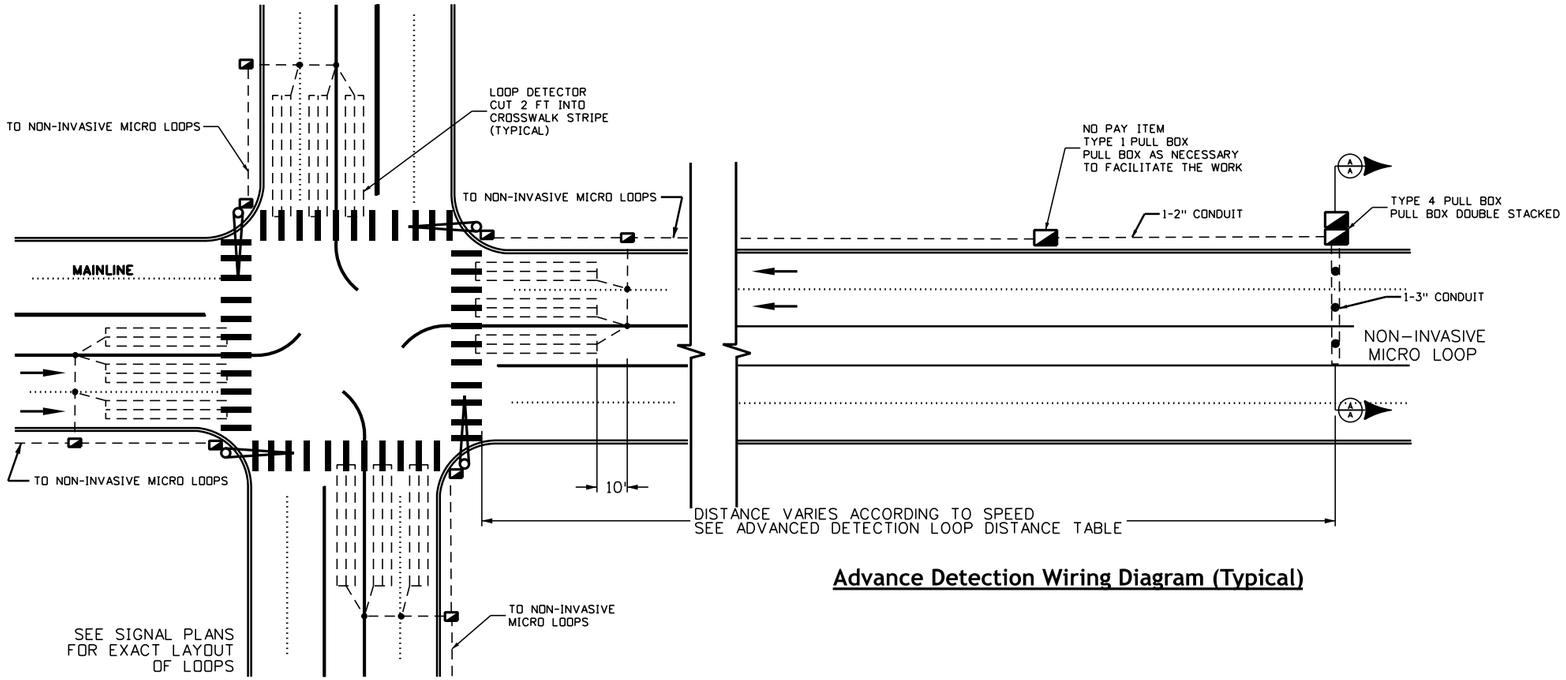


Advance Detection Wiring Diagram (Typical)

Advanced Detection Loop Distance Table

APPROACH SPEED		DISTANCE FROM INTERSECTION
MPH	KM/HR	FEET
35	56	254
40	64	284
45	72	327
50	80	353
55	88	386

Intersection Detector Wiring Diagram (Typical)
(Not to scale)

Legend

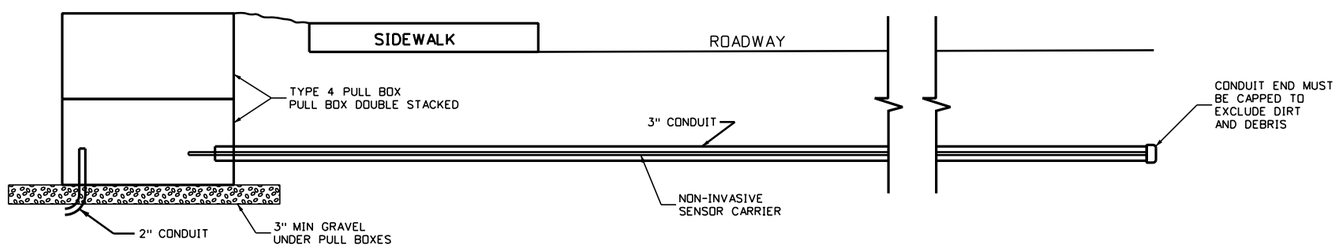
Controller and cabinet.....

Electrical conduit and pull box.....

Loop detector.....

Pullbox (special).....

Micro detector.....



Section A-A

Typical Detail
Non-Invasive Microdetector
(Dilemma Zone)

Notes

1. All pull boxes are not to be paid for seperately, but shall be included in the cost of the conduit. Except for where called out in the plans.
2. All pull boxes placed for the "Advanced Detection Wiring" shall be placed approximately every 100 feet and shall be included in the cost of the conduit.
3. For layout of loop detectors and conduit, the contractor shall notify CDOT Region Traffic Engineers, two working days in advance.
4. See plans for actual lane configurations.

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Traffic Loop and Miscellaneous Signal Details

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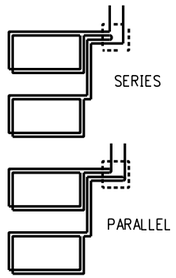
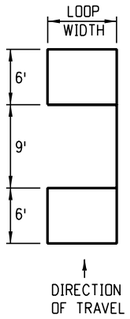
Standard Sheet No. 1 of 8
Project Sheet Number:

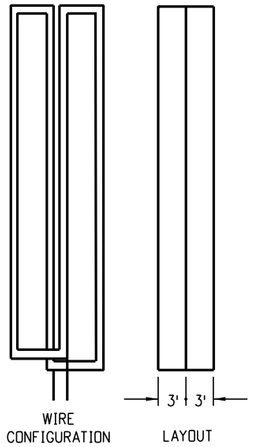
Wire Configuration



Layout



Standard Loop



Quadrapole Loop

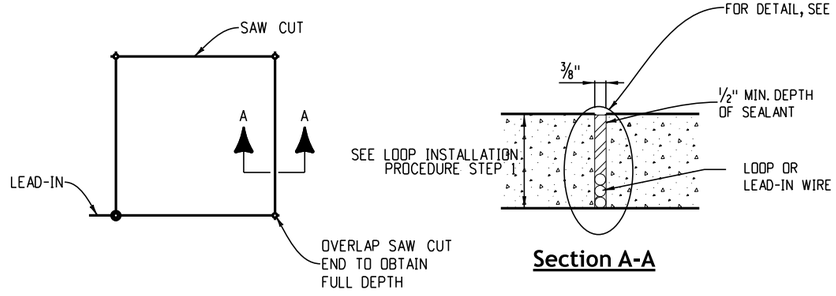
Standard Loop - Wiring and Connection Table

NO. OF LOOPS	WIDTH OF LOOP (FEET)									
	6	8	10	12	14	16	18	20	24-36	40+
1	4	3	3	3	3	3	3	3	2	2
2	3S	3S	3S	3P	2S	2S	2S	2S	2S	2P
3	3S	3S	2S	2S	3SP	3SP	3SP	3SP	2SP	2P
4	3SP	3SP	3SP	2SP	3SP	3SP	3SP	2SP	2SP	2SP

Turns per loop and type connection
(S = series, P = parallel)

Loop Installation Procedure

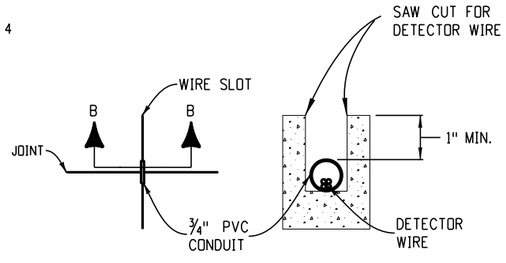
1. Cut slots in pavement to 3 inch minimum depth (4 inch minimum for ramp meters).
2. Clean and dry slots with oil-free compressed air.
3. One continuous length of 14/IC, RHW, USE, XLPE, RHWN or THW wire shall be used for each loop from signal base or pull box around the loop with the number of turns specified and back to the signal base or pull box. Loop wire shall be duct type.
4. Splice lead-in in first pull box on the side of the roadway.
5. Use a blunt, non-metallic instrument to push wire into slot. Do not coil leads.
6. Connect detector and test loop.
7. Install loops before final lif of asphalt on mill and fill projects.
8. Seal slots as specified.



Section A-A

Vehicle Detector Loop Saw Cut Details

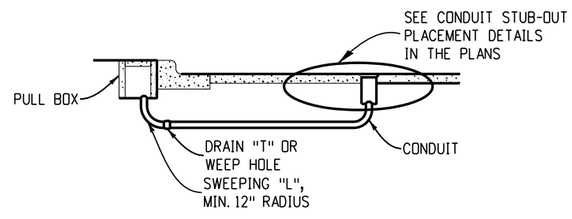
(For use with vinyl tubing encased loop detector wire)



Section B-B

Detector Wire Across Bridge Joints

Quadrapole loops shall be of the size shown unless otherwise on the plans.



Loop Detector Lead-In

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Creation Date: 07/14/12		Date:	Comments
Created By: KEN			
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Traffic Loop and Miscellaneous Signal Details

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Standard Plan No.
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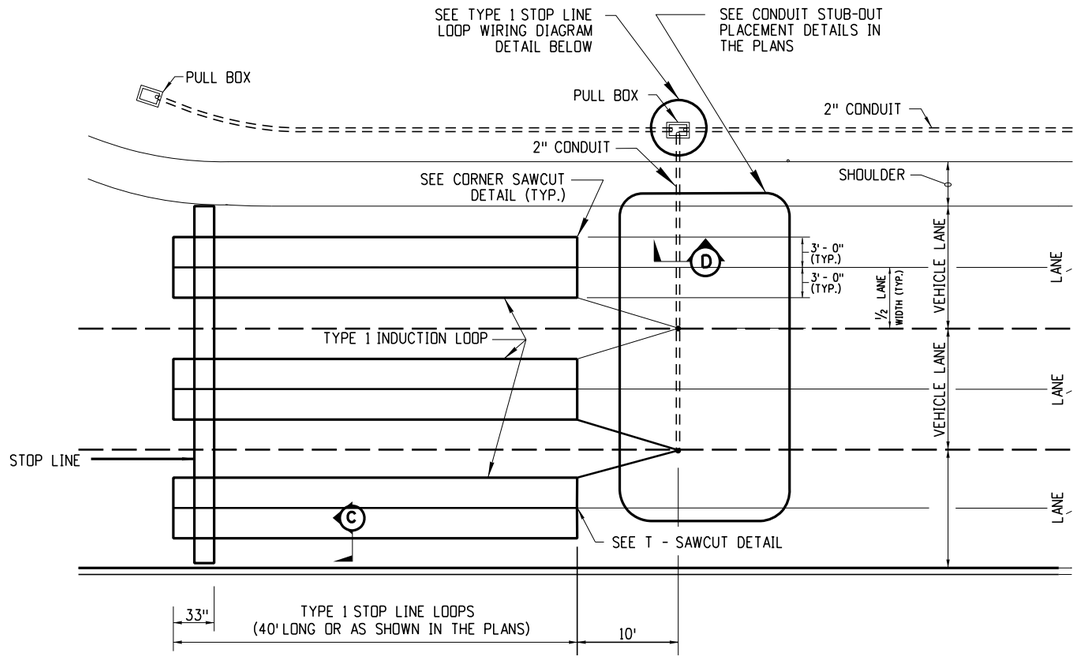
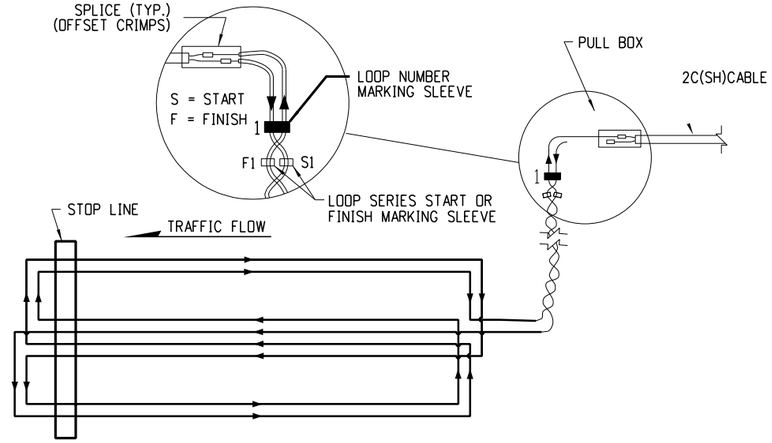
Standard Sheet No. 2 of 8
Project Sheet Number:



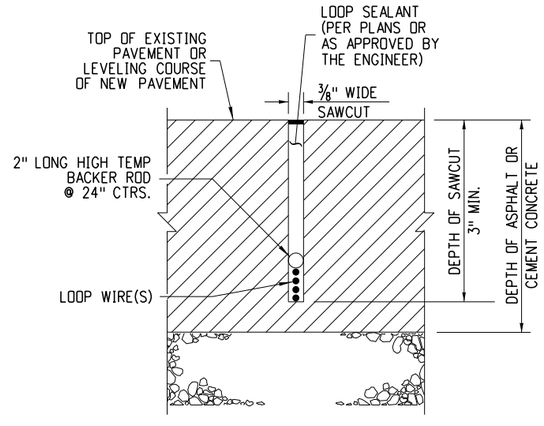
Type 1 Stop Line Loops - Plan View

Notes

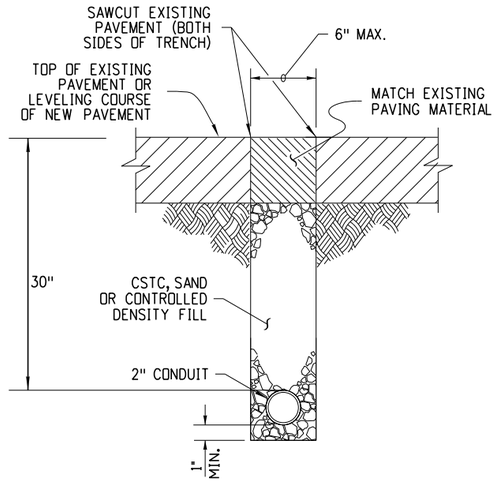
1. Twist lead-in cables all the way to pull box.
2. Splice lead-in in first pull box on side of the roadway.



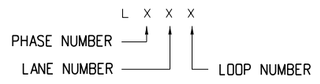
Type 1 Stop Line Loop Wiring Diagram



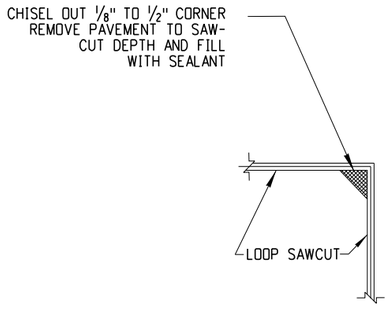
Section C-C



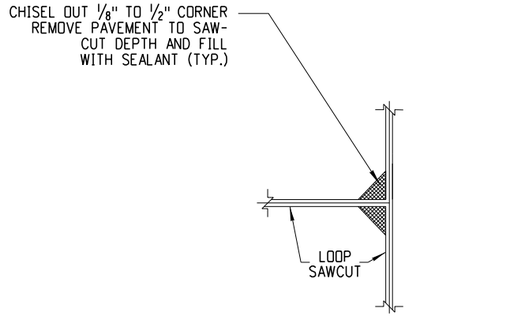
Section D-D



Loop Number Marking Detail



Corner Sawcut Detail



T - Sawcut Detail

Type 1 Induction Loop

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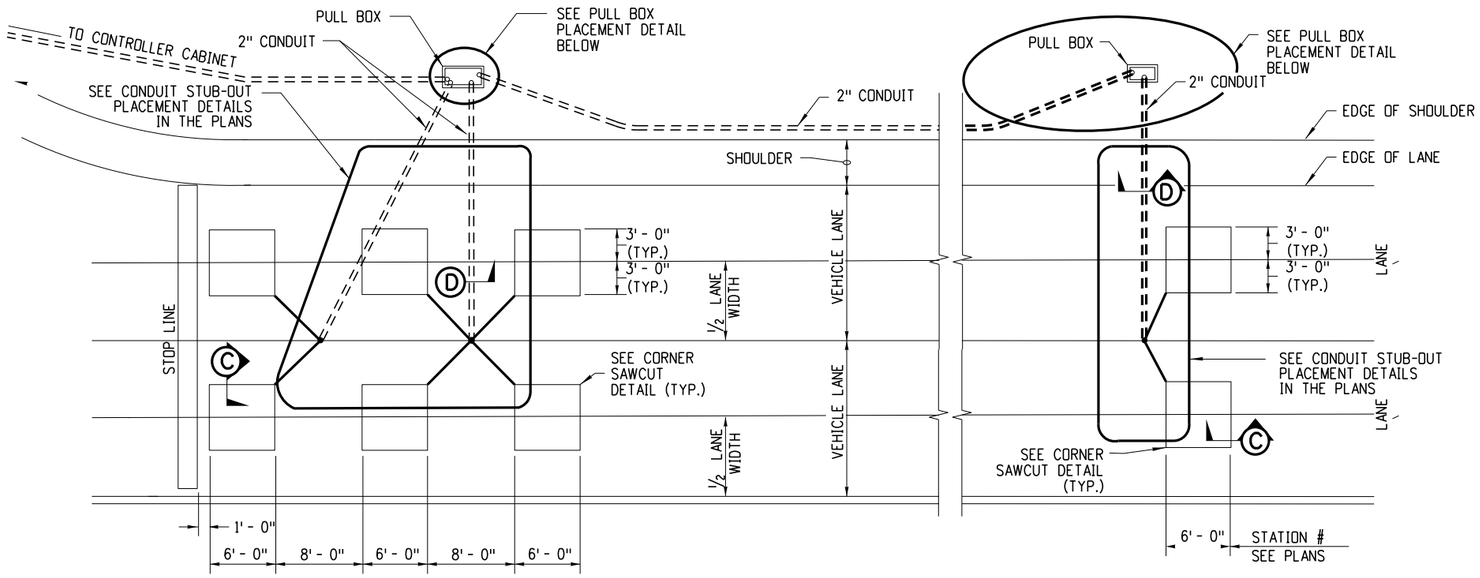
Standard Plan No.
S-614-43
Standard Sheet No. 3 of 8
Project Sheet Number:

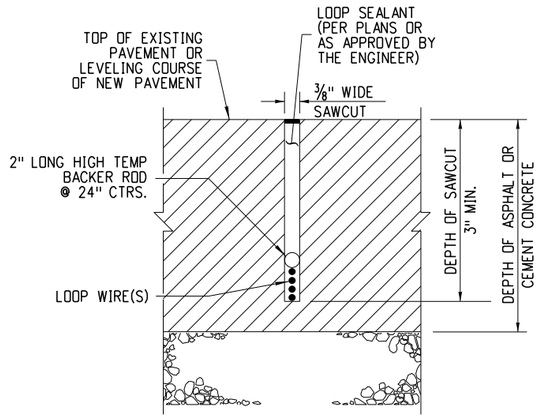


Type 2 Stop Line Loops

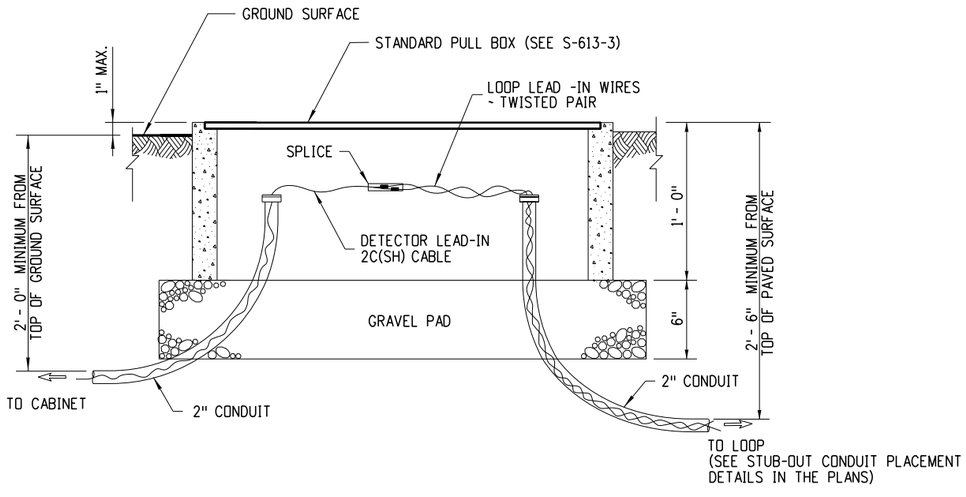
Type 2 Advance Loops

Notes

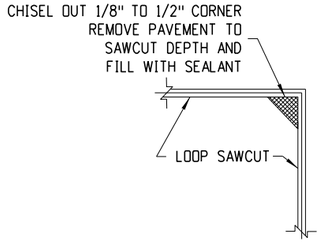
1. All of the loop lead-in wires shall return to the pull box.



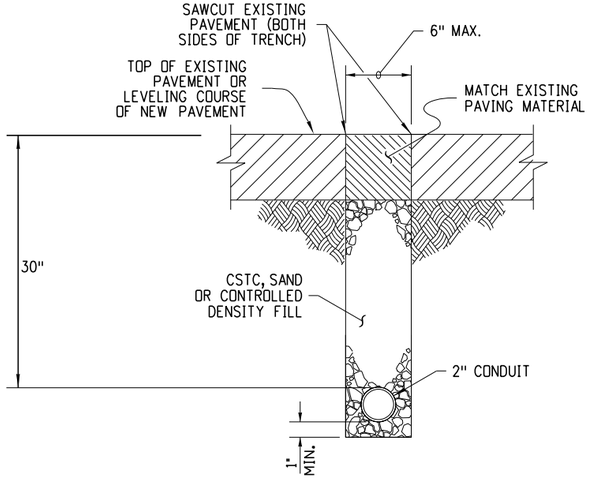
Section C-C



Pull Box Placement Detail



Corner Sawcut Detail



Section D-D

Type 2 Induction Loops (For conventional highways)

Computer File Information		Sheet Revisions	
Creation Date: 07/14/12		Date:	Comments
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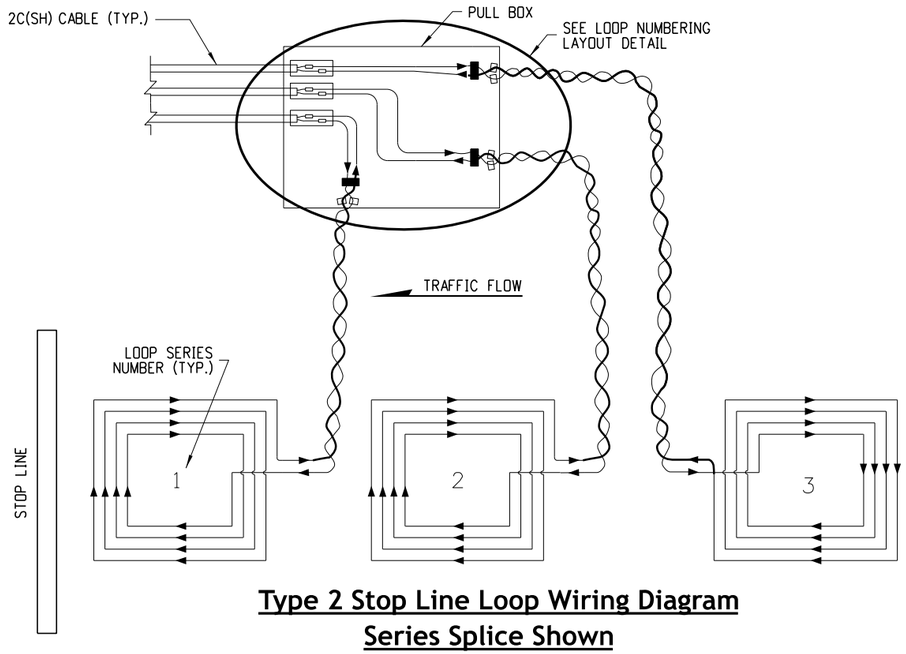
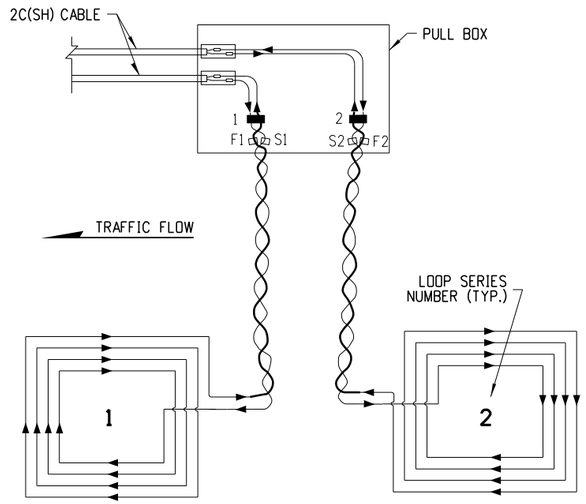
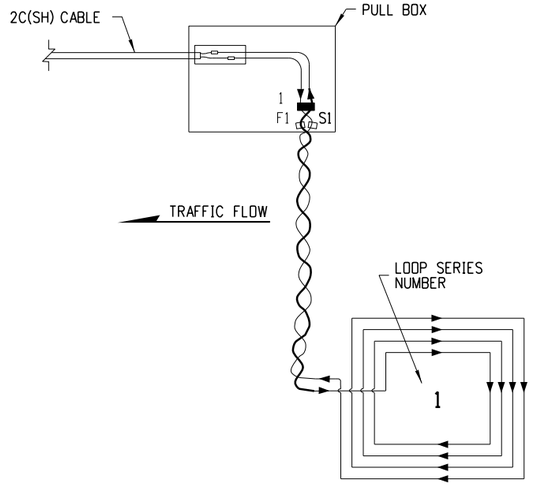
Standard Plan No.
S-614-43
Standard Sheet No. 4 of 8
Project Sheet Number:



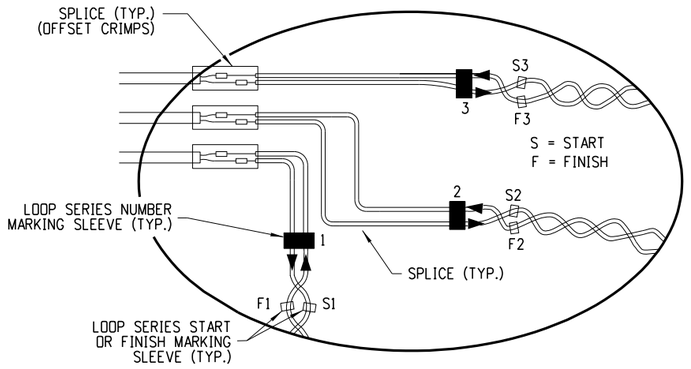
Type 2 Stop Line Loop Wiring Diagram
Series Splice Shown



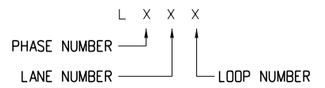
Type 2 Sampling Loop Wiring Diagram
Series Splice Shown



Type 2 Advance Loop Wiring Diagram



Loop Numbering Layout Detail



Loop Number Marking Detail

Notes

1. For wiring and conduit layout, see conduit stub-out placement detail in plans.
2. Splice lead-in in first pull box on the side of the roadway.

Type 2 Induction Loop

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Standard Plan No.
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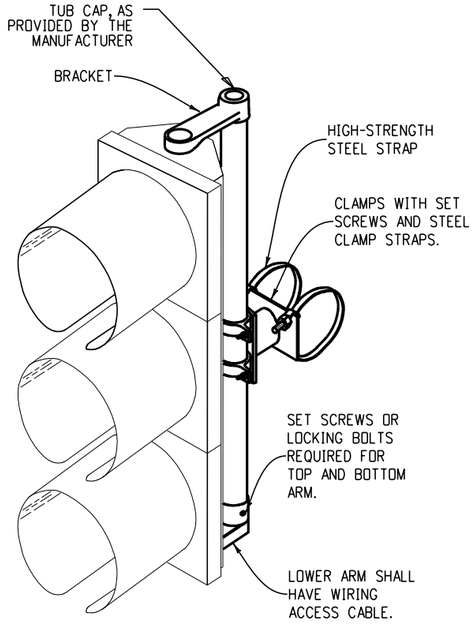
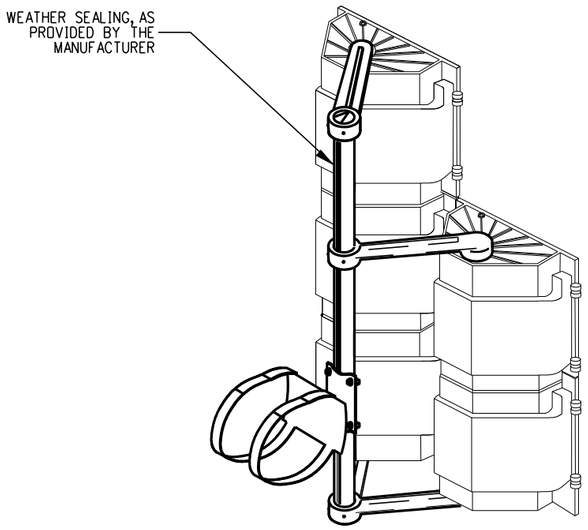
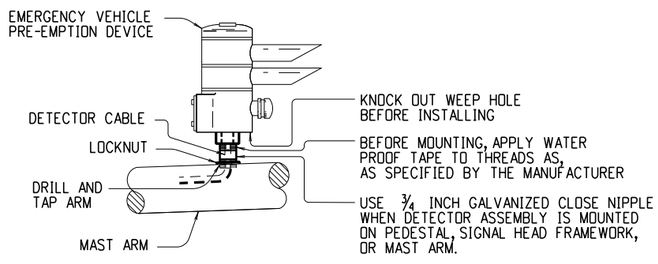
Standard Sheet No. 5 of 8
Project Sheet Number:





Astro-Type Mounting Bracket



Emergency Vehicle Pre-Emption Device Mounting Detail

Notes

1. Signal head configurations shall be as shown on plans.
2. Install mounting brackets according to the manufacturer's instructions.
3. Use Astro-type mounting brackets for mounting except for lighted signs, on mast arms, see Standard Plan S-614-20, using ¾ inch wide banding.
4. Lighted street name signs shall utilize Astro-type designed for the required design loading and be free-swinging to reduce wind loading effect.
5. The gasket inside the top head mount should be inside the head.
6. The inside of the visor is to be powder coated black mounting brackets overhead signs.
7. Cable support bracket and safety cable from mast arm to head shall be provided.

Mast-Arm Mounting Brackets

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Standard Plan No.
S-614-43
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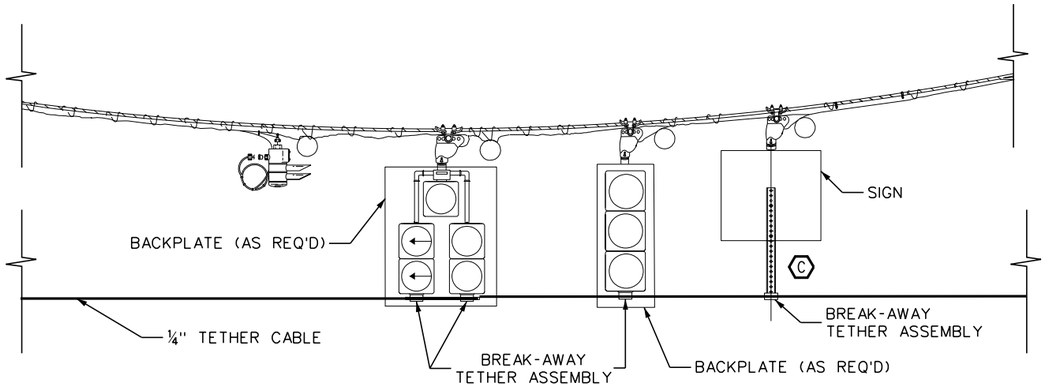
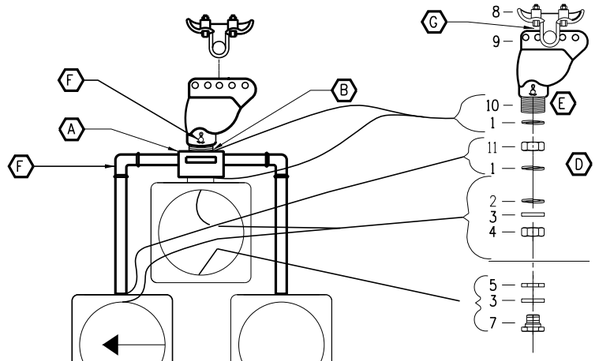
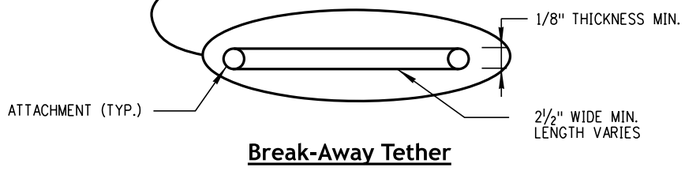
Project Sheet Number:



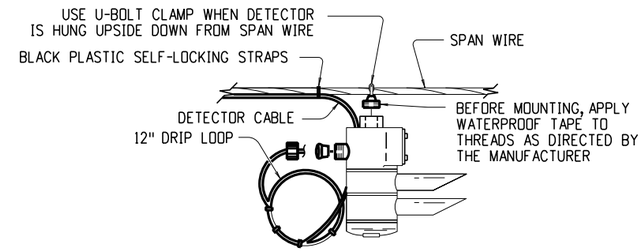
Span Wire Hanger Assembly Detail for Traffic Signals



Direct Assembly Detail



Break-Away Tether Assembly Detail



Span Wire Mounting Detail for Emergency Vehicle Pre-Emption Device

Legend

- (A) Top bracket center hub shall be minimum 3.5 inch square and 3 inches deep or equal volume. Serration cast in hub, tabbed or serrated lockring, openings shall be threaded.
- (B) Nipple length depends on span height.
- (C) Sign support bracket assembly shall utilize span wire clamp adjustment and be adjustable to accommodate varying span height. Tether support bar shall be attached to the sign using a minimum of two (2), 5/16 inch bolts, spaced a minimum of 6 inches apart.
- (D) Apply silicone caulk between or around serrated lockring and housing.
- (E) All thread
- (F) Setscrew (square or allen) on all fittings.
- (G) Install stainless steel washer on the inside of the cotter pin. Cotter pin and washer shall be on the side of the hanger away from the signal cables.

Item Description for Assembly Detail

1 - Serrated tabbed lockring, aluminum (tab must be full width of ring)

2 - Gasket, neoprene

3 - Washer, steel

4 - Hex nut, steel

5 - Conduit locknut, steel

6 - Bushing plastic (only in junction box or nippled down traffic signal)

7 - Octagonal cap, aluminum

8 - Span wire clamp

9 - Wire outlet body, steel, female only

10 - Nipple, steel

11 - Hex nut, steel, notched with setscrews

Span Wire Mounting Bracket Details

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Standard Plan No.
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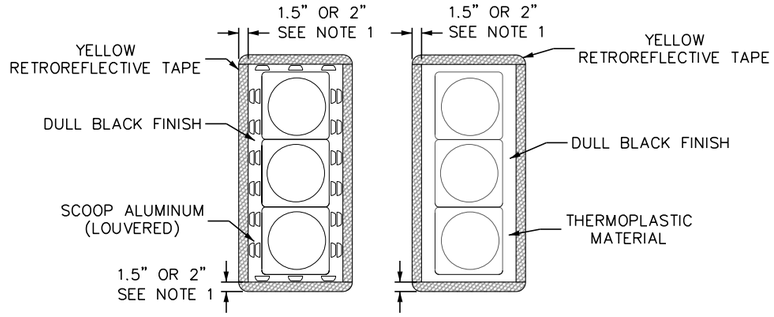
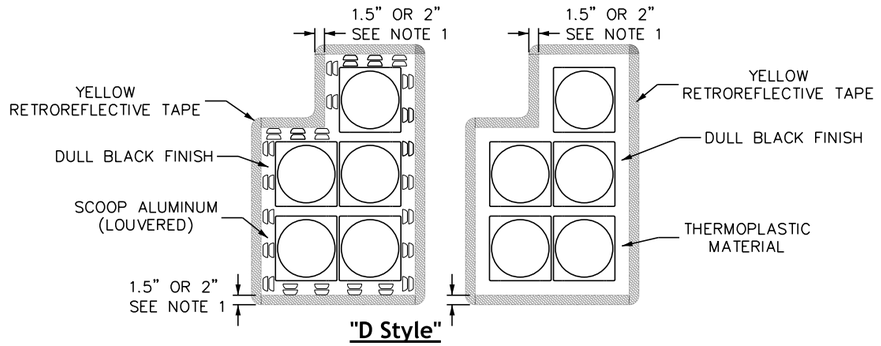
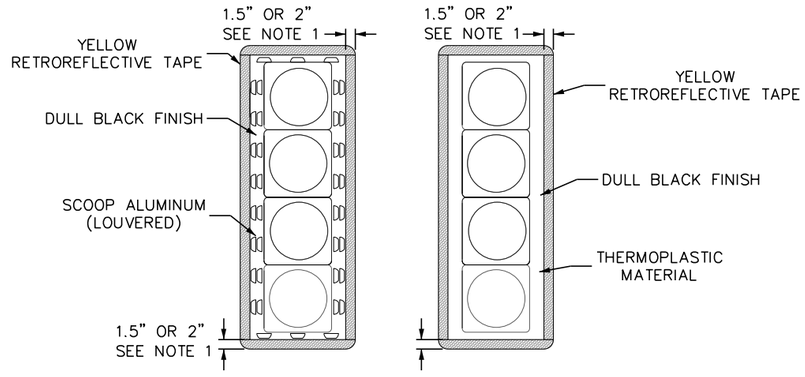
Standard Sheet No. 7 of 8
Project Sheet Number:



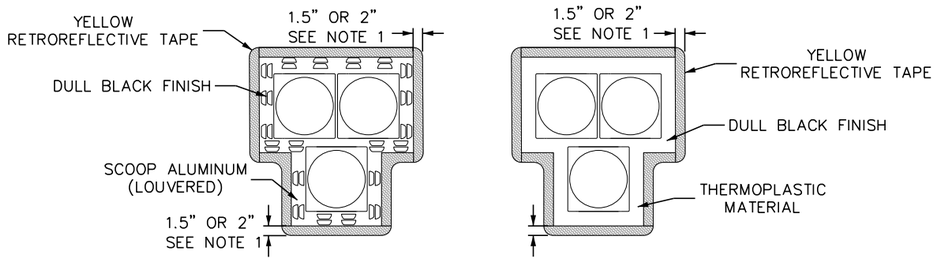
Three-Section Backplate with Retroreflective Borders



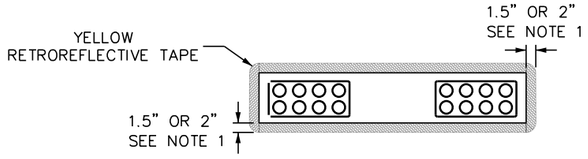
"D Style"
Five-Section Backplate with Retroreflective Borders



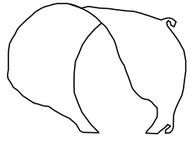
Four-Section Backplate with Retroreflective Borders



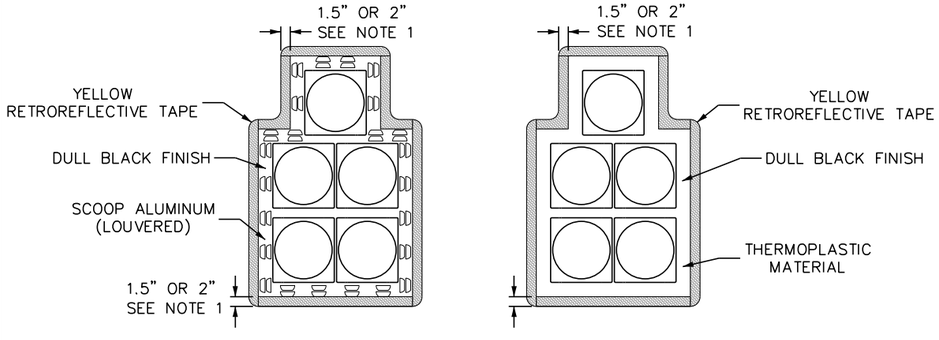
Pedestrian Hybrid Beacon Backplate with Retroreflective Borders



Rectangular Rapid Flashing Beacon with Retroreflective Borders



Traffic Signal Ball Cap Visor



"Doghouse" Five-Section Backplate with Retroreflective Borders

Notes

1. Retroreflective borders shall be 1.5 or 2 inches in thickness as shown in the project plans.
2. Traffic signal equipment shall obtain approval from the Engineer prior to ordering.
3. Retroreflective tape shall meet or exceed ASTM D4956 Type XI requirements.
4. Traffic signal backplates shall be installed at the locations shown in the project plans.
5. Traffic signal ball cap visors shall be installed with an identical color to the existing visors.
6. Traffic signal backplates may be field modified to fit to existing traffic signal heads.

Typical Installation
Backplates with Retroreflective Borders

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Traffic Loop and Miscellaneous Signal Details

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