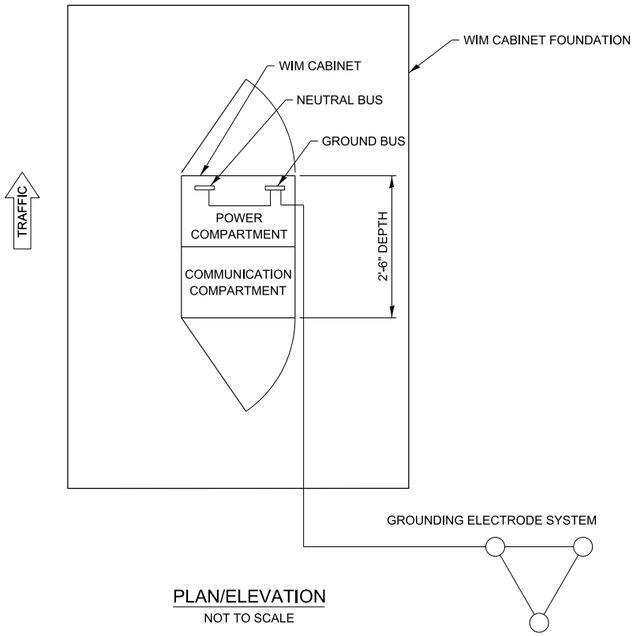
Illinois Tollway Base Sheet Revisions

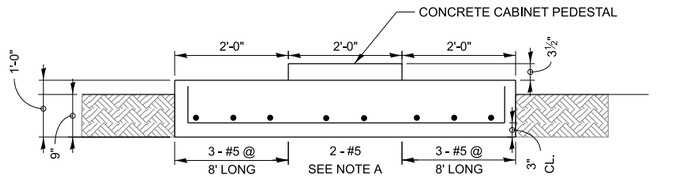
Section M	Base Sheet Drawings	
	Drawing	**Modification Summary** **Effective: 03-01-2024**
	Weigh-in-Motion (ITS)-Series 1600	
	M-ITS-1600	**Weigh-In-Motion Cabinet and Foundation Details**
		Remove reference to Note 17 for Cisco switch and Cisco power supply
	M-ITS-1603	**Weigh-In-Motion 3 Lanes**
	Sheet 1	Note A: Change the designation to say: Junction Box with WIM Electronics
		Note 5: Add "straight grade obtained by diamond grinding"
	M-ITS-1604	**Weigh-In-Motion 4 Lanes**
	Sheet 1	Note A: Change the designation to say: Junction Box with WIM Electronics
		Note 5: Add "straight grade obtained by diamond grinding"
	M-ITS-1605	**Weigh-In-Motion 6 Lanes**
	Sheet 1	Note A: Change the designation to say: Junction Box with WIM Electronics
		Note 5: Add "straight grade obtained by diamond grinding"
	M-ITS-1606	**Weigh-In-Motion Junction Box Detail**
		Plan View: added a note to say Slipformed not permited 7 feet before the centerline of the junction box and passed 7 feet from the centerline of the junction box
		Side View: Added detail for drain plug with a screen to prevent debris cloging the drain
		Section B-B: Revised dimension to 8" deep
		Section A-A: Revised dimensions of junction box to : 40"x9"x8"
		Section A-A: Added reinforcement bars below the junction box
		Section A-A: Added a note that the junction box shall be centered with the centerline of the median wall
		Added Note: Slip forming the parapet or barrier is not allowed within 7-feet of the centerline of the junction box
	M-ITS-1607	**Weigh-In-Motion Height Detector**
		Sensor Configuration revised to say: mounting height of each sensor at 13 feet 8 inches from the crest of the road
		Added Note to Contractor: Submit site survey for each over height sensors mounting height to confirm mounting is 13 feet 8 inches from the crest of the road
		Revised Note to Contractor to say: Submit Site Survey to the Engineer …

New Sheet

Retired Standard

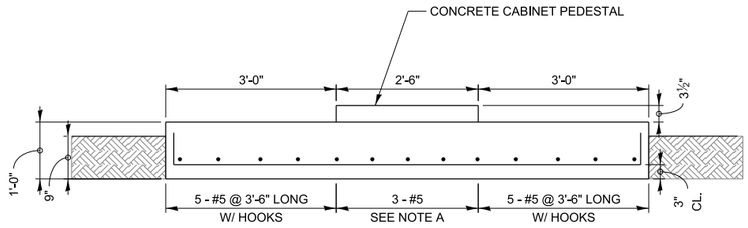


PLAN/ELEVATION
NOT TO SCALE

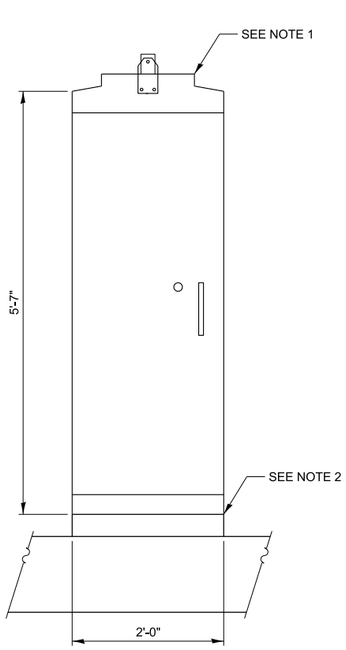


NOTE A:
#5 SHORTER BARS @ EACH SIDE WITH HOOKS

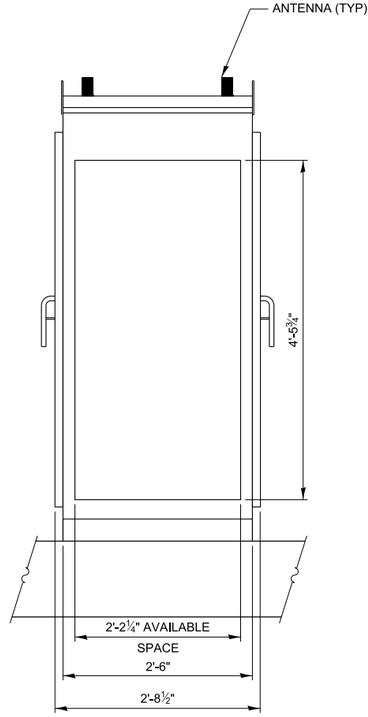
SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE

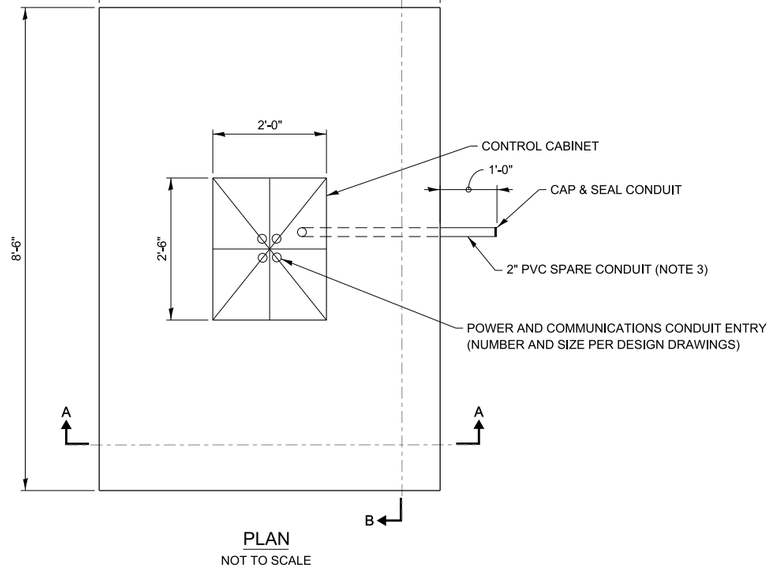


FRONT VIEW
(NO DOOR SHOWN)

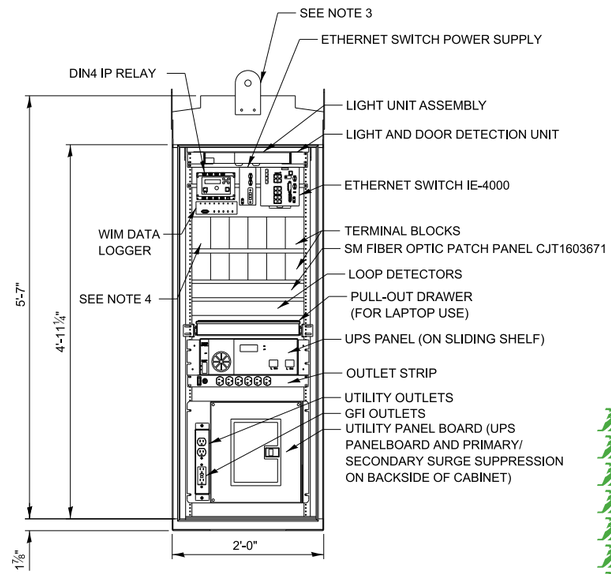


SIDE VIEW

WIM CONTROLLER FOUNDATION DETAILS
NOT TO SCALE



PLAN
NOT TO SCALE



FRONT VIEW
(NO DOOR SHOWN)

WIM CABINET FOUNDATION NOTES:

1. COORDINATE SIZE OF CONDUIT STUB-UP GROUPING WITH WIM CONTROLLER CABINET BOTTOM CONDUIT CUT-OUTS
2. CONCRETE = 4,000 PSI (MIN.)
3. REBAR = EPOXY COATED FY = 60,000 PSI (MIN.)
4. PROVIDE SHOP DRAWINGS FOR APPROVAL PRIOR TO CONSTRUCTION
5. INCLUDE CONDUITS

NOTES:

1. THE WIM INTERNAL CABINET LAYOUT SHALL BE AS PER WIM MANUFACTURER'S RECOMMENDATION AND APPROVED BY THE ILLINOIS TOLLWAY.
2. SEAL CABINET TO FOUNDATION JOINT WITH SILICONE SEALANT TO PREVENT WATER INTRUSION. LOCATE CABINET ABOVE HIGH WATER LEVEL.
3. INSTALL 2" PVC SPARE CONDUIT FOR FUTURE USE. EXTEND 12" OUTSIDE OF CONCRETE FOUNDATION. PROVIDE CONDUIT MARKING FOR EASE OF FUTURE LOCATING.

NOTE TO DESIGNER

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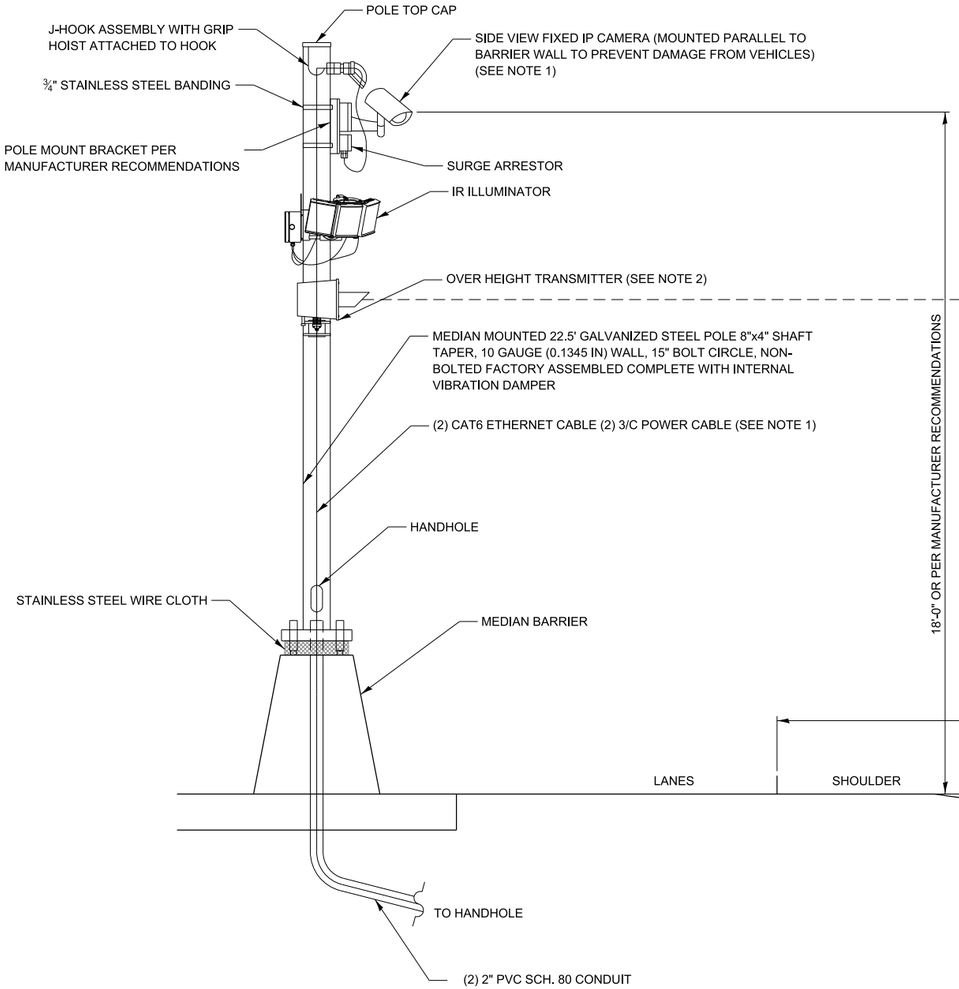
Illinois Tollway

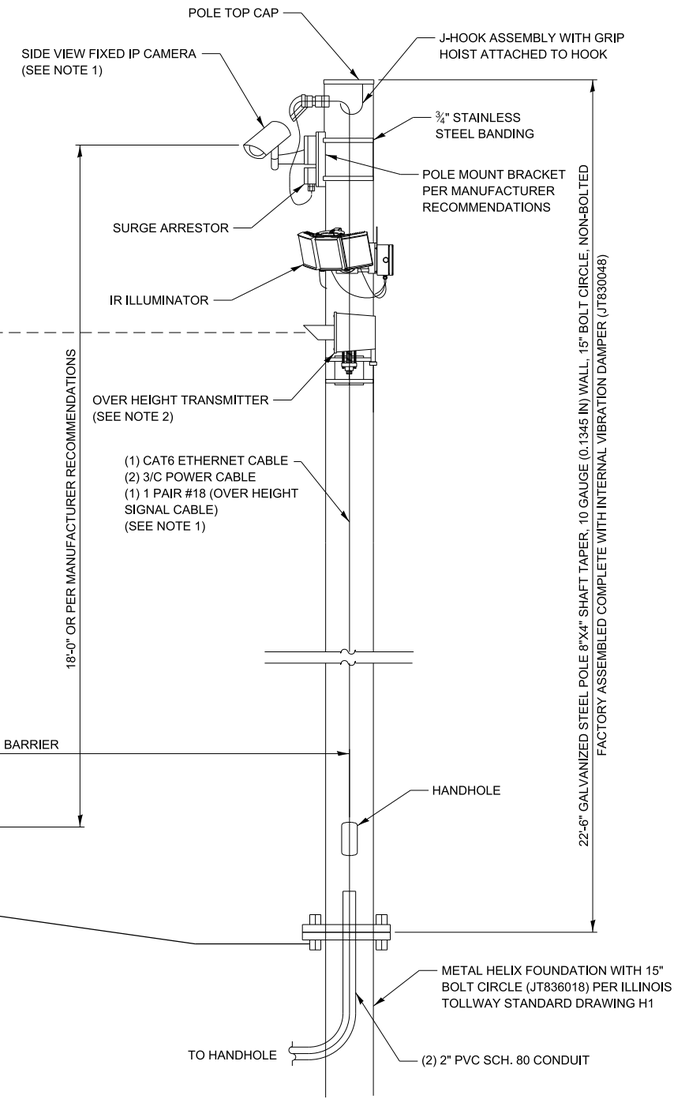
WEIGH-IN-MOTION CABINET AND FOUNDATION DETAILS

VERSION:	STANDARD:	SHEET:
2024-03	M-ITS-1600	1 OF 1



NOTES:

1. THE NUMBER OF CAMERAS AND ASSOCIATED CABLING SHALL BE IN ACCORDANCE WITH THE WEIGH-IN-MOTION MANUFACTURER REQUIREMENTS TO PROVIDE FULL ENFORCEMENT COVERAGE OF ALL LANES INDICATED ON THE PLANS.
2. SEE WEIGH-IN-MOTION HEIGHT DETECTOR SHEET FOR ADDITIONAL DETAILS OF OVER HEIGHT DETECTOR INSTALLATION.



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WEIGH-IN-MOTION IP CAMERA DETAILS

VERSION:	STANDARD:	SHEET:
2020-08	M-ITS-1601	1 OF 1

LOOP DETECTOR SPLICE DETAIL

① WESTERN UNION SPLICE SOLDERED WITH ROSIN CORE FLUX. ALL EXPOSED SURFACES OF THE SOLDER SHALL BE SMOOTH. THE WESTERN UNION SPLICES SHALL BE STAGGERED.

② WCSMW 30/100 HEAT SHRINK TUBE, MINIMUM LENGTH 3" (75 mm), UNDERWATER GRADE.

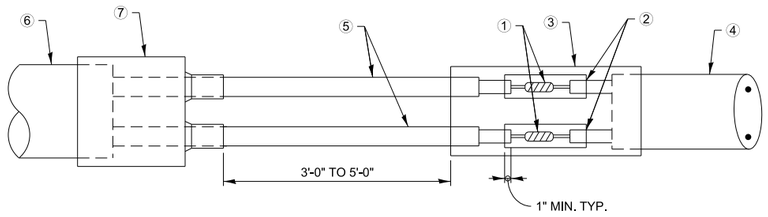
③ WCSMW 30/100 HEAT SHRINK TUBE, MINIMUM LENGTH 6" (150 mm), UNDERWATER GRADE.

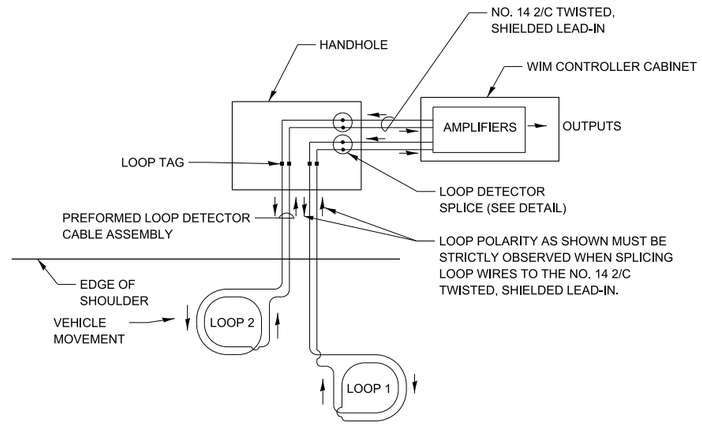
④ NO. 14 2/C TWISTED, SHIELDED CABLE.

⑤ LOOP CONDUCTOR WITH FLEXIBLE PLASTIC TUBE.

⑥ PRE-FORMED LOOP.

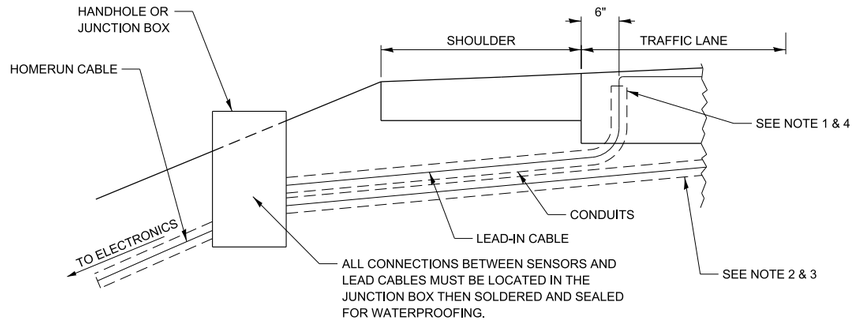
⑦ XL POLYOLEFIN 2 CONDUCTOR BREAKOUT SEALS. TYCO CBR-2 OR APPROVED EQUAL.





DETECTOR LOOP WIRING SCHEMATIC

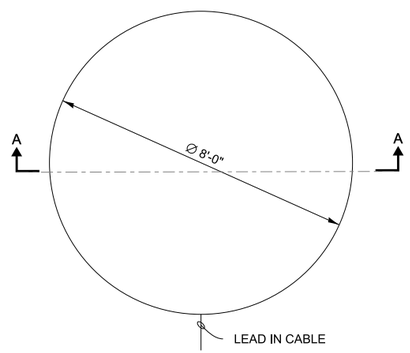
LOOP CABLE ROUTING DETAILS

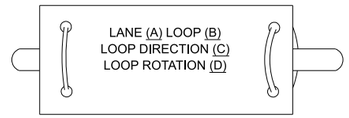


1. SPARE/FUTURE STUB-UP CONDUIT TO 2" BELOW CONCRETE SURFACE. BEFORE POURING CONCRETE, CAP OPENINGS AND PROTECT WITH TAPE AND SOFT MATERIAL TO PREVENT DAMAGE IN FUTURE DISCOVERY. TO BE CUT TO PROPER HEIGHT WHEN SENSORS ARE INSTALLED. USE METALLIC CAP TO ALLOW EASIER DETECTION FOR RE-ENTRY.
2. PLUG AND SEAL CONDUIT OPENING AFTER INSTALLING LOOP LEAD-IN CABLE.
3. INITIAL INSTALL - ROUTE PREFORMED LOOP PROTECTED LEAD TO HANDHOLE OR JUNCTION BOX.
4. FOR FUTURE REPLACEMENT - PLACE STUB UP FOR LOOP TO ALLOW FUTURE SAWCUT LOOP.

TOP VIEW OF PERFORMED LOOP

8' DIA. PERFORMED LOOP INSTALL CENTERED IN THE LANE INTO ASPHALT BASE BEFORE CONCRETE POUR





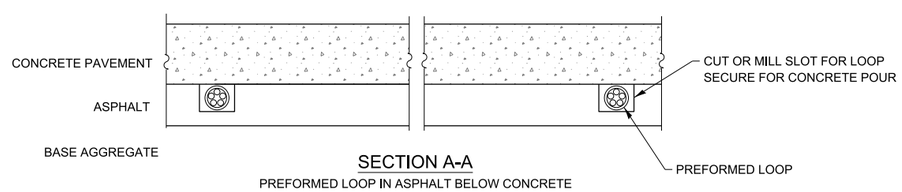
A. LANE 1 IS THE LANE CLOSEST TO THE CENTERLINE OF THE ROADWAY.

B. LOOP #1 IS THE LOOP IN THE LANE DOWN STREAM OF THE QUARTZ SENSORS.

C. LABEL LOOP CABLE "IN" OR LOOP CABLE "OUT".

D. LABEL LOOP CABLE CLOCKWISE OR LOOP CABLE COUNTERCLOCKWISE.

LOOP LEAD-IN CABLE TAG



SECTION A-A

PREFORMED LOOP IN ASPHALT BELOW CONCRETE PAVEMENT DETAIL

NOTE TO DESIGNER

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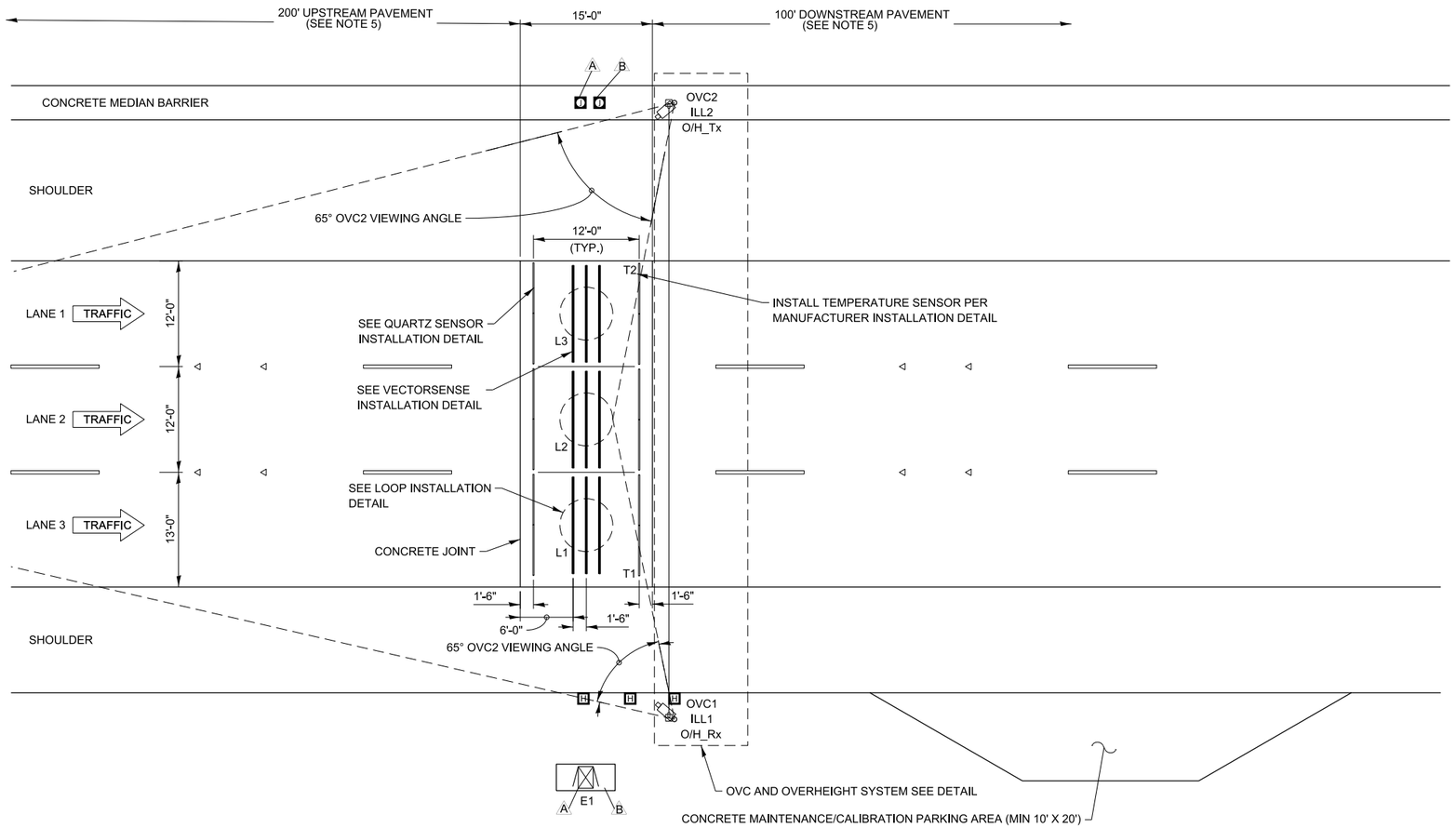
NOTES:

1. PREFORMED DETECTOR LOOPS SHALL BE USED, AS SHOWN ON THE PLANS, SINCE NEW CONCRETE PAVEMENT IS PROPOSED. INSTALLATION SHALL BE ACCORDING TO THE STANDARD SPECIFICATIONS AND MANUFACTURER RECOMMENDATIONS.
2. FOLLOW LOOP DETECTOR MANUFACTURER RECOMMENDATIONS FOR MINIMUM SEPARATION DISTANCE FROM REBAR MATS (APPLICABLE FOR 3 OR 4 LANE PRECAST CONCRETE INSTALLATIONS). USE STAND OFFS AS REQUIRED.
3. LOOP SIZE AND NUMBER OF TURNS AS SPECIFIED ON SITE LAYOUT AND IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

Illinois Tollway

WEIGH-IN-MOTION LOOP DETECTOR DETAILS

VERSION:	STANDARD:	SHEET:
2022-03	M-ITS-1602	1 OF 1



SITE OVERVIEW
NOT TO SCALE

LEGEND

- E - ELECTRONICS ENCLOSURE
- ILL - ILLUMINATOR
- L - INDUCTIVE LOOP
- O/H - OVERHEIGHT SENSOR
- OVC - OVERVIEW CAMERA
- Q - QUARTZ WIM SENSOR
- T - TEMPERATURE SENSOR
- V - VECTORSENSE SENSOR
- Tx - TRANSMITTER
- Rx - RECEIVER
- ⊠ - CABINET
- 1 - SIGNAL CONDUIT
- ① - POWER CONDUIT
- A - NOTE
- ◘ - JUNCTION BOX
- H - HANDHOLE
- WIM HEIGHT DETECTOR
- WIM CAMERA

NOTE TO DESIGNER

DIAMOND GRINDING OF THE 315' LENGTH OF CONCRETE PAVEMENT SHALL OCCUR AFTER PRECAST PANELS ARE INSTALLED. DSE SHALL COORDINATE CONSTRUCTION SCHEDULE AND MAINTENANCE OF TRAFFIC ACCORDINGLY.

NOTES: (THIS SHEET ONLY)

A. JUNCTION BOX WITH WIM ELECTRONICS

B. CABINET FOUNDATION.

GENERAL NOTES:

1. ALL CONNECTIONS BETWEEN SENSORS AND LEAD CABLES SHALL BE DONE WITHIN A PULL BOX BY SOLDERING THEN SEALING FOR WATERPROOFING. PLACEMENT OF PULL BOXES MAY BE DIFFERENT FROM THAT SHOWN TO MEET SITE REQUIREMENTS.
2. AC POWER CABLES MUST BE RUN IN SEPARATE CONDUITS/PULLBOXES FROM SIGNAL CABLES OR SEPARATED INSIDE PULLBOXES WITH A DIVIDER.
3. SENSOR SPACING SHOWN IS TYPICAL SPACING REQUIREMENT, ACTUAL SENSOR SPACING MAY BE ALTERED TO SUIT SITE CONDITIONS IF APPROVED BY THE ENGINEER AND MANUFACTURER REPRESENTATIVE.
4. SITE CONDITIONS MUST MEET ASTM E1318-09 TYPE 1 REQUIREMENTS TO ACHIEVE OPTIMAL WIM SYSTEM PERFORMANCE.
5. A CONCRETE PAVEMENT SECTION ON STRAIGHT GRADE OBTAINED BY DIAMOND GRINDING WITH NO VERTICAL CURVES AND NO SUPERELEVATION TRANSITIONS IS REQUIRED FOR WIM LANES, FROM 200' BEFORE THE SENSORS UP TO 100' AFTER THE SENSORS, TO IMPROVE LONG TERM PERFORMANCE AND REDUCE MAINTENANCE. DIAMOND GRINDING OF THE 315' LENGTH OF CONCRETE PAVEMENT SHALL OCCUR AFTER PRECAST PANELS ARE INSTALLED.
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.
8. EXACT ROUTING OF CONDUIT TO BE DETERMINED ON SITE.
9. PROVIDE 6" MINIMUM SPACING BETWEEN ADJACENT MEDIAN BARRIER JUNCTION BOXES.
10. OVC AND OVERHEIGHT SYSTEM POLES SHALL BE INSTALLED 20' (PREFERRED) TO 100' (MAX) DOWNSTREAM OF WIM SENSORS. POLES SHALL BE APPROXIMATELY IN-LINE WITH EACH OTHER AS SHOWN ON THIS SHEET.

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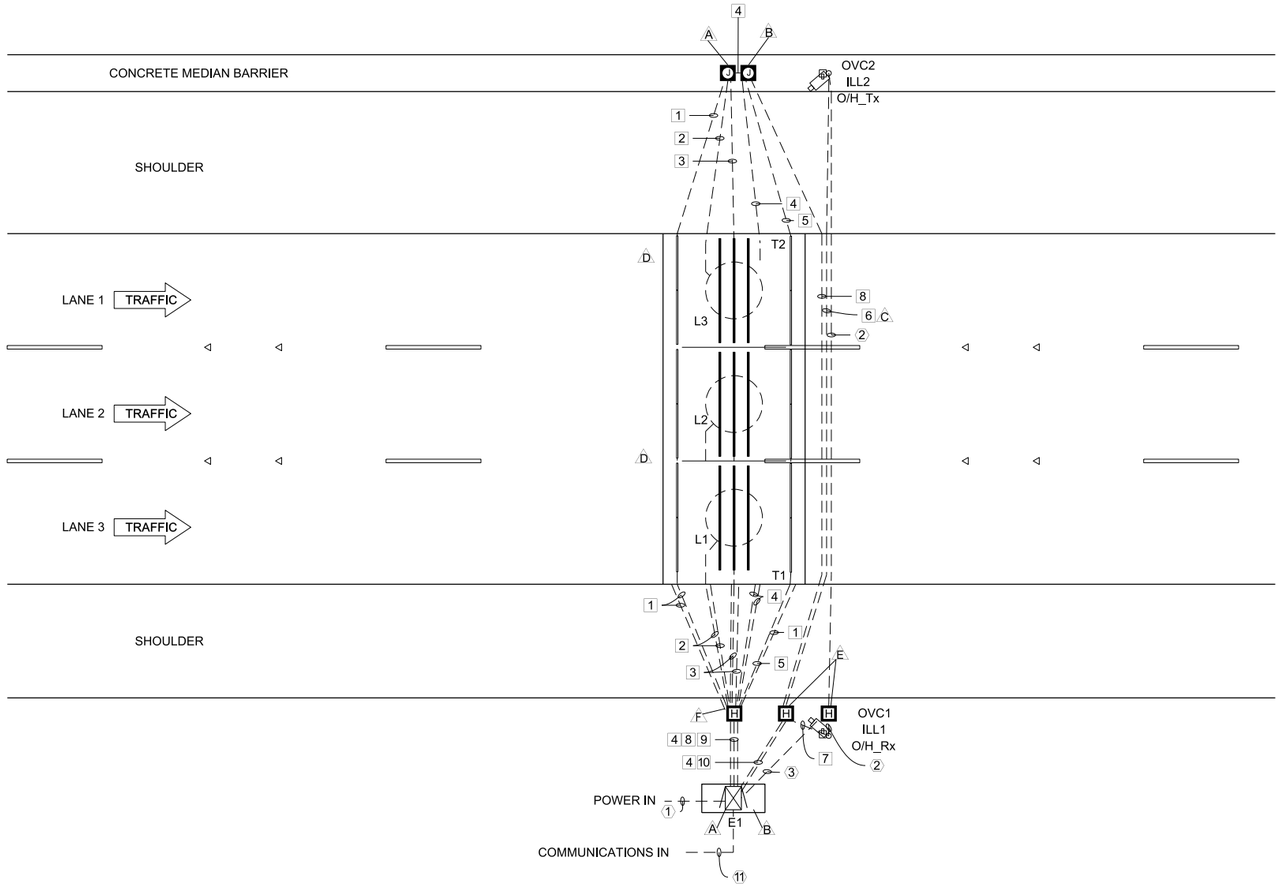
Illinois Tollway

WEIGH-IN-MOTION 3 LANES

VERSION:	STANDARD:	SHEET:
2024-03	M-ITS-1603	1 OF 3



SITE WIRING LAYOUT

NOT TO SCALE

CONDUIT DETAIL

SIGNAL CONDUITS:

1 2" [50mm] CONDUIT
2 - QUARTZ SENSOR LEAD
1 - GROUND WIRE (QUARTZ)

2 2" [50mm] CONDUIT
2 - LOOP WIRE

3 2" [50mm] CONDUIT
3 - VECTORSENSE SENSOR LEAD

4 2" [50mm] CONDUIT SPARE

5 2" [50mm] CONDUIT
2 - QUARTZ SENSOR LEAD
1 - GROUND WIRE (QUARTZ)
1 - TEMPERATURE SENSOR LEAD

6 2" [50mm] CONDUIT
1 - OVC SIGNAL CABLE

7 2" [50mm] CONDUIT
1 - OVC SIGNAL CABLE
1 - O/H_Rx SIGNAL CABLE

8 2" [50mm] CONDUIT
4 - QUARTZ SENSOR LEAD
2 - GROUND WIRE (QUARTZ)
1 - TEMPERATURE SENSOR LEAD
2 - VECTORSENSE SIGNAL CABLE
1 - GROUND WIRE (VECTORSENSE)
1 - LOOP LEAD

9 2" [50mm] CONDUIT
4 - QUARTZ SENSOR LEAD
2 - GROUND WIRE (QUARTZ)
2 - VECTORSENSE SIGNAL CABLE
1 - GROUND WIRE (VECTORSENSE)
1 - LOOP LEAD

10 2" [50mm] CONDUIT
4 - QUARTZ SENSOR LEAD
2 - GROUND WIRE (QUARTZ)
2 - VECTORSENSE SIGNAL CABLE
1 - GROUND WIRE (VECTORSENSE)
1 - LOOP LEAD
2 - OVC SIGNAL CABLE
1 - O/H_Rx SIGNAL CABLE

11 2" CONDUIT WIM CABINET FIBER

POWER CONDUITS

(1) 2" CONDUIT
WIM CABINET POWER

(2) 2" CONDUIT
1 - O/H POWER
1 - ILLUMINATOR POWER

(3) 2" CONDUIT
2 - O/H POWER
2 - ILLUMINATOR POWER

NOTES: (THIS SHEET ONLY)

A. JUNCTION BOX WITH VECTORSENSE ™ ELECTRONICS
(40" X 14" X 12" IN TOP OF BARRIER WALL)

B. JUNCTION BOX
(40" X 14" X 12" IN TOP OF BARRIER WALL)

C. BURIED CONDUIT.

D. CABLES FOR INTERIOR LANES EQUIPMENT RUN UNDER ADJACENT LANE PANELS. NOT ALL CONDUITS SHOWN, FOR CLARITY

E. HANDHOLE
(30" X 30" X 39" IN GROUND)

F. HANDHOLE WITH VECTORSENSE ELECTRONICS
(30" x 30" x 39" IN GROUND)

ALL CONDUITS SHALL BE PVC SCH 80 UNLESS NOTED OTHERWISE

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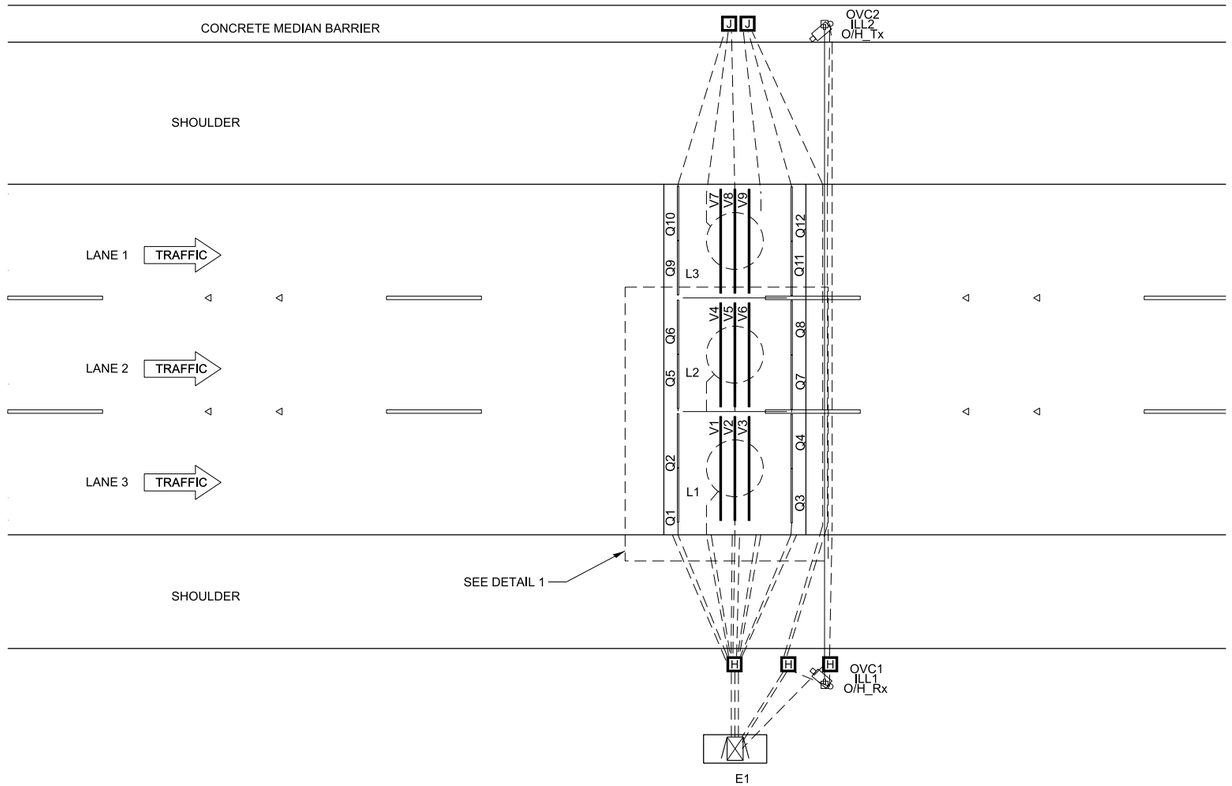
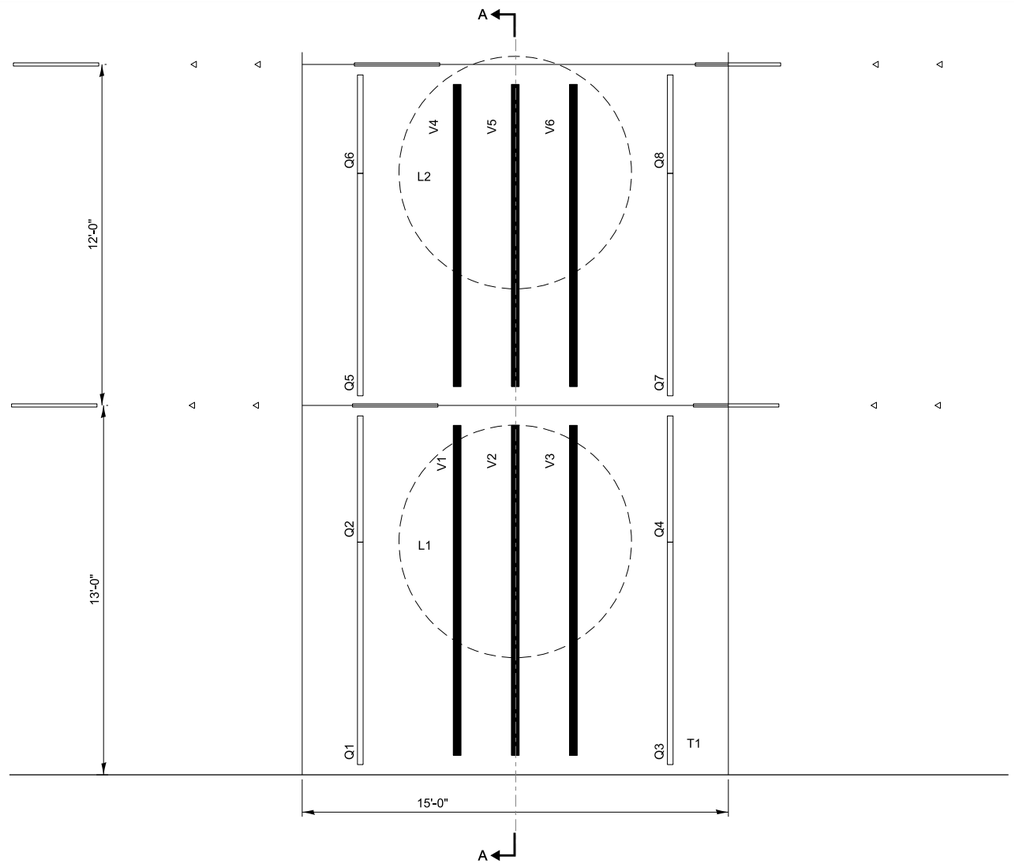
Illinois Tollway

WEIGH-IN-MOTION 3 LANES

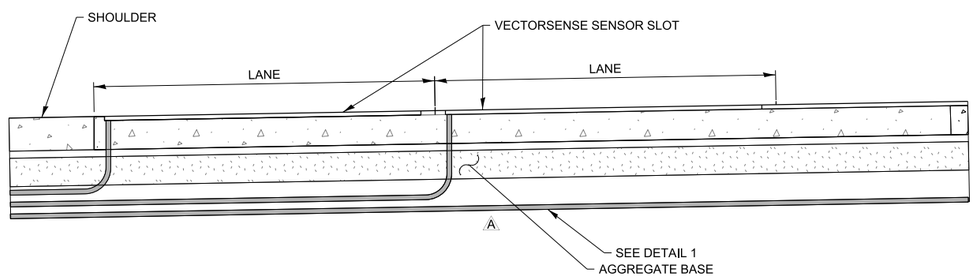
VERSION:	STANDARD:	SHEET:
2024-03	M-ITS-1603	2 OF 3



SITE LAYOUT
NOT TO SCALE



DETAIL 1



SECTION A-A

NOTES: (THIS SHEET ONLY)

A. GENTLY CURVE CONDUIT AS NECESSARY TO FOLLOW ROAD SLOPE AND TO PASS OVER INTERSECTING CONDUIT. NO 90° PIPE FITTINGS PERMITTED, ONLY SWEEPS.

B. CONDUIT AND FITTINGS, OTHER THAN AT PRECAST PANEL CONNECTION LOCATION, ARE PLACED BELOW THE AGGREGATE LAYER, BACKFILLED WITH BEDDING SAND. ENSURE SAND SURROUNDS CONDUITS AND FITTINGS AND COMPACT THE MATERIAL.

C. CONDUIT DEPTH SHALL BE 33"MIN TO 45"MAX BELOW TOP OF PAVEMENT.

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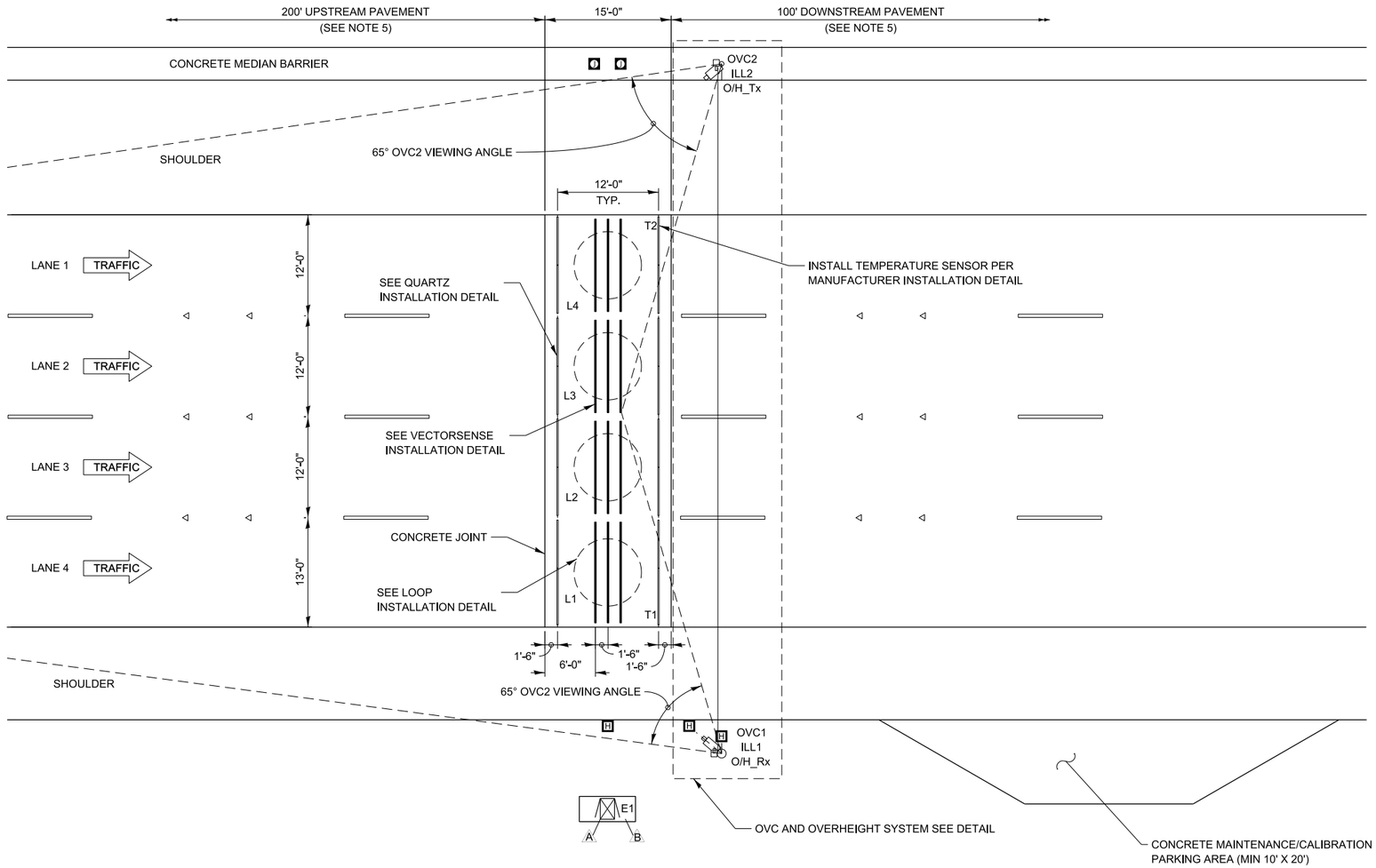
Illinois Tollway

WEIGH-IN-MOTION 3 LANES

VERSION:	STANDARD:	SHEET:
2024-03	M-ITS-1603	3 OF 3



SITE OVERVIEW

NOT TO SCALE

LEGEND

E	- ELECTRONICS ENCLOSURE
ILL	- ILLUMINATOR
L	- INDUCTIVE LOOP
O/H	- OVERHEIGHT SENSOR
OVC	- OVERVIEW CAMERA
Q	- QUARTZ WIM SENSOR
T	- TEMPERATURE SENSOR
V	- VECTORSENSE SENSOR
Tx	- TRANSMITTER
Rx	- RECEIVER
	- CABINET
1	- SIGNAL CONDUIT
1	- POWER CONDUIT
A	- NOTE
	- JUNCTION BOX
H	- HANDHOLE
	- WIM HEIGHT DETECTOR
	- WIM CAMERA

NOTE TO DESIGNERS

DIAMOND GRINDING OF THE 315' LENGTH OF CONCRETE PAVEMENT SHALL OCCUR AFTER PRECAST PANELS ARE INSTALLED. DSE SHALL COORDINATE CONSTRUCTION SCHEDULE AND MAINTENANCE OF TRAFFIC ACCORDINGLY.

NOTES: (THIS SHEET ONLY)

A. JUNCTION BOX WITH WIM ELECTRONICS

B. CABINET FOUNDATION

GENERAL NOTES:

1. ALL CONNECTIONS BETWEEN SENSORS AND LEAD CABLES SHALL BE DONE WITHIN A PULL BOX BY SOLDERING THEN SEALING FOR WATERPROOFING. PLACEMENT OF PULL BOXES MAY BE DIFFERENT FROM THAT SHOWN TO MEET SITE REQUIREMENTS.
2. AC POWER CABLES MUST BE RUN IN SEPARATE CONDUITS/PULLBOXES FROM SIGNAL CABLES OR SEPARATED INSIDE PULLBOXES WITH A DIVIDER.
3. SENSOR SPACING SHOWN IS TYPICAL SPACING REQUIREMENT, ACTUAL SENSOR SPACING MAY BE ALTERED TO SUIT SITE CONDITIONS APPROVED BY THE ENGINEER AND MANUFACTURER REPRESENTATIVE.
4. SITE CONDITIONS MUST MEET ASTM E1318-09 TYPE 1 REQUIREMENTS TO ACHIEVE OPTIMAL WIM SYSTEM PERFORMANCE.
5. A CONCRETE PAVEMENT SECTION ON STRAIGHT GRADE OBTAINED WITH DIAMOND GRINDING WITH NO VERTICAL CURVES AND NO SUPERELEVATION TRANSITIONS IS REQUIRED FOR WIM LANES, FROM 200' BEFORE THE SENSORS UP TO 100' AFTER THE SENSORS, TO IMPROVE LONG TERM PERFORMANCE AND REDUCE MAINTENANCE. DIAMOND GRINDING OF THE 315' LENGTH OF CONCRETE PAVEMENT SHALL OCCUR AFTER PRECAST PANELS ARE INSTALLED.
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.
8. EXACT ROUTING OF CONDUIT TO BE DETERMINED ON SITE.
9. PROVIDE 6" MINIMUM SPACING BETWEEN ADJACENT MEDIAN BARRIER JUNCTION BOXES.
10. OVC AND OVERHEIGHT SYSTEM POLES SHALL BE INSTALLED 20' (PREFERRED) TO 100' (MAX) DOWNSTREAM OF WIM SENSORS. POLES SHALL BE APPROXIMATELY IN-LINE WITH EACH OTHER AS SHOWN ON THIS SHEET.

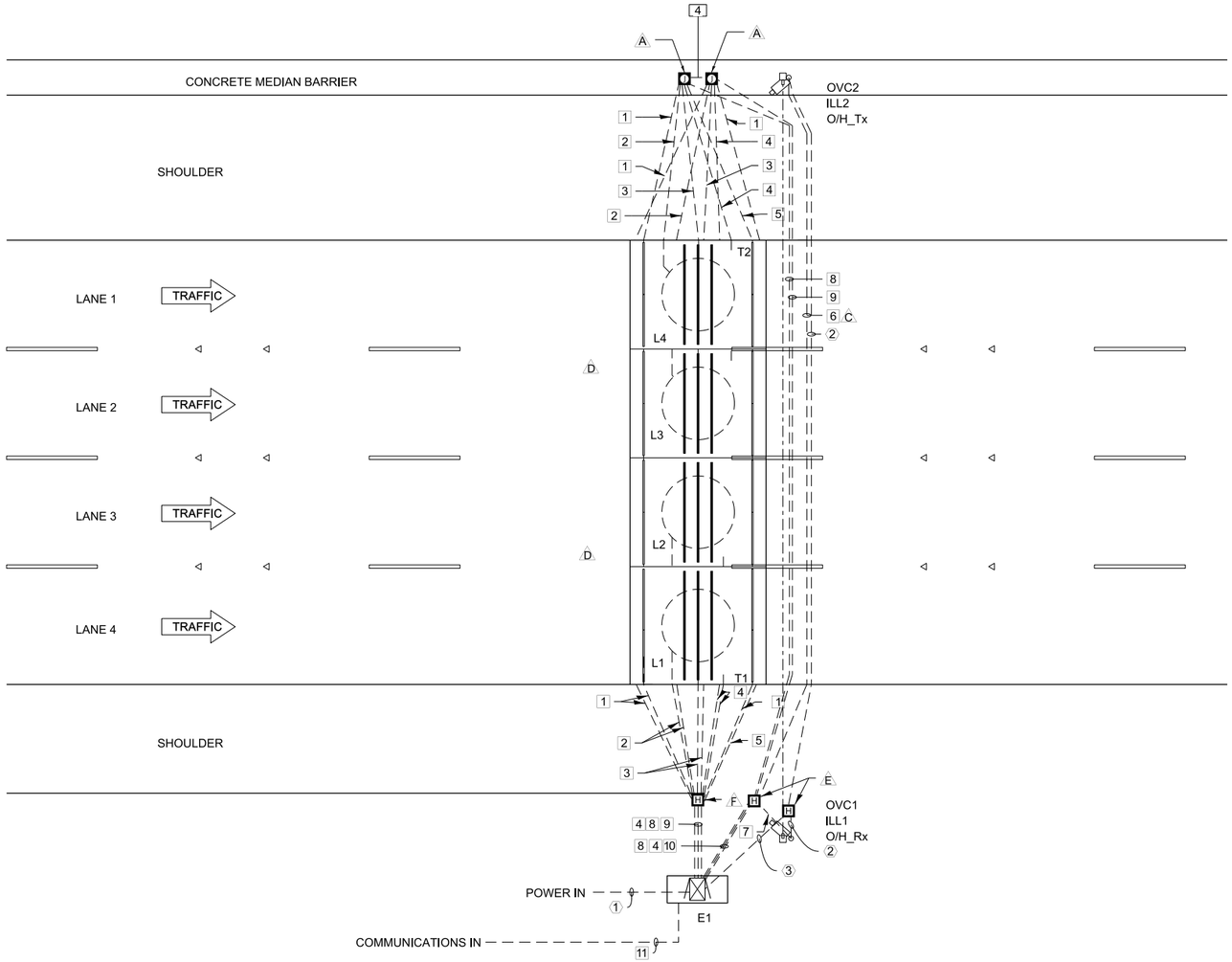
NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS **NOT** A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

Illinois Tollway

WEIGH-IN-MOTION 4 LANES

VERSION:	STANDARD:	SHEET:
2024-03	M-ITS-1604	1 OF 3



WIRING LAYOUT

CONDUIT DETAIL

SIGNAL CONDUITS:

1 2" [50mm] CONDUIT
- 2 - QUARTZ SENSOR LEAD
- 1 - GROUND WIRE (QUARTZ)

2 2" [50mm] CONDUIT
- 2 - LOOP WIRE

3 2" [50mm] CONDUIT
- 3 - VECTORSENSE SENSOR LEAD

4 2" [50mm] CONDUIT SPARE

5 2" [50mm] CONDUIT
- 2 - QUARTZ SENSOR LEAD
- 1 - GROUND WIRE (QUARTZ)
- 1 - TEMPERATURE SENSOR LEAD

6 2" [50mm] CONDUIT
- 1 - OVC SIGNAL CABLE

7 2" [50mm] CONDUIT
- 1 - OVC SIGNAL CABLE
- 1 - O/H_Rx SIGNAL CABLE

8 2" [50mm] CONDUIT
- 4 - QUARTZ SENSOR LEAD
- 2 - GROUND WIRE (QUARTZ)
- 1 - TEMPERATURE SENSOR LEAD
- 2 - VECTORSENSE SIGNAL CABLE
- 1 - GROUND WIRE (VECTORSENSE)
- 1 - LOOP LEAD

9 2" [50mm] CONDUIT
- 4 - QUARTZ SENSOR LEAD
- 2 - GROUND WIRE (QUARTZ)
- 2 - VECTORSENSE SIGNAL CABLE
- 1 - GROUND WIRE (VECTORSENSE)
- 1 - LOOP LEAD

10 2" [50mm] CONDUIT
- 4 - QUARTZ SENSOR LEAD
- 2 - GROUND WIRE (QUARTZ)
- 2 - VECTORSENSE SIGNAL CABLE
- 1 - GROUND WIRE (VECTORSENSE)
- 1 - LOOP LEAD
- 2 - OVC SIGNAL CABLE
- 1 - O/H_Rx SIGNAL CABLE

11 2" CONDUIT WIM CABINET FIBER

POWER CONDUITS

① 2"CONDUIT
WIM CABINET POWER

② 2" CONDUIT
- 1 - O/H POWER
- 1 - ILLUMINATOR POWER

③ 2" CONDUIT
- 2 - O/H POWER
- 2 - ILLUMINATOR POWER

NOTES: (THIS SHEET ONLY)

Ⓐ JUNCTION BOX WITH VECTORSENSETM ELECTRONICS (40" X 14" X 12" IN TOP OF BARRIER WALL)

Ⓒ BURIED CONDUIT.

Ⓓ CABLES FOR INTERIOR LANES EQUIPMENT RUN UNDER ADJACENT LANE PANELS. NOT ALL CONDUITS SHOWN, FOR CLARITY

Ⓔ HANDHOLE (30" X 30" X 39" IN GROUND)

Ⓕ HANDHOLE WITH VECTORSENSE ELECTRONICS (30" x 30" x 39" IN GROUND)

NOTE TO DESIGNER

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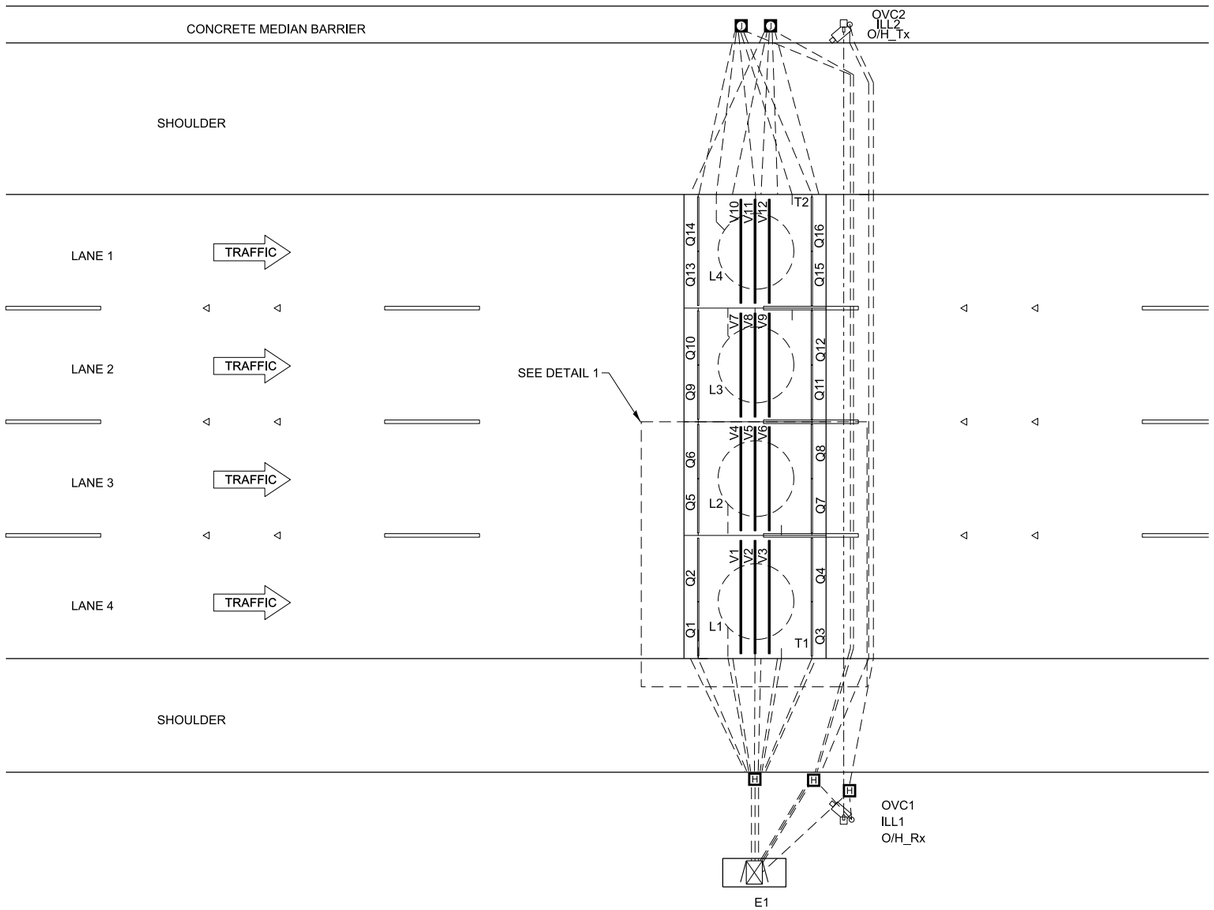
Illinois Tollway

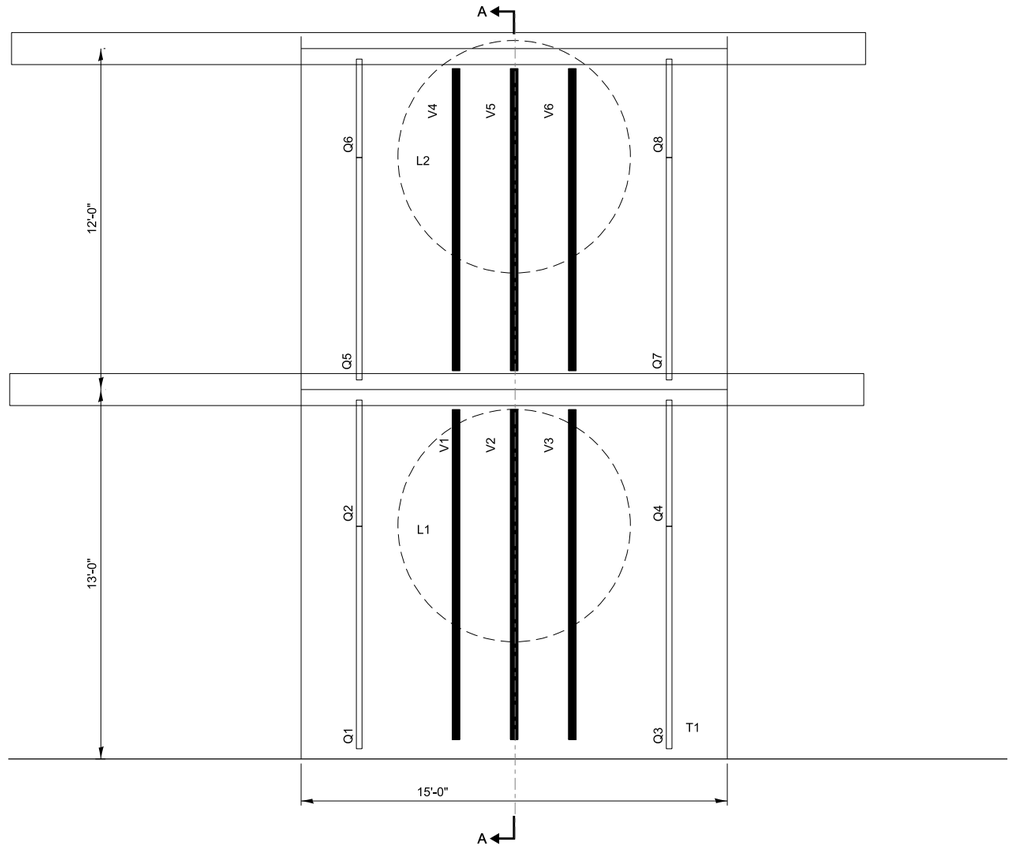
WEIGH-IN-MOTION 4 LANES

VERSION:	STANDARD:	SHEET:
2024-03	M-ITS-1604	2 OF 3

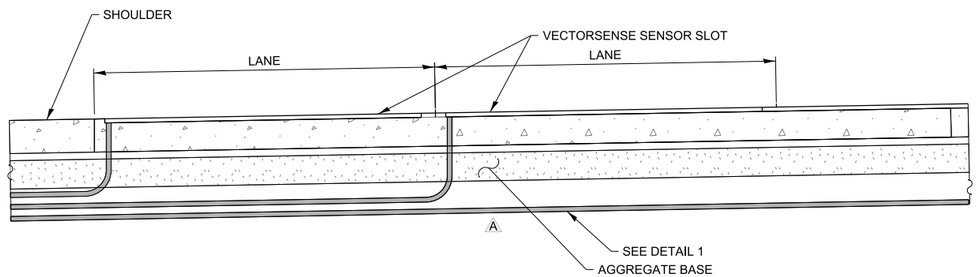


SITE LAYOUT

NOT TO SCALE



DETAIL 1



SECTION A-A

NOTES: (THIS SHEET ONLY)

A GENTLY CURVE CONDUIT AS NECESSARY TO FOLLOW ROAD SLOPE AND TO PASS OVER INTERSECTING CONDUIT. NO 90° PIPE FITTINGS PERMITTED, ONLY SWEEPS.

B CONDUIT AND FITTINGS, OTHER THAN AT PRECAST PANEL CONNECTION LOCATION, ARE PLACED BELOW THE AGGREGATE LAYER, BACKFILLED WITH BEDDING SAND. ENSURE SAND SURROUNDS CONDUITS AND FITTINGS AND COMPACT THE MATERIAL.

C CONDUIT DEPTH SHALL BE 33" MIN TO 45"MAX BELOW TOP OF PAVEMENT.

NOTE TO DESIGNER

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Illinois Tollway

WEIGH-IN-MOTION 4 LANES

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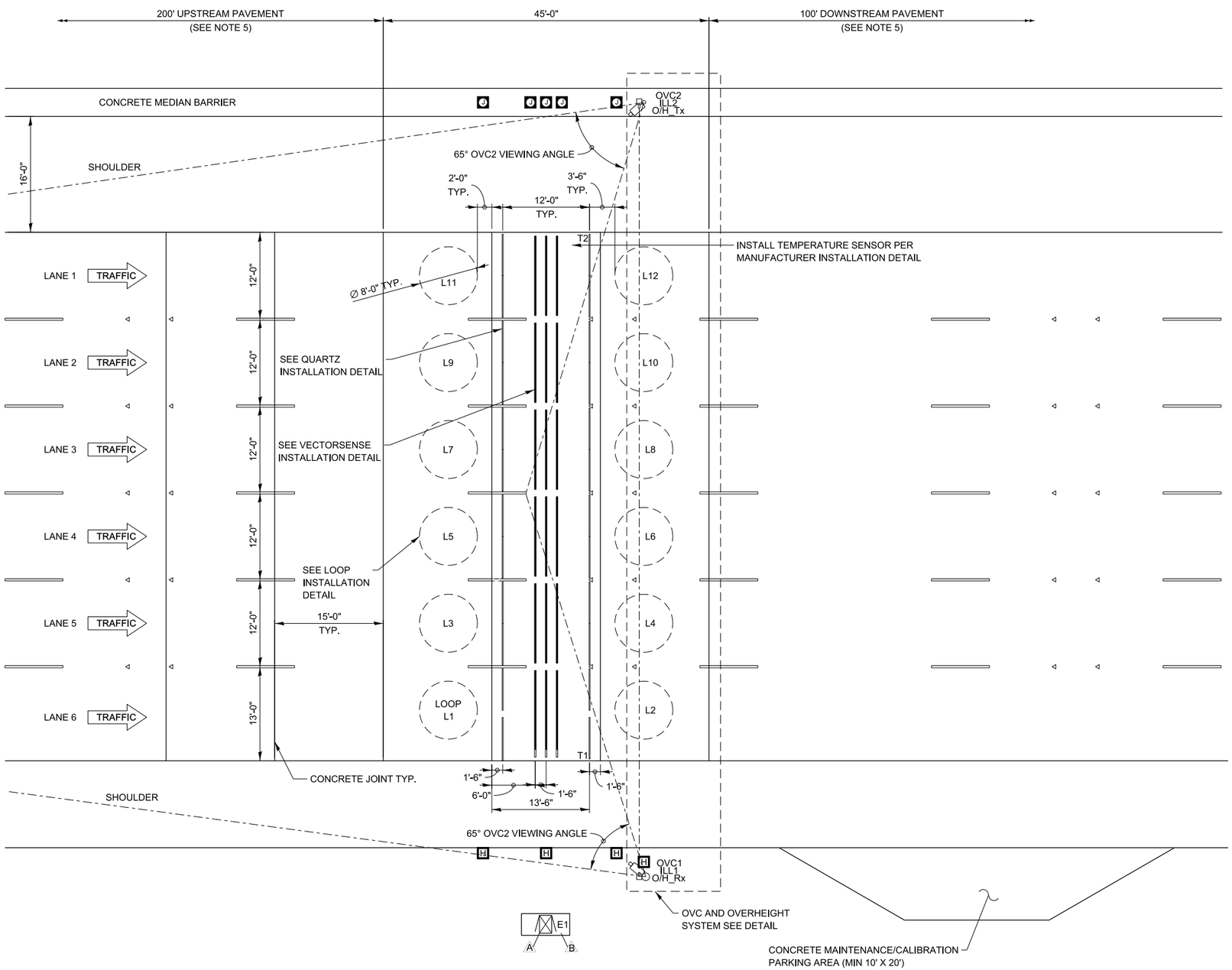

SITE OVERVIEW
NOT TO SCALE

NOTE TO DESIGNER

DIAMOND GRINDING OF THE 345' LENGTH OF CONCRETE PAVEMENT SHALL OCCUR AFTER PRECAST PANELS ARE INSTALLED. DSE SHALL COORDINATE CONSTRUCTION SCHEDULE AND MAINTENANCE OF TRAFFIC ACCORDINGLY.

LEGEND

E	- ELECTRONICS ENCLOSURE
ILL	- ILLUMINATOR
L	- INDUCTIVE LOOP
O/H	- OVERHEIGHT SENSOR
OVC	- OVERVIEW CAMERA
Q	- QUARTZ WIM SENSOR
T	- TEMPERATURE SENSOR
V	- VECTORSENSE SENSOR
Tx	- TRANSMITTER
Rx	- RECEIVER
⊠	- CABINET
1	- SIGNAL CONDUIT
①	- POWER CONDUIT
A	- NOTE
◘	- JUNCTION BOX
H	- HANDHOLE
	- WIM HEIGHT DETECTOR
	- WIM CAMERA

NOTES: (THIS SHEET ONLY)

A. JUNCTION BOX WITH WIM ELECTRONICS
B. CABINET FOUNDATION

GENERAL NOTES:

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2. AC POWER CABLES MUST BE RUN IN SEPARATE CONDUITS/PULLBOXES FROM SIGNAL CABLES OR SEPARATED INSIDE PULLBOXES WITH A DIVIDER.
3. SENSOR SPACING SHOWN IS TYPICAL SPACING REQUIREMENT, ACTUAL SENSOR SPACING MAY BE ALTERED TO SUIT SITE CONDITIONS APPROVED BY THE ENGINEER AND MANUFACTURER REPRESENTATIVE.
4. SITE CONDITIONS MUST MEET ASTM E1318-09 TYPE 1 REQUIREMENTS TO ACHIEVE OPTIMAL WIM SYSTEM PERFORMANCE.
5. A CONCRETE PAVEMENT SECTION ON STRAIGHT GRADE OBTAINED WITH DIAMOND GRINDING WITH NO VERTICAL CURVES AND NO SUPERELEVATION TRANSITIONS IS REQUIRED FOR WIM LANES, FROM 200' BEFORE THE SENSORS UP TO 100' AFTER THE SENSORS, TO IMPROVE LONG TERM PERFORMANCE AND REDUCE MAINTENANCE. DIAMOND GRINDING OF THE 345' LENGTH OF CONCRETE PAVEMENT SHALL OCCUR BEFORE SAW CUT SLOTS ARE MADE FOR SENSOR INSTALLATION.
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.
8. EXACT ROUTING OF CONDUIT TO BE DETERMINED ON SITE.
9. PROVIDE 6" MINIMUM SPACING BETWEEN ADJACENT MEDIAN BARRIER JUNCTION BOXES.
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Illinois Tollway

WEIGH-IN-MOTION 6 LANES

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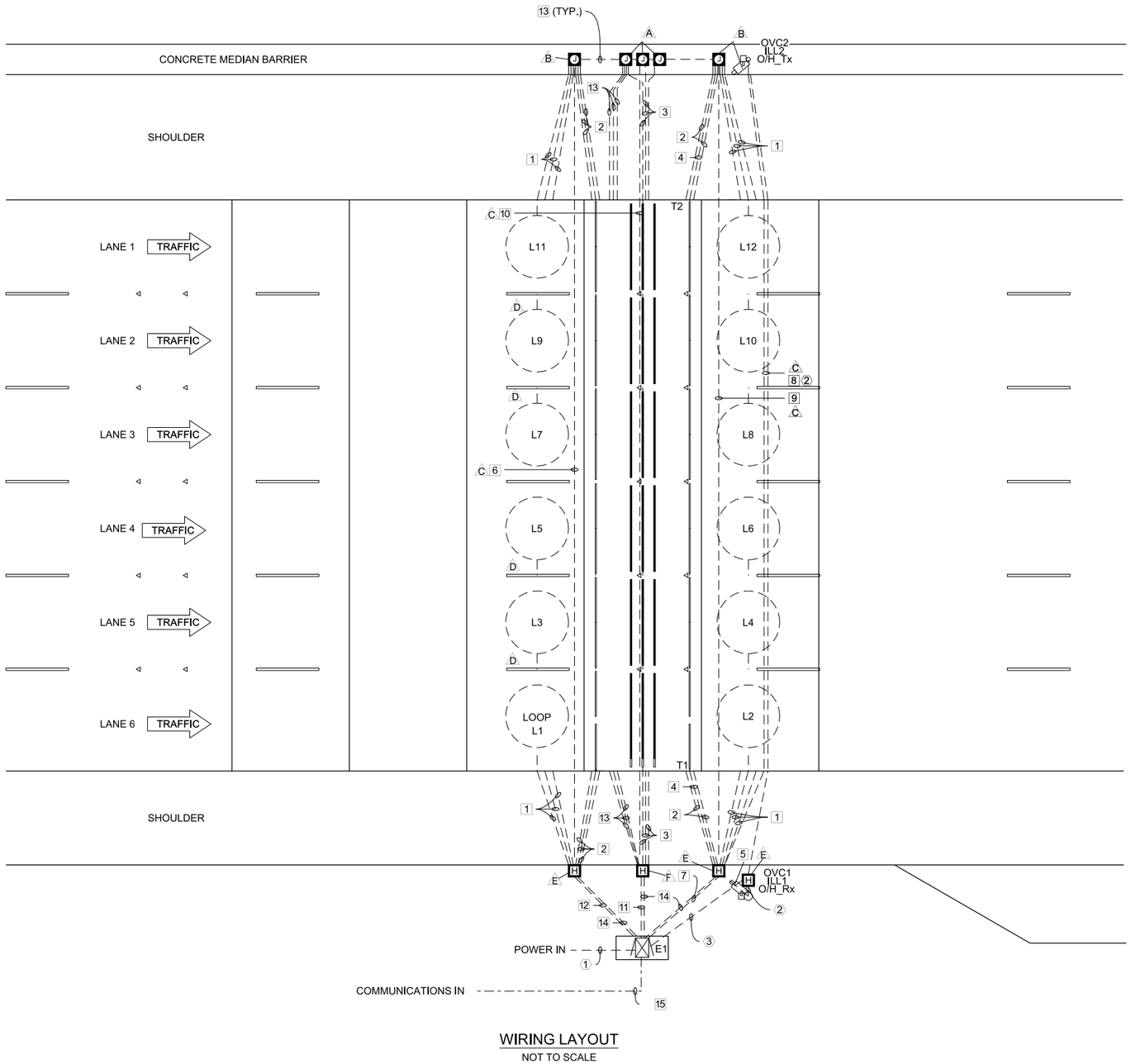

WIRING LAYOUT

NOT TO SCALE

CONDUIT DETAIL
SIGNAL CONDUITS:

1. 2" [50mm] CONDUIT
   2 - LOOP WIRE
2. 2" [50mm] CONDUIT
   2 - QUARTZ SENSOR LEAD
   1 - GROUND WIRE (QUARTZ)
3. 2" [50mm] CONDUIT
   3 - VECTORSENSE SENSOR LEAD
4. 2" [50mm] CONDUIT SPARE
   2 - QUARTZ SENSOR LEAD
   1 - TEMPERATURE SENSOR LEAD
   1 - GROUND WIRE (QUARTZ)
5. 2" [50mm] CONDUIT
   1 - OVC SIGNAL CABLE
   1 - O/H_Rx SIGNAL CABLE
6. 2" [50mm] CONDUIT
   3 - LOOP LEAD
   6 - QUARTZ SENSOR LEAD
   3 - GROUND WIRE (QUARTZ)
7. 3" [75mm] CONDUIT
   6 - LOOP LEAD
   12 - QUARTZ SENSOR LEAD
   6 - GROUND WIRE (QUARTZ)
   2 - TEMPERATURE SENSOR LEAD
   2 - OVC SIGNAL CABLE
   1 - O/H Tx SIGNAL CABLE
8. 2" [50mm] CONDUIT
   1 - OVC SIGNAL CABLE
9. 2" [50mm] CONDUIT
   3 - LOOP LEAD
   6 - QUARTZ SENSOR LEAD
   3 - GROUND WIRE (QUARTZ)
   1 - TEMPERATURE SENSOR LEAD
10. 2" [50mm] CONDUIT
    6 - VECTORSENSE SIGNAL CABLE
    3 - GROUND WIRE (QUARTZ)
11. 3" [75mm] CONDUIT
    12 - VECTORSENSE SIGNAL CABLE
    6 - GROUND WIRE (VECTORSENSE)
12. 3" [75mm] CONDUIT
    6 - LOOP LEAD
    12 - QUARTZ SENSOR LEAD
    6 - GROUND WIRE (QUARTZ)
13. 2" [50mm] CONDUIT
    SPARE
14. 3" [75mm] CONDUIT
    SPARE
15. 2" [50mm] CONDUIT WIM CABINET FIBER

POWER CONDUITS

1. 2" CONDUIT
   WIM CABINET POWER
2. 2" CONDUIT
   1 - O/H POWER
   1 - ILLUMINATOR POWER
3. 2" CONDUIT
   2 - O/H POWER
   2 - ILLUMINATOR POWER

NOTES: (THIS SHEET ONLY)

A. JUNCTION BOX WITH VECTORSENSE™ ELECTRONICS (40" X 14" X 12" IN TOP OF BARRIER WALL)

B. JUNCTION BOX (40" X 14" X 12" IN TOP OF BARRIER WALL)

C. BURIED CONDUIT.

D. CABLES FOR INTERIOR LANES EQUIPMENT RUN UNDER ADJACENT LANE PANELS. NOT ALL CONDUITS SHOWN, FOR CLARITY

E. HANDHOLE (30" X 30" X 39" IN GROUND)

F. HANDHOLE WITH VECTORSENSE ELECTRONICS (30" x 30" x 39" IN GROUND)

ALL CONDUITS SHALL BE PVC SCH 80 UNLESS NOTED OTHERWISE

NOTE TO DESIGNER

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Illinois Tollway

WEIGH-IN-MOTION 6 LANES

VERSION:	STANDARD:	SHEET:
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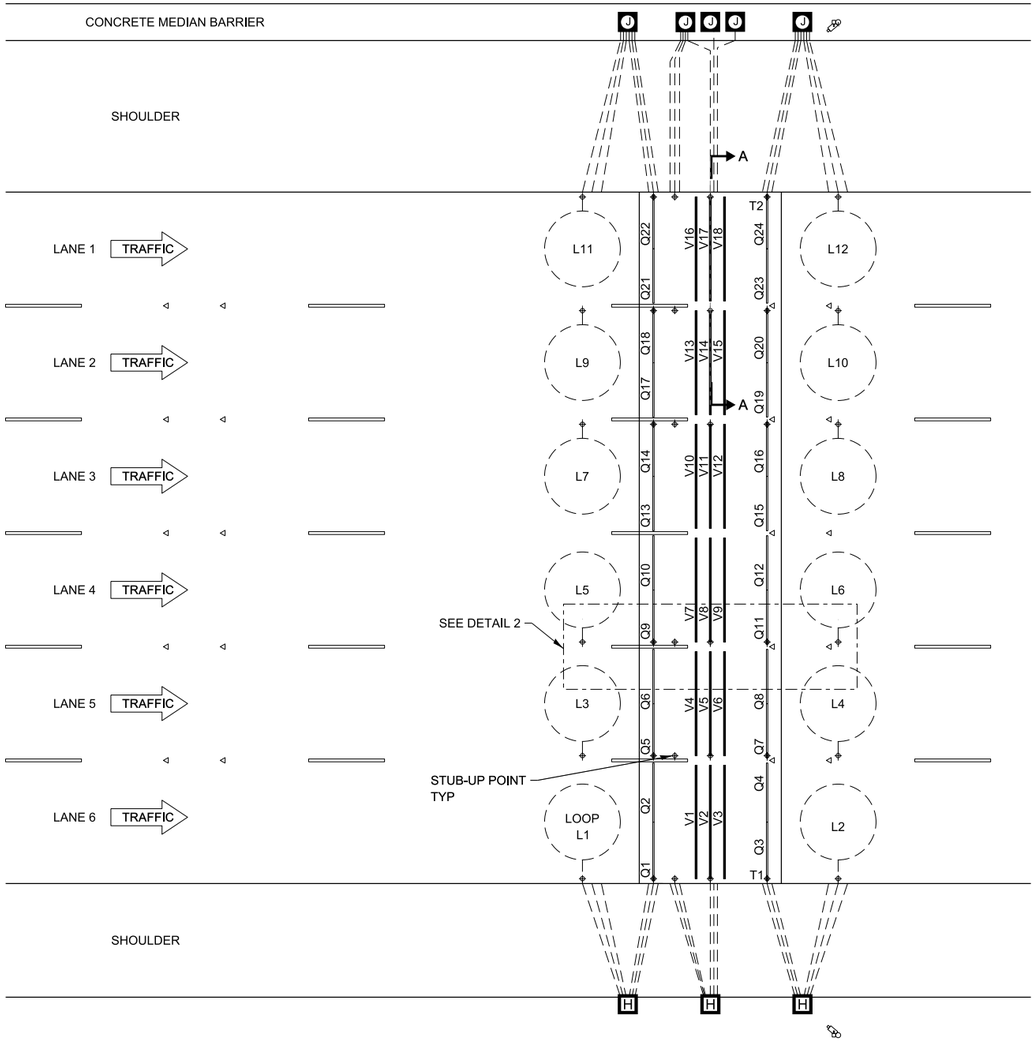
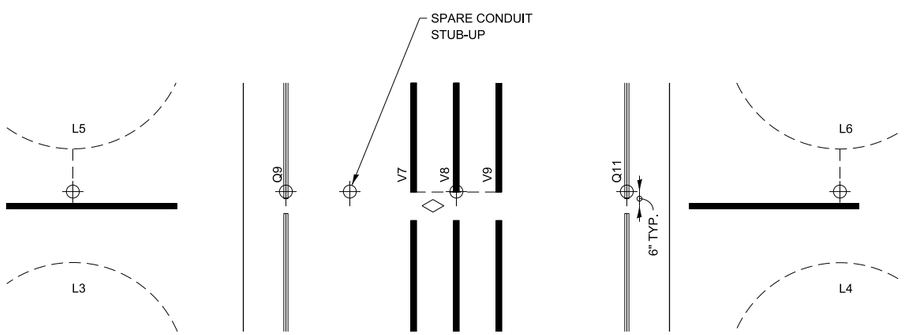


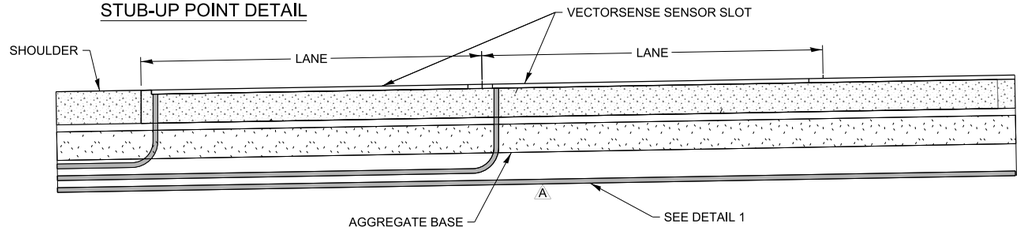
SITE LAYOUT
NOT TO SCALE

E1

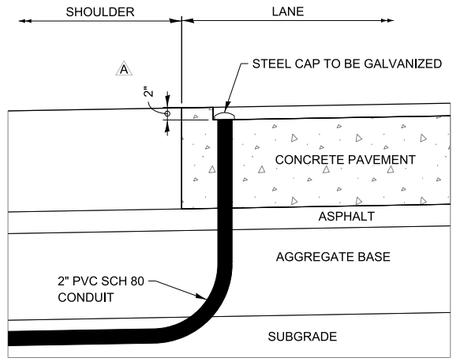


DETAIL 2
NOT TO SCALE

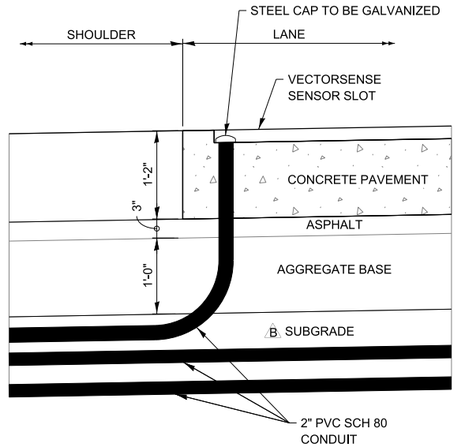
STUB-UP POINT DETAIL



SECTION A-A



STAGE 1 - CONCRETE POUR
DETAIL 1
NOT TO SCALE



STAGE 1 - COMPLETED
DETAIL 1
NOT TO SCALE

NOTES: (THIS SHEET ONLY)

A STUB-UP CONDUIT TO 2" BELOW CONCRETE SURFACE.
BEFORE POURING CONCRETE, CAP OPENINGS AND PROTECT WITH TAPE AND SOFT MATERIAL TO PREVENT DAMAGE IN FUTURE DISCOVERY.
TO BE CUT TO PROPER HEIGHT WHEN SENSORS ARE INSTALLED. METAL CAP WILL ALLOW EASIER DETECTION FOR RE-ENTRY.

B GENTLY CURVE CONDUIT AS NECESSARY TO FOLLOW ROAD SLOPE AND TO PASS OVER INTERSECTING CONDUIT.
NO 90° PIPE FITTINGS PERMITTED, ONLY SWEEPS.

C ALL CONDUIT DIMENSIONS HAVE A TOLERANCE OF +/- 2".

D CONDUIT AND FITTINGS, OTHER THAN AT STUB-UP LOCATION, ARE PLACED BELOW THE AGGREGATE LAYER, BACKFILLED WITH BEDDING SAND.
ENSURE SAND SURROUNDS CONDUITS AND FITTINGS AND COMPACT THE MATERIAL. AT CONDUIT STUB-UP LOCATIONS RAPCAP THE TOP 3" TO MATCH 3" ASPHALT LAYER.

E CONDUIT DEPTH SHALL BE 33" MIN TO 45" MAX BELOW TOP OF PAVEMENT.

F SPACING OF REBAR DOWELS AT PAVEMENT JOINTS TO METAL CONDUIT CAPS SHALL BE COORDINATED TO MAINTAIN 12"MINIMUM HORIZONTAL SEPARATION.

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Illinois Tollway

WEIGH-IN-MOTION 6 LANES

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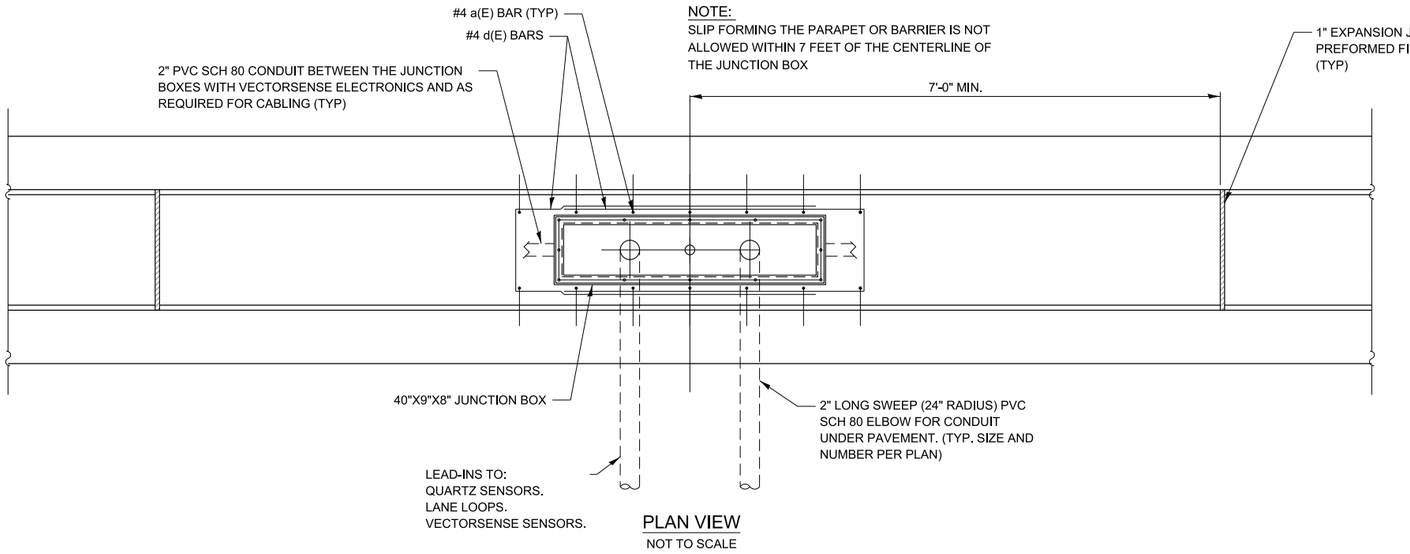
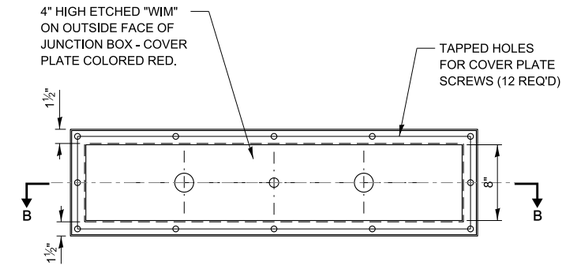
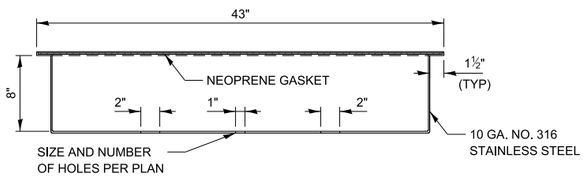


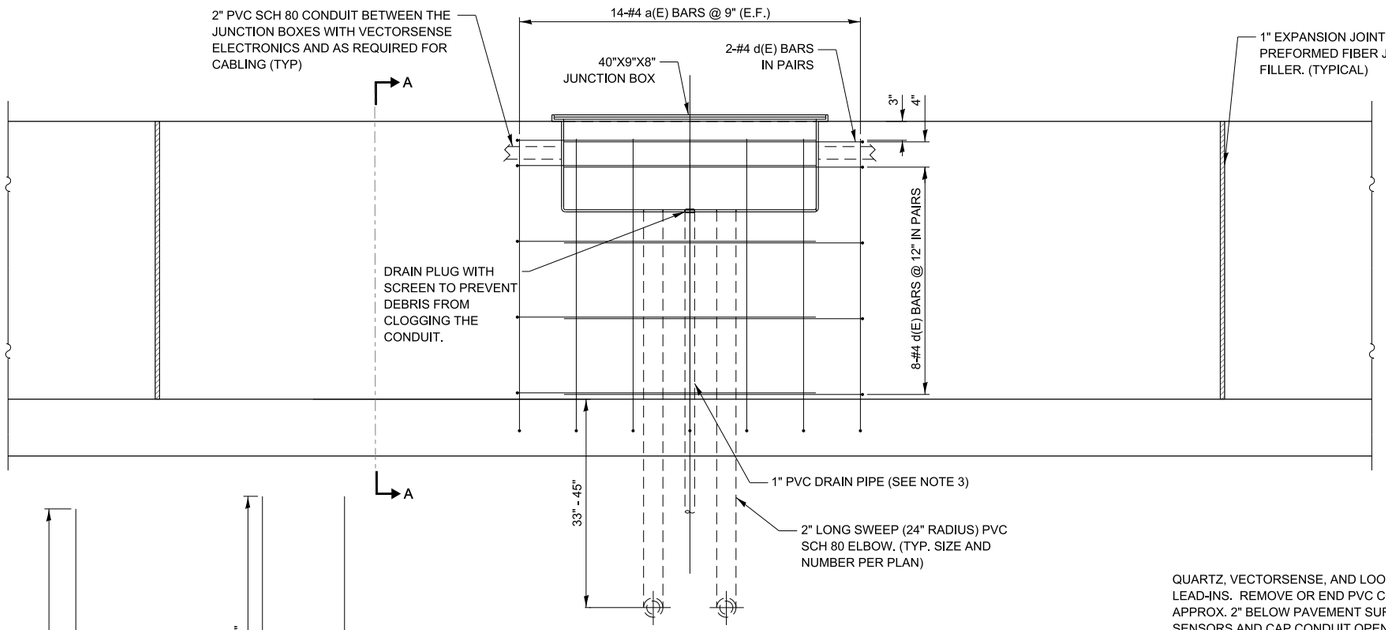
PLAN VIEW
NOT TO SCALE



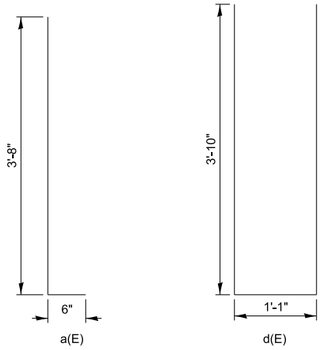
TOP VIEW
NOT TO SCALE



SECTION B-B
NOT TO SCALE



SIDE VIEW
NOT TO SCALE



REINFORCEMENT BAR SCHEDULE					
BAR	NO	SIZE	LENGTH	WT. LB.	SHAPE
a(E)	14	#4	4'-4"	41	
d(E)	10	#4	8'-9"	41	

NOTES:

1. THE JUNCTION BOX SHALL BE ACCESSED FROM THE TOP OF MEDIAN BARRIER.
2. DUCT SHALL BE CUT AND REMOVED AT JUNCTION BOX CONDUIT OPENINGS AND INSIDE BOX. ELECTRICAL CONDUITS SHALL PROTRUDE 1#4" INTO BOX.
3. CONTRACTOR SHALL INSTALL 1" PVC PIPE TO DRAIN JUNCTION BOX TO AGGREGATE SUBGRADE. INSTALL S.S. SCREEN OVER DRAIN INSIDE JUNCTION BOX.
4. SLIPFORMING OF BARRIER WALL PROHIBITED AT JUNCTION BOXES.

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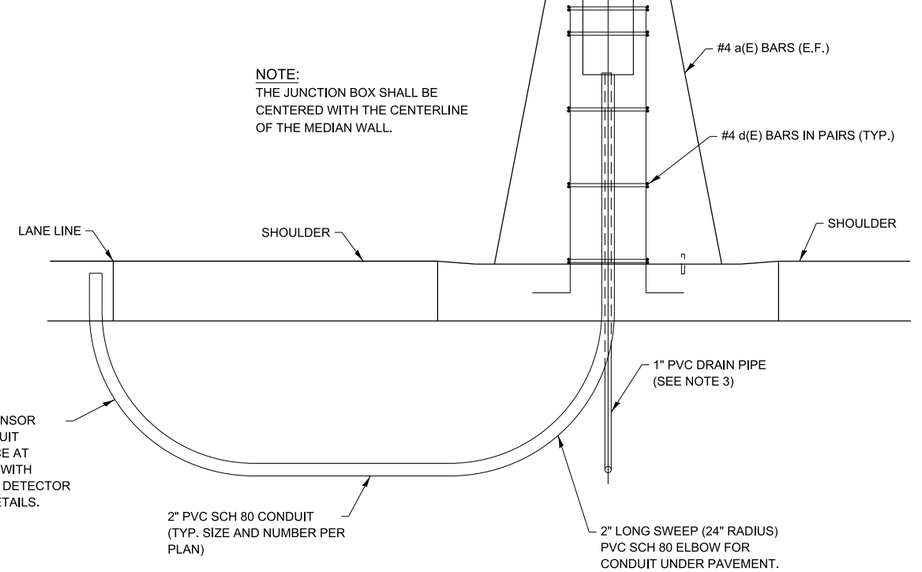

SECTION A-A
NOT TO SCALE

Illinois Tollway

WEIGH-IN-MOTION JUNCTION BOX DETAIL

VERSION:	STANDARD:	SHEET:
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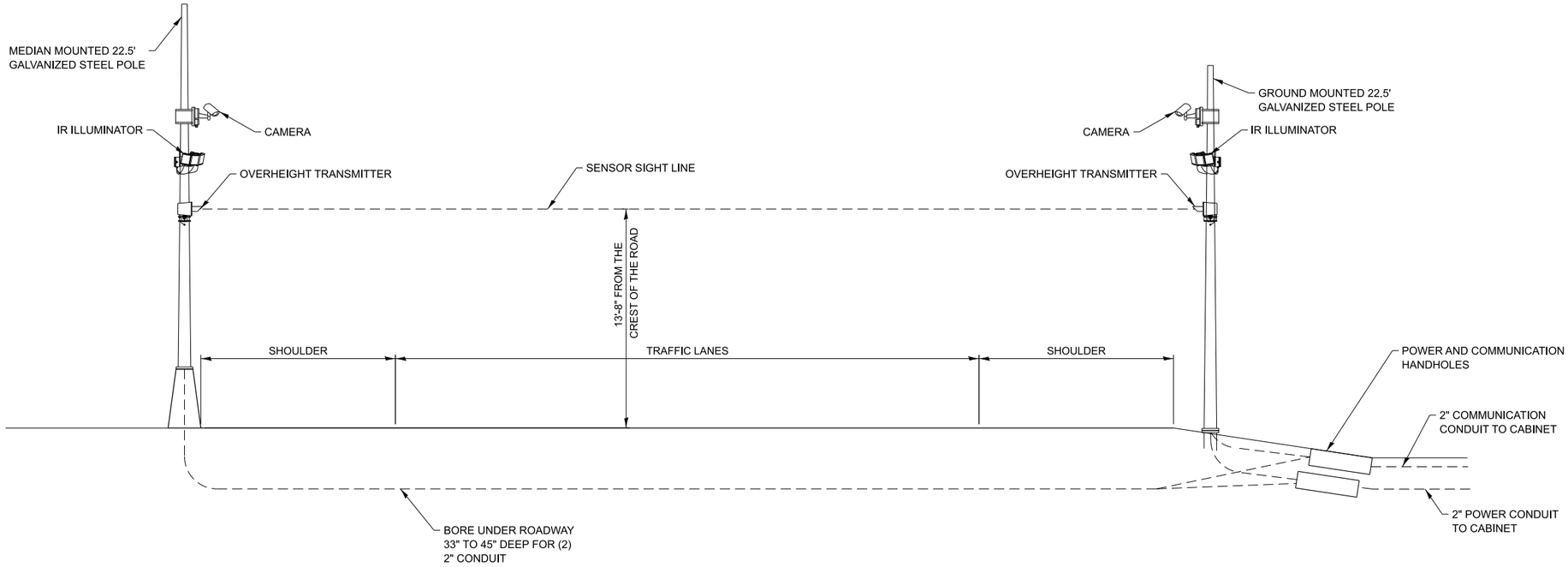


SENSOR CONFIGURATION

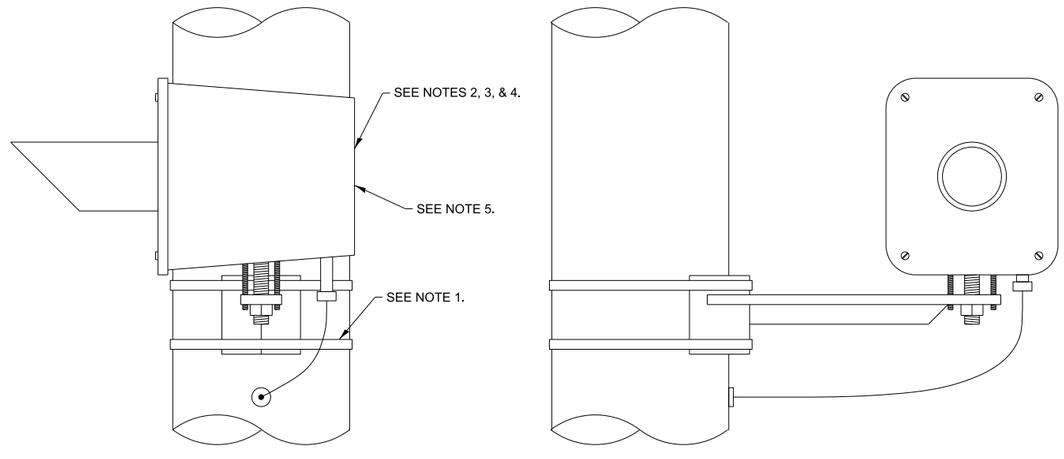
NOT TO SCALE

NOTE TO DESIGNER

USE A 50 FOOT ITS POLE IF INSTALLED ON A SLOPE

NOTE TO THE CONTRACTOR:

SUBMIT SITE SURVEY TO THE ENGINEER FOR EACH OVER HEIGHT SENSOR MOUNTING HEIGHT TO CONFIRM THE MOUNTING HEIGHT IS 13'-8" FROM THE CREST OF THE ROAD AT THE OVER HEIGHT SENSORS LOCATION.



SENSOR DETAIL

NOT TO SCALE

NOTES:

1. BAND MOUNTING BRACKET TO POLE AT APPROPRIATE HEIGHT.
2. MOUNT, WIRE AND AIM THE OVERHEIGHT TRANSMITTER AND RECEIVER IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
3. DETECTOR AND BRACKET WEIGHT: 40 lbs
4. DETECTOR HOUSING SIZE: 15-½" X 10" X 8-¾"
5. DETECTOR POWER: 115 VAC, 0.3 AMP.

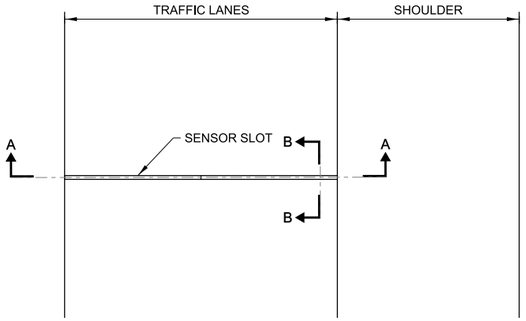
NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS **NOT** A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

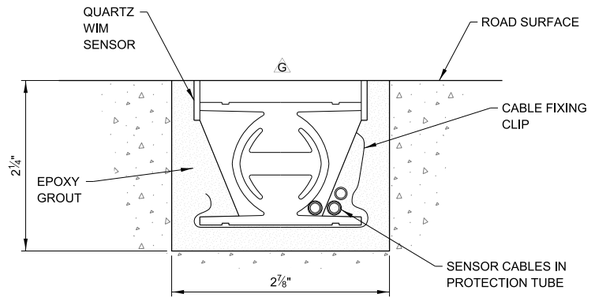
Illinois Tollway

WEIGH-IN-MOTION HEIGHT DETECTOR

VERSION:	STANDARD:	SHEET:
2024-03	M-ITS-1607	1 OF 1



PLAN VIEW - SENSOR INSTALLATION
NOT TO SCALE



SECTION B-B
NOT TO SCALE

SECTION A-A
NOT TO SCALE

NOTES:

A. FOR INSTALLATION PROCESS REFER TO MANUFACTURERS INSTALLATION MANUAL.

B. SLOT LENGTH IS 6" LONGER THAN SENSOR THE EXTRA 6 IN. IS ON THE CONDUIT STUB-UP SIDE.

C. SET SENSOR FLUSH WITH OR SLIGHTLY HIGHER THAN ROAD SURFACE USING INCLUDED LEVELING BEAMS.

D. 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.

E. 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.

F. CRACKS OR SAW CUTS IN THE ROADWAY MUST NOT BE LOCATED CLOSER THAN 18" UPSTREAM AND 18" DOWNSTREAM OF THE CENTERLINE OF THE SENSOR.

G. SENSOR MUST BE GROUND FLUSH WITH ROAD SURFACE AFTER GROUT HAS CURED.

H. CONNECT INSULATED GROUND WIRE PER MANUFACTURER RECOMMENDATIONS. OTHER END OF GROUND WIRE CONNECTS CABINET GROUND BUSBAR.

NOTE TO DESIGNER

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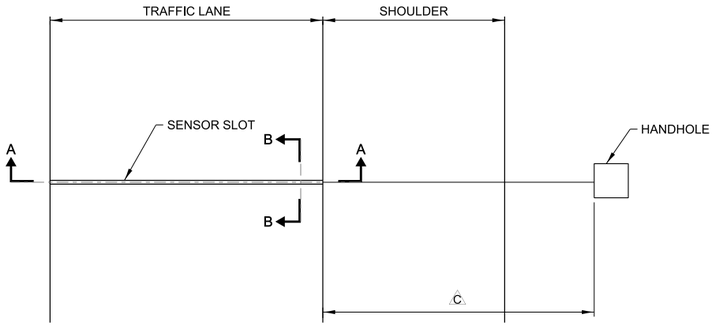
Illinois Tollway

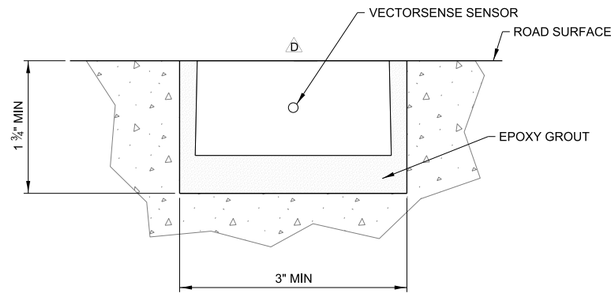
WEIGH-IN-MOTION QUARTZ SENSOR DETAILS

VERSION:	STANDARD:	SHEET:
2022-03	M-ITS-1608	1 OF 1



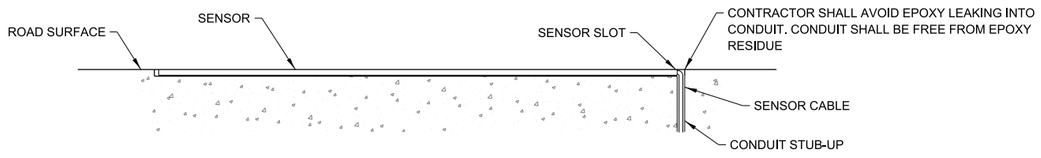
PLAN VIEW - SENSOR INSTALLATION

NOT TO SCALE



SECTION B-B

NOT TO SCALE



SECTION A-A

NOT TO SCALE

NOTES:

A. CRACKS IN THE ROADWAY MUST NOT BE LOCATED CLOSER THAN 18" UPSTREAM AND 18" DOWNSTREAM OF THE CENTERLINE OF THE SENSOR.

B. SLOT LENGTH IS 2" LONGER THAN SENSOR. THE EXTRA 2" SHALL BE ON THE CONDUIT STUB-UP SIDE.

C. 50' MAXIMUM DISTANCE BETWEEN SENSOR AND ELECTRONICS INSIDE HANDHOLE OR JUNCTION BOX.

D. SENSOR GROUT MUST BE GROUND FLUSH WITH ROAD SURFACE AFTER GROUT HAS CURED.

VECTORSENSE SENSOR INSTALLATION

NOTE TO DESIGNER

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Illinois Tollway

WEIGH-IN-MOTION VECTORSENSE SENSOR DETAILS

VERSION:	STANDARD:	SHEET:
2022-03	M-ITS-1609	1 OF 1