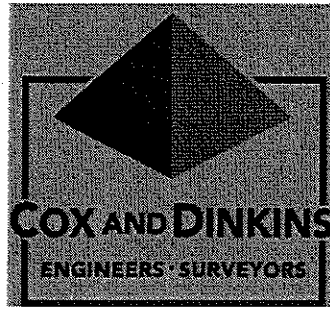


Isaac B. Cox, R.L.S. (1918-1989)

Gene L. Dinkins, P.L.S., P.E.
Gene L. Dinkins, Jr., P.L.S., LEED AP
Sanford B. Dinkins, P.E., LEED AP
McTilden Atkins, III, P.E.
Laura M. Baker, P.E., LEED AP BD+C

Cox and Dinkins, Inc.
724 Beltline Boulevard
Columbia, South Carolina 29205



Robert T. Blackwell, P.E.
Darren Holcombe, P.E., LEED AP
J. Donald Rawls, Jr., P.L.S.
David K. Ballard, P.L.S.
Daniel C. Lam, P.E., LEED AP BD+C
James L. Pruitt, P.E.
Jesse T. McNeal, P.E.

(803) 254-0518, fax (803) 765-0993
cdinc@coxanddinkins.com
coxanddinkins.com

October 3, 2013

ADDENDUM NO. 1

CP00369917 / FM00417546

USC Upstate Campus Hodge Drive Traffic Improvement

NOTICE TO BIDDER

This Addendum is issued pursuant to the Conditions of the Contract and is hereby made part of the Contract Documents. The addendum serves to clarify, revise, and supersede information in the Project Manual, the Drawings. The Bidder shall acknowledge receipt of this Addendum in the appropriate space on the Bid Form. Failure to do so may subject the Bidder to disqualification. A list of attachments, if any, is part of this document.

The date for receipt of bids for this project is unchanged by this Addendum.

QUESTIONS

- a) What exactly is the new safety gate egress loop that gets installed in the asphalt as per note #18 on page C3?
Answer: Egress loop refers to an inductive loop vehicle detector circuit ("Detector Loop"). Dimension of the detector loop shall be 6'x10' and these dimensions shall supersede those shown on the plans. The detector loop shall be installed in accordance with the attached SCDOT specifications. Reference is made in the attached SCDOT specifications to a "junction point" which shall be construed as the gate control housing for the purposes of this project.
- b) What is the construction time?
Answer: Construction time shall be 60 calendar day with \$100 per day liquidated damages thereafter.
- c) Since the specified new conduit does not include electrical wiring, is an electrical license required to install the empty conduit?
Answer: Affirmative, the contractor shall have an electrical license.

ATTACHMENTS

- a. University of South Carolina Pre Bid Sign In Sheet
- b. 678.1 Detector Loop
- c. M678.1 Furnish Wire, Sealant, and/or Materials for Detector Loop

Comment from Project Engineer: None.

General comments: None.

END OF ADDENDUM NO. 1 – Only addendum for this project

University of South Carolina Pre Bid Sign In Sheet

Columbia, South Carolina

Project Name: USC Upstate Campus Hodge Drive Traffic Improvement
 Project Number: CP00369917
 Pre Bid Date & Time: October 1, 2013 @ 10 am

Name	Company Name	Address	Phone #	Email
Devo White	Capitol Const.	204 PINEBARK SPRINT 29301	869 949 1407	Devo D CapitolConstruction.US
Rushy Barnette	Panagakos Asphalt	PO Box 25187 Greenville, SC 29616	(803) 277-7860	rushy@panagakos-paving.com
TRIP SCOTT	USE UPSTATE		803-558-5588	KSCORT@USEUPSTATE.ED

* Please make sure you list your company name as registered with LR.
 * By signing and providing your email address, you are authorizing the University of South Carolina to send you information electronically.

678.1 DETECTOR LOOP

1.1 Description

This work shall consist of installing and/or furnishing a Detector Loop within and alongside the roadway, at the locations shown on the Plans, and in accordance with these Specifications. A Detector Loop installation shall consist of: installing the required conduit runs; making the pavement saw cut; placing the required number of turns of loop wire in the saw cut; creating a twisted pigtail; splicing the pigtail to the shielded, twisted pair lead-in cable; connecting the lead-in cable to the back-panel terminals at the controller cabinet; verifying proper detection of traffic; and sealing the saw cut. Several items used to create a complete detector installation are specified elsewhere. ~~They are: FURNISH AND INSTALL ELECTRICAL CONDUIT, and FURNISH AND INSTALL SPLICE BOXES/ JUNCTION BOXES. The "junction point" referred to in the specifications below, is defined to be a splice box, or a conduit junction box as specified on the Plans.~~

1.2 Materials

Acceptable materials can be found on the current SCDOT Qualified Products List. Product Specifications for acceptable materials are located at http://www.scdot.org/doing/publications_Traffic.aspx

1.3 Construction

1.3.1 Saw Cuts

The LOCATION and SIZE of each loop shall conform to the Plans and to the Standards. In general, the front of each loop shall be located 12 to 36 inches in front of the Stop Line, however, the final location will be determined by the ENGINEER or as shown on the Plans. Location of loop should be verified before cutting.

Loops shall be centered in the traffic lane to be detected or as shown on the Plans.

~~All presence loops, left turn lanes and side streets, shall be cut in a quadrupole design. This will be a minimum of a 6 foot by 30 foot loop with a cut down the center 30 foot long.~~

Prior to cutting, the intended saw cut shall be carefully (using paint or chalk) marked on the pavement and approved by the ENGINEER.

The Contractor shall slot the roadway using a diamond or abrasive rotary power-saw with a blade approximately 3/8 INCH IN WIDTH. The saw shall a power-driven walk-along model, not a hand-tool.

The MINIMUM DEPTH of each Saw cut shall be:

- 2 INCHES DEEP in CONCRETE; and
- ~~2 1/2 INCHES DEEP in BITUMINOUS pavement; and~~
- ~~3 INCHES DEEP for any Quadrupole loop or loop with 4 turns.~~

The corner treatment of the saw cut shall prevent sharp edges. Saw cuts shall be extended to provide full-depth. All corners, where loop wires turn, shall be diagonal cut.

Saw cuts shall be washed out, blown dry, and shall be free from dust, grit, oil and moisture before the placement of wire. Compressed air shall be used to blow dry.

Saw cutting of curb and gutter shall be permitted with ENGINEER written approval. If saw cutting of curb and gutter is not permitted, a 1 ½ inch hole shall be drilled under the curb at a 45 degree angle."

Pavement seams or cracks should be avoided. However, when it is necessary to traverse a crack, a 2 inch diameter hole at least 3 inches deep should be drilled, and slack provided in the loop wire to allow for expansion and contraction.

Loop installation shall be staged so that each entire loop installation (from saw cut to sealing) is completed within the same working day with minimum blockage of traffic.

1.3.2 Loop Wire

Each loop wire shall be continuous and splice-free. Further, any wire with cuts, breaks, or nicks in the insulation shall not be accepted. All loops shall be wired in one direction, this will be a counter-clock-wise direction.

Each loop shall have the number of Turns shown in the table below, or as shown on the Plans.

SIZE	NUMBER OF TURNS
6 x 6 feet	4
6 x 10 feet	4
6 x 15 feet	3
6 x 20 feet	3
6 x 30 feet	3
6 x 30 feet (Quadrupole)	2 figure eight turns (2 loops on the outside and 4 loops in the center cut)
6 x 40 feet	2
6 x 50 feet	2
10 x 20 feet	3
10 x 30 feet	3
10 x 40 feet	2
OTHER SIZES	AS PER PLANS

Each Detector Loop shall be formed by installing in a separate saw cut, 1 continuous length of single conductor wire, from the nearest approved "junction point", around the loop the specified number of turns, then back to the "junction point".

The "pigtail" from the corner of the loop, formed by the two ends of the loop wire, shall be twisted together with a pitch of 15 TURNS PER YARD, between the "junction point" and the loop itself.

The wire shall be pressed to the bottom of the saw cut slot. A roller or a blunt-stick (similar to a paint stirrer), shall be used to seat the loop wire at the bottom of the slot or channel. In no case shall a screw driver or similar sharp tool be used for this purpose.

The wire shall be laid in the slot so that there are no kinks or curls, and no straining or stretching of the insulation around the corner of the slot, or at the junction.

After placing the wire in the slot, it shall be rechecked for slack, raised portions, and tightness.

1 INCH LENGTHS of 1/2 inch closed-cell foam-plastic (BACKER-ROD) shall be used at 2 foot spacings, to hold the wire at the bottom of the slot. DO NOT use backer-rod around the entire perimeter!

The loop wire pigtail should be enclosed in conduit from the roadway edge to the "junction point".

~~Each loop shall be TESTED BEFORE SEALING. The inductance shall be in the range of 50 to 2500 micro-Henrys. The insulation resistance measured to earth ground shall be greater than 100 megohms at 500 volts DC.~~

~~Note: MECCER TEST and INDUCTANCE TEST REQUIRED before and after sealing. A written record of the test shall be submitted to the ENGINEER on company letterhead.~~

1.3.3 Lead-In Cable

The lead-in cable shall be continuous, splice-free, and free from cuts or nicks in the insulation.

At the specified "junction point", the twisted "pigtail" from the loop wire shall be spliced to the shielded, (twisted-pair) lead-in cable that runs from the "junction point" to the controller cabinet (terminal).

The "junction point" splice shall be electrically permanent and sealed waterproof. 1-1/2 inches of insulation shall be removed from each wire. The splice shall be either crimped-on, -or- twisted and soldered. The entire splice shall then be sealed waterproof using a method described below. The ENGINEER must be present to witness these acts. Any splices made without the presence of the ENGINEER are unacceptable, and shall be re-spliced. The methods of waterproof sealing are:

- a) Normal Splice - Each individual splice (pair of twisted loop wires meeting pair of loop lead-in wires), shall be performed by using either a crimp-on or a soldered joint. The junctions shall then be sealed in a low-voltage, waterproof splice kit. The splice kit shall be installed per the manufacturer's instructions.
- b) Underwater Splice - Where required on the Plans an underwater splice kit shall be installed according to the manufacturer's instructions.

Sufficient slack shall be left in both the lead-in cable and the loop wire, so that the splice may be moved 3 feet from the front of the "junction point". The slack shall be neatly coiled and nylon-tied after completion of the splice.

~~In the controller cabinet, the lead-in cable shall be uniquely identified by an insulated, preprinted sleeve, slipped over the wire before attachment of a spade-lug connector. A spade-lug connector shall be crimped onto each loop lead-in wire.~~

In the controller cabinet, the ground (drain) wire from each lead-in cable shall not be connected. Rather it shall be cut-off at the cable sheath, and left floating.

~~Unless otherwise specified, the lead-in cable shall be enclosed in conduit from the "junction point" to the nearest signal pole, or directly to the controller if it is on the same corner. The conduit for lead-in cable required to be installed under sidewalks and curbs may be aluminum, galvanized, PVC 80, or flex PVC. The cable shall then run: up inside a conduit or metal pole, across span wires, and then down inside a conduit or metal pole, to the controller.~~

1.3.4 Sealant

Sealant is used in all loops unless specified by the ENGINEER.

The Department approved Loop Sealant shall be mixed and applied according to the manufacturer's directions.

The sealant shall not be poured into saw cuts during weather conditions of precipitation of any kind, or at temperatures below 10° C (50° F).

The saw cut and drilled holes shall be completely filled with sealant, allowing no bubbles below the surface and only a minimum spill-over along the joint. Duct-Seal shall be used to prevent sealant from flowing into conduit ends.

When the sealant hardens, there shall be neither a bulge nor depression, but rather a smooth road surface. The sealant shall not be over-poured so there is a bulge or bump higher than the surrounding surface of the roadway. It shall be wiped smooth with a squeegee.

The Contractor should make sure that the sealant has hardened before allowing traffic to move over the area.

1.3.5 Warranty

The CONTRACTOR shall guarantee the loops for workmanship for 5 years following approval of project. The CONTRACTOR will return to repair or replace any loops rising up or pulling from the pavement or not functioning within warranty period at no additional cost.

~~1.4 Measurement~~

~~Detector loops shall be measured by LINEAR FEET of: loop wire, lead in cable, and saw cut as actually placed, including sealant, electrical connections, testing, and incidental hardware. Note that conduit and vehicle detector amplifiers are measured elsewhere as separate items.~~

~~1.5 Payment~~

~~Detector loops, measured as provided above, shall be paid for at the contract unit price bid for:~~

~~Loop Wire:~~

6770413	FURNISH & INSTALL NO. 14 COPPER WIRE, 1 CONDUCTOR FOR LOOP WIRE	LF
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~~Loop Lead-in Cable:~~

~~See 677.1 Electrical Cable~~

6770389	FURNISH & INSTALL NO. 14 COPPER WIRE, 4 CONDUCTOR GRAY	LF
6770394	FURNISH & INSTALL NO. 14 COPPER WIRE, 8 CONDUCTOR GRAY	LF

~~Saw Cut:~~

6780495	SAWCUT FOR LOOP DETECTOR	LF
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~~and such payment shall be full compensation for furnishing all materials, equipment, labor, and for all testing, details and incidentals necessary to provide proper vehicle detection, complete in place as specified.~~

~~Pay Item Notes~~

~~This specification is not limited to these pay items. Other pay items may be applicable.~~

M678.1 FURNISH WIRE, SEALANT, AND/OR MATERIALS FOR DETECTOR LOOP**1.1 Description**

This specification describes requirements for furnishing Wire, Sealant, and/or Materials for a Detector Loop.

1.2 Materials**1.2.1 Loop Wire**

Loop wire shall be splice-free lengths of: No. 14 AWG, 19 Strands, single-conductor bare copper wire. The conductor insulation (BLACK or GRAY) shall be high density polyethylene and shall be both ultraviolet and weather resistant. The wall thickness shall be 0.030 inch minimum point thickness. Cable shall be manufacturer in accordance with the requirements of Underwriters Laboratories, Federal specifications, and the National Electric Code.

1.2.2 Sealant

The loop sealant used to fill the saw cuts and other gaps, shall be of a type intended for traffic loop embedding. The cured sealant shall be semi-flexible, and be capable of adhering securely to concrete, asphalt, wood, metal, etc. It shall be unaffected by freeze-thaw cycling, salts, gasoline, oil, sewerage and corrosive chemicals. It shall be proportioned and mixed per the manufacturer's specifications. Acceptable sealants are listed on the SCDOT QPL.

1.2.3 Waterproofing Splice Materials

The splice at the "junction point" shall be made waterproof using the materials listed below:

- a) Cable Splice Kit - Commercially available, Low-Voltage, water-proof Splice-kit; to be Plymouth "PLYFLEX"; or 3M "SCOTCH-LOK", Unipak #3570, Resin 400, (or approved equal). To be installed per manufacturer's instructions.
- b) Heat Shrink tubes
- c) Gel Caps
- d) Vinyl plastic electrical tape (use where required)-Cold and weather resistant, 19 mm (3/4 inch) wide, 1.8 mm (7 mil) thickness, (Scotch 33+ or approved equal). Shall use liquid electrical coating (where required) - Fast-drying sealant compatible with vinyl tape, brush-applied (3M, Scotchkote or approved equal).

1.2.4 Underwater Splicing Kit

Where shown on the Plans, in very wet areas an Underwater Splice Kit may be required at the "junction point". This splicing kit shall consist of a two-piece mold-body, with pourable resin sealing compound, funnels, and end sealing strips (3M, Scotchcast 82-A1 or approved equal).

1.2.5 Wire Crimps

The PREFERRED splicing method at the "junction point", shall use a commercial/industrial grade, copper-alloy CRIMP-ON, with one end closed, of a size proper for the gauge of wires to be spliced, and

the number of conductors. It shall be installed with butt splice using a T & B type crimping tool or similar tool, intended for the purpose (NOT regular pliers). (Note: wire-nuts are not acceptable.)

1.2.6 Solder

The alternate method of splicing at the "junction point" is to use SOLDER, which shall be electronic-grade, rosin-core, 60 lead/40 tin. Acid-core solder is not acceptable, nor are acid-type soldering pastes.

~~1.2.7 Certification~~

~~The Vendor shall provide details for the loop sealant, loop wire, and lead in wire proposed.~~

~~CATALOG CUTS ARE REQUIRED~~

~~SAMPLE REQUIRED~~

1.2.8 Warranty

The Vendor shall furnish ~~SCDOT with~~ any warranties on equipment and materials that are provided by the Manufacturer or Vendor as normal trade practice.

~~1.3 Measurement~~

~~Wire for Detector Loops, of the size and numbers of conductors specified, shall be measured by LINEAR FEET and furnished in 5000' reels.~~

~~1.4 Payment~~

~~Furnishing Wire for Detector Loops, measured as provided above, will be paid at the contract unit price bid for:~~

FURNISH NO. 14 COPPER WIRE, 1 CONDUCTOR FOR LOOP WIRE	5000' REEL
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