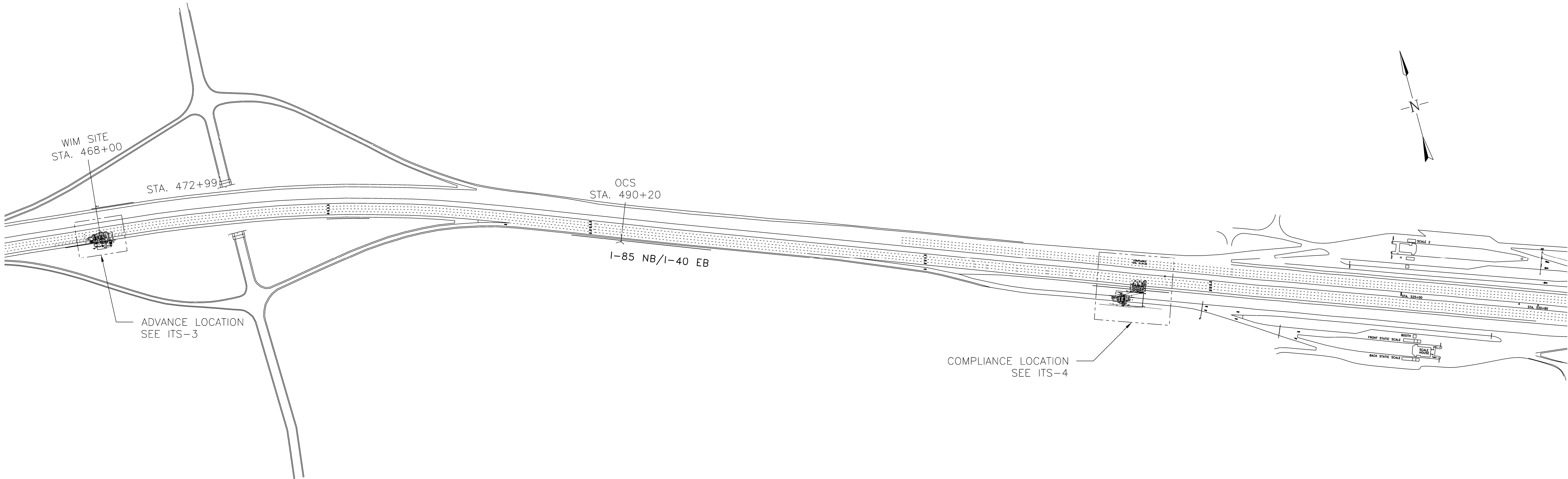


PROJECT REFERENCE NO.	SHEET NO.
I-5958	ITS-1



GENERAL NOTES:

1. ALL CONNECTIONS BETWEEN SENSORS AND LEAD-IN CABLES WITHIN A JUNCTION BOX SHALL BE IN ACCORDANCE WITH NCDOT STANDARDS.
2. AC POWER CABLES MUST BE RUN IN SEPARATE CONDUITS/JUNCTION BOX FROM SIGNAL CABLES.
3. SENSOR SPACING SHOWN IS TYPICAL SPACING REQUIREMENT, ACTUAL SENSOR SPACING MAY BE ALTERED TO SUIT SITE CONDITIONS BY THE IRD FIELD REPRESENTATIVE.
4. SITE CONDITIONS MUST MEET ASTM E1318-09 TYPE 1 REQUIREMENTS TO ACHIEVE OPTIMAL WIM SYSTEM PERFORMANCE.
5. PIEZO SENSORS MUST BE A MINIMUM OF 6' AWAY FROM CRACKS, JOINTS OR SAWCUTS WHEN POSSIBLE.
6. CABLES MUST BE PROTECTED BY PVC SLEEVES WHERE THEY CROSS PAVEMENT JOINTS/CRACKS.
7. ADDITIONAL DRAINAGE MAY BE REQUIRED DEPENDING ON SLOPE OF ROADWAY.

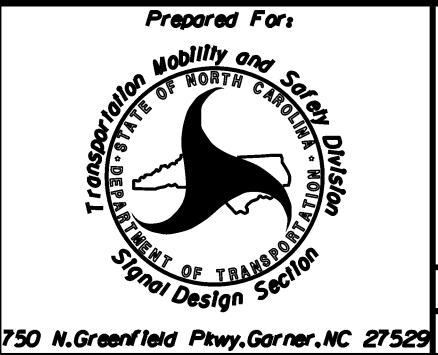
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750 N. Greenfield Pkwy, Garner, NC 27529

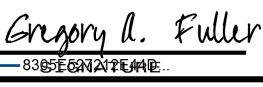
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SITE LAYOUT-NB			
Division 07		Orange Co. Hillsborough	
PLAN DATE: SEPTEMBER 2026		REVIEWED BY: S. Yow	
PREPARED BY: E. Holman		REVIEWED BY:	
REVISIONS	INIT.	DATE	

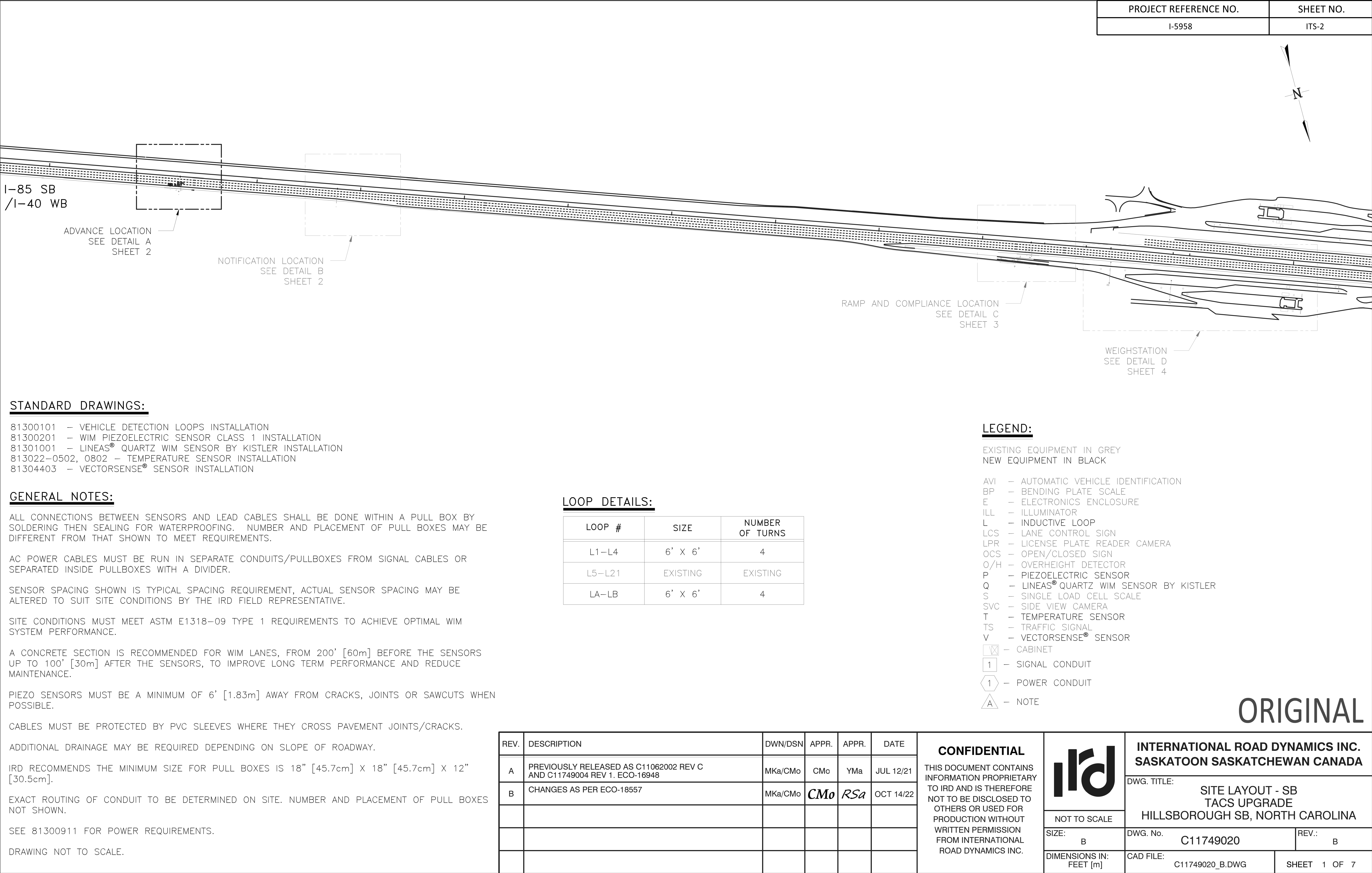
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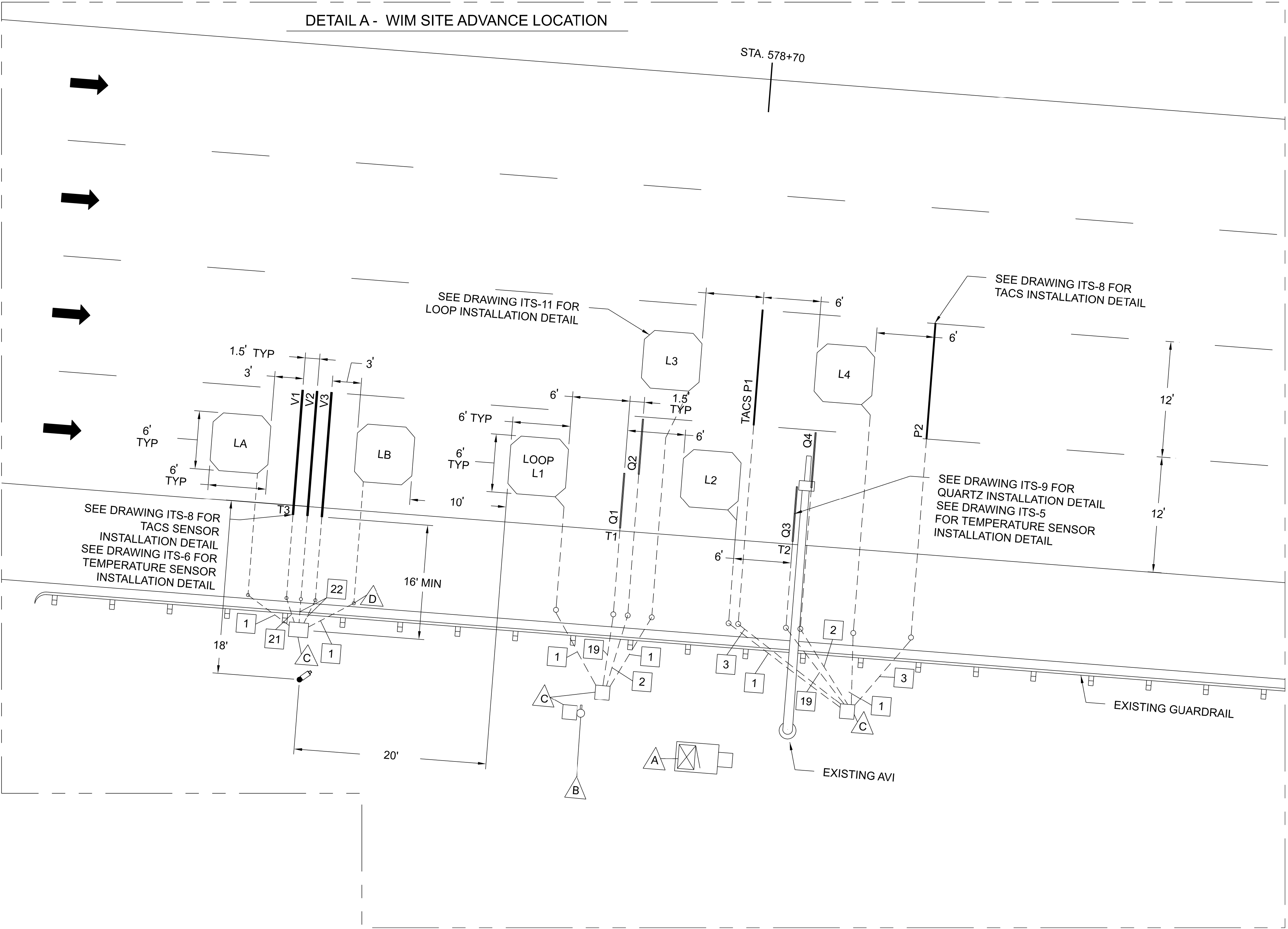


SEAL
023919
ENGINEER
GREGORY A. FULLER

Signed by:

DATE: 9/25/2026

INVENTORY NO:





LEGEND

- 1 1 - 1" CONDUIT
2 - 1C 14 AWG (LOOP WIRE)
- 2 1 - 1" CONDUIT
1 - COAXIAL CABLE (QUARTZ LEAD-IN)
- 3 1 - 1" CONDUIT
2 - RG58 COAXIAL CABLE (PIEZO LEAD-IN)
- 19 1 - 1" CONDUIT
1 - RG58 COAXIAL CABLE (QUARTZ LEAD-IN)
1 - TEMPERATURE SENSOR LEAD-IN
- 21 1 - 1" CONDUIT
1 - COAXIAL CABLE (TACS)
1 - TEMPERATURE SENSOR LEAD-IN
- 22 1 - 1" CONDUIT
1 - COAXIAL CABLE (TACS)

ABBREVIATIONS

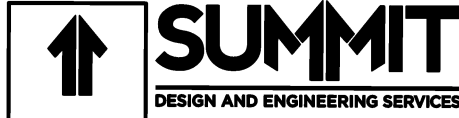
- L - INDUCTIVE LOOP
- P - PIEZO QUARTZ SENSOR
- Q - QUARTZ SENSOR
- T - TEMPERATURE SENSOR
- V - TACS SENSOR

NOTES:

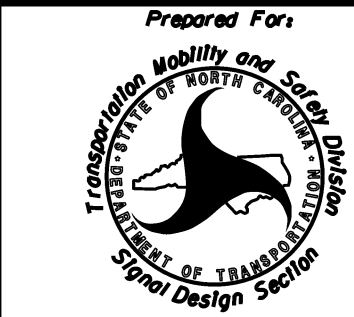
- A CABINET WITH WIM ELECTRONICS (EXISTING)
- B OVERHEIGHT DETECTOR (EXISTING)
- C JUNCTION BOX (EXISTING)
- D DRILL THROUGH SHOULDER FOR CONDUIT

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TYPICAL WIM
SITE LAYOUT DETAILS

Division 07 Orange Co. Hillsborough

PLAN DATE: SEPTEMBER 2026 REVIEWED BY: S. YOW

PREPARED BY: E. Holman REVIEWED BY:

REVISIONS INIT. DATE

INIT. DATE

INIT. DATE

INIT. DATE

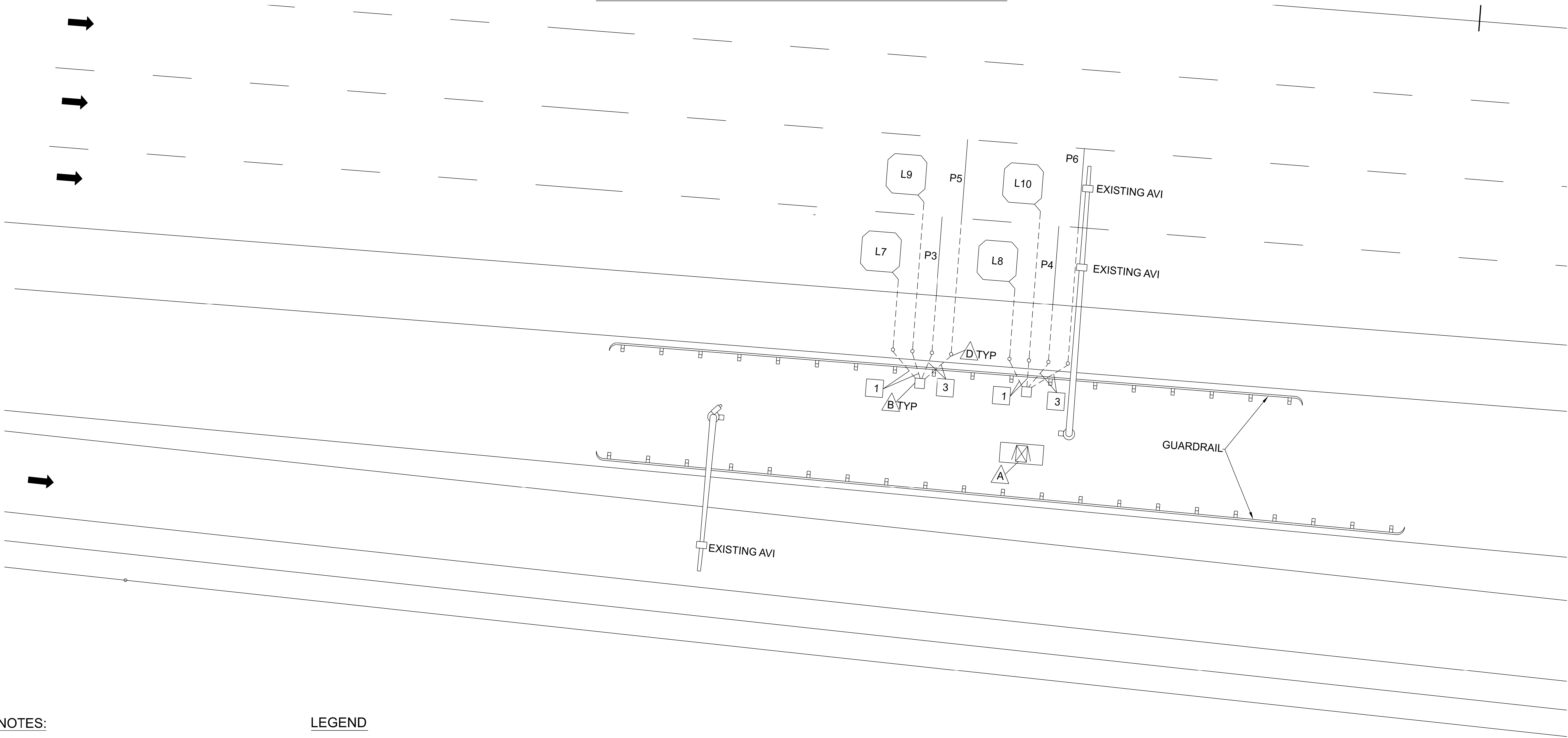


Signed by: Gregory A. Fuller

DATE 9/25/2026

INVENTORY NO:

COMPLIANCE LOCATION & NOTIFICATION LOCATIONS



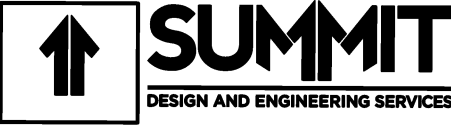
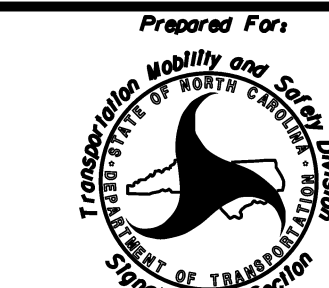
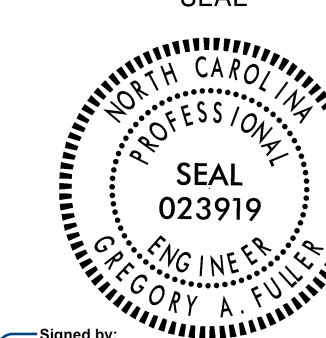
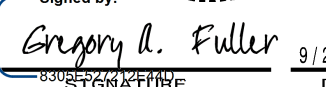
NOTES:

-  CABINET.
-  JUNCTION BOX.
-  DRILL THROUGH SHOULDER FOR CONDUIT.

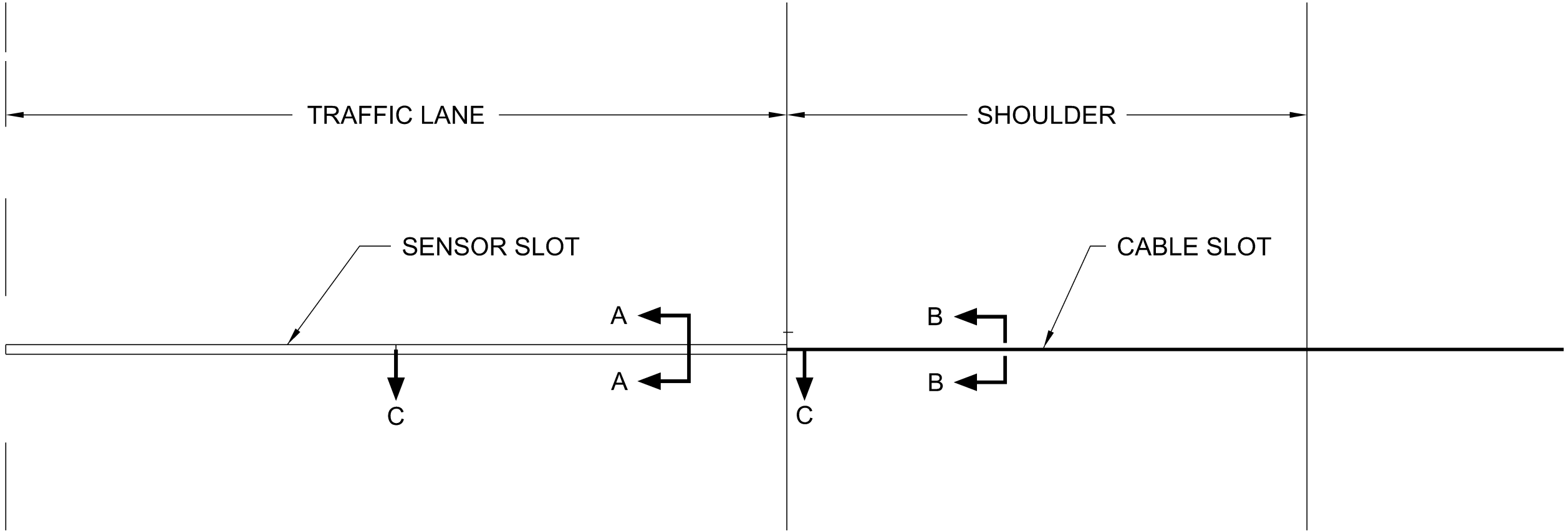
LEGEND

-  1 - 1" CONDUIT
2 - 1C 14 AWG (LOOP WIRE)
-  1 - 1" CONDUIT
2 - RG58 COAXIAL CABLE (PIEZO LEAD-IN)
- P* PIEZO SENSORS
- L* INDUCTIVE LOOPS

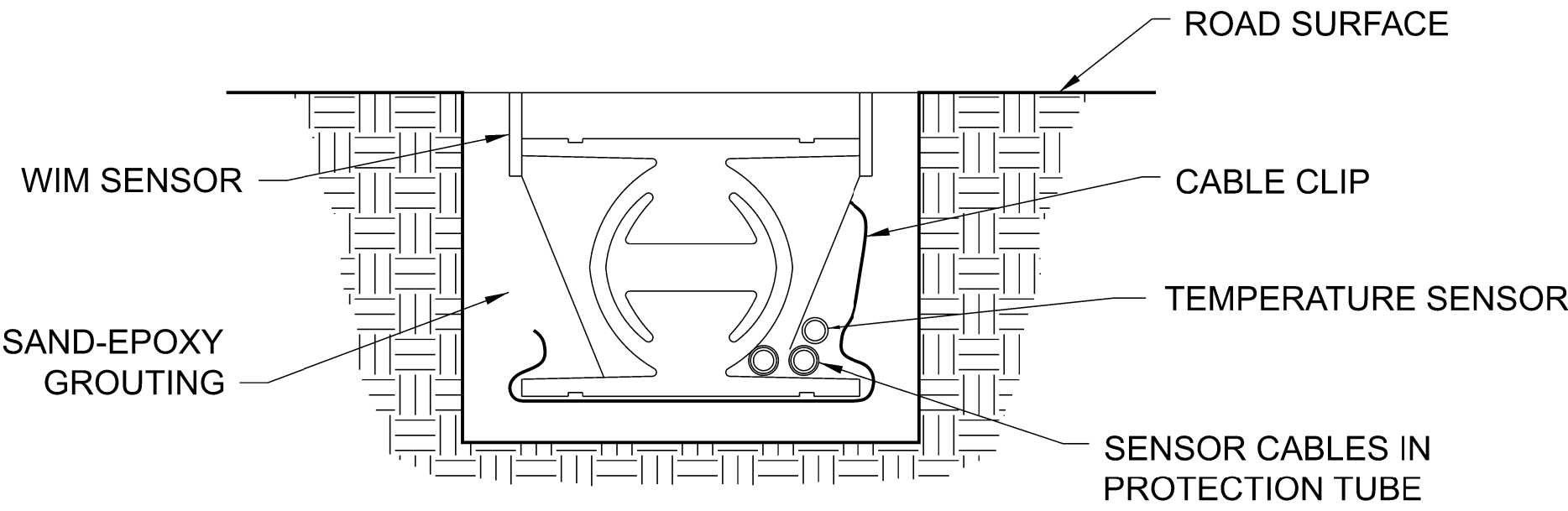
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Prepared in the Office of:  NC FIRM LICENSE No: P-0339 320 Executive Court Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)	750 N. Greenfield Pkwy, Garner, NC 27529  SCALE NOT TO SCALE	TYPICAL SITE LAYOUT- COMPLIANCE AND NOTIFICATION LOCATIONS Division 07 Orange Co. Hillsborough <table><tr><td>PLAN DATE: SEPTEMBER 2026</td><td>REVIEWED BY: S. YOW</td></tr><tr><td>PREPARED BY: E. Holman</td><td>REVIEWED BY:</td></tr></table>		PLAN DATE: SEPTEMBER 2026	REVIEWED BY: S. YOW	PREPARED BY: E. Holman	REVIEWED BY:	SEAL  Signed by:  9/25/2026 DATE INVENTORY NO:					
		PLAN DATE: SEPTEMBER 2026	REVIEWED BY: S. YOW										
		PREPARED BY: E. Holman	REVIEWED BY:										
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REVISIONS	INIT.	DATE											

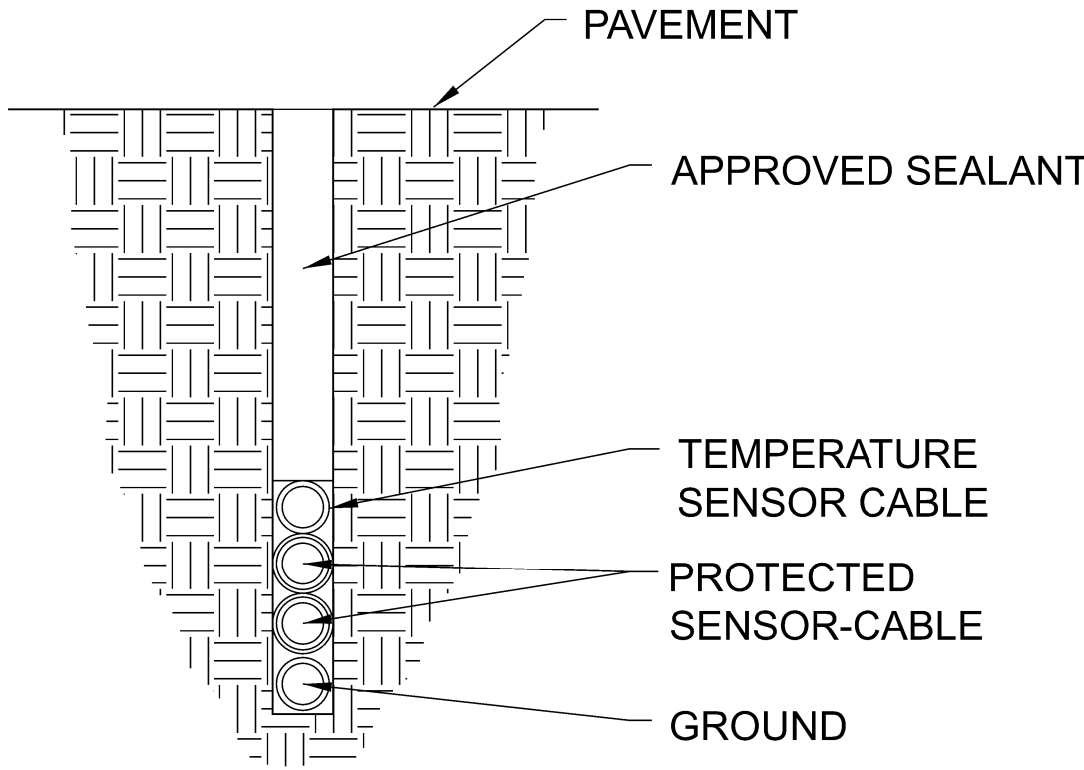
PLAN VIEW - SENSOR INSTALLATION



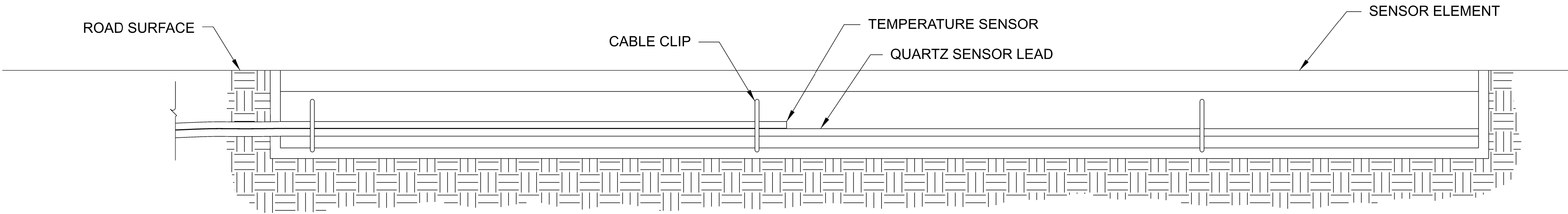
SECTION A-A



SECTION B-B



SECTION C-C

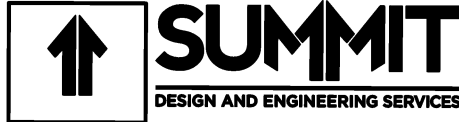


NOTES:

- 1 INSTALL QUARTZ SENSORS ACCORDING TO THE DETAILS SHOWN ON ITS-9 AND MANUFACTURER RECOMMENDATIONS.
- 2 INSTALL THE TEMPERATURE SENSOR THROUGH AT LEAST 2 CABLE CLIPS ALONG THE LENGTH OF THE SENSOR CLOSEST TO THE SHOULDER.

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TYPICAL INSTALLATION DETAIL-
TEMPERATURE SENSORS QUARTZ

Division 07 Orange Co. Hillsborough

PLAN DATE: SEPTEMBER 2026 REVIEWED BY: S. Yow

PREPARED BY: E. Holman REVIEWED BY:

REVISIONS INIT. DATE

SIGNATURE DATE

INVENTORY NO:

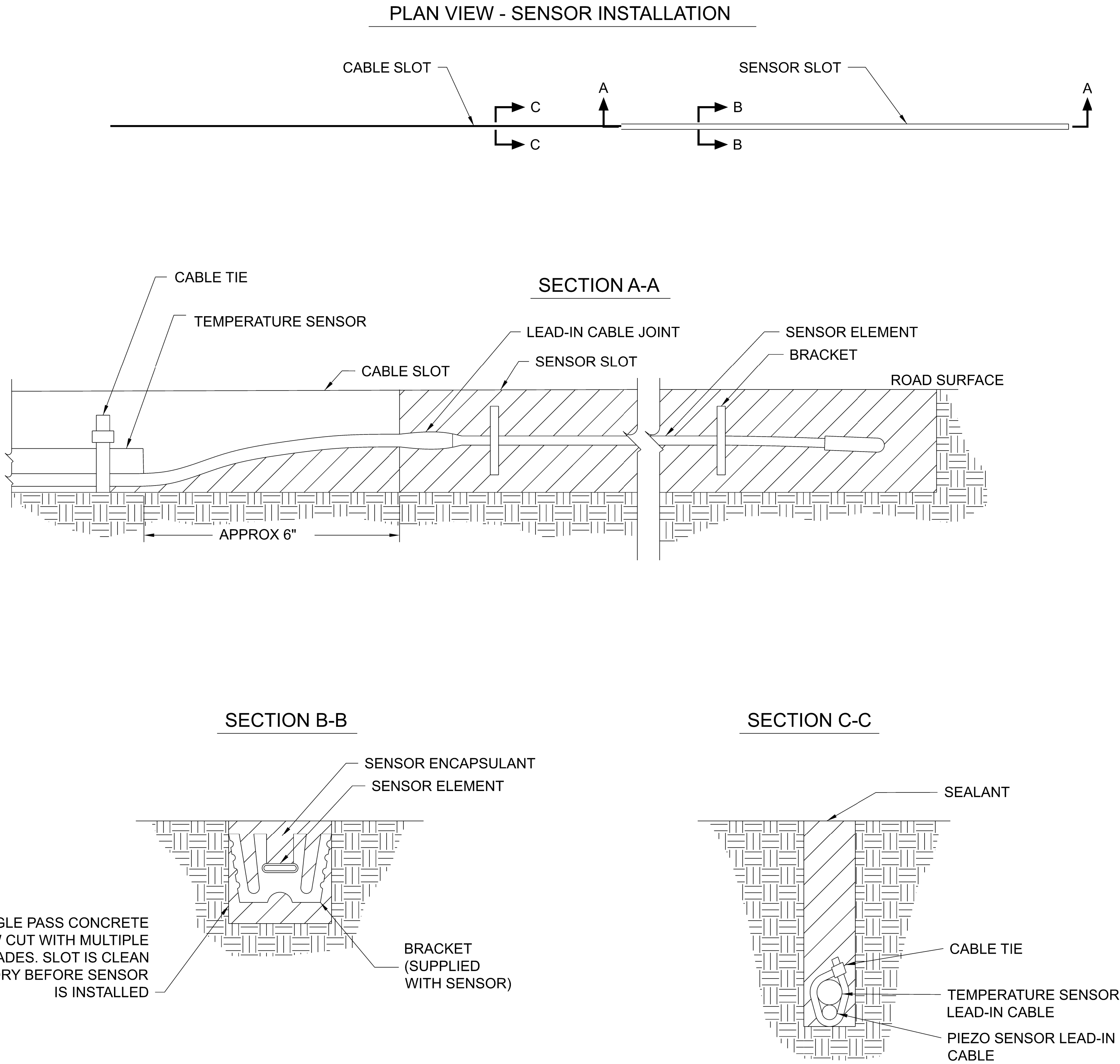
SEAL



Signed by: Gregory A. Fuller

9/25/2026

PROJECT REFERENCE NO.	SHEET NO.
I-5958	ITS-6



NOTES:

- 1 INSTALL PIEZO SENSORS ACCORDING TO THE DETAILS SHOWN ON ITS-10 AND MANUFACTURER RECOMMENDATIONS.
- 2 INSTALL THE TEMPERATURE SENSOR IN THE LEAD IN CABLE JOINT. ZIP TIE THE TEMPERATURE SENSOR TO THE PIEZO SENSOR LEAD IN CABLE AT MULTIPLE POINTS.

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TYPICAL INSTALLATION DETAILS-
TEMPERATURE SENSORS PIEZO

Division 07 Orange Co. Hillsborough
PLAN DATE: SEPTEMBER 2026 REVIEWED BY: S. YOW

PREPARED BY: E. Holman REVIEWED BY:

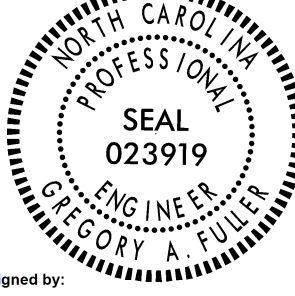
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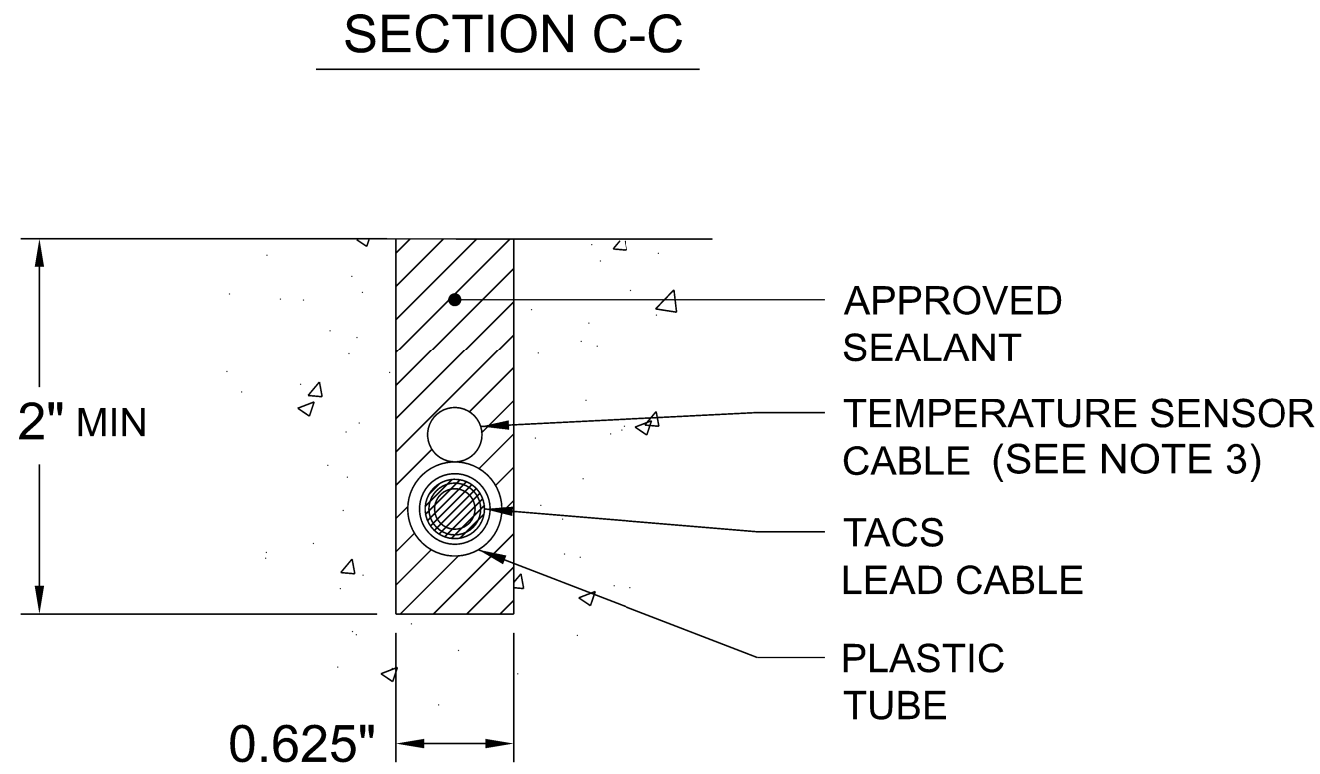
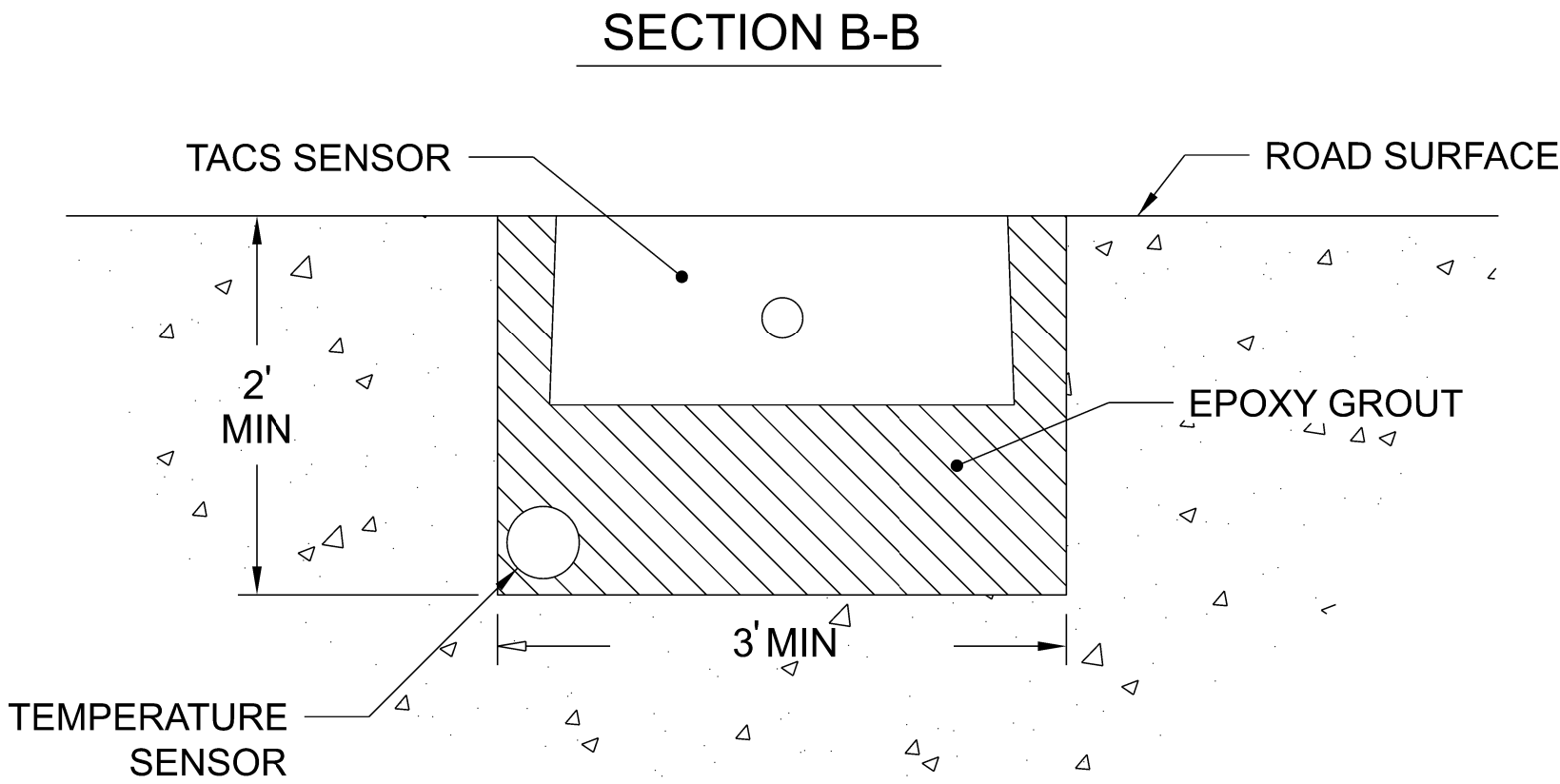
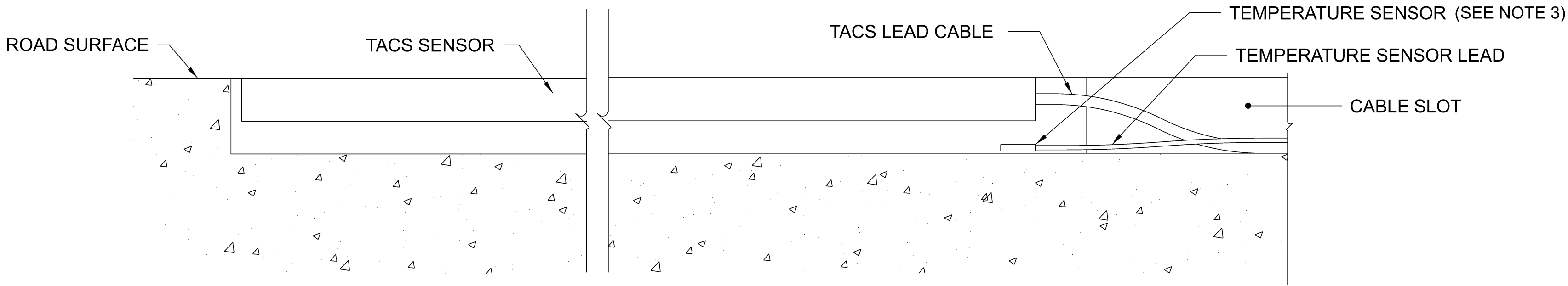
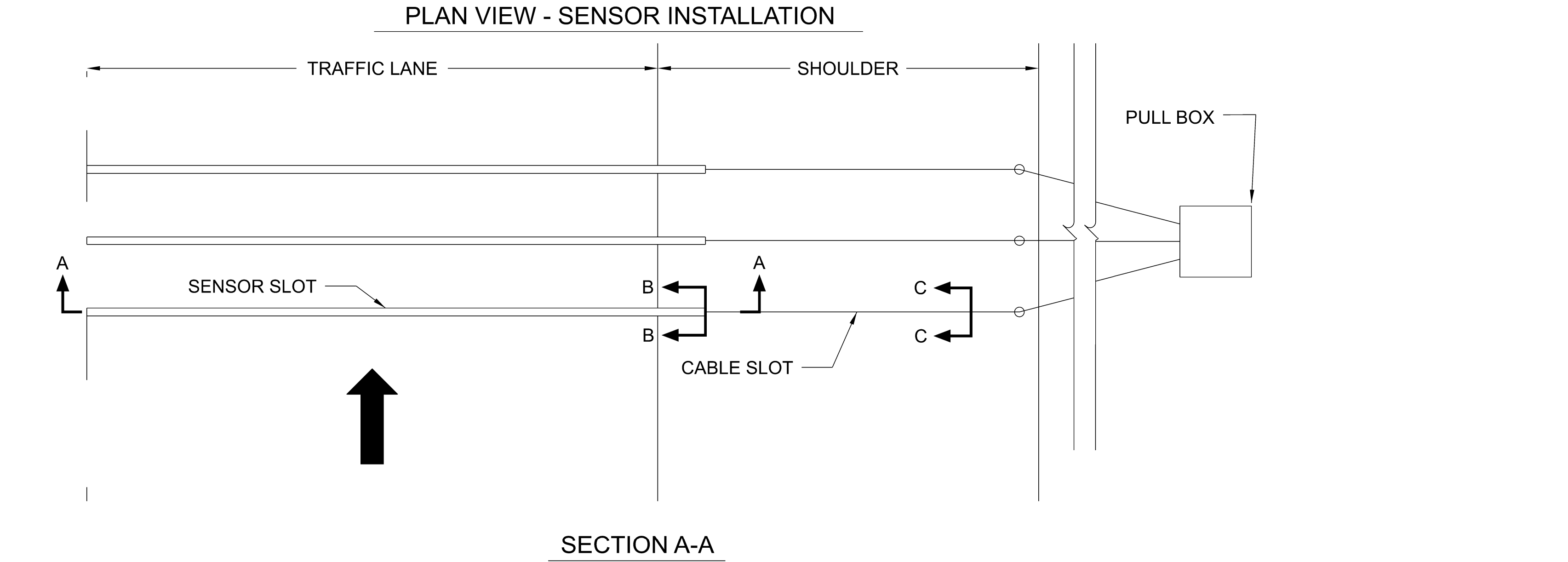
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INIT. DATE

SEAL



Signed by:  9/25/2026
DATE
INVENTORY NO:

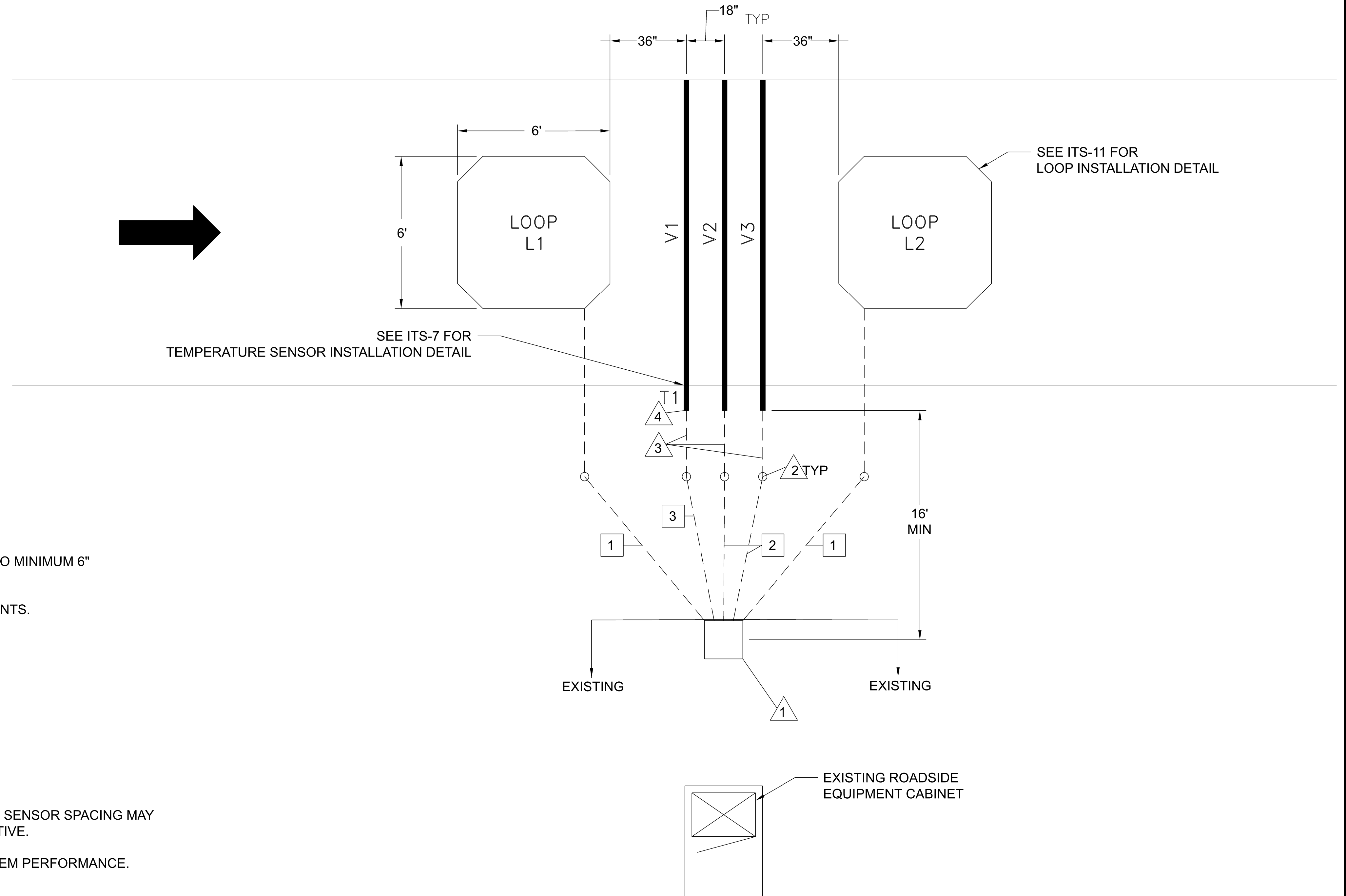


NOTES:

1. INSTALL TACS SENSORS ACCORDING TO THE DETAILS SHOWN ON ITS-8 AND MANUFACTURER RECOMMENDATIONS.
2. INSTALL THE TEMPERATURE SENSOR ON THE UPSTREAM TACS SENSOR.
3. THE TEMPERATURE SENSOR SHOULD BE INSTALLED IN THE SENSOR SLOT AND ENCAPSULATED IN SENSOR GROUT.

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		TYPICAL INSTALLATION DETAIL - TEMPERATURE SENSOR AT TACS														
		REVISIONS <table><tr><th>REVISIONS</th><th>INIT.</th><th>DATE</th></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></table>			REVISIONS	INIT.	DATE									
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750 N. Greenfield Pkwy, Garner, NC 27529																



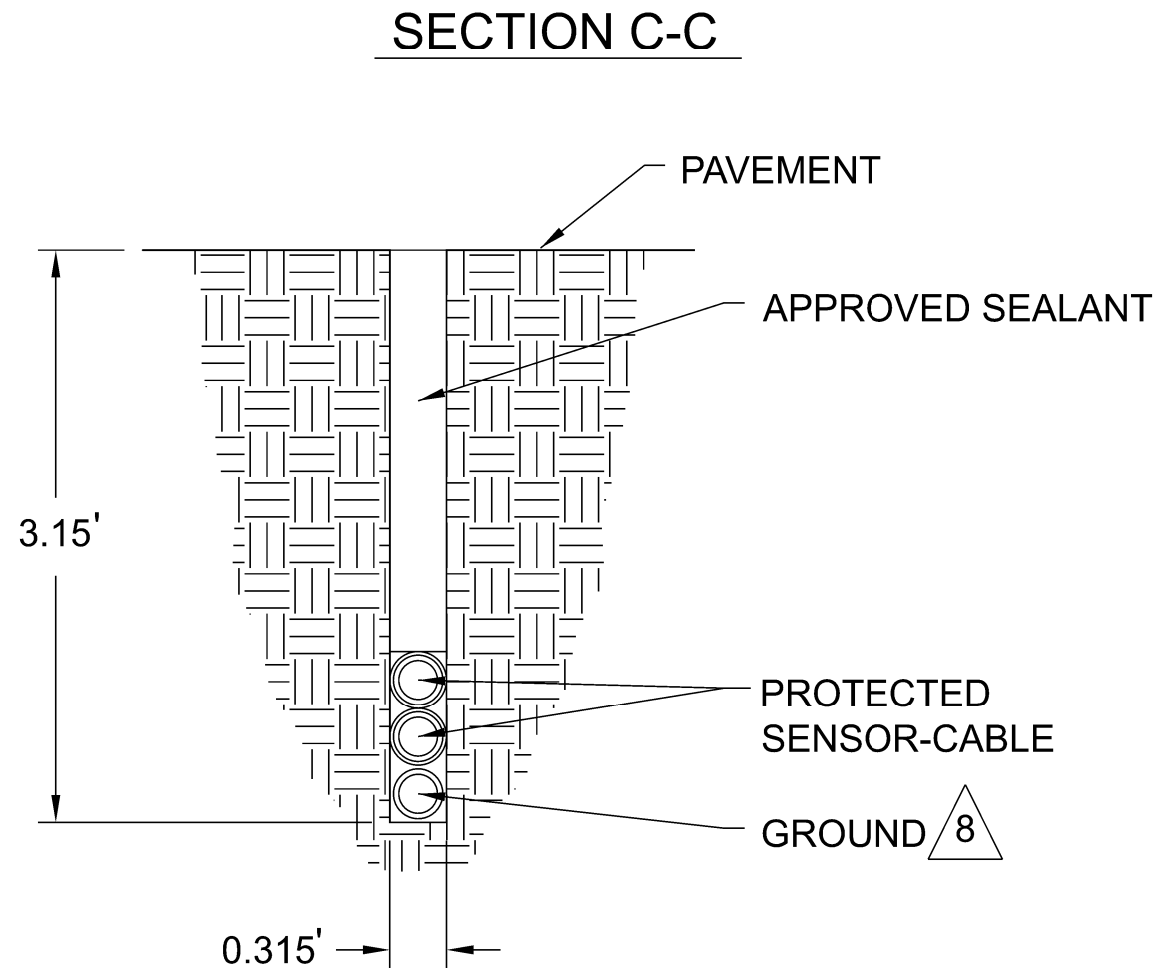
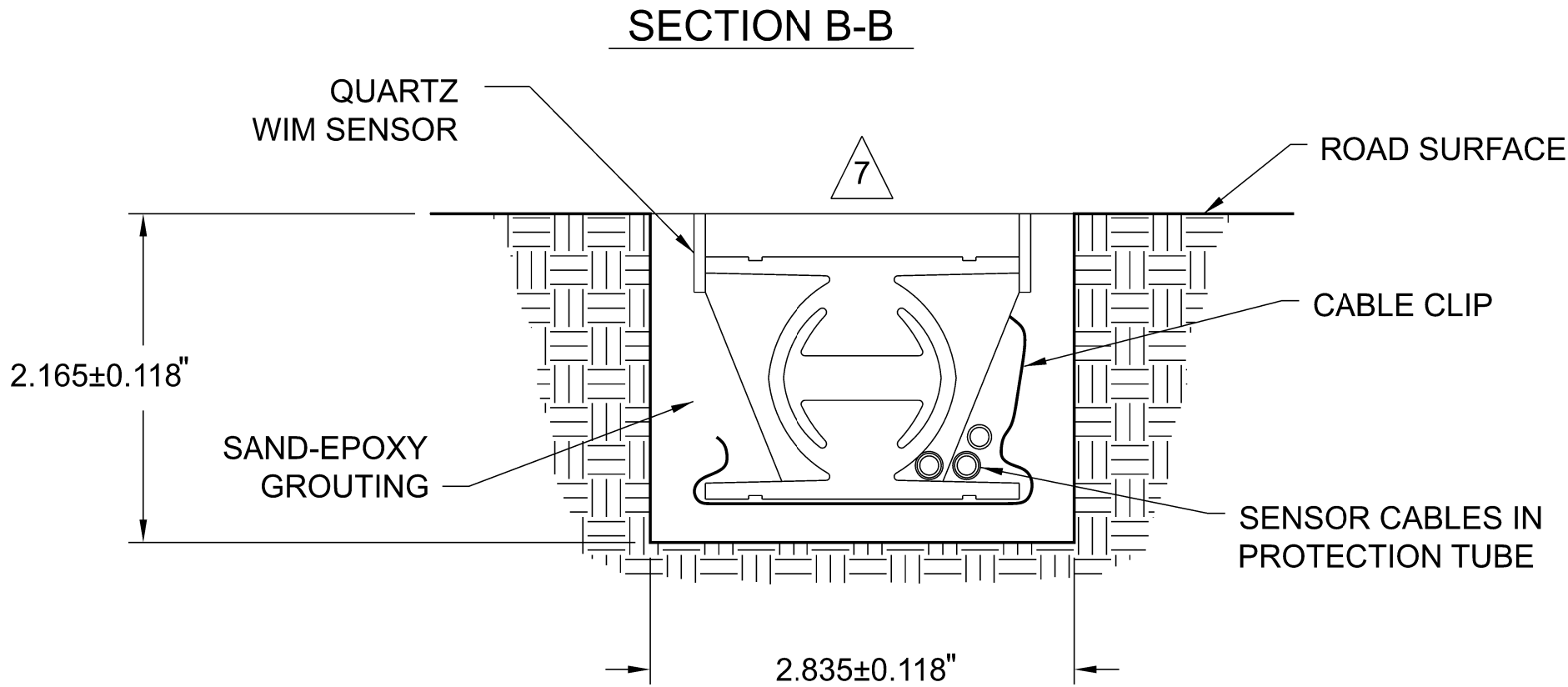
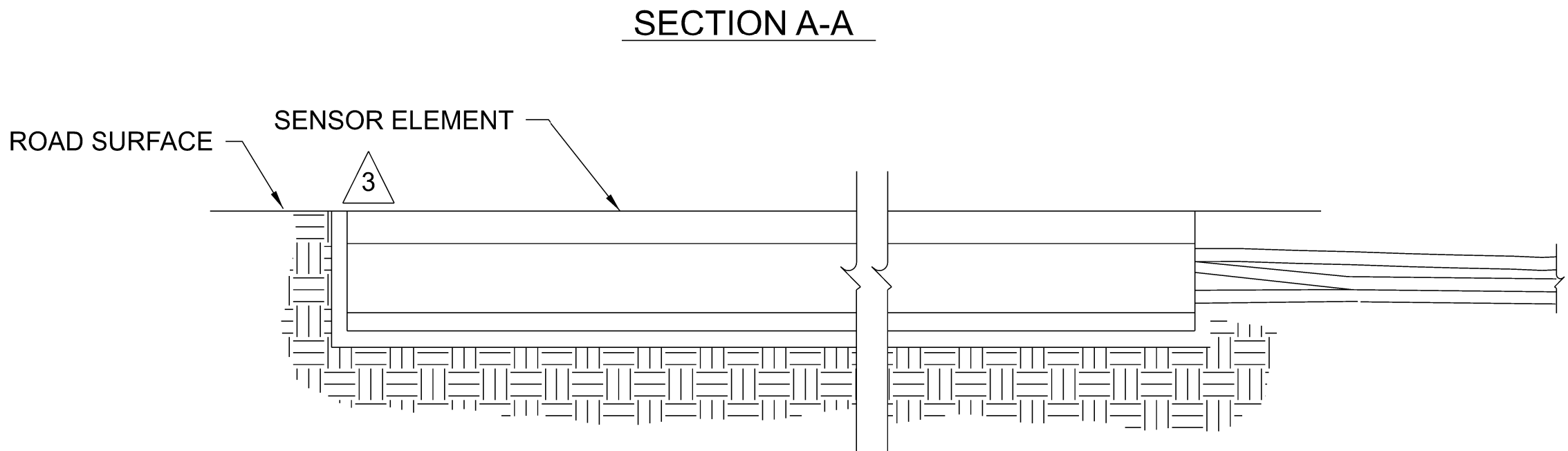
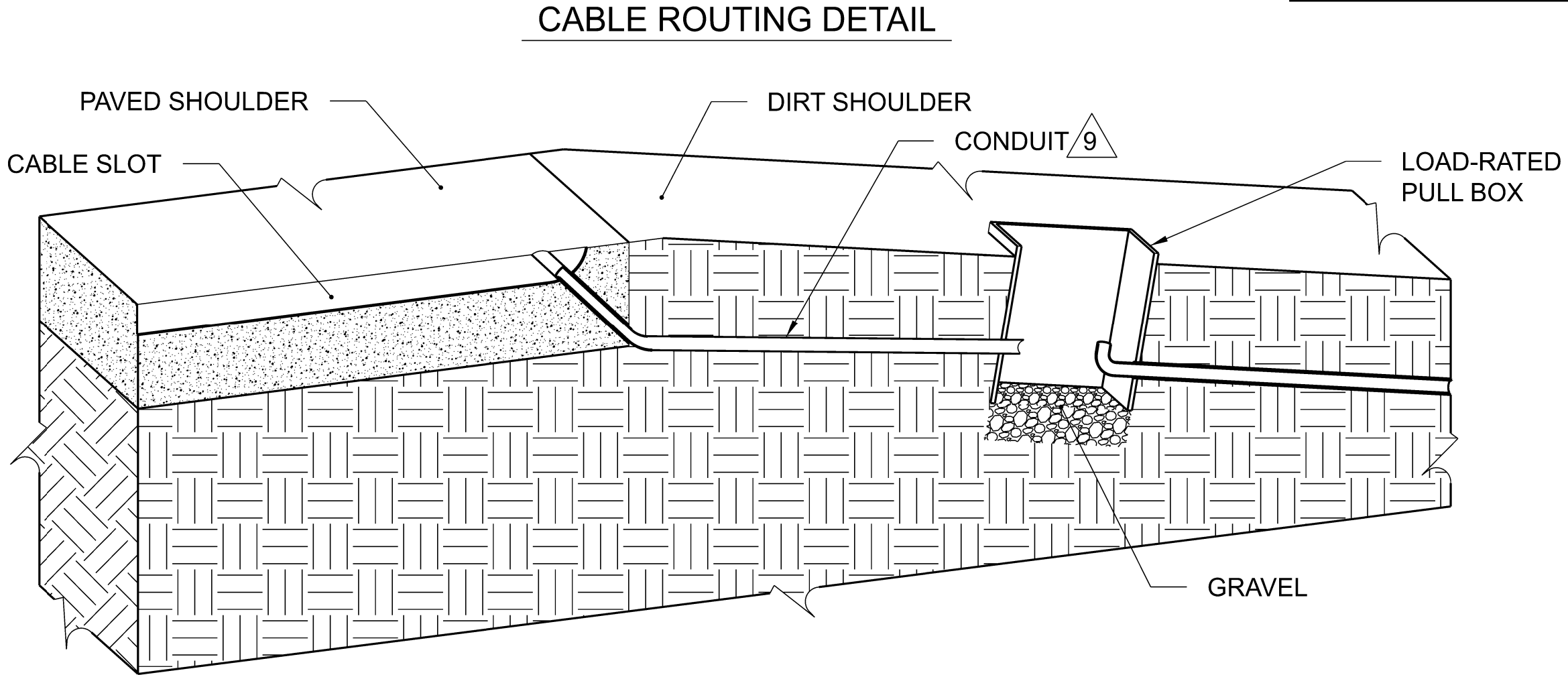
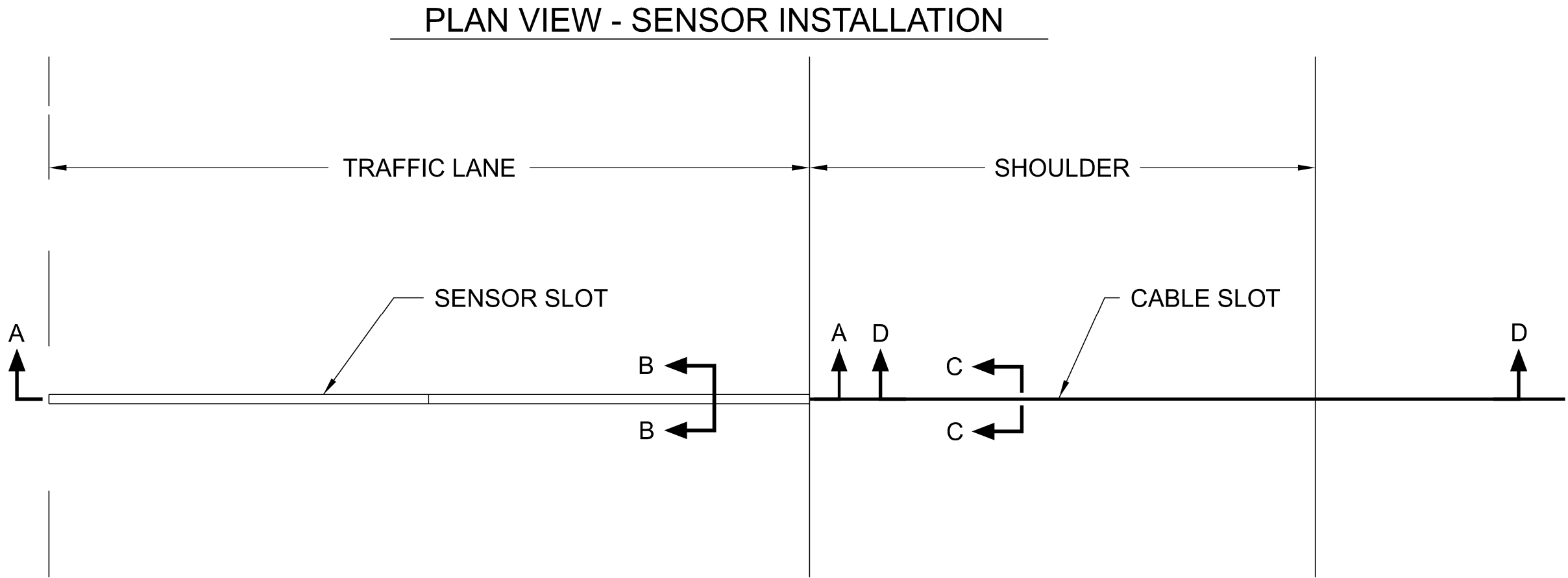
Prepared For:  750 N. Greenfield Pkwy, Corner, NC 27529	TYPICAL INSTALLATION DETAILS- TACS INSTALLATION	SEAL 
Division 07 Orange Co. Hillsborough		
PLAN DATE: SEPTEMBER 2026 REVIEWED BY: S. Yow		
PREPARED BY: E. Holman REVIEWED BY:		
SCALE	REVISIONS	INIT. DATE
NOT TO SCALE		

Signed by: Gregory A. Fuller

-REGISTERED- DATE

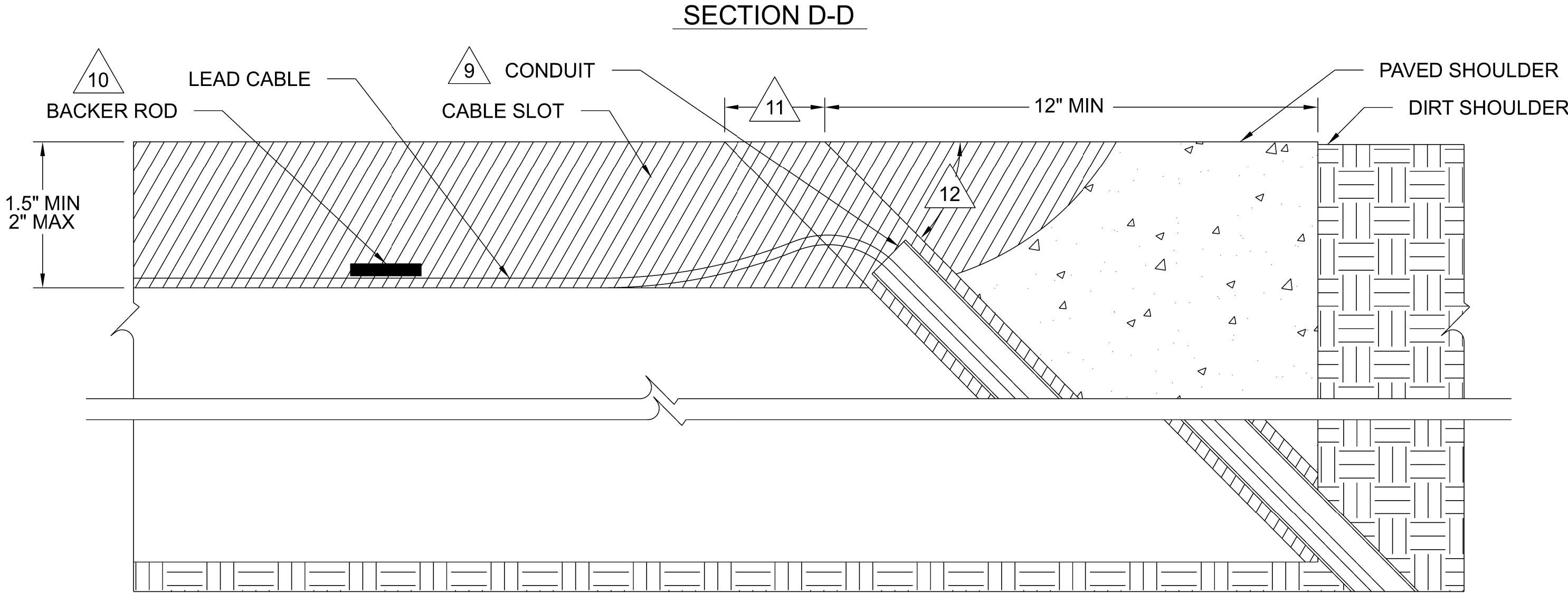
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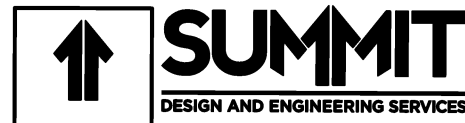
NOTES:

- 1 FOR INSTALLATION PROCESS REFER TO MANUFACTURER'S INSTALLATION MANUAL.
- 2 SLOT LENGTH IS 6" LONGER THAN SENSOR.
- 3 SET SENSOR FLUSH WITH OR SLIGHTLY HIGHER THAN ROAD SURFACE USING INCLUDED LEVELING BEAMS.
- 4 CHECK THE RESISTANCE OF THE SENSOR BY PLACING A DIGITAL MULTIMETER ACROSS THE CENTER CONDUCTOR OF THE BNC CONNECTOR AND THE OUTER BODY. THE READING SHOULD BE INFINITY.
- 5 CHECK THE VOLTAGE OUTPUT OF THE SENSOR BY MONITORING THE METER WHEN A TRUCK PASSES OVER THE SENSOR INSTALLED IN THE ROADWAY. AS THE TRUCK PASSES OVER THE SENSOR, VOLTAGE DEFLECTION SHOULD BE OBSERVED.
- 6 CRACKS OR SAW CUTS IN THE ROADWAY MUST NOT BE LOCATED CLOSER THAN 18" UPSTREAM AND 18" DOWNSTREAM OF THE SENSOR.
- 7 SENSOR MUST BE GROUND FLUSH WITH ROAD SURFACE AFTER GROUT HAS CURED.
- 8 CONNECT GROUND WIRE. IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. OTHER END OF GROUND WIRE CONNECTS TO CABINET GROUND BUSBAR.
- 9 NON-METALLIC FLEX OR PVC CONDUIT.
- 10 INSTALL 2"-3" SECTIONS OF BACKER ROD IN THE CABLE SLOT AS NEEDED TO HOLD DOWN LEAD CABLE. USE SPARINGLY AND ONLY AS NEEDED
- 11 CORE DRILL OR CUT NOTCH IN PAVED SHOULDER FOR CONDUIT. PLUG CONDUIT OPENING WITH DUCT SEAL, COVER WITH SEALANT. DIMENSIONS OF DRILL/NOTCH AS NECESSARY FOR SIZE OF CONDUIT USED.
- 12 45° ANGLE PREFERRED. MAY VARY DEPENDENT ON SITE CONDITIONS. REFRAIN FROM UNDERCUTTING THE PAVEMENT TO EXPOSE THE CONDUIT.

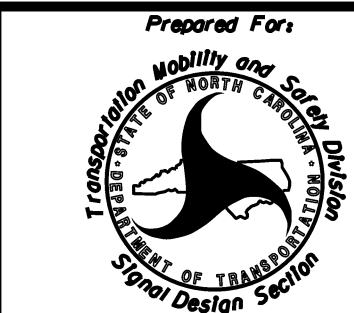


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TYPICAL INSTALLATION DETAILS-
QUARTZ SENSORS

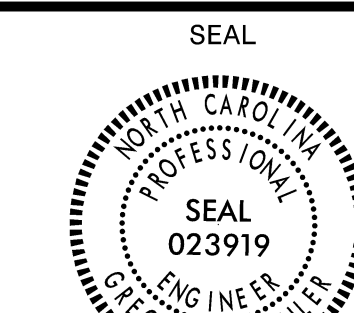
Division 07 Orange Co. Hillsborough

PLAN DATE: SEPTEMBER 2026 REVIEWED BY: S.Yow

PREPARED BY: E. Holman REVIEWED BY:

REVISIONS INIT. DATE

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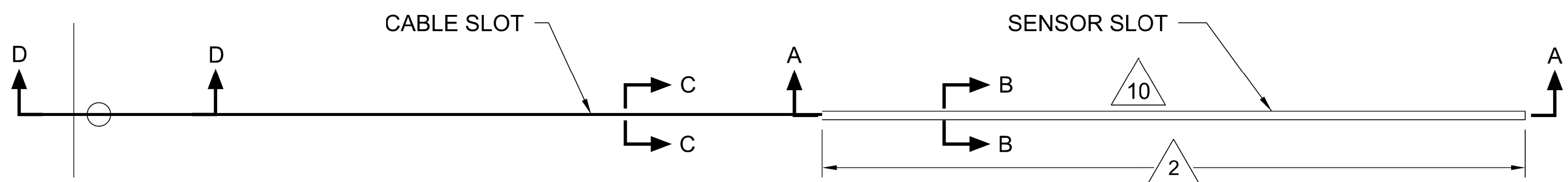


Signed by: Gregory A. Fuller

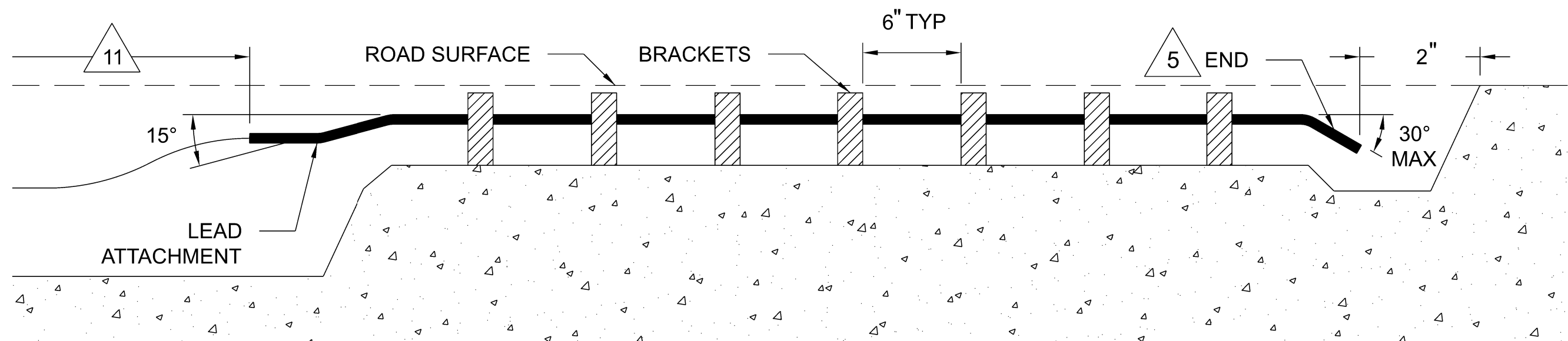
DATE 9/25/2026

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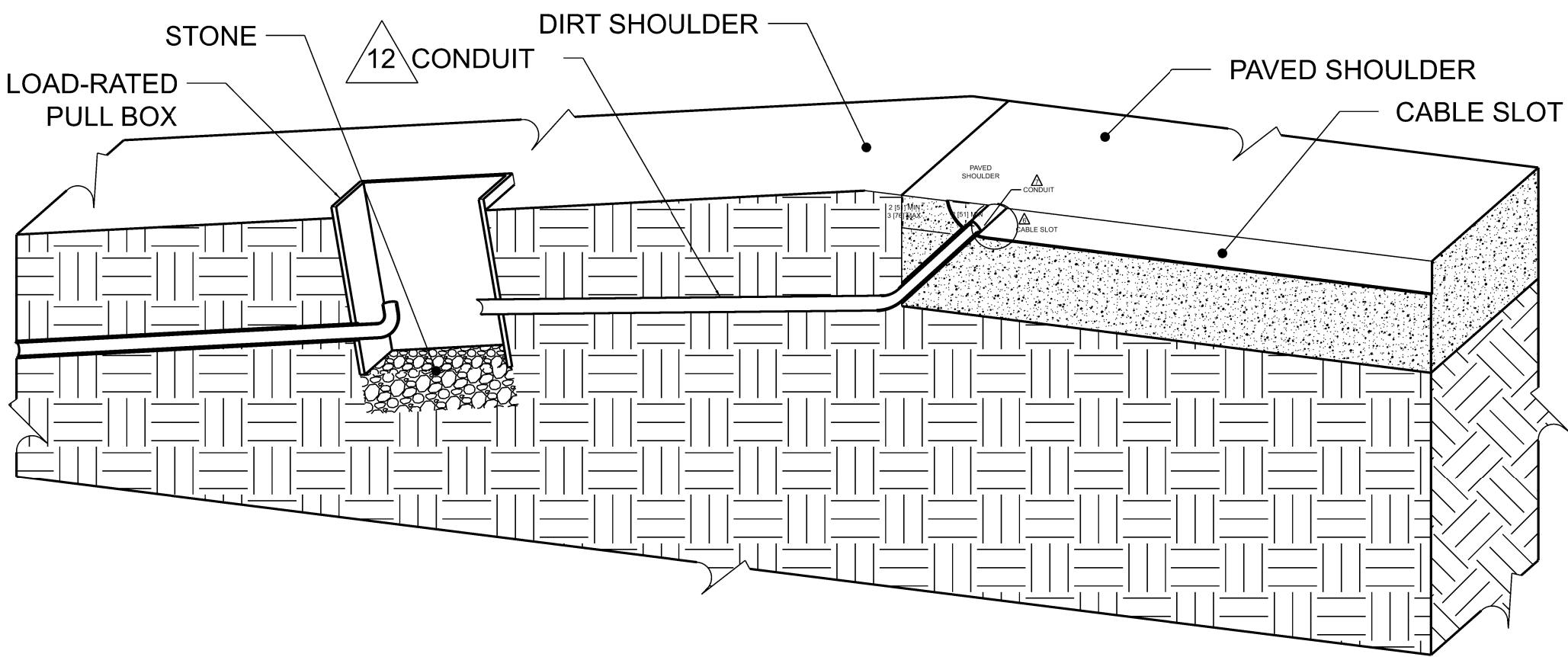
PLAN VIEW - SENSOR INSTALLATION



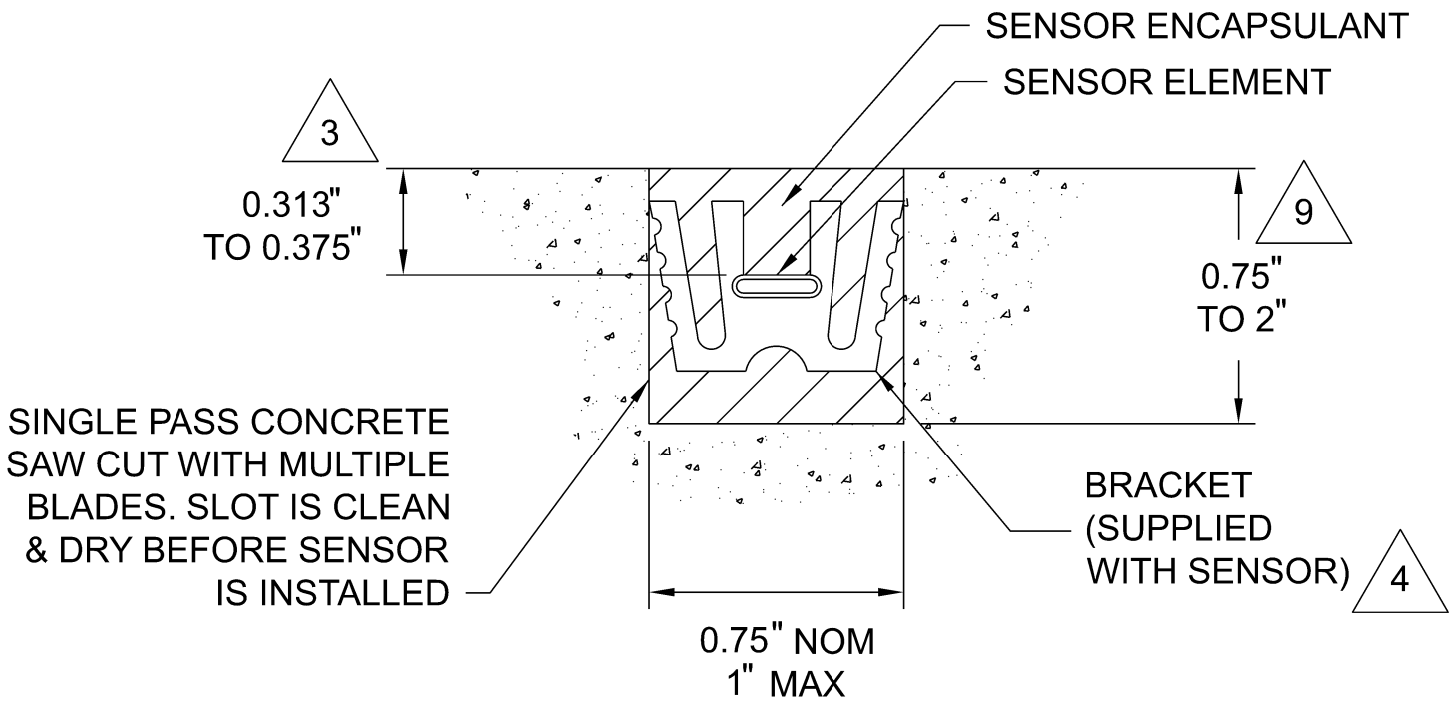
SECTION A-A



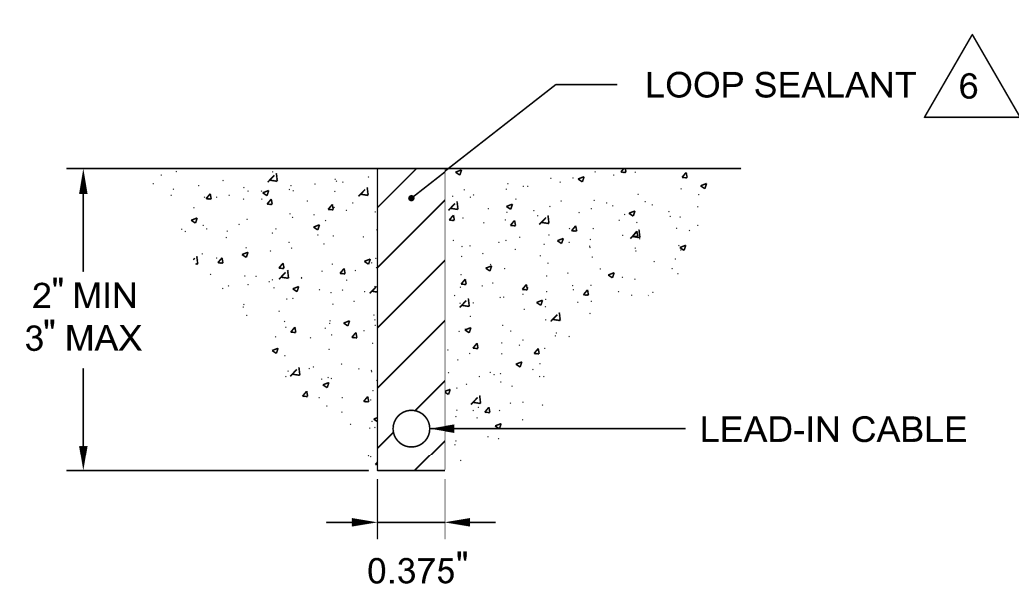
CABLE ROUTING DETAILS



SECTION B-B



SECTION C-C



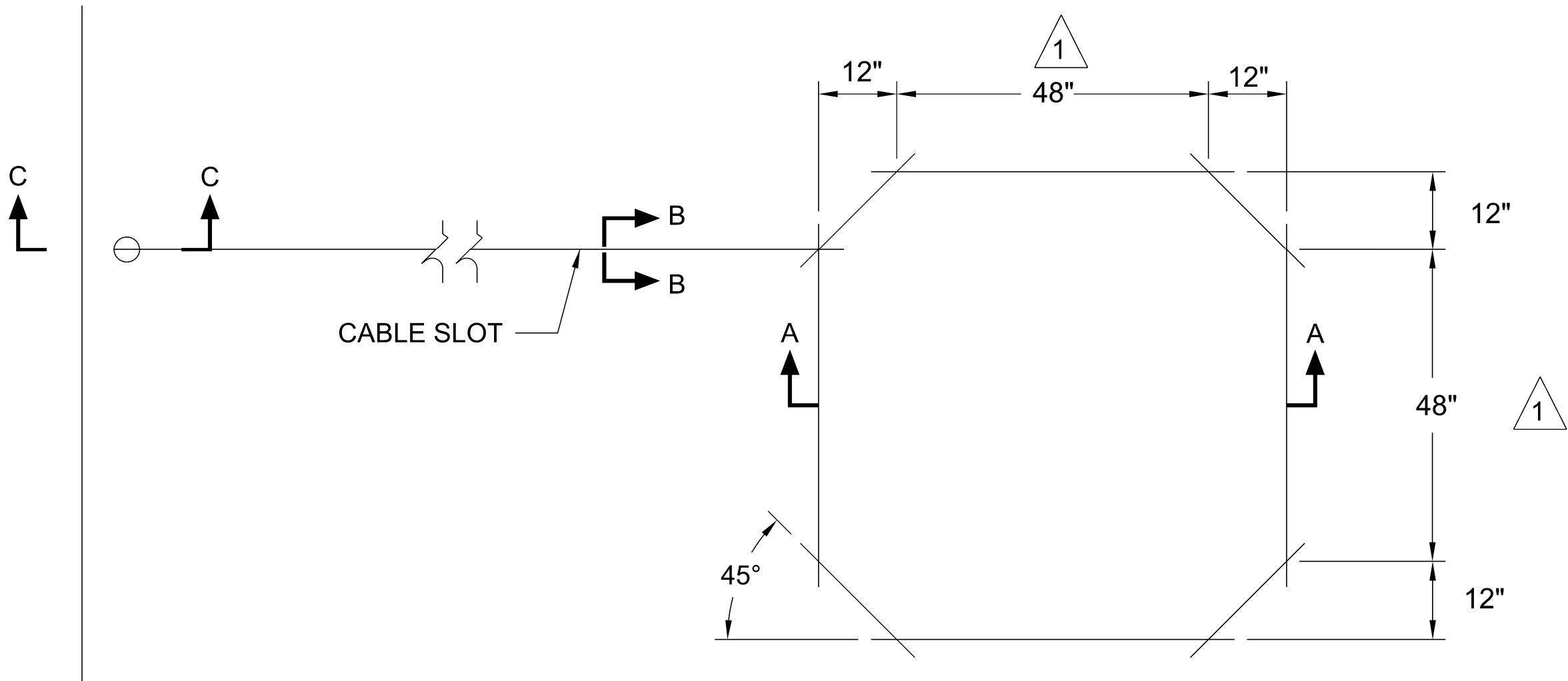
NOTES:

- 1 CRACKS OR SAW CUTS IN THE ROADWAY MUST NOT BE LOCATED CLOSER THAN 18" UPSTREAM AND 18" DOWNSTREAM OF THE QUARTZ SENSOR.
- 2 SLOT LENGTH IS 6" LONGER THAN SENSOR.
- 3 USE THE DEPTH GAGE SUPPLIED WITH EACH SENSOR TO SET THE SENSOR AT THE CORRECT DEPTH. CHECK DEPTH ALONG THE ENTIRE LENGTH OF THE SENSOR.
- 4 SPACE THE BRACKETS EVENLY OVER THE LENGTH OF THE SENSOR, USING ALL SUPPLIED BRACKETS. ONE EXTRA BRACKET IS SUPPLIED WITH EACH PIEZO SENSOR. USE ONLY IF THE SLOT IS CUT TOO WIDE.
- 5 PUT A SLIGHT BEND AT THE END OF THE SENSOR TO LOWER THE HEIGHT OF THE END CAP TO THE SAME HEIGHT AS THE SENSOR TO ENSURE SUFFICIENT DEPTH OF ENCAPSULANT ABOVE THE SENSOR.
- 6 DO NOT USE HOT TAR AS HOMERUN SEALANT.
- 7 CHECK THE RESISTANCE OF THE SENSOR BY PLACING A DIGITAL MULTIMETER ACROSS THE CENTER CONDUCTOR OF THE BNC CONNECTOR AND THE OUTER BODY. THE READING SHOULD BE INFINITY.
- 8 AFTER INSTALLATION, USE OSCILLOSCOPE OR WIM ELECTRONICS TO CONFIRM SIGNAL OUTPUT IS AS EXPECTED WHEN VEHICLE PASSES OVER.
- 9 FOR ADDITIONAL PROTECTION OF THE SENSOR, INSTALLATION DEPTH MAY BE INCREASED WITH CORRESPONDING INCREASE IN CUT DEPTH AND GROUT.
- 10 LOCATE AND ORIENT SENSOR AND CABLING ACCORDING TO THE PLANS.
- 11 ALLOW MINIMUM 3" BETWEEN LEAD ATTACHMENT AND BEGINNING OF CONDUIT.
- 12 NON-METALLIC FLEX OR PVC CONDUIT.

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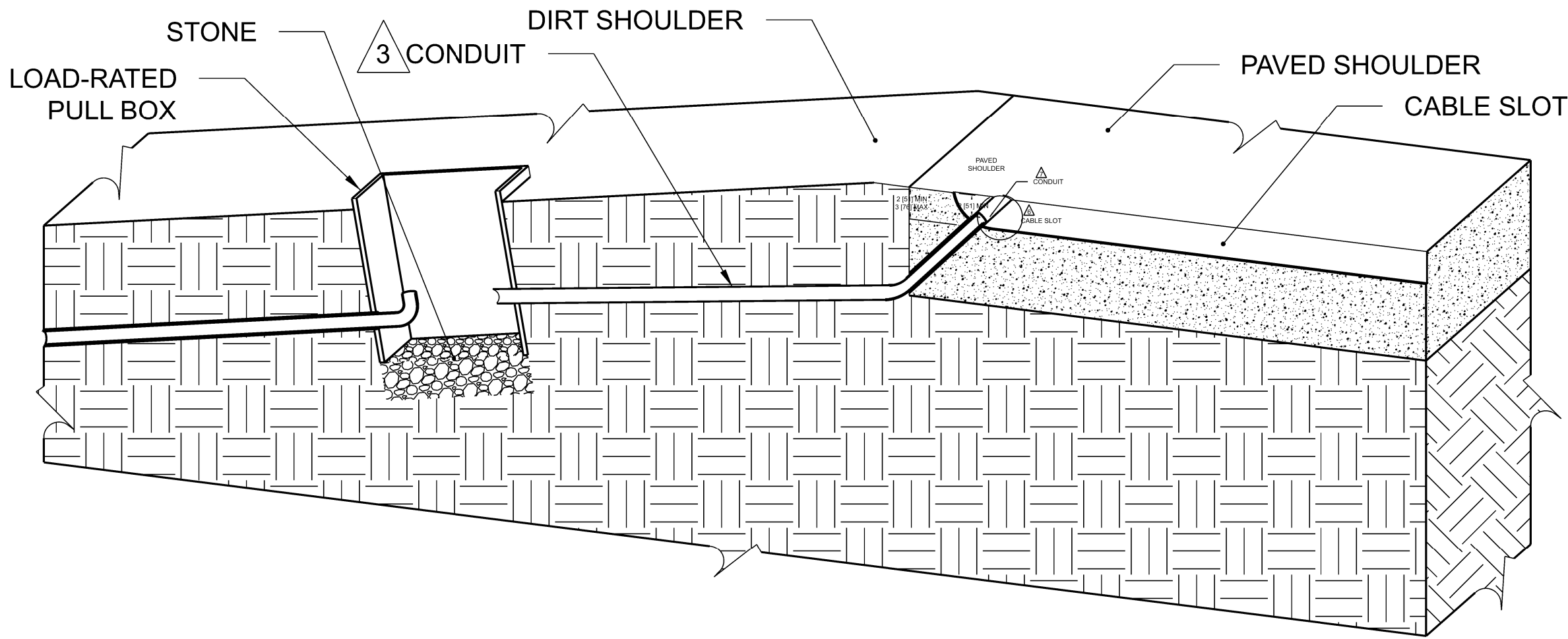
Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES NC FIRM LICENSE No: P-0339 320 Executive Court Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)	Prepared For TRANSPORTATION MOBILITY AND SAFETY DIVISION OFFICE OF TRANSPORTATION Original Design Section 750 N. Greenfield Pkwy, Garner, NC 27529	TYPICAL INSTALLATION DETAILS- PIEZO SENSORS		SEAL PROFESSIONAL ENGINEER SEAL 023919 GREGORY A. FULLER									
		Division 07 Orange Co. Hillsborough PLAN DATE: SEPTEMBER 2026 REVIEWED BY: S. Yow PREPARED BY: E. Holman REVIEWED BY: <table><tr><th>REVISIONS</th><th>INIT.</th><th>DATE</th></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></table>	REVISIONS		INIT.	DATE							
REVISIONS	INIT.	DATE											

LOOP DIMENSION DETAIL



6' x 6' LOOP SHOWN

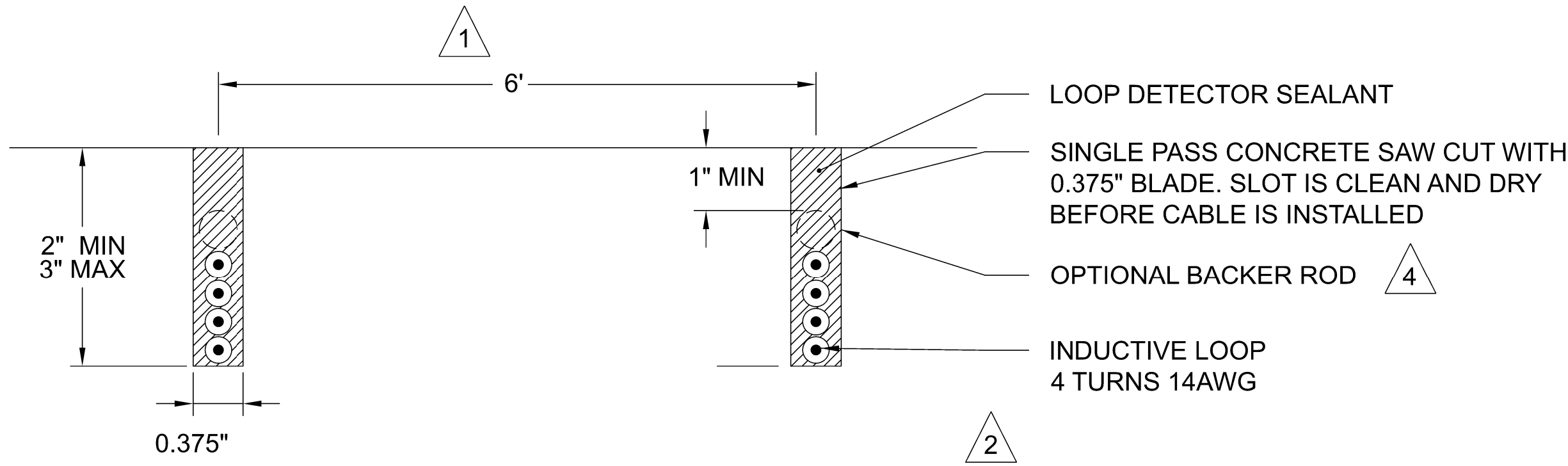
CABLE ROUTING DETAILS



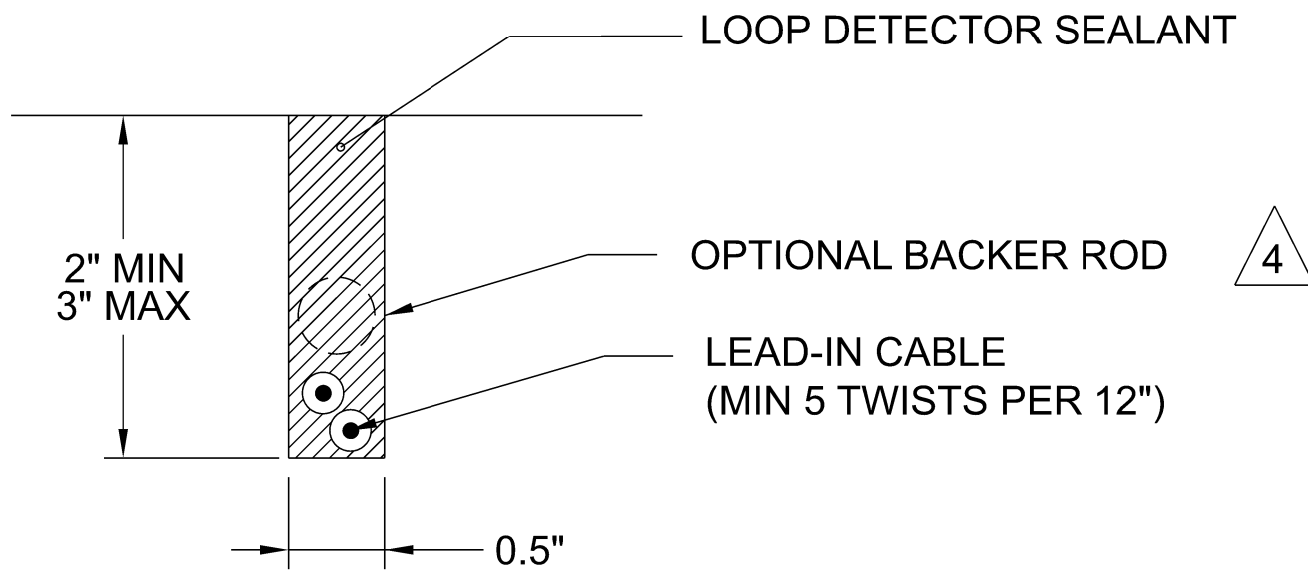
NOTES:

- 1 6' X 6' LOOPS.
- 2 MINIMUM 4 TURNS.
- 3 NON-METALLIC FLEX OR PVC CONDUIT.
- 4 INSTALL 2"-3" SECTIONS OF BACKER ROD IN THE LOOP SLOT AS NEEDED TO HOLD DOWN LOOP WIRE. USE SPARINGLY AND ONLY AS NEEDED
- 5 CORE DRILL OR CUT NOTCH IN PAVED SHOULDER FOR CONDUIT. PLUG CONDUIT OPENING WITH DUCT SEAL, COVER WITH LOOP SEALANT.
- 6 45° ANGLE PREFERRED. MAY VARY DEPENDENT ON SITE CONDITIONS. REFRAIN FROM UNDERCUTTING THE PAVEMENT TO EXPOSE THE CONDUIT.

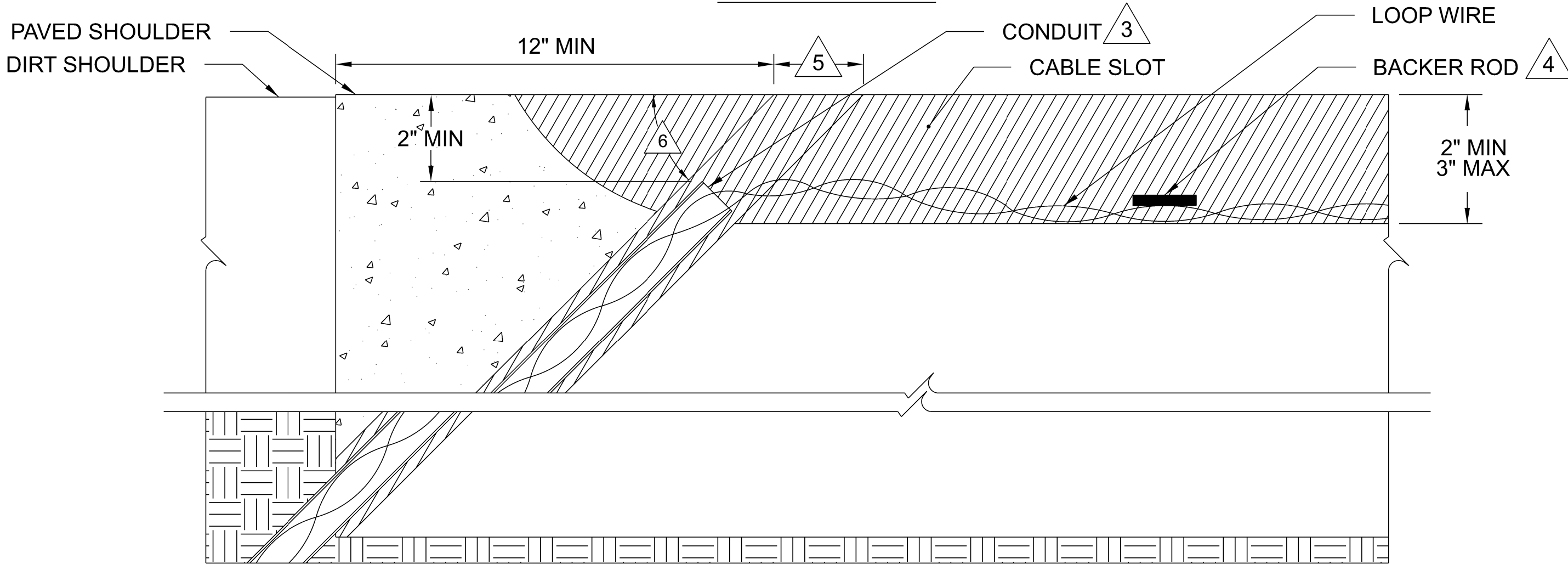
SECTION A-A



SECTION B-B



SECTION C-C

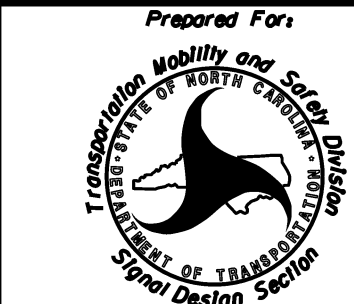


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

Prepared in the Office of:



NC FIRM LICENSE No: P-0339
320 Executive Court
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)



750 N. Greenfield Pkwy, Garner, NC 27529

SCALE

NOT TO SCALE

TYPICAL INSTALLATION DETAILS-
VEHICLE DETECTION LOOP

Division 07 Orange Co. Hillsborough

PLAN DATE: SEPTEMBER 2026 REVIEWED BY: S. Yow

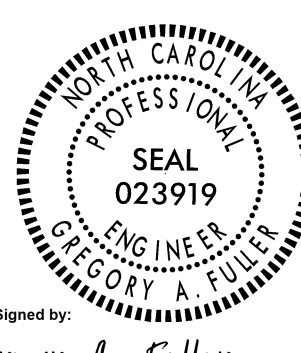
PREPARED BY: E. Holman REVIEWED BY:

REVISIONS INIT. DATE

INIT. DATE

INIT. DATE

SEAL



Signed by: Gregory A. Fuller

9/25/2026

DATE

INVENTORY NO: