



CONTRACT NO:009540

CHANGE ORDER NO: 17

All work, materials, and measurements to be in accordance with the provisions of the Standard Specifications and Special Provisions for the type of construction involved.

This contract is revised as follows:

**Description:**

This Change Order adds Work to design and construct a Virtual Weigh in Motion (VWIM) system along SR 167.

**Materials:**

All materials shall be in accordance with the Request for Proposal Chapter 1: General Provisions and Chapter 2: Technical Requirements.

**Construction Requirements:**

The Design-Builder shall preform all Work to design and construction a VWIM, per the requirements on pages 4-18 of this Change Order.

The requirements outlined on pages 4-18 of this Change Order are supplemented with the following requirements:

- The VWIM and Toll Site layout and spacing shall be consistent with the figure provided on page 18.
- VWIM cameras shall be located upstream and at least 100' from the southbound toll collection site.
- VWIM cameras shall be located at least 100' from any overhead signs.
- VWIM shall connect to the Olympic Region Distribution fiber network.
- VWIM Weight Sensors shall be high accuracy sensors, per page 13 of this change.
- The VWIM site will not include the TACS sensors option (refer to pages 4-10).
- A Type 2 maintenance pullout in accordance with the WSDOT ITS Design Requirements (Appendix T of the RFP) shall be provided.
- Starting from a point 200 feet before the leading edge of the first VWIM strip sensor (high accuracy sensor) to a point 100 feet after the trailing edge of the last VWIM strip sensor (minimum total length approximately 309 feet), the roadway shall:
  - o Have a constant grade.
  - o Have a curvature of 5,700 feet or less, as measured to the center of the lane with the smallest radius.
  - o Have a constant cross-slope of 3% or less.
- Sensors shall not be placed between a painted ramp gore point and where the right lane starts to widen from standard width (off-ramps) or returns to standard width (on-ramps), as applicable.
- The distance between the southbound Toll Rate Sign and the Toll Point may exceed 100 feet to meet spacing requirements for the VWIM site, however it should be located as close as practical to the Toll Point.
- The inside shoulder at the toll point shall be less than 6 feet in width.
- Lane widths at the toll point of 12 feet is desired, however lane widths of up to 13 feet is acceptable.
- The revised Toll Gantry location shall not be placed further than 20 feet downstream of location (refer to page 18).
- As the design is developed for the VWIM and Tolling Sites there shall be coordination with the Toll Vendor with Tolling Task Force meetings.

**Measurement:**

No specific unit of measure that shall apply to this new Lump Sum item, "CO#017, VWIM".

**Payment:**

Payment will be made in accordance with Section 1-04.4 of the RFP, for the following item:

"CO#017 VWIM" Lump Sum.

This lump sum price shall constitute full payment for all costs to perform the added work.

**Contract Time:**

No extension of Contract Time is granted as a result of this Change Order.

WASHINGTON STATE  
 DEPARTMENT OF TRANSPORTATION  
 CHANGE ORDER

DATE: 10/04/23  
 PAGE 3 of 18

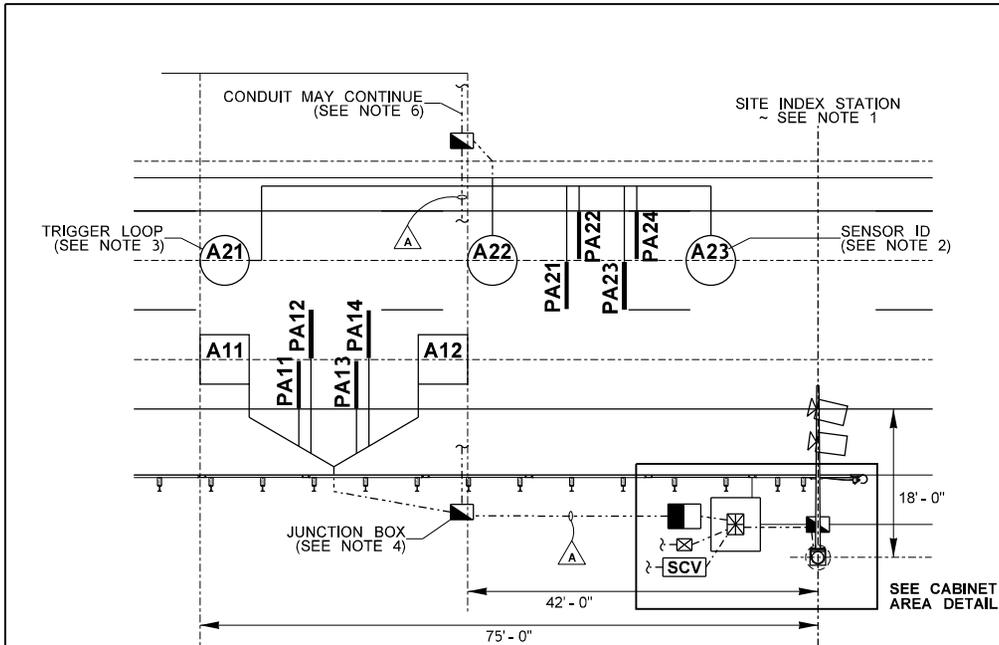
CONTRACT NO: 009540	CHANGE ORDER NO: 17
---------------------	---------------------

ITEM NO	GROUP NO	STD ITEM	UNIT OF MEASURE	UNIT PRICE	EST QTY CHANGE	EST AMT CHANGE
---------	----------	----------	-----------------	------------	----------------	----------------

ITEM	DESCRIPTION:	CO#017 VWIM				
1013	03	L.S.		0.00	0.00	2,385,090.66

AMOUNT TOTAL  
 -----  
 2,385,090.66  
 =====





**PTR / WIM EQUIPMENT TYPICAL PLACEMENT**  
(2 LANES - SAME DIRECTION SHOWN)

**LEGEND**

- TYPE 1 JUNCTION BOX
- TYPE 2 JUNCTION BOX
- TYPE 8 JUNCTION BOX
- SMALL CABLE VAULT
- WIM CONTROLLER CABINET AND CONCRETE PAD
- LPR CAMERA
- TYPE II SIGNAL STANDARD
- TYPE 2A / 3A INDUCTION LOOP (EITHER ALLOWED - USE ONLY ONE TYPE)
- WIM STRIP SENSOR
- CONDUIT AND CONDUCTORS



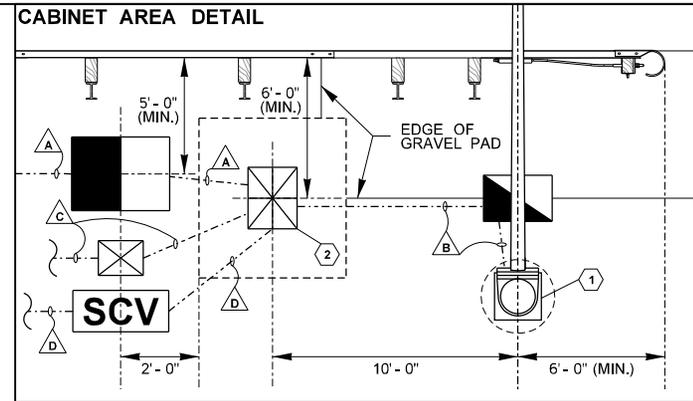
**BASIC WIRE NOTES**

- A** (2) 2" CONDUITS (PAVEMENT SENSORS)  
(1) 2" CONDUIT (SPARE)
- B** (2) 2" CONDUITS (CAMERA SYSTEMS)
- C** (1) 2" CONDUIT (POWER SUPPLY)
- D** (1) 2" CONDUIT (COMMUNICATIONS)



**BASIC EQUIPMENT NOTES**

- 1** TYPE II SIGNAL STANDARD WITH 20 FT ARM
- 2** TYPE 331L WIM CABINET (SEE NOTE 5)

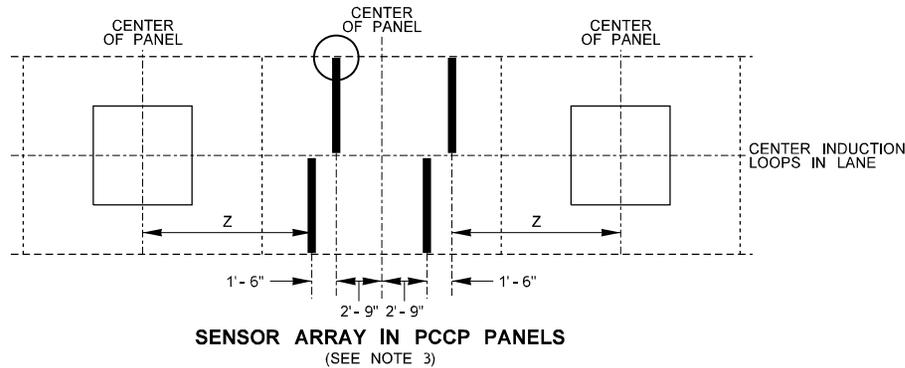
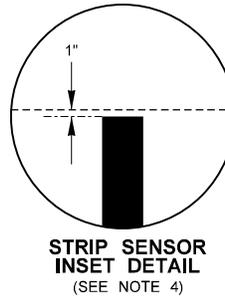
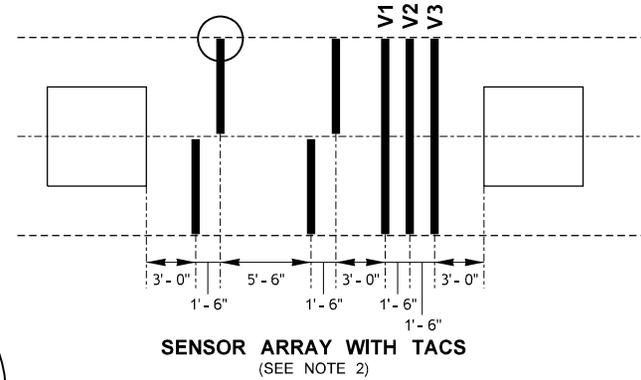
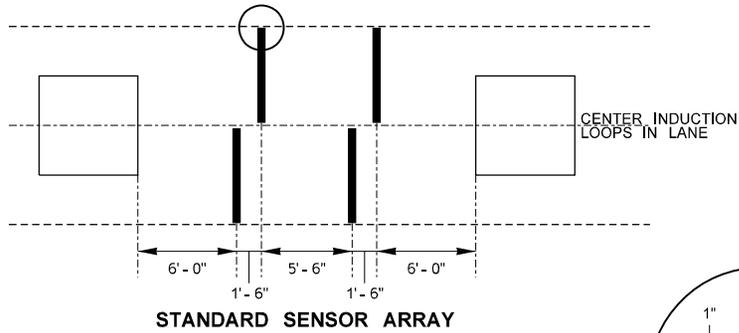


CHANGE ORDER NO. 017  
CONTRACT NO. 009540  
PAGE 4 OF 18

**NOTES**

- Index station is the point of reference for measurements to all features of the Weigh-in-Motion (WIM) site. Special pavement smoothness requirements apply from 275 feet before the Site Index Station to 125 feet after the Site Index Station - see special provisions.
- Sensors are identified by type, direction, lane, and number in lane:  
Type: Loops, no prefix; strip sensors, P prefix  
Direction: A (increasing MP) or B (decreasing MP)  
Lane: 1, 2, 3, etc. (starting from right lane)  
Number in lane: 1, 2, 3, etc. (starting from upstream)  
Examples:  
PA22: Strip sensor, increasing MP direction, lane 2, sensor 2  
B11: Loop sensor, decreasing MP direction, lane 1, sensor 1  
Sensor array layouts are shown on sheet WM2.
- Even lanes shift the sensor array downstream as shown, and require an additional trigger loop for cameras.
- Center junction boxes between the upstream and downstream sensor arrays, so that they can be used for the road crossing and the sensor stubouts. Larger junction box sizes may be used to accommodate required conduits.
- 331L WIM cabinet shown as standalone. May be on a shared pad with other cabinets, such as an electrical service, transformer, or other equipment cabinet.
- Continue conduit crossing to far side of freeway for opposite direction sensors and/or future use. Additional conduits and boxes for second direction of travel not shown.
- Calculate required guardrail (or barrier) length in accordance with WSDOT Design Manual Chapter 1610.
- Maintenance pullout areas shall be in accordance with ITS maintenance access requirements. Pullouts with Type II Signal Standards shall accommodate the use of a bucket truck.

FILE NAME	C:\Storage\01 Manual Revisions\02 Std Details\PTR-WIM\WIM_Sheet_Working.dgn			REGION NO.	STATE	FED.AID PROJ.NO.		<b>WSDOT</b> STANDARD SIGNAL AND ITS DETAILS WEIGH IN MOTION SYSTEMS	Plot 9
TIME	08:24:22			10	WASH				PLAN REF NO
DATE	12/9/2022			JOB NUMBER				WM1	
PLOTTED BY	Jackelli			CONTRACT NO.				SHEET	
DESIGNED BY	F. JACKSON			LOCATION NO.				OF	
ENTERED BY	F. JACKSON							SHEETS	
CHECKED BY									
PROJ. ENGR.									
REGIONAL ADM.	REVISION	DATE	BY	P.E. STAMP BOX	DATE	P.E. STAMP BOX	DATE		

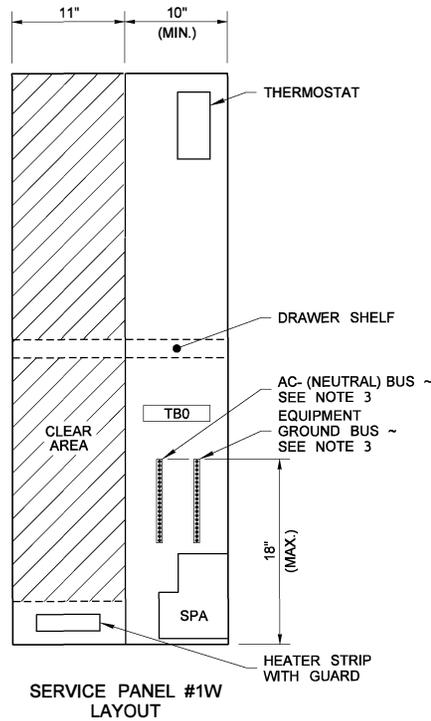
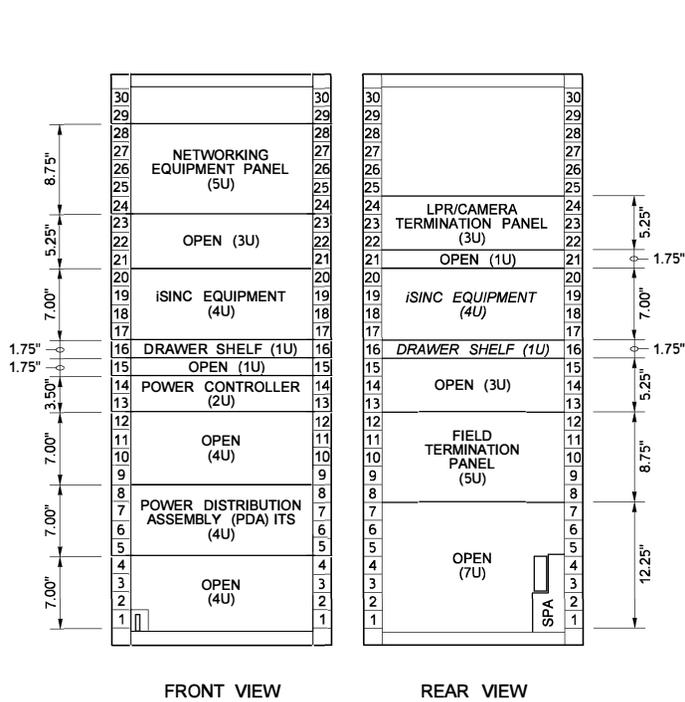


**NOTES**

- For all sensor arrays, center the loops in the lane. Strip sensors are staggered in each wheelpath as shown. Loop sensors may be 6 foot Type 2A (square) or 3A (round) - use only one type.
- Where a TACS system is installed, three additional strip sensors are installed as shown. These are always identified as V1, V2, and V3 (starting upstream), regardless of roadway direction (increasing or decreasing MP).
- Where sensors are installed in PCCP, sensor placement must be adjusted to avoid panel joints. Sensors will normally be placed in three adjacent panels, with the induction loops centered in the upstream and downstream panels, and the strip sensor arrays centered in the middle panel as shown. Report final length "Z" for system setup and calibration. For locations with TACS, the additional strip sensors are placed in a separate panel between the standard strip sensors and the downstream loop sensor.
- Strip sensors for each wheelpath shall be placed one inch inside the adjacent lane edge - they may not cross any joints. Sensors may overlap the center of the lane, but it is not required.
- Where sensors are installed for classification only, omit the left wheelpath strip sensors from the sensor array.

FILE NAME C:\Storage\01 Manual Revisions\02 Std Details\PTR-WIM\WIM_Sheet_Working.dgn		REGION NO. STATE		FED.AID PROJ.NO.		PLOT 10	
TIME 08:21:40		10	WASH			PLAN REF NO WM2	
DATE 12/9/2022		JOB NUMBER				SHEET	
PLOTTED BY Jacksfl		CONTRACT NO.		LOCATION NO.		OF	
DESIGNED BY F. JACKSON						SHEETS	
ENTERED BY F. JACKSON							
CHECKED BY							
PROJ. ENGR.							
REGIONAL ADM.	REVISION	DATE	BY	P.E. STAMP BOX	DATE	 <p><b>WSDOT</b> STANDARD SIGNAL AND ITS DETAILS WEIGH IN MOTION SYSTEMS</p>	



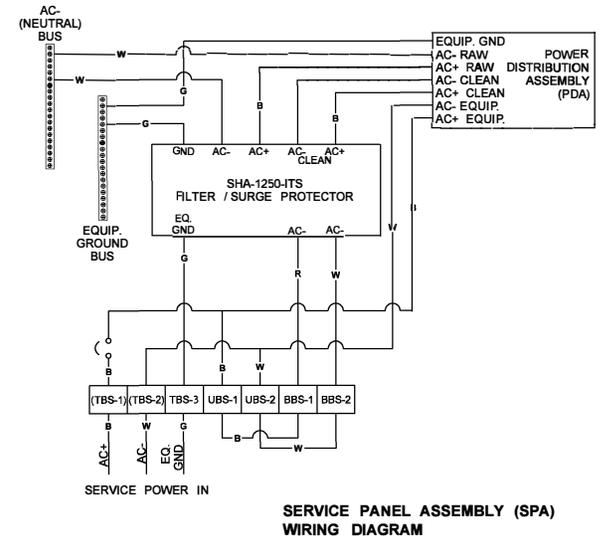


NOTE: DIMENSIONS NOT SHOWN SHALL BE IN ACCORDANCE WITH THE TEES

**GENERAL NOTES FOR TYPE 331L WIM CABINET:**

1. CABINET SHALL BE TYPE 331L IN ACCORDANCE WITH STANDARD SPECIFICATION 9-29.13(12).
2. THE CABINET SHALL NOT INCLUDE A POLICE PANEL OR GENERATOR TRANSFER SWITCH.
3. SERVICE PANEL #1W SHALL MEET THE REQUIREMENTS OF INPUT PANEL #1 IN THE CALTRANS TEES, WITH THE MODIFICATIONS SHOWN HERE.
4. BUS BARS SHALL BE CAPABLE OF BEING USED WITHOUT INSTALLING LUGS ON FIELD WIRES.
5. SEE SHEET ????? FOR FIELD TERMINATION AND LPR/CAMERA TERMINATION PANEL DETAILS.
6. SEE SHEET ????? FOR NETWORKING EQUIPMENT PANEL DETAILS.
7. FIBER-OPTIC PATCH PANEL SHALL BE INSTALLED AT THE TOP REAR OF THE RACK, WHEN SPECIFIED.

CHANGE ORDER NO. 017  
 CONTRACT NO. 009540  
 PAGE 7 OF 18



**WSDOT IT OR ITS NETWORK CONNECTION**

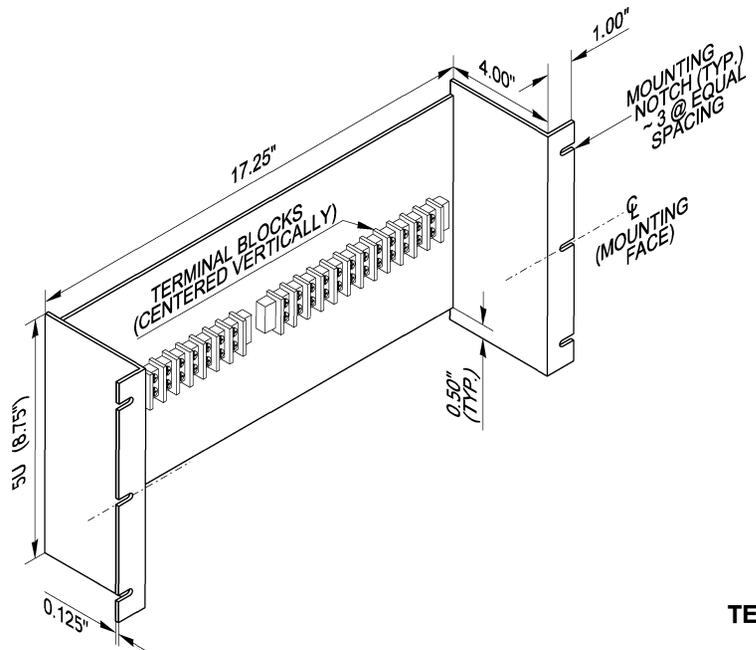
**TYPE 331L WEIGH IN MOTION (WIM) CABINET LAYOUT**

FILE NAME	C:\Storage\01 Manual Revisions\02 Std Details\PTR-WIMPTR-WIM 2-Lane-Same-Dir DetailSheets.dgn	REGION NO.	10	STATE	WASH	FED.AID PROJ.NO.		Plot 4
TIME	17:22:19	JOB NUMBER						PLAN REF NO
DATE	5/2/2022	CONTRACT NO.						SHEET
DESIGNED BY	Jacksa	LOCATION NO.						OF
ENTERED BY								SHEETS
CHECKED BY								
PROJ. ENGR.								
REGIONAL ADM.		REVISION		DATE	BY	P.E. STAMP BOX	DATE	



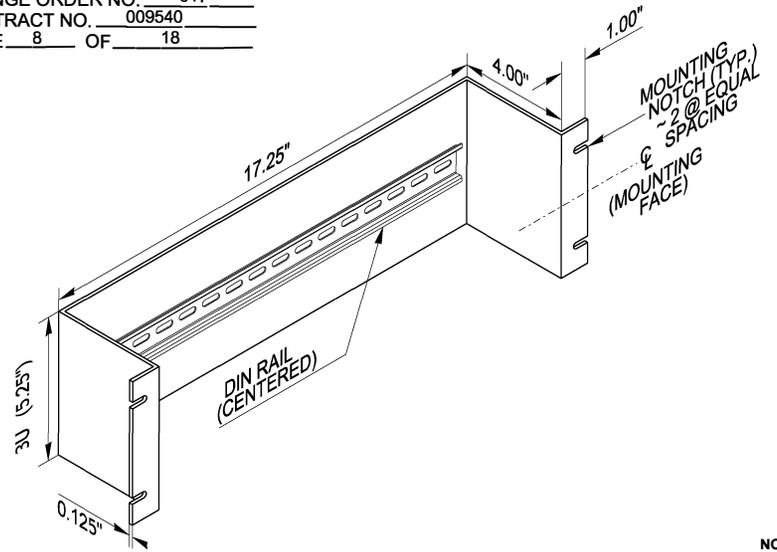
**WSDOT**  
**WIM SITE STANDARD DETAILS**

NOT TO SCALE

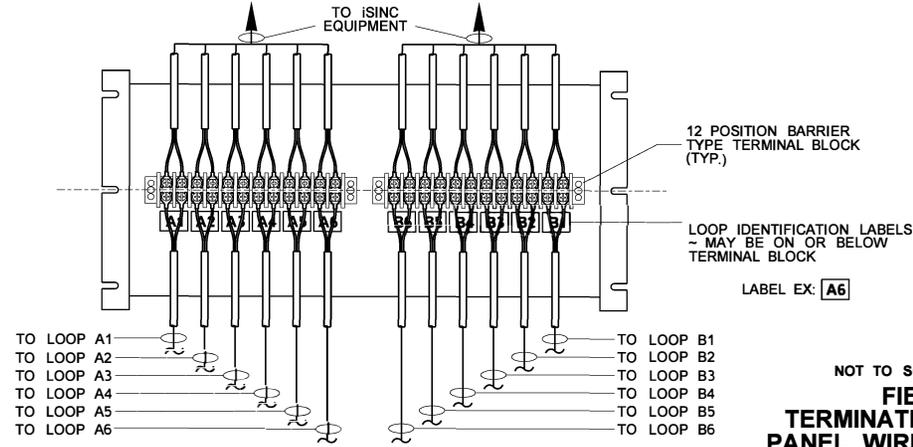


NOT TO SCALE  
**5U FIELD  
 TERMINATION  
 PANEL**

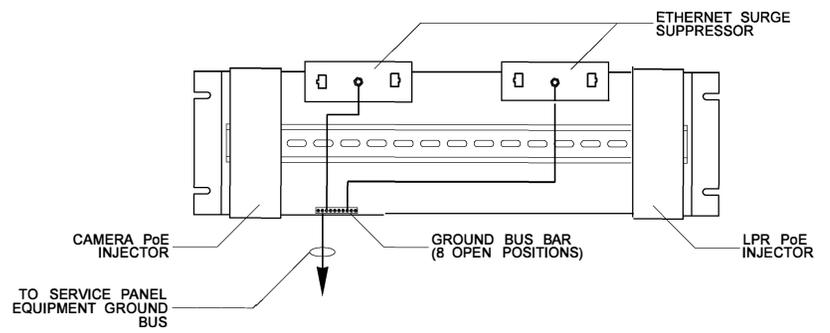
CHANGE ORDER NO. 017  
 CONTRACT NO. 009540  
 PAGE 8 OF 18



NOT TO SCALE  
**LPR/CAMERA  
 TERMINATION  
 PANEL**



NOT TO SCALE  
**FIELD  
 TERMINATION  
 PANEL WIRING**



**GENERAL NOTES FOR LPR/CAMERA TERMINATION PANEL:**

1. ONLY GROUND WIRING SHOWN. ALL OTHER WIRING SHALL BE IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS.
2. PoE INJECTORS MAY BE DIN RAIL MOUNTED OR MOUNTED TO THE SIDES OF THE PANEL.
3. WHEN PoE INJECTOR POWER SUPPLIES ARE REQUIRED, THEY MAY BE MOUNTED ON THIS PANEL.

NOT TO SCALE  
**LPR/CAMERA  
 TERMINATION  
 PANEL LAYOUT**

FILE NAME: C:\Storage\01 Manual Revisions\02 Std Details\IPTR-WIM\PTR-WIM 2-Lane-Same-Dir_DetailSheets.dgn		REGION NO.:	STATE:	FED.AID PROJ.NO.:	Washington State Department of Transportation		WSDOT WIM SITE STANDARD DETAILS	Plot 7
TIME: 17:22:29	DATE: 5/2/2022	10	WASH		P.E. STAMP BOX			PLAN REF NO
DESIGNED BY: Jackafl		JOB NUMBER:			P.E. STAMP BOX			SHEET
ENTERED BY:		CONTRACT NO.:			P.E. STAMP BOX			OF
CHECKED BY:		LOCATION NO.:			P.E. STAMP BOX			SHEETS
PROJ. ENGR.:					P.E. STAMP BOX			
REGIONAL ADM.:	REVISION:	DATE:	BY:		P.E. STAMP BOX			



1 DIVISION5.GR5

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

51

**Division 5**  
**Surface Treatments and Pavements**

5-04.GR5

**Hot Mix Asphalt**

5-04.3.GR5

**Construction Requirements**

5-04.3(13).GR5

**Surface Smoothness**

5-04.3(13).INST4.WIM.GR5.docx

Section 5-04.3(13) is supplemented with the following:

5-04.3(13).OPT4.WIM.GR5.docx

(\*\*\*\*\*)

This Contract includes sensitive Weigh-in-Motion (WIM) sensors, and additional surface smoothness requirements apply in within the WIM paving area.

The WIM evaluation area where this applies is 400 feet in length, starting from 275 feet before the WIM Site Index Station, and from 0.75 feet left of the roadway left lane edge line or centerline pavement marking to the right edge fog line laterally for each direction of travel with sensors.

The completed surface shall be sufficiently smooth such that a 6-inch diameter circular plate, 0.125 inches thick, cannot be passed beneath a 16-foot straightedge placed on the surface parallel to the centerline of the roadway, when evaluated as described in ASTM E1318-09 (2017), Section 6.1.5.

Deviations within the WIM evaluation area that are in excess of these requirements cannot be accepted and shall be corrected by one of the following methods:

1. Remove and replace the final roadway surface layer, or
2. Grinding the surface with an approved grinding machine, or
3. By other method approved by the Engineer.

Correct defects until there are no deviations anywhere within the WIM evaluation area that are greater than allowable tolerances.

DIVISION8.GR8

**Division 8**  
**Miscellaneous Construction**

8-20.GR8

**Illumination, Traffic Signal Systems, Intelligent Transportation Systems, and Electrical**

1 8-20.1.GR8  
2 **Description**

3  
4 8-20.1.OPT1.WIM.GR8.docx  
5 (**\*\*\*\*\***)

6 **Weigh-in-Motion (WIM) System**

7 This Work consists of furnishing, installing, field testing, and maintaining all materials and  
8 equipment necessary to complete in place, fully functional Weigh-in-Motion (WIM)  
9 system(s) in accordance with approved methods, the Plans, the Special Provisions, and  
10 the Standard Specifications.

11  
12 Locations of in-pavement sensors and overhead detectors are precise and shall be  
13 verified with the Engineer prior to installation. Unless otherwise noted, the locations of all  
14 other equipment shown in the Plans are approximate, and the exact locations will be  
15 established by the Engineer in the field.

16  
17 8-20.2.GR8  
18 **Materials**

19  
20 8-20.2(9-29).GR8.docx

21 **Illumination, Signal, Electrical**

22  
23 8-20.2(9-29).INST1.GR8.docx

24 Section 9-29 is supplemented with the following:

25  
26 8-20.2(9-29).OPT1.WIM.GR8.docx

27 (**\*\*\*\*\***)

28 **Weigh-in-Motion (WIM) System**

29 The WIM system and associated equipment shall be manufactured by IRD  
30 (International Road Dynamics) Inc or the companies listed below. Specific part  
31 numbers for equipment shown below shall meet the recommendations of IRD for the  
32 WIM system. Additional equipment identified in the Plans but not manufactured or  
33 specified by IRD shall meet all applicable requirements in the Standard  
34 Specifications and these Contract Provisions.

35  
36 Any equipment specified in this section that has been superseded by a newer and  
37 interchangeable product shall be replaced with the newer product. For any product  
38 that is no longer available and has no replacement, the Contractor shall propose a  
39 different product meeting the same performance and material specifications as the  
40 discontinued one, including compatibility with the rest of the WIM system.

41  
42 1. Equipment Model Numbers:

43  
44 WIM Controller: IRD iSINC System  
45 License Plate Reader (LPR): Perceptics Monochrome LPR  
46 Overview Camera: Axis Q1647 or Q1656 with T92G20 Housing  
47 Infrared Illuminator: Raymax RM300-PLT  
48 Ethernet Power Controller: Digital Loggers Ethernet Power Controller 7

49  
50 2. Manufacturer Information:

51  
52 IRD (International Road Dynamics Inc)

1 702 43rd Street East  
2 Saskatoon, SK  
3 Canada S7K-3T9  
4 Phone: (306) 653-6600 / (877) 444-4473  
5 Fax: (306) 242-5599  
6 Email: [info@irdinc.com](mailto:info@irdinc.com)  
7

8 Perceptics, LLC  
9 11130 Kingston Pike, Suite 6  
10 Farragut, TN 37934  
11 [info@perceptics.com](mailto:info@perceptics.com)  
12 [www.perceptics.com](http://www.perceptics.com)  
13

14 Axis Communications, Inc.  
15 300 Apollo Drive  
16 Chelmsford, MA 01824  
17 (978) 614-2000  
18 [www.axis.com](http://www.axis.com)  
19

20 Raytec Americas  
21 800-300 Terry Fox Drive  
22 Ottawa, Ontario  
23 K2K 0E3, Canada  
24 (613) 270-9990  
25 [ussales@rayteccctv.com](mailto:ussales@rayteccctv.com)  
26 [www.rayteccctv.com](http://www.rayteccctv.com)  
27

28 Digital Loggers, Inc.  
29 2695 Walsh Ave  
30 Santa Clara, CA 95051  
31 (408) 330-5599  
32 [sales@digital-loggers.com](mailto:sales@digital-loggers.com)  
33 [www.digital-loggers.com](http://www.digital-loggers.com)  
34

35 **Cabinet**

36 The WIM Cabinet shall be a Type 331L, as described in Standard Specification  
37 9-29.13(12), and include all listed equipment for a Type 331L cabinet. A service  
38 panel and rack mounted equipment shall be provided and installed as shown in  
39 the Plans.  
40

41 **Ethernet Cables**

42 Ethernet cables shall be minimum Cat 5e. Ethernet cables used for Power over  
43 Ethernet (PoE) shall be rated for the wattage of the connected PoE device, but  
44 shall not be lower than IEEE 802.3at Type 2 (PoE+). Cables used outside of the  
45 WIM Cabinet shall be rated for outside plant (OSP), outdoor, and burial  
46 applications. Cable rated for direct burial is preferred.  
47

48 8-20.2(9-29).OPT2.WIM.GR8.docx

49 (\*\*\*\*\*)

50 **Weigh-In-Motion (WIM) System Weight Sensors**

51 WIM System weight sensors are available in three different classes: High Accuracy  
52 (Weigh-in-Motion, +/- 1% Accuracy), Class 1 (Weigh-in-Motion, +/- 7% Accuracy),

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52

and Class 2 (Classification, +/- 20% Accuracy). The applicable sensors shall be installed as required in the Plans.

All sensors shall include factory installed cable of sufficient length to reach the termination point in the WIM cabinet without splices. Sensors shall be provided in sufficient quantity required to install in the configuration(s) and lane width(s) shown in the Plans. Sensors shall be installed in accordance with manufacturer requirements.

The Contractor shall verify with the Engineer the number and type of sensors required before ordering the sensors.

**High Accuracy Sensors**

High accuracy sensors shall be strip sensors from Intercomp:

1. Equipment Model Numbers:

Strip Sensor: Strip Sensor, ASTM E1318 Type III  
1.75m with 40m lead

Requires Installation Kit and Grounding Kit.

2. Manufacturer Information:

Intercomp Company  
3839 County Road 116  
Medina, MN 55340-9342  
(800) 328-3336  
[info@intercompcompany.com](mailto:info@intercompcompany.com)  
[www.intercompcompany.com](http://www.intercompcompany.com)

**Class 1 and Class 2 Sensors**

Class 1 and Class 2 sensors shall be piezoelectric type from TE Connectivity:

1. Equipment Model Numbers:

Class 1 Sensor: RoadTrax BL Class 1  
Class 2 Sensor: RoadTrax BL Class 2

2. Manufacturer Information:

TE Connectivity  
Measurement Specialties, Inc. Division  
1000 Lucas Way  
Hampton, VA 23666  
(800) 522-6752  
[customercare.hmpt@te.com](mailto:customercare.hmpt@te.com)  
[www.te.com](http://www.te.com)

8-20.2(9-29.13).GR8.docx

**Control Cabinet Assemblies**

1 8-20.2(9-29.13(12)).GR8.docx  
2 **Type 331L ITS Cabinet**  
3

4 8-20.2(9-29.13(12)).OPT1.WIM.GR8.docx  
5 **(\*\*\*\*\*)**

6 **WSDOT ITS Network Communication Equipment**  
7 Network communication equipment shall be provided for Ethernet  
8 communications over copper wire or fiber optic cables. The following equipment  
9 shall be provided for network connectivity for each cabinet designated to  
10 connect to the WSDOT ITS Network. Equipment shall include power cords when  
11 required.  
12

13 1. Equipment Model Numbers:

14  
15 RS900 8-port Ethernet Switch: RS900G-HI-D-2LC10-XX  
16 Power Supply: 120VAC Input / 54VDC Output  
17 Power Cord: 99-43-0008-001  
18

19 2. Manufacturer Information:

20  
21 Siemens Canada Limited  
22 300 Applewood Crescent  
23 Concord, Ontario, Canada L4K 5C7  
24 Tel: (905) 856-5288 Fax: (905) 856-1995  
25 Toll Free: (888) 264-0006  
26

27 The RS900 shall be DIN rail mounted on the Network Equipment Panel installed  
28 in the cabinet. The switch shall be provided to the WSDOT Region TMC/ITS  
29 Implementation group for programming prior to installation in the cabinet.  
30

31 8-20.3.GR8

32 **Construction Requirements**  
33

34 8-20.3.INST1.GR8.docx

35 Section 8-20.3 is supplemented with the following:  
36

37 8-20.3.OPT1.WIM.GR8.docx

38 **(\*\*\*\*\*)**

39 ***Weigh-in-Motion (WIM) System***

40 Each WIM System shall be installed in accordance with the Plans.  
41

42 Pole mounted devices shall be attached with stainless steel bands. Surge protection  
43 devices for pole mounted cameras and the power supply unit for the illuminator shall be  
44 installed on the pole adjacent to the associated device. All pole mounted devices shall be  
45 wired directly from the device to the termination point in the WIM cabinet without splices  
46 or terminal connections.  
47

48 In-pavement sensors shall be installed in accordance with manufacturer requirements.  
49 Weight sensors shall use grout or epoxy provided or approved by the sensor  
50 manufacturer. Induction loops shall be installed and tested in accordance with Standard  
51 Specifications 8-20.3(14)C and 8-20.3(14)D. Weight sensors shall be wired from the  
52 sensor to the termination point in the cabinet without splices or terminal connections.

1 Induction loops shall only be spliced where the loop wire connects to the lead-in cable.  
2 Induction loop wiring shall be terminated on the termination panel and not directly to the  
3 WIM equipment.  
4

5 Sensors shall not be installed across any joint, including both HMA and PCCP joints.  
6 Where sensors are placed in PCCP panels, sensors shall not be installed across any joint  
7 between panels in the same lane. Induction loops shall be a minimum of 18 inches from  
8 any joint. Home run saw cuts may cross joints between lanes or shoulder joints.  
9

10 Piezo and strip sensors shall be installed under the supervision of an inspector of the  
11 WIM System Vendor, International Road Dynamics (IRD), Inc., or their designated  
12 representative.  
13

14 **WIM System Cabinet**

15 Each WIM System cabinet assembly shall undergo pre-inspection and laboratory testing,  
16 as well as field verification testing. WIM System specific components are normally  
17 delivered to and installed in the field by the WIM System Vendor and are not required to  
18 be provided for pre-inspection and laboratory testing. The Contractor shall provide a list  
19 of equipment to be delivered to and installed in the field by the WIM System Vendor.  
20 Communications equipment shall be delivered with the cabinet but shall remain separate  
21 for delivery to the appropriate WSDOT Division for programming.  
22

23 **Laboratory Testing**

24 Laboratory testing consists of the following:

- 25  
26 1. Lab testing will take place at the WSDOT Materials Laboratory, located at:  
27 1655 S. 2nd Avenue  
28 Tumwater, WA 98512-6951.
- 29  
30 2. Prior to shipping, arrange appointment for testing at the WSDOT Materials  
31 Laboratory.  
32
- 33 3. Assembly shall be defined as tightening all screws, nuts, and bolts, verifying that  
34 all wiring is clear of moving parts and properly secured, installing all devices,  
35 connecting all cables, and ensuring that all Contract required documents are  
36 present, proper documentation is provided, and all equipment required by the  
37 Contract is installed.  
38
- 39 4. The Contractor shall demonstrate that all cabinet basic functions perform as  
40 required. Demonstration shall include energizing the cabinet and verifying basic  
41 cabinet functions.  
42
- 43 5. If the WIM cabinet assembly fails testing, the Contractor has 7 calendar days to  
44 repair or replace any components that fail during the testing process at no cost  
45 to the Contracting Agency. All repairs shall be completed during normal business  
46 hours for the WSDOT Materials Laboratory. A failure is defined as a component  
47 that no longer functions under the conditions required or does not meet the  
48 requirements of the Contract and is at the sole discretion of the Contracting  
49 Agency. When all repairs and replacements are complete, WSDOT will retest  
50 the basic cabinet functions and all costs for retesting will be deducted from  
51 monies due or that may become due to the Contractor. Contract time extensions  
52 will not be granted for delays caused by rejected equipment.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52

6. Cabinets shall be removed from the Materials Laboratory within 7 working days of notice of acceptance or rejection. Cabinets which are not removed by this deadline will be forwarded to the Contractor, freight collect.

**Storage**

Accepted cabinets shall be stored by the Contractor in a heated facility. Cabinets which will be stored for more than 14 calendar days shall be energized to allow the cabinet climate controls to function and preserve the integrity of the cabinet equipment.

**Networking Equipment**

Networking equipment will be delivered to the appropriate WSDOT Division by the Materials Laboratory for programming. Networking equipment will be delivered to the field and installed by Contracting Agency personnel after notification that the cabinet has been installed and that power is connected and available to the cabinet. The cabinet does not necessarily have to be energized prior to notification.

**Cabinet Energization**

The cabinet shall not be energized until all power connections, grounding, and bonding are complete and approved by an Electrical Inspector in accordance with Standard Specification 8-20.1(3).

**Field Testing**

Field testing will be conducted following the complete installation of the WIM cabinet, including all field wiring, sensors, detectors, etc. as required by the Contract. Field testing consists of the following:

1. All required equipment will be verified installed in the WIM cabinet, in the locations specified in the Contract. All connections and equipment mounting will be verified secure, and all required cabinet and wiring labels shall be verified installed.
2. Local operations will be verified fully functional. This includes verification that all sensors and equipment are functional. The photo-eye for the illuminator will have to be covered temporarily if verification is done during daylight hours. WSDOT Commercial Vehicle Services (CVSN) personnel shall be on-site for this testing.
3. Remote operations will be verified fully functional. This includes verification of remote communications and connection to the WSDOT WIM System. This verification will be conducted remotely by WSDOT CVSN personnel. On-site support will be required as directed by WSDOT CVSN personnel and may be Contractor or Vendor staff as deemed appropriate.

8-20.5.GR8

**Payment**

8-20.5.INST1.GR8

Section 8-20.5 is supplemented with the following:

8-20.5.OPT2.WIM.GR8.docx

(\*\*\*\*\*)

1 "WIM System \_\_\_\_\_", lump sum.  
2 The lump sum Contract Price for "WIM System \_\_\_\_\_" shall be full pay for the construction  
3 of the complete WIM System, modifying existing systems, or both, as described above  
4 and as shown in the Plans, and herein specified, including excavation, backfilling, conduit,  
5 wiring, restoring facilities destroyed or damaged during construction, salvaging existing  
6 materials, and for making all required tests. All additional materials and labor, not shown  
7 in the Plans or called for herein and are required to complete the WIM System, shall be  
8 included in the lump sum Contract price.  
9

VWIM and Toll Site Layout

Note: Maintenance pullouts, barrier, and cabinets locations have not been updated as part of this figure and shall be updated as part of final design.

