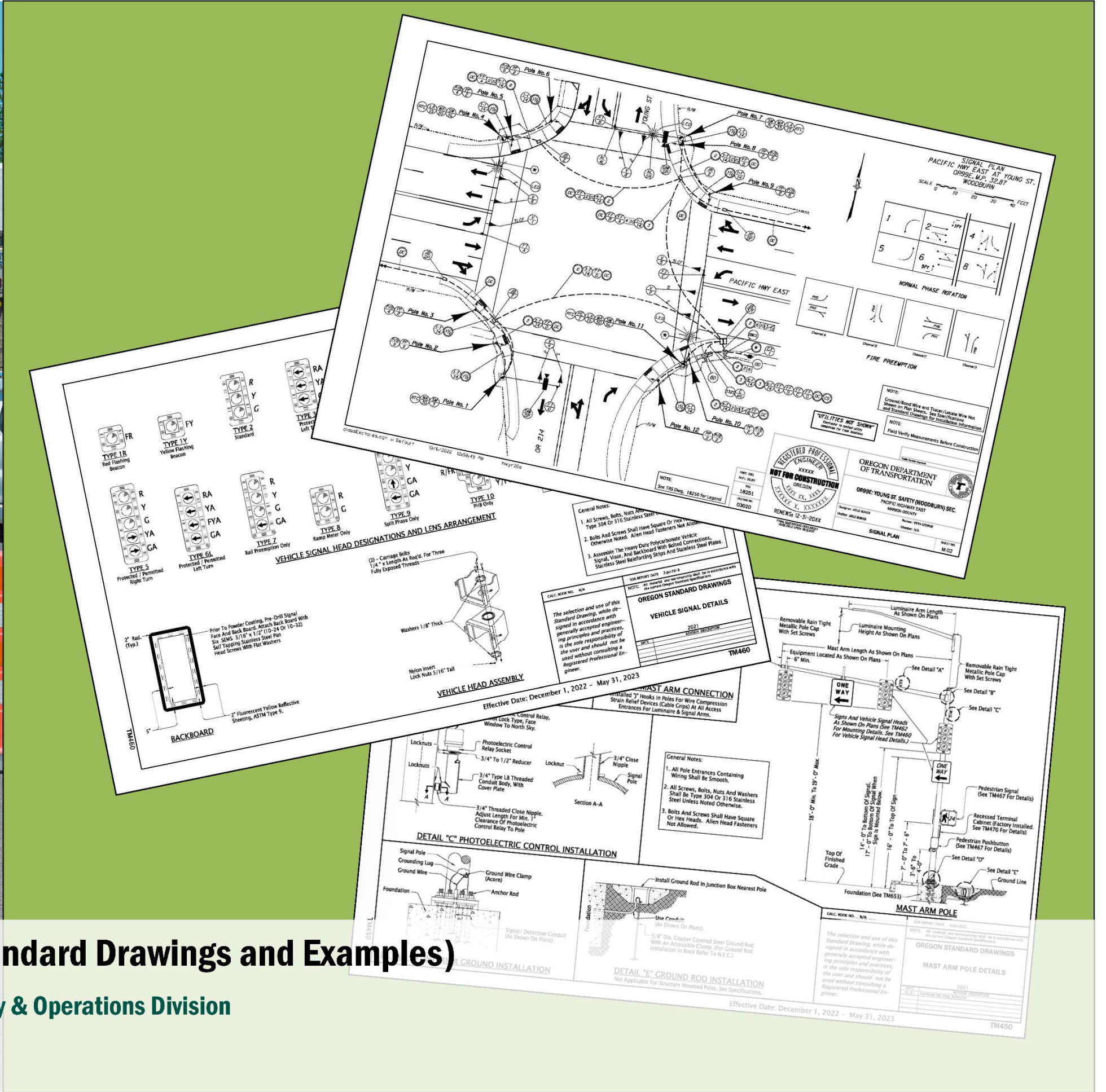
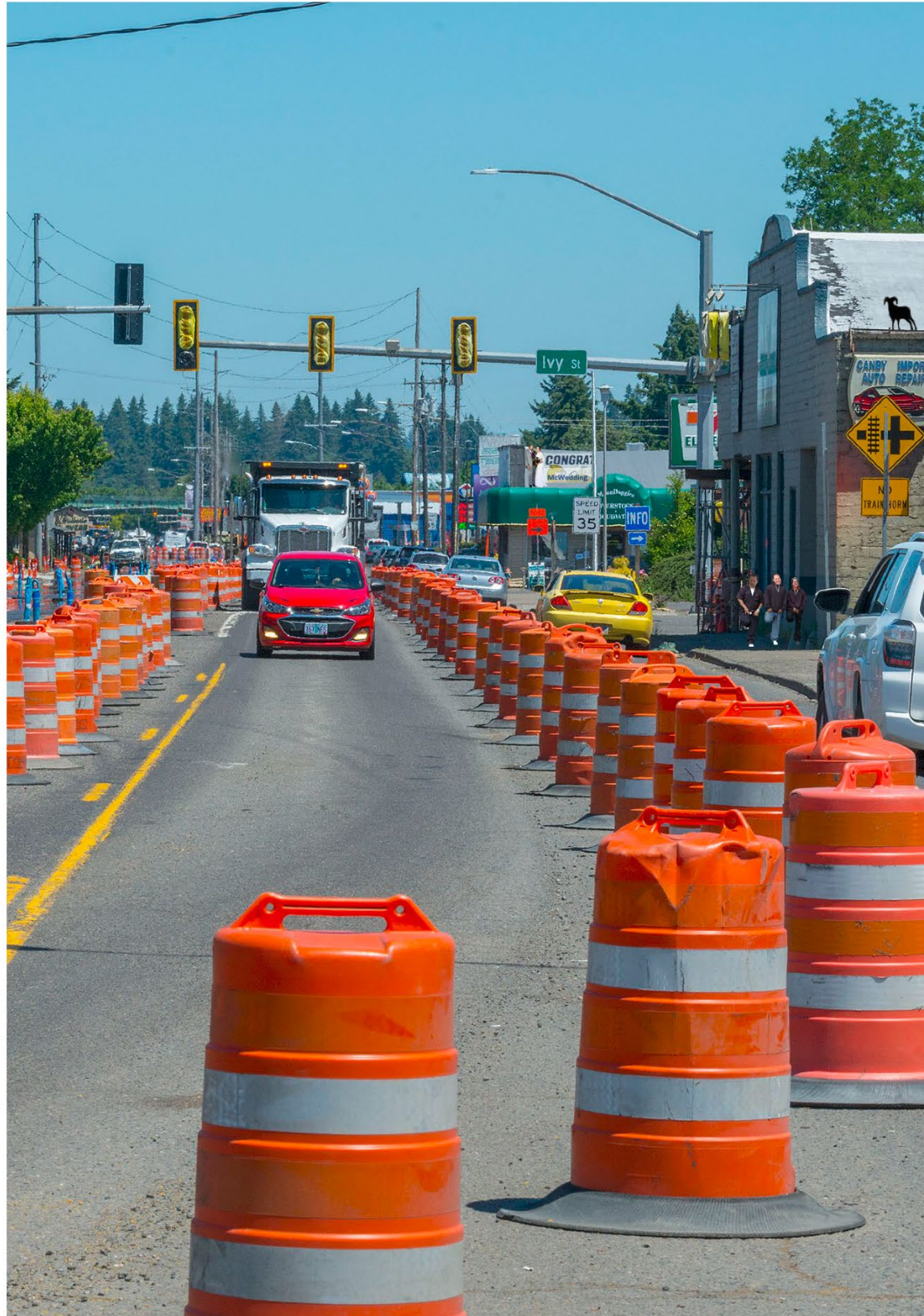




TM700 Series: Common Electrical Systems

TM700 – General Conduit Trenching

TM701 – General Conduit & Wire/Cable Installation

TM702 – General Junction Box/Hand Hole Installation

10-JAN-2025

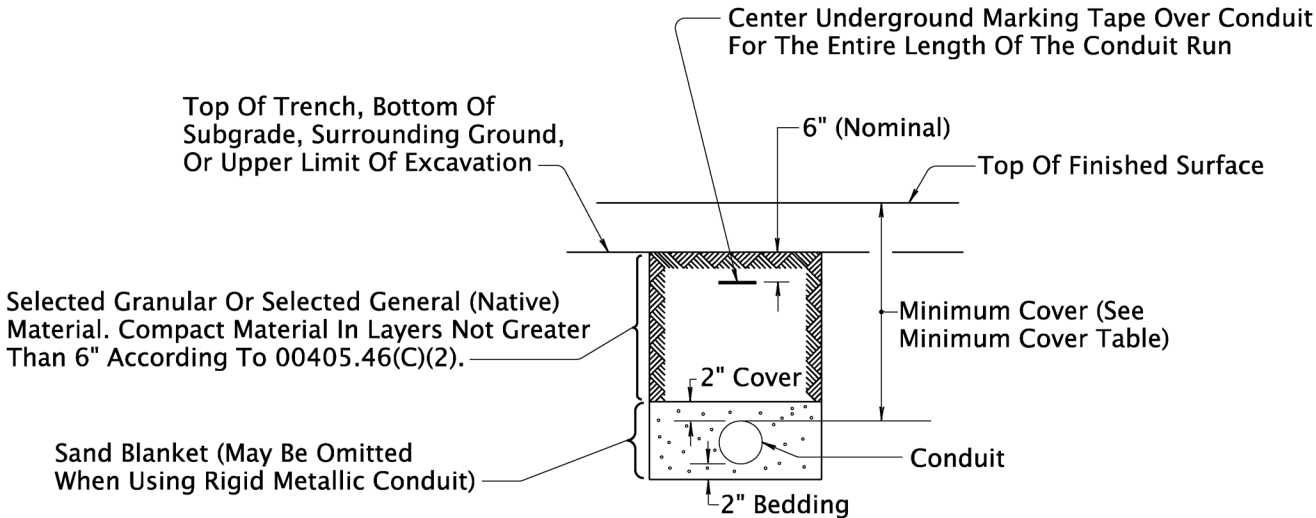
TM700.dgn

Type Of Conduit	Minimum Cover From Top of Finished Surface (Use Permit Depth If Greater Than These)	
	Roadway & Shoulders	Other Areas
Metallic	24"	18"
Non-Metallic	30"(See Note 2)	18"

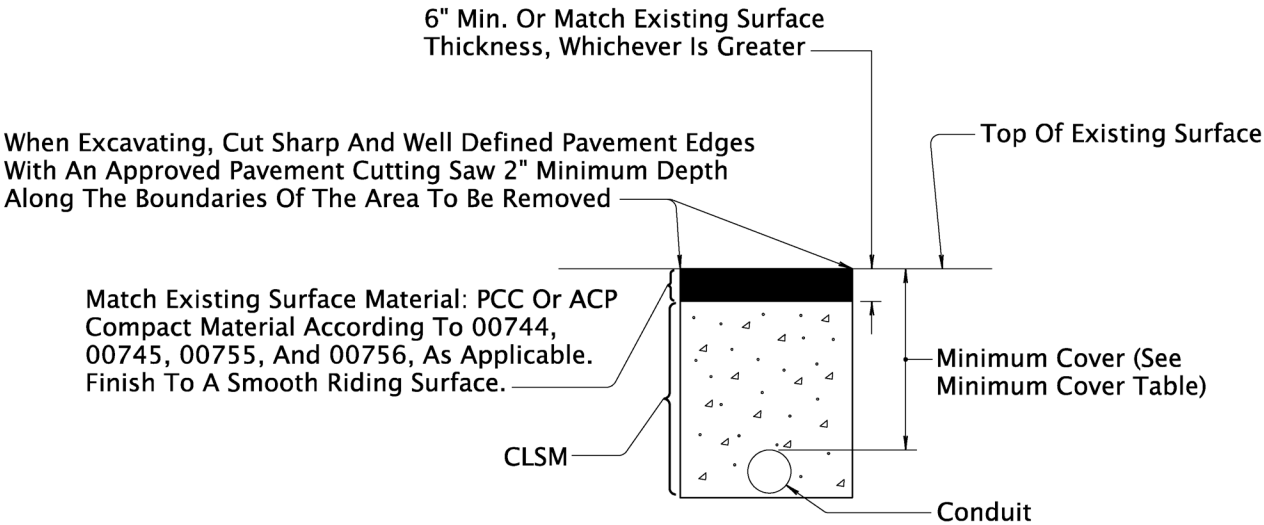
- Notes:
1. Additional Cover Depth May Be Necessary Near Foundations And Junction Boxes To Accommodate The Minimum Radius ("R") Of The Conduit Elbow. See TM701 For More Information.
 2. For Non-Metallic Conduit Under Roadway & Shoulders Installed Horizontally Into Fiber Optic Hand Hole As Per TM702, The Minimum Cover Depth Is 24 Inches.

MINIMUM COVER FROM FINISHED SURFACE

- General Notes:
1. Install Conduit By Open Trench Method, Horizontal Directional Drilling, Or As Shown
 2. Conduit Runs Shown On Plans Are For Bidding Purposes Only. Locations May Be Changed To Avoid Obstructions.
 3. Excavate According To 00960.40. In Areas To Be Paved Or Landscaped, Place All Conduit Before Paving Or Landscaping.
 4. Hold Trench Width To A Practical Minimum
 5. Do Not Backfill Trenches Until Inspected By The Engineer
 6. Furnish Backfill Materials According To 00960.10



CONDUIT OPEN TRENCH EXCAVATION & BACKFILL
UNSURFACED AREAS (new roadway prior to paving, shoulders, under sidewalk, landscaped areas, etc.)



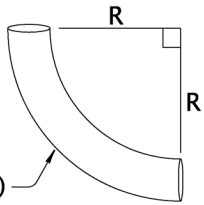
CONDUIT OPEN TRENCH EXCAVATION & BACKFILL
EXISTING PAVED AREAS

All materials shall be in accordance with the current Oregon Standard Specifications.			
OREGON STANDARD DRAWINGS			
GENERAL CONDUIT TRENCHING			
2024			
DATE	REVISION DESCRIPTION		
01-2025	NEW DRAWING (CONTENT FROM RETIRED TM471)		
CALC. BOOK NO.	N/A	SDR DATE	10-JAN-2025
			TM700

Effective Date: December 1, 2025 – May 31, 2026

10-JAN-2025
TM701.dgn

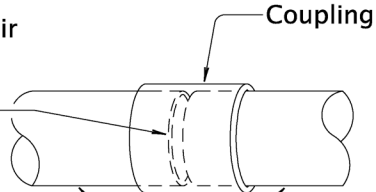
Standard Factory Fiberglass Bend
(No Crimping, Flattening, Field
Manipulation, Or Cutting In The Field)



Conduit Diameter	R (min.)
1 1/2"	10"
2"	12"
2 1/2"	15"
3"	18"

CONDUIT ELBOWS

Make Cuts Square And True So
Conduit Ends Fit Together For Their
Full Circumference. Use Solvent
Weld To Connect Conduit As Per
Manufacturer's Recommendation.



Notes:

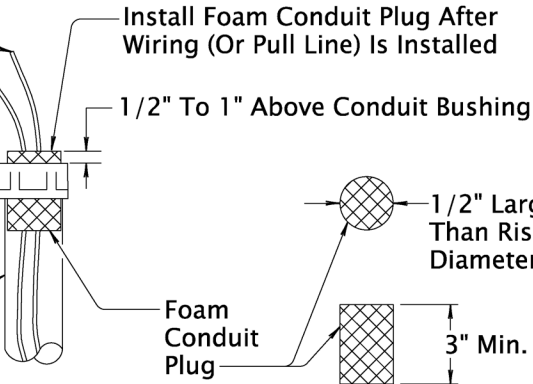
- Slip Joints, Running Threads Or Reducing Couplings Not Allowed. Use The Same Size Conduit For The Entire Length, Outlet To Outlet.

CONDUIT COUPLINGS

Cables/Wires
(Or Pull Line in Conduit
For Future Use Only)

Install Push-On PVC
End Bell Conduit Bushings
Before Installing Wire

PVC Riser (In Junction Boxes) Or
Fiberglass Riser (In Foundations)



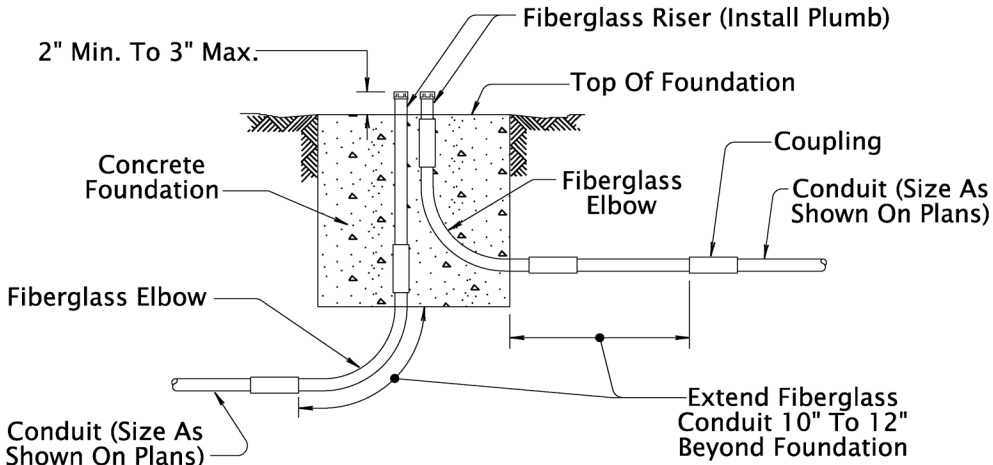
Notes:

- Ream Conduit Ends To Remove Rough Edges And Burrs
- Temporarily Plug Or Cap Conduit Ends At All Times To Keep Debris Out

CONDUIT ENDS AND BUSHINGS

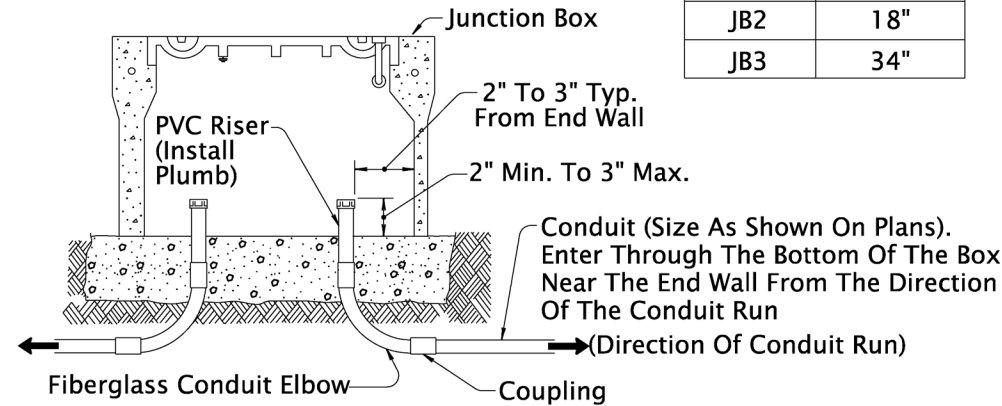
Conduit Installation General Notes:

- Install Non-Metallic Conduit Unless Otherwise Shown. Conduit Runs Shall Be Continuous Between Any Pole, Junction Box, Or Cabinet.
- Larger Conduit Than Specified May Be Used At The Option And Cost Of The Contractor If Max. Sum Of Conduit Diameters In Junction Box Is Not Exceeded.



CONDUIT INSTALLATIONS IN FOUNDATIONS

(Applicable for Pole, Pedestal, Service Cabinet
and Controller Cabinet Foundations)

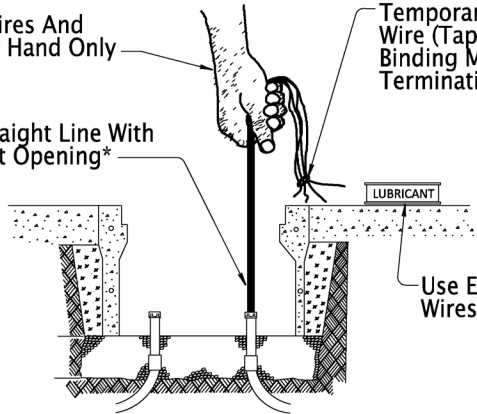


CONDUIT INSTALLATION IN JUNCTION BOXES

Junction Box Type	Max. Sum Of Conduit Diameters
JB1	12"
JB2	18"
JB3	34"

Pull All Wires And
Cables By Hand Only

Pull In A Straight Line With
The Conduit Opening*



Temporarily Bundling Cables Or
Wire (Tapes, Straps, Ties, Or Other
Binding Material) Allowed Only At The
Terminating End Points For Pulling Only

Use Electrical Lubricants When Inserting
Wires And Cables In Conduit

* Use A Pulley Device To Achieve A Straight Line If
Pulls Are Made With Poles Or Controller Cabinets In Place

WIRE & CABLE INSTALLATION IN CONDUITS

Wire & Cable Installation General Notes:

- See TM470 For Additional Wire/Cable Installation Requirements That Apply To Specification Section 00990 Bid Items.
- Label Wires And Cables With Permanent Tags As Shown Or Directed. Use Handheld Labeler (Brady M210 Label Maker With Vinyl B-595 Tape) Unless Otherwise Shown.
- Install No. 16 AWG TFFN Orange Base With Blue Tracertone Wire In All Conduits As A Locate Wire. Leave Slack As Shown Or Directed And Install A Wire Nut. Do Not Join Multiple Locate Wires Under A Common Wire Nut Unless Otherwise Shown.
- Tape The Ends Of Unused Conductors With Insulated Vinyl Plastic Tape.
- Leave A Minimum Of 2 Feet Slack In Each Wire And Cable In Junction Boxes, Poles, Cabinets Unless Otherwise Shown.
- Install Polyethylene Pull Line In All Conduits Noted On The Plans For Future Use (No Wires/Cables In Conduit). Leave 6 Feet Of Slack Pull Line.

*The selection and use of this
Standard Drawing, while
designed in accordance with
generally accepted engineering
principles and practices, is the
sole responsibility of the user
and should not be used without
first consulting a Registered
Professional Engineer.*

All materials shall be in accordance with
the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

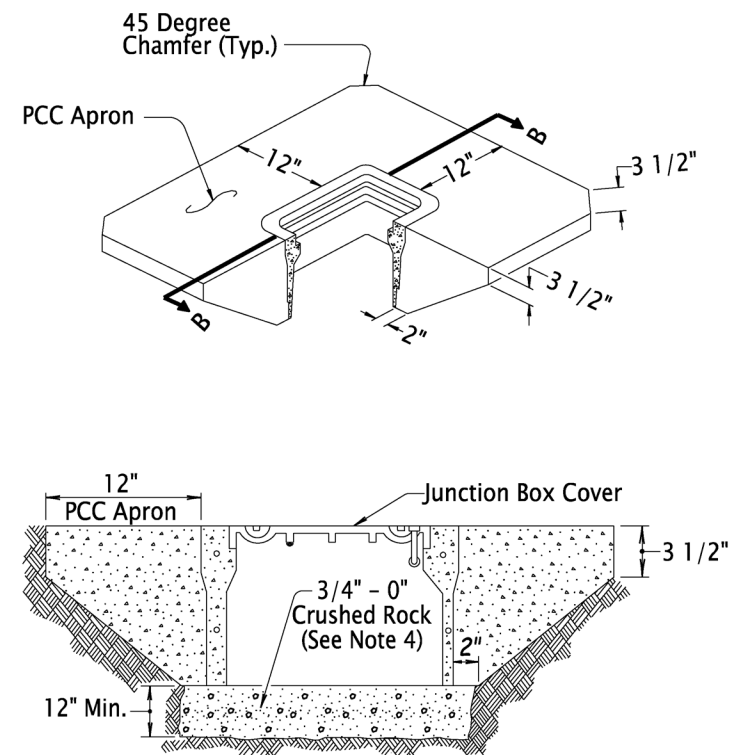
GENERAL CONDUIT & WIRE/CABLE INSTALLATION

2024

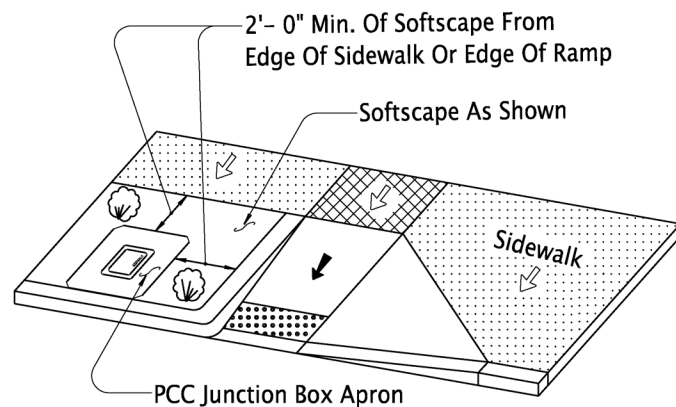
DATE	REVISION	DESCRIPTION
01-2025	NEW DRAWING (CONTENT FROM RETIRED TM470 & TM471)	
CALC. BOOK NO.	N/A	SDR DATE

TM701

Effective Date: December 1, 2025 – May 31, 2026

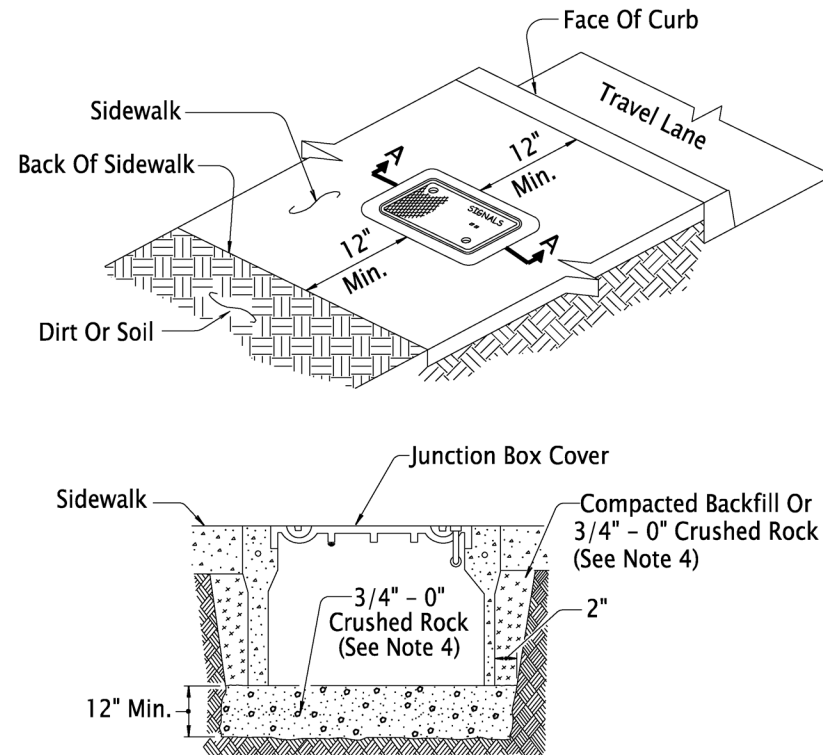


SECTION B-B



JUNCTION BOX INSTALLATION IN UNSURFACED AREA

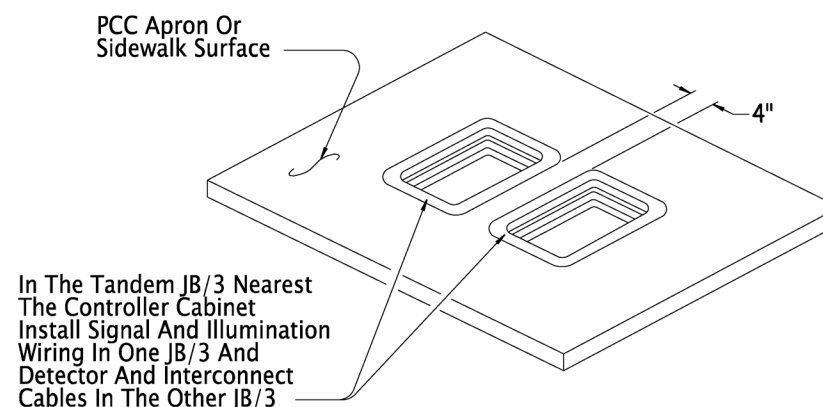
(This Detail Only Applicable for Junction Boxes Located In Incidental Travel Areas; Gravel Shoulders, Behind Guardrail, Etc. Do Not Install In Travel Lanes, Paved Shoulders, Or Other Areas Exposed To Traffic.)



SECTION A-A

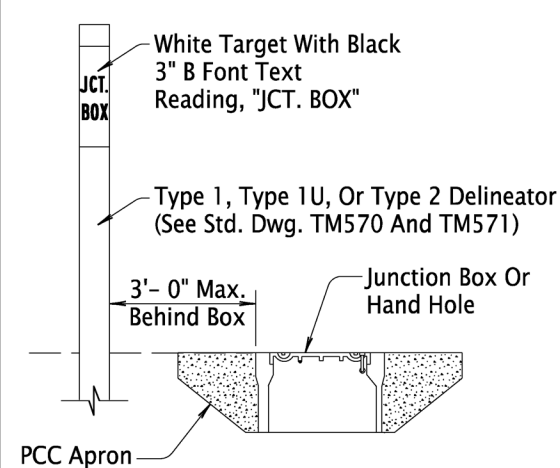
JUNCTION BOX INSTALLATION IN PCC SIDEWALK

(This Detail Only Applicable for Junction Boxes Located In Flat Areas Of Sidewalks. Do Not Install In Slopes Of Ramps Or Driveways)

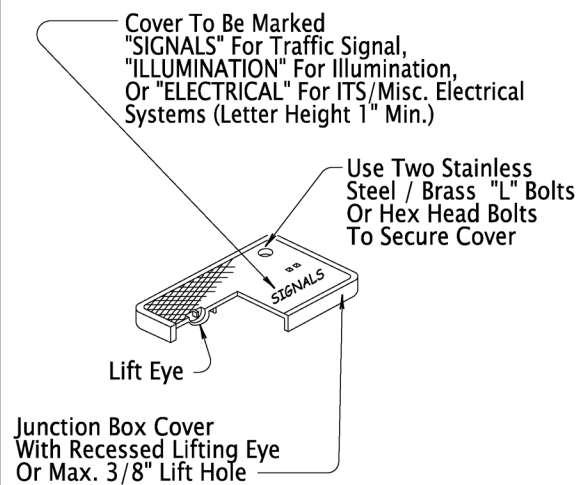


In The Tandem JB/3 Nearest The Controller Cabinet Install Signal And Illumination Wiring In One JB/3 And Detector And Interconnect Cables In The Other JB/3

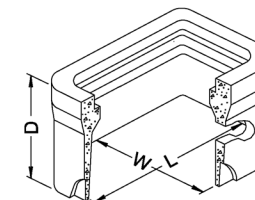
TANDEM JB/3A JUNCTION BOX DETAILS



DELINEATION OF JUNCTION BOX & HAND HOLE IN UNSURFACED AREA



JUNCTION BOX COVER DETAILS

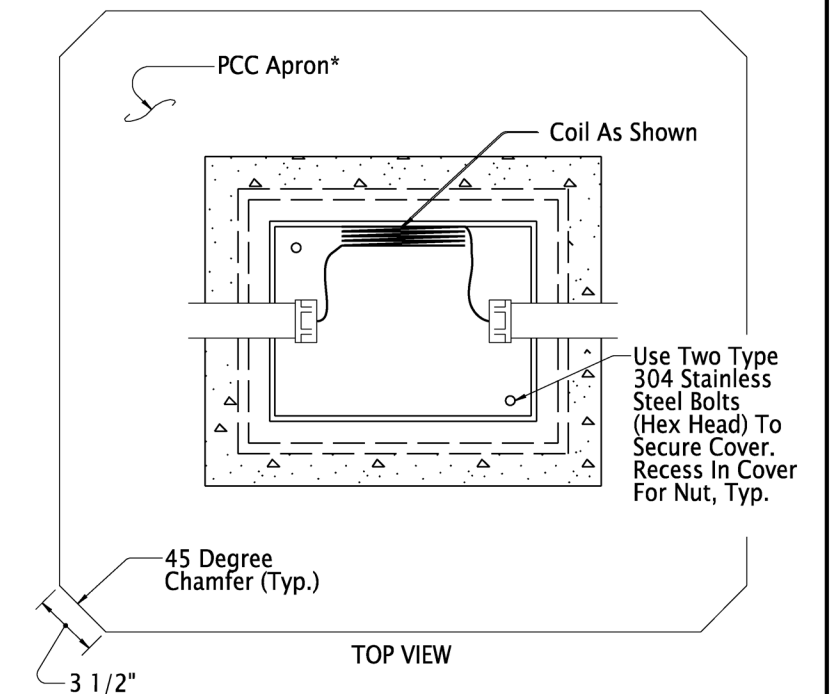
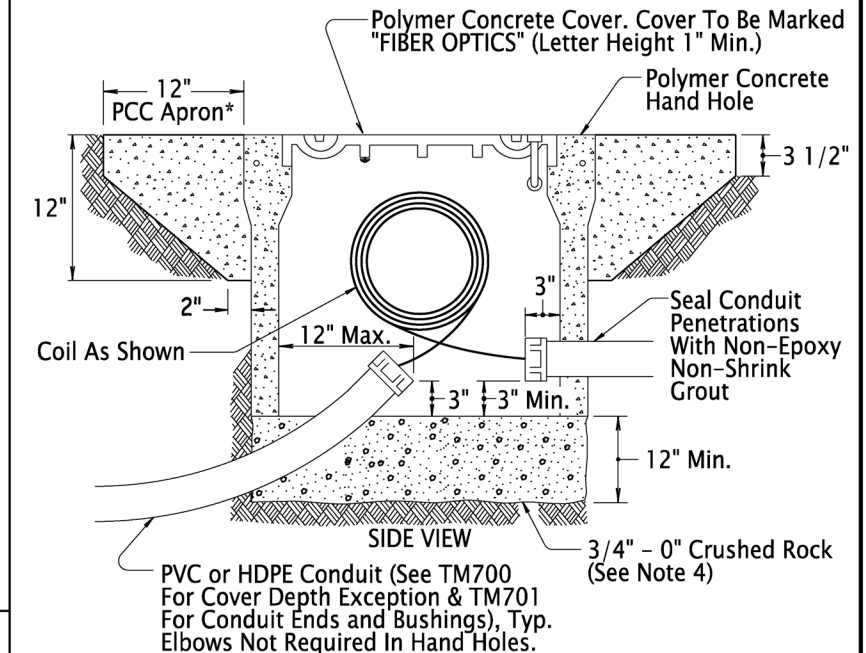


Type*	L	W	D
JB1	17"	10"	12"
JB2	22"	12"	12"
JB3	30"	17"	12"
HH-1	24"	30"	24"
HH-2	30"	48"	24"
HH-3	30"	48"	36"

*Junction Box Or Handhole Type As Shown On Plans

DIMENSION TABLE

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.



FIBER OPTIC CABLE HAND HOLE INSTALLATION

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

GENERAL JUNCTION BOX/HAND HOLE INSTALLATION

2024

DATE	REVISION	DESCRIPTION
01-2025	NEW DRAWING (CONTENT FROM RETIRED TM472)	
07-2025	REVISED FIBER OPTIC CABLE HAND HOLE INSTALLATION DETAIL	

CALC. BOOK NO.	N/A	SDR DATE	11-JUL-2025	TM702
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GENERAL NOTES:

1. Install Top of Junction Box And Hand Hole Flush With The Sidewalk, Surrounding Grade, Or Top Of Curb. For Hand Holes Installed In The Roadway Or Shoulder, Leave The Top Of The Hand Hole 1/2" Below The Pavement Surface.
2. Install Junction Boxes And Hand Holes At The Approximate Locations Shown, Or If Not Shown, No More Than 300 Feet Apart For Junction Boxes And No More Than 1000 Feet Apart For Hand Holes.
3. More Junction Boxes And Hand Holes Than Specified May Be Installed To Facilitate The Work At The Option And Cost Of The Contractor
4. Use Materials According To 00640.10 and 00640.16. Use Compaction Equipment Suitable For Area And Compact Each Six Inch Layer With Sufficient Coverage To Produce A Firm Unyielding Surface. Do Not Install Conductors Until Surface Has Been Constructed.

TM400 Series: Signals

TM450 – Mast Arm Pole Details

TM452 – Temporary Wood Strain Pole Details

TM453 – Temporary Pedestrian Wood Post, Guy Wire/Anchor, & Luminaire Arm Details

TM454 – Temporary Controller Cabinet, Service Cabinet, Meter Base, & Terminal Cabinet

TM456 – Temporary Spanwire Mounting Details for Vehicle Signals, Signs & Fire Preemption

TM457 – Pedestal Foundation and Traffic Signal Assembly

TM460 – Vehicle Signal Details

TM462 – Vehicle Signal Bracket & Sign Bracket (Type B) Details

TM466 – Radar Mounting Details

TM467 – Pedestrian Signal Mount and Pedestrian Pushbutton Details

TM470 – Wire & Cable Installation

TM482 – Controller Cabinet & Service Cabinet Foundation Details

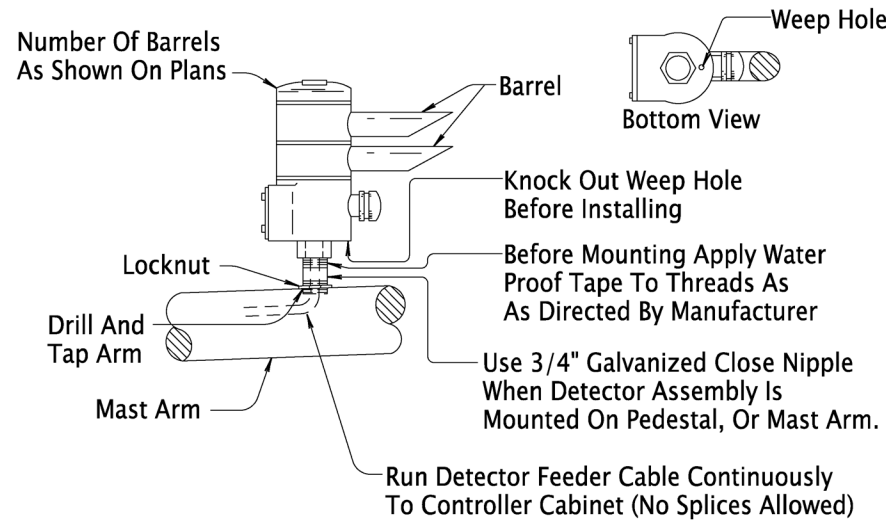
TM485 – Service Cabinet Wiring Details

TM492 – Ramp Meter Assemblies

TM493 – Rectangular Rapid Flashing Beacon (RRFB) Assemblies

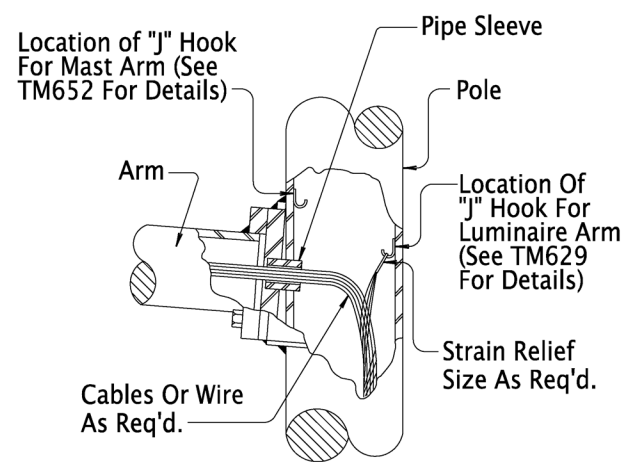
12-JUL-2024

TM450.dgn



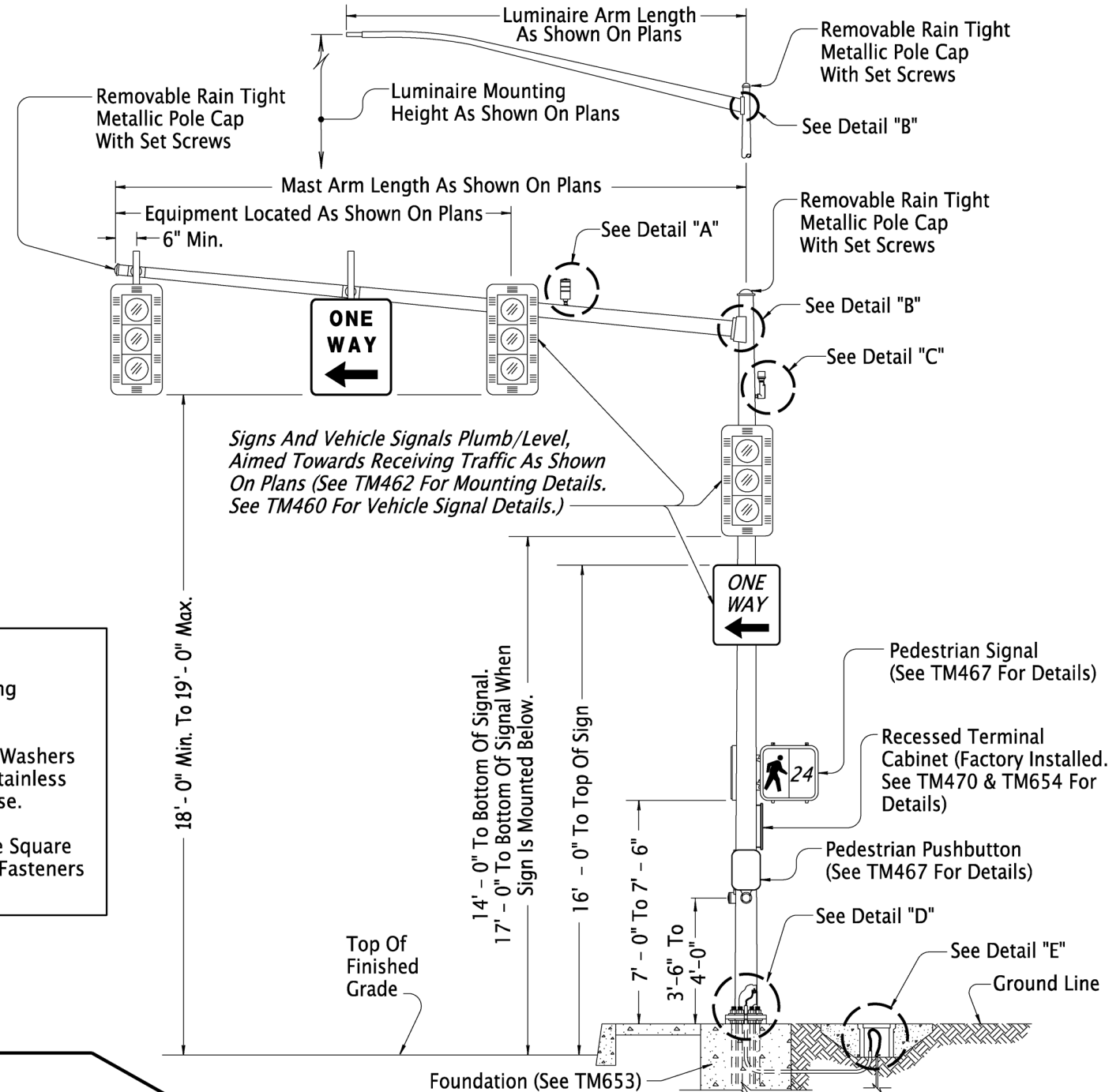
DETAIL "A" FIRE PREEMPTION INSTALLATION

Emitter Units For Vehicles Provided By Others

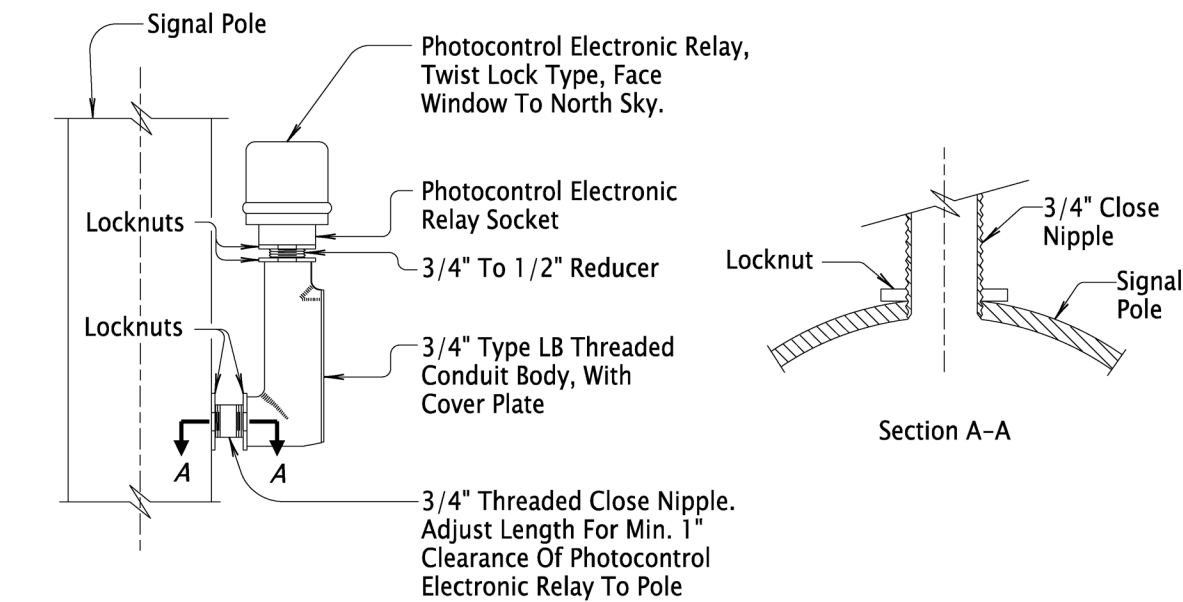


DETAIL "B" ARM CONNECTION

Manufacturer installed "J" Hooks In Poles For Strain Relief (Cable Grips) At All Access Entrances For Luminaire & Mast Arms



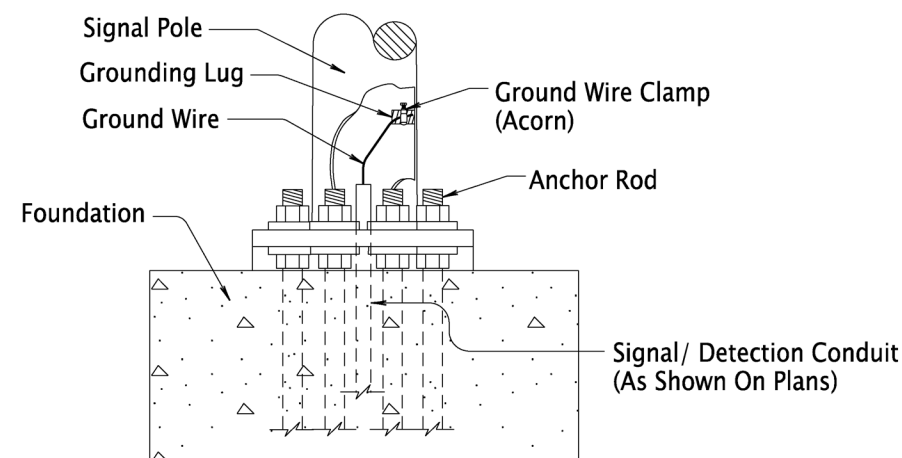
MAST ARM POLE



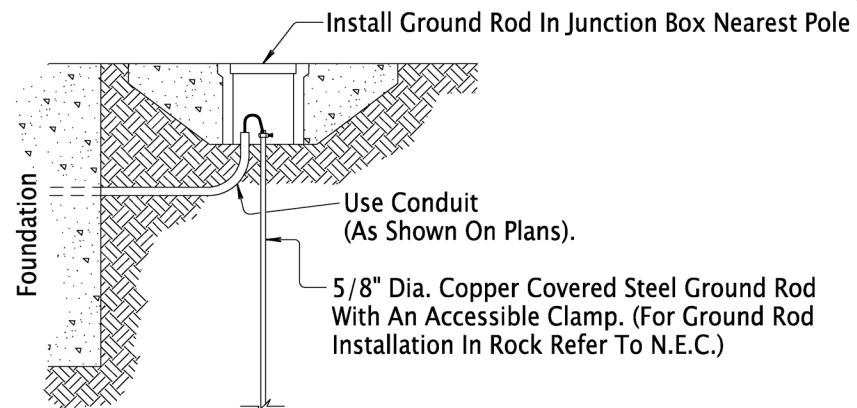
DETAIL "C" PHOTOCONTROL ELECTRONIC RELAY INSTALLATION

General Notes:

1. All Pole Entrances Containing Wiring Shall Be Smooth.
2. All Screws, Bolts, Nuts And Washers Shall Be Type 304 Or 316 Stainless Steel Unless Noted Otherwise.
3. Bolts And Screws Shall Have Square Or Hex Heads. Allen Head Fasteners Not Allowed.



DETAIL "D" INTERIOR GROUND INSTALLATION



DETAIL "E" GROUND ROD INSTALLATION

Not Applicable For Structure Mounted Poles. See Specifications.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

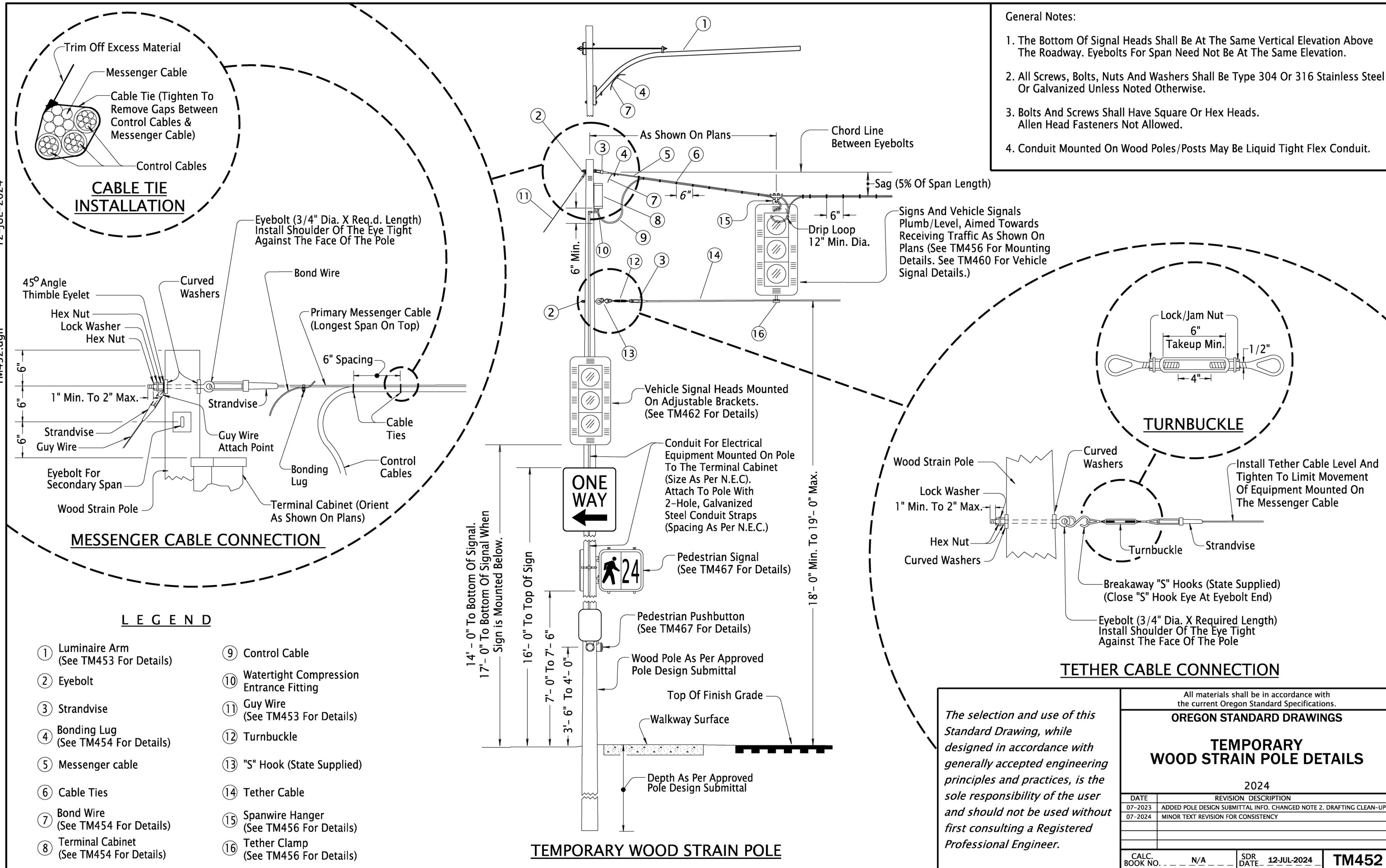
MAST ARM POLE DETAILS

2024

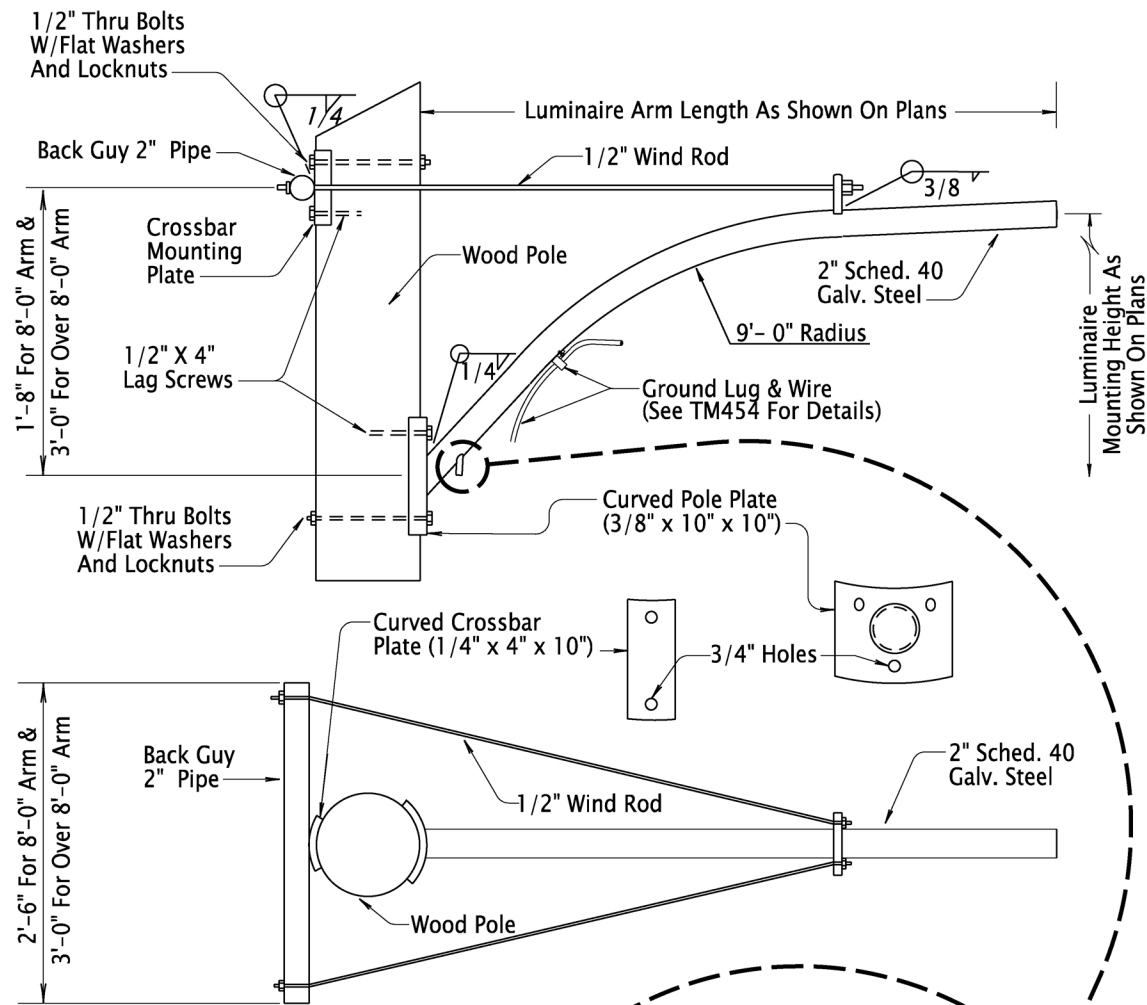
DATE	REVISION	DESCRIPTION
01-2021	CORRECTED STD. DWG. REFERENCE	
07-2023	ADDED STD. DWG. REFERENCE	
01-2024	MINOR TEXT REVISION FOR CONSISTENCY	
07-2024	MINOR TEXT/ILLUSTRATION REVISIONS FOR CONSISTENCY & CLARITY	

CALC. BOOK NO.	N/A	SDR DATE	12-JUL-2024	TM450
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Effective Date: December 1, 2025 – May 31, 2026

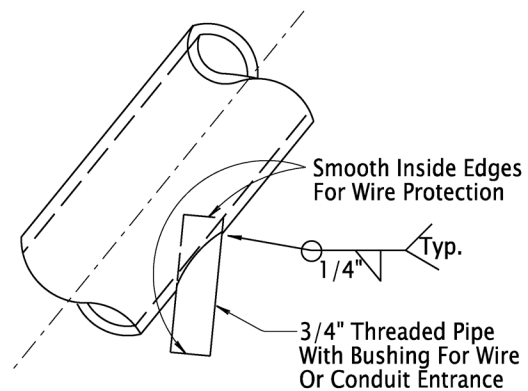


ARM LENGTH	LUM. MAX. WT.	MAX. PROJ. AREA
8'-0" thru 20'-0"	65 lbs.	2 sq. ft.

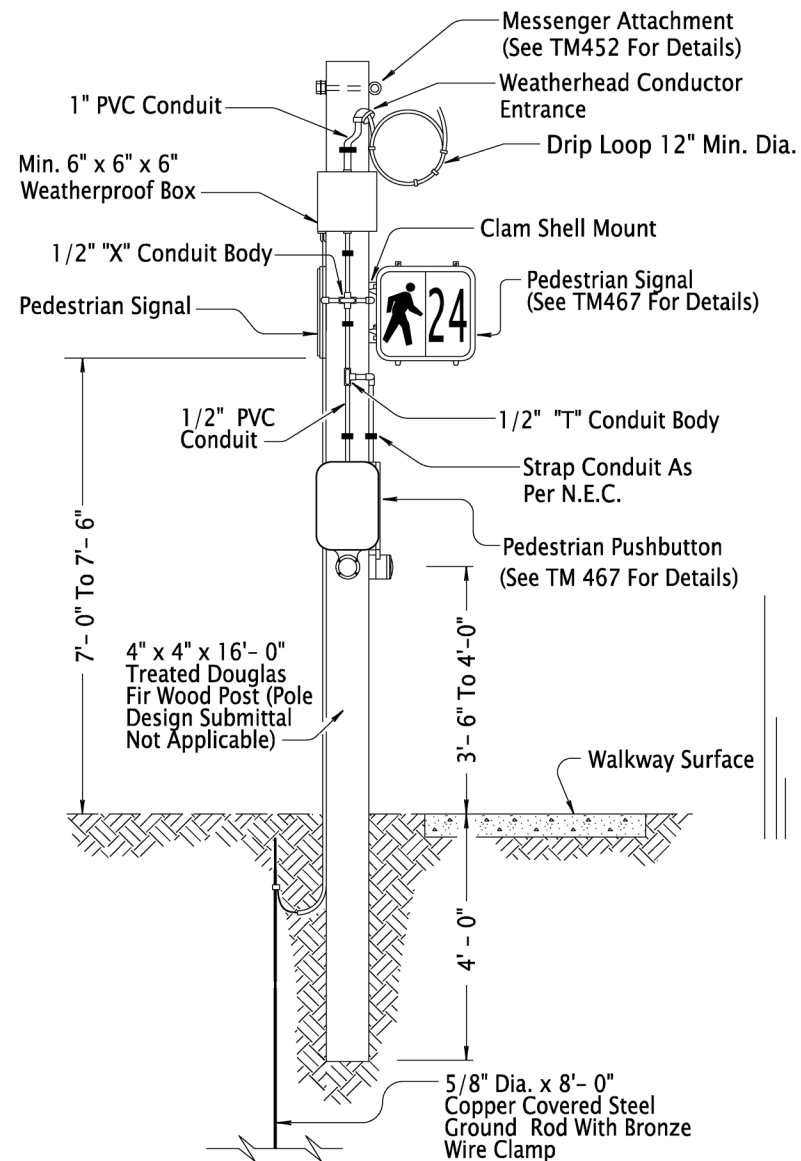


NOTES:

1. Bolts Shall Conform To ASTM Specification A307
2. Steel Sheet And Plate Shall Be Merchant Quality
3. All Structural Steel, Including Washers And Nuts, Shall Be Hot Dip Galvanized After Fabrication

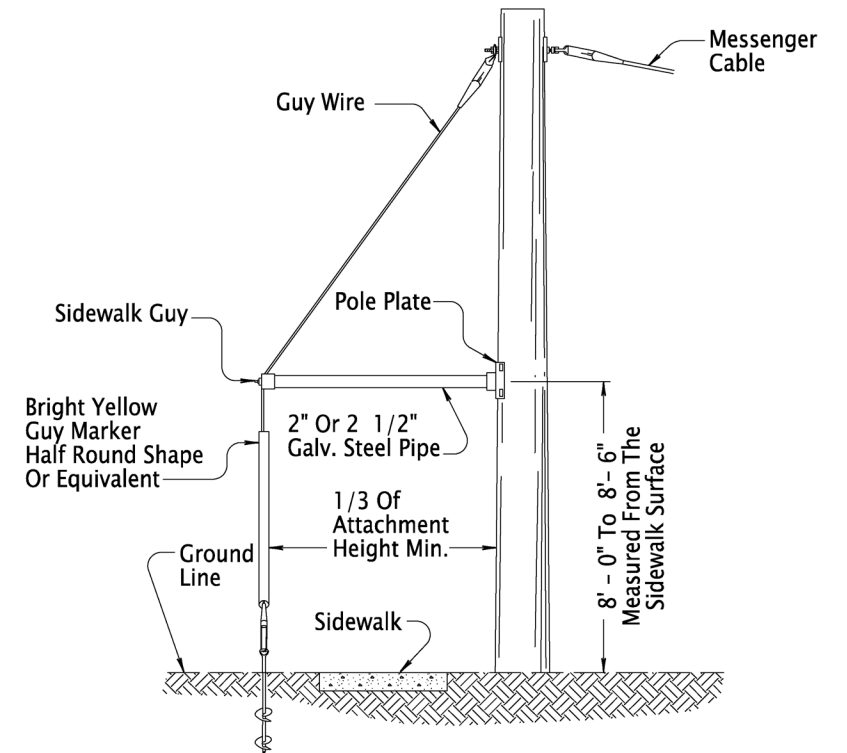


LUMINAIRE ARM INSTALLATION ON WOOD POLE

PEDESTRIAN WOOD POST INSTALLATION
OVERHEAD CONDUCTORS

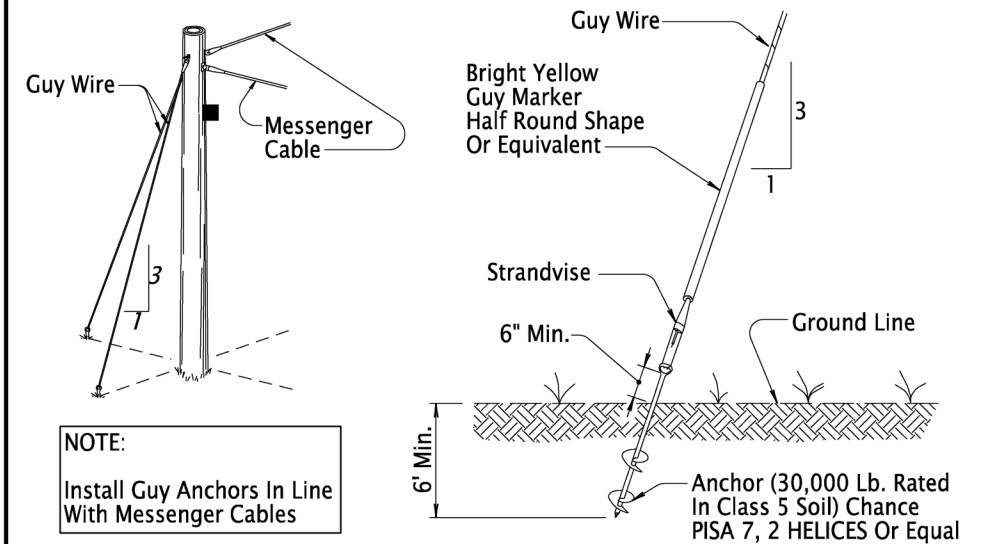
GENERAL NOTES:

1. All Screws, Bolts, Nuts And Washers Shall Be Type 304 or 316 Stainless Steel Or Galvanized Unless Noted Otherwise.
2. Bolts And Screws Shall Have Hex Or Square Heads. Allen Head Fasteners Not Allowed.
3. Conduit Mounted On Wood Poles/Posts May Be Liquid Tight Flex Conduit.



TYPICAL SIDEWALK GUY ANCHOR ASSEMBLY

Install As Per Approved Pole Design Submittal



NOTE:
Install Guy Anchors In Line
With Messenger Cables

TYPICAL GUY ANCHOR ASSEMBLY

Install As Per Approved Pole Design Submittal

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

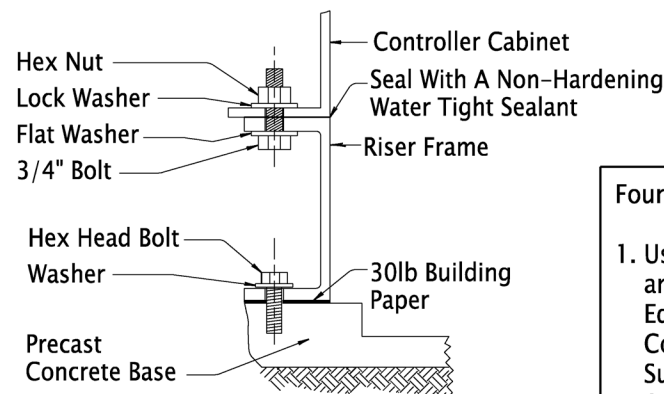
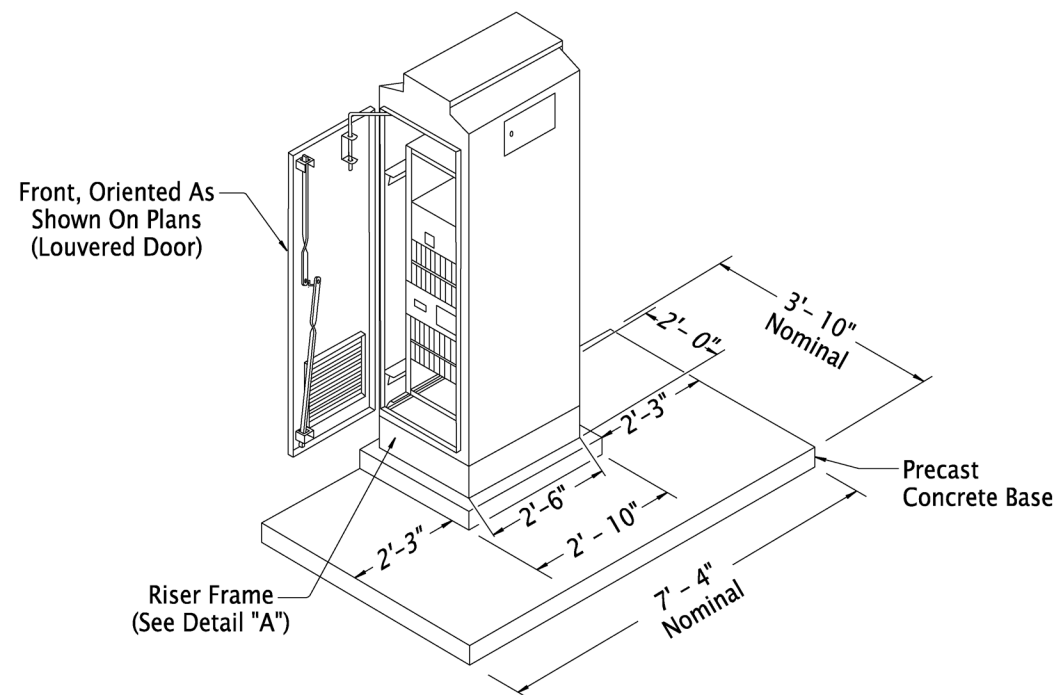
All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS
TEMPORARY
PEDESTRIAN WOOD POST,
GUY WIRE/ANCHOR, &
LUMINAIRE ARM DETAILS
2024

DATE	REVISION	DESCRIPTION
07-2023	ADDED	POLE DESIGN SUBMITTAL INFO. ADDED POST INFO. CHANGED NOTE 1.
CALC. BOOK NO.	N/A	SDR DATE: 14-JUL-2023

TM453

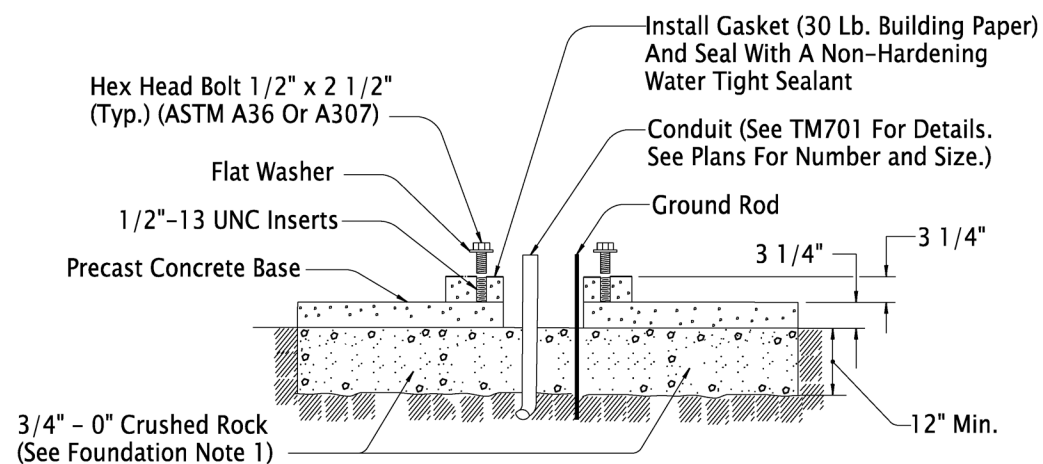
Effective Date: December 1, 2025 – May 31, 2026



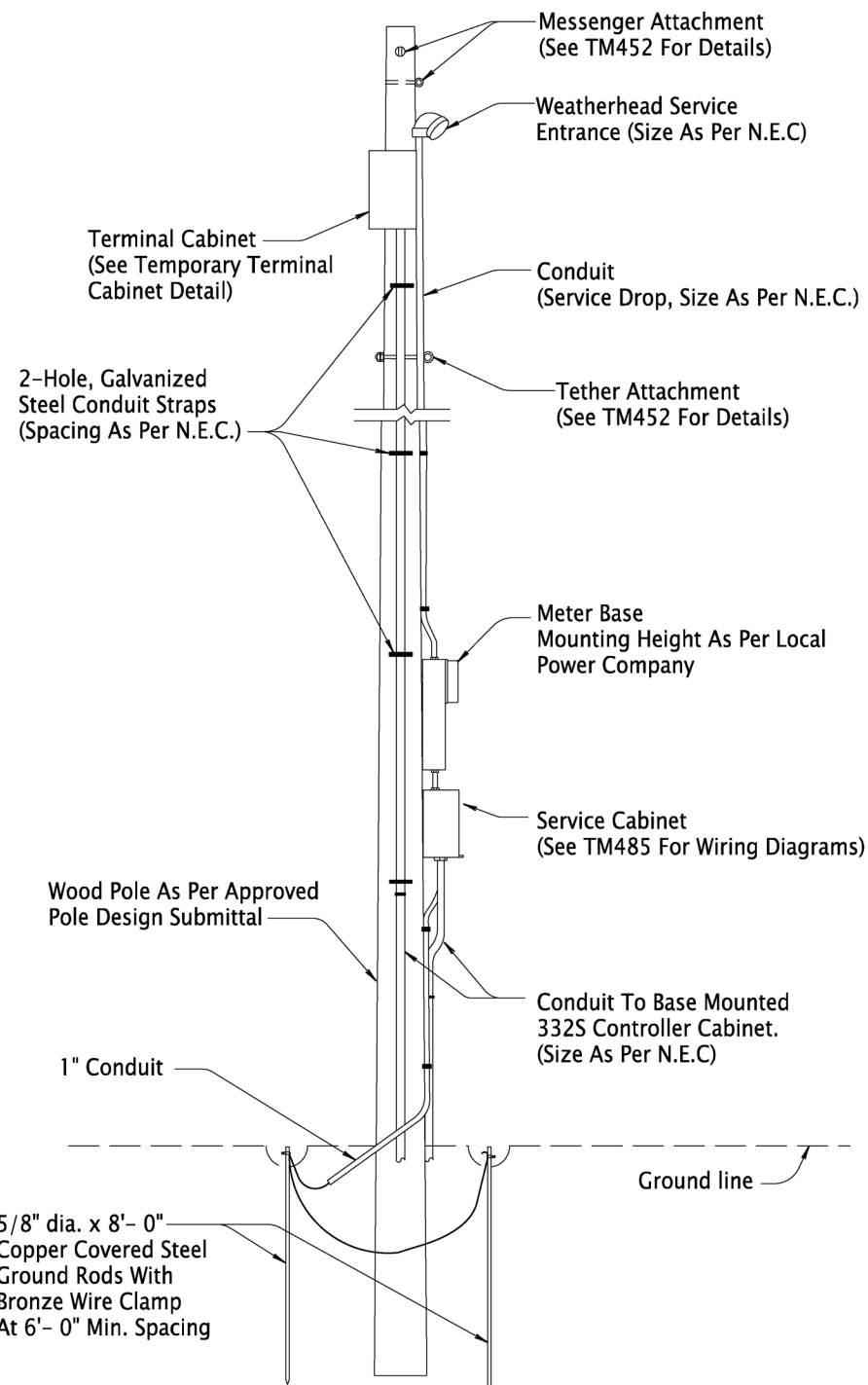
DETAIL "A"
RISER FRAME CONNECTION

Foundation Note:

1. Use Materials According To 00640.10 and 00640.16. Use Compaction Equipment Suitable For Area And Compact Each Six Inch Layer With Sufficient Coverage To Produce A Firm Unyielding Surface.



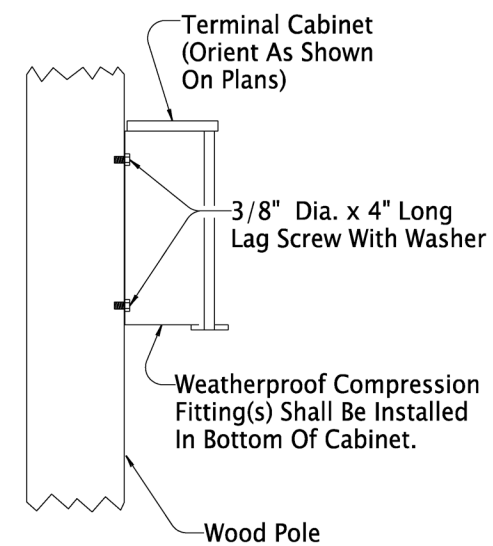
TEMPORARY CONTROLLER CABINET FOUNDATION
(Model 332, 334, And 340 Cabinets)



TEMPORARY SERVICE CABINET AND METER BASE

General Notes:

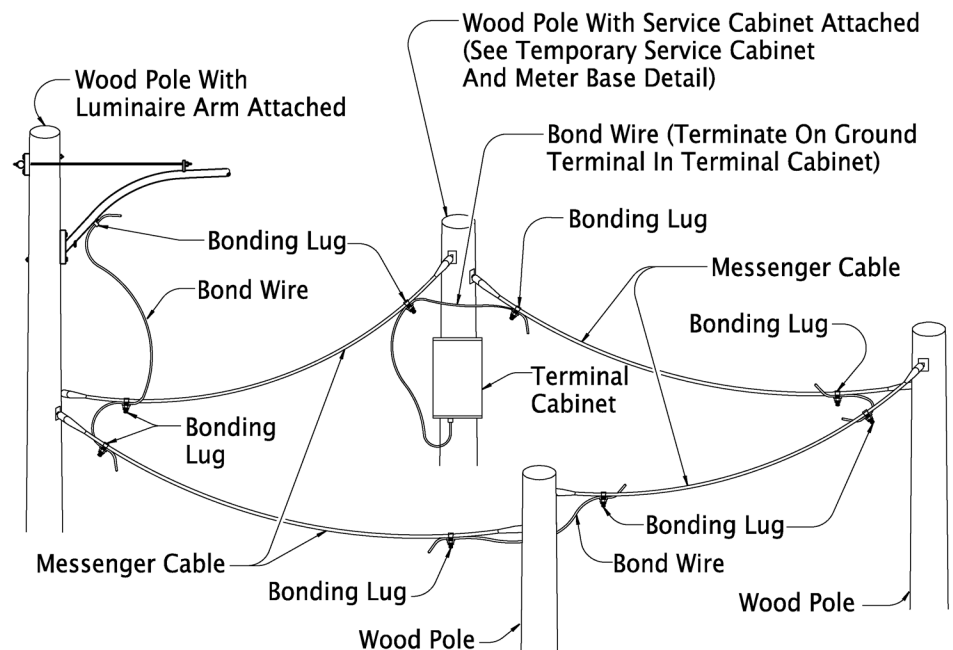
1. All Screws, Bolts, Nuts And Washers Shall Be Type 304 Or 316 Stainless Steel Or Galvanized Unless Noted Otherwise.
2. Bolts And Screws Shall Have Hex Or Square Heads. Allen Head Fasteners Not Allowed.
3. Conduit Mounted On Wood Poles/Posts May Be Liquid Tight Flex Conduit.



Terminal Cabinet General Notes:

1. Install The Number Of Terminal Blocks Needed For The Circuits. Evenly Distribute All The Terminal Blocks Among The Mounting Brackets.
2. Terminate Only One Wire In Each Termination Point. Use Additional Terminals With A Factory Jumper Between The Terminals If Additional Taps Are Necessary.
3. Label The Marking Strip In The Terminal Cabinet With The Wire Number And/OR Letter As Coded In The Controller Cabinet Terminal Block. Use Only Mechanically Printed Labels.

TEMPORARY TERMINAL CABINET



TEMPORARY GROUNDING/BONDING

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS
TEMPORARY
CONTROLLER CABINET,
SERVICE CABINET, METER BASE, &
TERMINAL CABINET
2024

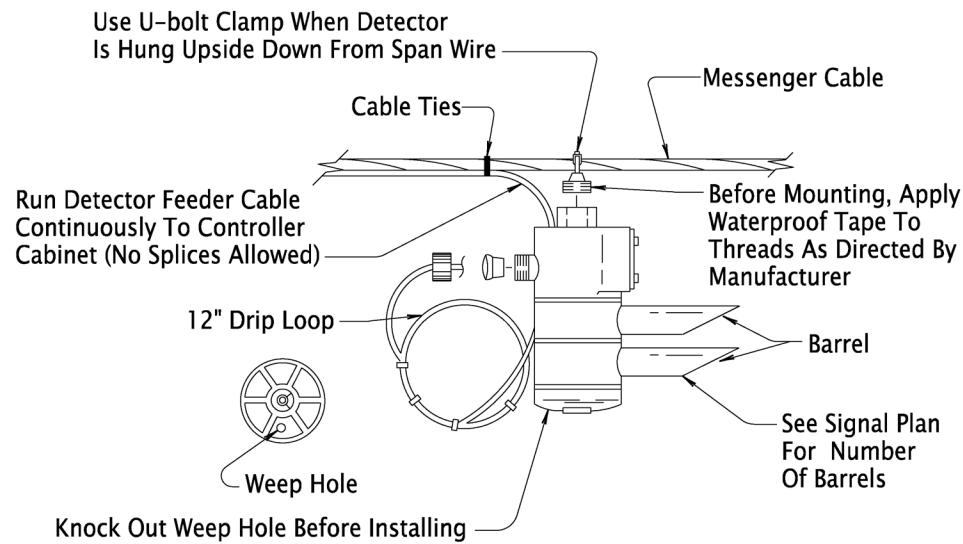
DATE	REVISION	DESCRIPTION
07-2023	ADDED POLE DESIGN SUBMITTAL INFO.	DRAFTING REVISIONS. CHANGED NOTE 1.
01-2025	UPDATED STANDARD DRAWING REFERENCES	

CALC. BOOK NO.	N/A	SDR DATE	10-JAN-2025	TM454
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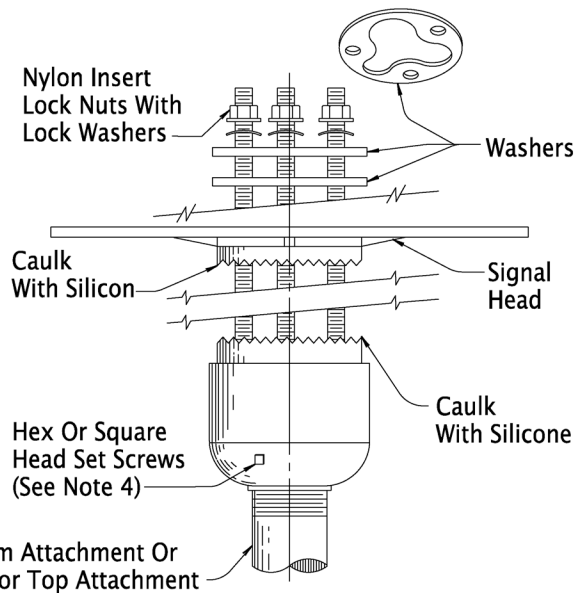
Effective Date: December 1, 2025 – May 31, 2026

14-JUL-2023

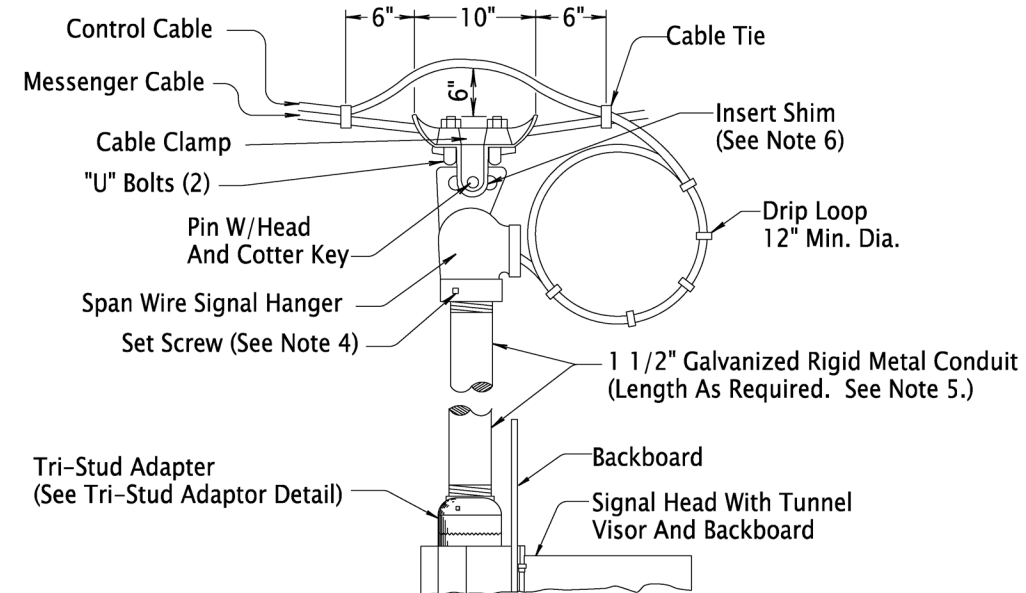
TM456.dgn



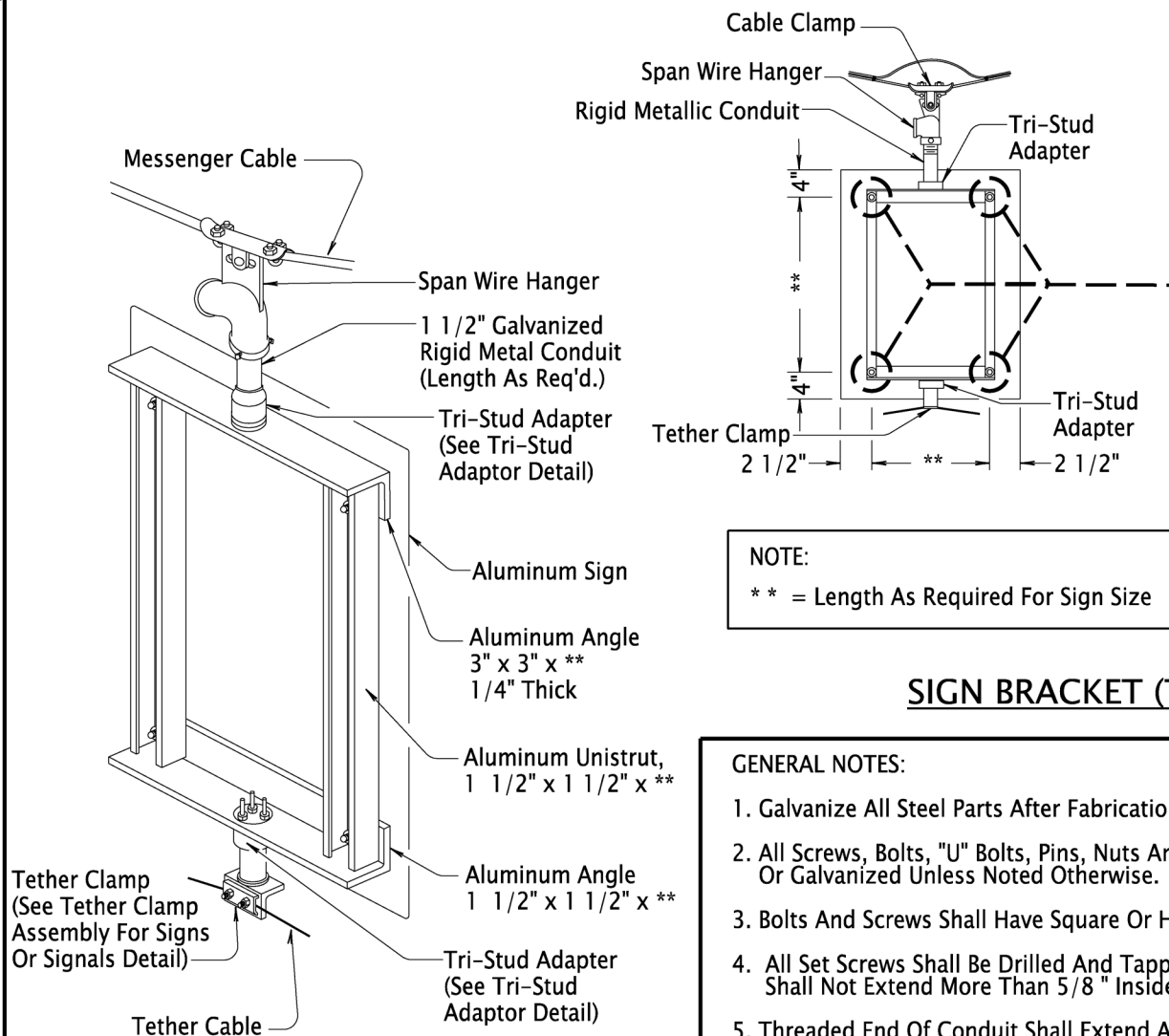
FIRE PREEMPTION INSTALLATION
(Emitter Units For Vehicles Provided By Others)



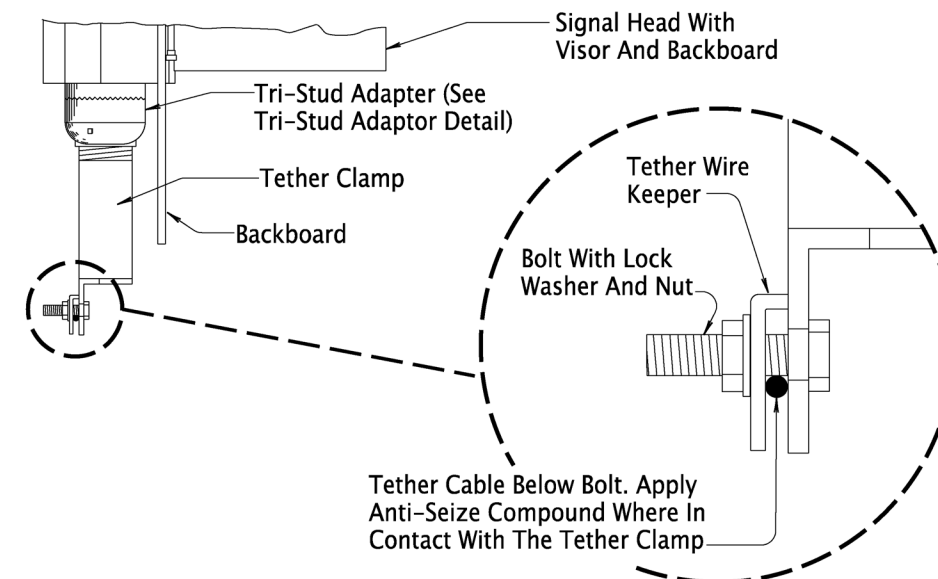
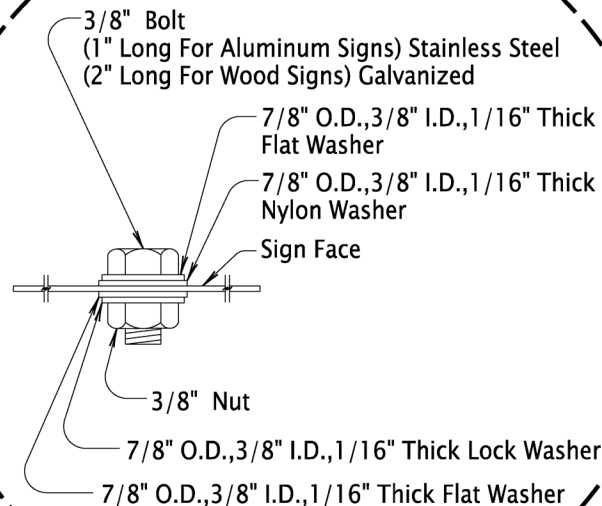
TRI-STUD ADAPTOR DETAIL
(Bottom Attachment Shown, Rotate 180 Degrees For Top Attachment)



MESSENGER CABLE ATTACHMENT FOR SIGNAL OR SIGNS



SIGN BRACKET (TYPE "A", SPANWIRE INSTALLATION)



TETHER CLAMP ASSEMBLY FOR SIGNALS OR SIGNS

GENERAL NOTES:

1. Galvanize All Steel Parts After Fabrication.
2. All Screws, Bolts, "U" Bolts, Pins, Nuts And Washers Shall Be Type 304 Or 316 Stainless Steel Or Galvanized Unless Noted Otherwise.
3. Bolts And Screws Shall Have Square Or Hex Heads. Allen Head Fasteners Not Allowed.
4. All Set Screws Shall Be Drilled And Tapped Through The First Wall Of Conduit/Tether Clamp. Set Screw Shall Not Extend More Than 5/8" Inside Conduit And Be Installed With Anti-Seize Compound.
5. Threaded End Of Conduit Shall Extend A Minimum Of 5/8" Into Span Wire Signal Hanger.
6. Install Shim Between Cable Clamp And Span Wire Hanger To Eliminate Excess Movement Yet Allow For Moderate Sway.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

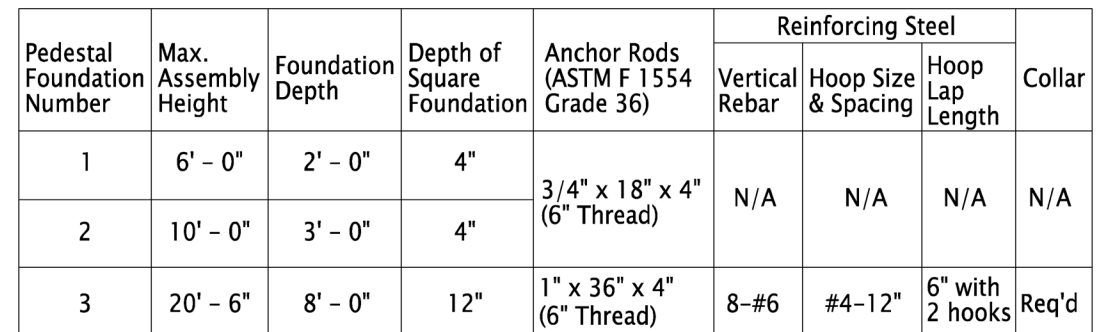
All materials shall be in accordance with the current Oregon Standard Specifications.

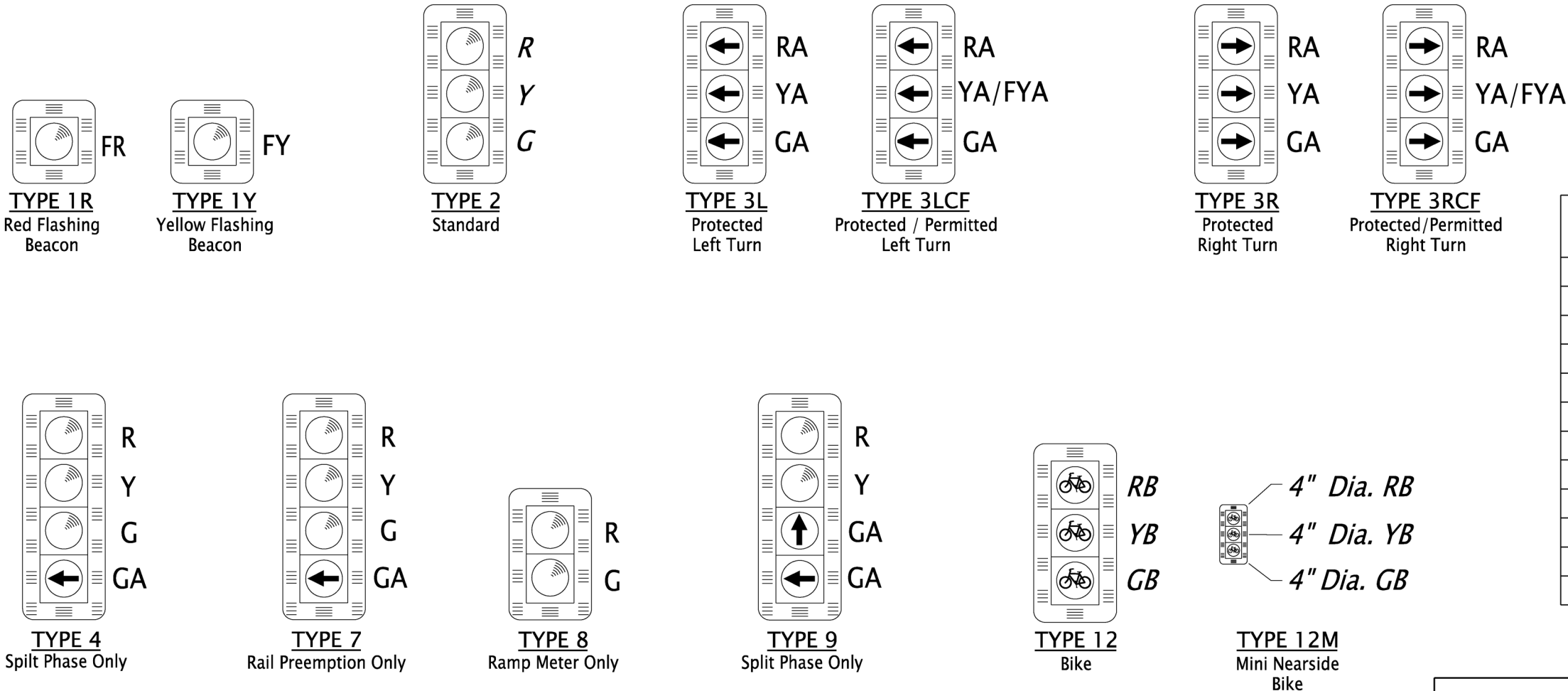
OREGON STANDARD DRAWINGS
TEMPORARY
SPANWIRE MOUNTING DETAILS FOR
VEHICLE SIGNALS, SIGNS, &
FIRE PREEMPTION
2024

DATE	REVISION	DESCRIPTION
07-2023	CHANGED TO ANTI-SEIZE COMPOUND FOR TETHER CLAMP. CHANGED NOTE 2.	
CALC. BOOK NO.	N/A	SDR DATE: 14-JUL-2023

TM456

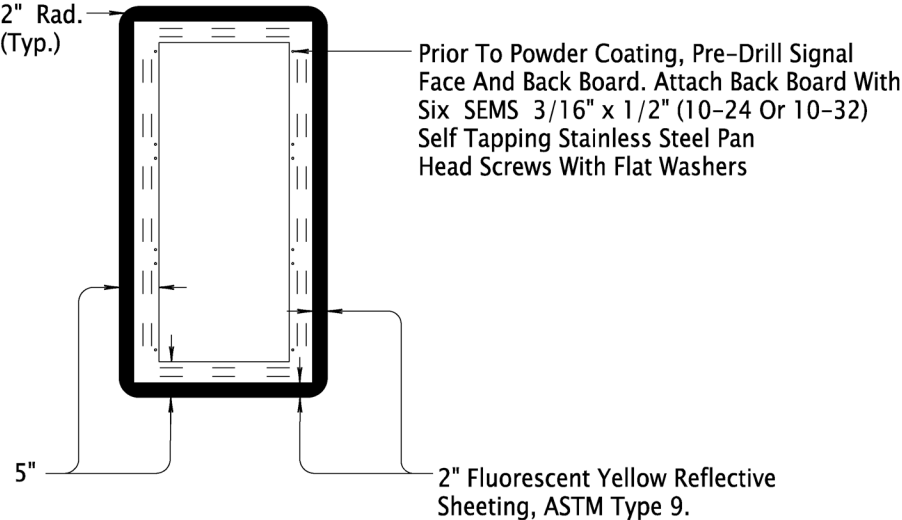
Effective Date: December 1, 2025 – May 31, 2026



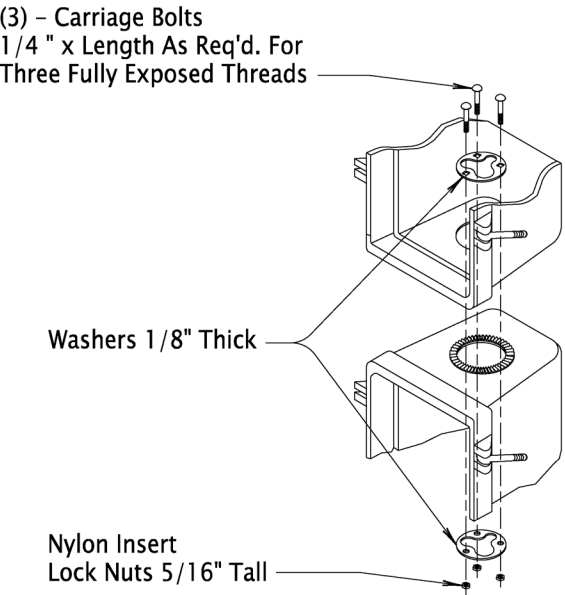


Color Indications All Indications Are 12" Diameter Unless Otherwise Shown	
R	Red Circular Ball
Y	Yellow Circular Ball
G	Green Circular Ball
RA	Red Arrow
YA	Yellow Arrow
GA	Green Arrow
FYA	Flashing Yellow Arrow
FR	Flashing Red Circular Ball
FY	Flashing Yellow Circular Ball
RB	Red Bike Symbol
YB	Yellow Bike Symbol
GB	Green Bike Symbol

VEHICLE SIGNAL HEAD DESIGNATIONS AND LENS ARRANGEMENT



BACKBOARD

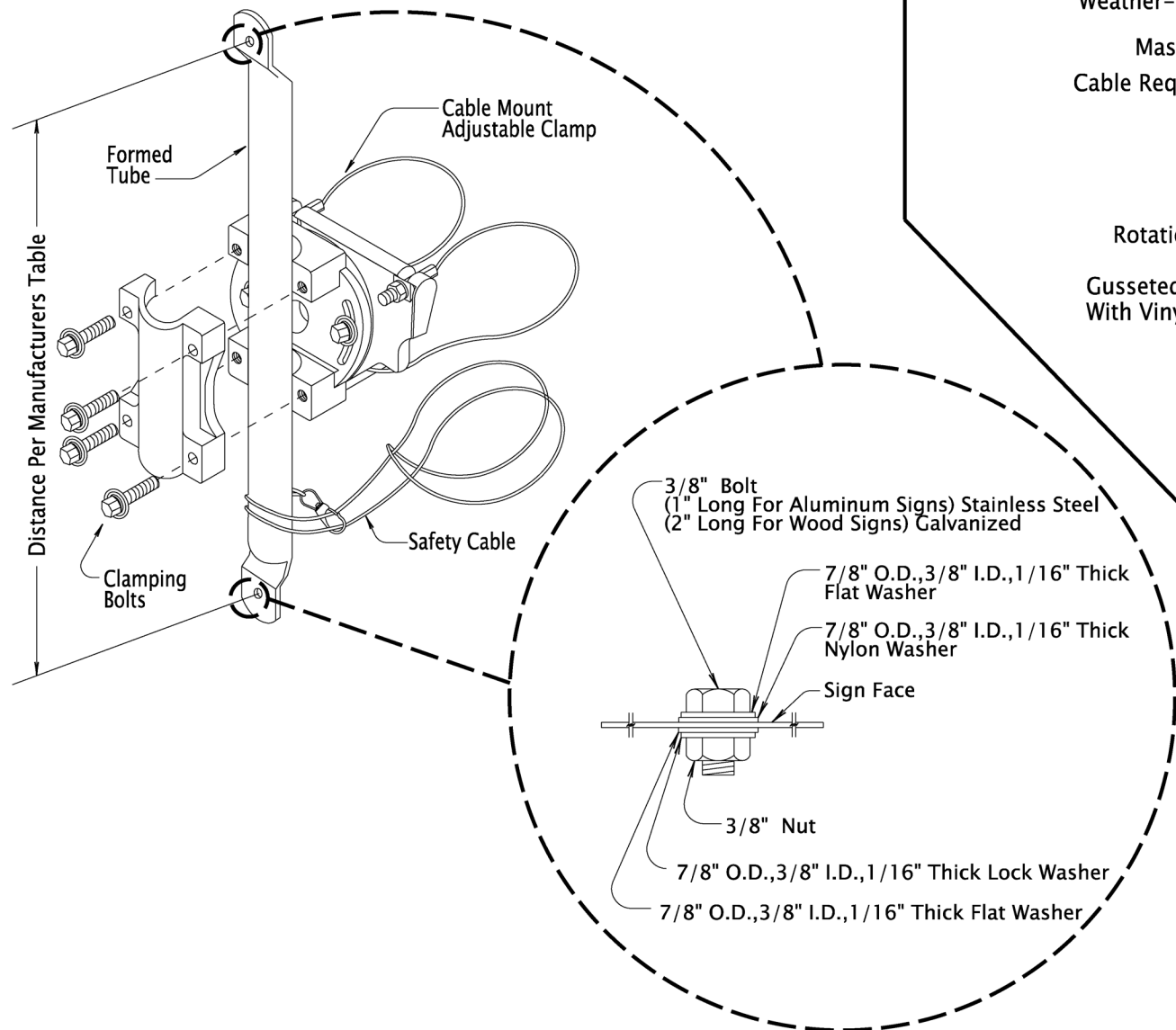


VEHICLE HEAD ASSEMBLY

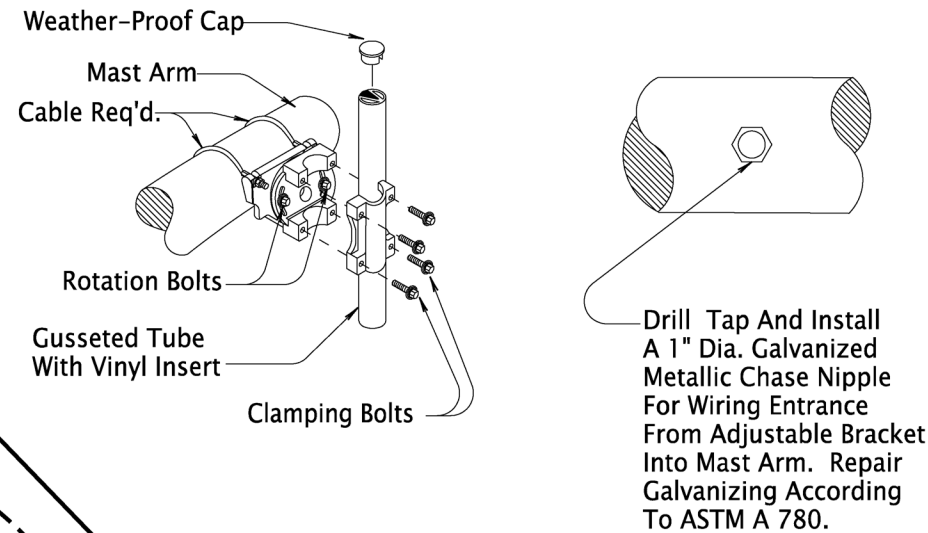
- General Notes:
1. All Screws, Bolts, Nuts And Washers Shall Be Type 304 Or 316 Stainless Steel Unless Noted Otherwise.
 2. Bolts And Screws Shall Have Square Or Hex Heads Unless Otherwise Noted. Allen Head Fasteners Not Allowed.
 3. Assemble The Heavy Duty Polycarbonate Vehicle Signal, Visor, And Backboard With Bolted Connections, Stainless Steel Reinforcing Strips And Stainless Steel Plates.
 4. Apply Anti-Seize Compound On All Hardware.
 5. Drill A 1/4" Drain Hole In The Bottom Of The Screw Hole Plug Of The Vehicle Signal Head When Not Using The Bottom Opening For Mounting (e.g. Tenon & Plumbizer Mounted Vehicle Signals).

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

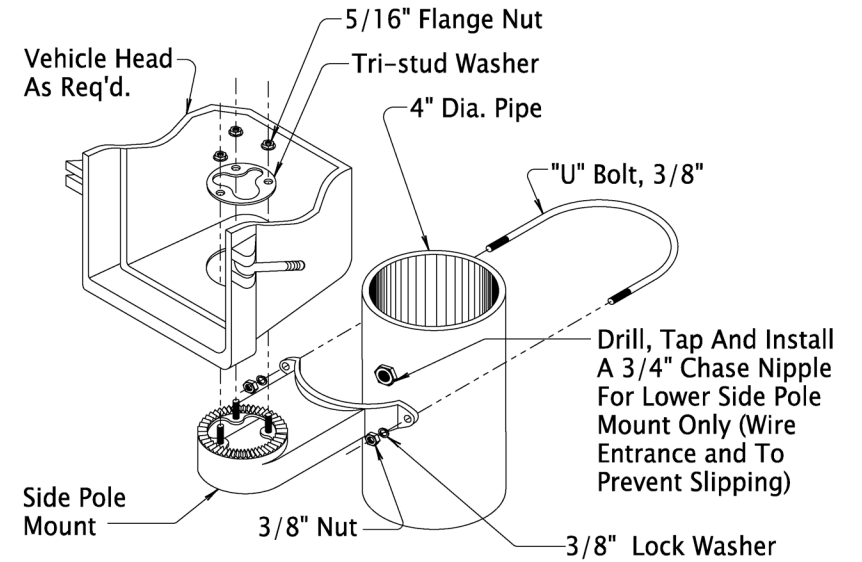
All materials shall be in accordance with the current Oregon Standard Specifications.			
OREGON STANDARD DRAWINGS			
VEHICLE SIGNAL DETAILS			
2024			
DATE	REVISION DESCRIPTION		
01-2024	ADDED TYPE 12 AND 12M. REMOVED TYPE 3LBF, 5, 6L, AND 10.		
07-2024	ADDED GENERAL NOTE 4		
07-2025	ADDED GENERAL NOTE 5		
CALC. BOOK NO.	N/A	SDR DATE	11-JUL-2025
			TM460



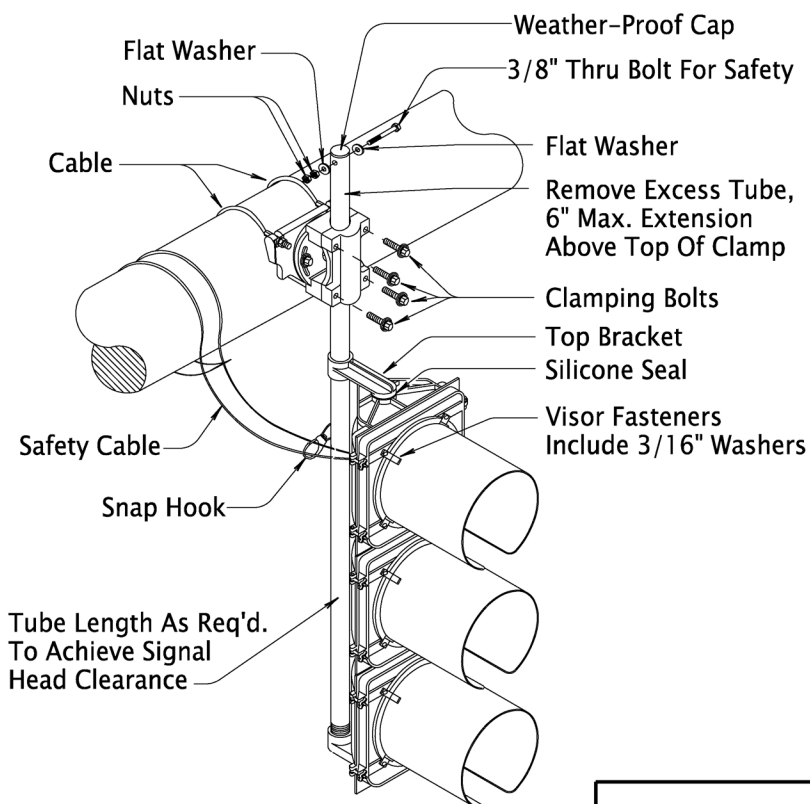
SIGN BRACKET (TYPE "B",MAST ARM/POLE INSTALLATION)



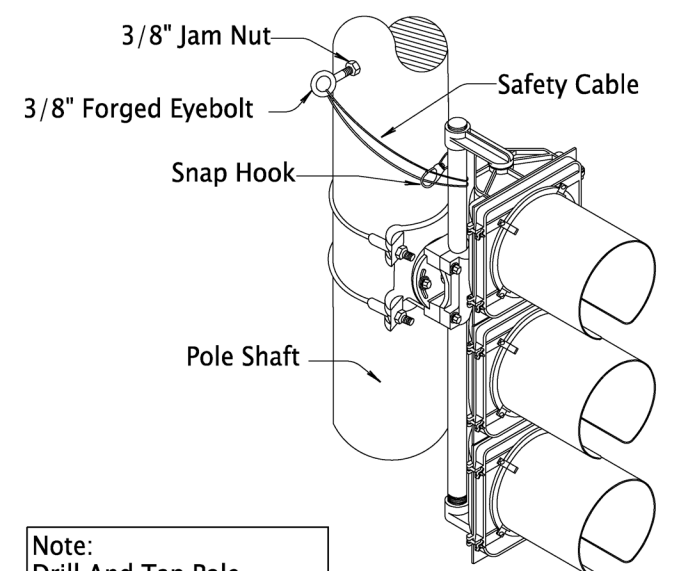
**VEHICLE SIGNAL
MAST ARM INSTALLATION**



4" SIDE POLE MOUNT INSTALLATION
(For Mounting Signal Heads to Pedestal Pipe)

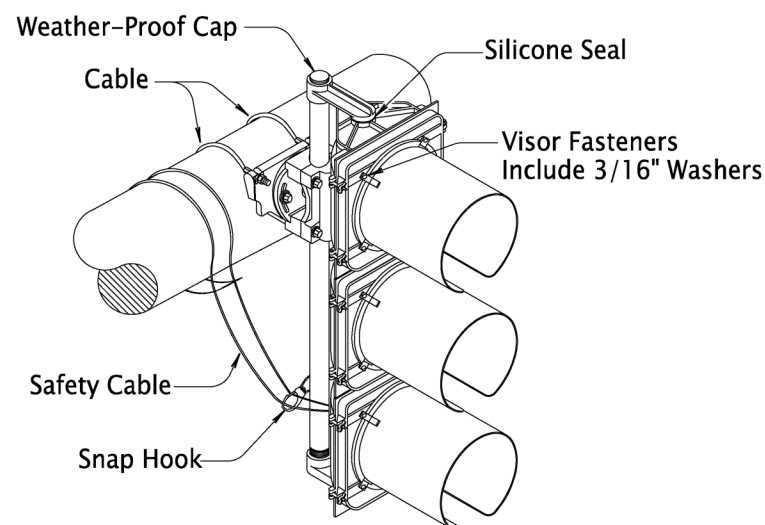


Tube Length As Req'd.
To Achieve Signal
Head Clearance



Note:
Drill And Tap Pole
For 3/8" Forged Eye Bolt

POLE SHAFT INSTALLATION



**MOUNTING VEHICLE SIGNAL
BETWEEN BRACKET ARMS**

NOTE:
This Detail Can Be Applied To Any Signal
Head Configuration. If The Extension
Between The Center Line Of The Mast Arm
And The Top Bracket Exceeds 18" Consult
Engineer For Guidance.

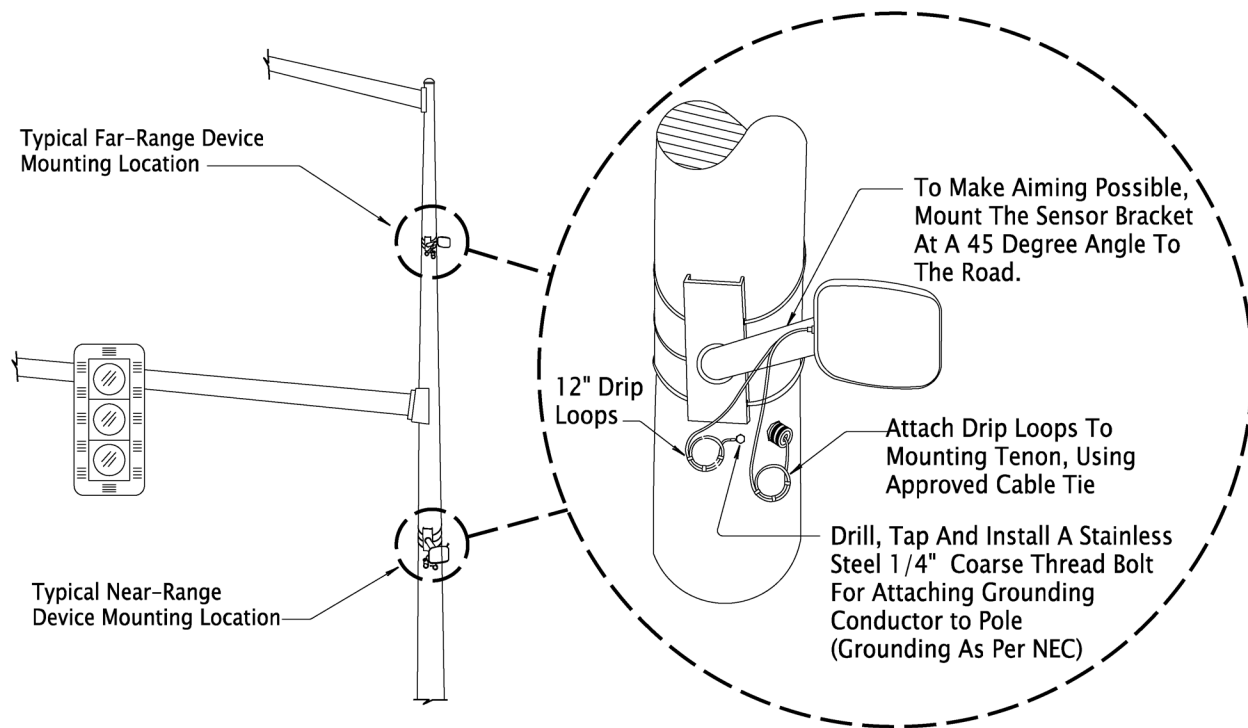
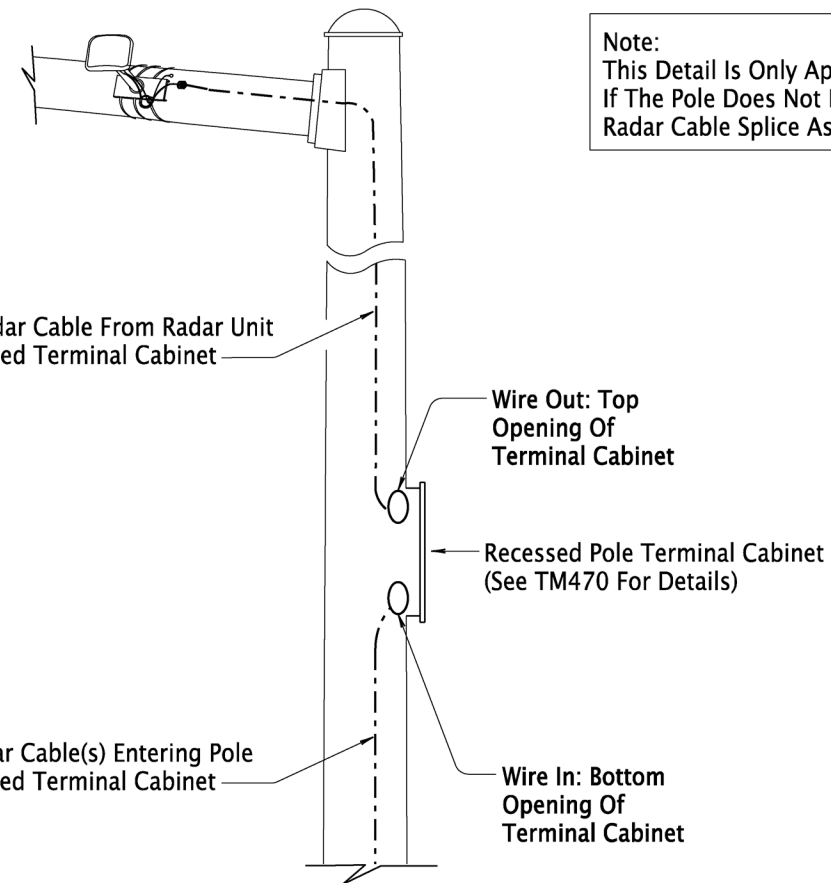
MOUNTING VEHICLE SIGNAL ABOVE BRACKET ARMS

General Notes:

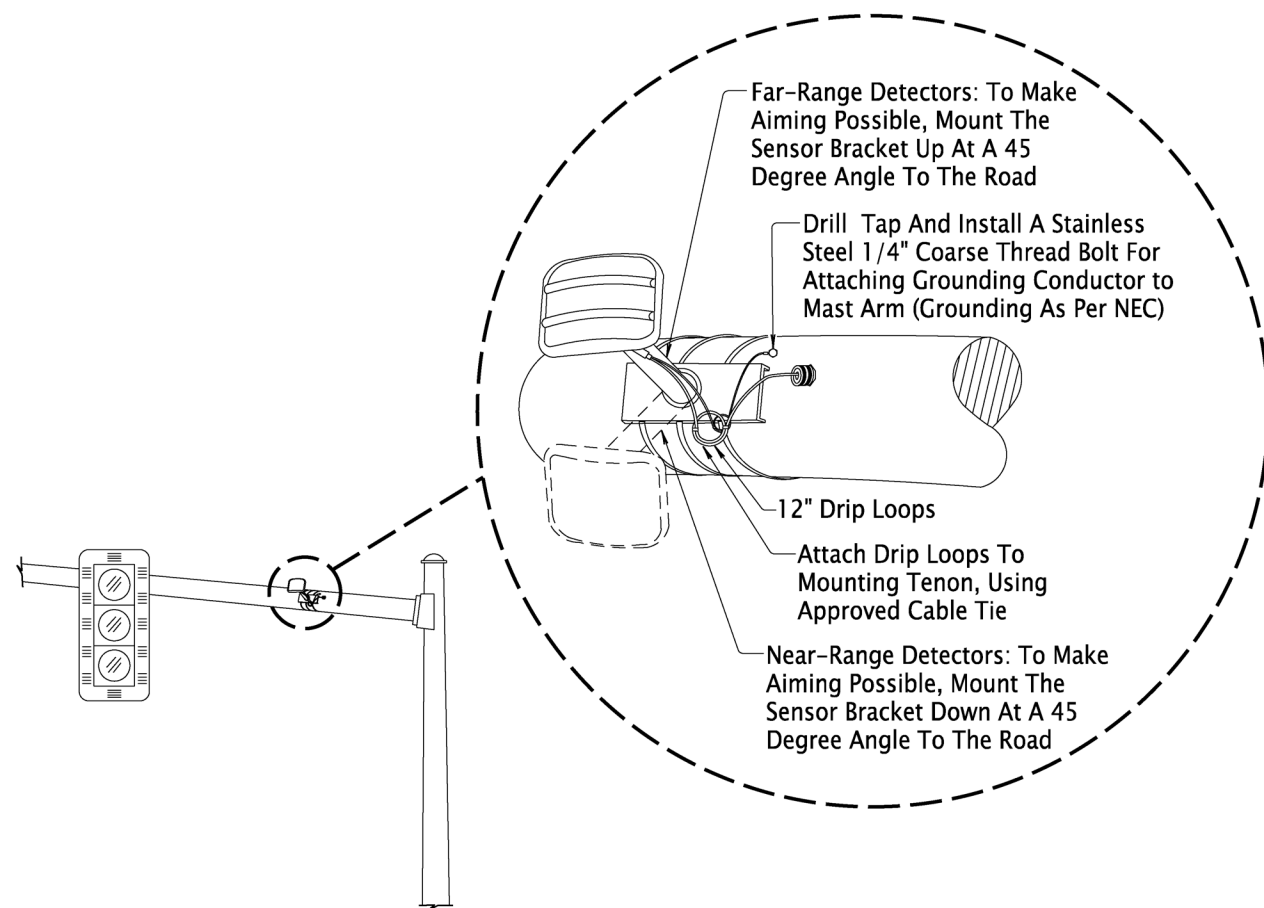
1. All Screws, Bolts, Nuts And Washers Shall Be Type 304 Or 316 Stainless Steel Unless Noted Otherwise.
2. Bolts And Screws Shall Have Square Or Hex Heads. Allen Head Fasteners Not Allowed.
3. Follow Manufacturers Recommendations For Installation.

*The selection and use of this
Standard Drawing, while
designed in accordance with
generally accepted engineering
principles and practices, is the
sole responsibility of the user
and should not be used without
first consulting a Registered
Professional Engineer.*

All materials shall be in accordance with the current Oregon Standard Specifications.			
OREGON STANDARD DRAWINGS			
VEHICLE SIGNAL BRACKET & SIGN BRACKET (TYPE B) DETAILS			
2024			
DATE	REVISION DESCRIPTION		
01-2024	MINOR TEXT REVISION FOR CONSISTENCY		
CALC. BOOK NO.	N/A	SDR DATE	19-JAN-2024
			TM462

**VERTICAL SIGNAL POLE MOUNT**

Note:
This Detail Is Only Applicable For Recessed Terminal Cabinets.
If The Pole Does Not Have A Recessed Terminal Cabinet, Install Radar Cable Splice As Shown Or Directed.

RADAR CABLE SPLICE INSTALLATION (RECESSED TERMINAL CABINET)**HORIZONTAL MAST ARM MOUNT****GENERAL NOTES:**

1. All Bolts, Nuts And Washers Shall Be 304, Or 316 Stainless Steel Unless Noted Otherwise.
2. Mount Radar Detector Assembly As Per Manufacturer's Recommendations.

**CABLE GRIP**

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

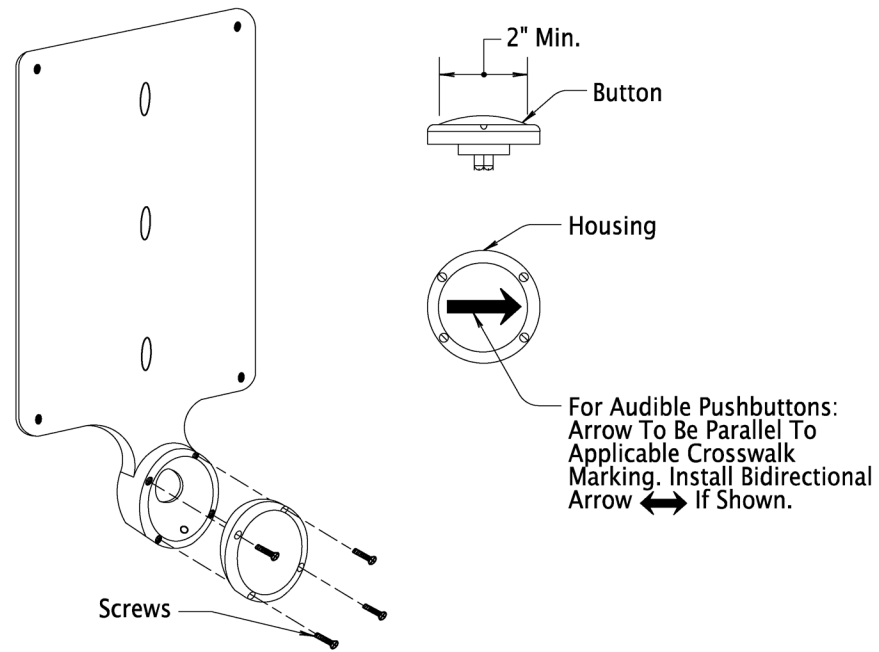
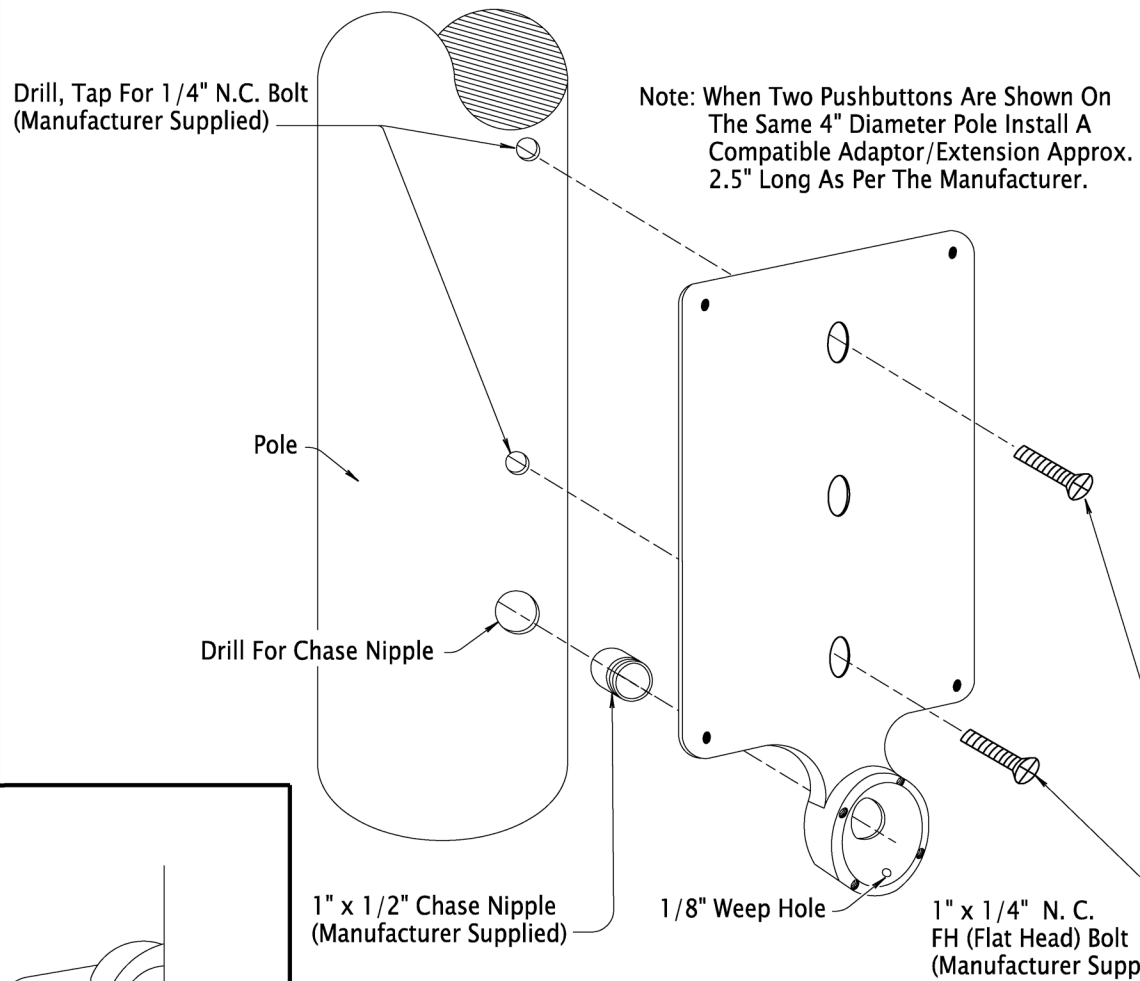
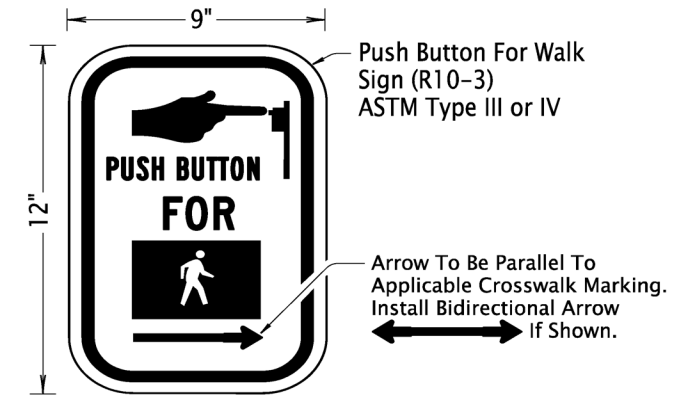
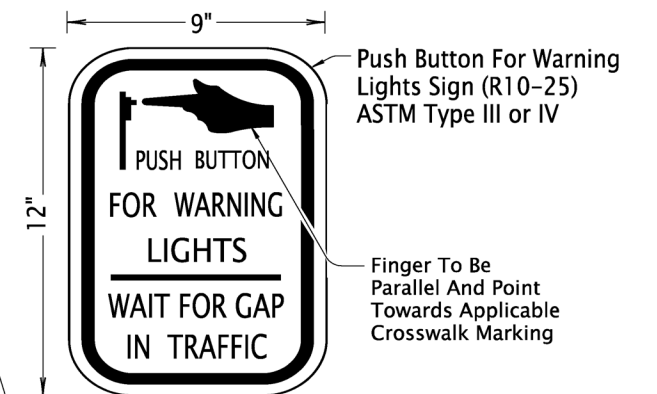
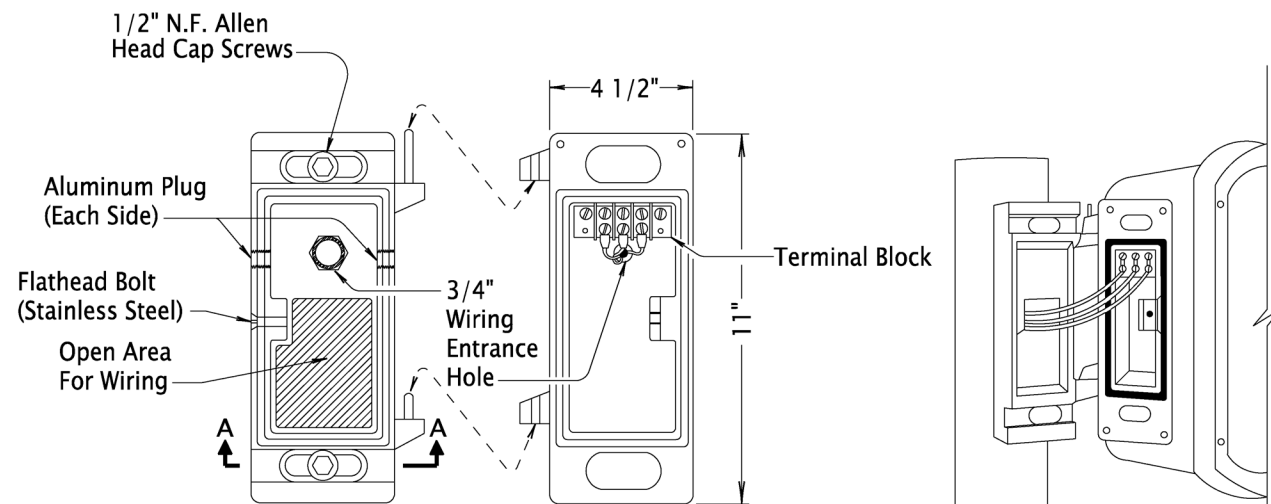
OREGON STANDARD DRAWINGS**RADAR MOUNTING DETAILS**

2024

DATE	REVISION	DESCRIPTION
01-2023	ADDED NEAR RANGE DETECTOR INFORMATION	
07-2024	REVISED NAME OF EQUIPMENT PART FOR CONSISTENCY	
07-2025	ADDED RADAR CABLE SPLICE INSTALLATION (RTC) DETAIL	

CALC. BOOK NO. - - -	N/A - - -	SDR DATE - 11-JUL-2025 -	TM466
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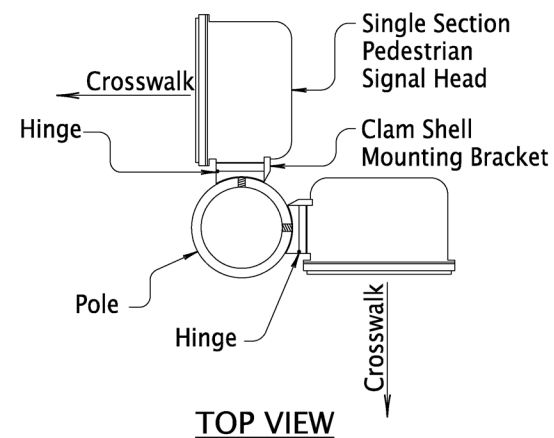
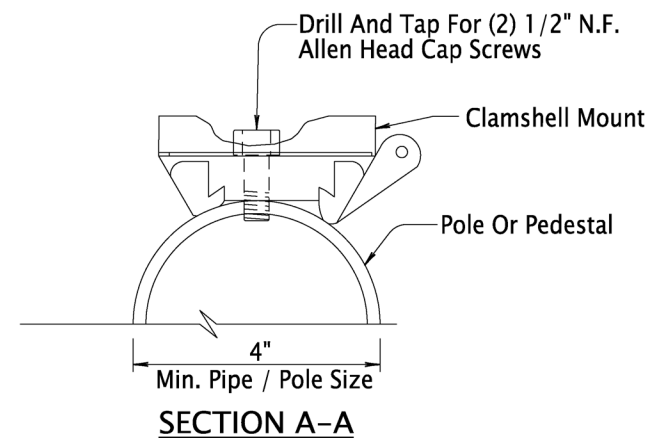
Effective Date: December 1, 2025 – May 31, 2026

**STANDARD PUSHBUTTON****STANDARD PUSHBUTTON STATION
AND INSTRUCTION SIGN****SIGN FOR PEDESTRIAN SIGNALS****SIGN FOR WARNING BEACON ASSEMBLY****PEDESTRIAN SIGNAL MOUNT (CLAM SHELL)****General Notes:**

1. All Screws, Bolts, Nuts And Washers To Be Type 304 Or 316 Stainless Steel Unless Noted Otherwise.
2. Bolts And Screws To Have Square Or Hex Heads. Allen Head Fasteners Not Allowed.
3. Drill And Tap Pole As Per Orientation Shown On Plans.
4. Horizontal Reach To The Pushbutton To Be 10 Inches Maximum. See Plans Or Consult Engineer To Ensure Compliance.
5. Drill A 1/4" Drain Hole In The Bottom Of The Hex Head Pipe Plug Of The Pedestrian Signal Head When Not Using The Bottom Opening For Mounting.

NOTES:

1. Where Two Heads Are Side Mounted On 4" Conduit, Proper Clearance To Be Maintained To Allow Legend To Be Fully Visible.
2. Clam Shells To Be Orientated So That The Heads Can Be Opened For Maintenance. (Verify Hinge Placement Of Clamshell).

**TOP VIEW****CLAM SHELL ORIENTATION**

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

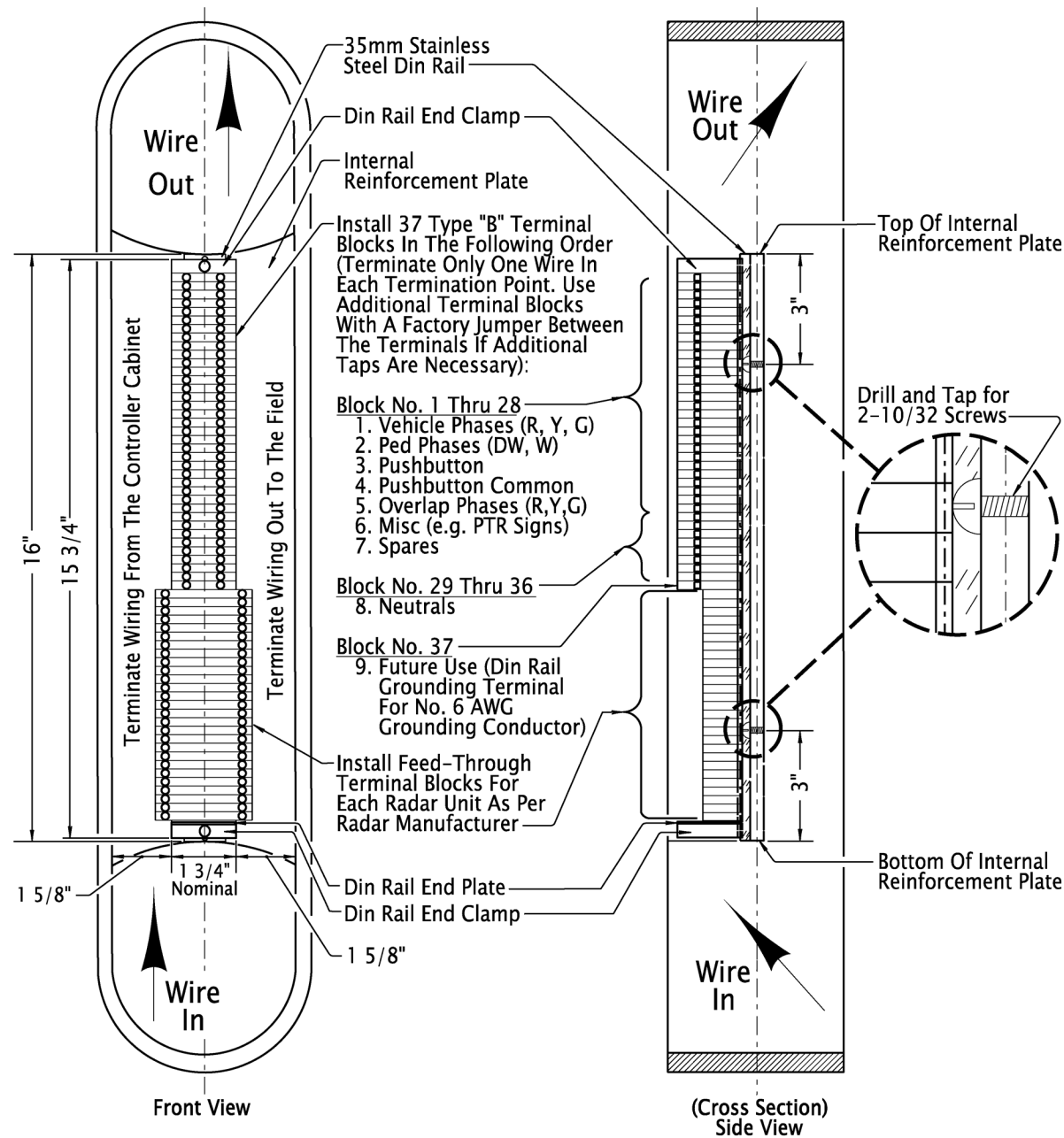
PEDESTRIAN SIGNAL MOUNT AND PEDESTRIAN PUSHBUTTON DETAILS

2024

DATE	REVISION	DESCRIPTION
07-2022	ADDED R10-25 SIGN. ADDED EXTENSION MOUNTING NOTE FOR 2 PUSHBUTTONS ON SAME 4" DIA. POLE.	
07-2024	ADDED ARROW TO PUSHBUTTON. ADDED BI-DIRECTIONAL ARROW.	
07-2025	REVISED SIGN R10-25. ADDED GEN. NOTE 5.	

CALC. BOOK NO.	N/A	SDR DATE	11-JUL-2025	TM467
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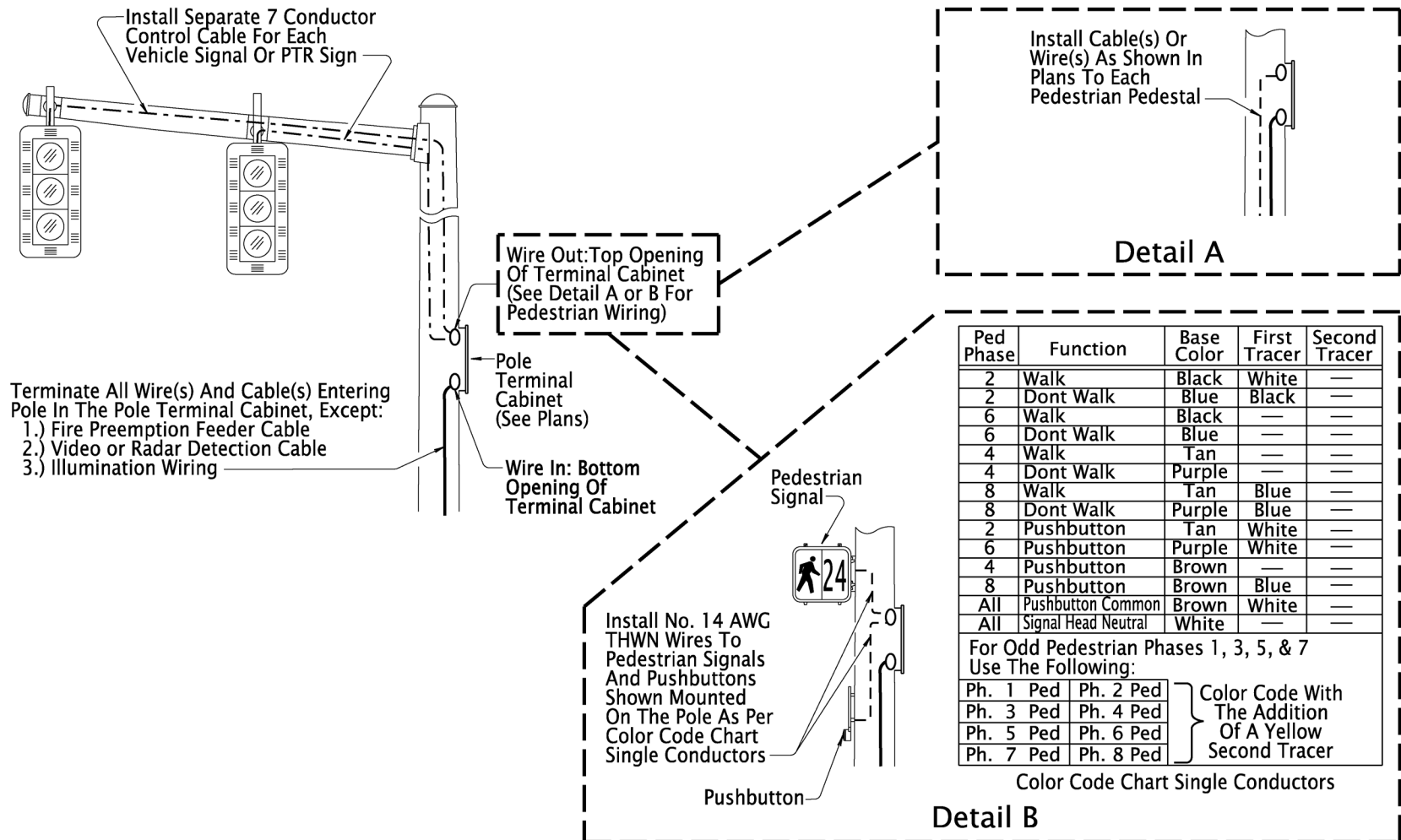
Effective Date: December 1, 2025 – May 31, 2026



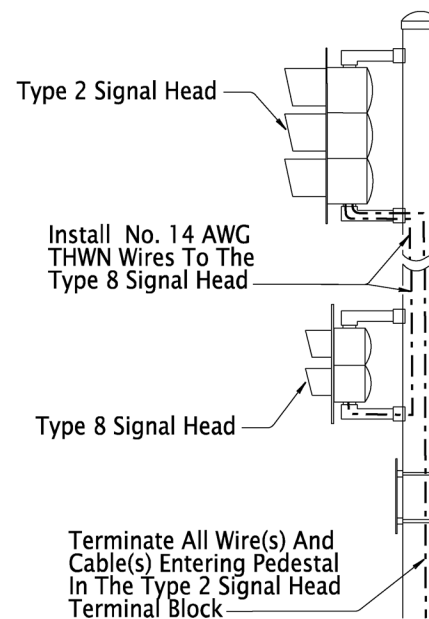
DIN RAIL, TERMINAL BLOCKS, & WIRING IN POLE RECESSED TERMINAL CABINET

7 Conductor Control Cable			Pedestrian Phases	Vehicle Phases	Signal Head Types			
Conductor Number	Base Color	First Tracer	Pedestrian Phase	Vehicle Phase	6L or 3LBF	4L, 5, or 7	1R, 1Y, 2, 3L, 3LCF, 3U, 3R, 4, 9, 12, or 12M	10
1	White	—	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
2	Black	—	Walk	Yellow	Yellow	Yellow	Yellow	Yellow
3	Red	—	Dont Walk	Red	Red	Red	Red	Red 1
4	Orange	—	P.B. Common	Spare	Flashing Yellow	Turn Yellow	Spare	Red 2
5	Green	—	Pushbutton	Green	Green	Green	Green	Spare
6	Blue	—	Spare	Spare	Spare	Turn Green	Spare	Spare
7	White	Black	Spare	Spare	Spare	Spare	Spare	Spare

COLOR CODE CHART CONTROL CABLE



WIRE & CABLE IN POLES



General Notes:

- See TM701 For Additional Wire/Cable Installation Requirements That Apply To All Electrical Systems.
- Install All Wire And Cable Between Terminal Blocks Without Splicing.
- Mark Phase Number & Function Or Identification On All Cable And Wires Installed In Terminal Cabinets, Service Cabinets, & Controller Cabinets With Permanent Tags. Overlaps Shall Be Labeled (OLA, OLB, OLC, OLD).
- Leave Slack In Each Wire And Cable As Follows:
A.) 6 Feet In The First Junction Box Nearest The Controller Cabinet
B.) 6 Feet In Controller Cabinet And Service Cabinet
- At Existing Installations Re-wire And Re-label New And Existing Control Cables And Wires, In All Terminal Cabinets, Service Cabinets, And Controller Cabinets.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

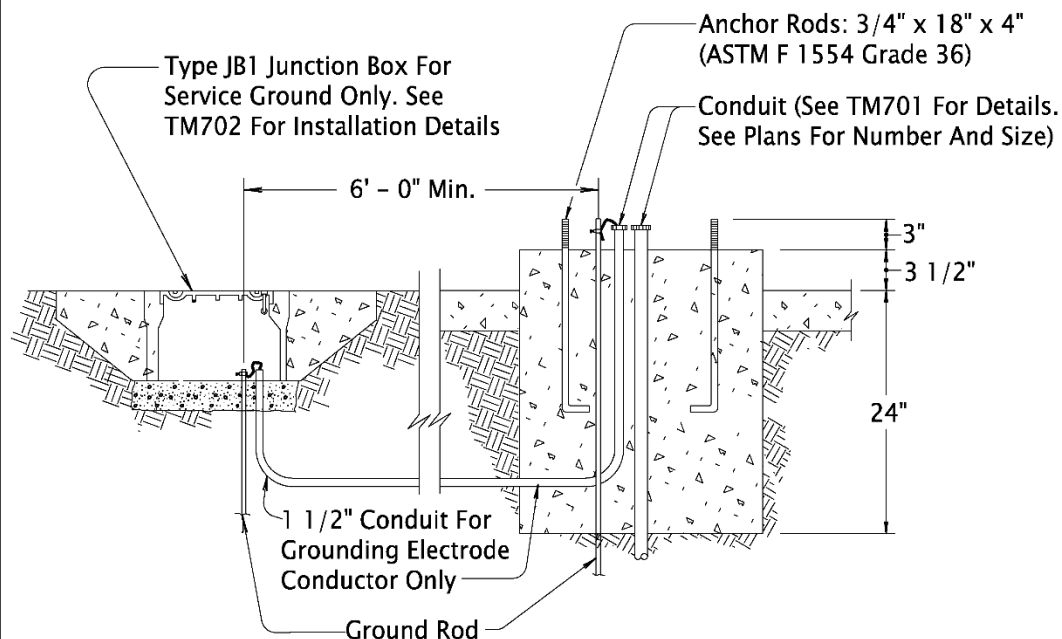
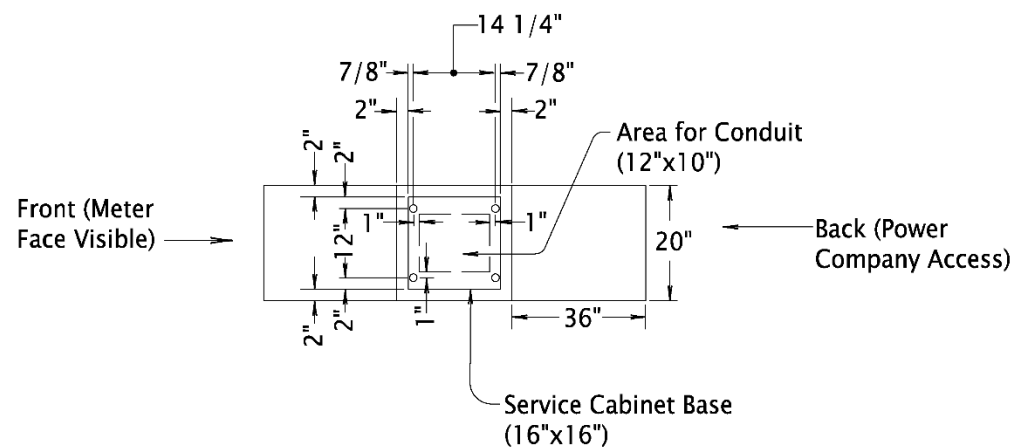
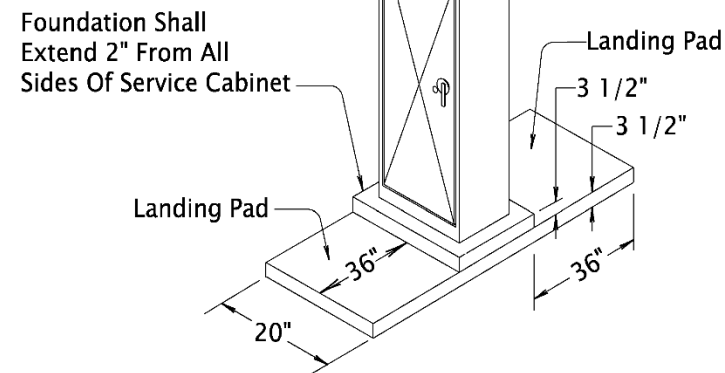
OREGON STANDARD DRAWINGS

WIRE/CABLE INSTALLATION

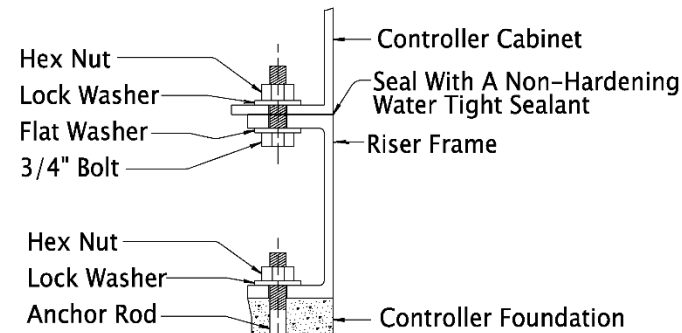
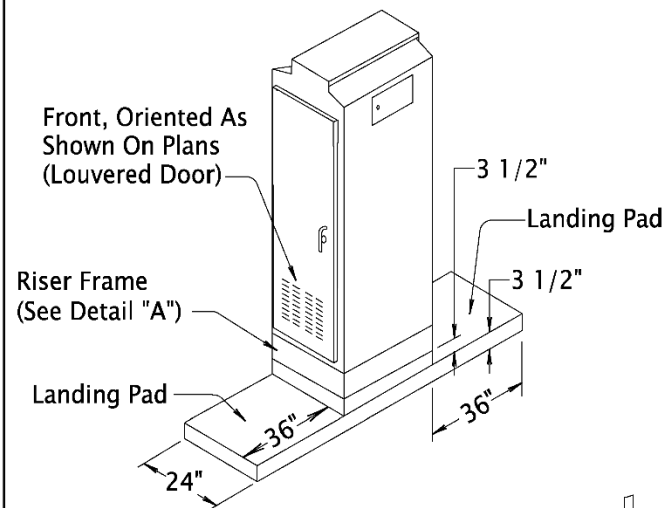
2024

DATE	REVISION	DESCRIPTION
01-2024	REVISED	SIGNAL HEAD TYPES IN COLOR CODE CHART CONTROL CABLE DETAIL
07-2024	ADDED GEN. NOTE 3,	ADDED PED COLOR CODE, ADDED FACTORY JUMPERS
01-2025	MOVED GENERAL ELECTRICAL CONTENT TO TM701.	REFORMATTED CONTENT
07-2025	MODIFIED GEN. NOTE 3 & 5.	DELETED GEN. NOTE 4. TB BLOCK REVISION.

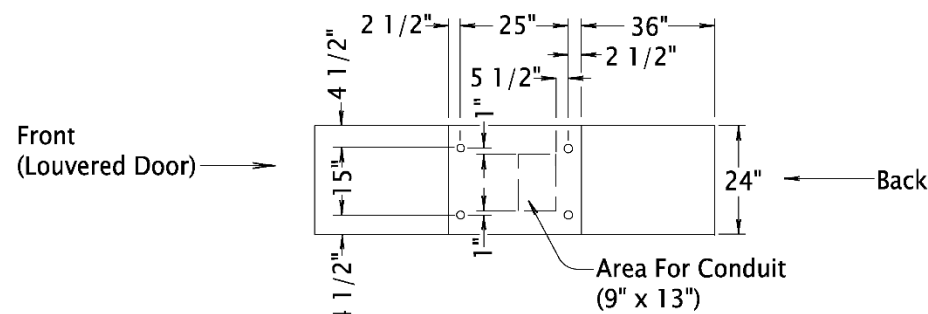
CALC. BOOK NO.	N/A	SDR DATE	11-JUL-2025	TM470
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BASE MOUNTED SERVICE CABINET FOUNDATION



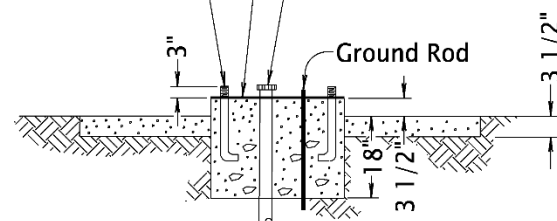
**DETAIL "A"
RISER FRAME CONNECTION**



Anchor Rods: 3/4" x 16" x 4" (ASTM F 1554 Grade 36)

typo! no longer required
Install 30 Lb. Building Paper

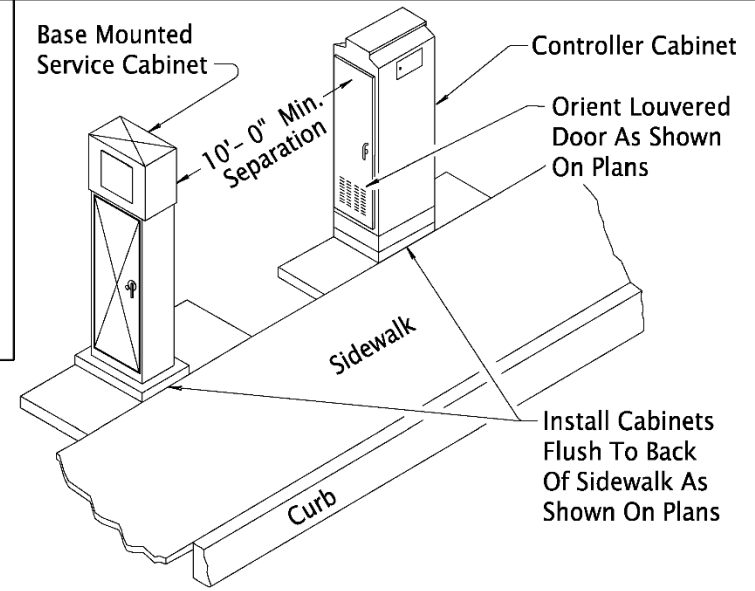
Conduit (See TM701 For Details. See Plans For Number And Size.)



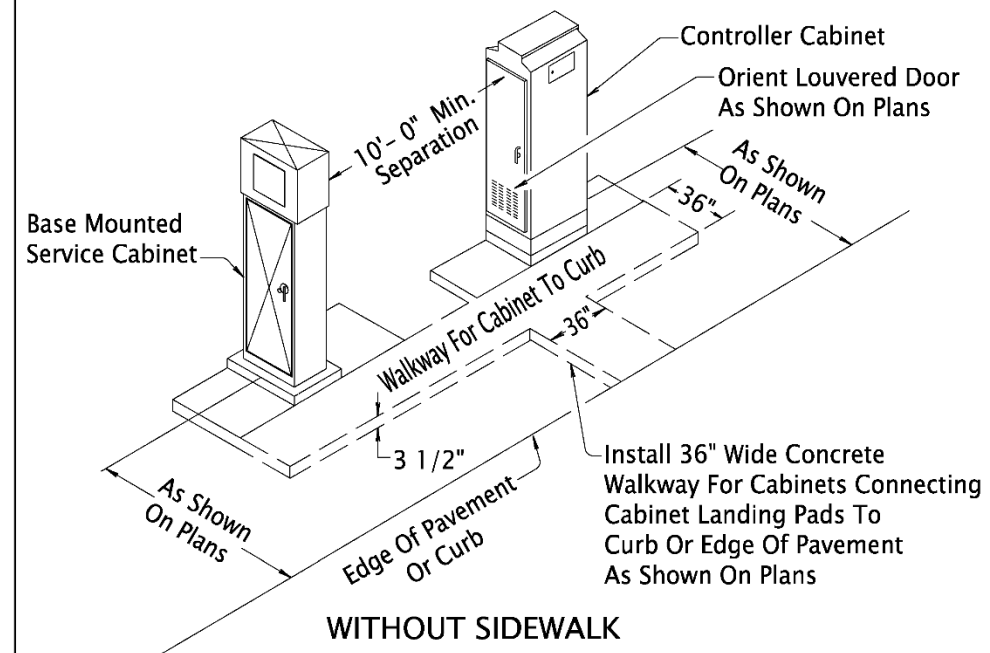
CONTROLLER CABINET FOUNDATION DETAILS
(Model 332S, 332, 334, And 340 Cabinets)

General Notes:

1. All Screws, Bolts, Nuts And Washers Shall Be Galvanized Steel Unless Noted Otherwise.
2. Bolts And Screws Shall Have Square Or Hex Heads. Allen Fasteners Not Allowed.
3. Type 304 Or 316 Stainless Steel Or Galvanized Steel May Be Used For Mounting Cabinet To Riser Frame.
4. Provide A 3/4" Chamfer On All Exposed Concrete Edges.



WITH SIDEWALK



WITHOUT SIDEWALK

CABINET FOUNDATION LOCATIONS

Note: Verify Base Mounted Service Cabinet Location And Meter Placement Is Acceptable To Local Power Company

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

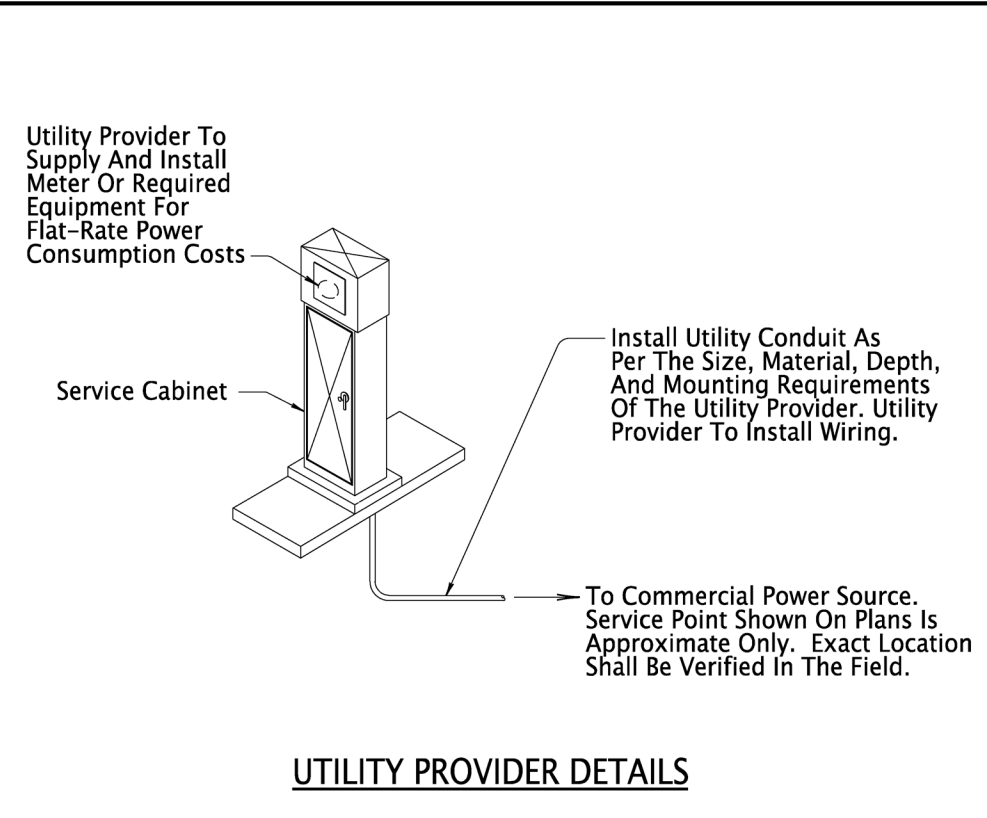
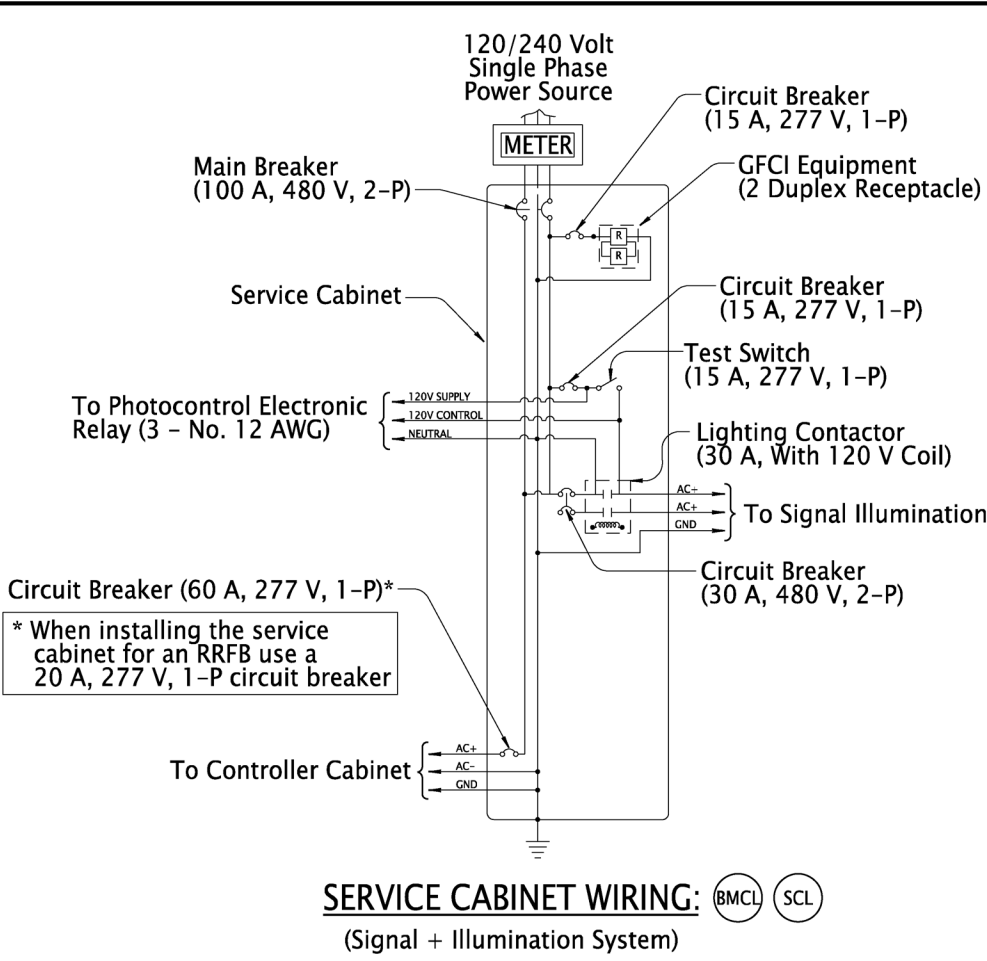
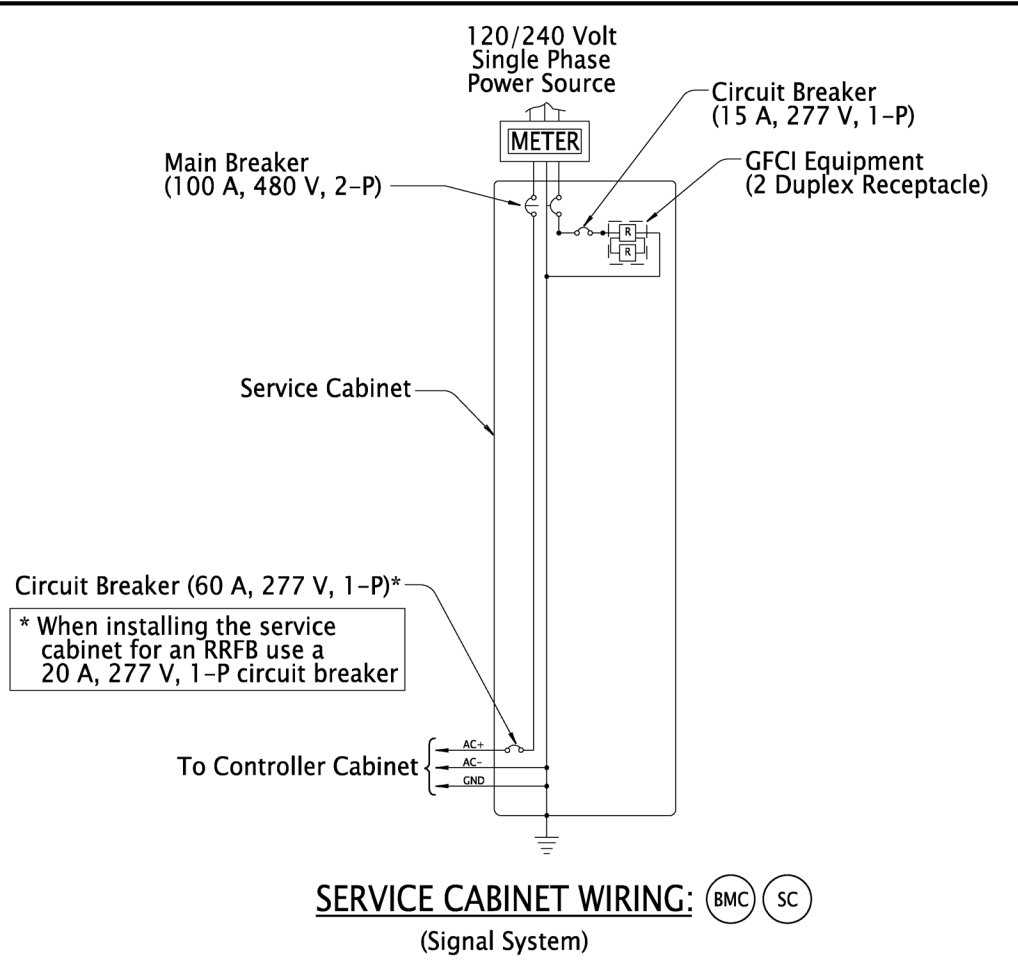
OREGON STANDARD DRAWINGS
CONTROLLER CABINET & SERVICE CABINET
FOUNDATION DETAILS

2024

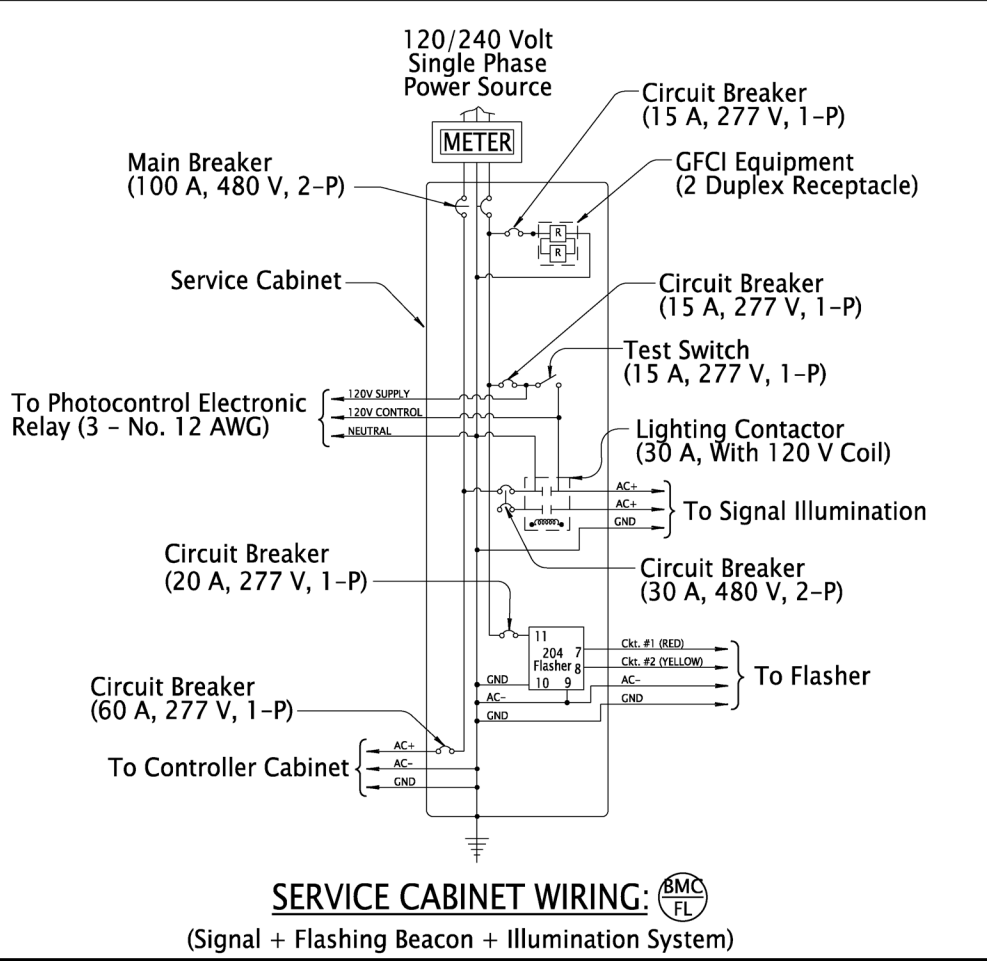
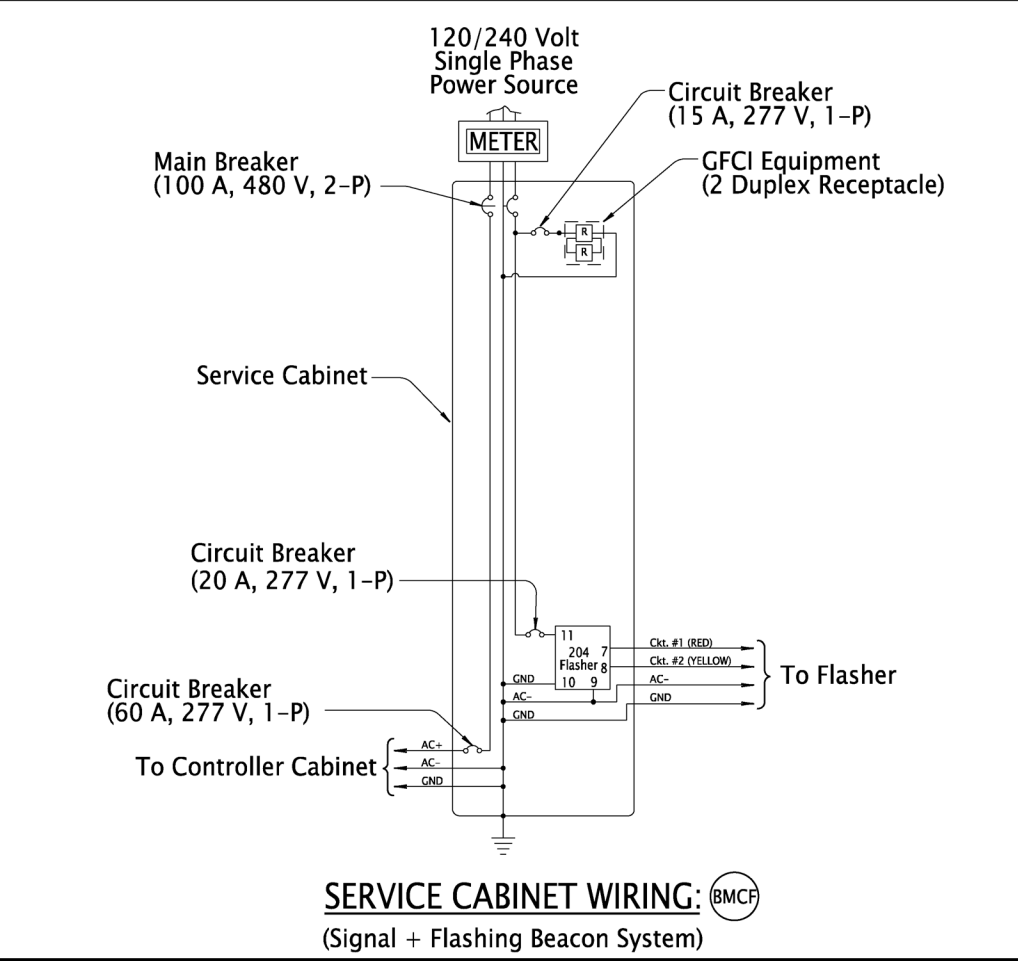
DATE	REVISION	DESCRIPTION
01-2021	UPDATED ALL ANCHOR ROD DETAILS	
01-2025	UPDATED STANDARD DRAWING REFERENCES	
07-2025	REMOVED BUILDING PAPER REQUIREMENT	

CALC. BOOK NO.	N/A	SDR DATE	11-JUL-2025	TM482
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Effective Date: December 1, 2025 – May 31, 2026



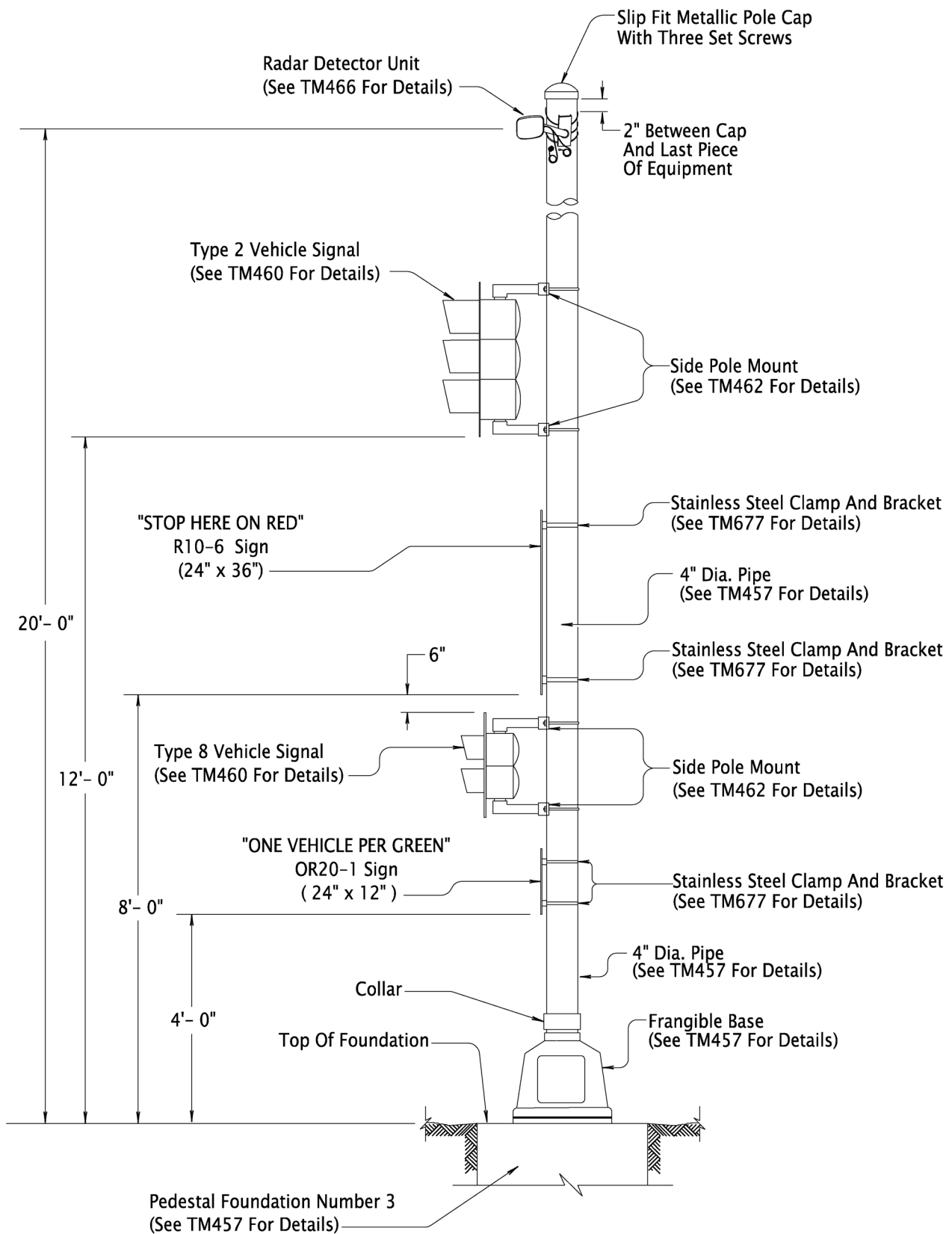
- General Notes:
1. Notify Utility Before Making Any Connections To Utility Poles.
 2. Service Cabinet Shall Have A Solid Copper Neutral Bus And The Number And Size Of Switches Or Circuit Breakers As Shown. Service Cabinet Can Accommodate A Maximum Of 10 Circuit Breakers.
 3. Wiring Connections To The Terminal Screws On The Circuit Breakers And Contactors Shall Make Full Contact Under The Screw Head.
 4. Circuit Breakers Shall Be UL489 Listed, Unenclosed, Molded Case Bolt-On Type With End Conductor Terminals Suitable For Surface Mounting In The Cabinet On A False Back Or Bracket.
 5. Label Circuit Breakers And Equipment With An Engraved Permanent Label On The Dead Front Panel To Indicate The Circuit Controlled.
 6. Fill Out Manufacturer Provided Arc Flash Stickers Using A Permanent Handheld Labeler (Brady IDXPRT with XC-1500-580-WT-BK Tags Or Approved Equal).



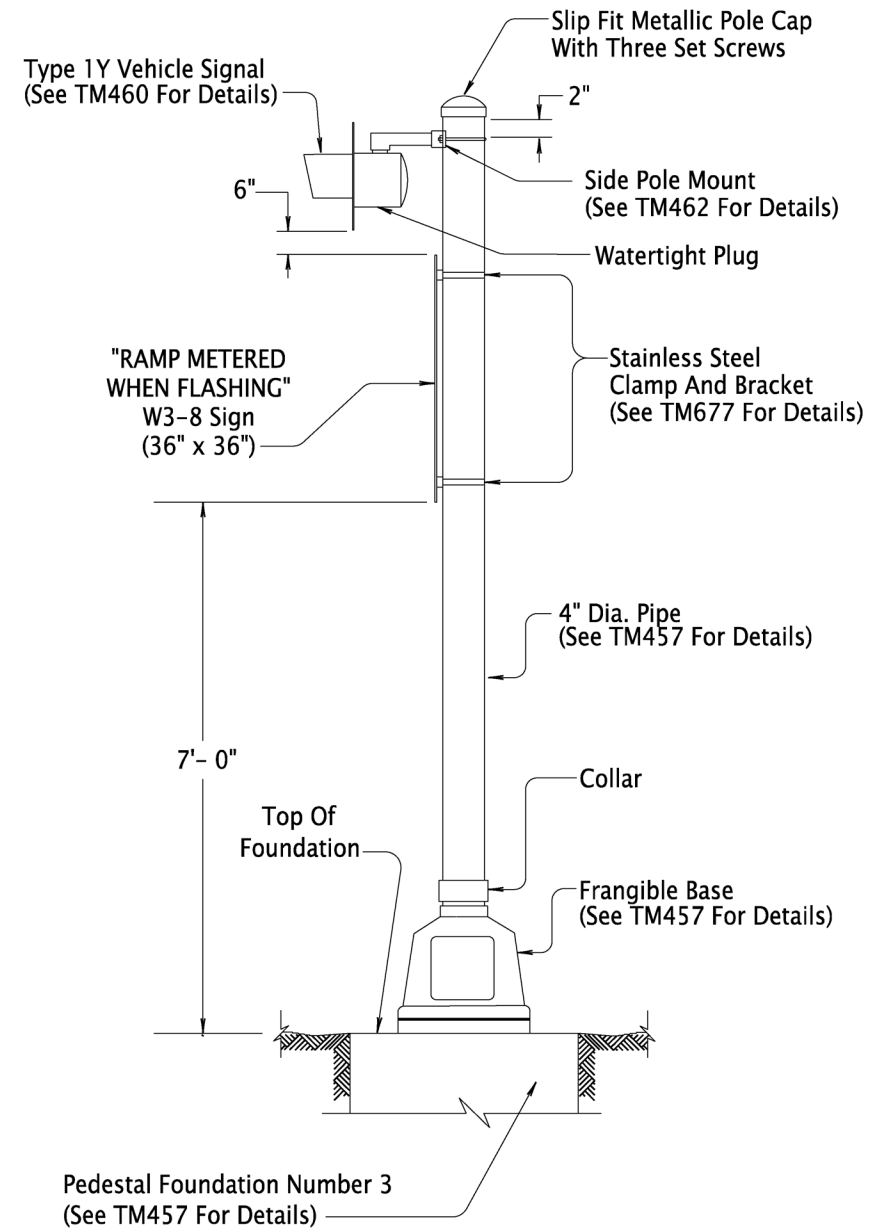
All materials shall be in accordance with the current Oregon Standard Specifications.		
OREGON STANDARD DRAWINGS		
SERVICE CABINET WIRING DETAILS		
2024		
DATE	REVISION	DESCRIPTION
07-2023		REVISED SERVICE CABINET WIRING TITLES. ADDED NOTE 6.
01-2024		ADDED NOTE FOR RRFB 20 AMP BREAKER IN BMC & BMCL DETAILS
07-2024		MINOR TEXT REVISIONS FOR UNIFORMITY
01-2025		ADDED GFCI EQUIPMENT TO SERVICE CABINET. REFORMATTED FOR CLARITY
CALC. BOOK NO.	N/A	SDR DATE: 10-JAN-2025
		TM485

14-JUL-2023

TM492.dgn



RAMP METER SIGNAL ASSEMBLY



RAMP METER ADVANCE WARNING SIGN ASSEMBLY

General Notes:

1. Equipment Shown In the Assembly Details Is An Example Of The Equipment That May Be Mounted. Install Equipment As Shown.
2. Do NOT Install Assemblies Within Paved Gore Area.
3. Locate Ramp Meter Signal Assembly 25'- 0" Beyond Stop Line Or As Shown.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

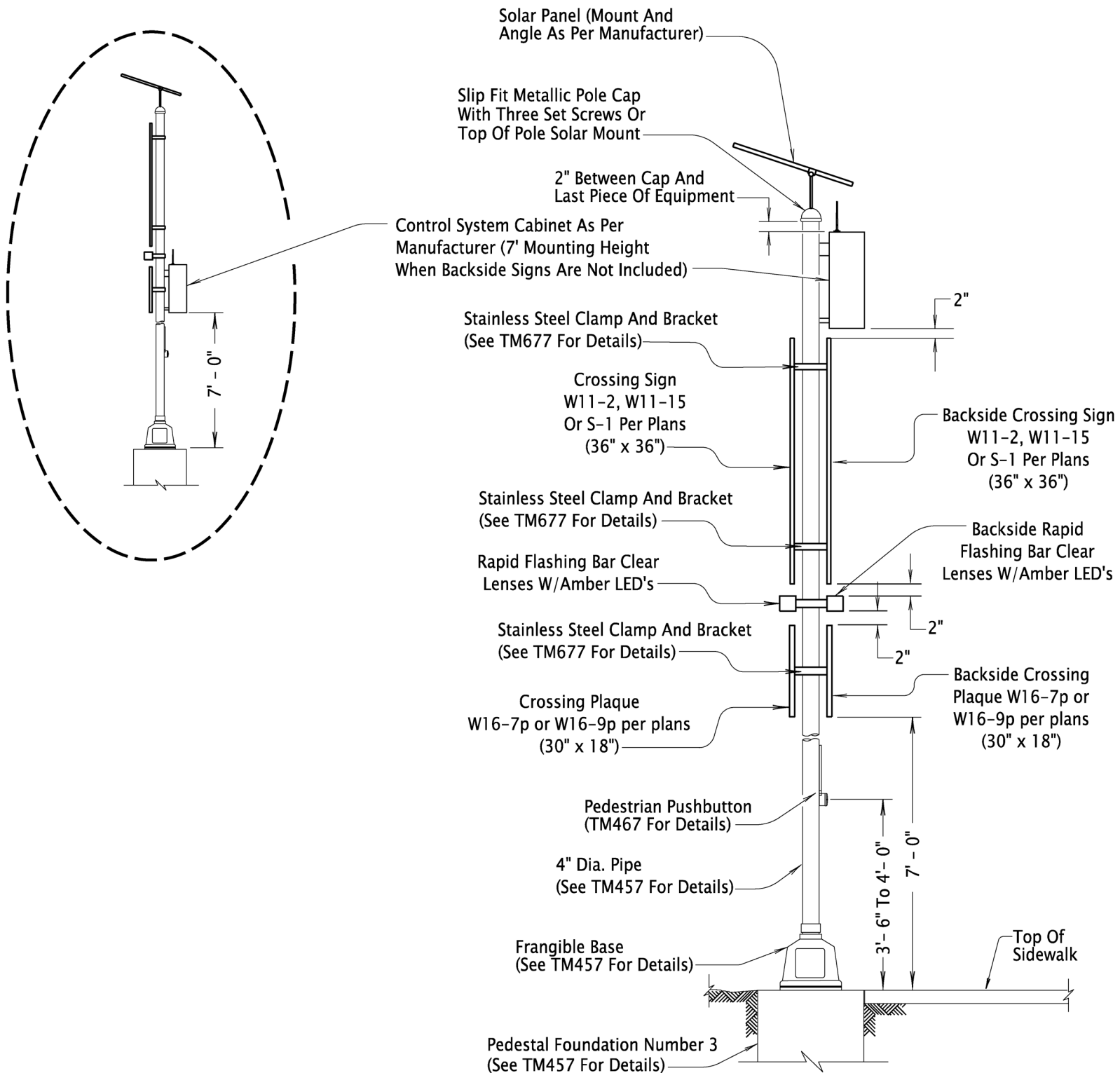
RAMP METER ASSEMBLIES

2024

DATE	REVISION	DESCRIPTION
01-2022	REFERENCED TM457 FOR ALL PIPE INFO	
07-2022	REVISED TO MATCH TM457 REVISIONS/FORMAT	
07-2023	MINOR TEXT CHANGES FOR CLARITY	

CALC. BOOK NO.	N/A	SDR DATE	14-JUL-2023	TM492
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Effective Date: December 1, 2025 – May 31, 2026

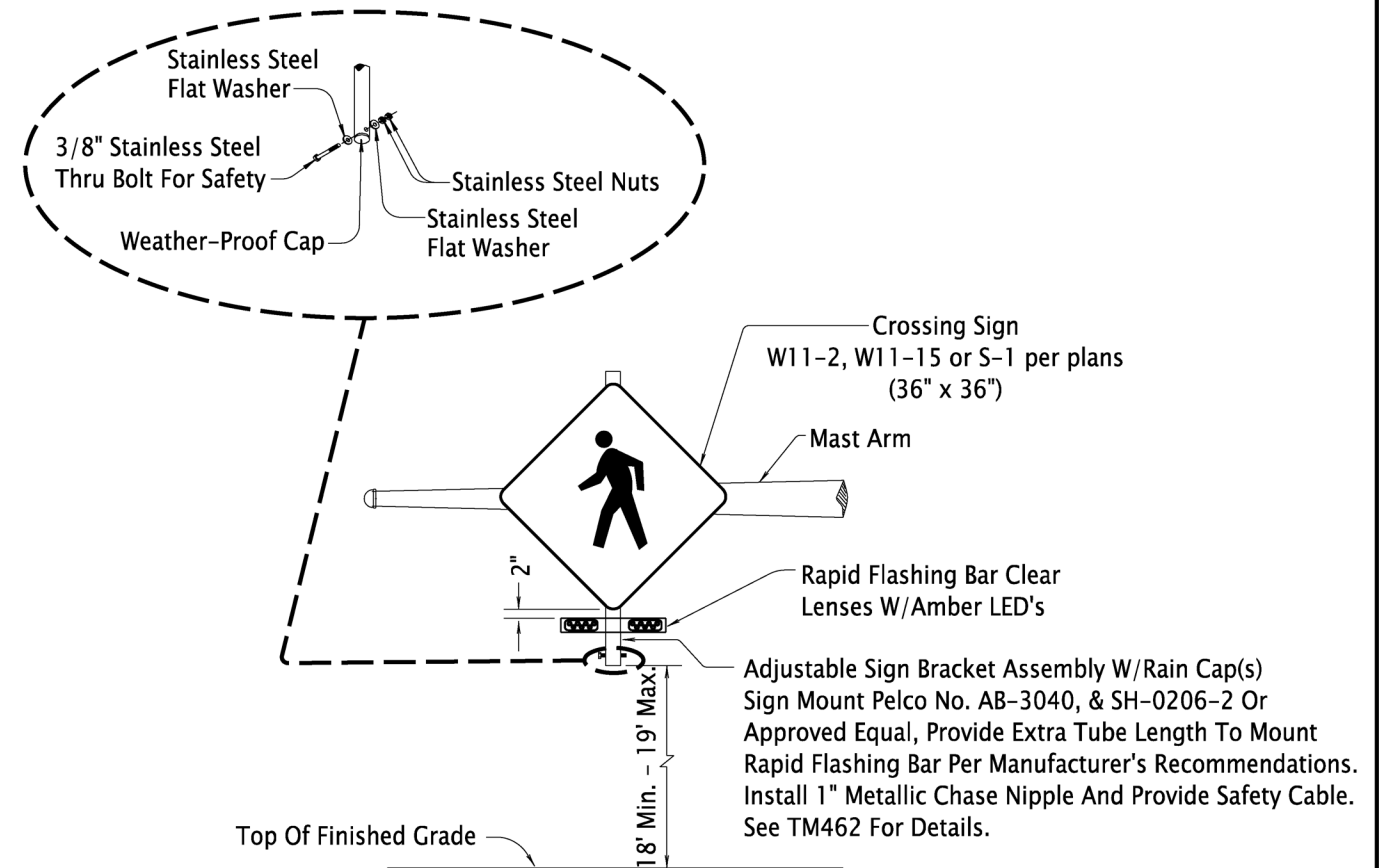


Note:

1. Equipment Shown In The Assembly Detail Is An Example Of The Equipment That May Be Mounted. Install Equipment As Shown.
2. Equipment Mounting Details Shown Are Also Applicable When Mounting Equipment To A Large Signal Pole.

RECTANGULAR RAPID FLASHING BEACON PEDESTAL ASSEMBLY

(Use Green Sheet Listed Items Only)



RECTANGULAR RAPID FLASHING BEACON MAST ARM ASSEMBLY

(Use Green Sheet Listed Items Only)

GENERAL NOTES:

1. Install Cable/Wire Terminations And Splices As Per The Rectangular Rapid Flashing Beacon Manufacturer's Recommendations.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

RECTANGULAR RAPID FLASHING BEACON (RRFB) ASSEMBLIES

2024

DATE	REVISION	DESCRIPTION
07-2022	NEW DRAWING	
07-2023	MINOR TEXT CHANGES FOR CLARITY	
01-2025	CORRECTED TYPO	
07-2025	ADDED GENERAL NOTE 1	

CALC. BOOK NO.	N/A	SDR DATE	11-JUL-2025	TM493
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Effective Date: December 1, 2025 – May 31, 2026

TM600 Series: Sign, Illumination, and Signal Support Structures

TM650 – Traffic Signal Supports General Details & Design Criteria

TM651 – Traffic Signal Supports Notes and Reactions

TM652 – Traffic Signal Supports Steel Details

TM653 – Traffic Signal Supports Foundation Requirements

TM654 – Traffic Signal Pole Recessed Terminal Cabinet

TM655 – Traffic Signal 60’ through 75’ Mast Arm Supports General Details & Design Criteria

TM656 - Traffic Signal 60’ through 75’ Mast Arm Supports Notes

TM657 – Traffic Signal 60’ through 75’ Mast Arm Supports Steel Details (SH. 1)

TM658 - Traffic Signal 60’ through 75’ Mast Arm Supports Steel Details (SH. 2)

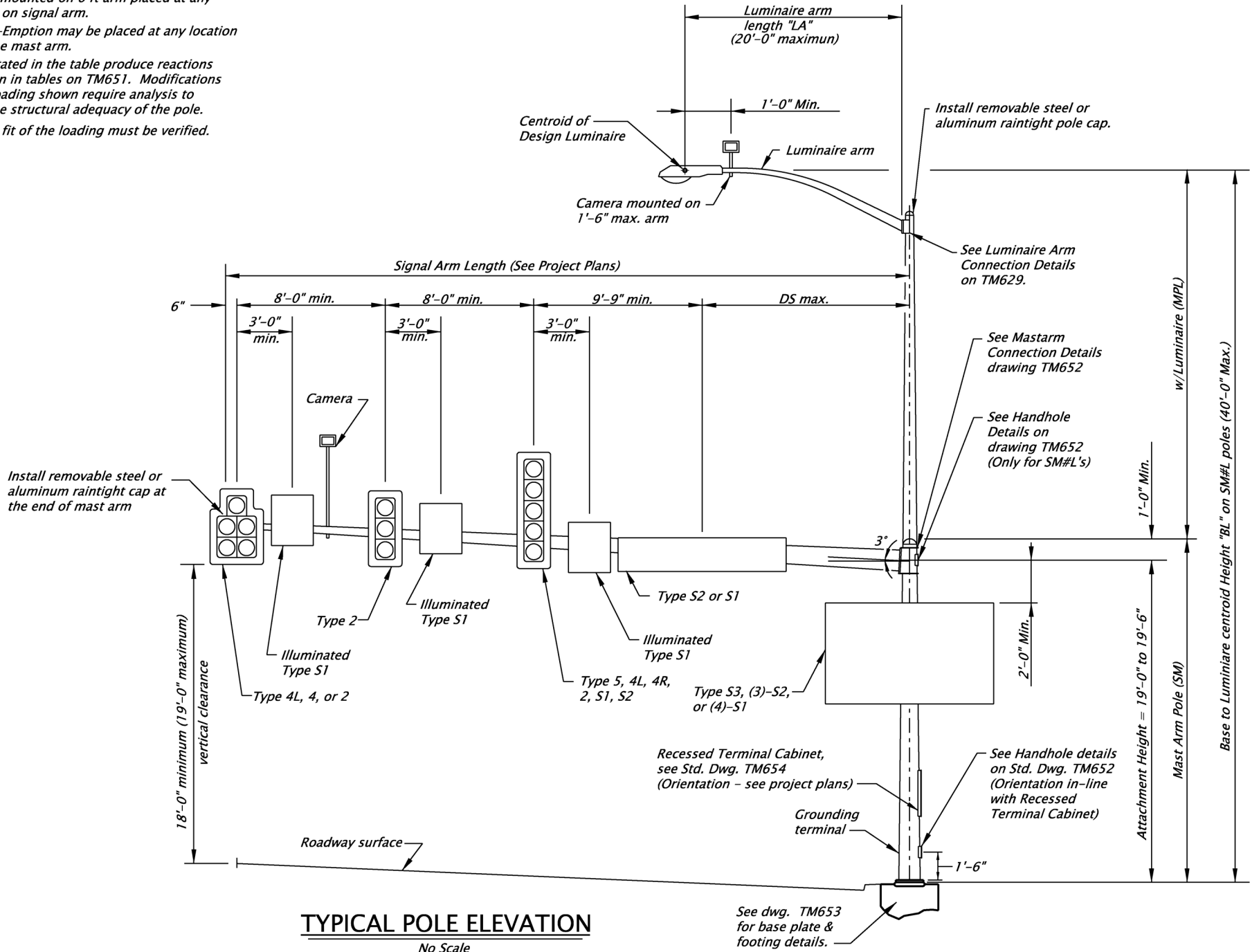
TM628 – Std. Monotube Sign/VMS Support Drilled Shaft Details (only used for 60’ through 70’ mast arms supports)

STANDARD SIGNAL ARM LOADS							
Signal Pole Type	Signal Arm Length	Signals			Sign		DS Max. for S2
		4L Qty.	2 Qty.	5 * Qty.	S1 Qty.	S2 * Qty.	
SM1 or SM1L	15'	1	0	1	2	0	N/A
SM2 or SM2L	20'	1	1	1	3	0	N/A
	25'	1	1	1	3	0	
SM3 or SM3L	30'	1	1	1	3	1	9'-1"
	35'	1	1	1	3	1	
SM4 or SM4L	40'	1	2	1	4	1	11'-1"
	45'	1	2	1	4	1	
SM5 or SM5L	50'	1	2	1	4	1	21'-1"
	55'	1	2	1	4	1	

SIGNAL ARMS DEFLECTION		
Signal Arm Length "SA"	Allowable Dead Load Deflection	Allowable Total Load Deflection
15' or less	0.01"SA	0.05"SA
20'	2½"	12"
25'	3½"	15"
30'	5"	21"
35'	7"	29"
40'	9½"	38"
45'	1'-½"	48"
50'	1'-4"	60"
55'	1'-8"	74"

* - Load location is the closest sign or signal of that type to the vertical post.

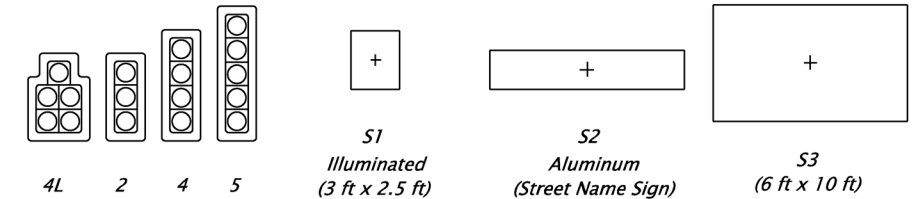
1. Camera mounted on 6 ft arm placed at any location on signal arm.
2. Fire Pre-Emption may be placed at any location along the mast arm.
3. Loads stated in the table produce reactions as shown in tables on TM651. Modifications to the loading shown require analysis to verify the structural adequacy of the pole.
4. Physical fit of the loading must be verified.



TYPICAL POLE ELEVATION
No Scale

VERTICAL POST LOADS							
Description	Maximum Centerline Elevation	Height (Each)	Width (Each)	Depth (Each)	Area Front (sq. ft)	Area Side (sq. ft)	Weight 0" Ice (lbs)
2-Ped. Push Buttons	3'-6"	7¾"	5"	3¾"	0.27	0.18	3.0
Controller Cabinet	5'-9"	46"	24"	22"	7.67	7.03	300
2-Pedestrian Signals	8'-3½"	18¾"	19"	19"	2.47	2.47	25.0
Terminal Cabinet	10'-9"	18½"	6¾"	8¾"	0.85	1.05	25.0
Guide Sign (S3)	15'-0"	72"	120"	8¾"	60.0	1.00	395
Photoelectric Cell	38'-4"	2¼"	3¼"	3¼"	0.05	0.05	5.0

1. Physical fit of the loading must be verified.



SIGNAL POLE APPURTENANCE TYPES

APPURTENANCE LOADS				
Type	Area Front (sq. ft)	Area Side (sq. ft)	Area Bottom (sq. ft)	Weight 0" Ice (lbs)
4L	12.4	6.61	3.64	145
2	8.67	6.61	1.95	85.0
4	11.0	8.49	1.95	97.0
5	13.3	10.36	1.95	142
S1	7.50	2.38	1.72	71.0
S2	21.0	0.00	1.67	105

Accompanied by dwgs. TM651, TM652, TM653, TM654, TM679

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

TRAFFIC SIGNAL SUPPORT

GENERAL DETAILS & DESIGN CRITERIA

2024

DATE	REVISION	DESCRIPTION
07-2020	REPLACED HUB WITH RECESSED TERMINAL CABINET AND ADDED	
	ACCOMPANIED BY DRAWING TM654	
01-2024	ADDED ORIENTATION TO RECESSED TERMINAL CABINET AND HANDHOLE	
	ORIENTATION WAS BY SIGNAL DESIGNER	

CALC. BOOK NO.	5301	SDR DATE	19-JAN-2024	TM650
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06-JAN-2023
TM651.dgn

GENERAL NOTES

1. Signal supports shall be designed in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals 4th edition, 2001, 2002, and 2003 interim revisions.

2. All traffic signal supports shall conform to the design criteria and details shown on these drawings except as approved by the Engineer.

3. The design basic wind speed (3 second gust) shall be 110 mph, gust factor $G = 1.14$, $I_r = 1.0$ (50 year recurrence interval), Fatigue Category II, no galloping, and truck speed = 55 mph.

4. Signal poles from this standard are not allowed over highways I-5, I-84, I-205, I-405, US 26 (Sunset Hwy.) between milepoints 64.3 – 73.0, I-105, and I-82. Signal poles on these highways require a Fatigue Category I.

5. Pole and arm shafts may be either round, hexdecagonal, dodecagonal, or octagonal but shapes shall not be mixed on a project. Dimensional tolerances of ASTM A595 shall apply to all tapered steel tubing members. Additionally, the diameter of round tapered steel tubing members or the dimensions across the flats of octagonal tapered steel tubing members shall not vary more than 2 percent from specified dimension. Two ply and fluted poles or arms are not permitted.

6. Pole taper shall be equal to .0117 in/in.

7. Anchor rods shall conform to ASTM Specification F1554 Gr. 55, Supplementary Requirement "S2" that include grade and manufacturer's identification.

8. High strength bolts shall conform to ASTM F3125 Grade A325 Type 1.

9. Nuts for high strength bolts shall be heavy hex and conform to ASTM A563 Grade DH with supplementary requirements "S1" and "S2".

10. Hardened steel washers shall conform to ASTM F436 Type 1.

11. Direct Tension Indicators (DTI) shall be the compressible washer type, mechanically galvanized, conforming to ASTM F959.

12. Steel sheet for poles and arm shall conform ASTM A595, Grades A or B, ASTM A572 Gr. 50, or approved equal. All other steel sheet and plate shall conform to AASHTO specification M223 (ASTM A572), or approved equal. Supplement S18 of ASTM A6 regarding maximum tensile strength shall apply.

13. All structural steel including fasteners shall be hot-dip galvanized after fabrication unless otherwise noted.

14. Galvanize-Control Silicon, typical. Silicon content of the base metal shall be in the range of 0 to 0.04 percent or 0.15 to 0.25 percent.

15. Footing concrete shall be Commercial Grade Concrete ($f_c=3000$ psi) per Specification Section 440. Grout in grout pad shall be non-shrink high early strength grout (non-ferrous) with a minimum strength of 5000 psi.

16. Reinforcing steel shall conform to AASHTO M31, Grade 60 (ASTM A615 or A706). A minimum lap splice length of 32 bar diameters shall be used unless shown otherwise.

17. Computed deflection of these poles at full design loading shall be limited to 5 percent of the pole length. Computed dead load deflection of the poles shall be limited to 1 percent of the pole length. Pole shall be raked to offset the computed dead load deflection. Computed deflection (ignoring pole bending and/or rotation) of signal arms shall not exceed that listed in the Signal Arm Deflection Table on TM650. Additionally, the amplitude (maximum up to maximum down as measured at the tip of the arm) of wind induced vertical oscillations shall not exceed 1.5 percent of the signal arm length. Luminaire arms and pole extensions to support luminaire arms shall meet requirements of standard drawing TM629.

18. Hubs for cabinets and/or other appurtenances shall be welded into the pole prior to galvanizing. Poles may be tapped for up to 1" galvanized bolts after pole has been galvanized.

19. Longitudinal seam welds within 6 inches of a circumferential weld shall be complete penetration welds. Weld inspection shall be in accordance with AWS D1.1 and the special provisions. Inspect seam welds using cyclically loaded criteria. Hubs shall be 3000# threaded forged carbon steel flat weld hubs by Anvil Products Inc., Phoenix Forging Co., Bonney Forge & Tool Works or approved equal.

20. Grounding terminal shall be 1/2" UNC x 1 1/2" Type 308, 309 or 310 threaded stainless steel weld studs.

21. Assemble support, tighten anchor bolts, tighten HS thru bolts and tighten HS bolts in tapped holes according to 00962.46(j)(2).

22. Round and smooth all edges along electrical way.

23. The minimum arm flange thickness shall be equal to the value where prying action is not included in the bolt calculation.

Standard Maximum Base Reactions (Unfactored)								
Signal Pole Type	Signal Arm Lengths	Wind Load Case II				Controlling Fatigue		
		Axial (Kips)	Shear (Kips)	Moment (Kip-ft)	Torque (Kip-ft)	Shear (Kips)	Moment Kip-ft)	Torque (Kip-ft)
SM1	15'	2.10	5.15	80.39	16.95	0.68	10.39	2.13
SM2	20', 25'	2.66	6.23	105.41	42.54	0.82	13.35	5.37
SM3	30', 35'	3.49	7.77	138.43	82.87	1.00	17.10	10.31
SM4	40', 45'	4.51	9.00	173.46	132.72	1.16	20.54	16.50
SM5	50', 55'	5.69	9.23	190.91	181.60	1.18	21.62	22.55
SM1L	15'	2.96	6.09	113.28	23.22	0.79	14.08	2.84
SM2L	20', 25'	3.69	7.23	139.41	48.81	0.94	17.17	6.08
SM3L	30', 35'	4.39	8.80	176.51	87.88	1.14	21.43	11.02
SM4L	40', 45'	5.94	10.14	215.11	136.97	1.31	25.27	17.21
SM5L	50', 55'	7.34	10.56	241.17	187.96	1.34	26.49	23.26

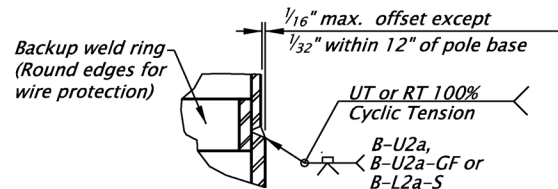
Standard Maximum Mast Arm Reactions						
Signal Pole Type	Signal Arm Lengths	Wind Load Case II			Controlling Fatigue	
		Axial (Kips)	Shear (Kips)	Moment (Kip-ft)	Shear (Kips)	Moment (Kip-ft)
SM1, SM1L	15'	0.06	1.98	18.44	0.23	2.18
SM2, SM2L	20', 25'	0.10	3.14	46.20	0.37	5.48
SM3, SM3L	30', 35'	0.15	4.51	89.42	0.53	10.51
SM4, SM4L	40', 45'	0.23	5.91	146.67	0.67	16.82
SM5, SM5L	50', 55'	0.34	6.78	211.94	0.70	22.99

Luminaire Arm Reactions					
Arm Lengths	Wind Load Case II			Controlling Fatigue	
	Axial (Kips)	Shear (Kips)	Moment (Kip-ft)	Shear (Kips)	Moment (Kip-ft)
6'	0.03	0.31	1.49	0.03	0.15
10'	0.06	0.38	2.85	0.04	0.29
15'	0.08	0.47	4.96	0.05	0.51
20'	0.05	0.55	7.24	0.06	0.74

Accompanied by drawings TM650, TM652, TM653, TM654

<i>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.</i>	All materials shall be in accordance with the current Oregon Standard Specifications.			
	OREGON STANDARD DRAWINGS			
	TRAFFIC SIGNAL SUPPORTS NOTES AND REACTIONS			
	2024			
	DATE	REVISION DESCRIPTION		
	07-2020	ADDED ACCOMPANIED BY STANDARD DRAWING TM654		
	07-2021	ADDED "(UNFACTORED)" TO THE TABLE HEADING		
	01-2023	CHANGED HIGH STRENGTH BOLT TIGHTENING TO 00962.46(j)(2)		
CALC. BOOK NO. 5301		SDR DATE 06-JAN-2023	TM651	

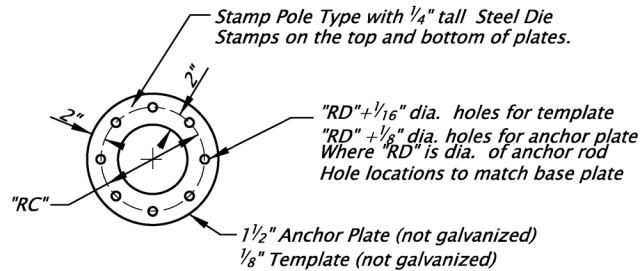
Effective Date: December 1, 2025 – May 31, 2026



POLE AND ARM SPLICE

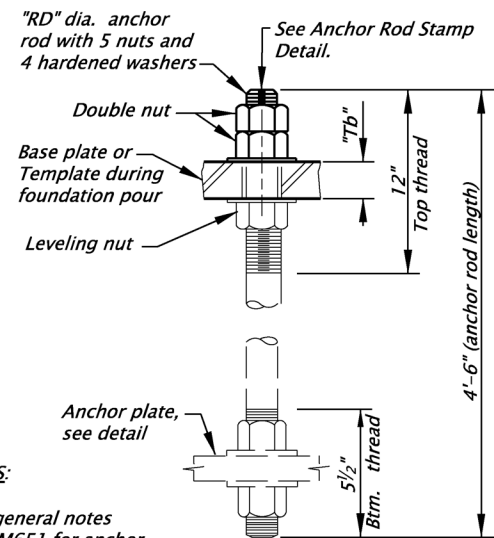
WELD DETAILS

No Scale



ANCHOR PLATE AND TEMPLATE DETAIL

No Scale



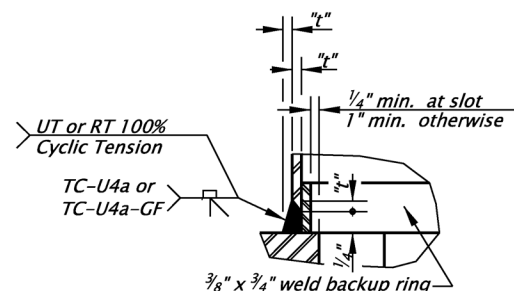
NOTES:

- See general notes on TM651 for anchor rod tightening.
- "Tb" determined by manufacturer.

ANCHOR ROD DETAIL

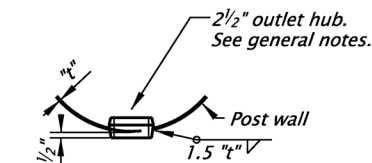
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Anchor Rods and Base Plate Data		
Mastarm Pole Type	RD Rod Diam.	RC Rod Circle
SM1	1 1/4"	16 1/2"
SM2, SM1L	1 1/2"	17"
SM3, SM2L	1 1/2"	20"
SM4, SM3L	1 3/4"	22"
SM5, SM4L	1 3/4"	23"
SM5L	2"	23 1/2"



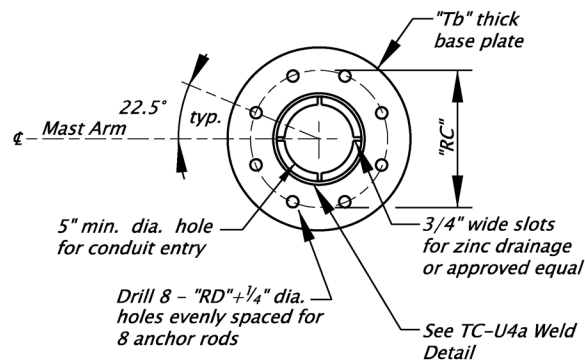
TC-U4a WELD DETAIL

No Scale



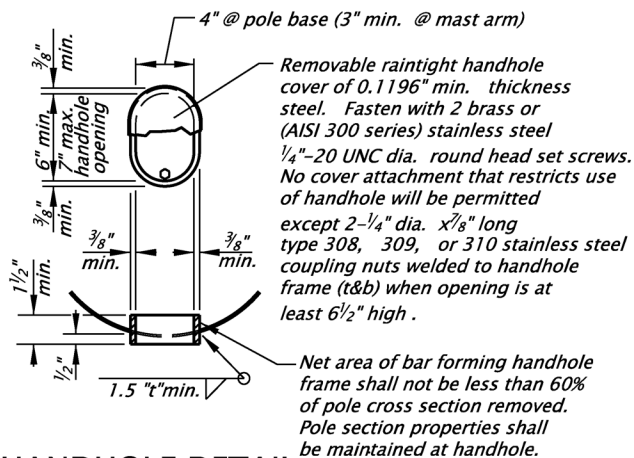
HUB WELD DETAIL

No Scale



PLAN - BASE PLATE

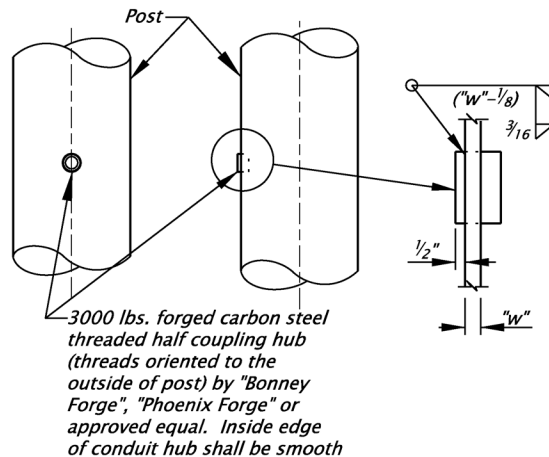
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HANDHOLE DETAIL

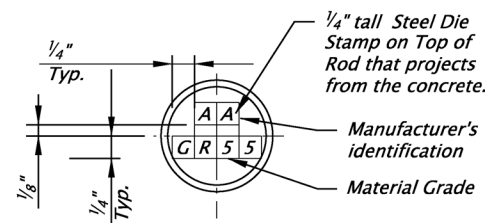
No Scale

Mast arm Connection				
Signal Arm Lengths	N Number	D Bolt Diam.	BC Bolt Circle	V Bolt Spacing
15'	4	1"	9 1/2"	
20', 25'	4	1 1/4"	14"	
30', 35'	4	1 1/2"	15 1/2"	
40', 45'	8	1"		5"
50', 55'	8	1 1/4"		6"



HUB WELD DETAIL

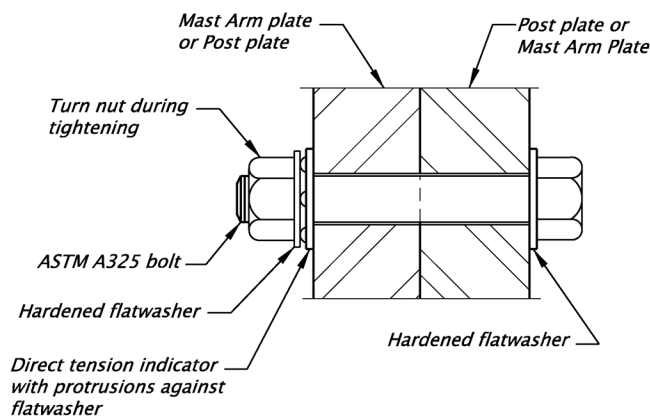
No Scale



Note: The end of each anchor rod shall be color coded yellow.

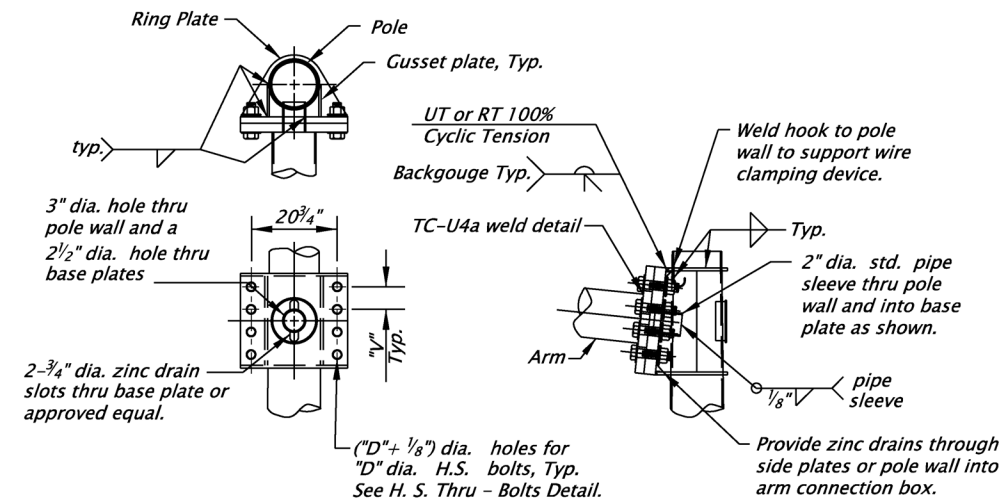
ANCHOR ROD STAMP DETAIL

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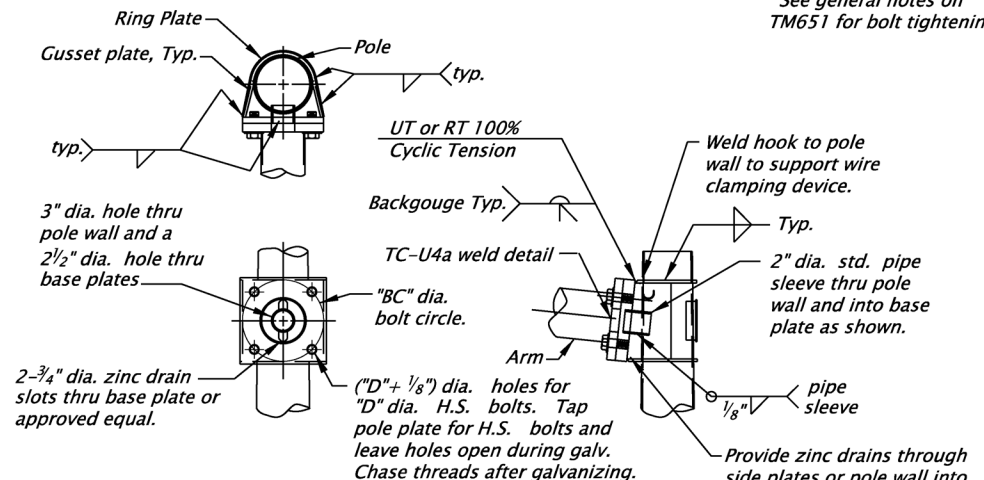
H.S. THRU - BOLTS

No Scale



8 BOLT ARM CONNECTION DETAILS

No Scale



4 BOLT ARM CONNECTION DETAILS

No Scale

ARM CONNECTION NOTES:

- Gusset plates are 1/4" min. thickness.
- Ring plates are 3/8" min. thickness.
- See general notes on TM651 for bolt tightening.

Accompanied by dwgs. TM650, TM651, TM653, TM654

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OREGON STANDARD DRAWINGS

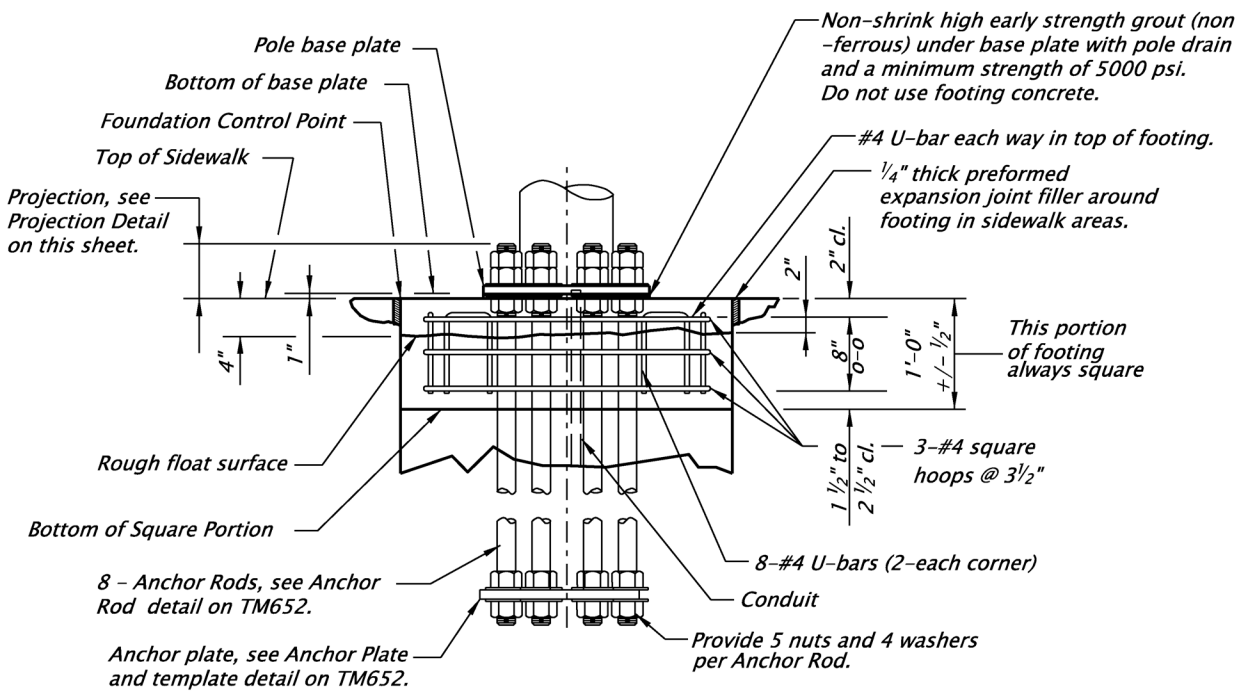
TRAFFIC SIGNAL SUPPORTS STEEL DETAILS

2024

DATE	REVISION	DESCRIPTION
07-2020	ADDED	ACCOMPANIED BY DRAWING TM654
01-2024	REMOVED	STRAIN POLE TYPES FROM TABLE
CALC. BOOK NO. 5301		
SDR DATE 19-JAN-2024		
TM652		

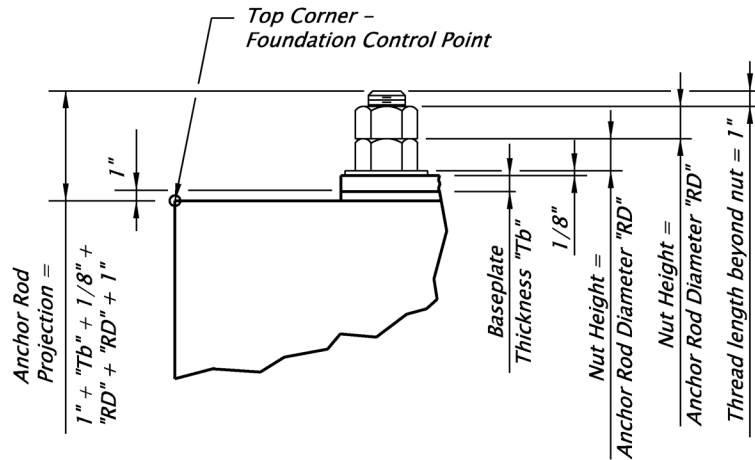
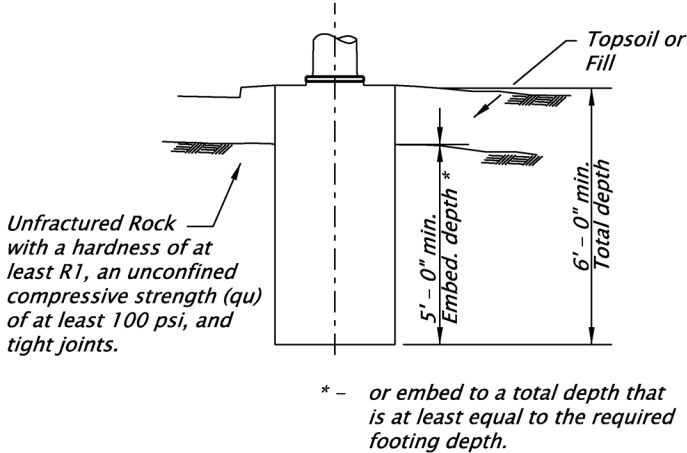
Effective Date: December 1, 2025 – May 31, 2026

Standard Foundations					
Foundation Number	Mastarm Pole Types	"FD" Diameter Min.	Vertical Rebar	Hoop Size and Spacing	Hoop Lap Length
1	SM1	36"	8-#8	#4 at 6"	18"
2	SM2, SM1L	36"	8-#8	#4 at 6"	18"
3	SM3, SM2L	36"	8-#8	#4 at 6"	18"
4	SM4, SM3L	42"	10-#8	#5 at 6"	21"
5	SM5, SM4L	42"	10-#9	#5 at 6"	21"
6	SM5L	42"	10-#9	#5 at 6"	21"

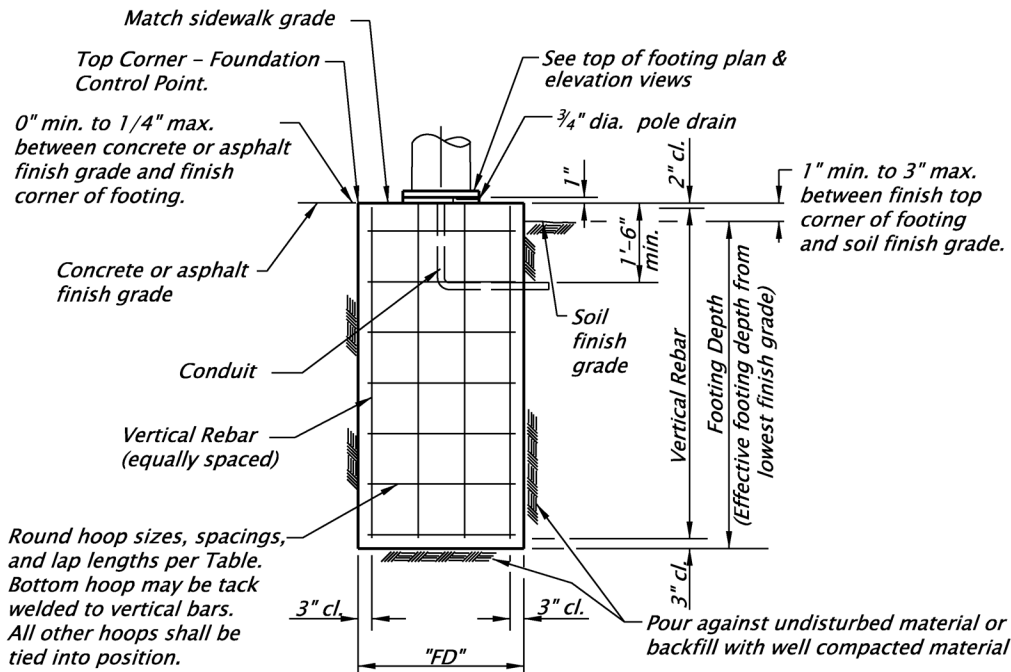


ELEVATION - TOP OF FOOTING
No Scale

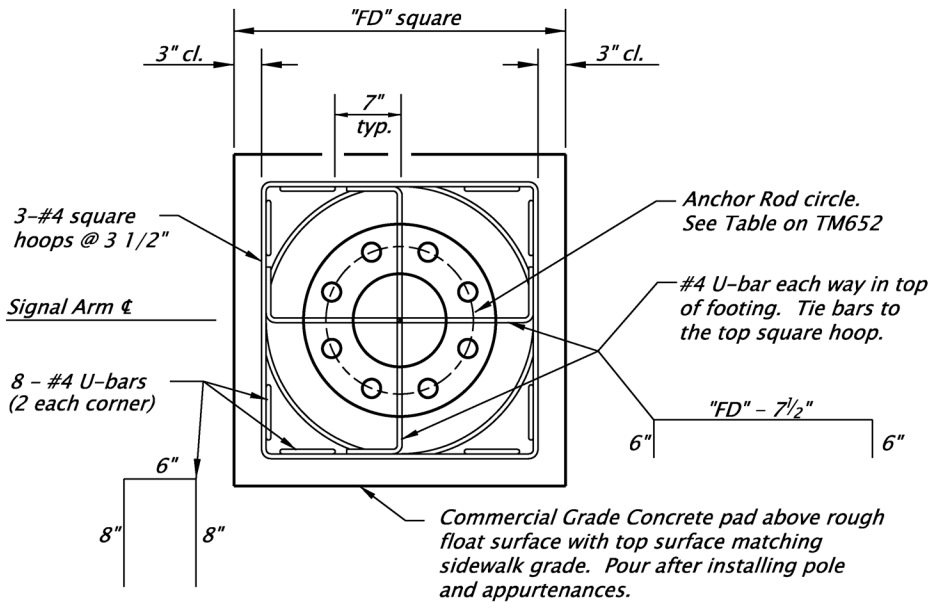
ROCK INSTALLATION REQUIREMENTS
No Scale



PROJECTION DETAIL
No Scale



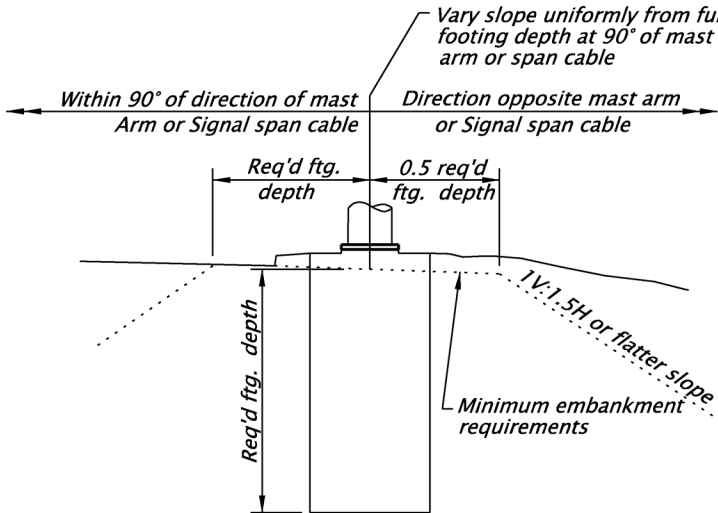
TYPICAL FOOTING ELEVATION
No Scale



PLAN - TOP OF FOOTING
No Scale

NOTES:

See TM651 for general notes.
The pier torsional forces have been designed according to the ACI 318.

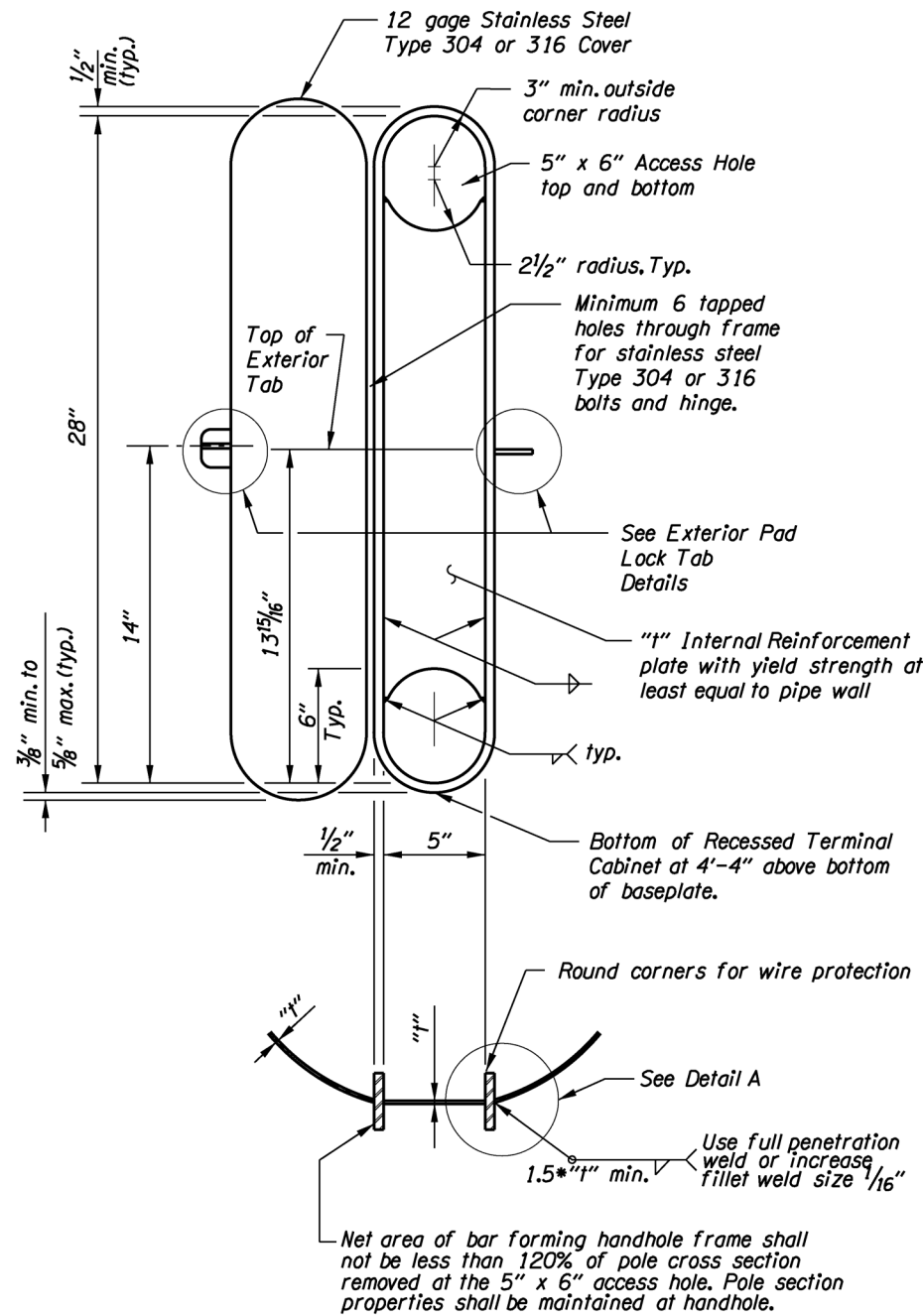


MINIMUM EMBANKMENT REQUIREMENTS
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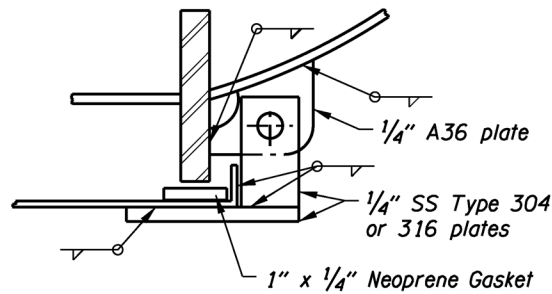
Accompanied by dwgs. TM650, TM651, TM652, TM654

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

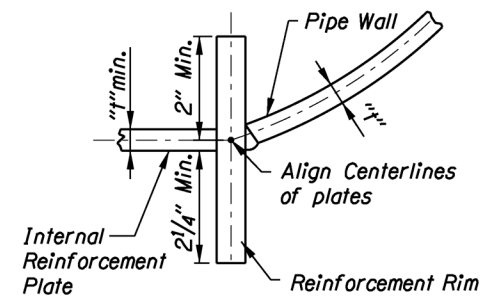
All materials shall be in accordance with the current Oregon Standard Specifications.			
OREGON STANDARD DRAWINGS			
TRAFFIC SIGNAL SUPPORTS FOUNDATION REQUIREMENTS			
2024			
DATE	REVISION DESCRIPTION		
07-2020	ADDED ACCOMPANIED BY DRAWING TM654		
CALC. BOOK NO.	5323	SDR DATE	10-JUL-2020
			TM653



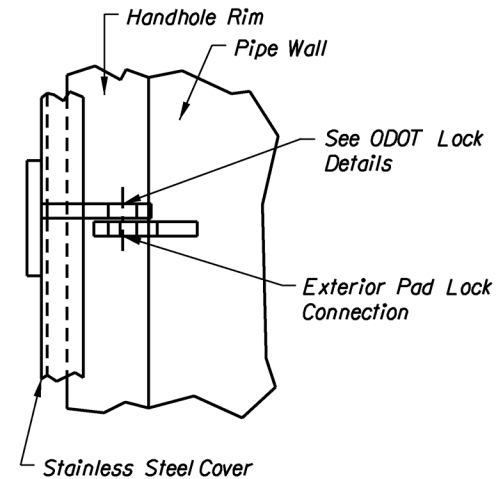
RECESSED TERMINAL CABINET DETAIL
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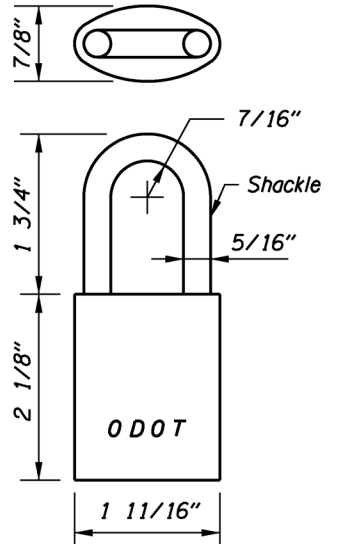
SECTION A-A
No scale



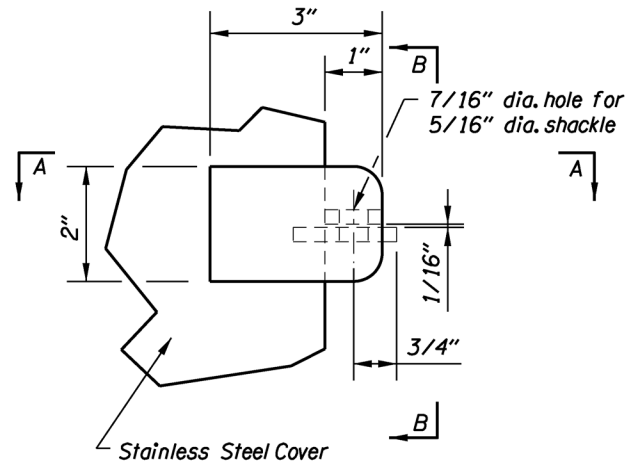
DETAIL A
No scale



SECTION B-B
No scale



ODOT LOCK DETAILS
No scale
(ODOT Supplied Post Construction)



EXTERIOR PAD LOCK DETAILS
No scale

Accompanied by dwgs. TM650, TM651, TM652, TM653, TM655, TM656, TM657, TM658, TM679

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

**TRAFFIC SIGNAL POLE
RECESSED TERMINAL CABINET**

2024

DATE	REVISION	DESCRIPTION
07-2020	DRAWING CREATED	

CALC. BOOK NO.	5301	SDR DATE	10-JUL-2020	TM654
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Effective Date: December 1, 2025 – May 31, 2026

06-JAN-2023
TM656.dgn

GENERAL NOTES

1. Signal supports shall be designed in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals LRFD 1st edition with 2017 and 2018 interim revisions.
2. All traffic signal supports shall conform to the design criteria and details shown on these drawings except as approved by the Engineer.
3. The design basic wind speed (3 second gust) shall be 145 mph, gust factor $G = 1.14$, 50 year recurrence, Fatigue Category I, no galloping, and truck speed = 65 mph.
4. The design service basic wind speed (3 second gust) shall be 91 mph.
5. Signal poles from this standard are not allowed over highways I-5, I-84, I-205, I-405, US 26 (Sunset Hwy) between milepoints 64.3 – 73.0, I-105, and I-82.
6. Pole and arm shafts must be round. Dimensional tolerances of ASTM A595 shall apply to all tapered steel tubing members. Additionally, the diameter of round tapered steel tubing members shall not vary more than 2 percent from specified dimension. Two ply and fluted poles or arms are not permitted.
7. Pole taper shall be equal to .0117 in/in.
8. Anchor rods shall conform to ASTM Specification F1554 Gr. 55, Supplemenetary Requirement "S2" that include grade and manufacturer's identification.
9. High strength bolts shall conform to ASTM F3125 Grade A325 Type 1.
10. Nuts for high strength bolts shall be heavy hex and conform to ASTM A563 Grade DH with supplmentary requirements "S1" and "S2".
11. Hardened steel washers shall conform to ASTM F436 Type 1.
12. Direct Tension Indicators (DTI) shall be the compressible-washer type, mechanically galvanized, conforming to ASTM F959.
13. Steel sheet for poles and arm shall conform ASTM A595, Grades A or B, ASTM A572 Gr. 50, or approved equal. All other steel sheet and plate shall conform to AASHTO specification M223 (ASTM A572), or approved equal. Supplement S18 of ASTM A6 regarding maximum tensile strength shall apply.
14. All structural steel including fasteners shall be hot-dip galvanized after fabrication unless otherwise noted.
15. Galvanize-Control Silicon, typical. Silicon content of the base metal shall be in the range of 0 to 0.06 percent or 0.13 percent to 0.25 percent.
16. Footing concrete shall be according to TM628.
17. Reinforcing steel shall conform to AASHTO M31, Grade 60 (ASTM A615 or A706). A minimum lap splice length of 32 bar diameters shall be used unless shown otherwise.
18. Computed deflection of these poles at full design loading shall be limited to 5 percent of the pole length. Computed dead load deflection of the poles shall be limited to 1 percent of the pole length. Rake pole, apply mast arm and appurtenance loads, and verify final pole position is plumb.
19. Luminaire arms and pole extensions to support luminaire arms shall meet requirements of drawing TM629.
20. Hubs for cabinets and/or other appurtenances shall be welded into the pole prior to galvanizing. Poles may be tapped for up to 1" galvanized bolts after pole has been galvanized.
21. Longitudinal seam welds within 6 inches of a cirumferential weld shall be complete penetration welds. Weld inspection shall be in accordance with AWS D1.1 and the special provisions. Inspect seam welds using cyclically loaded criteria. Hubs shall be 3000# threaded forged carbon steel flat weld hubs by Anvil Products Inc., Phoenix Forging Co., Bonney Forge & Tool Works or approved equal.
22. Grounding terminal shall be 1/2" UNC x 1 1/2" Type 308, 309 or 310 threaded stainless steel weld studs.
23. Assemble support, tighten anchor bolts, tighten HS thru bolts, and tighten HS bolts in tapped holes according to 00962.46(j)(2).
24. Round and smooth all edges along electrical way.

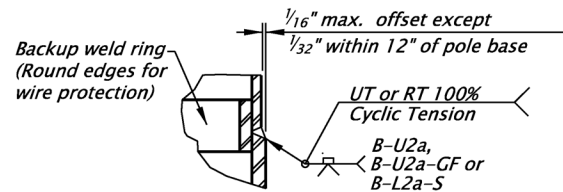
	Reaction At Base Plate (Factored)				Reaction At Base Plate (Service)			
Signal Pole Type	Axial (lb)	Shear (lb)	Moment (ft-lb)	Torsion (ft-lb)	Axial (lb)	Shear (lb)	Moment (ft-lb)	Torsion (ft-lb)
SM6L	7,430	13,000	301,000	322,000	6,520	5,200	163,000	127,000
SM7L	8,860	13,100	349,000	385,500	8,080	5,190	212,720	153,000

Note:
The base plate reactions shown in the table are worst case Extreme I and Service I loads. Engineer of Record to specify shaft depth and confirm shaft design for local soil conditions based on a site specific geotechnical study and loads shown in table. If shaft size or reinforcement shown in the table on TM628 for the required design number are not adequate for local soil conditions, Engineer of Record must adjust the shaft design accordingly.

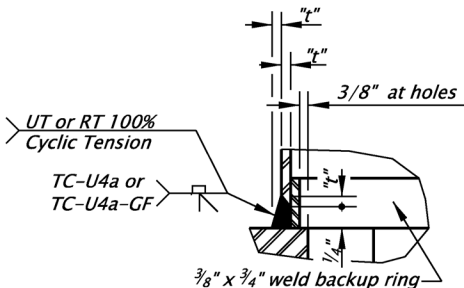
Accompanied by drawings TM628, TM654, TM655, TM657, TM658

<i>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.</i>	All materials shall be in accordance with the current Oregon Standard Specifications.			
	OREGON STANDARD DRAWINGS			
	TRAFFIC SIGNAL 60' THROUGH 75'			
	MAST ARM SUPPORTS			
	NOTES AND REACTIONS			
	2024			
	DATE	REVISION DESCRIPTION		
	07-2020	ADDED ACCOMPANIED BY STANDARD DRAWING TM654		
	07-2022	ADDED REACTIONS TO TITLE AND ADDED REACTIONS TABLE		
	01/2023	CHANGED HIGH STRENGTH BOLT TIGHTENING TO 00962.46(j)(2)		
CALC. BOOK NO. 7088		SDR DATE 06-JAN-2023	TM656	

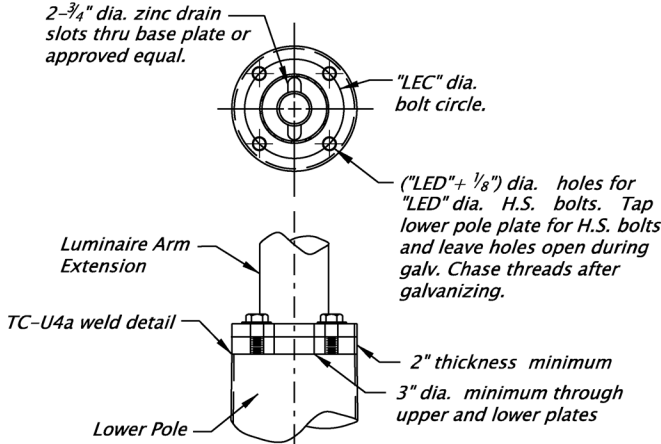
Effective Date: December 1, 2025 – May 31, 2026



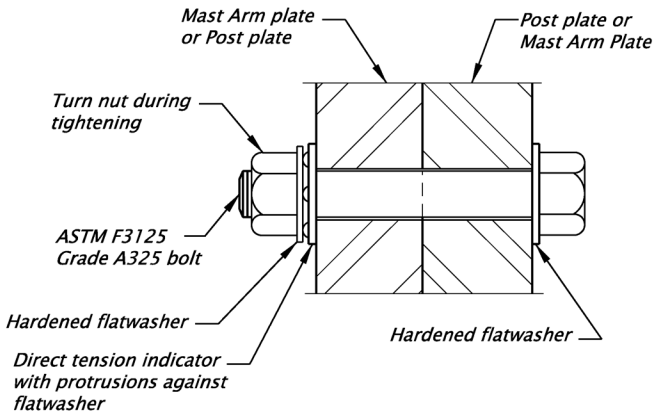
**POLE AND ARM SPLICE
WELD DETAILS**
No Scale



TC-U4a WELD DETAIL
No Scale

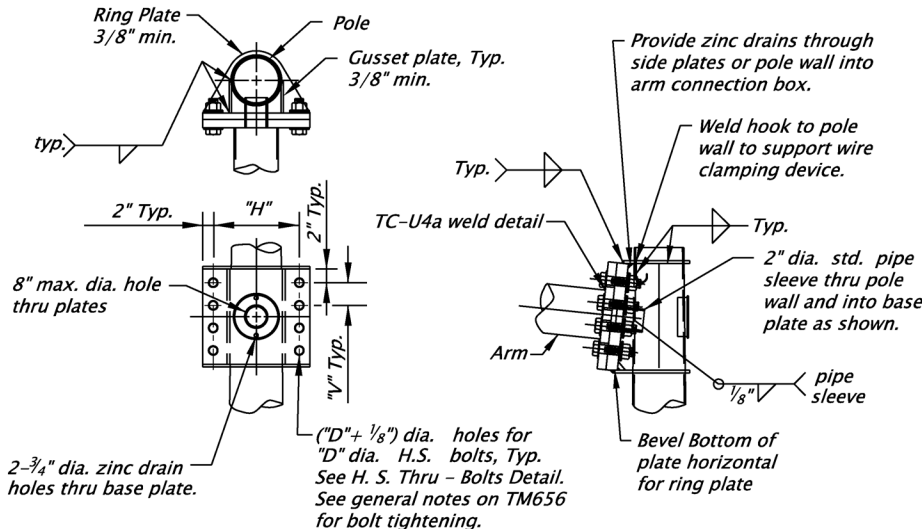


4 BOLT POLE CONNECTION DETAILS
No Scale

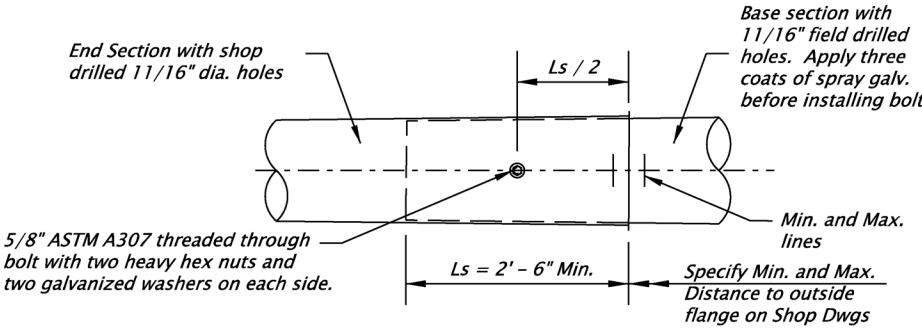


H.S. THRU - BOLTS
No Scale

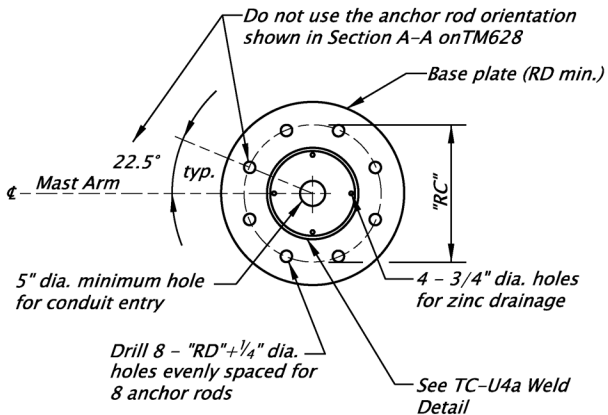
Mastarm Pole Type	Anchor Rod			Arm Connection			Luminaire Arm Extension Connection	
	RD Rod Diam.	RC Rod Circle	"PR"	"D"	"H"	"V"	LED Bolt Diam.	LEC Bolt Circle
SM6L	2"	28"	9"	1 1/2"	24"	8"	1"	12"
SM7L	2"	30"	9"	1 1/2"	27"	9"	1"	12"



8 BOLT ARM CONNECTION DETAILS
No Scale



MAST ARM SLIP-JOINT SPLICE DETAILS
No Scale



PLAN - BASE PLATE
No Scale

Accompanied by dwgs. TM654, TM655, TM656, TM658, TM628

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

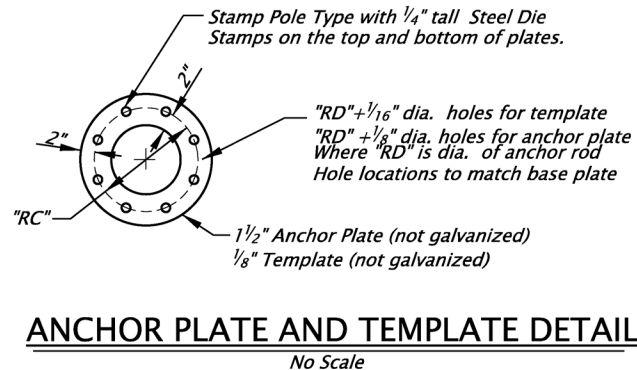
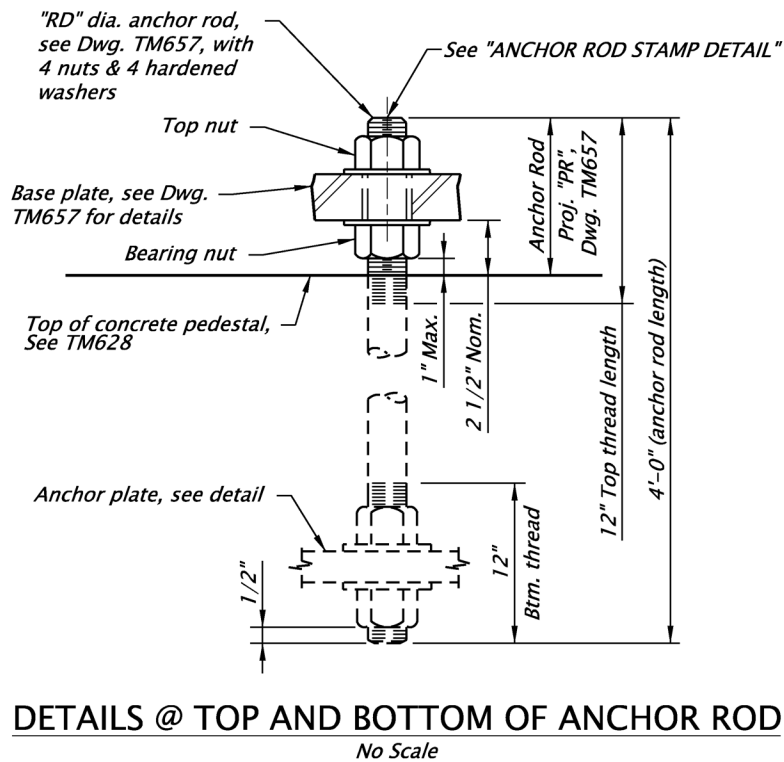
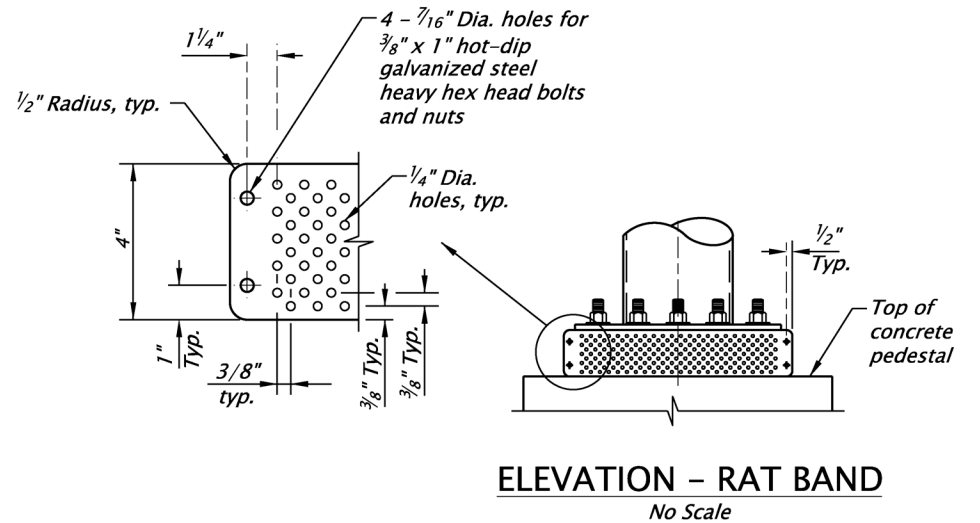
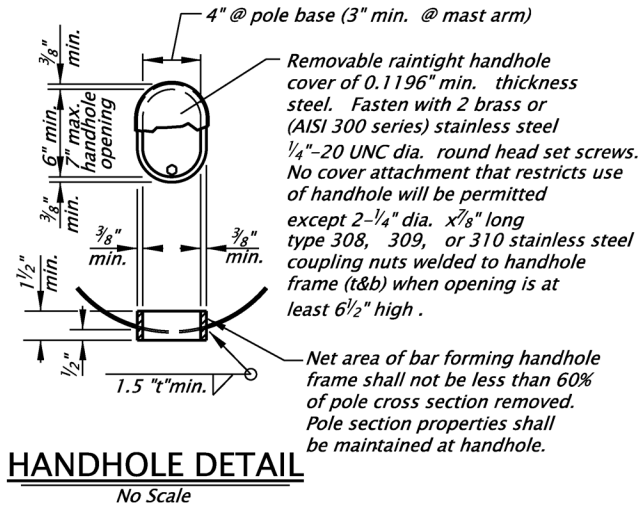
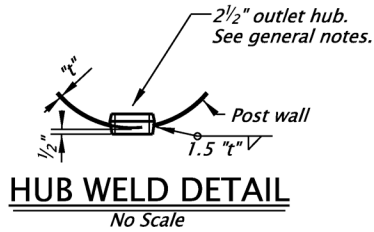
OREGON STANDARD DRAWINGS

TRAFFIC SIGNAL 60' THROUGH 75' MAST ARM SUPPORTS STEEL DETAILS (SH. 1)

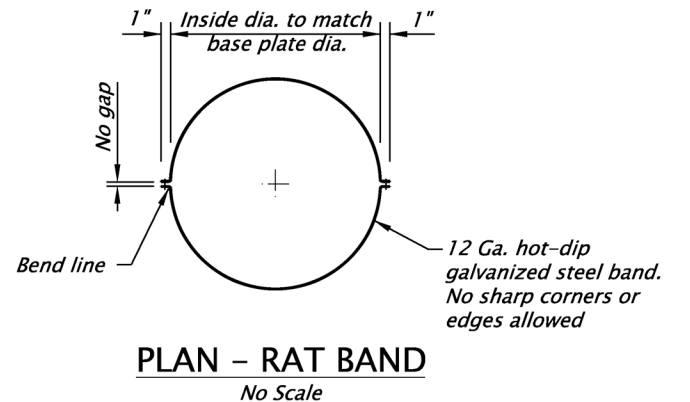
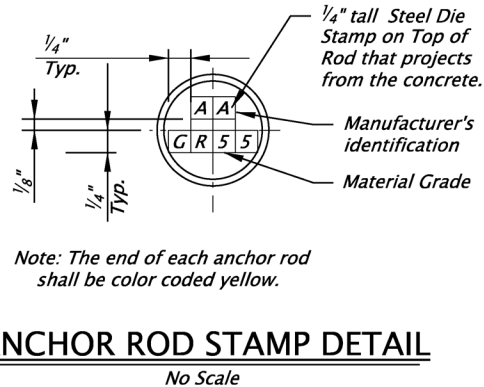
2024

DATE	REVISION	DESCRIPTION
07-2020	ADDED	ACCOMPANIED BY DRAWING TM654

CALC. BOOK NO. - - - 7088 - - -	SDR DATE - 10-JUL-2020 -	TM657
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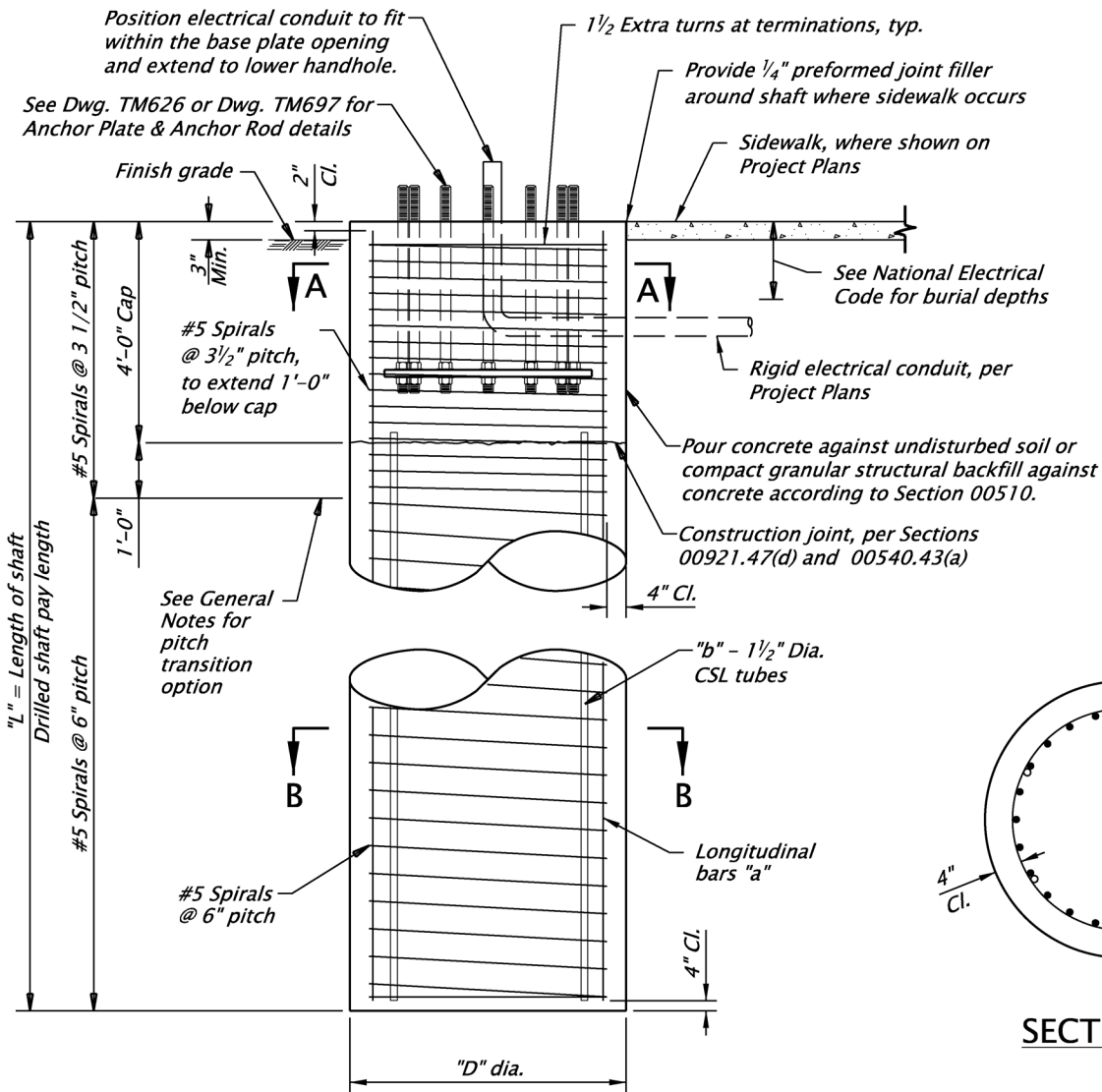
Anchor Rod Note: See TM657 for "RC" and "RD" values.



Accompanied by dwgs. TM654, TM655, TM656, TM657, TM628

<i>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.</i>		All materials shall be in accordance with the current Oregon Standard Specifications.		
		OREGON STANDARD DRAWINGS		
		TRAFFIC SIGNAL 60' THROUGH 75' MAST ARM SUPPORTS STEEL DETAILS (SH. 2)		
		2024		
DATE		REVISION DESCRIPTION		
07-2020		ADDED ACCOMPANIED BY DRAWING TM654		
CALC. BOOK NO.		7088	SDR DATE	10-JUL-2020
				TM658

Effective Date: December 1, 2025 – May 31, 2026



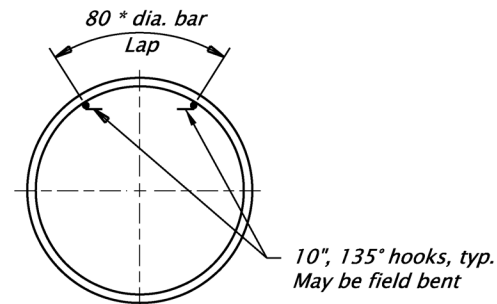
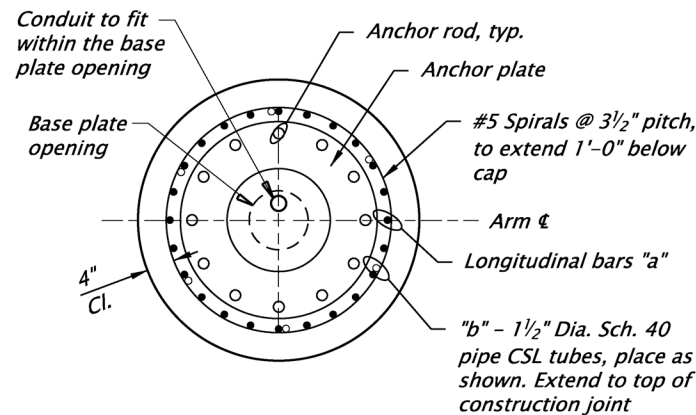
SECTION A-A

SECTION B-B

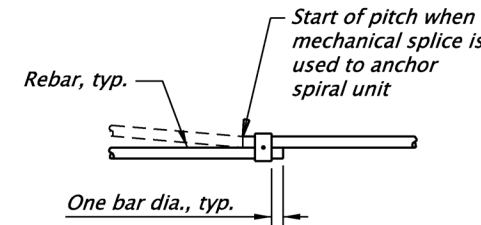
ELEVATION

DRILLED SHAFT DETAILS

No Scale

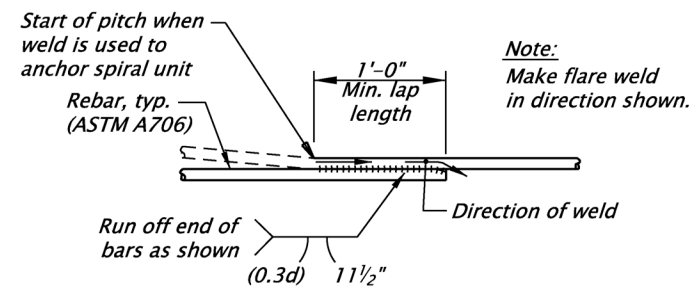


LAPPED SPLICE



MECHANICAL SPLICE

(Not allowed for ASTM A82 spirals)



WELDED SPLICE

SPIRAL SPLICE DETAIL

No Scale

GENERAL NOTES:

Use ASTM A706 for all welded splices, except ASTM A615 Grade 60, ASTM A82 or ASTM A496 may be used if copies of the chemical composition analysis are submitted and approved as weldable by the Engineer.

Anchor spirals at each end or discontinuity with one extra turn and a splice to itself as shown. Where permitted on plans, provide closed hoops conforming to the requirements of this detail.

Securely tie CSL tubes to reinforcement.

Use temporary casing as required. Permanent casing not permitted.

Cap concrete shall be Class 4000 - 3/4" structural concrete. Remainder of shaft shall be Class 4000 - 3/8" structural drilled shaft concrete without air entrainment and with 8 1/2" ± 1 1/2" slump.

Contractor shall field verify elevations prior to installation.

The transition between the 3 1/2" to 6" pitches may use two separate spiral cages with 1 1/2" horizontal turns at the start and end of each cage and the lapped splice details between the cages.

Note:

The base plate reactions shown in the table are worst case Extreme I and Service I loads. Engineer of Record to specify shaft depth and confirm shaft design for local soil conditions based on a site specific geotechnical study and loads shown in table. If shaft size or reinforcement shown in table are not adequate for local soil conditions, Engineer of Record must adjust the shaft design accordingly.

The shafts designs shown in table were based on an analysis to encompass worst case soil conditions by applying Extreme I loads to the top of shaft and analyzing below ground shaft forces using Brom's method for two different soil types. The assumed cohesive soil minimum undrained shear strength, *c*, is 600 psf. The assumed non-cohesive soil friction angle is 25 degrees and bulk weight is 100 pcf.

Accompanied by dwgs. TM621, TM622, TM623, TM624, TM625, TM626, TM627

Monotube Cantilever Design No.	Monotube VMS/Sign Bridge Design No.	Reinf. Steel	Shaft Dia.	No. of CSL Tubes	Reaction At Base Plate (Factored)				Reaction At Base Plate (Service)			
		"a"	"D"	"b"	Axial (lb)	Shear (lb)	Moment (ft-lb)	Torsion (ft-lb)	Axial (lb)	Shear (lb)	Moment (ft-lb)	Torsion (ft-lb)
1	-	30 - #9	5'-0"	6	22,600	26,200	839,000	672,000	20,500	10,100	384,000	259,000
2	-	30 - #9	5'-0"	6	28,100	20,000	784,200	707,000	25,500	8,500	501,200	279,000
3	-	30 - #9	5'-0"	6	18,400	19,600	622,000	517,000	16,700	7,700	293,000	204,000
4	-	30 - #9	5'-0"	6	21,800	13,200	500,800	430,000	19,800	5,200	339,200	169,000
5	-	30 - #9	5'-0"	6	16,900	13,400	431,600	357,000	15,300	5,300	222,000	140,000
6	-	24 - #9	4'-6"	5	12,800	12,300	381,000	240,000	11,600	4,900	171,000	94,000
7	-	24 - #9	4'-6"	5	13,000	7,200	268,000	222,000	11,800	2,800	181,000	87,000
8	-	20 - #9	4'-0"	5	7,800	5,600	170,000	110,000	7,100	2,200	86,000	44,000
9	-	30 - #9	5'-0"	6	26,900	26,500	884,000	745,000	24,400	10,500	449,600	294,000
-	1	30 - #9	5'-0"	6	36,800	40,700	952,600	396,000	33,400	27,000	449,600	156,000
-	2	30 - #9	5'-0"	6	28,500	30,300	754,700	252,000	25,900	17,900	343,500	99,500
-	3	30 - #9	5'-0"	6	23,200	22,900	592,300	128,700	21,100	12,100	261,700	51,000

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

STD. MONOTUBE SIGN/VMS
SUPPORT DRILLED SHAFT DETAILS

2024

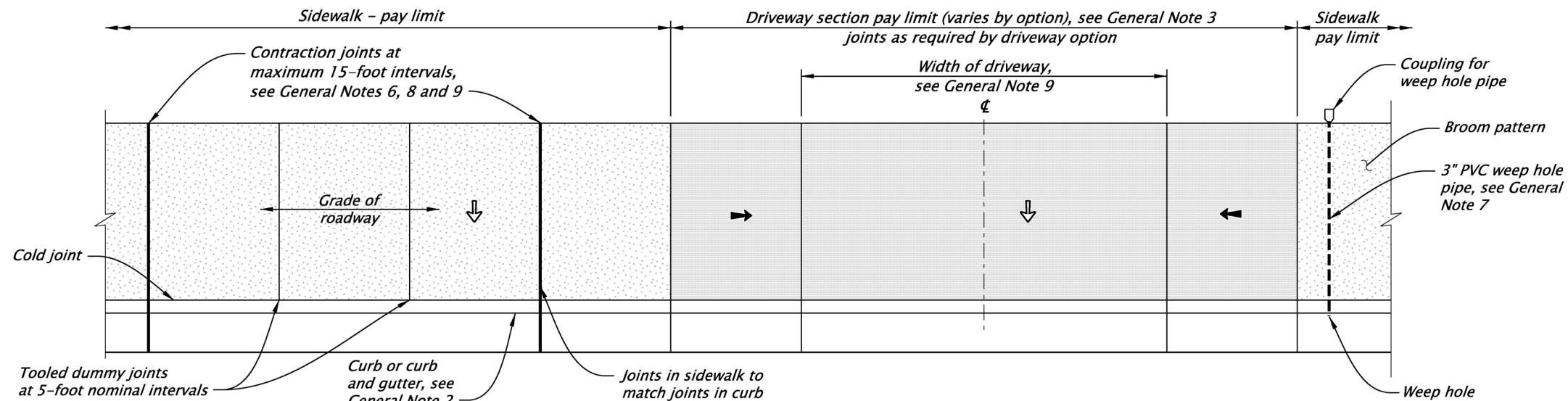
DATE	REVISION	DESCRIPTION
01-2021	CHANGED CONDUIT NOTE	
01-2022	SLUMP WAS 8" +/- 1/2"	
07-2022	ADDED SPIRAL TIE NOTES AND CONDUIT BASE PLATE NOTE	
01-2025	CAP CONCRETE WAS CLASS 3600 - 3/4" CLASSIFIED AS A STRUCTURAL ITEM AND ADDED "STRUCTURAL DRILLED SHAFT CONCRETE"	
CALC. BOOK NO.	6921-6930, 6969-6972, 6974	SDR DATE: 10-JAN-2025

TM628

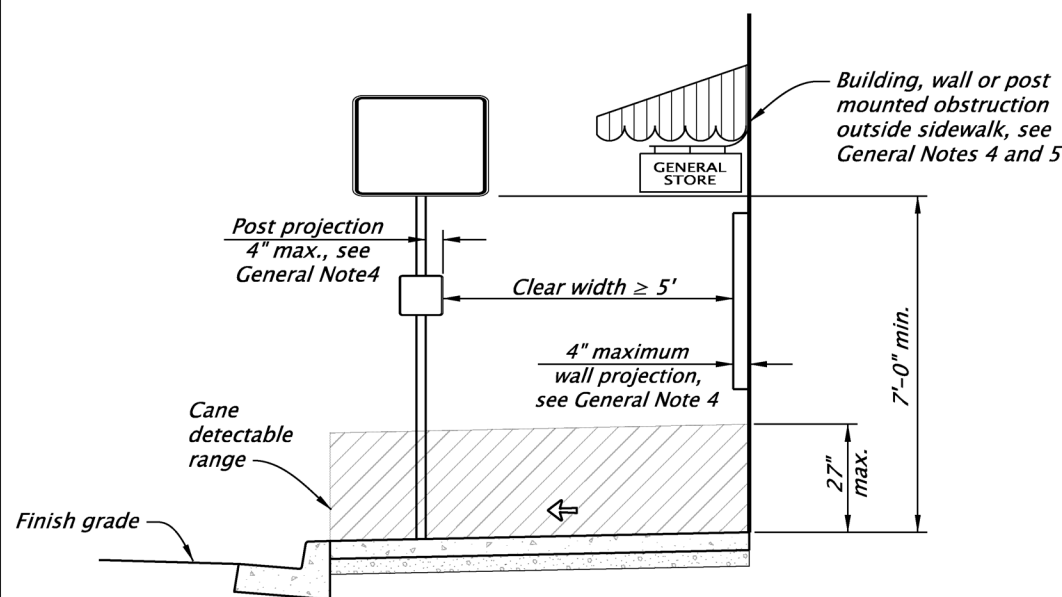
Effective Date: December 1, 2025 - May 31, 2026

RD700 Series: Curbs, Islands, Sidewalks, and Driveways

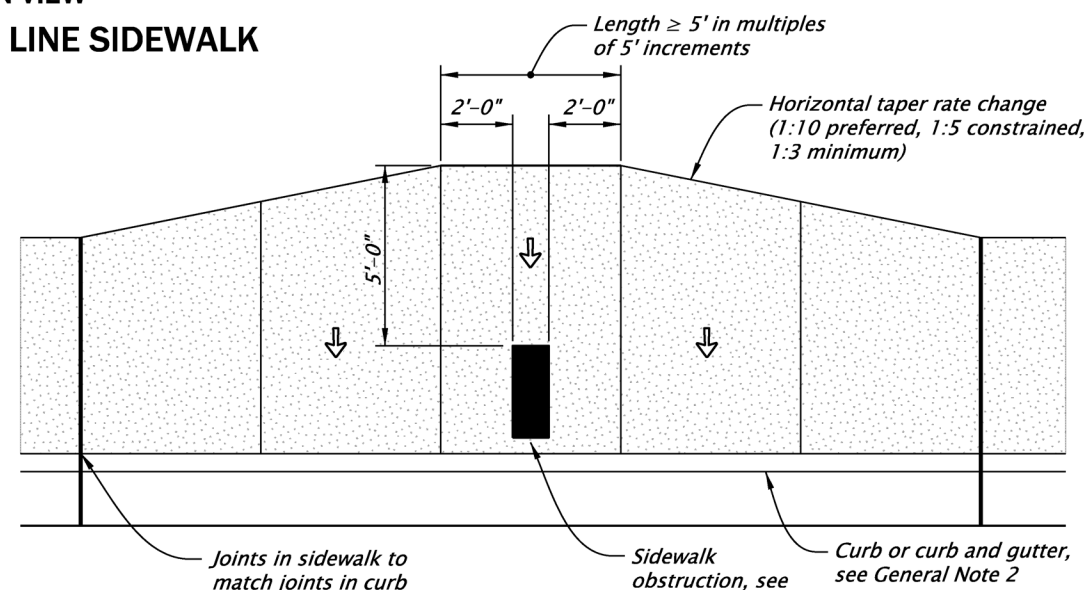
RD720 – Curb Line Sidewalks



PLAN VIEW
TYPICAL CURB LINE SIDEWALK



CLEAR CIRCULATION PATH
CROSS SECTION



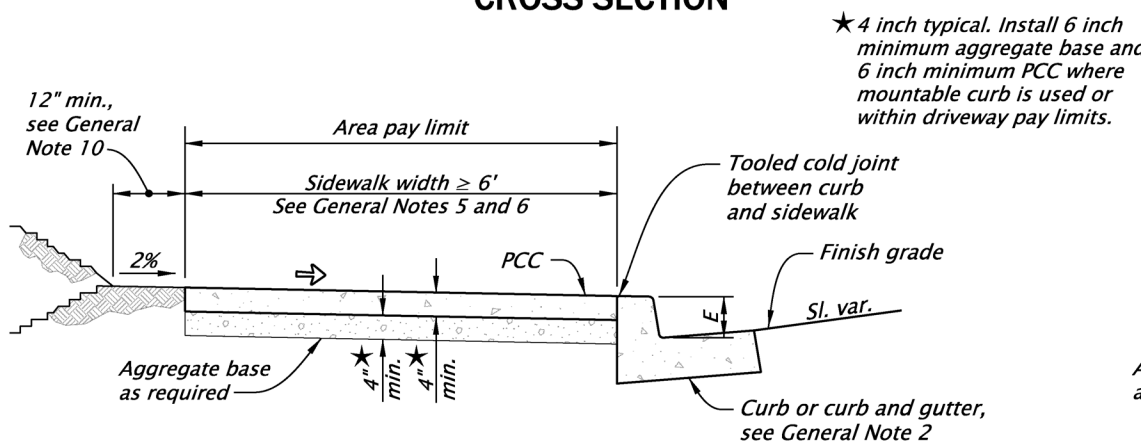
PLAN VIEW
SIDEWALK WIDENING
AROUND OBSTRUCTIONS

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

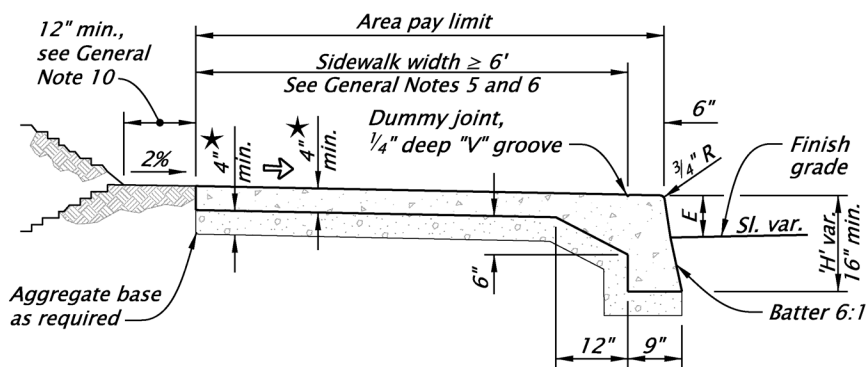
1. Sidewalk details are based on applicable ODOT standards. Curb type and sidewalk width as shown on plans or as directed.
2. For curb details, see drawings RD700, RD701 and RD702. ODOT standard E=7".
3. Fully lowered sidewalk shown; see project plans for the driveway design specified. For driveway details not shown, see drawings RD725, RD730, RD735, RD740, RD745 and RD750.
4. Objects with base below 27 inches may protrude any distance as long as the 5-foot circulation path is maintained. When an object protrudes further than 4 inches, at a height between 27 inches and 84 inches, provide a detectable treatment below protrusion to delineate edge.
5. Include additional paved or unpaved 2-foot shy distance to vertical faces higher than 5 feet such as retaining walls, sound walls, fences and buildings.
6. On sidewalks 8 feet and wider, provide a longitudinal joint at the midpoint. See drawing RD722 for dummy joint details.
7. Install 3-inch PVC weep hole pipes in sidewalks where shown on plans, and allowed by jurisdiction. Place contraction joint over top of pipe. See drawing RD700 for weep hole details. See drawing RD722 for contraction joint detail.
8. Construct contraction joints at 15-foot maximum spacing, and at ends of each curb ramp. See drawing RD722 for contraction joints details.
9. Provide expansion joints around poles, posts, boxes, at ends of each driveway, and other fixtures which protrude through or against the structures. For sidewalk, monolithic curb and sidewalk, construct expansion joints at 45-foot maximum spacing. See drawing RD722 for expansion joints details.
10. Provide compacted backfill adjacent to curb and sidewalk.

LEGEND

- Sidewalk pay limit
- Driveway pay limit, varies by option
- Cross slope 1.5% maximum (Maximum 2.0% finished surface slope) (Normal sidewalk cross slope)
- Running slope 7.5% maximum (Maximum 8.3% finished surface slope)
- Curb exposure, see General Note 2



TYPICAL CURB AND SIDEWALK
CROSS SECTION



TYPICAL MONOLITHIC CURB
AND SIDEWALK CROSS SECTION

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

CURB LINE SIDEWALKS

2024

DATE	REVISION	DESCRIPTION
02-2025	UPDATED CAD STANDARDS	
07-2025	UPDATED CAD STANDARDS, REVISED DETAILS	
CALC. BOOK NO.	N/A	SDR DATE
		11-JUL-2025

RD720

Effective Date: December 1, 2025 – May 31, 2026

Example 1

LEGEND

CONTROLLERS

 Install model ATC controller (Agency furnished & installed)

CABINETS

-  Install a model 332S cabinet & control equipment with riser frame, orient lowered door as shown
-  Install base mounted service cabinet, 120/240 volt metered for signal & illumination system
-  Install recessed terminal cabinet

POLES

-  Install (T=type) standard traffic signal mast arm pole (see Pole Entrance Chart)
-  Install (L=length) foot traffic signal mast arm
-  Install (L=length) foot luminaire arm
-  Install pedestal with frangible base on number (N=number) foundation
-  Retain and protect existing power pole (power source)

SIGNALS

-  Install phase (Ph=phase) vehicle signal with 2" fluorescent yellow reflective sheeting on backboard
-  Install phase (Ph=phase) pedestrian signal with pedestrian signal mount and pushbutton with mount & instruction sign R10-3

SIGNS

-  Install aluminum (30"x36") left and through arrow sign (R3-6L) ASTM type IX sheeting
-  Install aluminum (30"x36") right arrow "ONLY" sign (R3-5R) ASTM type IX sheeting
-  See signing plans for details on sign and attachment

JUNCTION BOXES

-  Install 22"x12"x12" (min. dimension) precast concrete or hybrid junction box
-  Install tandem 30"x17"x12" (min. dimension) precast concrete or hybrid junction boxes
-  Junction box (see detector plan)

WIRES

-  Install (N=number) no. (G= wire size) AWG THWN wire(s)
-  Install (N=number) no. (G= wire size) AWG XHHW wire(s)
-  Install (X=number of cables) control cable(s) with (N=number) no. (G= wire size) AWG conductors

LEGEND CONTINUED

CONDUITS

-  Install (S=size) inch conduit
-  Install 2" conduit stub (for future use, cap ends)
-  Detector conduit (see detector plan)
-  Install conduit and wire as required by power company

LUMINAIRES

-  Install 250 watt light emitting diode luminaire (see special provisions). Bond luminaire to pole grounding terminal.
-  Install photo electronic relay on pole

FIRE PREEMPTION

-  Install channel (Ch=channel), (N=number) barrel fire preemption detector unit
-  Install channel (Ch=channel) fire preemption detector feeder cable

MISCELLANEOUS

-  Install removable bollard
-  Video detector camera (see detector plan)

SIGNAL HEAD TYPES

2 = R:Y:G
3LCF = RA:YA/FYA:GA

LEGEND
PACIFIC HWY EAST AT YOUNG ST.
OR99E, M.P. 32.87
WOODBURN

NOTE:
See T.R.S. Dwg. 18251 for Signal Plan

ACCOMPANIED BY DWGS.: TM450, TM457, TM460, TM462, TM467, TM470, TM482, TM485, TM650, TM651, TM652, TM653, TM654, TM700, TM701, TM702, RD130, and TRS Dwgs 18251 - 18254

HWY: 081
M.P.: 32.87

UNIT FILE CODE
18250

DF/TSSU NO.
03020



RENEWS: 12-31-20XX

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

Traffic Section Approval

OREGON DEPARTMENT
OF TRANSPORTATION



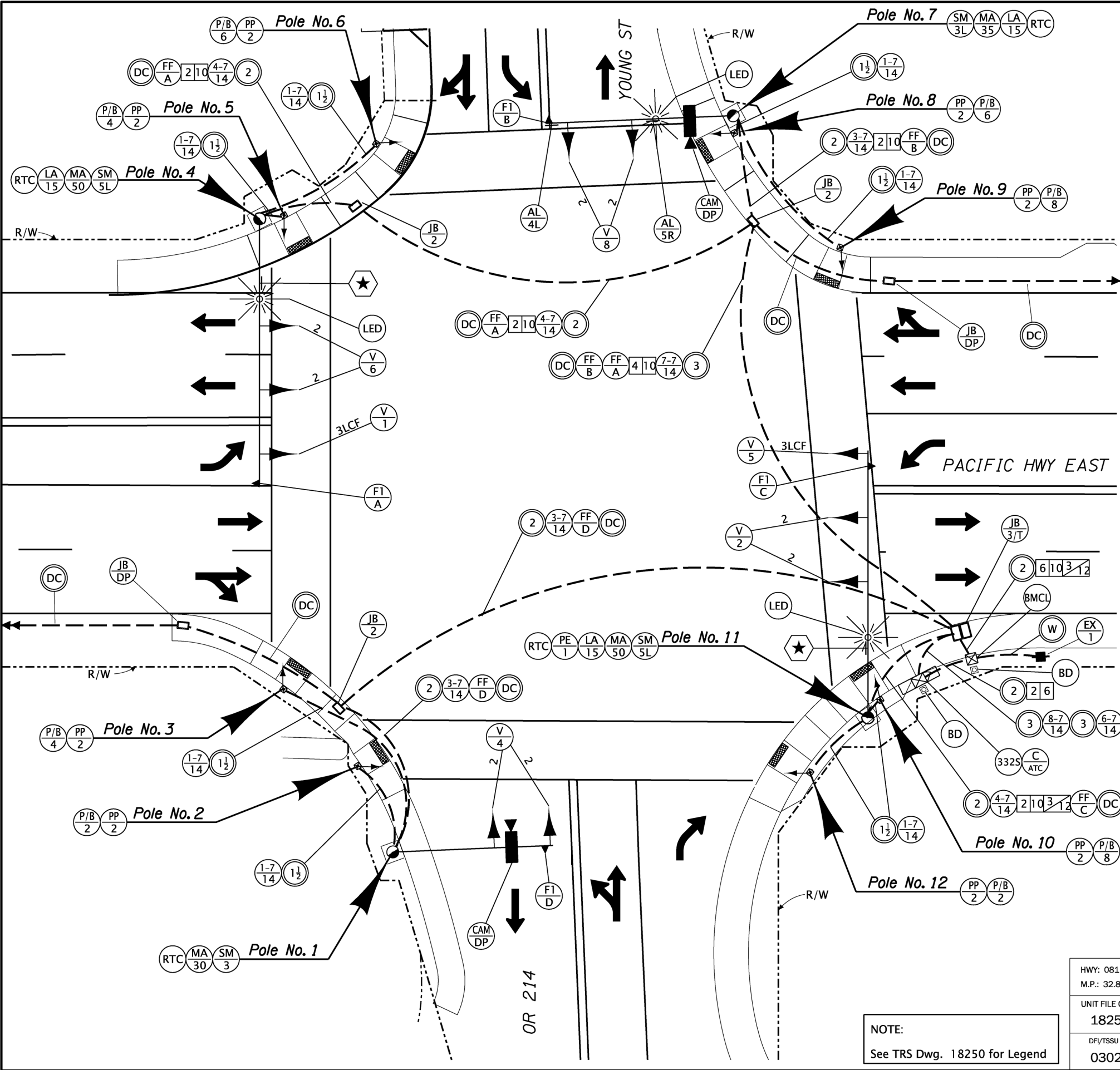
OR99E: YOUNG ST. SAFETY (WOODBURN) SEC.
PACIFIC HIGHWAY EAST
MARION COUNTY

Designer: ARLO BONES
CADD Tech: ARLO BONES

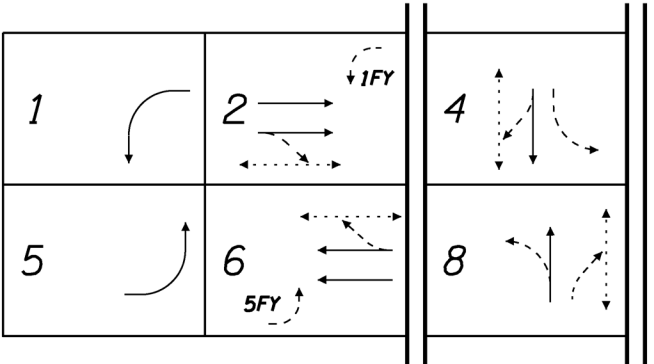
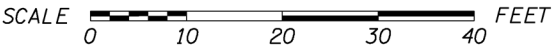
Review: VERN GEORGE
Checker: N/A

LEGEND

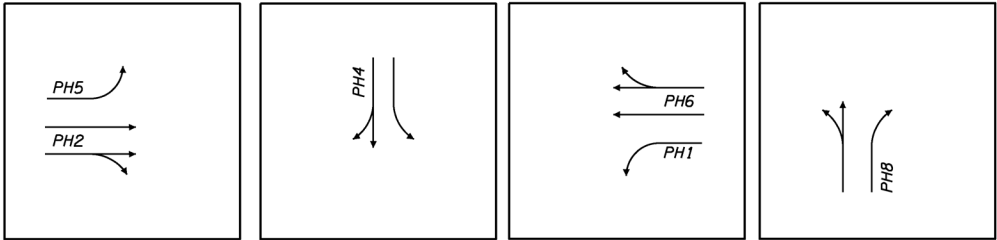
SHEET NO.
M-01



SIGNAL PLAN
PACIFIC HWY EAST AT YOUNG ST.
OR99E, M.P. 32.87
WOODBURN



NORMAL PHASE ROTATION



FIRE PREEMPTION

NOTE:
Ground/Bond Wire and Tracer/Locate Wire Not
Shown on Plan Sheets. See Specifications
and Standard Drawings for installation information.

NOTE:
Field Verify Measurements Before Construction

"UTILITIES NOT SHOWN"
Contractor to contact utility
companies for field locations.



HWY: 081
M.P.: 32.87
UNIT FILE CODE
18251
DFI/TSSU NO.
03020

NOTE:
See TRS Dwg. 18250 for Legend

OREGON DEPARTMENT
OF TRANSPORTATION



OR99E: YOUNG ST. SAFETY (WOODBURN) SEC.
PACIFIC HIGHWAY EAST
MARION COUNTY

Designer: ARLO BONES
CADD Tech: ARLO BONES
Review: VERN GEORGE
Checker: N/A

SIGNAL PLAN

SHEET NO.
M-02

POLE ENTRANCE CHART

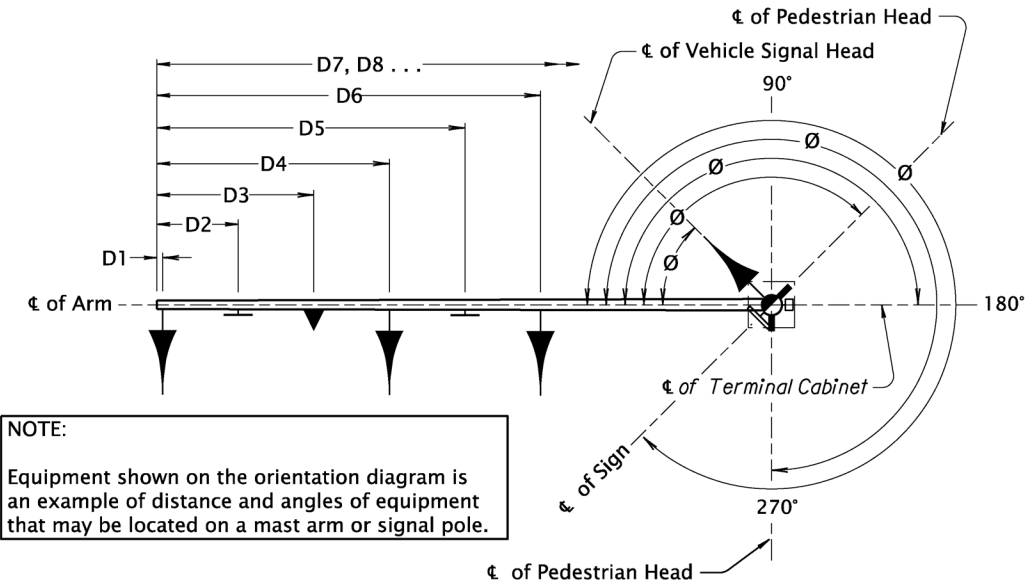
SIGNAL PLAN DETAILS
PACIFIC HWY EAST AT YOUNG ST.
OR99E, M.P. 32.87
WOODBURN

			EQUIPMENT ON POLE						EQUIPMENT ON MAST ARM (Length in Feet and Equipment Type)									FOUNDATION INFORMATION		LUMINAIRES			MISC. EQUIP.
POLE NO.	SHEET NO.	TYPE	PED. SIGNAL DEG.	PED. PUSHBUTTON DEG.	TERM. CABINET DEG.	SIGN DEG.	TRAFFIC SIGNAL DEG.	PHOTO ELECTRIC CELL	ARM LENGTH	D 1	D 2	D 3	D 4	D 5	D 6	D 7	D 8	FOUNDATION NUMBER	REQUIRED FOUNDATION DEPTH	ARM LENGTH	ARM DEG.	MOUNTING HEIGHT	ON ARM
1	18251	SM-3			180				30	0.5 V2	1.5 F	7.0 CAM	11.0 V2	_____	_____	_____	_____	3	18' - 0"				
2	18251	PP-2	180	180						_____	_____	_____	_____	_____	_____	_____	_____						
3	18251	PP-2	270	270						_____	_____	_____	_____	_____	_____	_____	_____						
4	18251	SM-5L			180				50	0.5 F	6.0 V3LCF	18.0 V2	30.0 V2	38.0 SNS	_____	_____	_____	6	20' - 0"	15.0	0	35.0	
5	18251	PP-2	90	90						_____	_____	_____	_____	_____	_____	_____	_____						
6	18251	PP-2	180	180						_____	_____	_____	_____	_____	_____	_____	_____						
7	18251	SM-3L			180				35	0.5 F	1.0 SA	4.0 V2	16.0 V2	20.0 SA	_____	_____	_____	4	18' - 0"	15.0	0	35.0	CAM
8	18251	PP-2	180	180						_____	_____	_____	_____	_____	_____	_____	_____						
9	18251	PP-2	270	270						_____	_____	_____	_____	_____	_____	_____	_____						
10	18251	PP-2	90	90						_____	_____	_____	_____	_____	_____	_____	_____						
11	18251	SM-5L			180			180	50	0.5 V3LCF	3.0 F	12.5 V2	24.0 V2	37.0 SNS	_____	_____	_____	6	20' - 0"	15.0	0	35.0	
12	18251	PP-2	0	0						_____	_____	_____	_____	_____	_____	_____	_____						

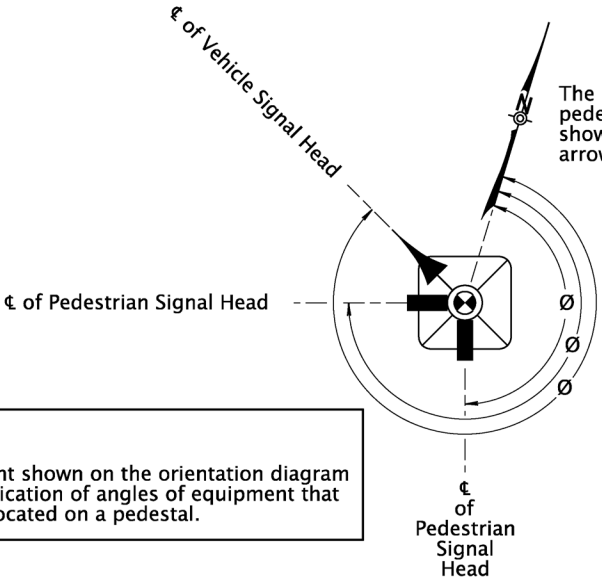
NOTE
Refer To Geotechnical Memo Dated August 5, 20XX For Subsurface Information

BRACKET MOUNT
V2 = Traffic Signal Type 2, Vehicle Signal Bracket Mount
V3LCF = Traffic Signal Type 3LCF, Vehicle Signal Bracket Mount
SA = Sign, 30" x 36" Aluminum w/Sign Bracket Mount

MISC. ITEMS
F = Fire Preemtion
CAM = Thermal Detection Camera
SNS = Street Name Sign



MAST ARM POLE ORIENTATION DIAGRAM



PEDESTAL ORIENTATION DIAGRAM

HWY: 081
M.P.: 32.87
UNIT FILE CODE
18252
DF/TSSU NO.
03020



RENEWS: 12-31-20XX

OREGON DEPARTMENT
OF TRANSPORTATION

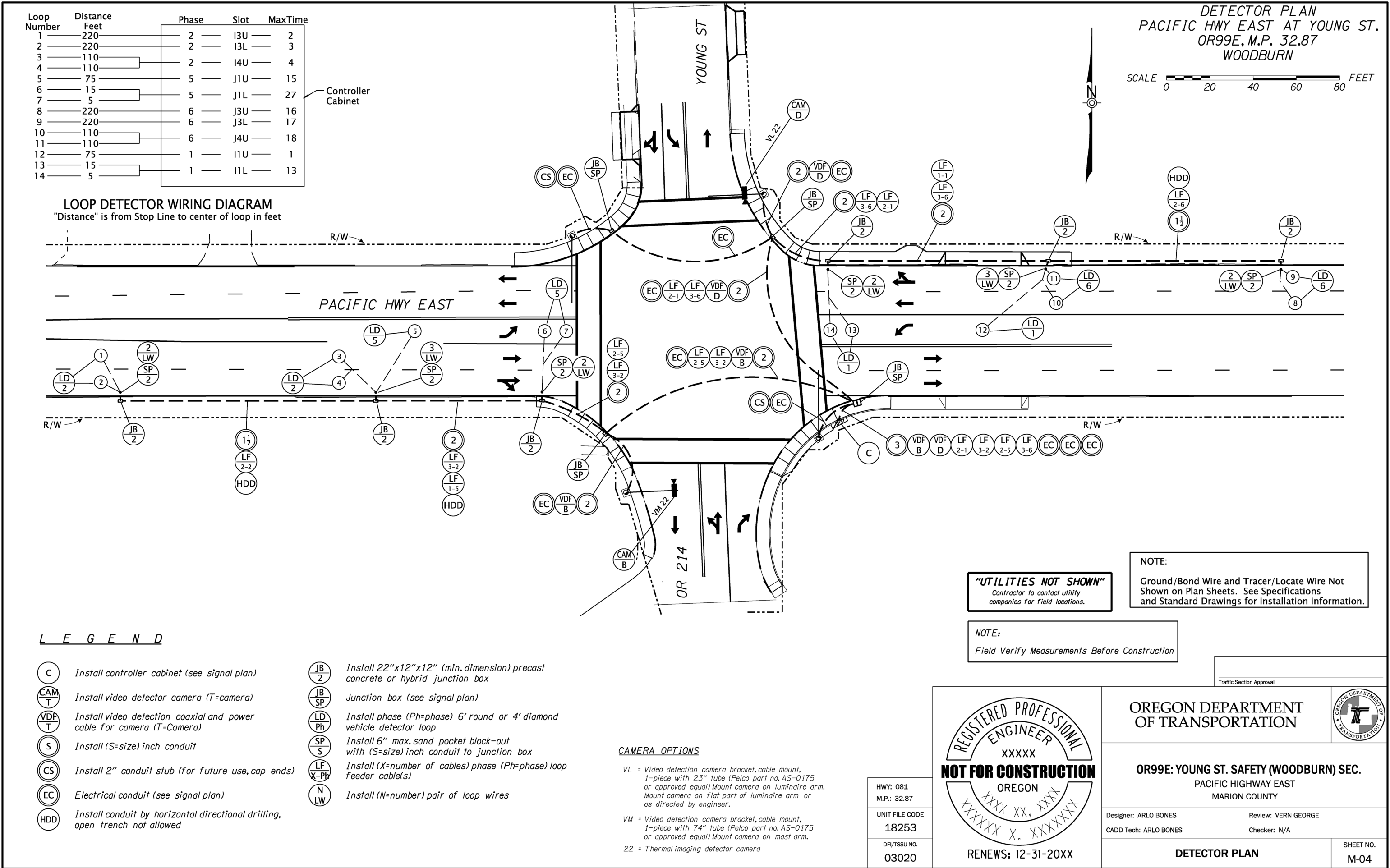


OR99E: YOUNG ST. SAFETY (WOODBURN) SEC.
PACIFIC HIGHWAY EAST
MARION COUNTY

Designer: ARLO BONES
CADD Tech: ARLO BONES
Review: VERN GEORGE
Checker: N/A

DETAILS

SHEET NO.
M-03





	SIGNAL PLAN DETAILS PACIFIC HWY EAST AT YOUNG ST. OR99E, M.P. 32.87 WOODBURN
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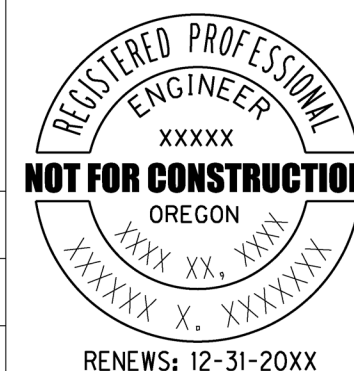
SPLICE



LOOP WIRE INSTALLATION



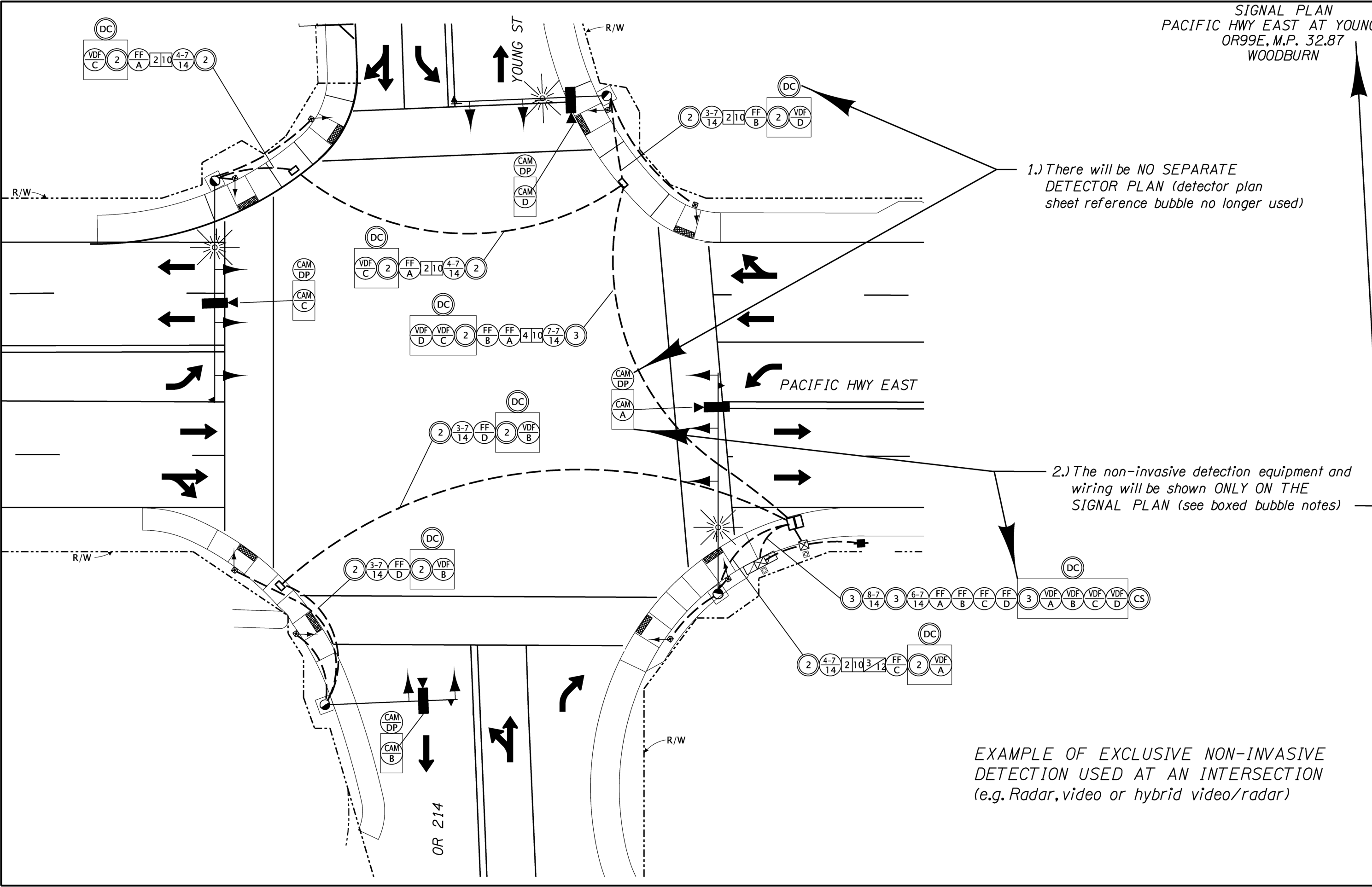
Traffic Section Approval _____



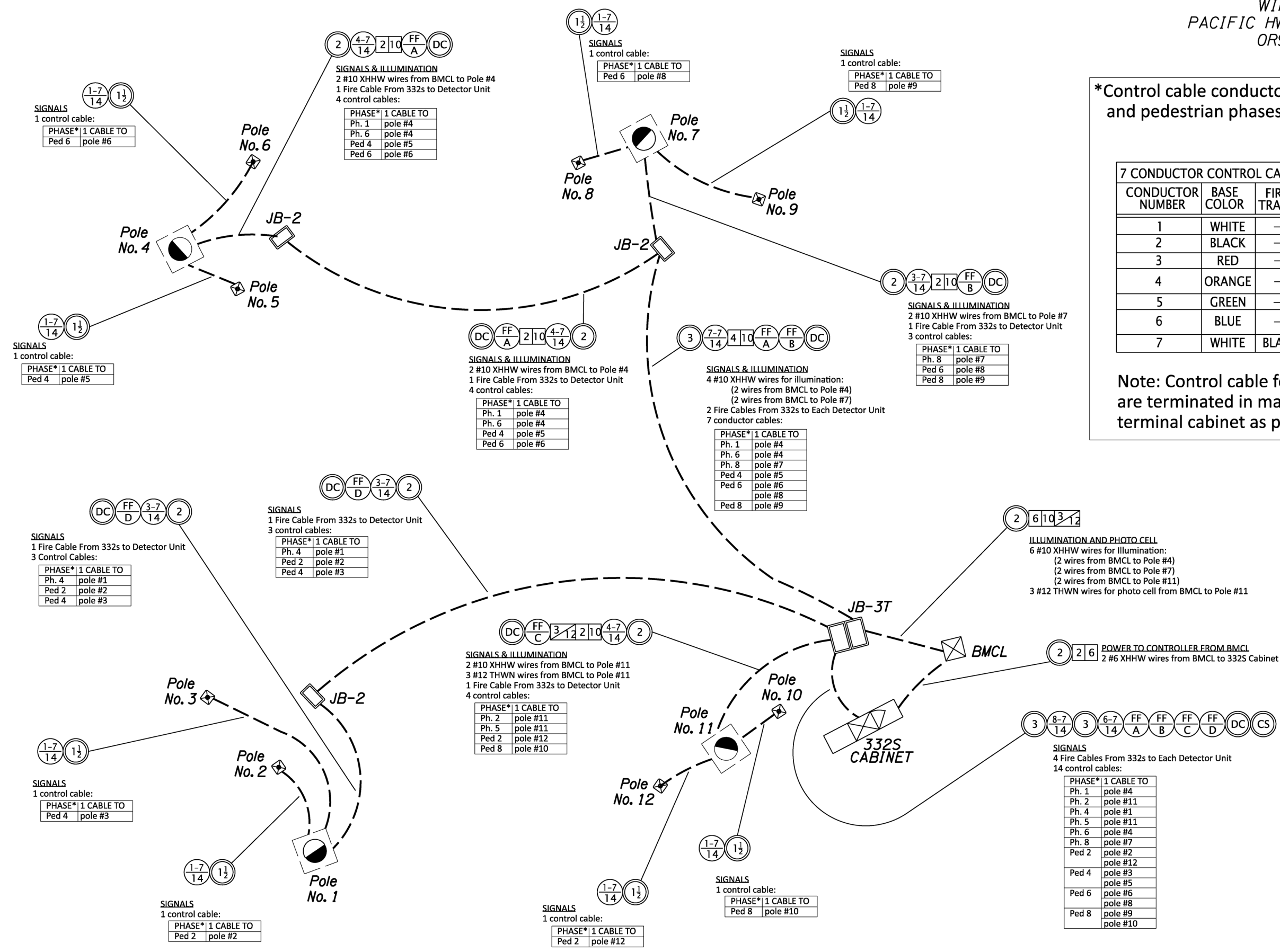
Review: VERN GEORGE

Checker: N/A

SHEET NO.
M-05



WIRING DETAILS
PACIFIC HWY EAST AT YOUNG ST.
OR99E, M.P. 32.87
WOODBURN



*Control cable conductor use for vehicle phases and pedestrian phases as per TM470

			PEDESTRIAN PHASES	VEHICLE PHASES
7 CONDUCTOR CONTROL CABLE			1 Pedestrian Phase	1 Vehicle Phase
CONDUCTOR NUMBER	BASE COLOR	FIRST TRACER		
1	WHITE	—	NEUTRAL	NEUTRAL
2	BLACK	—	WALK	YELLOW
3	RED	—	DONT WALK	RED
4	ORANGE	—	P.B. COMMON	SPARE
5	GREEN	—	PUSHBUTTON	GREEN
6	BLUE	—	SPARE	SPARE
7	WHITE	BLACK	SPARE	SPARE

Note: Control cable for pedestrian phases are terminated in mast arm pole terminal cabinet as per TM470

Example 2

(TRAFFIC CONTROL STAGE 3)
WIRING DETAILS
ROGUE VALLEY HWY. AT BOLZ RD.
OR99, M.P. 11.25
(PHOENIX)

