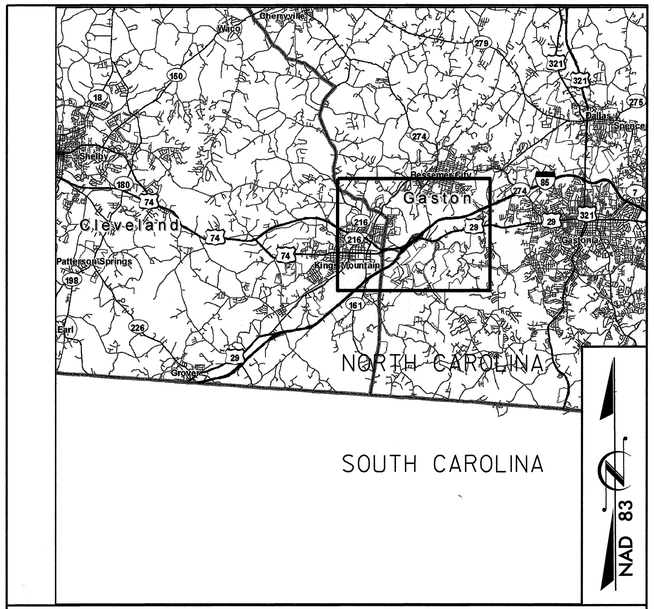
PROJECT: I-4928

CONTRACT: C203357



VICINITY MAP

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GASTON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-4928	1	1

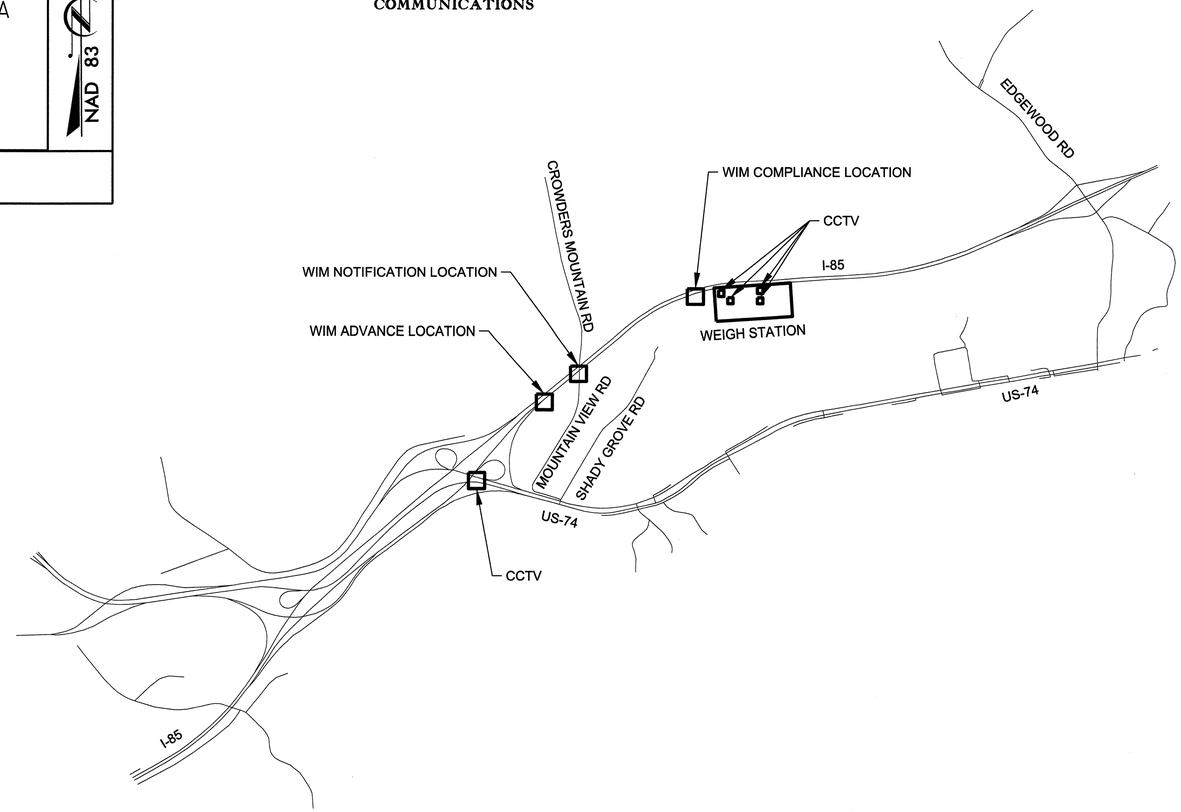
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
I-4928	IMS-85-1(106)3	

PLANS FOR PROPOSED

I-85 NB WEIGH STATION

LOCATION: I-85 NB FROM US-74 INTERCHANGE TO NEW WEIGH STATION LOCATED APPROX. 1.5 MILES BEFORE EDGEWOOD ROAD

TYPE OF WORK: WEIGH IN MOTION SYSTEM, AUTOMATIC LICENSE PLATE READERS, DYNAMIC MESSAGE BOARDS, CCTV CAMERAS, AUTOMATIC VEHICLE IDENTIFICATION EQUIPMENT, LANE CONTROL SIGNS, METAL POLES WITH MAST ARMS, CONTROL SOFTWARE INTEGRATION, USER INTERFACE, FIBER-OPTIC COMMUNICATIONS



2012 STANDARD SPECIFICATIONS

LETTING DATE: FEB. 18, 2014

PROJECT LENGTH = 2.240 MI

750 Greenfield Parkway, Garner, NC 27529

NCDOT CONTACTS:
TRANSPORTATION MOBILITY & SAFETY DIVISION
INTELLIGENT TRANSPORTATION SYSTEMS & SIGNALS UNIT
Greg Fuller, PE - State ITS & Signals Engineer
Thomas G. Parker - ITS Project Engineer

ATKINS
5200 SEVENTY SEVEN CENTER DR, SUITE 500
CHARLOTTE, NORTH CAROLINA 28217
(704) 665-4411 NCBEES #F-0326

H. ALFRED BADGETT, PE - SENIOR PROJECT ENGINEER
STEVE HAYNIE, PE - SENIOR ITS ENGINEER
BRAD SLOCUM - PROJECT ENGINEER

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HENRY ALFRED BADGETT III

H. Alfred Badgett 11/6/13

SIGNATURE *DATE*

PROJECT REFERENCE NO.	SHEET NO.
I-4928	ITS2

INDEX OF SHEETS

LEGEND

PROPOSED		EXISTING
TWIST PR	CAT 5E CABLE	N/A
FO	OVERHEAD FIBER OPTIC CABLE	EXI
DD	DIRECTIONAL DRILLED CONDUIT	N/A
B&J	NEW BORED AND JACKED CONDUIT	N/A
	TRENCHED CONDUIT	
	WOOD POLE	
	AVI ANTENNA WITH MASTARM	N/A
	STANDARD JUNCTION BOX	
	OVERSIZED /SPECIAL SIZED JUNCTION BOX	
E	ELECTRIC JUNCTION BOX	E
	STANDARD INDUCTIVE LOOP DETECTOR	
	CAMERA ASSEMBLY	
	EQUIPMENT CABINET	
S	POLE MOUNTED SPLICE CABINET	N/A
CCTV-X	CCTV CAMERA NUMBER	N/A
	OVERHEAD SIGN ASSEMBLY	N/A
N/A	GROUND MOUNTED SIGN	
	OVERHEIGHT DETECTOR	N/A
	PIEZOELECTRIC AXLE SENSOR	N/A
	PIEZOELECTRIC QUARTZ SENSOR	N/A
×	DRILL THROUGH SHOULDER FOR CONDUIT	N/A
	TWO SECTION TRAFFIC SIGNAL	N/A
S	SPLICE ENCLOSURE	N/A
DMS	DMS SIGN	N/A

GENERAL NOTES

1. THE FIELD LOCATION OF ANY ITEM TO BE INSTALLED AS PART OF THIS PROJECT SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

2. BURIED UTILITIES AND STRUCTURES: PIPELINES, STORM SEWERS, POWER CABLES, UTILITY CABLES, AND OTHER PUBLICLY AND PRIVATELY OWNED UNDERGROUND OBSTRUCTIONS MAY EXIST ADJACENT TO AND WITHIN THE ROADWAY RIGHT-OF-WAY WITHIN THE CONSTRUCTION LIMITS OF THIS PROJECT. INVESTIGATE THE LOCATION OF SUCH BURIED UTILITIES AND STRUCTURES WITH PUBLIC AND PRIVATE UTILITIES.

3. THE PLAN SHEETS HAVE BEEN DEVELOPED AS CLOSE TO SCALE AS PRACTICAL. ACTUAL FIELD CONDITIONS, HOWEVER, SHALL PROVIDE THE BASIS FOR APPLYING THE WORK SHOWN.

4. THE ROADWAY STANDARD DRAWINGS AND THE SPECIFIC DETAILS PROVIDED IN THIS PLAN SET SHALL ALL APPLY TO ALL WORK REQUIRED IN THIS PROJECT. WHETHER A PARTICULAR DETAIL IS SPECIFICALLY REFERENCED TO A WORK ITEM OR NOT, IN THE EVENT OF A CONFLICT, THE ORDER OF PRECEDENCE SHALL BE: THE PROJECT SPECIAL PROVISIONS, THE SPECIAL DETAILS, THE STANDARD DETAILS, THE ROADWAY STANDARD DRAWINGS, AND THEN THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR APPLYING THE PROPER DETAILS.

5. ANY OF THE CONTRACTOR'S WORK ACTIVITIES WHICH IMPACT ANY UTILITY FACILITY SHALL BE COORDINATED WITH THE OWNER OF ALL AFFECTED UTILITIES. THE CONTRACTOR SHALL FOLLOW ANY AND ALL WORK PROCEDURES THE UTILITY OWNERS MAY REQUIRE.

6. ALL WORK SHOWN ON THESE PLANS SHALL BE PERFORMED BY THE CONTRACTOR UNLESS IT IS SPECIFICALLY NOTED THAT THE WORK WILL BE PERFORMED BY OTHERS.

ABBREVIATIONS

ALPR	AUTOMATED LICENCE PLATE RECOGNITION
AVI	AUTOMATIC VEHICLE IDENTIFICATION
HDPE	HIGH DENSITY POLYETHYLENE
L	LOOP DETECTOR
N.T.S.	NOT TO SCALE
P	PIEZOELECTRIC AXLE SENSOR
S	SCALE
WIM	WEIGH IN MOTION
COMP	COMPOSITE CABLE
K	PIEZOELECTRIC QUARTZ SENSOR

ATKINS 5200 77 CENTER DR, SUITE 500 CHARLOTTE, NC 28217 704.665.4411 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

Index of Sheets, General Notes, and Abbreviations

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

SCALE	REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HENRY ALFRED BADGETT III
SIGNATURE 11/6/13 DATE

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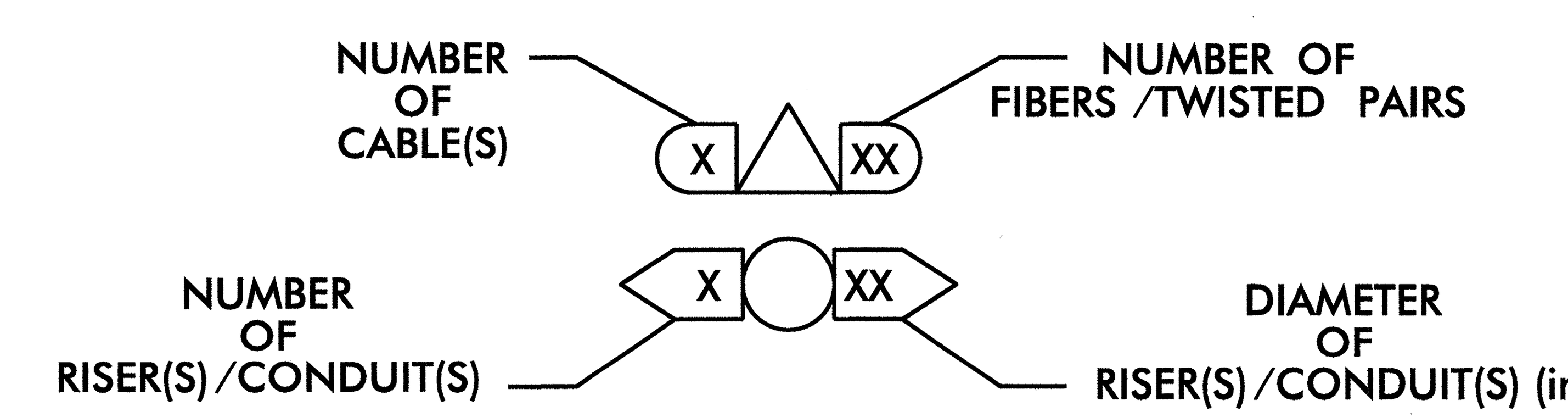
23653

Note	Description
1	INSTALL REA, PE – 22, SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
2	INSTALL REA, PE – 38, (FIGURE – 8) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
3	INSTALL CAT 5E CABLE
3A	INSTALL #14 CONDUCTOR POWER CABLE(S)
3B	INSTALL AVI CABLE(S) *
3C	INSTALL OVERHEIGHT DETECTOR CABLE(S) *
3D	INSTALL PIEZOELECTRIC QUARTZ SENSOR CABLES *
3E	INSTALL LOOP WIRE
3F	INSTALL LEAD–IN CABLE
3G	INSTALL CCTV COMPOSITE CABLE(S) *
3H	INSTALL PIEZOELECTRIC SENSOR CABLE(S) *
3I	INSTALL BENDING PLATE SENSOR CABLES *
3J	INSTALL ALPR COMPOSITE CABLE(S) *
3K	INSTALL NO. 4 ELECTRICAL CONDUCTORS
3L	INSTALL NO. 8 ELECTRICAL CONDUCTORS
4	INSTALL SMFO CABLE
5	INSTALL SIGNAL CABLE
6	INSTALL FIBER OPTIC DROP CABLE
7	INSTALL TRACER WIRE
8	INSTALL CONDUIT UNDERGROUND
8A	SAW CUT PAVEMENT
9	INSTALL PVC CONDUIT
10	INSTALL RIGID, GALVANIZED STEEL CONDUIT
11	INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
13	INSTALL OUTER–DUCT POLYETHYLENE CONDUIT
14	INSTALL POLYETHYLENE CONDUIT
15	DIRECTIONAL DRILL CONDUIT
18	INSTALL CABLE(S) IN NEW CONDUIT
19	INSTALL CABLE(S) UNDER RAISED FLOOR
20	INSTALL CABLE(S) IN NEW RISER
21	INSTALL CABLE(S) IN NEW CONDUIT STUBOUTS
24	INSTALL NEW CONDUIT INTO NEW POLE MOUNTED CABINET
25	INSTALL NEW RISER INTO NEW POLE MOUNTED CABINET
26	INSTALL DIGITAL VIDEO ENCODER
27	INSTALL NEW ETHERNET EDGE SWITCH IN CABINET
28	INSTALL COMMUNICATIONS RACK WITH INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE
29	INSTALL UNDERGROUND SPLICE ENCLOSURE
30	INSTALL SPLICE CENTER, PATCH PANEL, JUMPERS AND FUSION SPLICE CABLE
31	INSTALL POLE MOUNTED CABINET
32	INSTALL BASE MOUNTED CABINET
33	INSTALL BASE EXTENDER
34	INSTALL CABINET FOUNDATION
35	INSTALL STEEL PEDESTAL POLE FOUNDATION
36	INSTALL CCTV CAMERA ASSEMBLY
36A	INSTALL STATIONARY CCTV CAMERA ASSEMBLY
37	INSTALL CCTV CAMERA WOOD POLE
38	INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
39	INSTALL SPECIAL SIZED JUNCTION BOX
40	INSTALL OVERSIZED JUNCTION BOX
41	INSTALL STANDARD JUNCTION BOX
42	INSTALL PEDESTAL TYPE STRUCTURE AND DMS
43	INSTALL STEEL PEDESTAL POLE
44	INSTALL CENTRAL CONTROL SOFTWARE
45	INSTALL WORKSTATION
46	INSTALL ALPR CAMERA
47	INSTALL OVERVIEW CAMERA
48	INSTALL ADVANCE LOCATION WIM ELECTRONICS
49	INSTALL COMPLIANCE LOCATION WIM ELECTRONICS
50	INSTALL SCALE HOUSE WIM ELECTRONICS
51	INSTALL CENTRAL VIDEO SOFTWARE
52	INSTALL DELINEATOR MARKER
53	STORE 50 FEET OF COMMUNICATIONS CABLE
54	INSTALL STEEL MONOPOLE
55	INSTALL MANAGED ETHERNET SWITCH
56	INSTALL PRINTER
57	MODIFY EXISTING ELECTRICAL SERVICE
58	INSTALL NEW ELECTRICAL SERVICE (OVERHEAD)
58A	INSTALL SERVICE DISCONNECT
59	INSTALL PIEZOELECTRIC QUARTZ SENSORS
60	INSTALL AVI ANTENNA
61	INSTALL METAL POLE WITH HINGED MAST ARM
61A	INSTALL METAL POLE WITH MONOTUBE GANTRY STRUCTURE
62	INSTALL COMMUNICATIONS RACK IN CABINET
63	INSTALL STANDARD 6′ X 6′ INDUCTIVE LOOP
64	INSTALL PIEZOELECTRIC AXLE SENSOR
65	INSTALL OVER–HEIGHT DETECTOR
66	BOND RISER TO POLE GROUND
67	INSTALL LANE CONTROL SIGNALS
68	INSTALL NETWORK MANAGEMENT SOFTWARE
69	INSTALL AVI READER
70	INSTALL METAL POLE FOUNDATION
71	INSTALL OPEN/CLOSED DMS PANEL
72	INSTALL RACK MOUNTED SERVER
73	INSTALL TWO SECTION TRAFFIC SIGNAL
74	INSTALL WALL MOUNTED CABINET WITH COMMUNICATIONS RACK
75	INSTALL WOOD POLE
76	INSTALL NEW ELECTRICAL SERVICE (UNDERGROUND)

* CABLES SHALL BE PER EQUIPMENT MANUFACTURER'S RECOMMENDATIONS

CONSTRUCTION NOTE SYMBOLOGY KEY

- (X) INDICATES NUMBER OF CABLES, LOOPS, ETC.
- (XX) INDICATES NUMBER OF FIBERS PER CABLE, TWISTED PAIRS PER CABLE, ETC.
- <X INDICATES NUMBER OF RISER(S)/CONDUIT(S)
- XX> INDICATES DIAMETER OF RISER(S)/CONDUIT(S) (in)



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750 N. Greenfield Pkwy., Garner, NC 27529

SCALE

Construction Notes

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19962 HENRY ALFRED BADGETT, III

H. Alfred Badgett 11/6/13
SIGNATURE DATE

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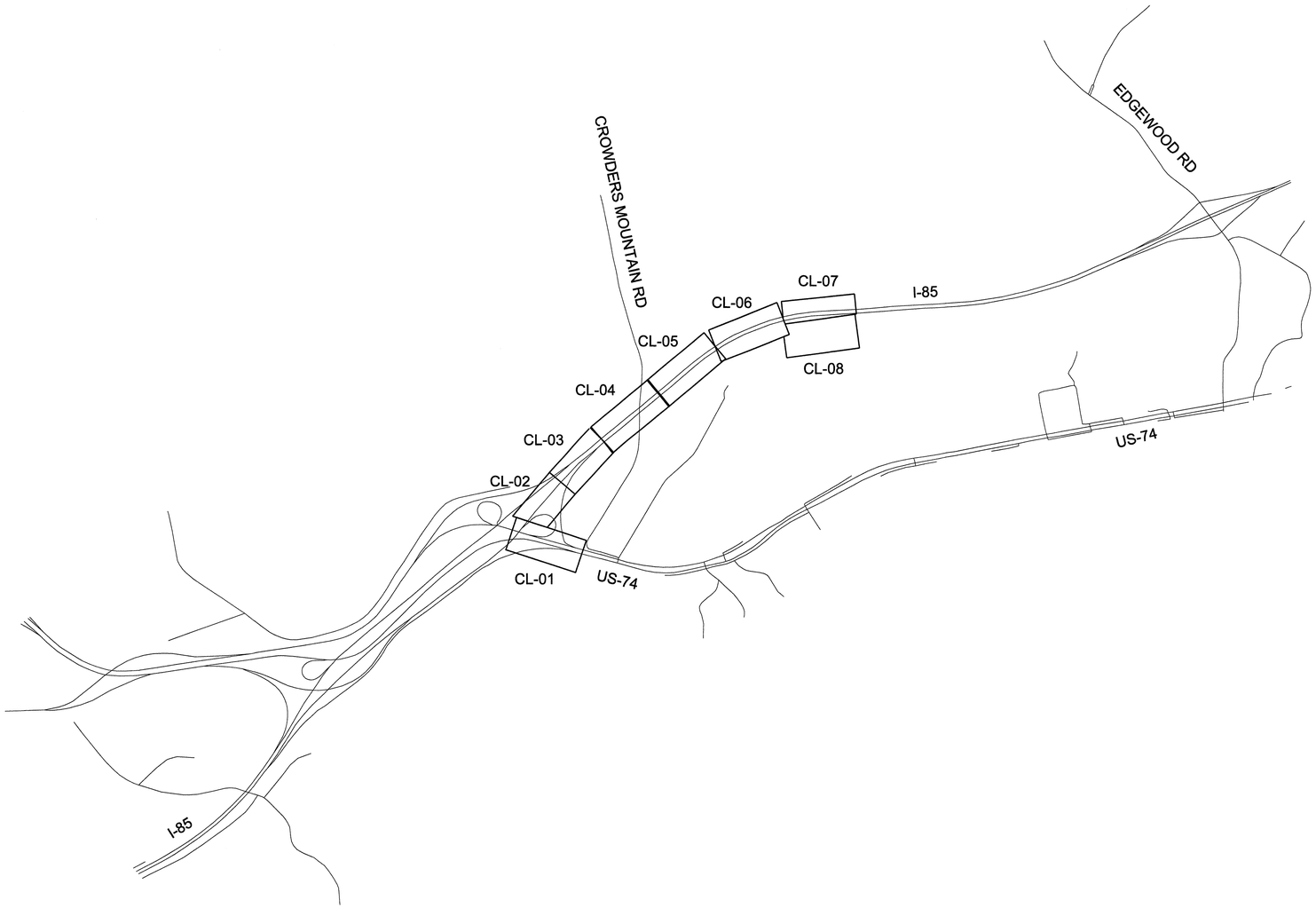
PROJECT REFERENCE NO.	SHEET NO.
I-4928	ITS4



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DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

Cable Layout Plans
Key Sheet

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

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19962
ENGINEER
HENRY ALFRED BAGGETT

SIGNATURE DATE 11/6/13

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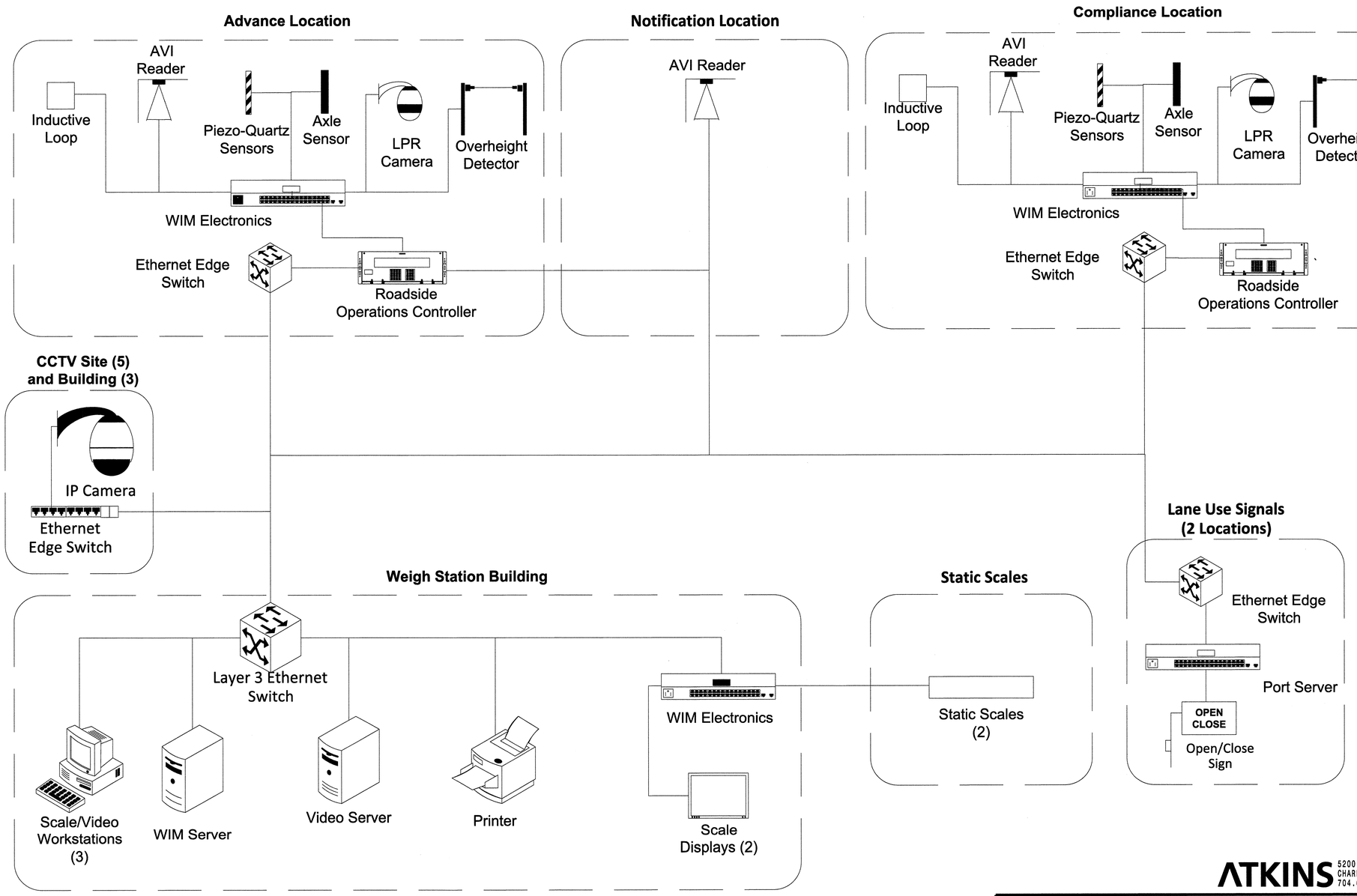

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

Block Diagram

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

SCALE

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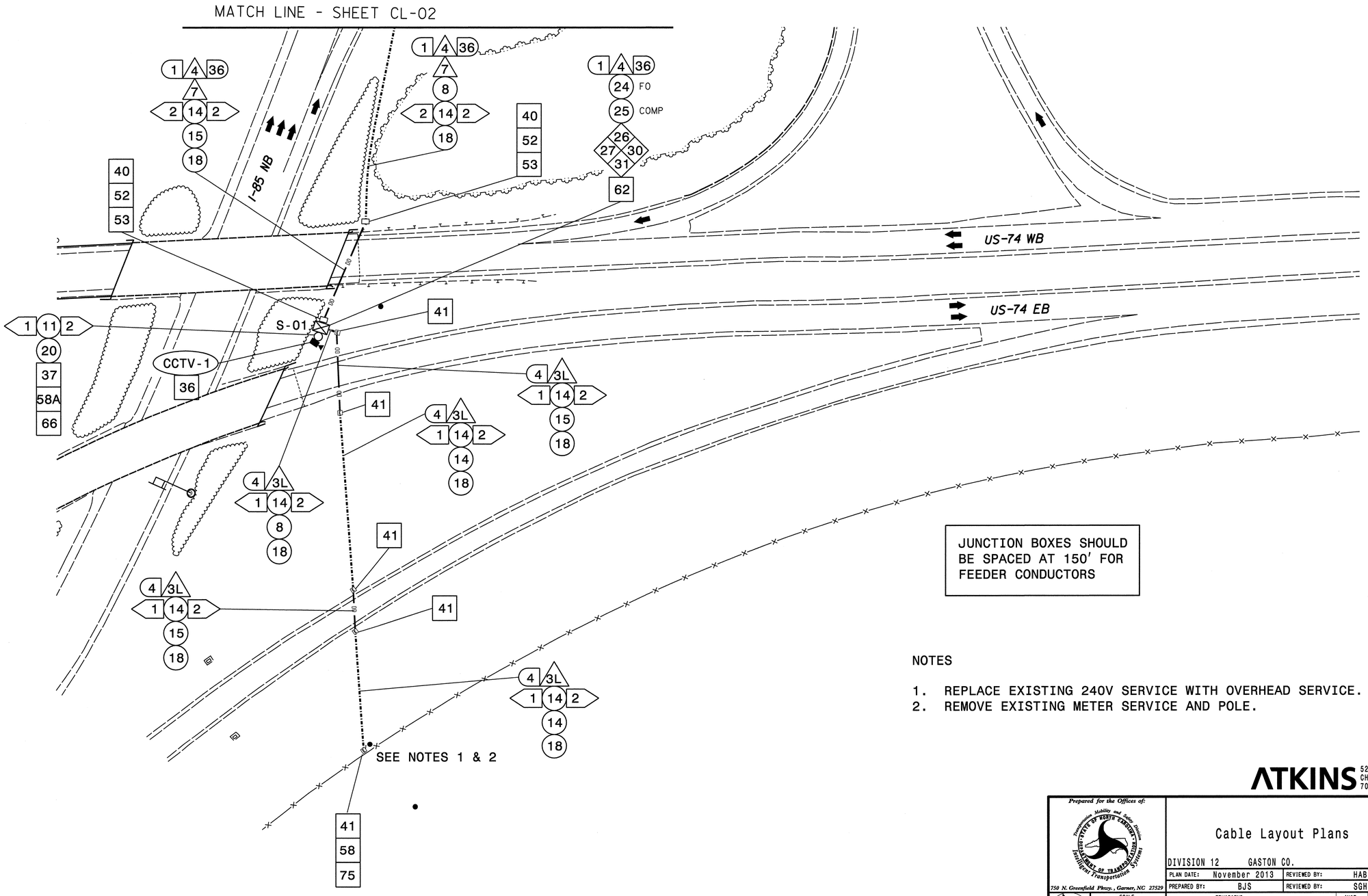

JUNCTION BOXES SHOULD BE SPACED AT 150′ FOR FEEDER CONDUCTORS

NOTES

1. REPLACE EXISTING 240V SERVICE WITH OVERHEAD SERVICE.
2. REMOVE EXISTING METER SERVICE AND POLE.

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

Cable Layout Plans

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

REVISIONS	INIT.	DATE

SCALE 0 50 1" = 50'

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HENRY ALFRED BADGETT III

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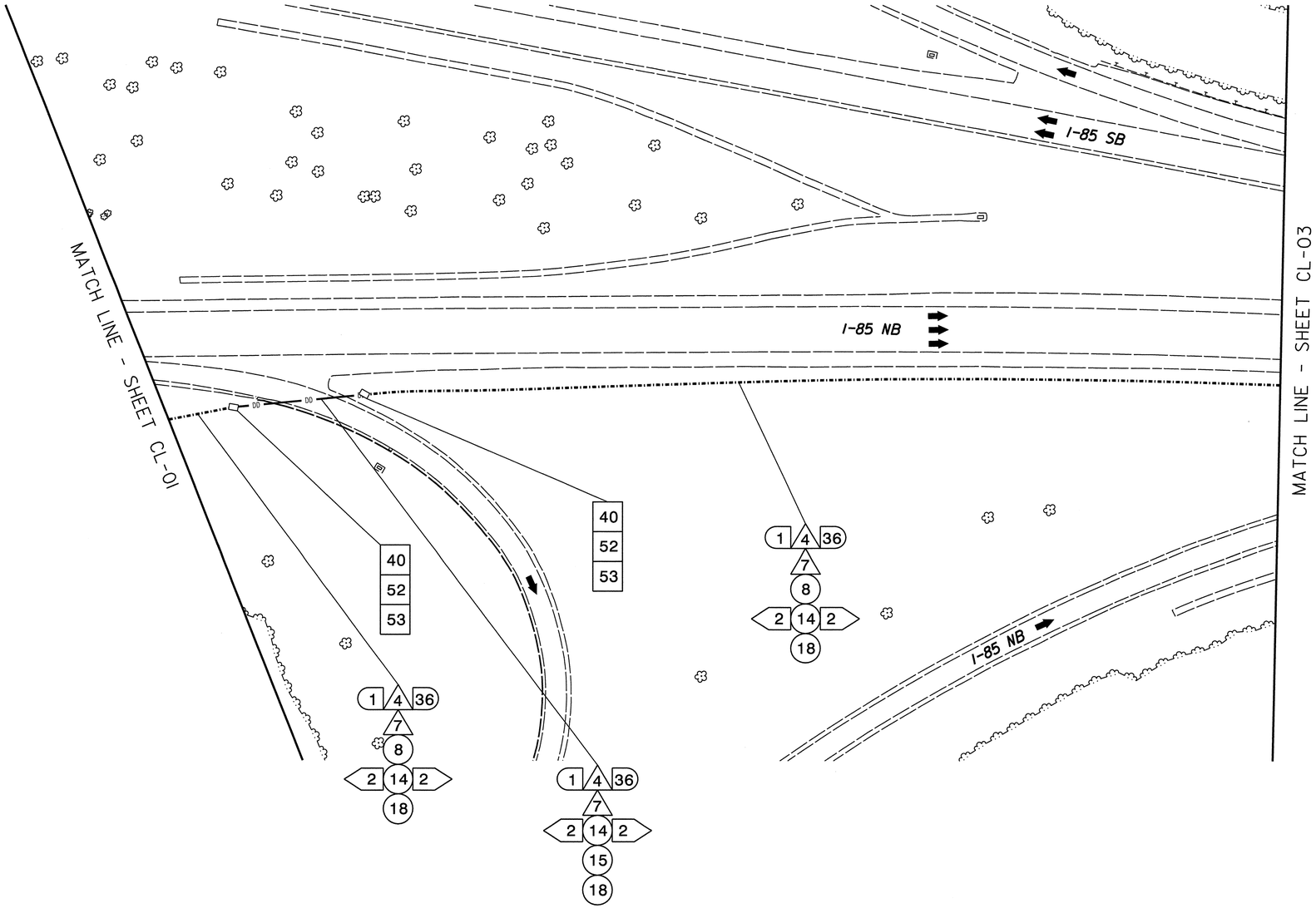

JUNCTION BOXES SHOULD BE SPACED AT 150' FOR FEEDER CONDUCTORS

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DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

Cable Layout Plans

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
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SEAL
NORTH CAROLINA PROFESSIONAL
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H Alfred Badgett 11/6/13
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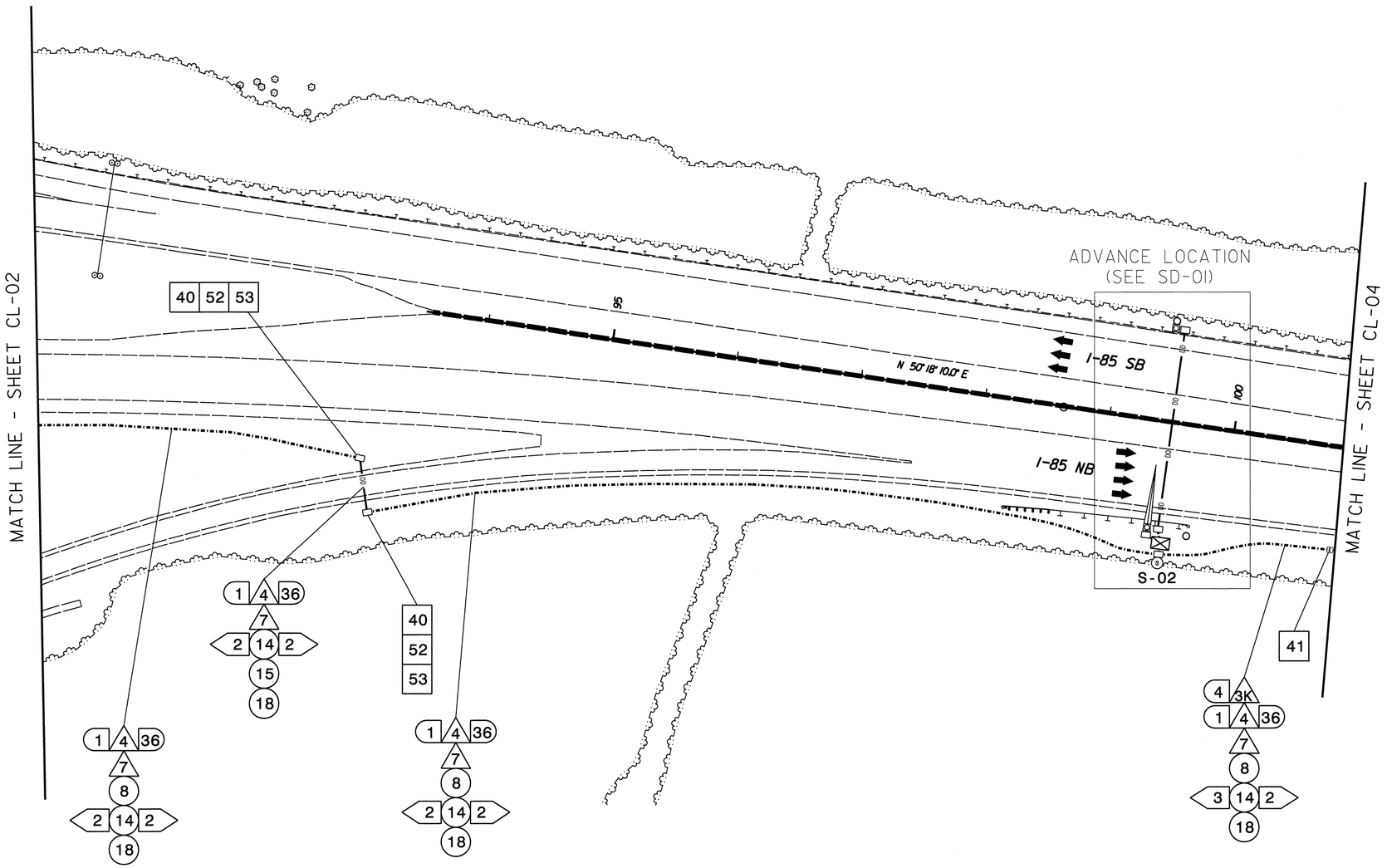

JUNCTION BOXES SHOULD BE SPACED AT 150' FOR FEEDER CONDUCTORS

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Cable Layout Plans

DIVISION 12 GASTON CO.

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SCALE 0 50 1" = 50'

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ENGINEER

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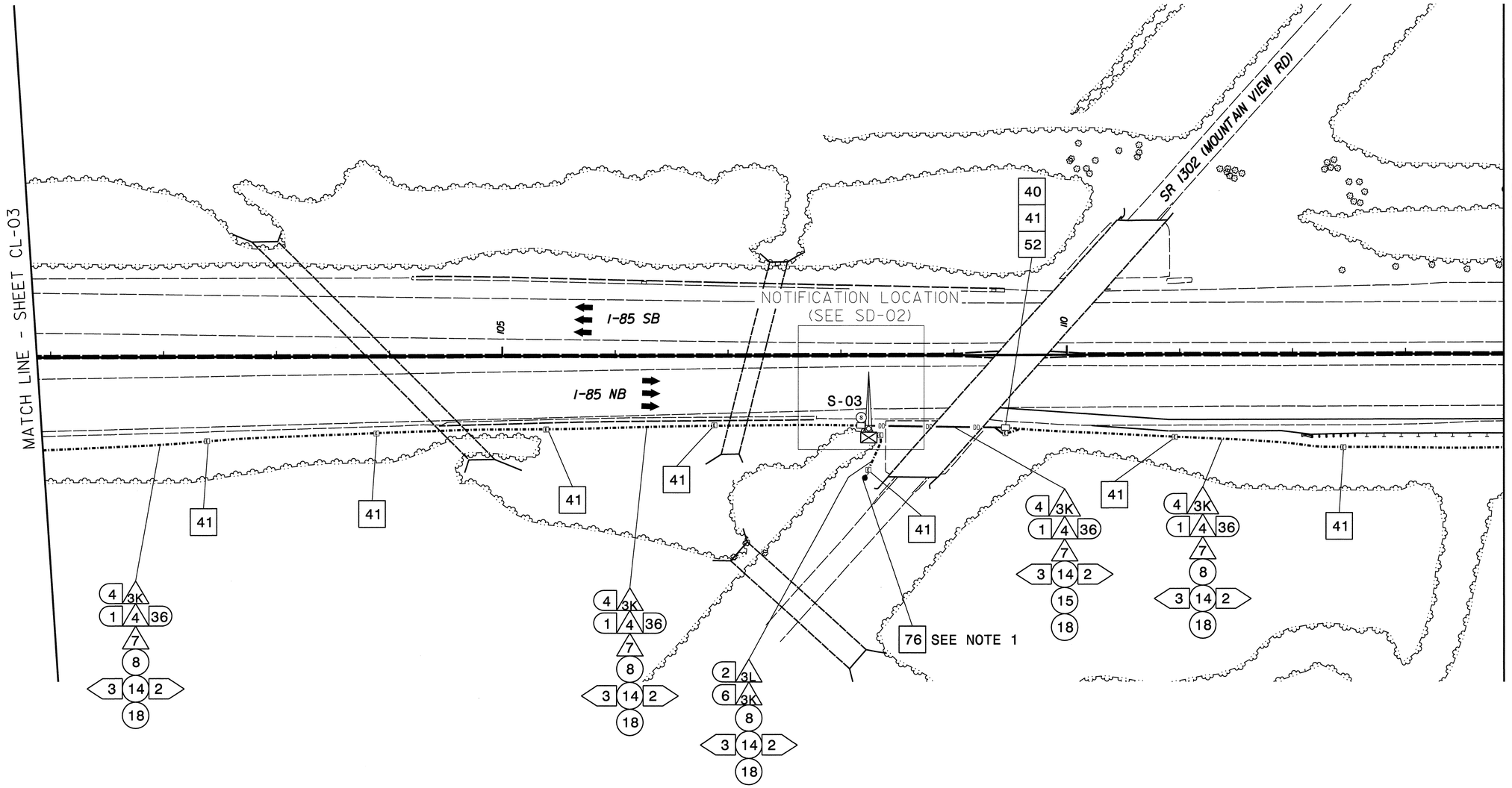

NOTES

1. INSTALL UNDERGROUND ELECTRIC SERVICE.

JUNCTION BOXES SHOULD BE SPACED AT 150′ FOR FEEDER CONDUCTORS

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750 N. Greenfield Pkwy., Garner, NC 27529

Cable Layout Plans

DIVISION 12 GASTON CO.

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SCALE 0 50 1″ = 50′

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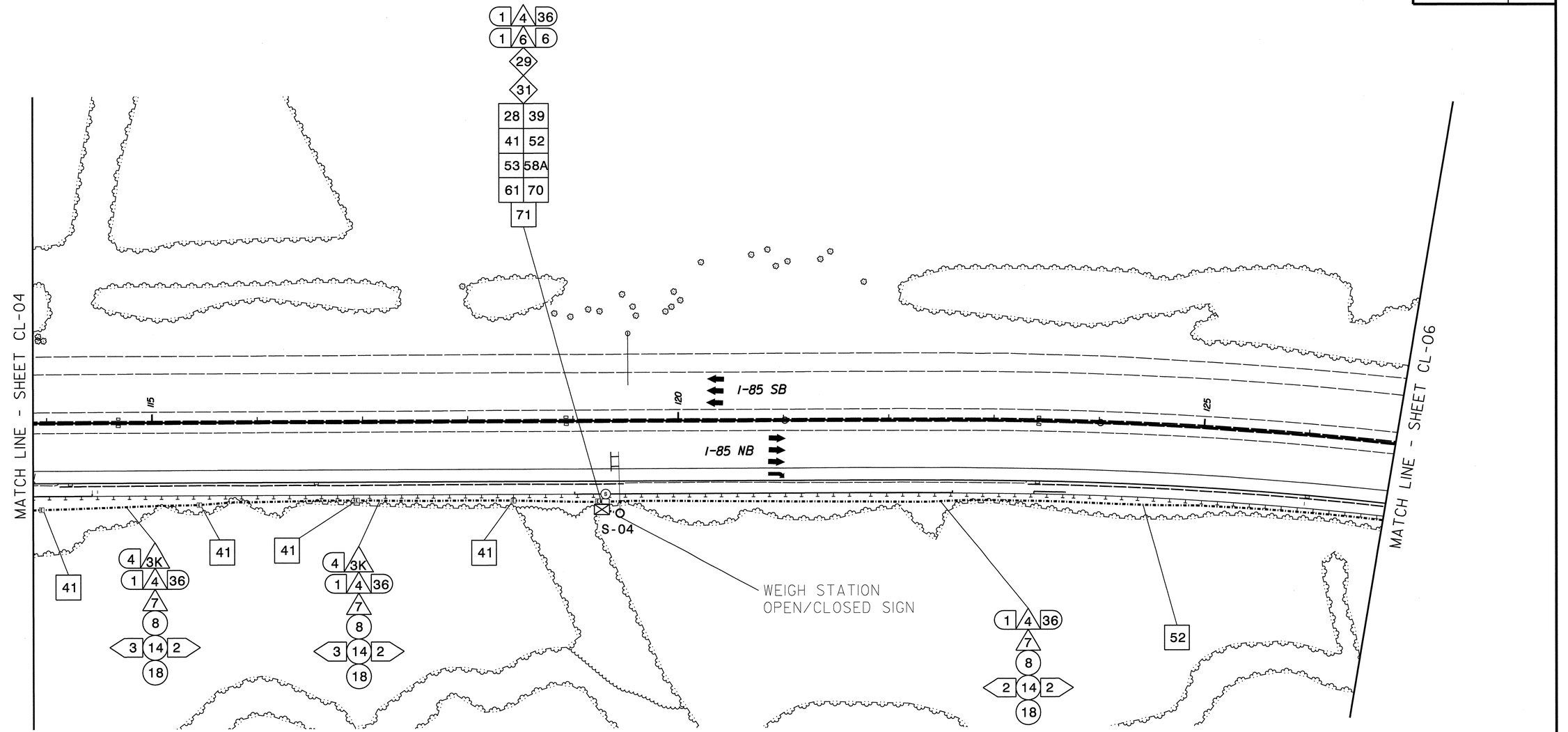

JUNCTION BOXES SHOULD BE SPACED AT 150' FOR FEEDER CONDUCTORS

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Cable Layout Plans

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
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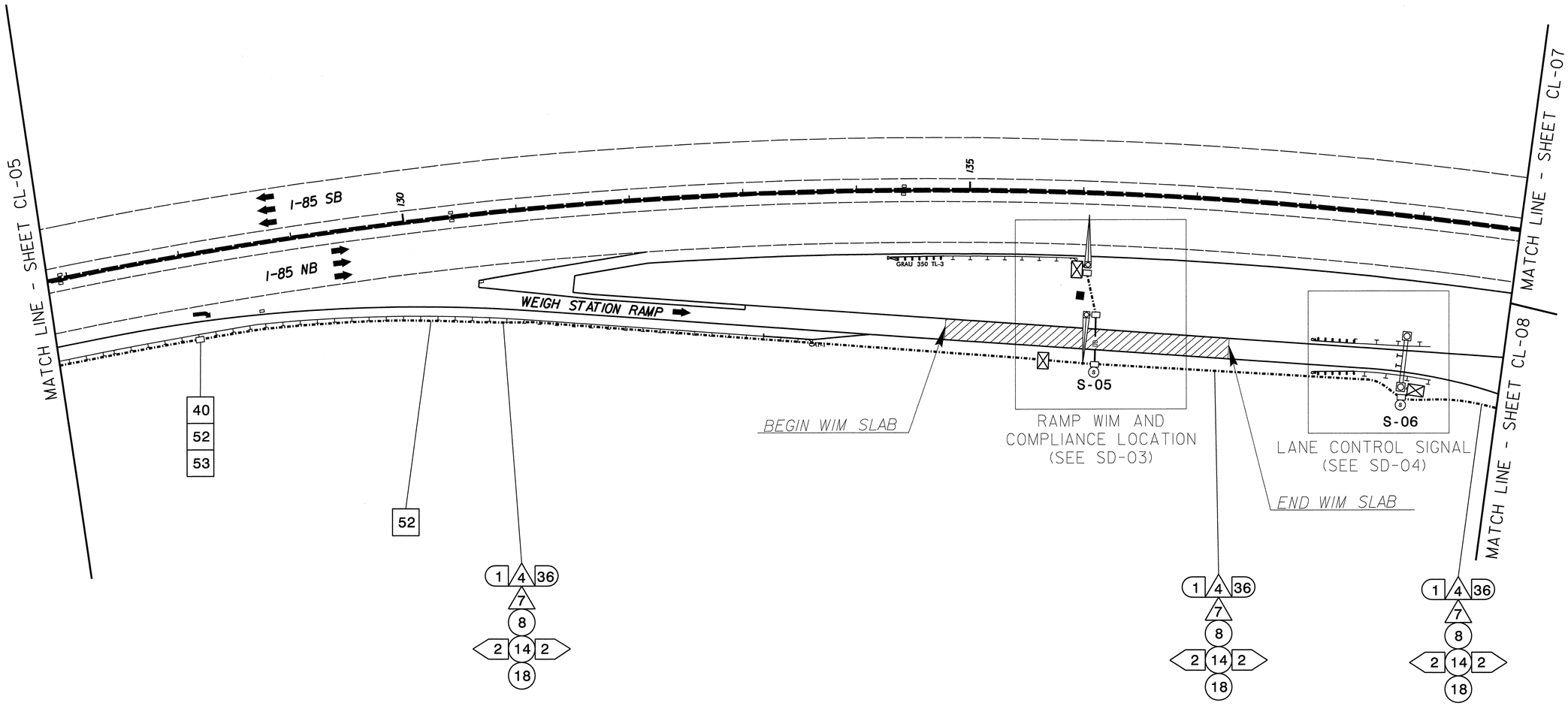

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750 N. Greenfield Pkwy., Garner, NC 27529

Cable Layout Plans

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
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SCALE 0 50 1" = 50'

REVISIONS	INIT.	DATE

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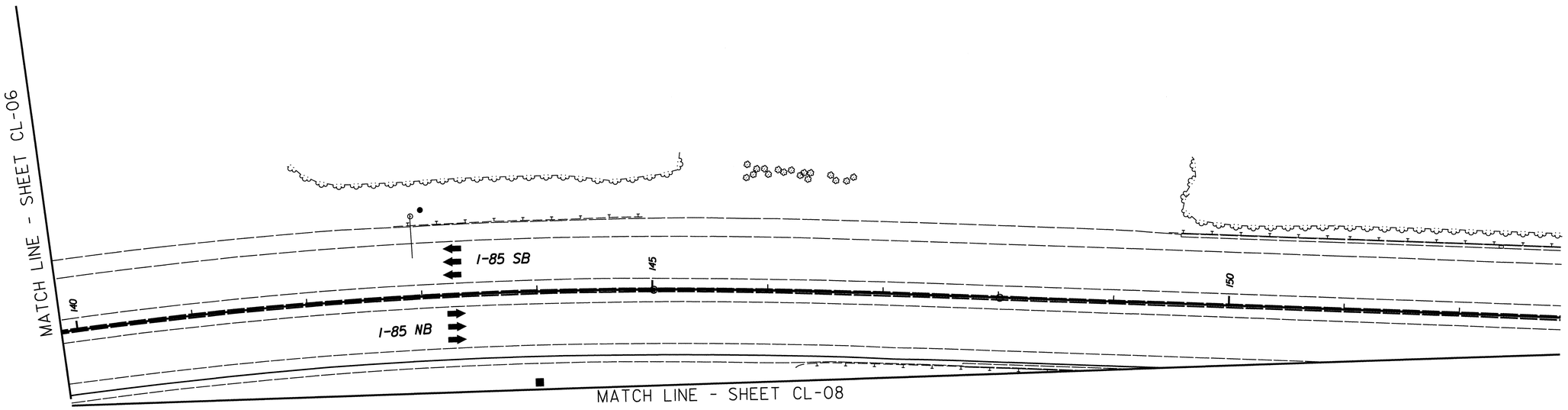

NO WORK THIS SHEET

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE
0 50
1" = 50'

Cable Layout Plans

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

REVISIONS	INIT.	DATE

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HENRY ALFRED BADGETT III

SIGNATURE DATE 11/6/13

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23653

PROJECT REFERENCE NO.	SHEET NO.
I-4928	CL-08

MATCH LINE - SHEET CL-06

MATCH LINE - SHEET CL-07

LANE CONTROL SIGNAL
(SEE SD-04)

S-07

S-08

S-09

S-10

S-11

S-12

S-13

CCTV-2

CCTV-3

CCTV-4

CCTV-5

DMS

STATIC SCALE

STATIC SCALE

SCALE HOUSE
BUILDING
(SEE SD-08)

INSPECTION
BUILDING

INSPECTION BUILDING
(SEE SD-10, SD-11)

SEE NOTE 2

SEE NOTE 2

SEE NOTE 2

FO

COMP

NOTES:

1. SEE ELECTRICAL LIGHTING LAYOUT PLANS FOR ELECTRICAL SERVICE CONDUITS AND EQUIPMENT.
2. SEE BUILDING PLANS FOR JUNCTION BOXES NEAR BUILDINGS.

ATKINS
5200 77 CENTER DR, SUITE 500
CHARLOTTE, NC 28217
704.665.4411 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

Cable Layout Plans

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

REVISIONS	INIT.	DATE

SCALE
0 50
1" = 50'

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
19962
ENGINEER
HENRY ALFRED BADGETT III

SIGNATURE DATE 11/6/13

CADD Filename: CL-08.dgn

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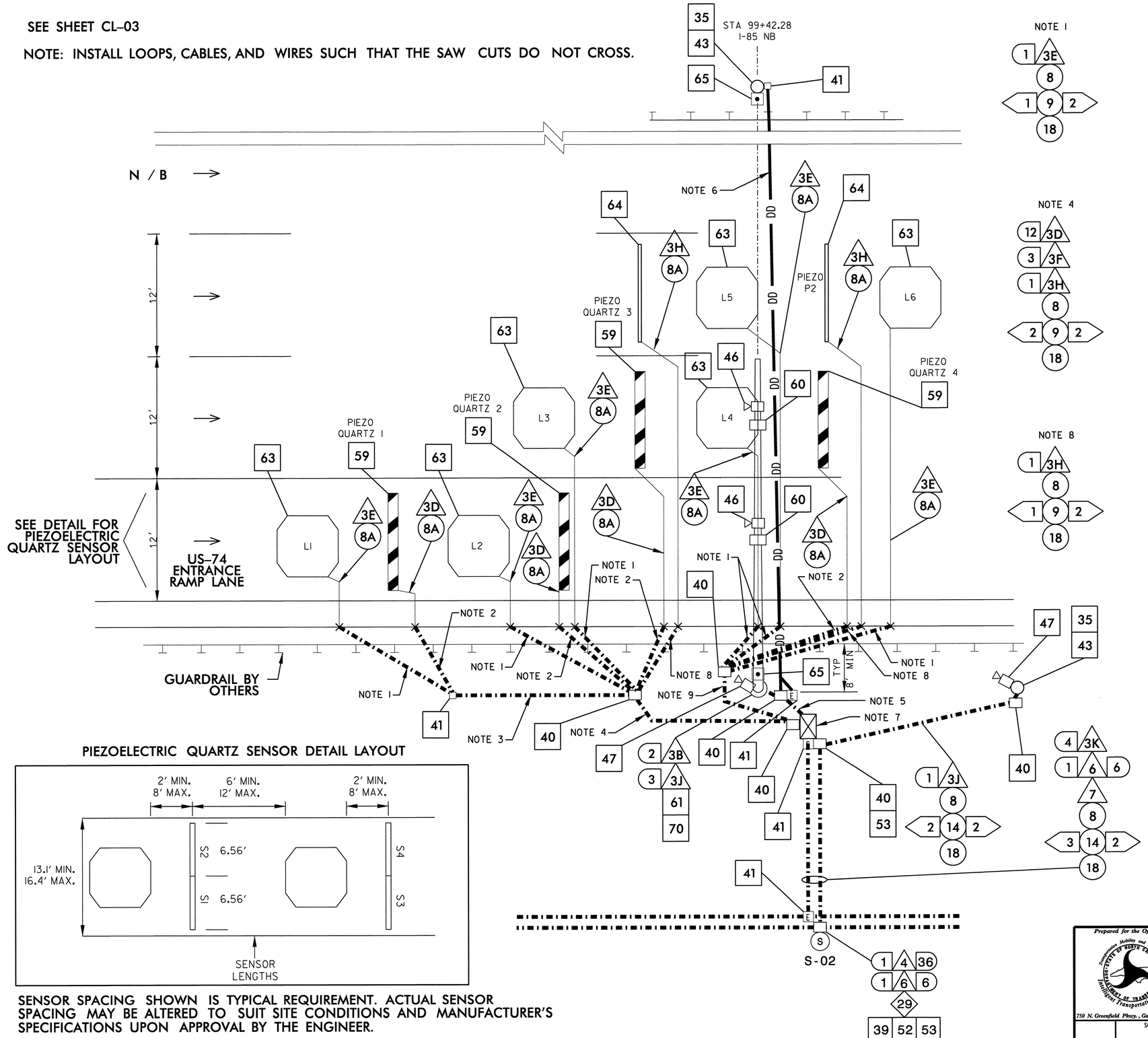
23653

PROJECT REFERENCE NO.	SHEET NO.
I-4928	SD-01

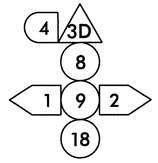
SEE SHEET CL-03

NOTE: INSTALL LOOPS, CABLES, AND WIRES SUCH THAT THE SAW CUTS DO NOT CROSS.



NOTE 1

NOTE 2



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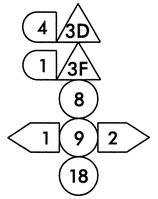

NOTE 4

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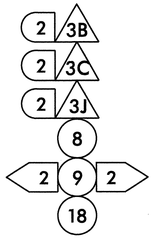

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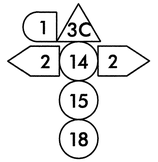

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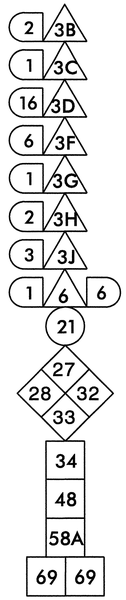
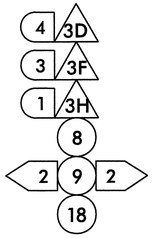


NOTE 8

NOTE 9



PIEZOELECTRIC QUARTZ SENSOR DETAIL LAYOUT

SENSOR SPACING SHOWN IS TYPICAL REQUIREMENT. ACTUAL SENSOR SPACING MAY BE ALTERED TO SUIT SITE CONDITIONS AND MANUFACTURER'S SPECIFICATIONS UPON APPROVAL BY THE ENGINEER.

ATKINS 5200 77 CENTER DR, SUITE 500 CHARLOTTE, NC 28217 704.665.4411 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

Advance Location Detail

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

SCALE

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HENRY ALFRED BADGETT

SIGNATURE DATE 11/6/13

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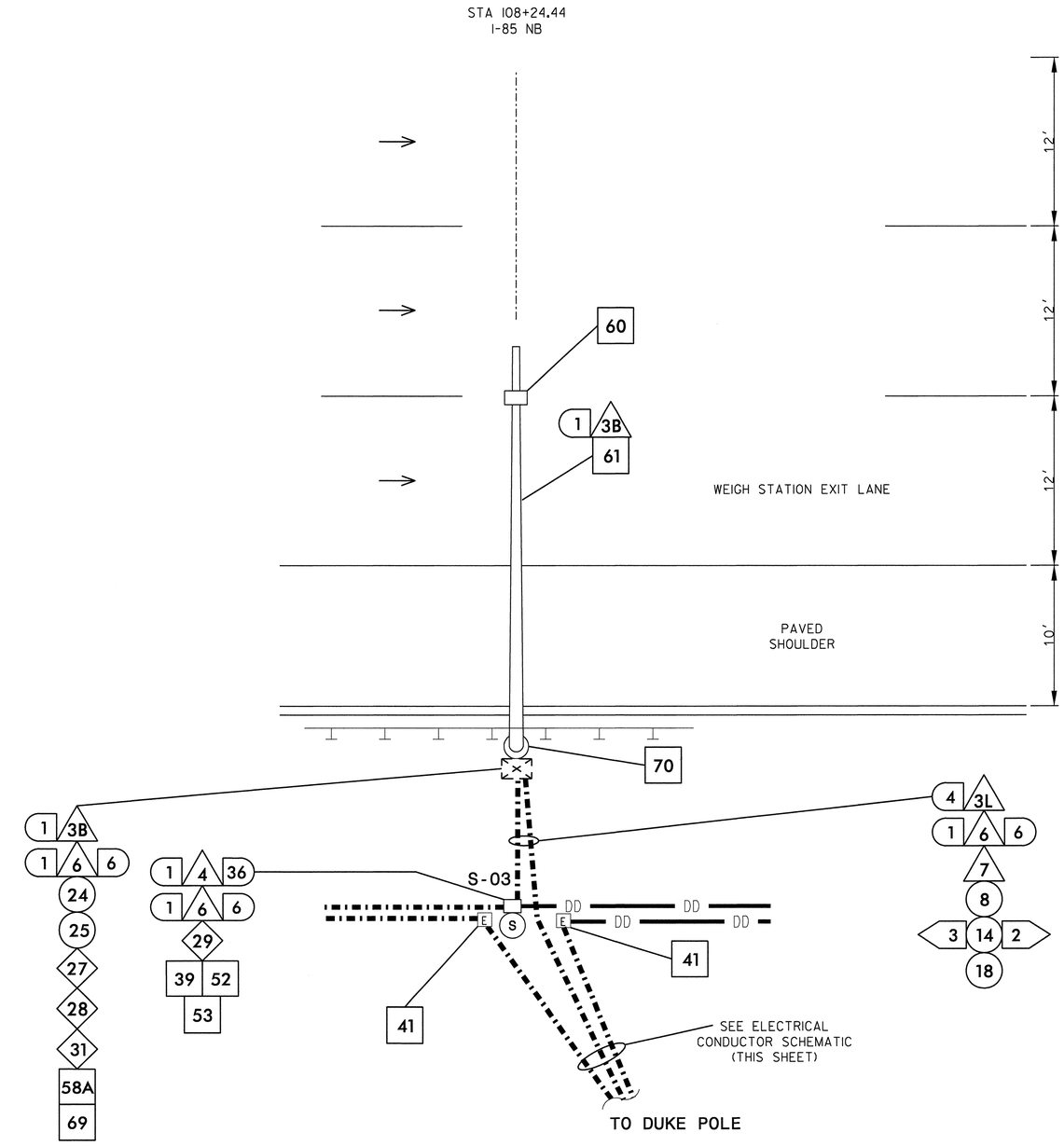
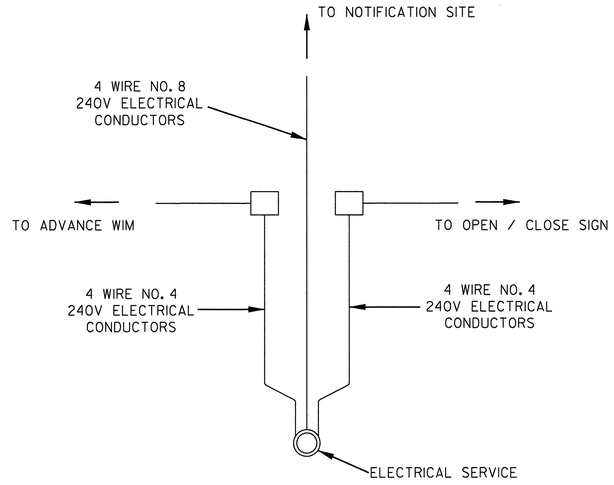
PROJECT REFERENCE NO.	SHEET NO.
I-4928	SD-02

SEE SHEET CL-04





ELECTRICAL CONDUCTOR SCHEMATIC

ATKINS
5200 77 CENTER DR, SUITE 500
CHARLOTTE, NC 28217
704.665.4411 NCBEES #F-0326

Prepared for the Offices of:
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

Notification Location Detail

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

SCALE

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL
SEAL 19962
ENGINEER
HENRY ALFRED BADGETT III

SIGNATURE DATE 11/6/13

CADD Filename: SD-02.dgn

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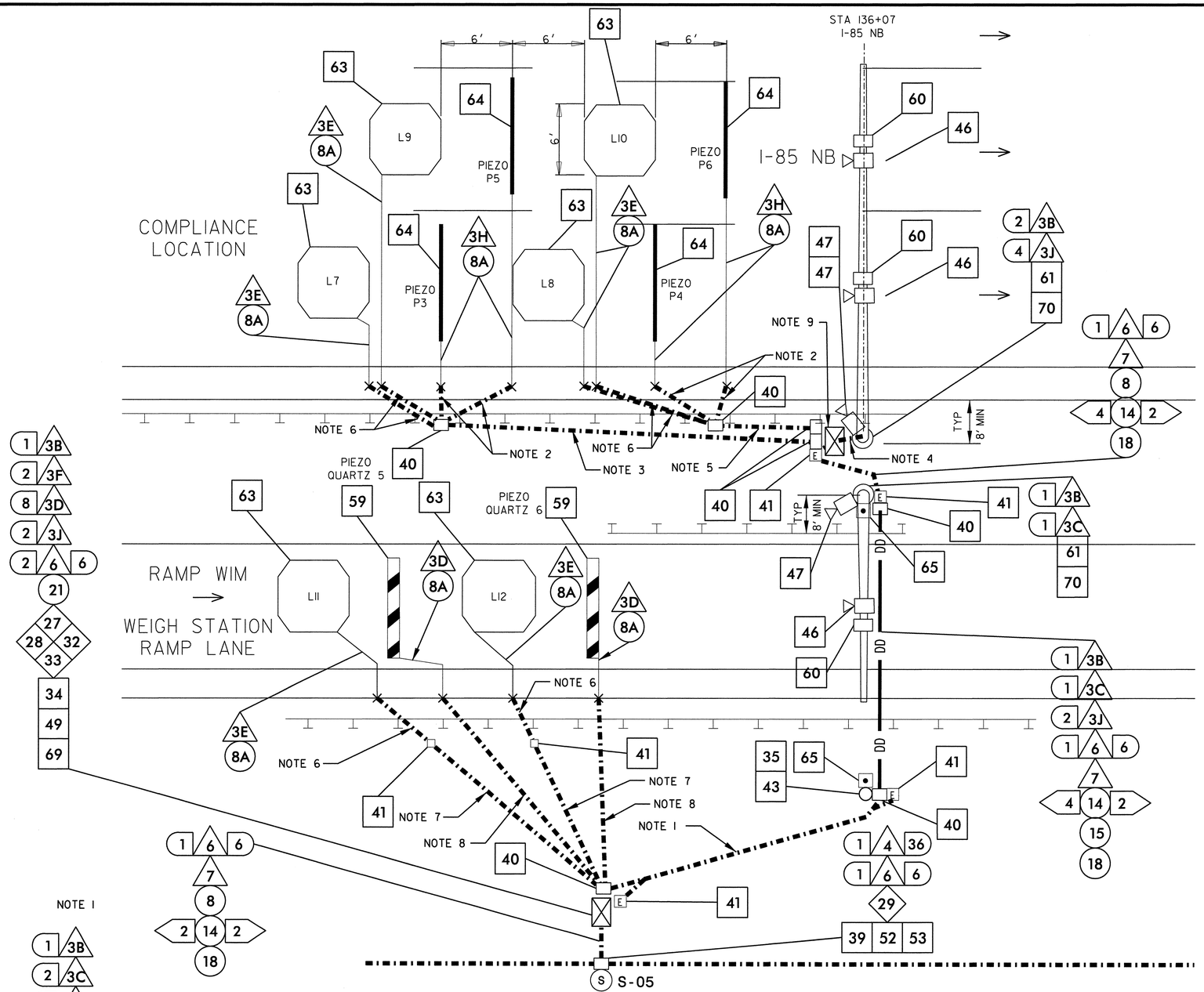
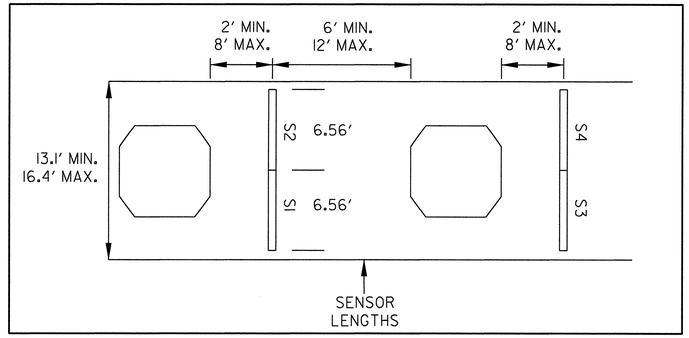
23653

PROJECT REFERENCE NO.	SHEET NO.
I-4928	SD-03



PIEZOELECTRIC QUARTZ SENSOR DETAIL LAYOUT



SENSOR SPACING SHOWN IS TYPICAL REQUIREMENT. ACTUAL SENSOR SPACING MAY BE ALTERED TO SUIT SITE CONDITIONS AND MANUFACTURER'S SPECIFICATIONS UPON APPROVAL BY THE ENGINEER.

NOTE: INSTALL LOOPS, CABLES, AND WIRES SUCH THAT THE SAW CUTS DO NOT CROSS.

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

Ramp WIM and Compliance Location Detail

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

REVISIONS	INIT.	DATE

SCALE

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SEAL 19962
ENGINEER
HENRY ALFRED BADGETT III

SIGNATURE DATE 11/6/13

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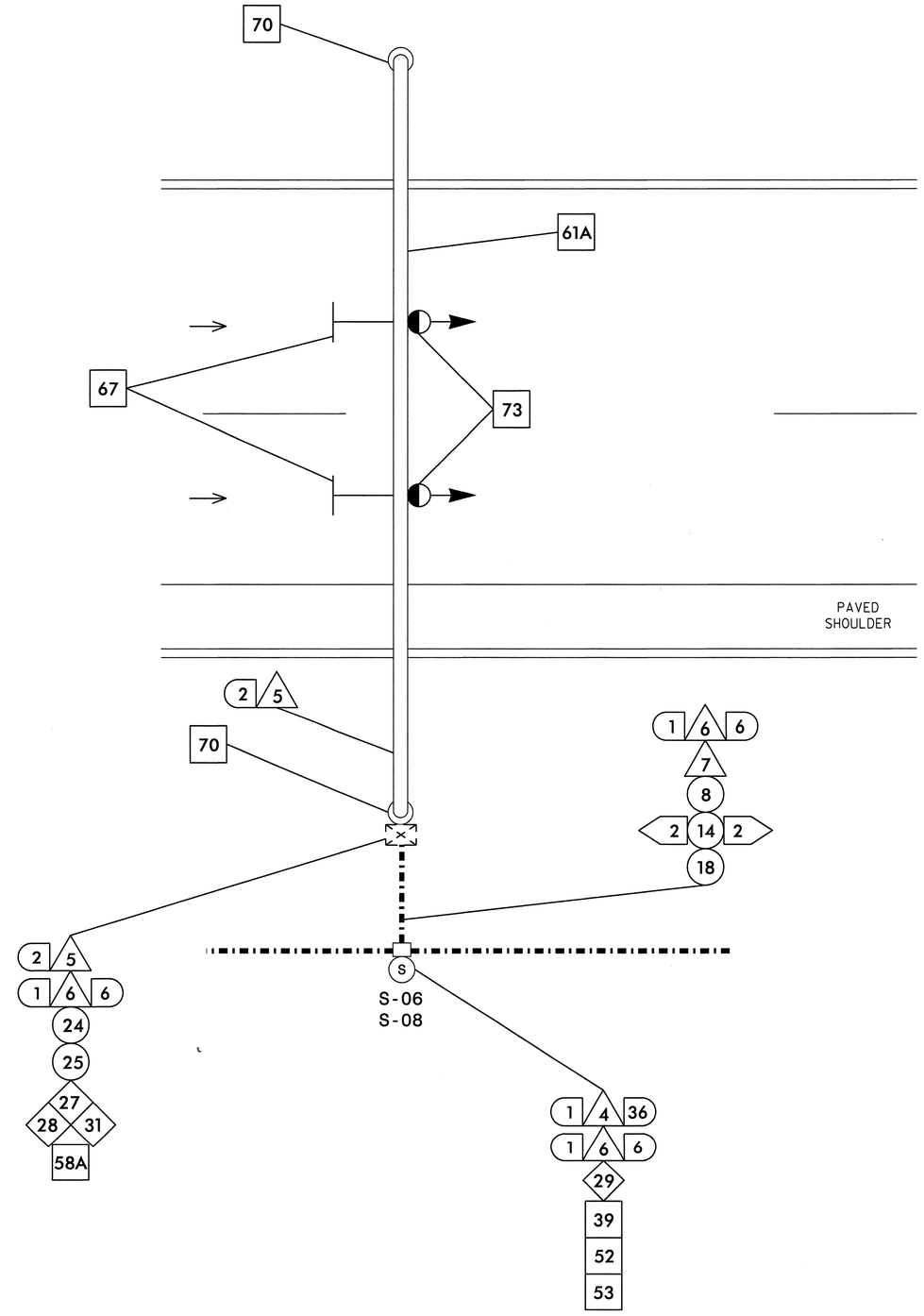
PROJECT REFERENCE NO.	SHEET NO.
I-4928	SD-04



NOTE: THIS DETAIL IS USED FOR TWO LOCATIONS (SEE CL-06 AND CL-08)

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Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE

Lane Control Signal Detail

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HENRY ALFRED BADGETT III

SIGNATURE H Alfred Badgett DATE 11/6/13

CADD Filename: SD-04.dgn

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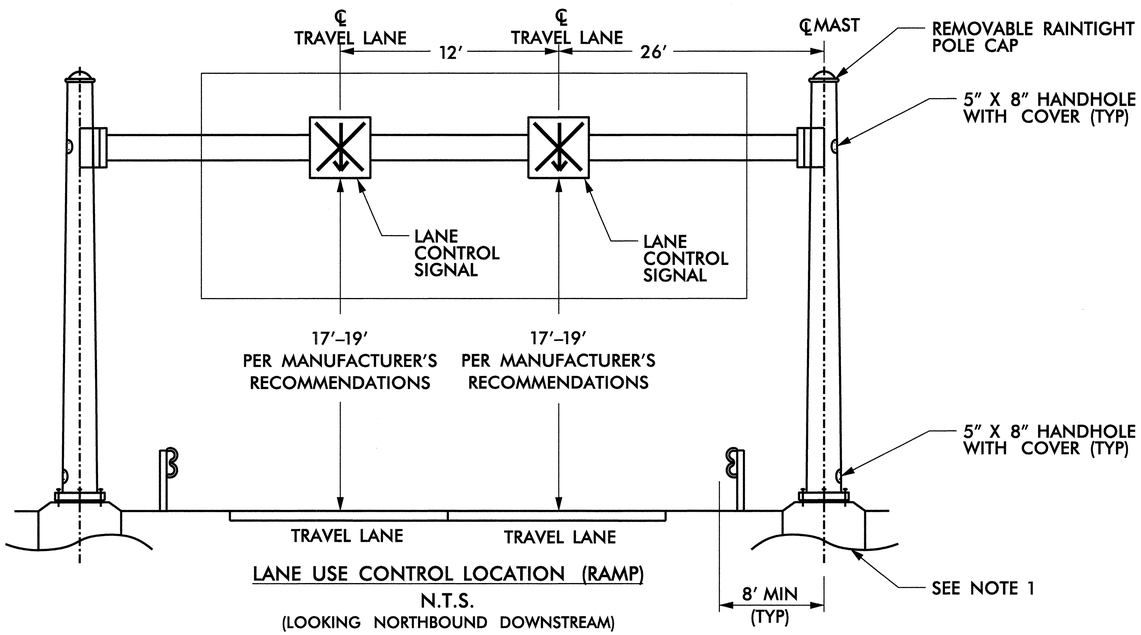
PROJECT REFERENCE NO.	SHEET NO.
I-4928	SD-05

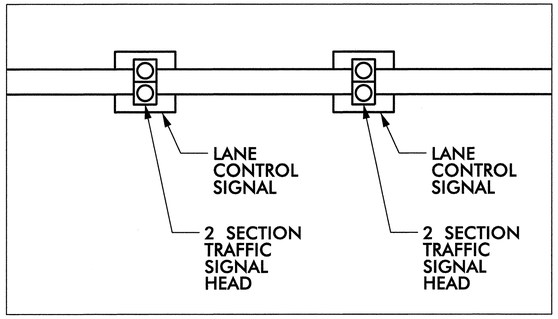


LANE USE CONTROL LOCATION (RAMP)
N.T.S.
(LOOKING NORTHBOUND DOWNSTREAM)

MONOTUBE GANTRY STRUCTURE

NOTES:

1. THE FOUNDATION EMBEDMENT DEPTH, REINFORCEMENT, AND ANCHOR BOLT SIZE AND LENGTH SHALL BE DETERMINED BY THE CONTRACTOR. FOUNDATION DESIGN CALCULATIONS, SIGNED AND SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ALL SOIL BORING INFORMATION USED BY THE CONTRACTOR IN THE FOUNDATION DESIGN SHALL BE SUBMITTED WITH CALCULATIONS. THE FURNISHED FOUNDATION DESIGN SHALL INCLUDE CONDUIT AND GROUNDING DESIGNS IN ACCORDANCE WITH NCDOT STANDARDS AND THE SPECIAL PROVISIONS
2. THE POLE, MAST ARM AND HINGE ASSEMBLY SHALL BE DESIGNED USING THE LOADING INFORMATION SHOWN ON THIS DRAWING AND IN ACCORDANCE WITH THE 6TH EDITION 2013 AASHTO "STANDARD SPECIFICATIONS FOR THE STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" (INCLUDING THE LATEST INTERIM) USING A 90 MPH WIND ZONE VELOCITY. THE POLE, MAST ARM AND HINGE ASSEMBLY DESIGN CALCULATIONS, SIGNED AND SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
3. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THAT THE MAST ARM ATTACHMENT HEIGHT VALUE SHOWN WILL PROVIDE THE REQUIRED VERTICAL CLEARANCES FROM THE ROADWAY AS SHOWN ON THIS SHEET PRIOR TO SUBMITTING FINAL SHOP DRAWINGS FOR THESE POLES.
4. AVI ANTENNA SHALL BE MOUNTED WITH STAINLESS STEEL HARDWARE AND SHALL BE INSTALLED PER EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.



LANE CONTROL LOCATION (RAMP)
N.T.S.
(LOOKING SOUTHBOUND UPSTREAM)

ATKINS 5200 77 CENTER DR, SUITE 500
CHARLOTTE, NC 28217
704.665.4411 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

Monotube Pole Detail

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

SCALE	REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HENRY ALFRED BRIDGES III
H Alfred Bridges 11/1/13
SIGNATURE DATE

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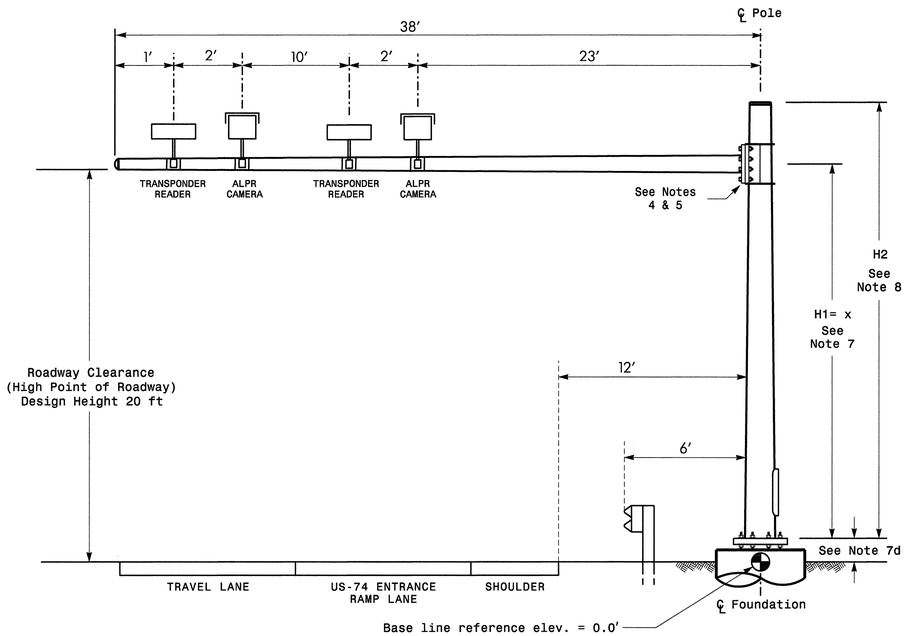
23653

METAL POLE No. 1 and 2

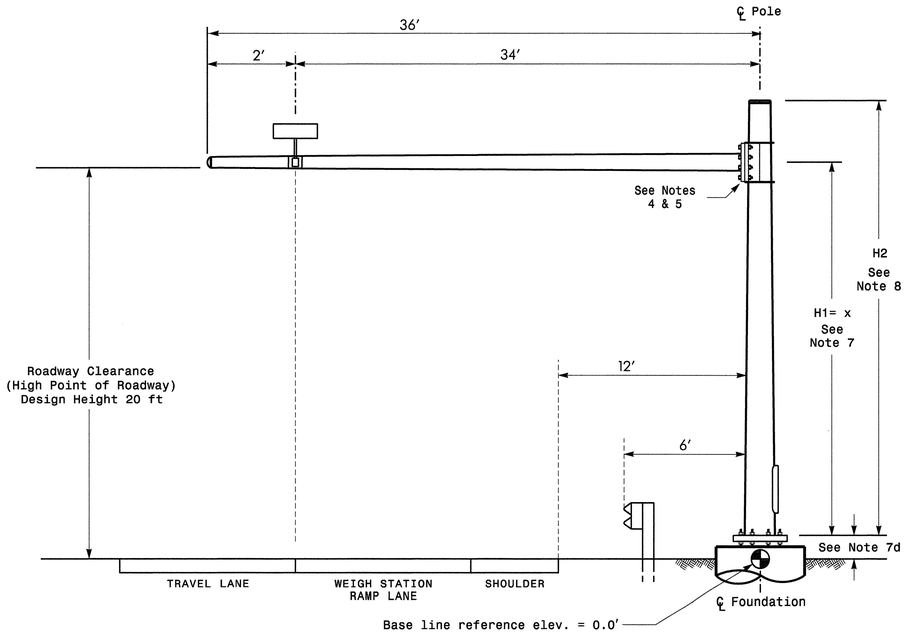
PROJECT REFERENCE NO.	SHEET NO.
I-4928	SD-06

Design Loading for METAL POLE 1 (Advance WIM Location)



Elevation View

Design Loading for METAL POLE 2 (Notification WIM Location)



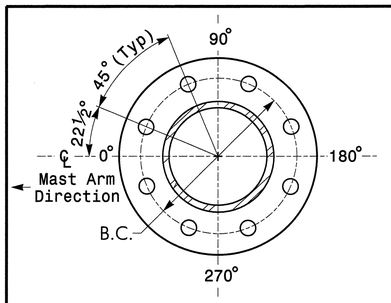
Elevation View

SPECIAL NOTE

The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

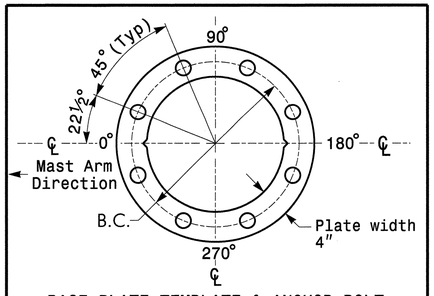
MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	SIZE	WEIGHT
▭	TRANSPONDER READER	6.5″ W X 4.5″ L X 4.0″ D	7 LBS
▭	LICENSE PLATE READER CAMERA	13″ W X 6.0″ L X 5.5″ D	6 LBS



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

NOTES

Design Reference Material

1. Design the structure and foundation in accordance with:
   - The 6th Edition 2013 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2012 NCDOT "Standard Specifications for Roads and Structures". The latest addenda to these specifications can be found in the traffic signal project special provisions.
   - The 2012 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: http://www.ncdot.org/doh/preconstruct/traffic/ITSS/ws/mpoles/poles.html

Design Requirements

2. Design the structure using the loading conditions shown in the elevation views. These are anticipated worst case "Design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design supports using stress ratios that do not exceed 0.9.
4. The camber design for mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
7. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
   b. Attachments to the mast arm are rigid mounted and vertically centered on the arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is .75 feet above the ground elevation.
8. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus ½ of the total height of the mast arm attachment assembly plus 1 foot.
9. If pole location adjustments are required, the contractor must gain approval from the engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the ITS & Signals Structural Engineer for assistance at (919) 773-2800.
10. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the WIM components over the roadway.
11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

NCDOT Wind Zone 4 (90mph)

ATKINS
5200 77 CENTER DR, SUITE 500
CHARLOTTE, NC 28217
704.665.4411 NCBEES #F-0326

Prepared for the Offices of: Transportation Mobility and Safety Division, North Carolina Department of Transportation, Intelligent Transportation Systems

750 N. Greenfield Pkwy., Garner, NC 27529

Metal Pole with Mast Arm (1 of 2)

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

SCALE: N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HENRY ALFRED BADGETT III

H Albert Badgett 11/6/13
SIGNATURE DATE

CADD Filename: SD-06.dgn

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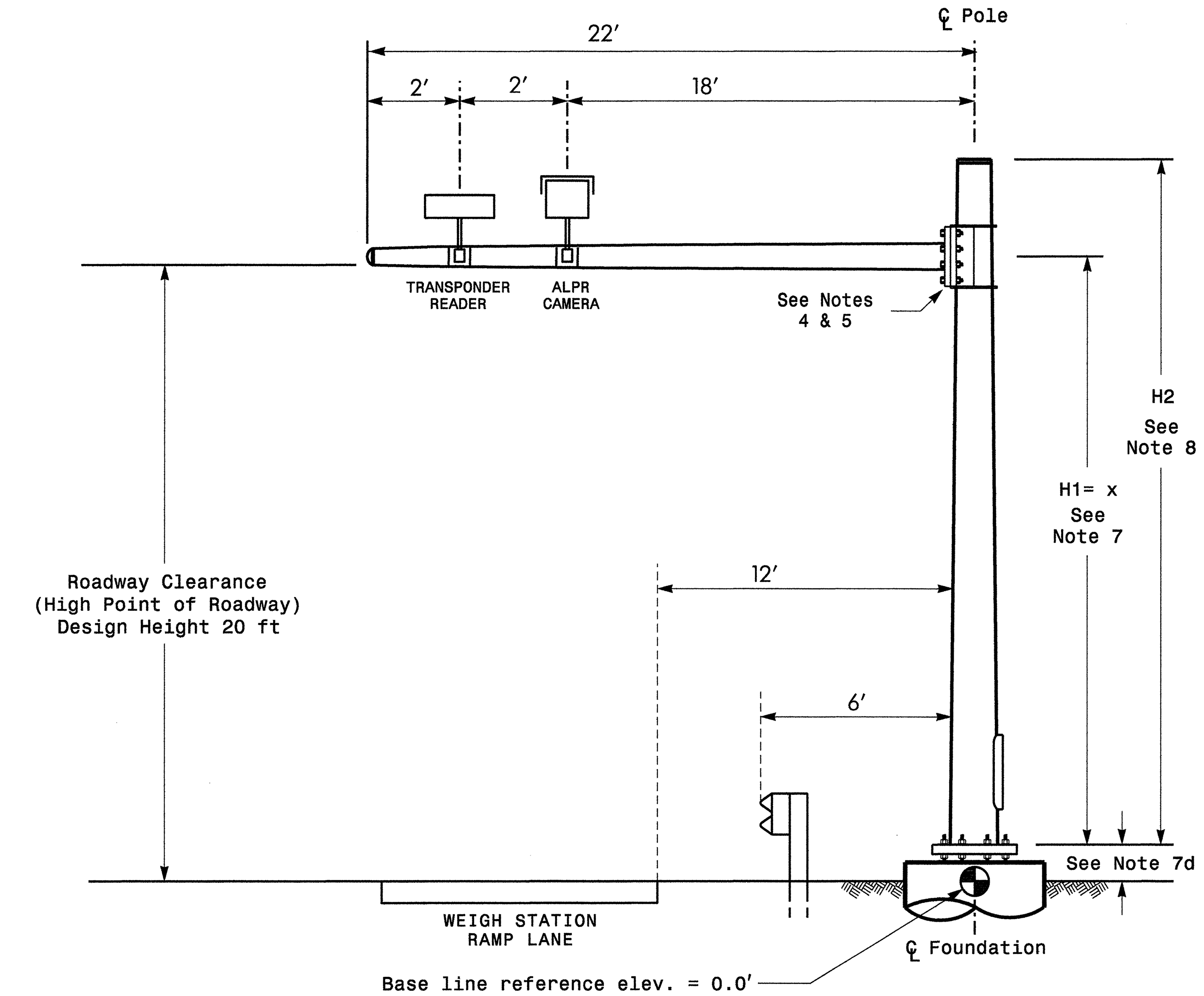
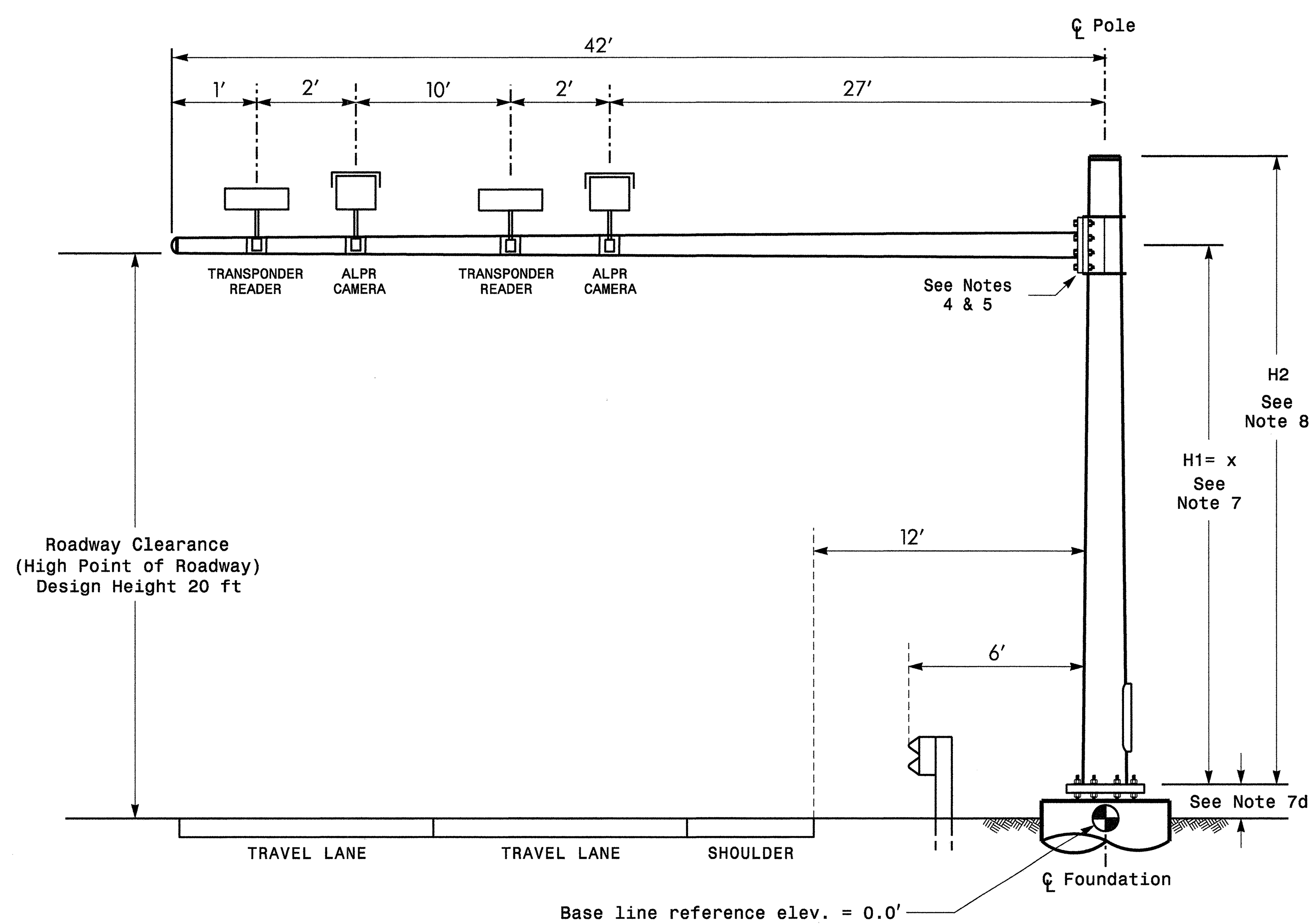
23653

Design Loading for METAL POLE NO. 3
(Ramp WIM Location)



Elevation View

Design Loading for METAL POLE NO. 4
(Compliance Location)



Elevation View

SPECIAL NOTE

The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	SIZE	WEIGHT
▭	TRANSPONDER READER	6.5" W X 4.5" L X 4.0" D	7 LBS
▭	LICENSE PLATE READER CAMERA	13" W X 6.0" L X 5.5" D	6 LBS

NOTES

Design Reference Material

1. Design the structure and foundation in accordance with:
   - The 6th Edition 2013 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2012 NCDOT "Standard Specifications for Roads and Structures". The latest addenda to these specifications can be found in the traffic signal project special provisions.
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   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: http://www.ncdot.org/doh/preconstruct/traffic/ITSS/ws/mpoles/poles.html

Design Requirements

2. Design the structure using the loading conditions shown in the elevation views. These are anticipated worst case "Design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design supports using stress ratios that do not exceed 0.9.
4. The camber design for mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
7. The mast arm attachment height (H1) shown is based on the following design assumptions:
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   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is .75 feet above the ground elevation.
8. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
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   - H1 plus ½ of the total height of the mast arm attachment assembly plus 1 foot.
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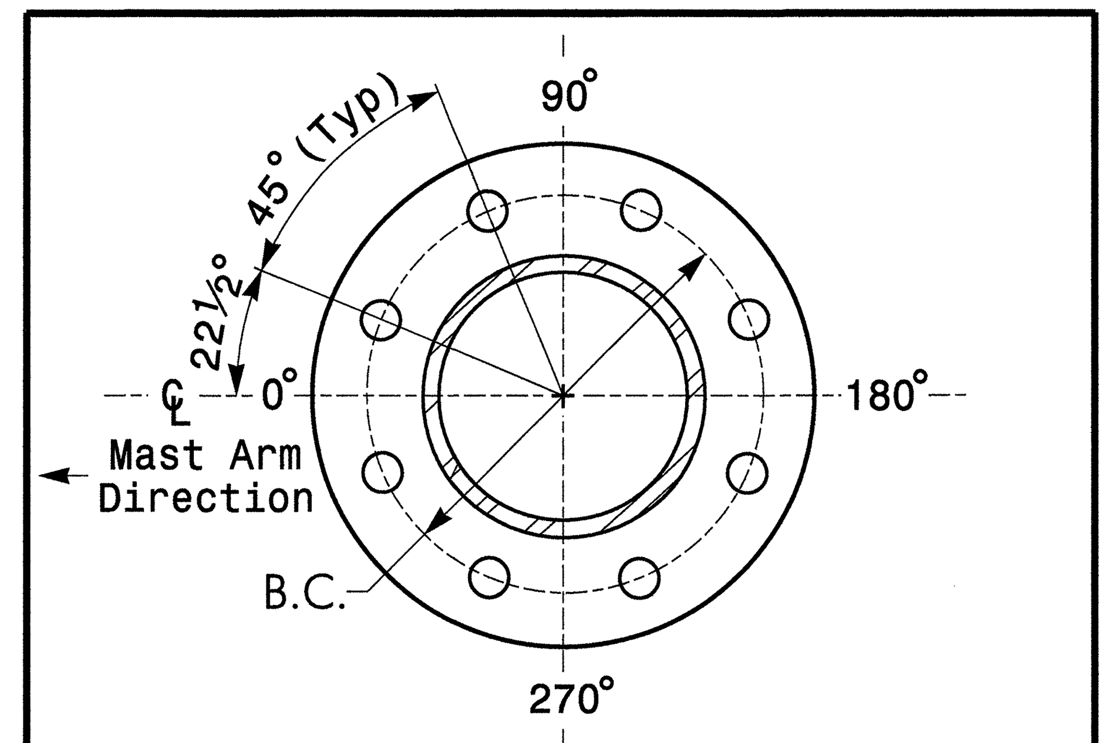
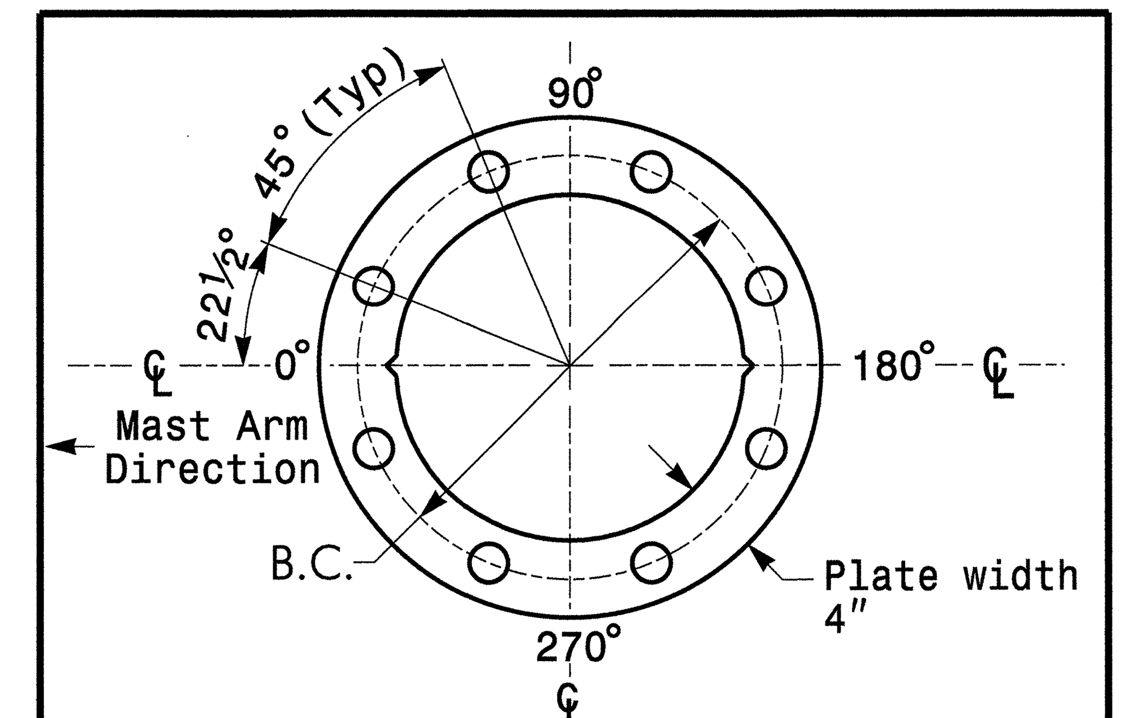
10. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the WIM components over the roadway.
11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

NCDOT Wind Zone 4 (90mph)

ATKINS
5200 77 CENTER DR, SUITE 500
CHARLOTTE, NC 28217
704.665.4411 NCBEES #F-0326

Prepared for the Offices of: Transportation Mobility and Safety Division, Intelligent Transportation Systems, State of North Carolina Department of Transportation
750 N. Greenfield Pkwy., Garner, NC 27529

Metal Pole with Mast Arm
(2 of 2)

DIVISION 12	GASTON CO.		
PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

SCALE: N/A

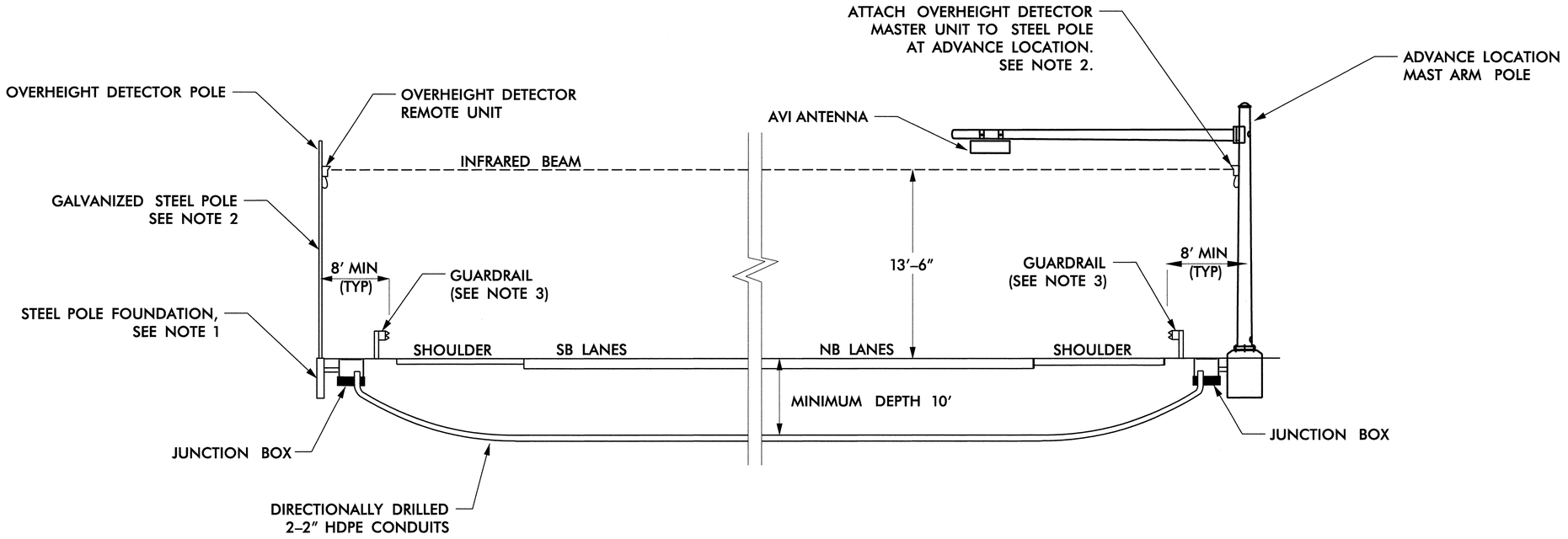
REVISIONS	INIT.	DATE

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19962 HENRY ALFRED BADGETT III

SIGNATURE | DATE 11/6/13

CADD Filename: SD-07.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-4928	SD-08



OVERHEIGHT VEHICLE DETECTION
ELEVATION
(LOOKING NORTH)

NOTES

1. POLES AND POLE FOUNDATIONS SHALL CONFORM TO NCDOT STANDARDS AND THE SPECIAL PROVISIONS.
2. TRANSMITTER AND RECEIVER MOUNTING HEIGHTS SHALL BE AS REQUIRED TO PROPERLY POSITION THE LIGHT BEAM. THE BEAM SHALL BE PARALLEL TO THE PAVEMENT SURFACE OF THE LANE CLOSEST TO THE RECEIVER, AND SHALL BE 13'-6" ABOVE THAT SURFACE.
3. SEE ROADWAY PLANS FOR GUARDRAIL DETAILS.

ATKINS 5200 77 CENTER DR, SUITE 500 CHARLOTTE, NC 28217 704.665.4411 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

Overheight Vehicle Detection System Detail

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

SCALE	REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HENRY ALFRED BADGETT, III
SIGNATURE 11/6/13 DATE

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23653

PROJECT REFERENCE NO.	SHEET NO.
I-4928	SD-09

NOTES:

1. SEE BUILDING PLANS FOR JUNCTION BOXES NEAR BUILDINGS.
2. SEE BUILDING PLANS FOR CONDUITS AND NETWORK BOXES IN BUILDINGS.
3. MOUNT ON BRACKET SHOWN IN BUILDING PLANS.
4. INSTALL 3 ENCLOSED COMMUNICATIONS RACKS.

NETWORK BOX (SEE NOTE 2)

INSTALL FOOT PEDAL FOR CONTROL OF 2 SECTION SIGNAL

45

CONCRETE STOOP

CONCRETE WALK

41

TO CCTV-4 AND DMS

GUARDRAIL

OVERHANG

COUNTER TOP

SCALE BOOTH

6" CURB, EDGE OF SCALE PIT

PAINTED CROSSWALK

1/3/18

28

44	51
55	68
72	72

SEE NOTE 4

SEE NOTE 1

73 SEE NOTES 2 & 3

1/4/36/19

8/3/19

2/6/6/18 SEE NOTE 2

SCALES

SCALES

SCALES

INSTALL FOOT PEDAL FOR CONTROL OF 2 SECTION SIGNAL

2/3

OFFICE

OFFICE

OFFICE

OFFICE

OFFICE

STOCK

NET RACK ROOM

MECHANICAL ROOM

INSTALL CABLE IN NEW 4-2" CONDUIT

SEE NOTE 1

2/3

INSTALL FOOT PEDAL FOR CONTROL OF 2 SECTION SIGNAL

TRUCKER LOBBY

SCALE CALIBRATION ROOM

UNI-SEX

UNI-SEX

UNI-SEX

12x18 LOCKERS

JANITOR'S CLOSET/ STORAGE ROOM

BREAK ROOM

CLASS / TRAINING ROOM

WAITING

2/5/2/8/2/18

ROUTE CABLE IN CEILING CONDUIT (SEE NOTE 2)

SEE NOTE 1

SEE NOTES 2 & 3 73

SCALES

SCALES

SCALES

10'-0"

45'-0"

15'-0"

15'-0"

TO INSPECTION BUILDING (CCTV-6, CCTV-7) AND CCTV-5

ATKINS 5200 77 CENTER DR, SUITE 500 CHARLOTTE, NC 28217 704.665.4411 NCBEES #F-0326

Prepared for the Offices of: Transportation Mobility and Safety Division, North Carolina Department of Transportation, Intelligent Transportation Systems

750 N. Greenfield Pkwy., Garner, NC 27529

Scale House Building Layout

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

REVISIONS	INIT.	DATE

SCALE 0 5 1" = 5'

SEAL NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HENRY ALFRED BARGETT III

SIGNATURE DATE 11/6/13

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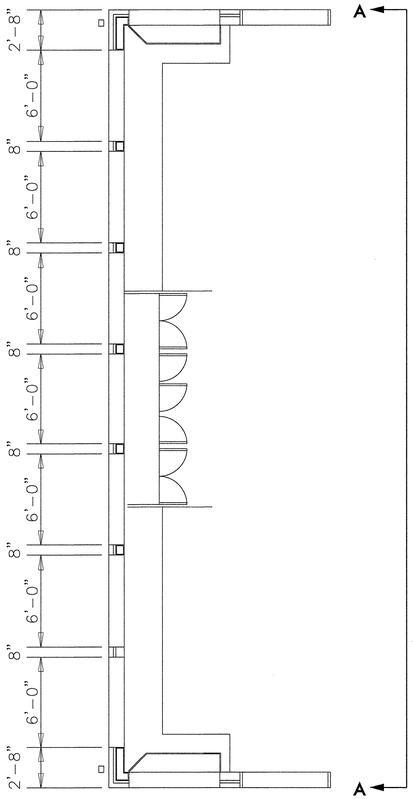
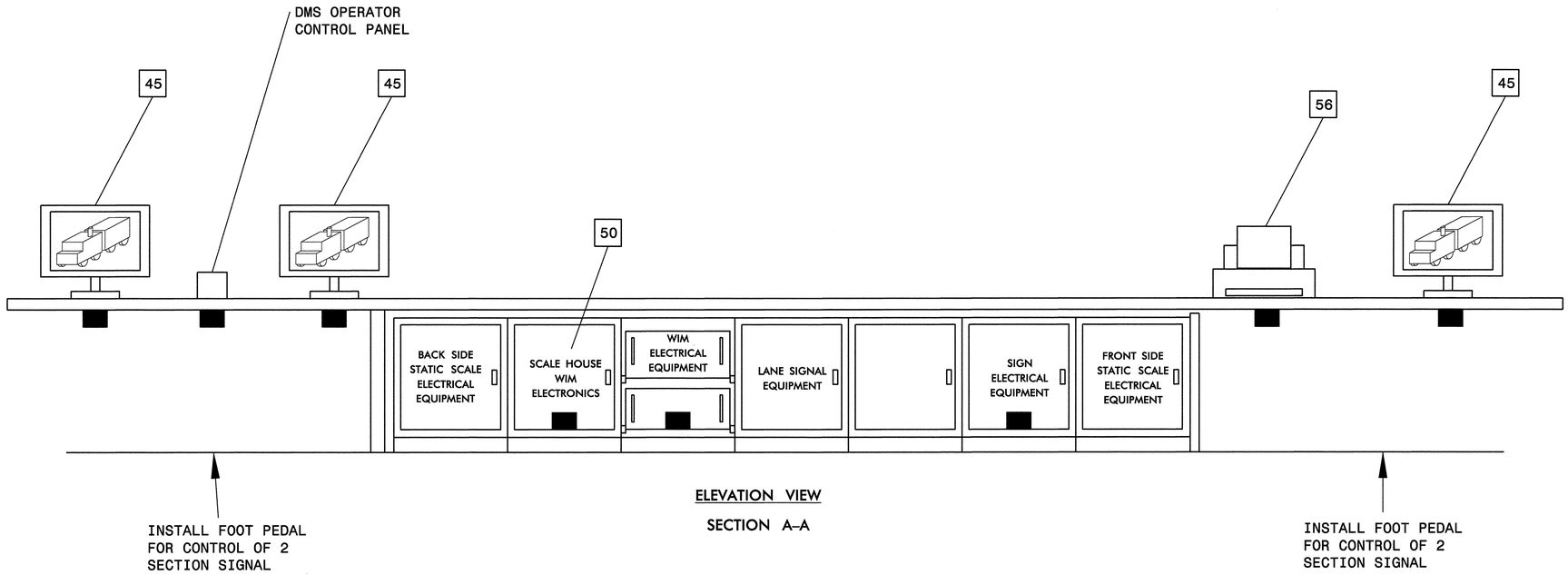
23653

PROJECT REFERENCE NO.	SHEET NO.
I-4928	SD-10



PLAN VIEW

(WEST END OF BUILDING)



ELEVATION VIEW

SECTION A-A

■ DENOTES NETWORK BOX

NOTES:

1. NETWORK BOX UNDER COUNTER TOP. PATCH CABLE, POWER CORDS TO GO THROUGH GROMMET HOLES IN COUNTER TOP.

ATKINS 5200 77 CENTER DR, SUITE 500 CHARLOTTE, NC 28217 704.665.4411 NCBEES #F-0326

Prepared for the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems

750 N. Greenfield Pkwy., Garner, NC 27529

Scale House Equipment Layout

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

SCALE	REVISIONS	INIT.	DATE
N.T.S.			

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HENRY ALFRED BADGETT

H. Alfred Badgett 11/6/13

SIGNATURE DATE

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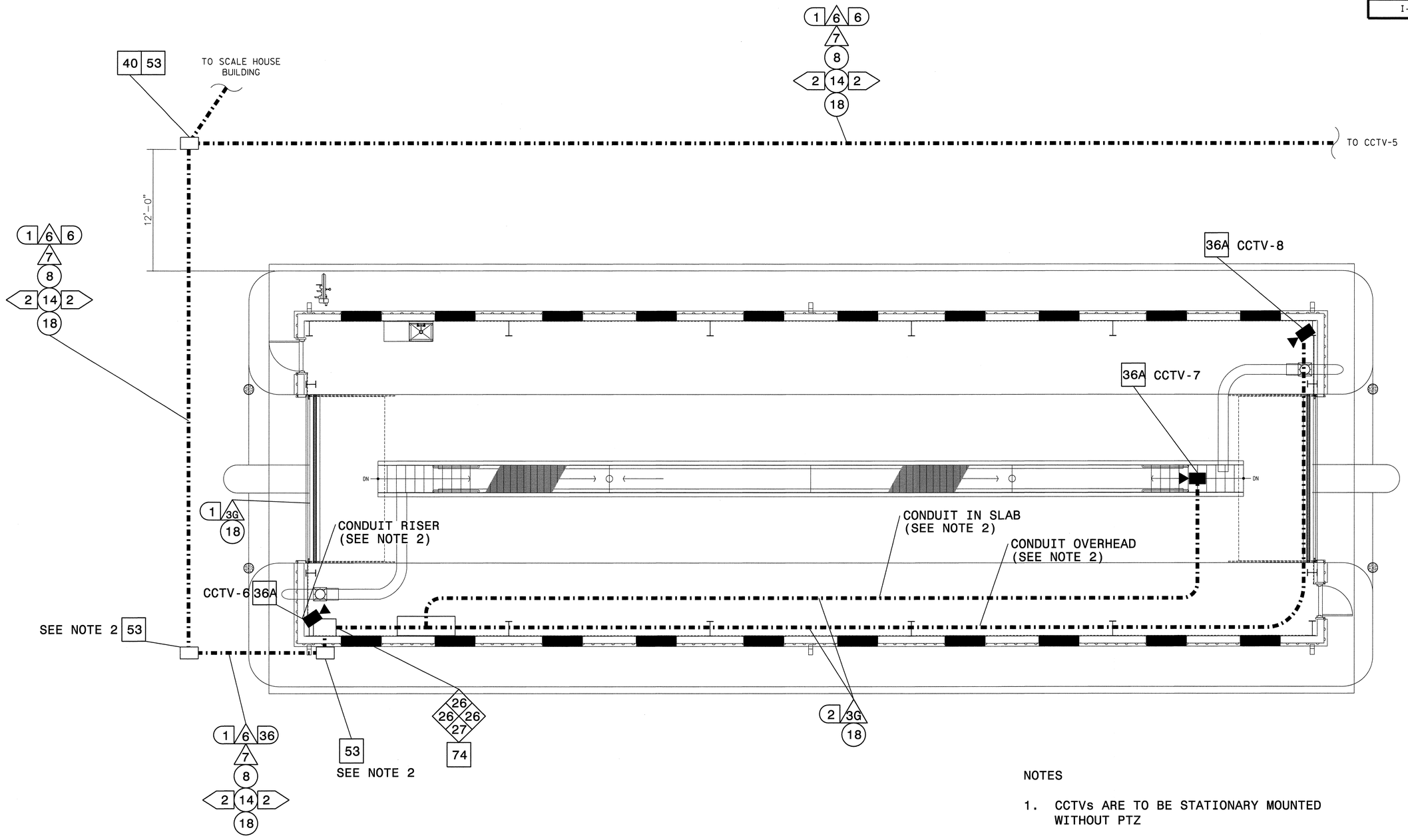
PROJECT REFERENCE NO.	SHEET NO.
I-4928	SD-11



NOTES:

1. SEE BUILDING PLANS FOR JUNCTION BOXES NEAR BUILDINGS.
2. SEE BUILDING PLANS FOR CONDUITS AND NETWORK BOXES IN BUILDINGS.

NOTES

1. CCTVs ARE TO BE STATIONARY MOUNTED WITHOUT PTZ

ATKINS 5200 77 CENTER DR, SUITE 500
CHARLOTTE, NC 28217
704.665.4411 NCBEES #F-0326

Prepared for the Offices of:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

Inspection Building Plan View

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

SCALE 0 5 1" = 5'

REVISIONS	INIT.	DATE

SEAL 19962 NORTH CAROLINA PROFESSIONAL ENGINEER HENRY ALFRED BADGETT III

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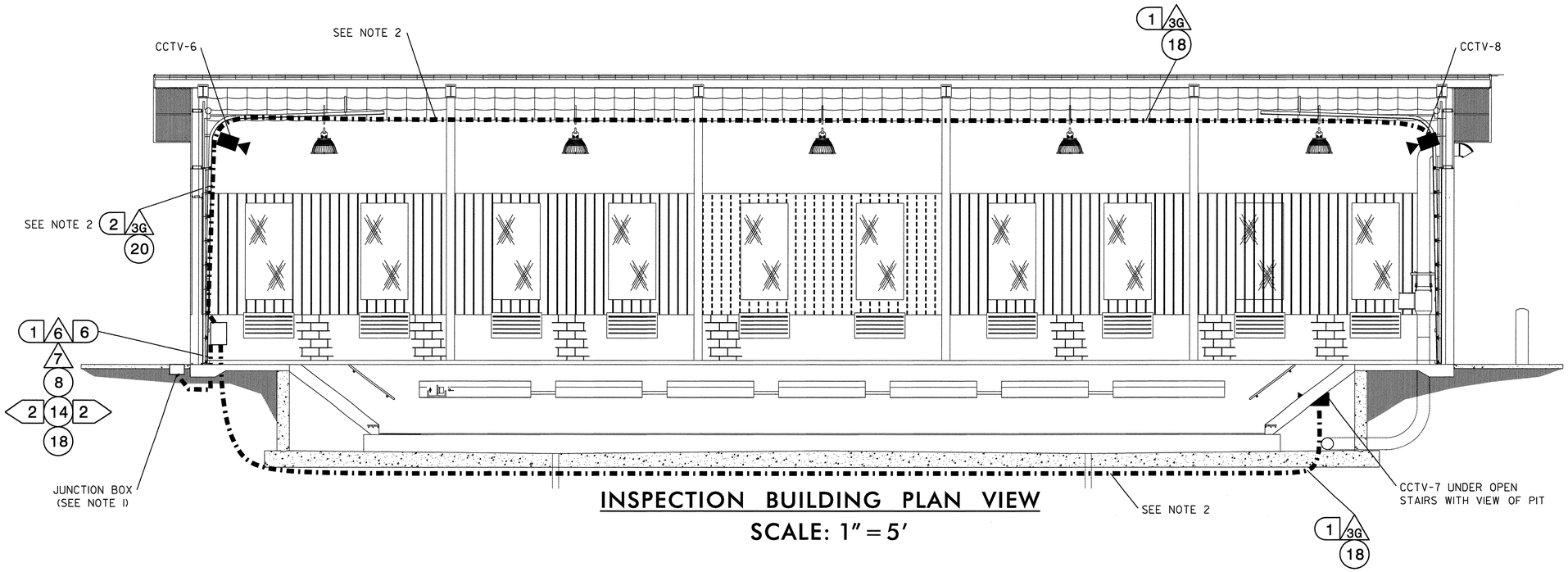
PROJECT REFERENCE NO.	SHEET NO.
I-4928	SD-12

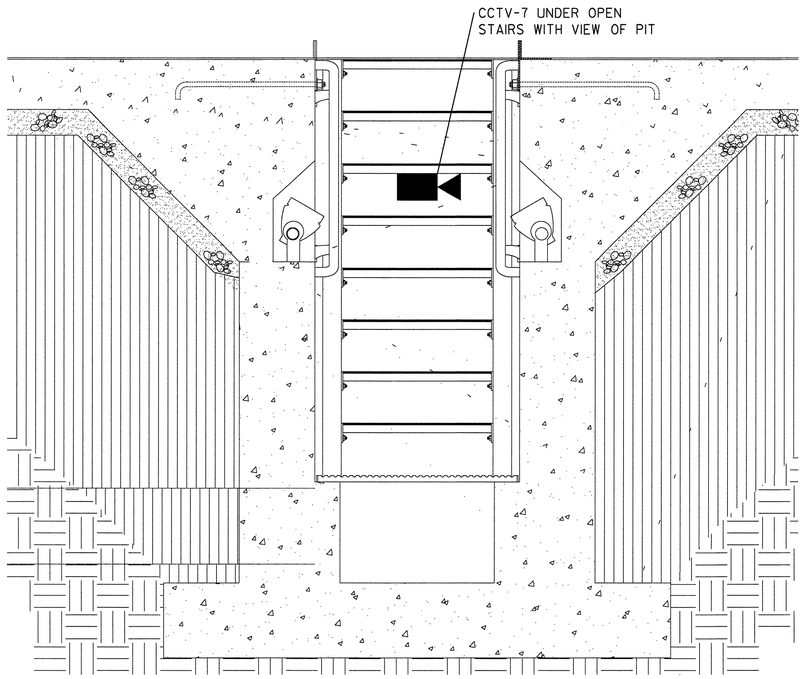


INSPECTION BUILDING PLAN VIEW

SCALE: 1" = 5'

NOTES:

1. SEE BUILDING PLANS FOR JUNCTION BOXES NEAR BUILDINGS.
2. SEE BUILDING PLANS FOR CONDUITS AND NETWORK BOXES IN BUILDINGS.



INSPECTION PIT SECTION

SCALE: 1" = 1'

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Prepared for the Offices of:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

Inspection Building
Elevation Views and Pit Section

DIVISION 12 GASTON CO.

PLAN DATE: November 2013	REVIEWED BY: HAB
PREPARED BY: BJS	REVIEWED BY: SGH

REVISIONS	INIT.	DATE

SCALE 0 5 1" = 5'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HARRY ALFRED BADGETT, III

H. Alfred Badgett 11/6/13
SIGNATURE DATE

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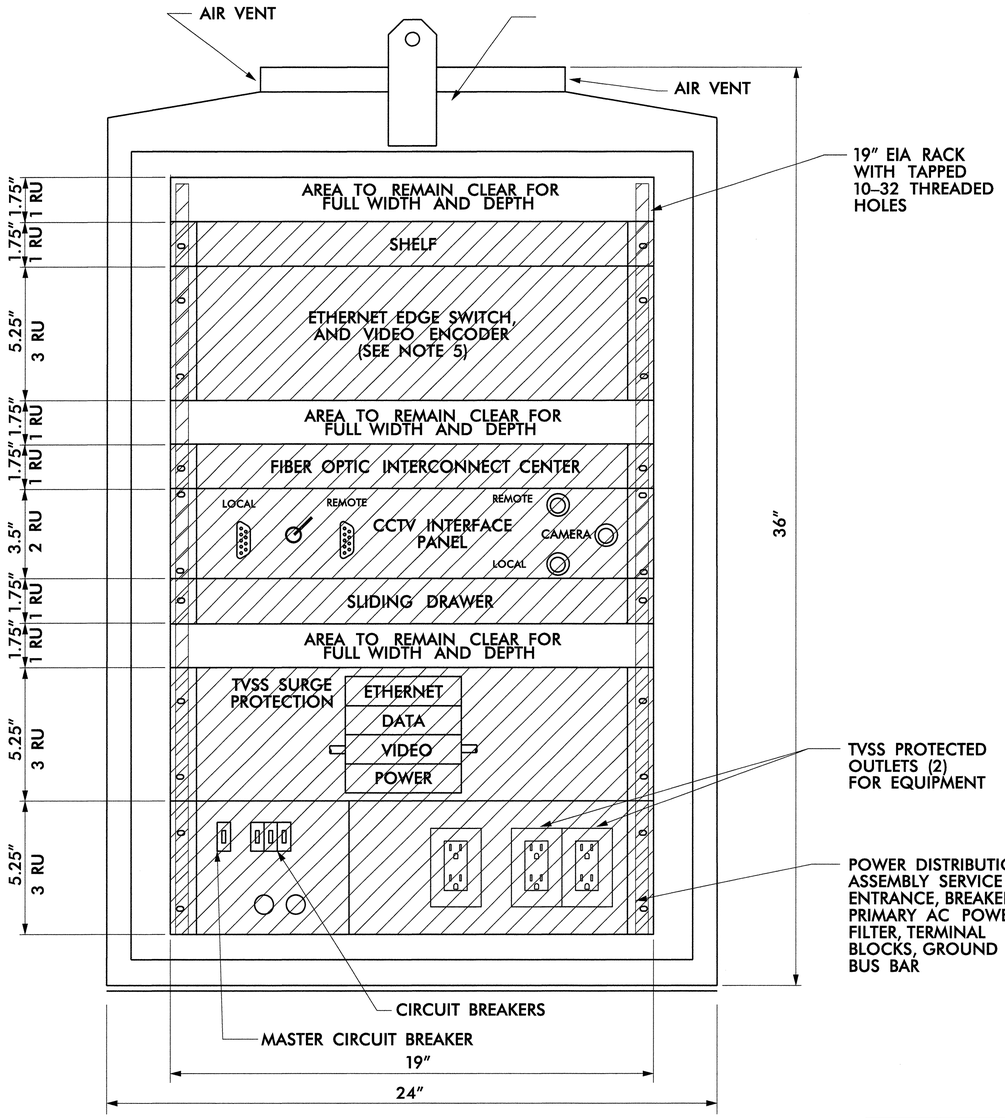
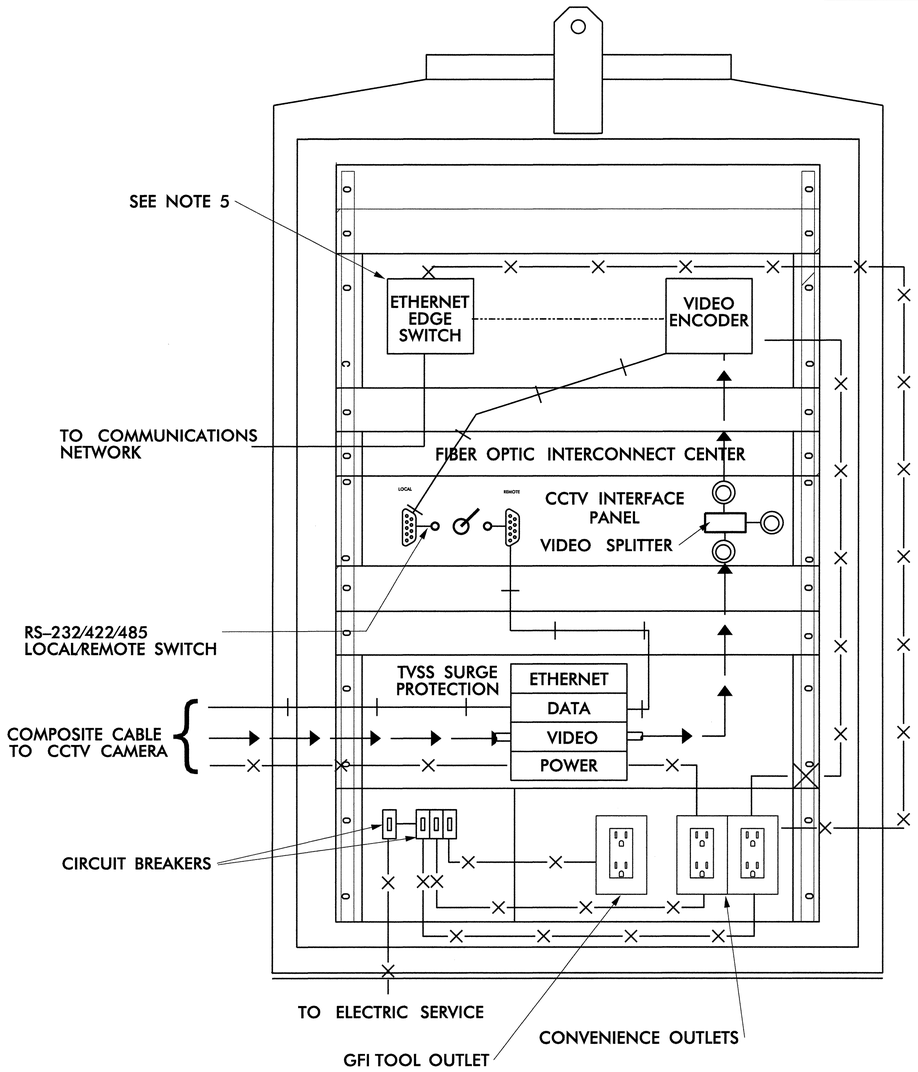


FRONT VIEW



CABINET WIRING VIEW

CONNECTION LEGEND

- 100 BASE TX ETHERNET
- ANALOG VIDEO
- ELECTRICAL POWER
- RS-232/422/485

NOTES

1. ALL DIMENSIONS AND SCALE ARE APPROXIMATE.
2. CABINETS WILL BE CALTRANS TYPE 336
3. CONDUIT ENTRANCES SHALL BE IN BOTTOM OF CABINET.
4. THERE WILL BE FRONT AND REAR DOORS. BOTH DOORS SHALL HAVE THE HINGE-SIDE NEXT TO THE POLE WHEN POLE MOUNTED.

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Prepared for the Offices of: Traffic Engineering Branch, Intelligent Transportation Systems, Mobility and Safety Division, NCDEPARTMENT OF TRANSPORTATION, STATE OF NORTH CAROLINA
750 N. Greenfield Pkwy., Garner, NC 27529

CCTV Cabinet Assembly Layout

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

REVISIONS	INIT.	DATE

SCALE

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SIGNATURE DATE 11/6/13

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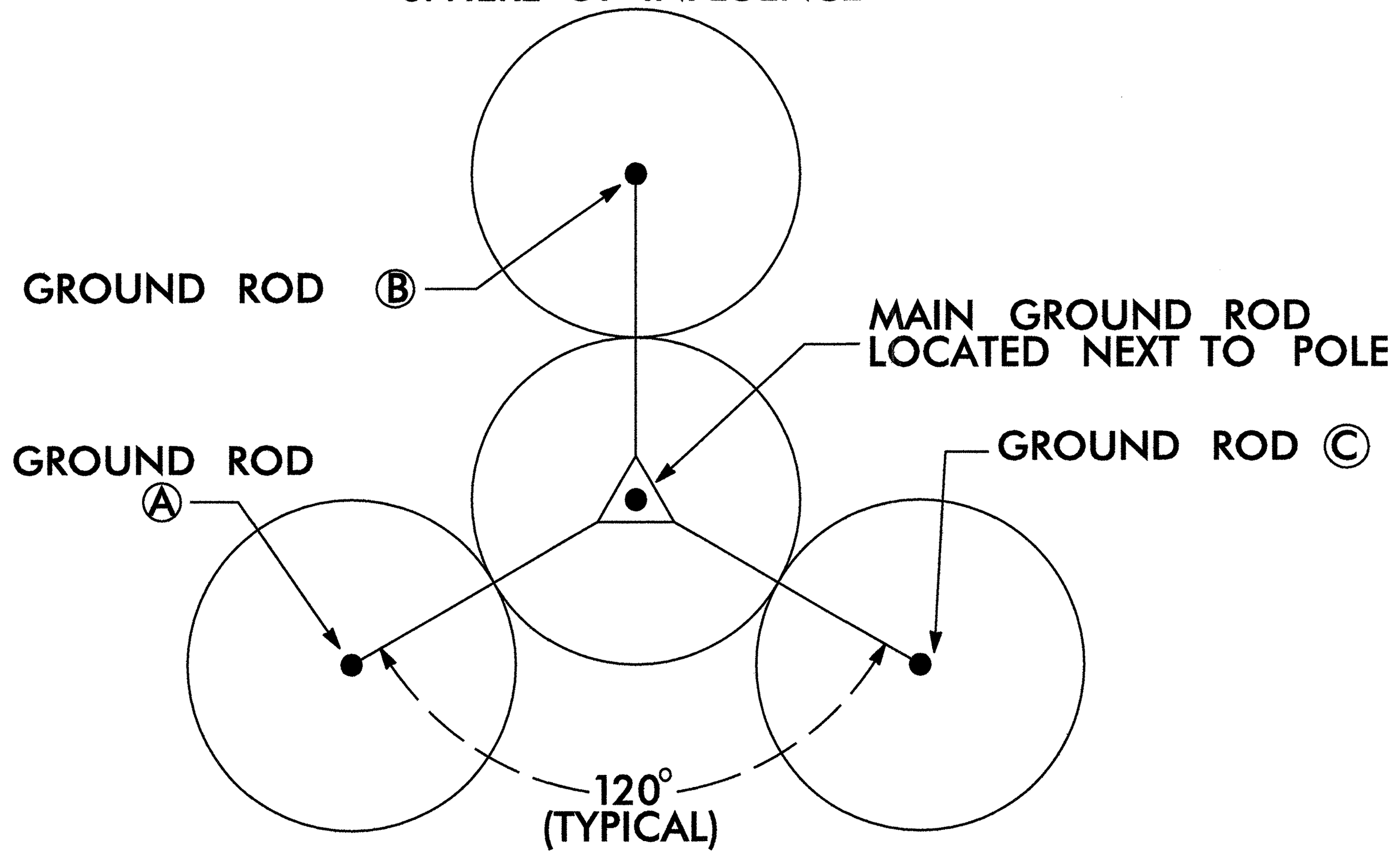
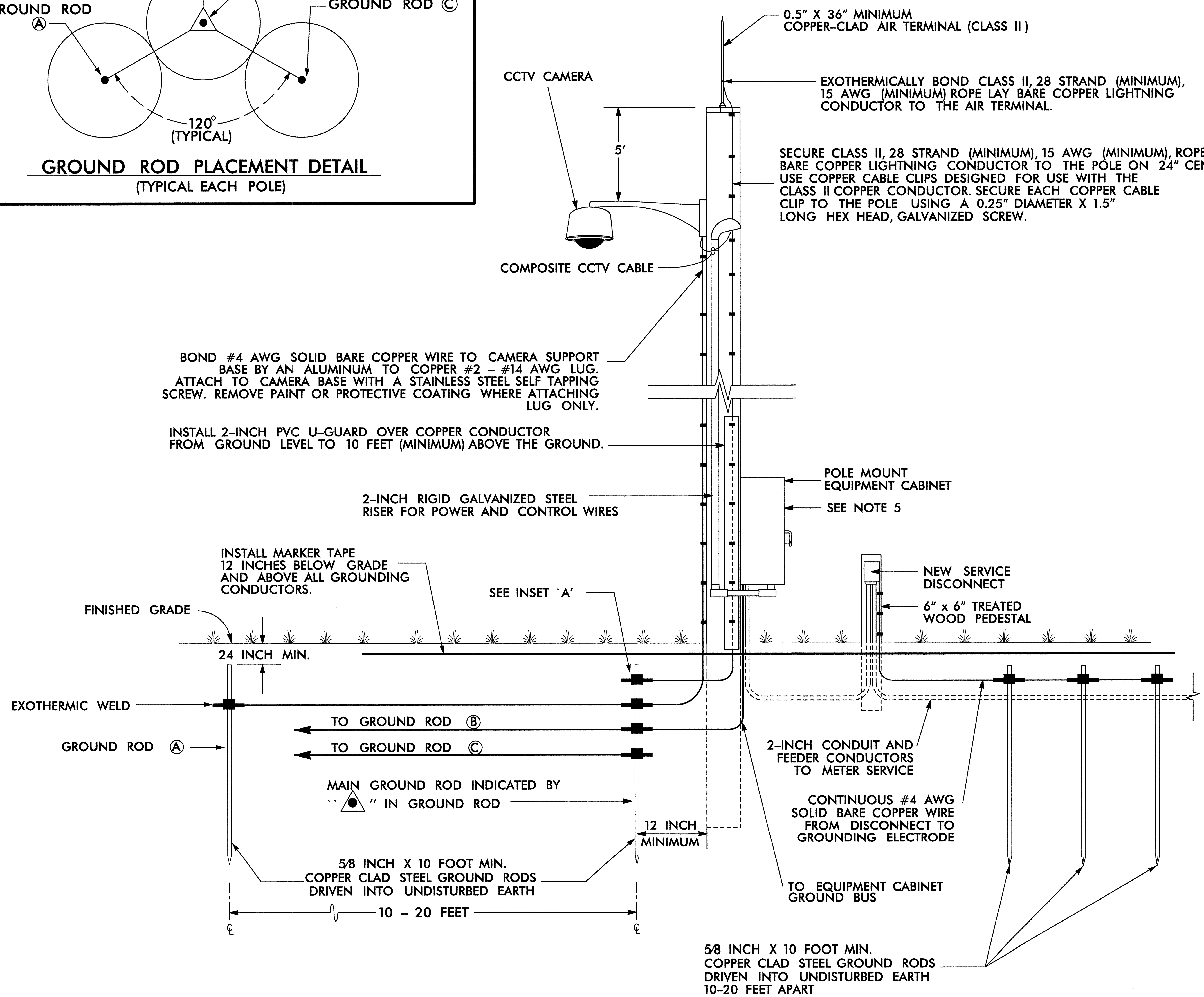
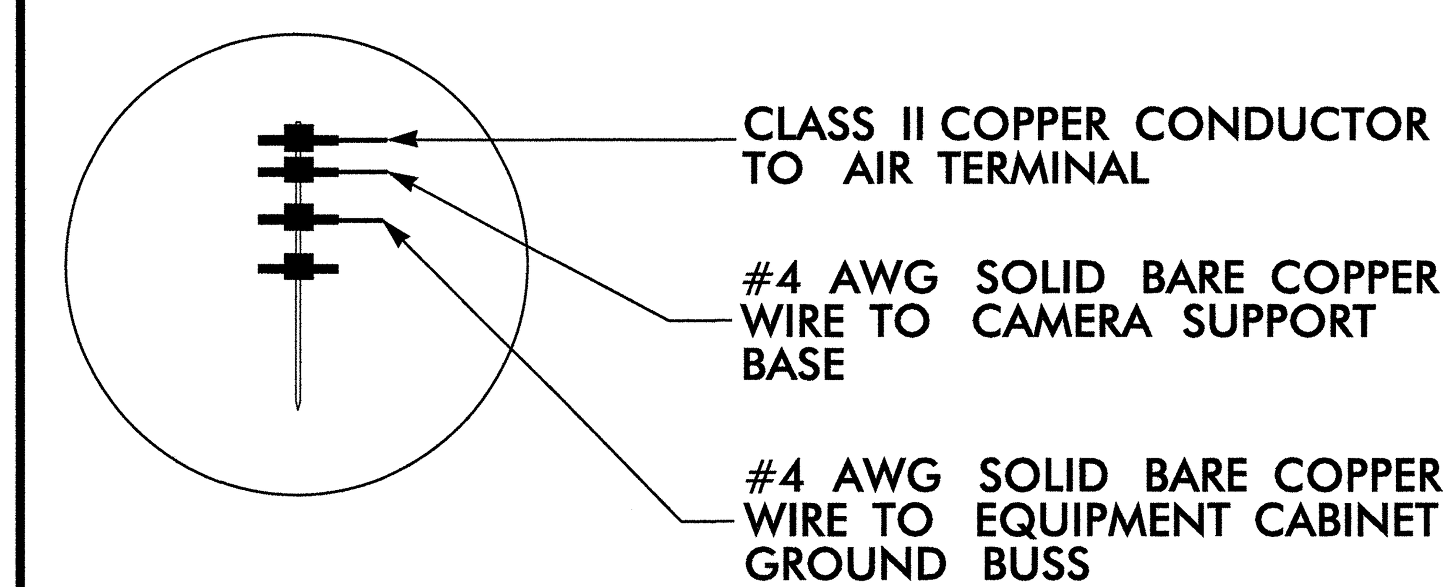


GROUND ROD PLACEMENT DETAIL

(TYPICAL EACH POLE)

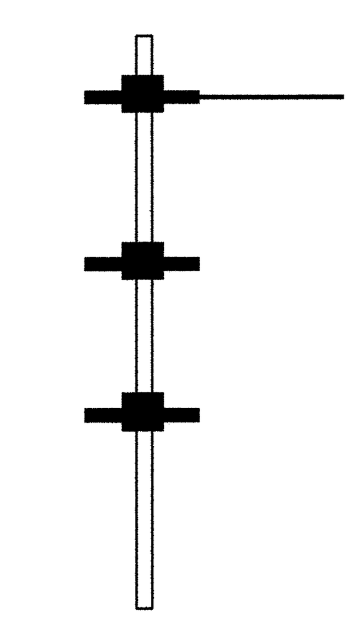


INSET `A'



ALTERNATE GROUNDING METHOD

IF SPACE IS NOT AVAILABLE TO DRIVE MULTIPLE RODS, DRIVE SECTIONAL GROUND RODS A MINIMUM OF 30 FEET.



JOIN SECTIONAL GROUND RODS BY EXOTHERMIC WELDING CONNECTION

NOTES

1. BOND CLASS II, 28 STRAND (MINIMUM), 15 AWG (MINIMUM) ROPE-LAY BARE COPPER CONDUCTOR TO THE MAIN GROUND ROD BY AN EXOTHERMIC WELD METHOD. MAINTAIN MAXIMUM HORIZONTAL SEPARATION BETWEEN COPPER CONDUCTOR AND RISER.
2. EXOTHERMICALLY WELD ALL CONNECTIONS TO GROUND RODS.
3. THE CONTRACTOR MAY, UPON APPROVAL OF THE ENGINEER, INSTALL A 30' SECTIONAL GROUND ROD FOR INSTANCES WHEN CONDITIONS WILL NOT ALLOW FOR THE INSTALLATION OF THE 3 - RADIAL GROUND RODS.
4. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12".
5. REMOVE BONDING JUMPER BETWEEN EQUIPMENT CABINET GROUND BUS AND NEUTRAL BUS.

ATKINS 5200 77 CENTER DR, SUITE 500 CHARLOTTE, NC 28217 704.665.4411 NCBEES #F-0326

Prepared for the Offices of: STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION Transportation Mobility and Safety Division Intelligent Transportation Systems

750 N. Greenfield Pkwy., Garner, NC 27529

CCTV Camera Installation, Wood Poles U/G Elec. Service

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

SCALE

REVISIONS	INIT.	DATE

SEAL NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HENRY ALFRED BADGETT III

H. Alfred Badgett 11/6/13

SIGNATURE DATE

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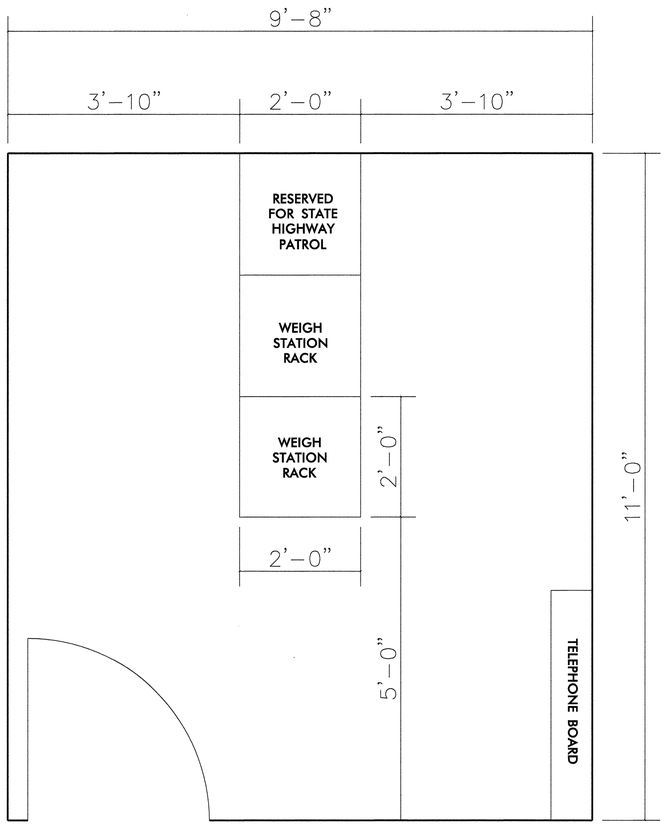
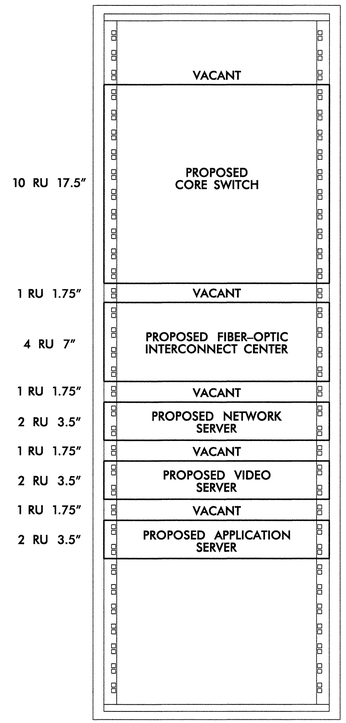
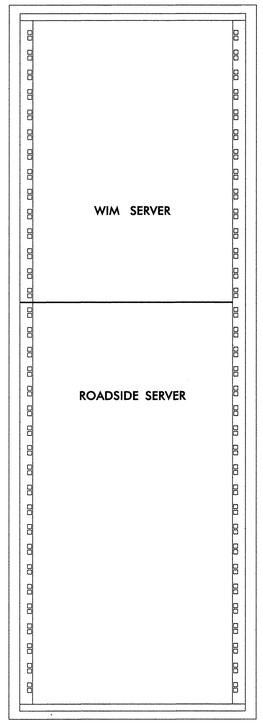
PROJECT REFERENCE NO.	SHEET NO.
I-4928	SD-15



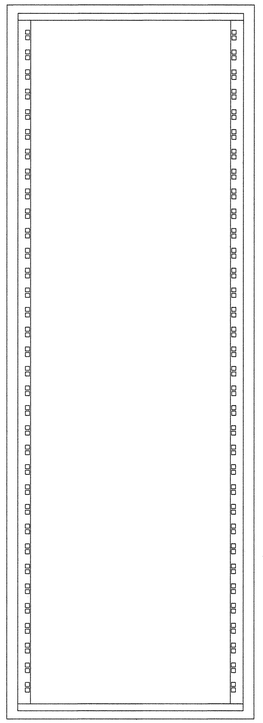
WEIGH STATION RACK 1



WEIGH STATION RACK 2



HIGHWAY PATROL RACK



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CHARLOTTE, NC 28217
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Prepared for the Offices of:

Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems

750 N. Greenfield Pkwy., Garner, NC 27529

SCALE

Net Rack Room Layout

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HENRY ALFRED BADGETT III

H. Alfred Badgett 11/6/13

SIGNATURE DATE

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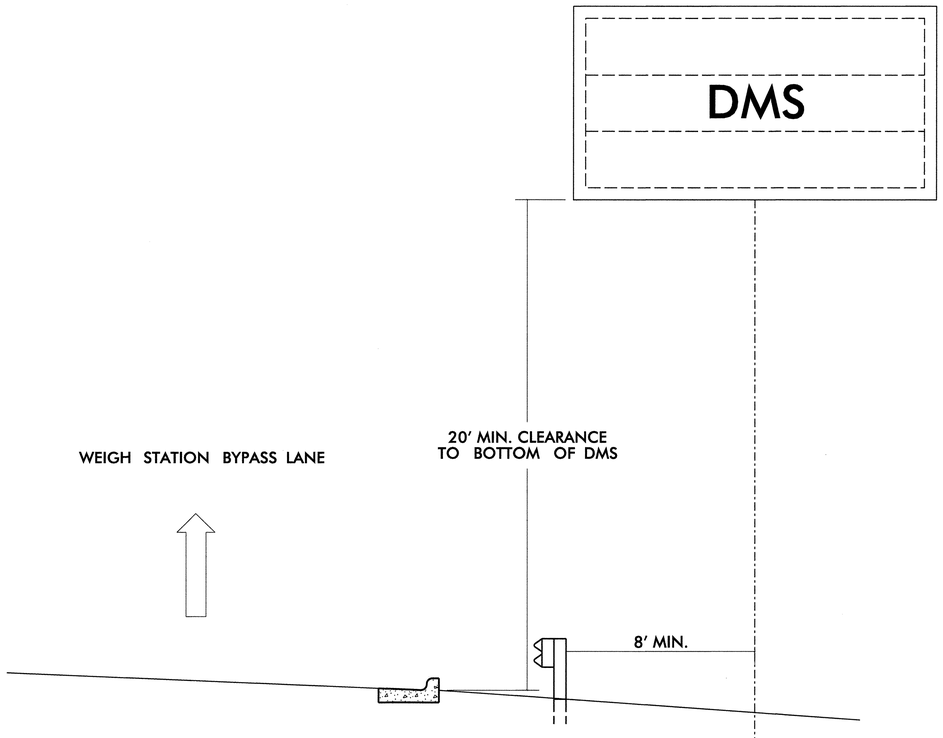
23633

PROJECT REFERENCE NO.	SHEET NO.
I-4928	SD-16

ESTIMATED DIMENSION: 15' X 8'
MAXIMUM DEADLOAD OF 1500 LBS



NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR FURNISHING DMS ELEVATIONS FOR ENGINEER'S APPROVAL.
2. USE THE ACTUAL DIMENSIONS AND WEIGHT OF THE DMS PROVIDED BY THE DMS FABRICATOR TO COMPLETE THE DESIGN OF THE DMS STRUCTURE.
3. FIELD VERIFY ALL FOOTING ELEVATIONS AND GROUND SLOPES AT THE FOOTINGS USING THE LATEST NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
4. ENSURE THAT THE TOP OF THE FOOTING EXTENDS AT LEAST 6 INCHES AND NOT MORE THAN 24 INCHES ABOVE THE HIGHEST POINT OF THE GROUND SURFACE AT THE FOOTING.
5. DESIGN AND CONSTRUCT THE PEDESTAL STRUCTURE AND DMS ENCLOSURE TO WITHSTAND WIND VELOCITIES OF 90 MPH.
6. VERIFY ALL UNDERGROUND UTILITY LOCATIONS BEFORE BEGINNING ANY UNDERGROUND WORK. DO NOT DAMAGE ANY EXISTING UTILITIES OR NCDOT COMMUNICATIONS CABLE DURING CONSTRUCTION.

ATKINS 5200 77 CENTER DR, SUITE 500
CHARLOTTE, NC 28217
704.665.4411 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Integrated Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

DMS Installation

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

SCALE	REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
19962
ENGINEER
HENRY ALFRED BAGGETT, III

SIGNATURE DATE

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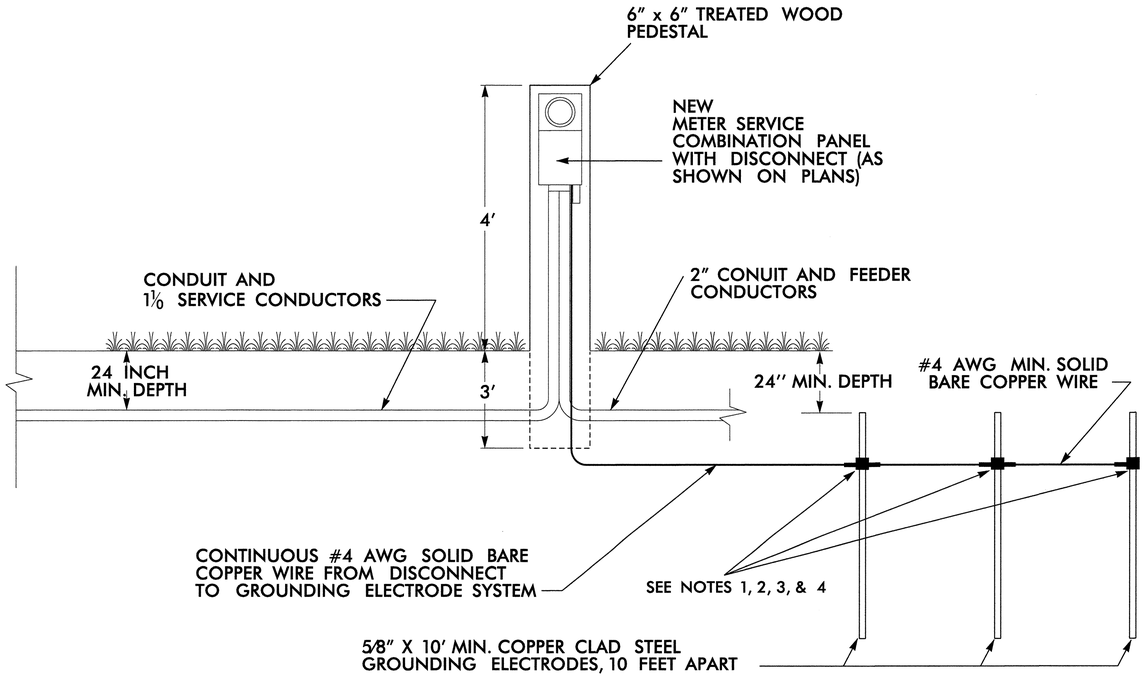
PROJECT REFERENCE NO.	SHEET NO.
I-4928	SD-17

NOTES

1. INSTALL A MINIMUM OF THREE (3) GROUNDING ELECTRODES SPACED A MINIMUM OF 10 FEET APART. ENSURE THAT EXISTING UNDERGROUND FACILITIES ARE NOT DAMAGED DURING INSTALLATION.
2. TEST GROUNDING SYSTEM USING AN APPROVED METHOD. SYSTEM SHOULD MEASURE TWENTY (20) OHMS OR LESS. ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER TO MEET THIS REQUIREMENT.
3. EXOTHERMICALLY WELD ALL CONNECTIONS TO GROUND RODS.
4. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12 INCHES.



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Prepared for the Offices of:
Department of Transportation Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

Electrical Service and Grounding Detail

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

SCALE

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HENRY ALFRED BADGETT, III
H. Alfred Badgett 11/6/10
SIGNATURE DATE

CADD Filename: SD-17.dgn

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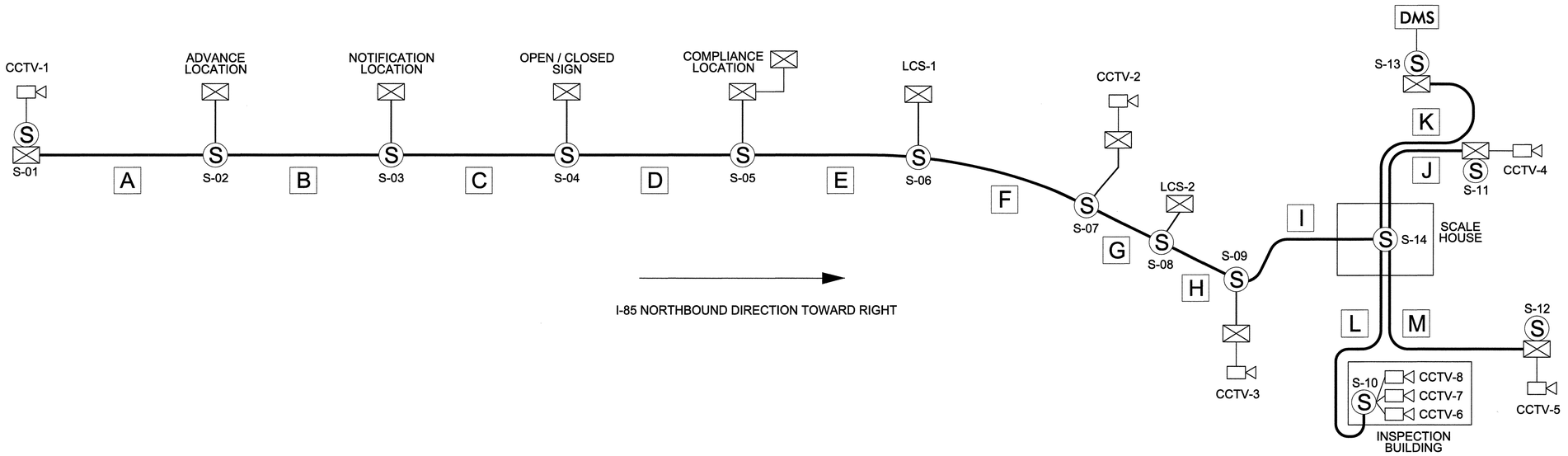
23653

PROJECT REFERENCE NO.	SHEET NO.
I-4928	FS-01



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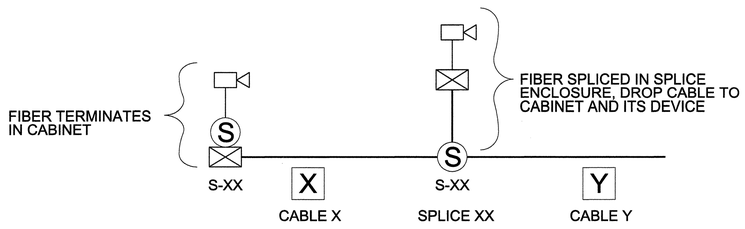

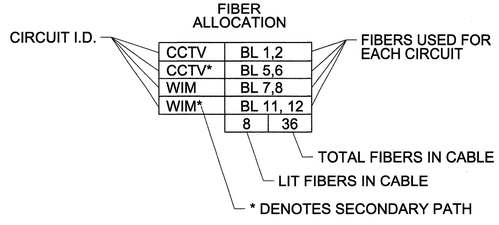

CABLE NUMBERS / FIBER ALLOCATION

A	B	C	D	E	F	G	H	I

CCTV	BL 1, 2	
CCTV*	BL 5, 6	
WIM	BL 7, 8	
WIM*	BL 11, 12	
	8	36

CABLE NUMBERS / FIBER ALLOCATION

J	K	L	M

CCTV	BL 1,2	
CCTV*	BL 5,6	
	4	6

CABLE NUMBERS / FIBER ALLOCATION

K

DMS	BL 1,2	
DMS*	BL 5,6	
	4	6

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Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

Comms. Cable Schematic

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

SCALE: NTS

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HENRY ALFRED BADGETT III

SIGNATURE DATE 11/6/13

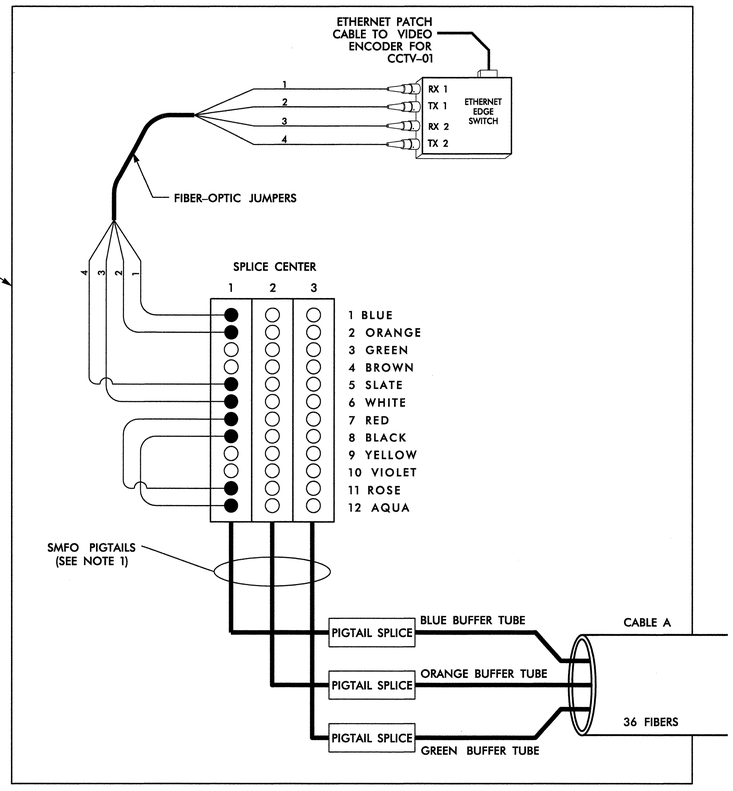
CADD Filename: FS-01.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-4928	FS-02

SPLICE ENCLOSURE NO.

S-01

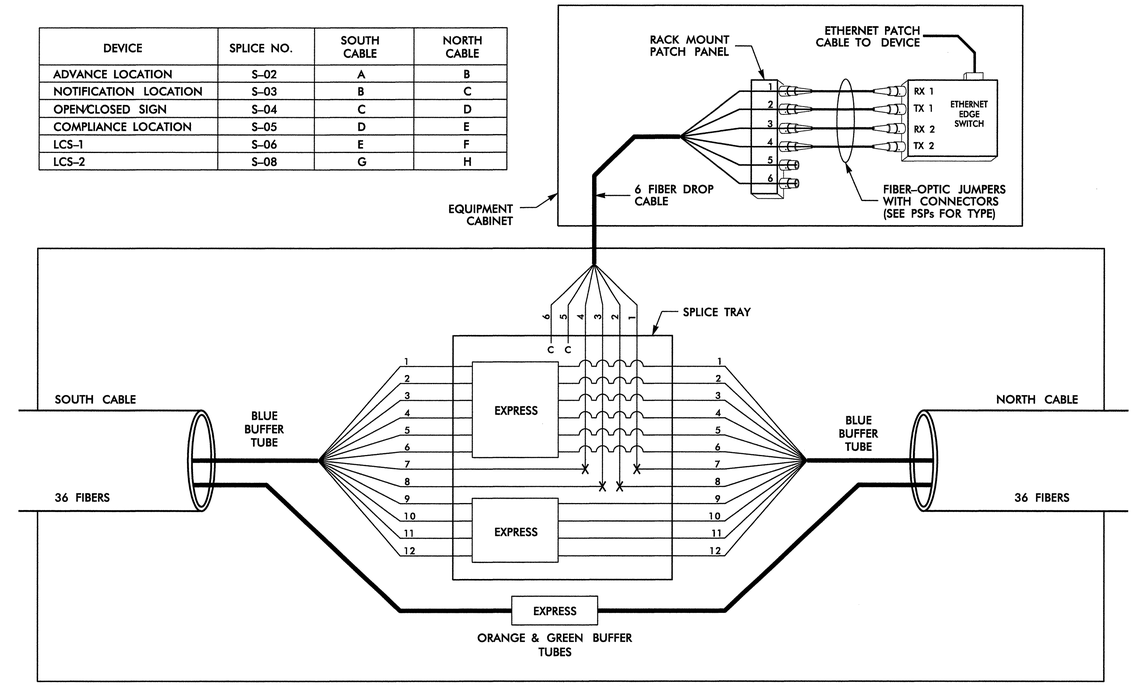
CCTV-1



NOTE:

1. SPLICE SMFO PIGTAILS TO BUFFER TUBES COLOR TO COLOR.

DEVICE	SPLICE NO.	SOUTH CABLE	NORTH CABLE
ADVANCE LOCATION	S-02	A	B
NOTIFICATION LOCATION	S-03	B	C
OPEN/CLOSED SIGN	S-04	C	D
COMPLIANCE LOCATION	S-05	D	E
LCS-1	S-06	E	F
LCS-2	S-08	G	H



NOTE:

1. NORTH CABLE AND SOUTH CABLE REFERENCES BASED ON I-85 NORTHBOUND AND SOUTHBOUND TRAFFIC FLOW DIRECTIONS; NORTH CABLE IS TO SCALE HOUSE.

LEGEND

COLOR CODE TIA/EIA 598-B

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

X = FUSION SPLICE INDIVIDUAL FIBER

C = CAP AND SEAL

EXPRESS = EXPRESS ENTIRE BUFFER TUBE /FIBERS THROUGH WITHOUT CUTTING

BUFFER SPLICE = SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR

NOTES

1. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY
2. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE ENCLOSURE
3. EDGE SWITCH CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING/ENSURING THE PROPER TERMINATIONS.

ATKINS 5200 77 CENTER DR, SUITE 500 CHARLOTTE, NC 28217 704.665.4411 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

Fiber-Optic Splicing Details

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

SCALE

REVISIONS	INIT.	DATE

SEAL NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HENRY ALFRED BADDELEY

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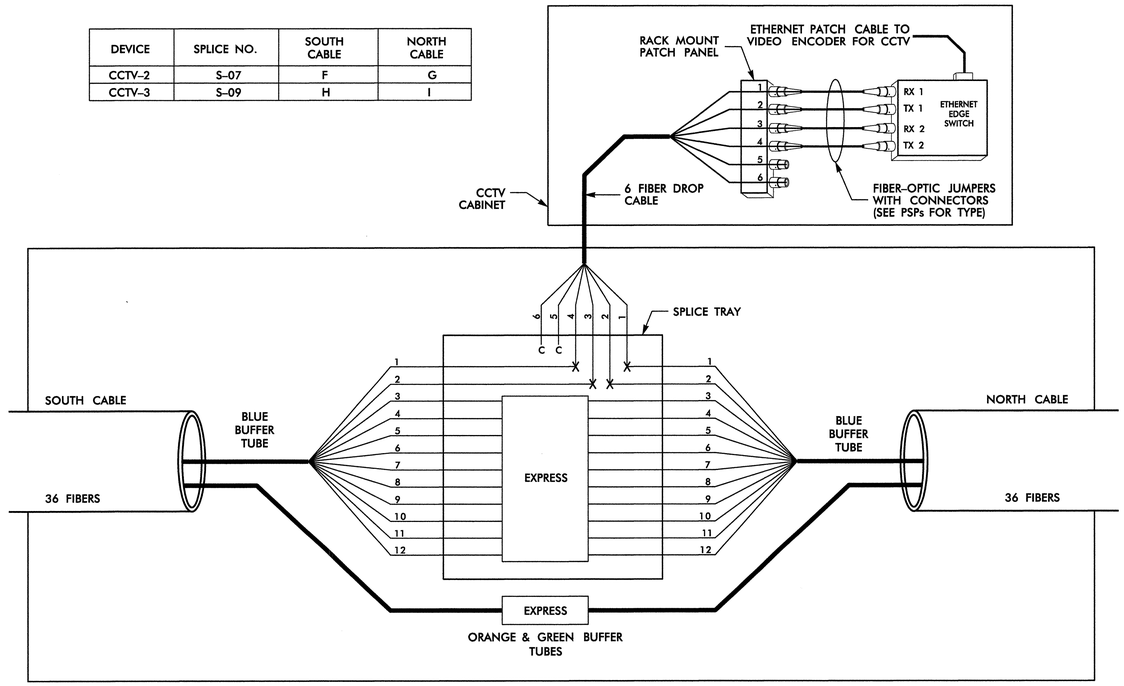
23653

PROJECT REFERENCE NO.	SHEET NO.
I-4928	FS-03

DEVICE	SPLICE NO.	SOUTH CABLE	NORTH CABLE
CCTV-2	S-07	F	G
CCTV-3	S-09	H	I



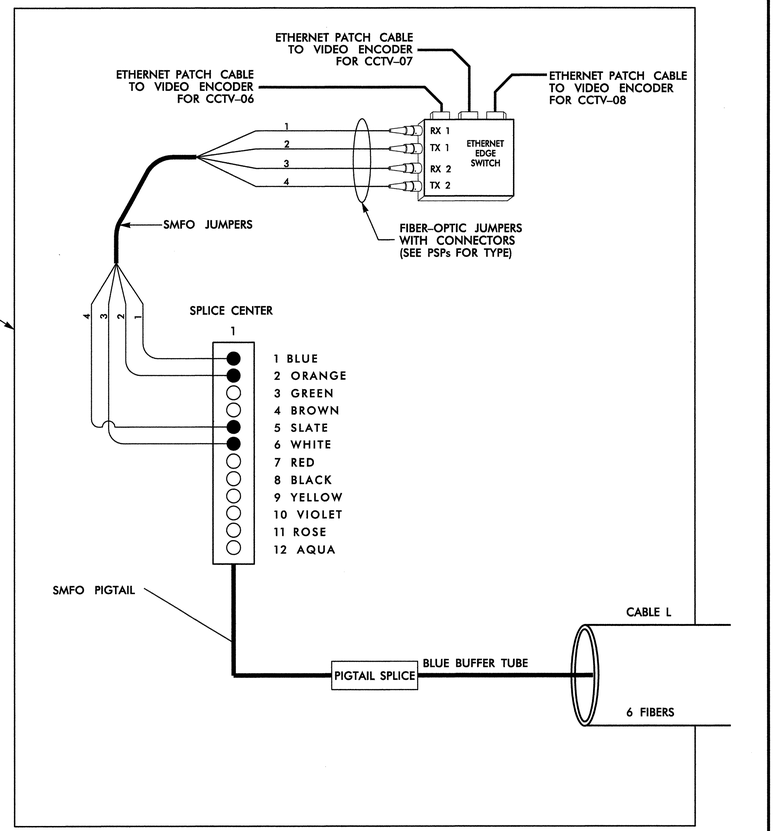
NOTE:

1. NORTH CABLE AND SOUTH CABLE REFERENCES BASED ON I-85 NORTHBOUND AND SOUTHBOUND TRAFFIC FLOW DIRECTIONS; NORTH CABLE IS TO SCALE HOUSE.

SPLICE ENCLOSURE NO.

S-10

INSPECTION BUILDING



LEGEND

COLOR CODE TIA/EIA 598-B	
(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
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NOTES

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3. EDGE SWITCH CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING/ENSURING THE PROPER TERMINATIONS.

ATKINS 5200 77 CENTER DR, SUITE 500 CHARLOTTE, NC 28217 704.665.4411 NCBEES #F-0326

Prepared for the Offices of: Transportation Mobility and Safety Division, North Carolina Department of Transportation, Intelligent Transportation Systems, 750 N. Greenfield Pkwy., Garner, NC 27529

Fiber-Optic Splicing Details

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

REVISIONS	INIT.	DATE

SCALE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HENRY ALFRED BADGETT III

SIGNATURE H. Alfred Badgett DATE 11/6/13

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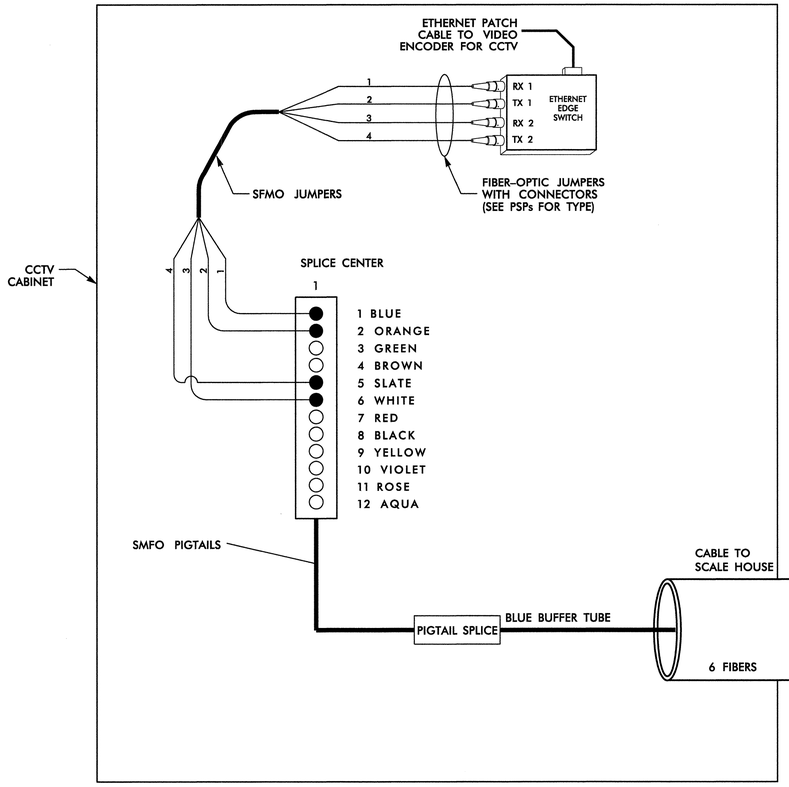
23653

PROJECT REFERENCE NO.	SHEET NO.
I-4928	FS-04

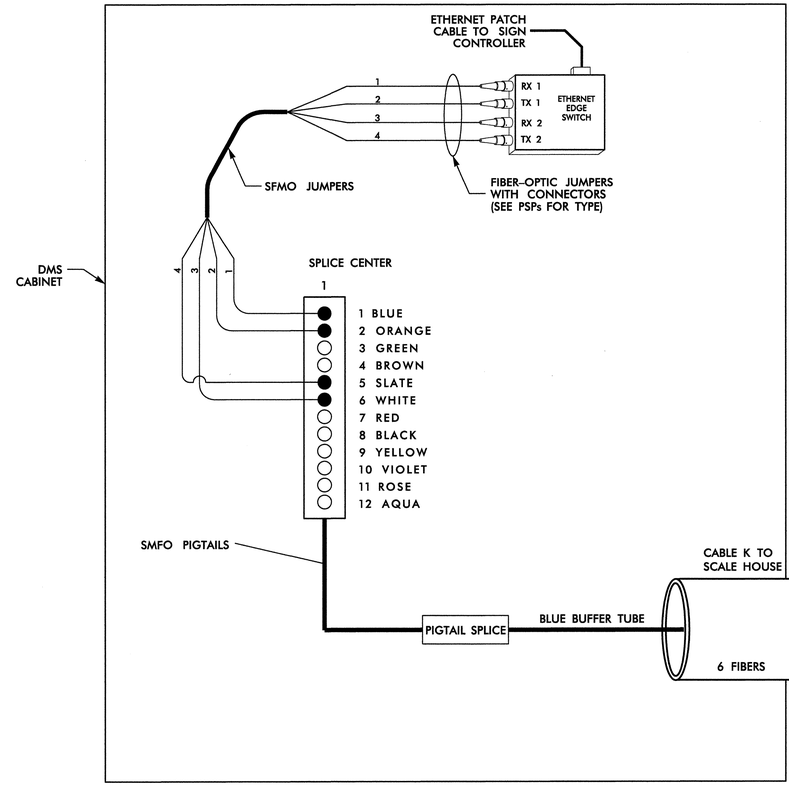
DEVICE	SPLICE NO.	CABLE TO SCALE HOUSE
CCTV–4	S–11	J
CCTV–5	S–12	M



SPLICE NO.

S-13

DMS



LEGEND

COLOR CODE TIA/EIA 598–B

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(2) ORANGE	(8) BLACK
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Prepared for the Offices of:
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Intelligent Transportation Systems
750 N. Greenfield Pkwy., Garner, NC 27529

SCALE

Fiber-Optic Splicing Details

DIVISION 12 GASTON CO.

PLAN DATE:	November 2013	REVIEWED BY:	HAB
PREPARED BY:	BJS	REVIEWED BY:	SGH

REVISIONS	INIT.	DATE

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NORTH CAROLINA PROFESSIONAL SEAL 19962 ENGINEER HENRY ALFRED BADGETT III

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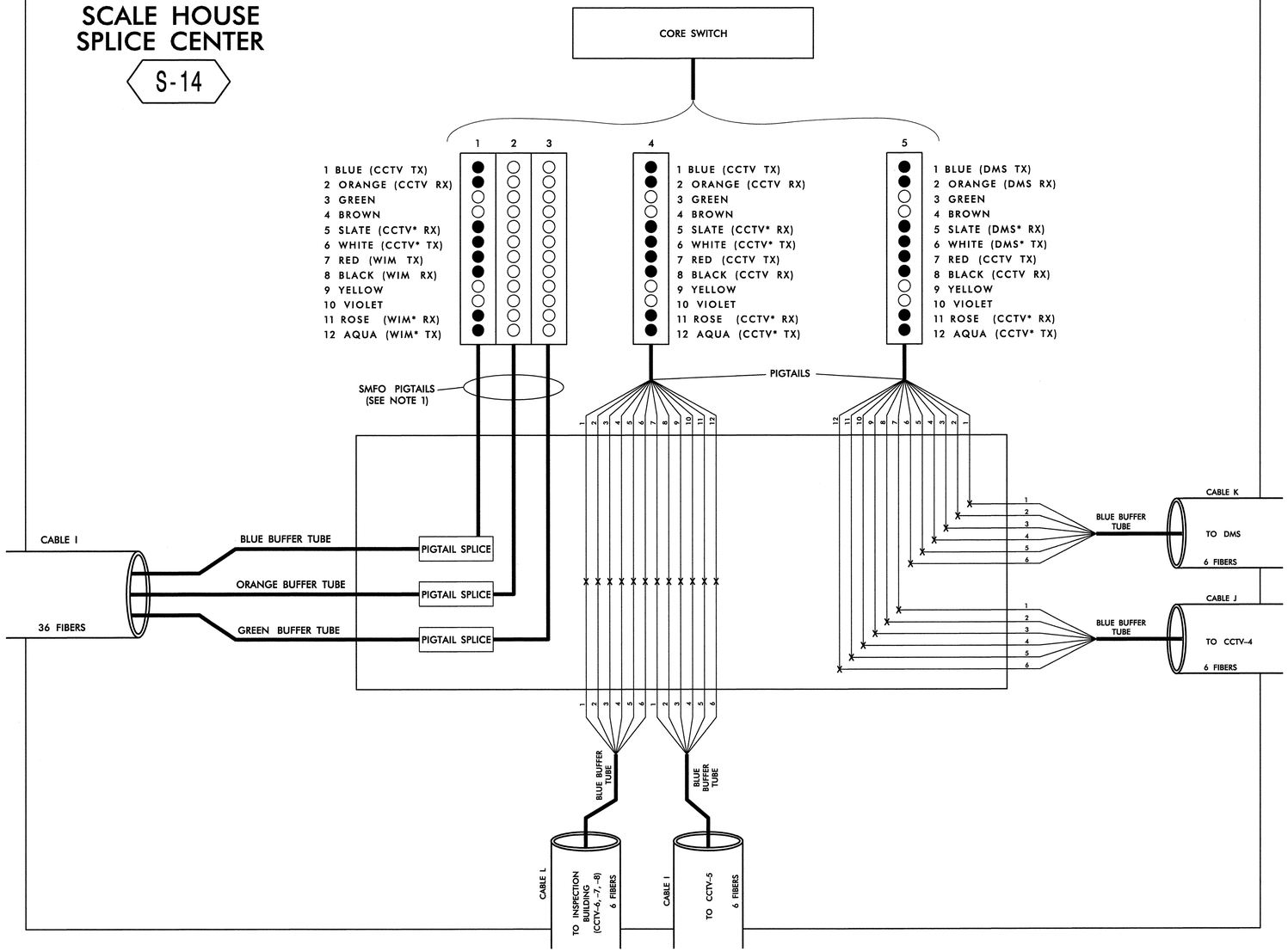
PROJECT REFERENCE NO.	SHEET NO.
I-4928	FS-05

SCALE HOUSE SPLICE CENTER

S-14



NOTES:

1. SPLICE SMFO PIGTAILS TO BUFFER TUBES COLOR TO COLOR.
2. * DENOTES SECONDARY PATH.

LEGEND

COLOR CODE TIA/EIA 598-B

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
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CHARLOTTE, NC 28217
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DEPARTMENT OF TRANSPORTATION
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Fiber-Optic Splicing Details

DIVISION 12 GASTON CO.

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SCALE

REVISIONS	INIT.	DATE

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19962 HENRY ALFRED BADGETT III

SIGNATURE DATE 11/6/13

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