M.E. SACK
ENGINEERING
Formerly P.C. Simonton & Associates, Inc.

Addendum No. One

Date: November 10, 2020

Project: Pembroke 2020 Road and Water Improvements, MES No. 2020-35

Engineer: M.E. Sack Engineering
Hinesville, Georgia

The original plans, specifications, and bid documents are amended to include the following:

Bid Items:

- Replace the previous Bid Items, P-2 and P-3, with the attached Bid Items.

Specifications:

- Include the attached Section 02850 – Railway and Highway Crossings to the Bid Documents.

-END-

2020 Road and Water Improvements
for
City of Pembroke

Bid Items

Item No.	Estimated Quantity	Units	Description	Unit Price	Total Price
A.			**Harry Hagan Intersection**		
1	148	SY	Paved Roadway and Base Removal		
2	4	SY	Pavement Removal and Replacement		
3	455	SY	8" Granate Roadway Base		
4	455	SY	2" 9.5mm Superpave Asphalt		
5	126	SY	5' Concrete Sidewalk		
6	4	EA	ADA Ramps		
7	5	EA	Detectable Warning Surface		
8	135	LF	4' Safety Fencing		
9	27	SY	4" Concrete Turn Island		
10	1	EA	Connection to Existing 48" Drainage Pipe		
11	62	LF	48" Reinforced Concrete Pipe		
12	33	LF	18" Reinforced Concrete Pipe		
13	21	LF	8" PVC Watermain Removal		
14	87	LF	8" Water Line		
15	1	EA	Connection to Existing 8" Watermain		
16	1	TN	Ductile Iron Fittings		
17	2	EA	8" Gate Valve		
18	2	EA	18" Flared End Section		
19	223	LS	Silt Fence NS		
20	732	LS	Silt Fence S		
21	1	LS	Clearing & Grubbing		
22	1	LS	Grading		
23	1	LS	Grassing		
24	1	LS	Traffic Control		
25	1	LS	Structure Relocation		
26	1	LS	Signage & Striping		
27	1	LS	Mobilization (5% Max)		
			Subtotal		
B.			**Circle Drive and Judith Street**		
1	2,260	SY	Asphalt Roadway and Base Removal		
2	438	SY	Gravel Roadway and Base Removal		
3	3,223	SY	8" Graded Aggregate Base		
4	2,345	SY	2" 9.5mm Superpave Asphalt		
5	878	SY	1.5" 9.5mm Superpave Asphalt		
6	4	SY	5' Concrete Sidewalk		
7	29	SY	Concrete Driveway Removal and Replacement		
8	1,837	LF	Silt Fence NS		
9	1	LS	Clearing & Grubbing		

10	1	LS	Grading		
11	1	LS	Grassing		
12	1	LS	Signage & Striping		
13	1	LS	Structure Relocation		
14	3	LS	Manhole and Riser Section		
15	1	LS	Mobilization (5% Max)		
			Subtotal		

C. **Camellia Drive**

1	10	SY	Pavement Removal and Replacement		
2	3	SY	Concrete Driveway Removal and Replacement		
3	3	SY	Gravel Driveway Removal and Replacement		
4	314	LF	2" Water Line		
5	426	LF	6" Water Line		
6	450	LF	8" Water Line		
7	1	EA	2 x 8" Tap and Saddle		
8	1	EA	6 x 6" Hot Tap and Saddle		
9	1	EA	6 x 8" Hot Tap and Saddle		
10	1	EA	8" Hot Tap and Saddle		
11	1	EA	2" Gate Valve		
12	175	LF	Silt Fence NS		
13	43	LF	18" Steel Casing Jack and Bore		
14	1	LS	Grassing		
15	1	LS	Structure Relocation		
16	1	LS	Traffic Control		
17	1	LS	Mobilization (5% Max)		
			Subtotal		
			Grand Total		

SECTION 02850
RAILWAY AND HIGHWAY CROSSINGS

PART 1- GENERAL

1.01 APPLICABLE STANDARDS

A. American Water Work Association (AWWA):

C200 Steel Water pipe, 6in. and larger

C203 Coat-Tar Protective Coatings and Linings for Steel Water Pipelines, Enamel and Tape Hot Applied

C206 Field welding of steel water pipe

B. American Railway Engineering Association (AREA):

1-4-13 Bituminous Coated Corrugated Metal Pipe and Arches

1-4-19 Jacking Culvert Pipe through fills

1-5 Pipelines

C. Department of Transportation, State of Georgia, Standard Specifications:

Section 615 Jacking or Boring Pipe

1.02 RAILROAD CROSSINGS

A. Utility crossings shall be made in strict accordance with the applicable sections of the American Railway Engineering Association Specifications and the specifications of the Owner of the railway being crossed. The Railway Engineer shall be notified prior to beginning construction. Construction shall not commence before such permits are acquired.

B. Railroad crossings shall be either carrier pipe encased in a larger bored or jacked casing pipe or as directed by the Engineer.

1.03 HIGHWAY CROSSINGS

A. Utility crossings shall be made in strict conformance with all applicable sections of the State Department of Transportation, State of Georgia, Specifications. The district highway Engineer shall be notified prior to beginning construction.

B. The Owner will acquire all the necessary permits prior to beginning construction. Construction shall not commence until all permits are acquired.

C. Highway crossings shall be by one of the following methods:

1. Boring
2. Jacking
3. Tunneling

PART 2 - EXECUTION

2.01 METHODS OF INSTALLATION

A. Boring or Jacking shall be in accordance with AREA 1-4-19 and 1-5, DOT Specification 615 and as follows:

1. Bored or jacked installation, approved by the Architect/Engineer, shall have a bored hole diameter essentially the same as the outside diameter of the encasing pipe plus the protective coating thickness. If the bored hole diameter is greater than the outside diameter of the pipe, including the thickness of the coating by more than 1 inch, or if voids should develop during the operation and are determined to be detrimental to the work then the voids shall be pressure grouted with an approved mix.

2. The carrier pipe shall be as shown on the plans. If the carrier pipe is steel without casing then the pipe shall be designed to the maximum continuous length possible, thickness and size according to the application needed. The aforementioned steel shall comply with AWWA C 200 and shall be lined and coated in accord with AWWA C 203, subject to the approval of the Engineer. Adapters shall be provided between steel pipe and pipe of other materials.

3. All casing pipe shall be steel, fully bituminous coated in accordance with AREA 1-4-13. Metal thickness shall be as follows.

MINIMUM WALL THICKNESS FOR STEEL CASING PIPE

Nominal Thickness Inches	Nominal Diameter Inches
0.250	18 and under
0.281	20
0.312	22
0.344	24
0.375	26
0.406	28 and 30
0.438	32
0.469	34 and 36

4. Steel casing pipe shall conform to the AWWA C200. Steel casing pipe shall be of maximum length possible for the applications intended and shall be welded in conformance with AWWA Specification C206. Steel casing pipe shall be at least 2 inches greater than the largest outside diameter of the carrier pipe including bells, lugs, etc., for carrier pipe less than 6 inches in diameter; and at least 4 inches greater for carrier pipe 6 inches and over in diameter.

5. Casing pipe shall be jacked or bored in place with allowances made for lines and gradients of the carrier pipes. After the casing pipe is installed the carrier pipe shall be installed within it to the exact line and gradient.

6. When the carrier pipe has been installed and securely anchored inside the casing pipe, the ends of the casing shall be plugged with a masonry plug.

7. Construction effort shall not cease when such cessation might tend to harm the total crossing effort. Protective measures shall be taken to protect the railroad and highway as well as the crossing pipe. Pipe work and tunnels shall be protected at the end of each working day against the weather and any other danger.

B. TUNNELING

1. The Contractor must supply the Architect/Engineer, in advance, the method of tunneling for approval prior to any tunnel construction.

2. Tunneling shall only be done after receiving written permission by the Architect/Engineer.

C. Directional Bores

1. Directional bores shall be performed using a hydraulically powered system to rotate, push and pull hollow drill pipe into the ground at a variable angle while delivering a pressurized fluid mixture to guidable drill head. The machine shall be anchored to the ground to withstand the pulling, pushing and rotating pressure required to complete the crossing. The hydraulic power system shall be self-contained with sufficient pressure and volume to power boring operations. Hydraulic system shall be free of leaks. The rig shall have a system to monitor and guide the boring head and shall be capable of monitoring pull back pressure during the pull-back operation. Sufficient spare parts shall be on hand for any break downs which can be reasonably anticipated.

2. Bore head shall be steerable by changing its rotation and shall provide the necessary cutting surfaces and boring fluid jets.

3. Drill pipe shall be constructed of high quality 4130 seamless tubing, grade D or better, with threaded box and pins. Tool joints should be hardened to 32-36 RC.

4. Directional bored pipe shall be fusible PVC of the same size and outside diameter as the pipe being installed and should bell to the PVC pipe being used for the rest of the project.