct a progress review meeting with the **SCDOT** Project Manager if requested.

Deliverable:

*The **CONSULTANT** shall prepare and submit to **SCDOT** a Preliminary Utility Report which includes:*

1) List of all utility companies and contact information within the project limits.
2) Utility Company Coordination Meeting Notes.
3) Preliminary recommendation as to the extent of each utility company's prior rights.
4) Preliminary assessment of the impact to each utility company, including costs, can best be determined at the time. (Prior rights and Bill 401 only)
5) Recommendations for In-Contract Utility Relocations.
6) Recommendations for early Utility Relocations prior to the start of construction.
7) Preliminary Utility Report to be delivered in electronic format (pdf).

Final Utility Report (90% Final Plan Drawings) (*)

1. Relocation Drawing Request: The CONSULTANT shall request each utility company to provide a Relocation Drawing of their affected utilities. The utility company may use the CONSULTANT's design plans for preparing Relocation Drawings. These plans shall contain all available data that may be helpful to the utility company in assessing the utility impact. If a party other than the utility company or its agent prepares Relocation Drawings, there shall be a concurrence box on the plans where the utility company signs and accepts the Relocation Drawings as shown.

2. Utility Agreement Collection: The CONSULTANT shall be responsible for collecting the following from each utility company that is located within the project limits: Relocation Drawings including letter of "no cost" where the company does not have a prior right; Utility Agreements including cost estimate and relocation plans where the company has a prior right; and Letters of "no conflict" where the company's facilities will not be impacted by the Project.
3. Utility Agreement Review: The CONSULTANT shall review all Relocation Drawings and Utility Agreements to ensure that relocations comply with the SCDOT's "A Policy for Accommodating Utilities on Highway Rights of Way" and the Code of Federal Regulations, Title 23, Chapter 1, Subchapter G, part 645, subparts A and B. The CONSULTANT shall also ensure that there are no conflicts with the proposed highway improvements and ensure that there are no conflicts between each of the utility company's relocation plans.
4. Final Utility Report: The CONSULTANT shall prepare the Final Utility Report.

Deliverables:

*The **CONSULTANT** is expected to assemble the information included in the Utility Agreements and Relocation Drawings in a final and complete form and in such a manner that the COUNTY may approve the submittals with minimal review. Each Utility Agreement and Relocation Drawing submitted must be accompanied by a certification from the CONSULTANT stating that the proposed relocation will not conflict with the proposed highway improvement and will not conflict with another utility company's relocation plan. The report shall also contain the CONSULTANT's recommendation for approval of the Utility Agreements and Relocation Drawings and the CONSULTANT's recommendation that, from a utilities standpoint, the Project is ready to be let to contract. The CONSULTANT shall prepare and submit to the COUNTY a Final Utility Report which includes:*

1) *List of all utility companies and contact information within the project limits*
2) *Utility Companies Coordination Meeting Notes*
3) *All prior rights supporting documentation.*
4) *Description of each utility company's relocation plans*
5) *Final assessment and explanation of the Project impact to each utility company.*
6) *Relocation Drawings*
7) *Letters of "No Cost"*
8) *Utility Agreements*
9) *Letters of "No Conflict"*
10) *Recommendation for approval of the Final Utility Agreements and Relocation Drawings*
11) *Verification of no conflict of the Final Utility Agreements, Relocation Drawings and the Project*
12) *Final estimated utility relocation cost (Prior rights and Bill 401 only)*
13) *Utility Conflict Matrix*

U-Sheets (100% Plan Drawings) (*)

1. U-Sheets (*): The CONSULTANT shall prepare and maintain a compilation of all utility relocation plans on one set of the project plans. These plans (U- sheets) will be used during the project development, and the final set may be included in the bid documentation for information only and will reference the actual relocation plans prepared by the utility.

Deliverables:

1) U-Sheets

Task 15

UTILITY RELOCATION DESIGN

Utility relocation design is not included in this scope, but will be negotiated as a contract modification if it is determined that water or sewer lines will need to be relocated as part of this project.

Task 16

RIGHT OF WAY COORDINATION AND ACQUISITION

16.1 Right of Way Management*

16.1.1 The CONSULTANT will search the available tax records to determine ownership and will discuss preliminary engineering activities with the owner based on those records to secure access for wetland delineation, and survey purposes. The survey permission will be secured for a six (6) month timeframe if the owner is agreeable to granting the permission. For the purpose of this scope, it is assumed that permissions will be secured on up to six (6) parcels.

16.2 Right of Way Acquisition Services*

16.2.1 The CONSULTANT shall perform all right-of-way acquisition services in accordance with the following tasks for up to twenty four (24) parcels requiring acquisition or permissions and provide relocation assistance to approximately two (2) displacees if needed:

16.2.2 Perform all title searches for properties which must be acquired to construct the project and provide to the COUNTY a Preliminary and Final Certificate of Title signed by a licensed South Carolina attorney (as required by the SCDOT's Right of Way Manual). Titles certificates shall advise all names of any parties that should be included for payments, and if the investigation reveals that condemnation is necessary to clear title, it shall provide names of all parties that should be served with condemnation, provide recording information for those parties who have an interest in the property and advise whether or not advertisement is required. Preliminary title abstracts must be provided prior to the property being appraised.*

16.2.3 Prepare a cost estimate as stated in the SCDOT Appraisal Manual for the project to secure right of way authorization and to be used upon approval by the COUNTY to make offers for those tracts which the just compensation is less than $20,000 with no damages and/or benefits. Cost estimates shall be submitted to SCDOT Chief Appraiser for approval of just compensation. All offers of just compensation will be based on a written approved appraisal unless prior approval is given to the Contractor by SCDOT. SCDOT may allow offers to be made based on the cost estimates on tracts estimated to be $20,000 or less and determined by SCDOT to be a non-complicated. In the event the cost estimate offer is rejected by the property owner, a written appraisal shall be required.*

16.2.4 The CONSULTANT will be responsible for having appraisals reviewed. Appraisals will be submitted to the COUNTY and SCDOT for setting of just compensation. Reviews by the COUNTY and SCDOT will occur concurrently and will be accomplished within 5 business days.

16.2.5 Acquire in accordance with all state laws and regulations, both Federal and State, and in the name of the County, the right of way necessary to construct the project. Title shall be in fee simple absolute and have a recordable warranty deed unless otherwise authorized by SCDOT and the COUNTY. The title shall be filed, within seven (7) days of payment to the landowner, in the Register Of Deeds office in Richland County and the original file stamped instrument will be returned to the COUNTY. The CONSULTANT is responsible for all cost associated with recording of the deeds. The Consultant shall submit Deed for property owner payment within 30 days of the execution date on the Deed.

16.2.6 Prepare forty five (45) exhibits in accordance with SCDOT's exhibit preparation guide. *

16.2.7 In the event of condemnation the necessary documents as required by the Eminent Domain Procedure Act Sections 28-2-10 et. Seg., South Carolina Code of Laws (1976) as amended will be prepared and submitted electronically to the County's attorney as directed, for the attorney to file the case with the Clerk of Court. The procedure for Condemnation shall be by way of trial after rejection of the amount tendered as provided in Section 28-2-240.*

16.2.8 The CONSULTANT shall provide relocation assistance in accordance with all state laws and regulations, both Federal and State, to those displaced as a result of the project. Ninety (90) day notices of displacement shall be issued by the

CONSULTANT upon the initiation of negotiations and 30-day notices issued upon securing title to the property by deed or condemnation.*

16.2.9 Retain all records dealing with property acquisition and all other costs associated with this project for three (3) years after the final acquisition for the project.

16.2.10 CONSULTANT is responsible for establishing and maintaining Quality Control and Quality Assurance procedures for the entire right of way acquisition process. The Consultant Shall return all corrections to the COUNTY within 15 business days from date of returned to the Consultant.*

16.2.11 Provide a final moving items list, removal and disposal items lists, and a UST and fencing list based on the appraisal and negotiations in accordance with the COUNTY's construction schedule.*

SCHEDULE

The CONSULTANT proposes to acquire the right of way consisting of approximately twenty four (24) properties and provide relocation assistance to approximately two (2) displaces within fifteen (15) months of the NTP by the COUNTY.

TASK 16 Assumptions:

- 15-month ROW Acquisition schedule will begin upon receipt of notice to proceed from the COUNTY and is contingent upon receiving approved Right of Way Plans within 60 days of the notice to proceed.
- The COUNTY will be responsible for any risks, schedule delays, and additional costs due to rework if the COUNTY provides notice to proceed prior to authorization to proceed with ROW acquisition from SCDOT. SCDOT typically provides authorization to proceed with ROW acquisition following the approval of ROW Plans.
- SCDOT and the COUNTY will provide set just compensation within 5 business days of receiving the reviewed appraisal report.
- The COUNTY will authorize the use of condemnation should settlements not be reached.
- The CONSULTANT will have a point of contact with the COUNTY that is authorized to approve settlements and approve filing of condemnation actions. These approvals will be given within 3 business days.
- The CONSULTANT is authorized to begin initial right of way background work upon submittal of Right of Way Plans to SCDOT.
- No permissions will be required. All work will be covered by right of way or temporary right of way.
- At the end of the 13th month of the ROW acquisition schedule, the CONSULTANT will turn in any tract not settled for condemnation. Tracts will be submitted to the COUNTY and the COUNTY will file the condemnation within 30 days.

Task 17

RAILOAD COORDINATION

The CONSULTANT will assisting the COUNTY in obtaining Preliminary Design (PE) Agreement(s) and any specific requirements that the Railroad may have at this site.

The CONSULTANT will provide copies of the Railroad Agreement(s) and any additional requirements of the Railroad to the COUNTY for a legal review and concurrence. The CONSULTANT will not perform any negotiations regarding the terms of the agreements with the Railroads; this is to be performed by the COUNTY or the OWNER.

The CONSULTANT will determine the limits of Railroad right-of-way based on property plans, old plans, and/or tax maps and show the right-of-way limits relative to the information in the location survey. This information will be provided to the Railroad for concurrence and the CONSULTANT will coordinate with the Railroad regarding any discrepancies in the right-of-way.

The CONSULTANT anticipates that a right-of-entry agreement with the Railroad may be required for SUE, surveys, and other design tasks that may require encroachment onto Railroad right-of-way. The CONSULTANT will coordinate to obtain this permit if necessary. The CONSULTANT will coordinate with the Railroad flagman concerning times when field operations will be occurring within the railroad right-of-way.

The CONSULTANT will reimburse the Railroad for required flagman operations associated with pre-construction surveys, SUE and geotechnical investigations. The CONSULTANT will purchase a Railroad Public Liability insurance rider under the Railroads' policy to cover field operations. The CONSULTANT will invoice these costs to the COUNTY as a reimbursable expense.

Upon concurrence by the COUNTY on the terms of the PE Agreement(s), the CONSULTANT will coordinate with the COUNTY to complete the PE Agreement(s) and provide the completed PE Agreement(s) to the COUNTY for execution. Execution of the PE Agreement(s) is required for the Railroad to perform their review of the preliminary plans.

The CONSULTANT will coordinate with the Railroad and will include any necessary Special Provisions conveying all applicable requirements of the Railroad during construction; this includes but is not limited to special insurance requirements, flagging requirements, requirements to facilitate construction inspection by railroad representatives, etc.

The CONSULTANT will NOT reimburse the Railroad for submittal fees and engineering services and handling costs associated with their internal plan approval and coordination process. These costs, if any, will be negotiated in the agreement signed between the COUNTY and the Railroad.

Task 18

CONSTRUCTION PHASE SERVICES

Bid Document – The CONSULTANT will prepare the bid package to be in general concurrence with the example bid package provided to the CONSULTANT by the COUNTY. Included within the bid package will be instructions for bidders, general conditions and provisions, supplemental specifications, special provisions, project utility report, contract documents, and closeout documents. The COUNTY shall provide the general conditions to the CONSULTANT.

The CONSULTANT will provide the bid package to the COUNTY for the CONTRACTORS to acquire the bid package from.

The COUNTY will be responsible for advertising the project for construction.

Pre-Bid Meeting – The CONSULTANT will attend one (1) Pre-Bid Meeting with the COUNTY. The COUNTY is to provide the location for the Pre-Bid Meeting. The CONSULTANT will provide bid instructions and answer questions, as needed, at and following the pre-bid conference.

Pre-Construction/Partnering Conference – The CONSULTANT will attend the Pre-Construction/Partnering Conference and respond to questions by the CONTRACTOR pertinent to the design and proposed construction methodology. Assume one Pre-Construction/Partnering Conference.

Construction Phase Project Meetings – The CONSULTANT will attend meetings with the COUNTY to discuss construction issues as needed during the construction of this project. Assume 24 meetings. The CONSULTANT will not be responsible for agendas, minutes, or other materials for this task.

Construction Phase Assistance - The CONSULTANT will assist COUNTY personnel during the construction phase when problems or questions arise relating to the design and proposed construction methodology. Assume 4 hours per month for project construction duration of 30 months.

Construction Revisions – The CONSULTANT will make necessary revisions to construction plans that arise during the construction phase of the project. Assume 3 construction revisions.

Shop Plans and Working Drawings Review – The CONSULTANT will review the Contractor's shop drawings and working drawings as required by the 2007 Edition of the *Standard Specifications for Highway Construction*, in a timely manner following award of contract and during construction. This includes retaining wall and bridge components only.

Geotechnical Design and Construction Services – The CONSULTANT shall also provide geotechnical construction engineering services which shall include the following bridge related items:

- Written evaluation of contractor's pile installation plan.
- Written evaluation of contractor's submitted hammer using Wave Equation.
- Observation of pile driving during PDA testing and/or during installation of the first piles.
- Written evaluation of PDA results. The PDA testing will be performed under a separate CE&I contract issued by the COUNTY or by the CONTRACTOR.
- Pile Driving Criteria and bearing charts for use by inspectors in the field.
- General pile driving troubleshooting.
- General embankment construction troubleshooting
- Written evaluation of soil strength testing on borrow excavation materials
- The scope of services shall be conducted according to SCDOT's Standard Specifications, supplemental specifications, and/or plan notes.

- Ninety-six (96) hours will be budgeted by the CONSULTANT for the services listed above.

As-Built Plans – The CONSULTANT will develop as-built plans in accordance with the SCDOT Manual of Instructions for the Preparation of As-Built Plans (November 4, 2009) and the 2015 As-Built Manual. This will be a Lump Sum (LS) payment for this deliverable that will be negotiated as a contract modification following the development of Right of Way Plans.

Letter of Map Revision (LOMR) – The CONSULTANT will update the proposed conditions model for the Mill Creek crossing with post construction as-built data from the as-built plans as provided by the county. The CONSULTANT will prepare updated FIRM maps and a project summary report. The CONSULTANT will prepare property owner notifications and provide them to the COUNTY for distribution. The CONSULTANT will prepare the LOMR submittal package and submit to FEMA upon approval from the COUNTY. The CONSULTANT will coordinate as necessary with FEMA for final approval of the LOMR. All required review and permitting fees will be provided by the COUNTY.

Construction Engineering & Inspection (CEI) – If requested by the COUNTY, the CONSULTANT will prepare scope and fee for CEI services as a work authorization under the County's on-call CE&I contract.

Services Not Provided

Services not provided by the CONSULTANT include, but are not limited to, the following:

- Lighting and Electrical plans
- Landscaping and irrigation plans
- Falling Weight Deflectometer (FWD) testing
- Video Pipe Inspection
- The CONSULTANT shall not be the "responsible engineer" referenced IN 2009-04 who evaluates the structural condition and performs the preliminary inspection of existing pipes and culverts to determine if they can be retained. SCDOT shall determine if existing pipes and culverts are to be retained due to structural conditions. The CONSULTANT will indicate the retention/extension of all existing pipes/culverts which meet the hydraulic requirements unless otherwise directed by SCDOT
- Sight-specific Response Analysis study
- Utility relocation design and plans
- Right-of-way acquisition, exhibits, negotiations, or appraisals
- Administering or advertising the bid process
- Fabricating or erecting signs for public meetings
- Alternate designs for bidding
- Location of water and sewer utility services for each utility customer in the project area.
- All other services not specifically included in this scope of work

Services of the COUNTY

The COUNTY agrees to provide to the CONSULTANT, and at no cost to the CONSULTANT, the following upon request:

- Access to and use of all reports, data and information in possession of the COUNTY which may prove pertinent to the work set forth herein.
- Existing Policies and Procedures of the COUNTY with reference to geometrics, standards, specifications and methods pertaining to all phases of the CONSULTANT's work.
- Eminent Domain advertisement notice.
- Coordinate, advertise, fabricate and erect signs, and approve location for Public Meeting.
- Base mapping for the project study area.
- Contract documents (project specific special provisions to be supplied by CONSULTANT)

Project Deliverables

The CONSULTANT will submit the deliverable items shown below within the time allotted for each phase of work. Delivery may not be in the order shown.

- Monthly status updates
- Meeting agendas and minutes
- Permit Determination Form
- Approved Jurisdictional Determinations
- SCDOT USACE Individual Permit Application Package, including supplemental documentation
- Attendance at one (1) public meeting
- Public Meeting displays & documents (hard copies and PDF versions), as stated in scope
- Recommendation for extent of SUE services – 45 days from NTP
- Full size color plots of SUE sheets along with Microstation/PDF electronic files
- Preliminary Plans
- Preliminary Right-of-Way Plans
- Final Right-of-Way Plans
- Final Right-of-Way Microstation files
- Right-of-Way Plans stage construction cost estimates
- Traffic Signal Warrant Studies & Technical Memo
- Preliminary and final traffic signal design
- Transportation Operations Plan and Public Information Plan
- Stormwater Management Report
- Bridge geotechnical boring plan
- Preliminary and final geotechnical roadway reports
- Preliminary bridge plans
- 95% bridge plans
- Preliminary Roadway Construction Plans
- Final Roadway Construction Plans, project specific specifications, and Engineer's construction cost estimate
- Final bridge construction plans, project specific specifications, and Engineer's opinion of probable construction cost
- NPDES permit application/Notice of Intent
- Erosion control computations, if necessary
- CLOMR for Shop Road at Mill Creek