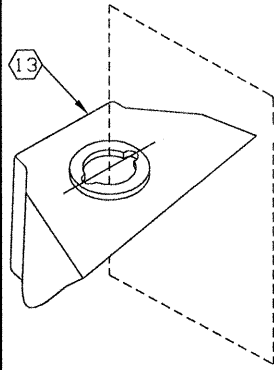
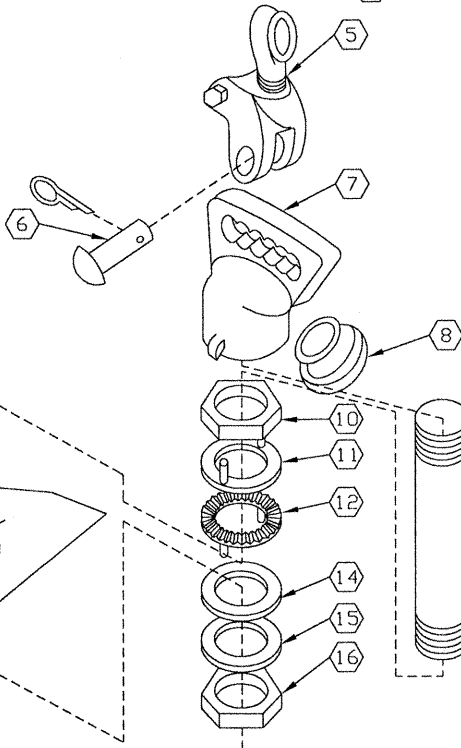


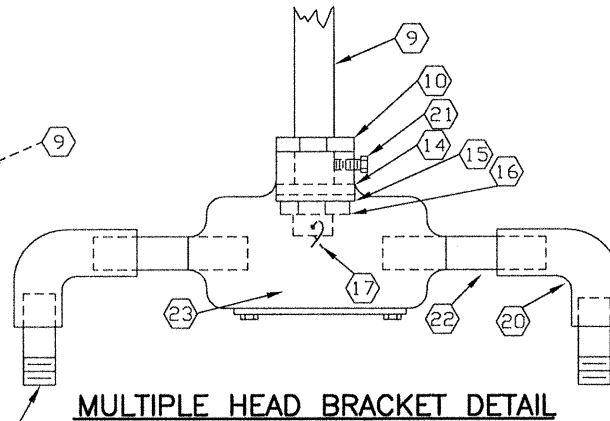
ASSEMBLED HEAD DETAIL

NOTE: A FIVE POSITION TERMINAL BLOCK SHALL BE MOUNTED INSIDE AT THE BACK OF THE YELLOW SECTION HOUSING.



SEE ASSEMBLED HEAD DETAIL (ABOVE)

PLACE AUTOCAULKING DUCT SEAL BETWEEN ALL TOP EXTERIOR COMPRESSION JOINTS.



MULTIPLE HEAD BRACKET DETAIL

(SHALL INCLUDE LOWER TIE BRACE)

LEGEND

1. 1/2" STAINLESS STEEL NUT WITH LOCK WASHERS (STAINLESS STEEL OR BRONZE).
2. 9" CABLE SADDLE (BRONZE). PAINTED GREEN, TO FIT 1/4" TO 1/2" SPAN WIRE.
3. SPAN WIRE.
4. 1/2" 'J' CABLE CLAMPS (STAINLESS STEEL).
5. BRONZE BALANCE ADJUSTER DIRECTIONAL LOCK, PAINTED GREEN, WITH STAINLESS STEEL BOLTS AND WASHERS.
6. 5/8" PINS (STAINLESS STEEL) WITH BRASS OR STAINLESS STEEL COTTER PIN. INSTALL BRASS OR STAINLESS STEEL WASHERS ON EACH SIDE OF COTTER PIN.
7. BRONZE ENTRANCE FITTING, PAINTED GREEN.
8. 1-1/2" INSULATED CHASE NIPPLE.
9. 1-1/2" GALVANIZED DROP PIPE PAINTED SILVER. SEE NOTE BELOW. BOTTOM THREADS TO ACCOMODATE FULL NUT AND LOCKING WIRE.
10. 1-1/2" MALLEABLE LOCK NUT-JAM TIGHT BEFORE INSTALLING HEAD.
11. (NON-CORROSIVE) SERRATED LOCKING WASHER.
12. SERRATED LOCKING WASHER (MAY BE OMITTED IF THE TOP OF THE VEHICLE HEAD IS SERRATED).
13. SIGNAL HEAD WITH AUTOCAULKING IN LOCKING HOLES AT TOP OF THE VEHICLE HEAD.
14. 1-1/2" DIAMETER FLAT CORK GASKET. (NEOPRENE OK)
15. 1-1/2" NON-CORROSIVE SLIP RING.
16. 1-1/2" MALLEABLE NUT.
17. SAFETY LOCKING WIRE, #14TW OR EQUAL.
18. NUT (NO GASKET).
19. PINNACLE (NO WASHER) BOTTOM OF LOWEST SECTION.
20. 1-1/2" GALVANIZED 90° ELBOW, PAINTED GREEN.
21. STAINLESS STEEL SET SCREW WITH HEX HEAD.
22. 1-1/2" GALVANIZED NIPPLE, PAINTED GREEN.
23. TWO-WAY HOUSING WITH BOTTOM COVER, PAINTED GREEN.

NOTE:

ALL METAL THREADS AND BRACKETS SHALL BE PAINTED WITH A HIGH QUALITY RUST PREVENTATIVE PAINT. A COAT OF GALVANIZED BONDING PRIMER SHALL BE APPLIED AND THOROUGHLY DRY BEFORE APPLYING FINISH COAT OF PAINT. ANY PAINTED HARDWARE DAMAGED DURING ASSEMBLY OR SHIPPING SHALL BE PAINTED AGAIN.

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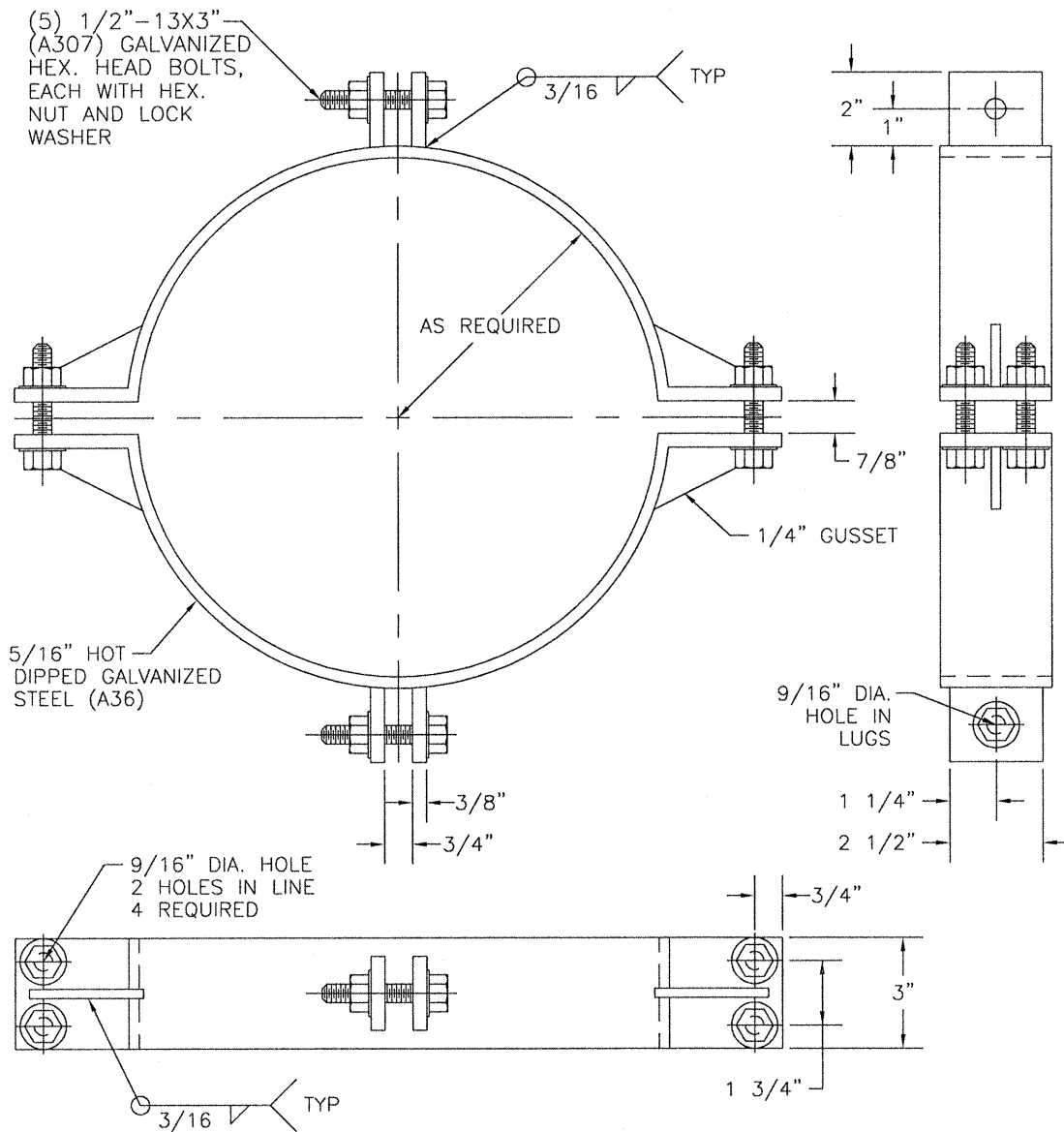
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CITY ENGINEER

[Signature]
DATE 2/4/03

VEHICLE TRAFFIC SIGNAL
(SINGLE & MULTIPLE)
HANGER ASSEMBLY

STANDARD PLAN NO. TS-01



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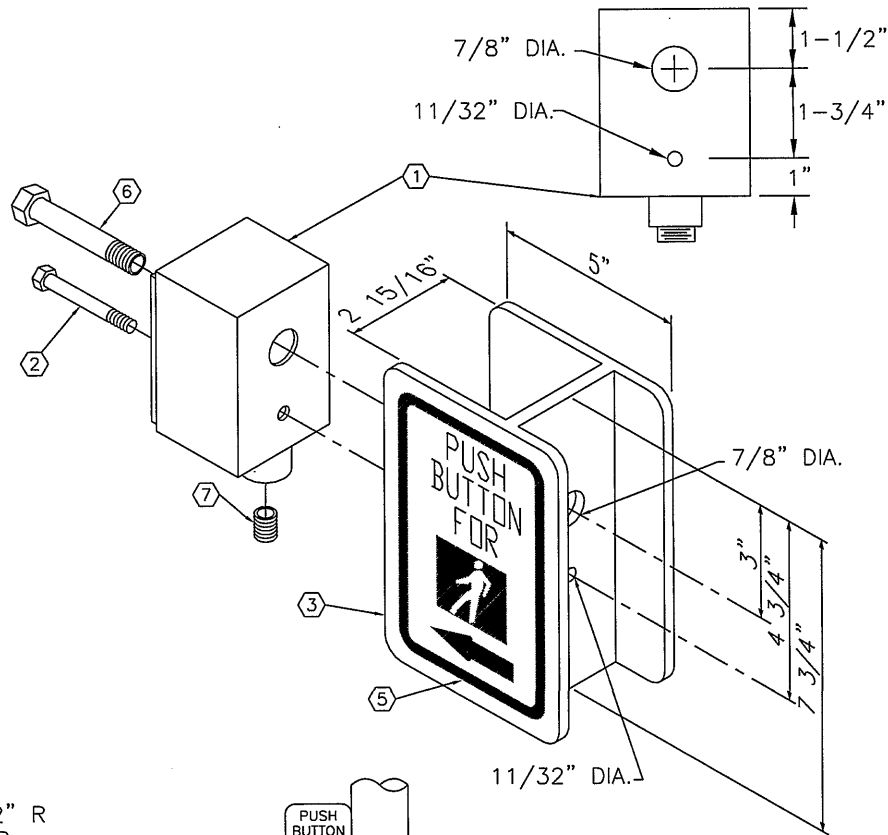
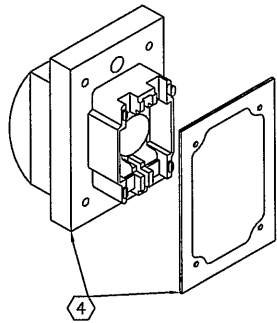
CITY ENGINEER

[Signature]

DATE 2/4/03

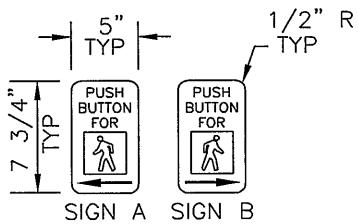
SPAN WIRE
STRAIN CLAMP

STANDARD PLAN NO. TS-02



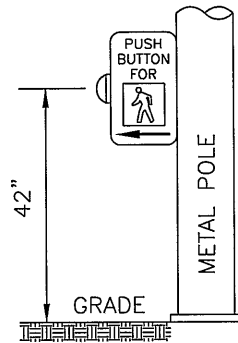
CONSTRUCTION NOTES

- ① FD-1-50-A CAST ALUMINUM BOX
- ② 5/16 INCH STAINLESS HEX BOLT WITH LOCK WASHER. DRILL & TAP POLE FOR 5/16 INCH STAINLESS STEEL BOLT.
- ③ H-TYPE EXTRUDED ALUMINUM OR FABRICATED APPROVED EQUAL
- ④ BUTTON, PLATE, STAINLESS STEEL FASTENERS & GASKET. PUSHBUTTON MECHANISM MUST HAVE MINIMUM OF 1/8 INCH OVER TRAVEL. REES #1371-412 OR APPROVED EQUAL.
- ⑤ SIGN TO BE SCREENED ON BOTH FACES OF EXTRUDED ALUMINUM OR ON SEPARATE PANELS
- ⑥ 1/2 INCH CHASE NIPPLE W/NPT
- ⑦ 1/2 INCH ALUMINUM PLUG (DRILL 1/8 INCH DRAIN HOLE)



ONE EACH PER PUSHBUTTON ASSEMBLY R10-4B

SIGN DETAILS



TYPICAL INSTALLATION

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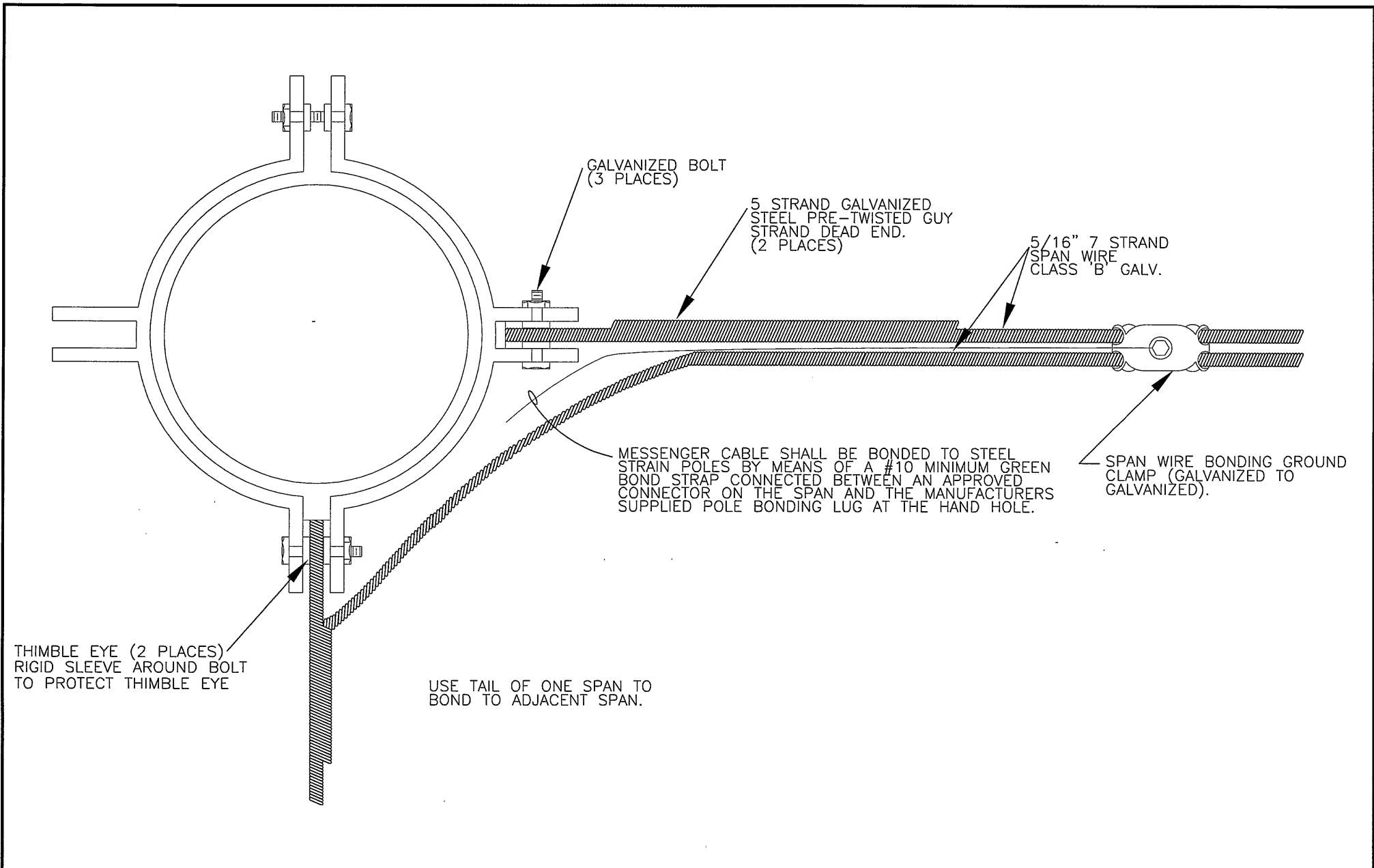
CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

CITY ENGINEER

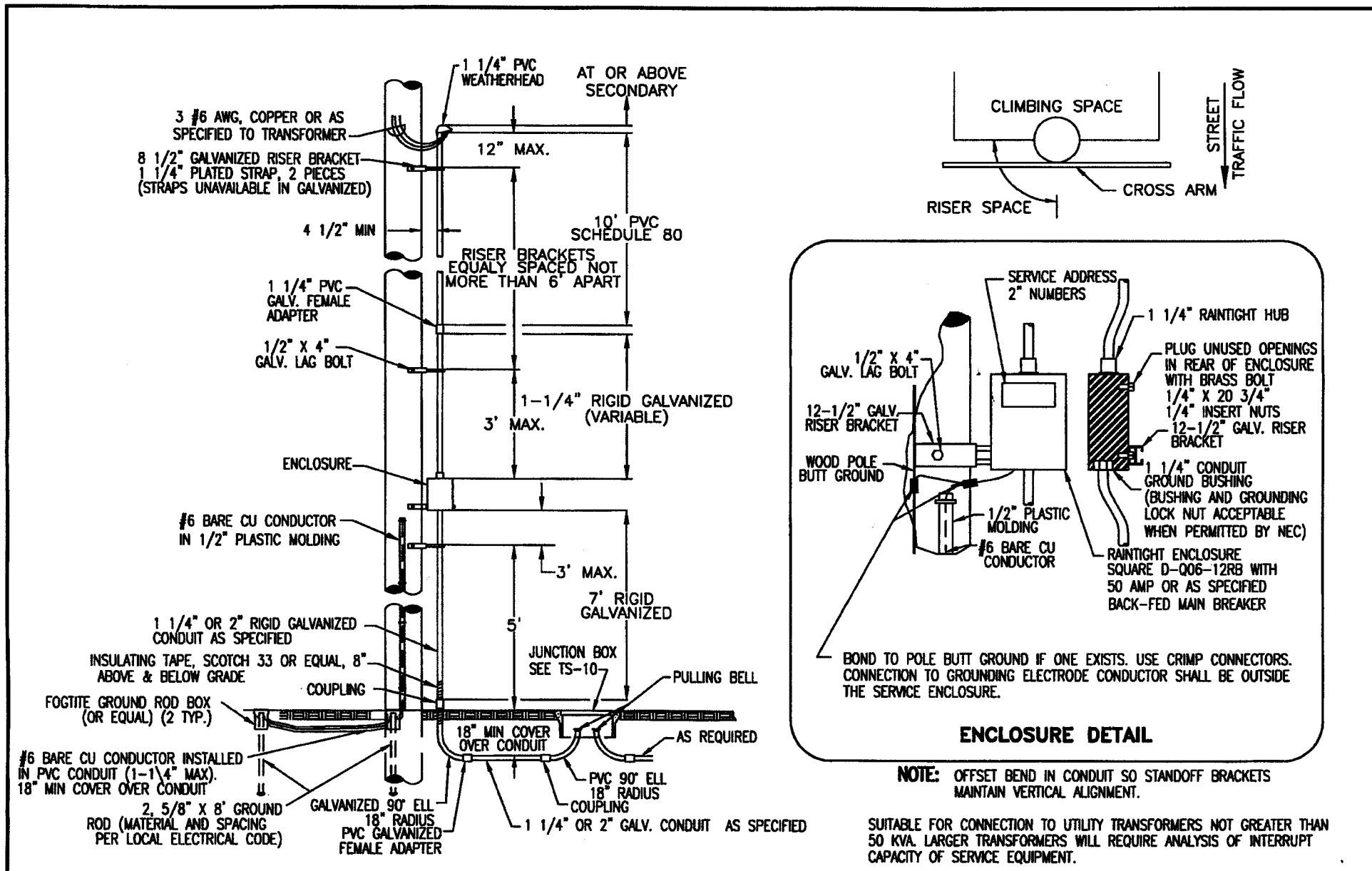
DATE 2/11/03
2/4/03

H-TYPE PEDESTRIAN
PUSHBUTTON
ASSEMBLY

STANDARD PLAN NO. TS-03



<p>CITY OF TACOMA DEPARTMENT OF PUBLIC WORKS</p>	<p>APPROVED FOR PUBLICATION</p> <p><i>[Signature]</i> 2/11/03</p> <p>CITY ENGINEER DATE 2/4/03</p>	<p>SPAN WIRE DETAIL</p> <p>STANDARD PLAN NO. TS-04</p>
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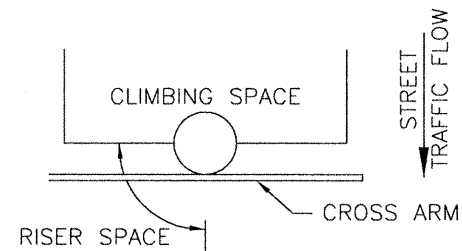
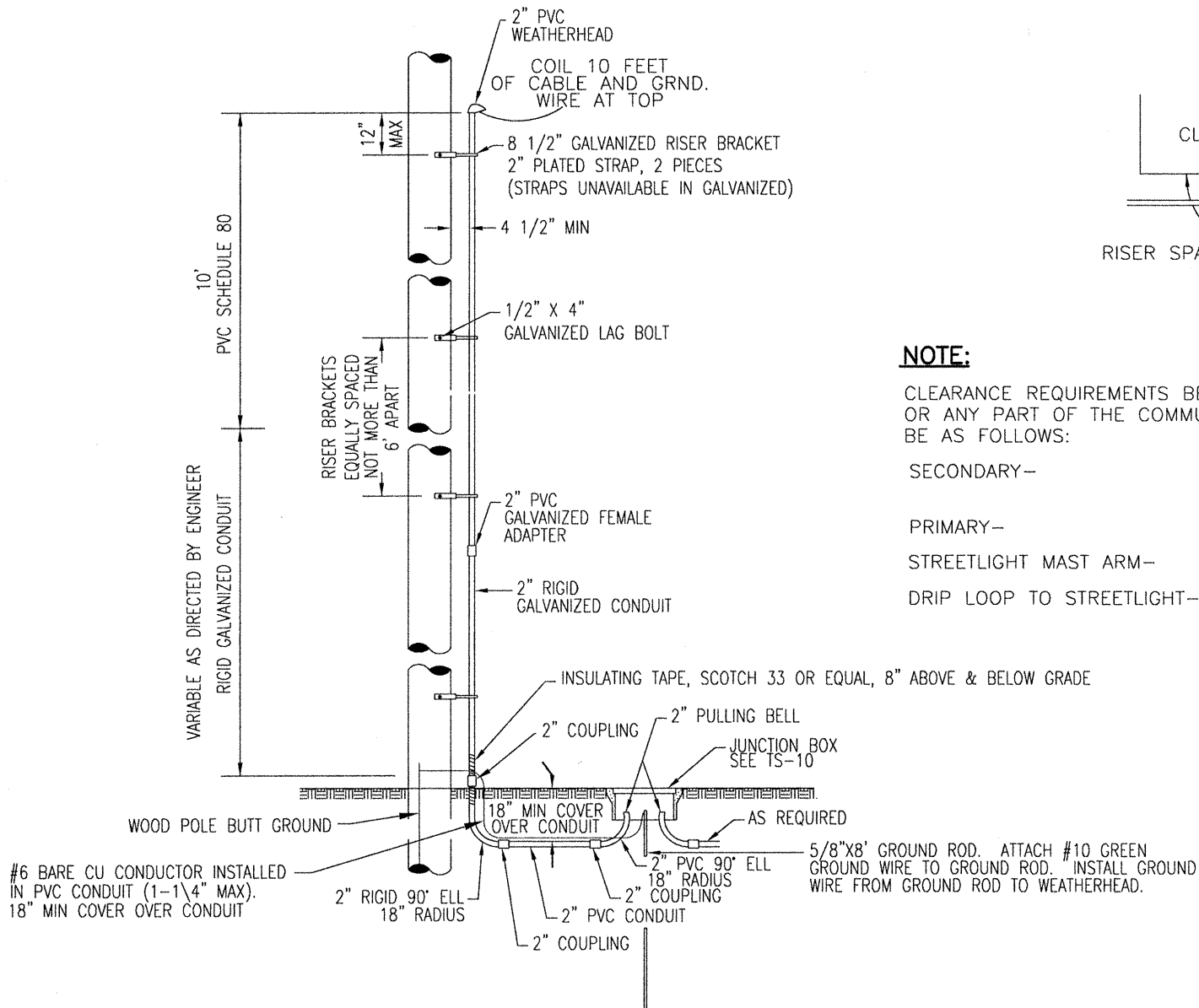
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[Signature]
CITY ENGINEER

8/31/07
DATE

RISER ASSEMBLY
UNDERGROUND
SERVICE CONDUIT
STANDARD PLAN NO. TS-05

SUITABLE FOR CONNECTION TO UTILITY TRANSFORMERS NOT GREATER THAN 50 KVA. LARGER TRANSFORMERS WILL REQUIRE ANALYSIS OF INTERRUPT CAPACITY OF SERVICE EQUIPMENT.



NOTE:

CLEARANCE REQUIREMENTS BETWEEN THE TOP OF WEATHERHEAD, OR ANY PART OF THE COMMUNICATION RISER ASSEMBLY, SHALL BE AS FOLLOWS:

- SECONDARY— MINIMUM 40 INCHES TO LOWEST PART OF SECONDARY OR NEUTRAL.
- PRIMARY— MINIMUM OF 10 FEET 2 INCHES.
- STREETLIGHT MAST ARM— MINIMUM OF 20 INCHES.
- DRIP LOOP TO STREETLIGHT— MINIMUM OF 12 INCHES.

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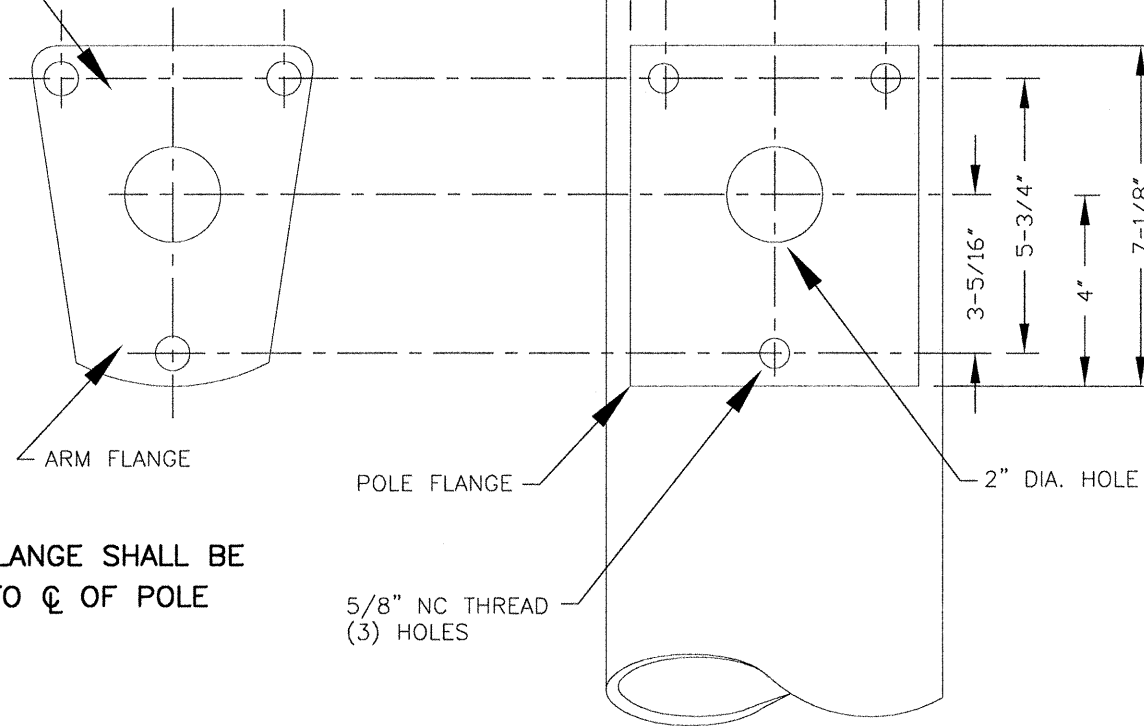
CITY ENGINEER

DATE 2/4/03

RISER ASSEMBLY
COMMUNICATION
SIGNAL CONDUIT

STANDARD PLAN NO. TS-06

23/32" DIA.
(3) HOLES



ARM FLANGE

POLE FLANGE

2" DIA. HOLE

FACE OF FLANGE SHALL BE
PARALLEL TO ϕ OF POLE

5/8" NC THREAD
(3) HOLES

APPROVED FOR PUBLICATION

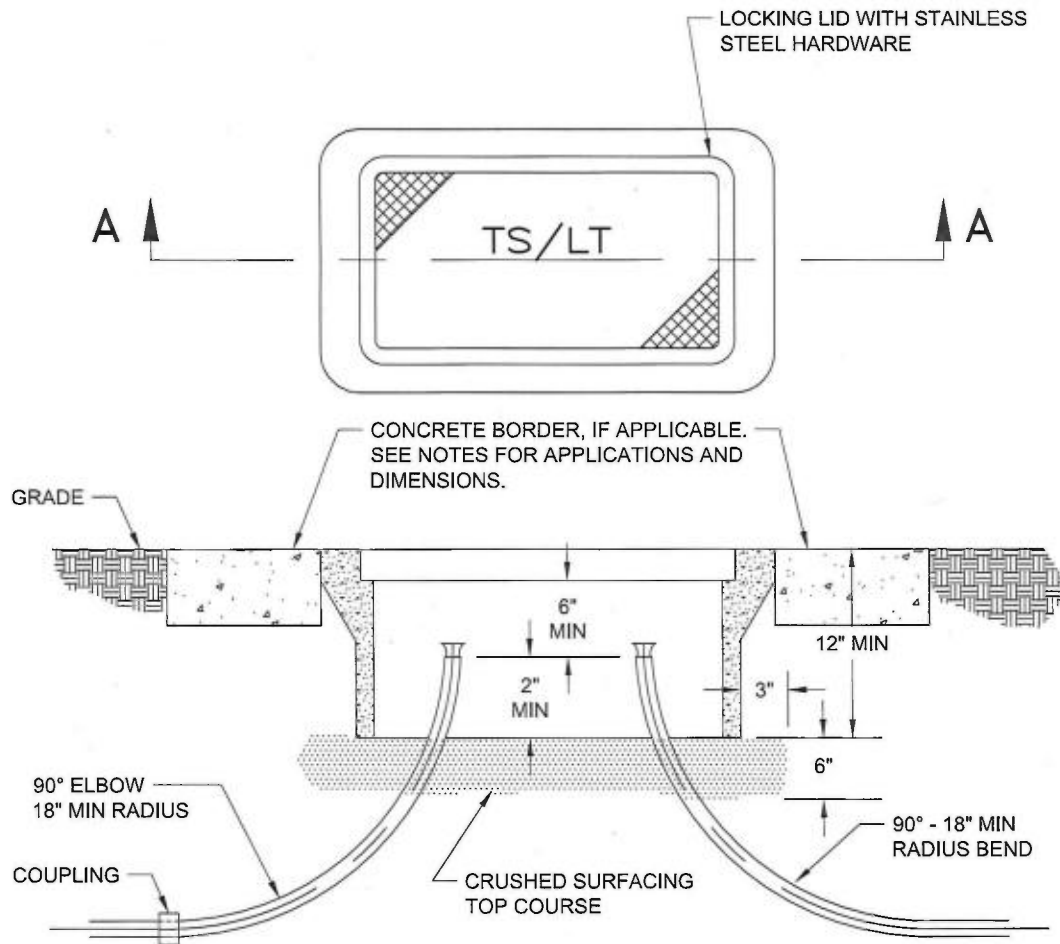
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DEPARTMENT OF PUBLIC WORKS

CITY ENGINEER

DATE 2/4/03

STREETLIGHT
MAST ARM MOUNTING
FLANGE DETAIL

STANDARD PLAN NO. TS-07



SECTION A-A

NOTES:

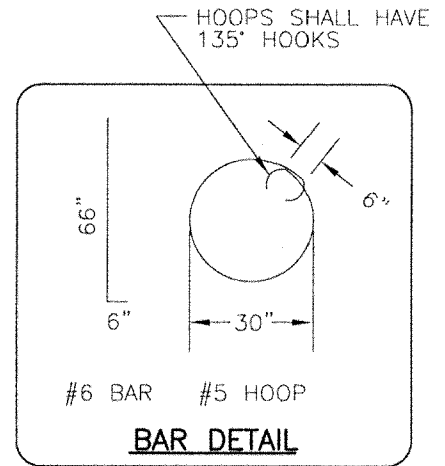
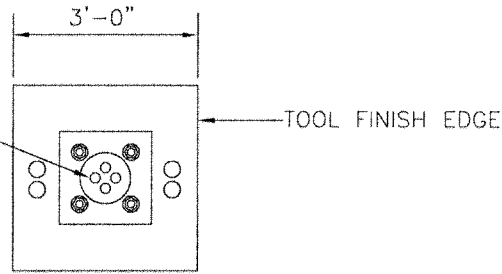
1. Junction boxes shall be concrete and in conformance with WSDOT's Type 1 and 2 Locking Lid Standard Duty Junction Box. Box and lid will be load rated for traffic and shall have a nonskid surface. The lid shall be marked "TS", "LT", or other designation as called for on the proposal.
2. All junction boxes containing interconnect cable will be Type 2 or larger.
3. Boxes shall be set on a base of 6 inch crushed surfacing top course for drainage.
4. Metal lids will be grounded. Ground conductor shall be a minimum 24 inches long.
5. Care shall be taken to place junction boxes outside of areas heavily used by pedestrians, especially near crosswalks and corners.
6. Junction boxes shall not be placed in curb ramps or areas subject to vehicular traffic.
7. Adjacent junction boxes will be separated by a minimum of 3 inches.
8. Install pulling bells or bushings on conduit ends.

CONCRETE BORDER APPLICATION AND DIMENSION:

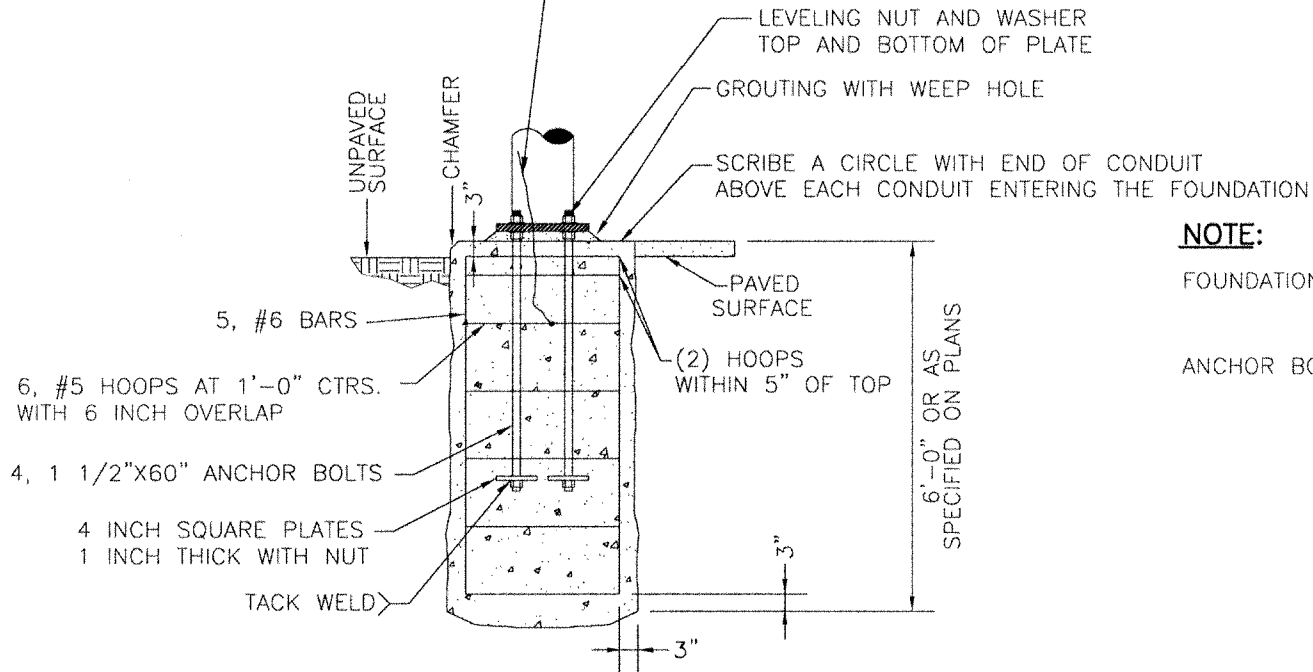
1. For junction boxes bordered by less than 12 inches wide of concrete or asphalt section, a concrete border is required.
2. Junction boxes located in asphalt will be secured on all sides with a minimum 12 inch wide by 6 inch deep concrete section.
3. Junction boxes located in concrete will be secured on all sides with a minimum 12 inch wide concrete section. The depth of the concrete shall meet the depth of the adjacent concrete. The concrete will be finished in the same manner as the adjacent concrete, where applicable.
4. Junction boxes located in a planter strip, landscaped area, or other non-hardened surface will be secured on all sides with a minimum 6 inch wide by 12 inch deep concrete section flush with the top of the junction box.

<p>DCS PUBLIC WORKS <i>N/A</i> TACOMA POWER</p>	<p>REVIEWED BY <i>GWS</i> ENVIRONMENTAL SERVICES <i>N/A</i> TACOMA WATER</p>		<p>APPROVED FOR PUBLICATION <i>[Signature]</i> CITY ENGINEER DATE <i>5/31/17</i></p>	<p>CITY OF TACOMA JUNCTION BOX INSTALLATION TYPICAL STANDARD PLAN NO. TS-08</p>
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CONDUIT SHALL BE CENTERED IN 8 INCH DIAMETER CIRCLE WITH SPACING FOR COUPLINGS. CONDUIT SHALL BE STRAIGHT AND VERTICAL IN POLE. THERE SHALL BE A MINIMUM OF 4 CONDUITS IN EACH FOUNDATION.



#6 STRANDED GROUND CABLE. BOND CAGE TO GROUND LUG.



NOTE:

FOUNDATION

TOP ELEVATION SET BY ENGINEER. TOP 6 INCHES SHALL BE FORMED SQUARE.

ANCHOR BOLTS

SPACING AS PER TEMPLATE SUPPLIED BY POLE SUPPLIER. TOP OF BOLTS TO BE LEVEL. SEE SECTION 9-29.14 OF THE CITY AMENDMENTS. ANCHOR BOLTS SHALL EXTEND 6.0 TO 6.5 INCHES ABOVE THE FOUNDATION UNLESS OTHERWISE SPECIFIED.

CITY OF TACOMA
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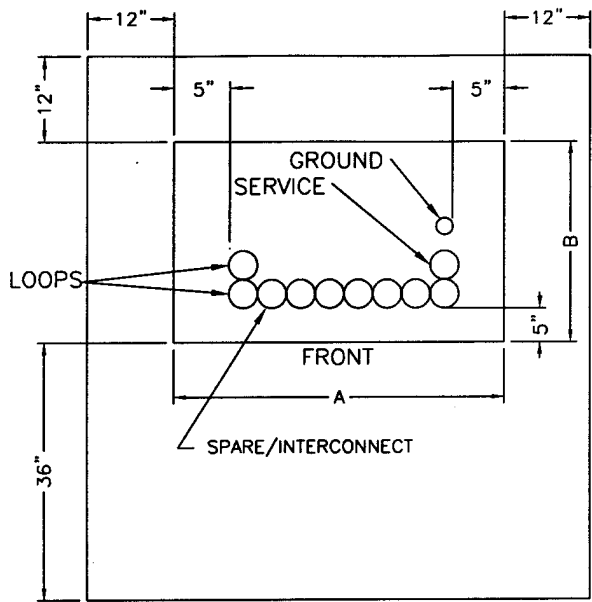
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DATE 2/4/03

STRAIN POLE
STANDARD
FOUNDATION

STANDARD PLAN NO.

TS-09



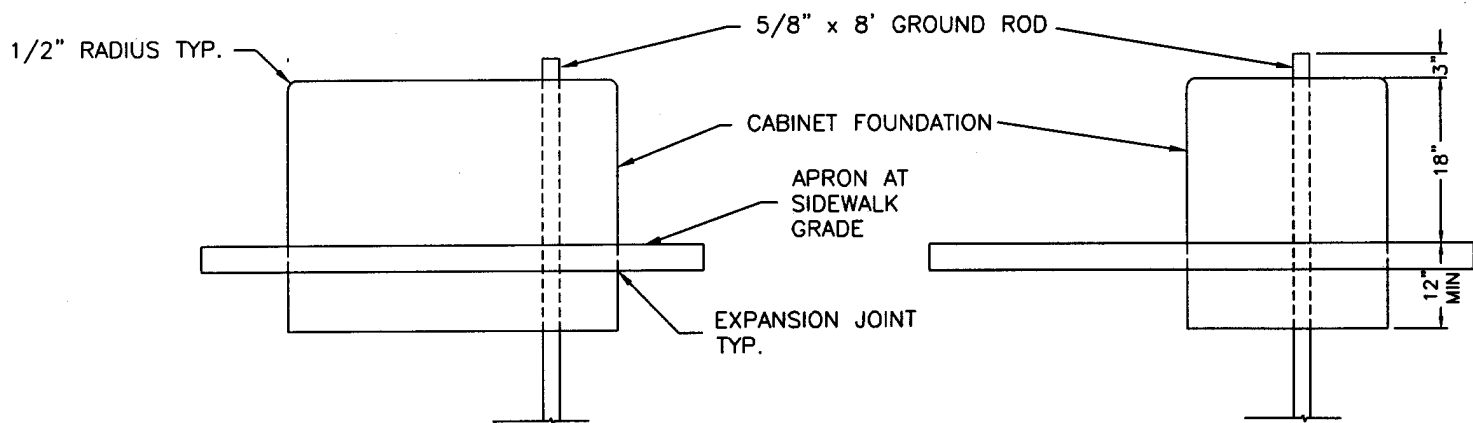
PLAN VIEW

M-CABINET FOUNDATION
A=32", B=19"

P-CABINET FOUNDATION
A=46", B=28"

NOTES:

1. CONDUIT SHALL HAVE MINIMUM 18" RADIUS BENDS.
2. CONDUITS SHALL EXTEND 1" ABOVE TOP OF BASE. INSTALL PULLING BELLS ON CONDUIT ENDS.
3. CONDUITS TO BE INSTALLED PER ENGINEER'S INSTRUCTIONS.
4. 15 FEET OF SLACK CABLE SHALL BE PROVIDED AT THE CONTROLLER END OF ALL CABLES TERMINATING IN THE CONTROLLER CABINET.
5. CABINET ANCHORS SHALL BE EXPANSION ANCHORS (5/8" x 4-1/2").
6. 4" THICK CONCRETE APRON SHALL EXTEND 12" AROUND REAR AND SIDES AND 36" IN FRONT. INSTALL EXPANSION JOINT BETWEEN FOUNDATION AND APRON.



FRONT VIEW

SIDE VIEW

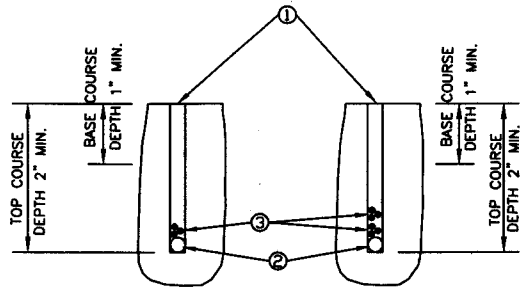
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DEPARTMENT OF PUBLIC WORKS

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CITY ENGINEER

9/14/04
DATE

FOUNDATION & APRON FOR
"M" AND "P"
CONTROLLER CABINETS
STANDARD PLAN NO. TS-10

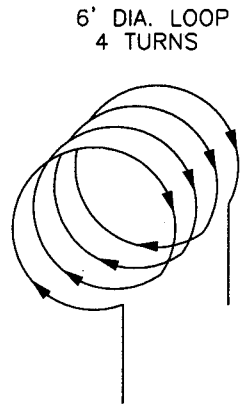


1/4" SAWCUT
TYPICAL

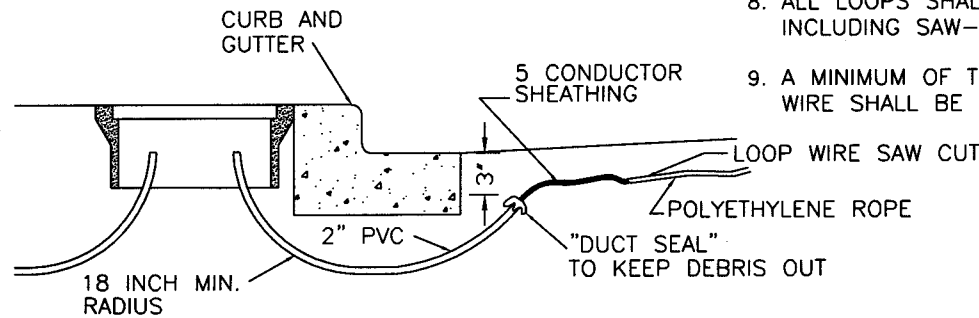
3/8" SAWCUT
AS NOTED ON PLANS

NOTES:

- ① SEALANT - CRAFTCO 34271 OR EQUAL TO WITHIN 1/4 INCH OF THE SAWCUT. DO NOT OVERFILL.
- ② TWISTED POLYETHYLENE ROPE (SIZE FOR SNUG FIT).
- ③ LOOP WIRE #12 USE STRANDED COPPER CONDUCTOR (SEE LOOP WINDING DETAIL) OR LEAD-IN WIRES #18 STRANDED TINNED COPPER CONDUCTOR: ONE PAIR FOR EACH LOOP SERVED, 2 PAIRS MAX. PER SAWCUT.



LOOP WINDING DETAILS



TYPICAL CONDUIT PLACEMENT FOR LOOP LEAD-IN WIRES

CONSTRUCTION NOTES:

1. CHANGE FROM 2 INCH CUT TO APPROXIMATELY A 4 INCH CUT AT ABOUT 12 INCHES FROM CURB.
2. LEAD-IN CUT SHALL BE THE SAME AS LOOP CUT EXCEPT AS INDICATED ON THE PLANS. IN THE LAST 12 TO 18 INCHES FROM THE GUTTER SECTION THE CUT SHALL GRADUALLY TRANSITION TO A FULL DEPTH CUT WHERE THE CONDUIT STUBS OUT UNDER THE CURB AND GUTTER. THIS WILL ALLOW THE LEAD-IN WIRE TO EXIT THE CONDUIT AND ENTER THE SAW CUT WITH NO SHARP EDGES.
3. METHOD SAME FOR CONCRETE OR ASPHALT PAVEMENTS.
4. INSTALL 5 CONDUCTOR CABLE SHEATHING OVER INDIVIDUAL PAIRS. EXTEND 6 INCHES INTO SAWCUTS AND 6 INCHES INTO CONDUIT. LEAVE SLACK AS DIRECTED BY ENGINEER.
5. ALL SAWCUTS SHALL BE CLEANED WITH A HIGH PRESSURE WASHER AND DRIED WITH 100 PSI MINIMUM AIR PRESSURE. ALL WASH WATER AND SLURRY SHALL BE VACCUMED UP AND PROHIBITED FROM LEAVING THE IMMEDIATE CUT AREA.
6. ONLY THOSE LOOPS THAT CAN BE COMPLETELY FINISHED, HAVING LOOP WIRE, ROPE AND SEALANT INSTALLED, IN ONE WORKING DAY, SHALL BE SAW-CUT IN THAT WORKING DAY. NO CONTINUOUS TRAFFIC SHALL BE ALLOWED TO TRAVEL OVER OPEN SAW-CUTS BEFORE LOOP WIRE, ROPE AND SEALANT HAVE BEEN INSTALLED. ALL ROADWAY SURFACES SHALL BE THOROUGHLY CLEANED UPON COMPLETION OF ANY LOOP WORK.
7. LOOP SPlicing PROCEDURE SHALL BE TO TWIST THE WIRE, SOLDER IT, WRAP WITH ELECTRICIAN'S TAPE TO 4 INCHES PAST THE SPlice EACH WAY, AND COAT WITH MOISTURE-RESISTANT VARNISH. LOOP SPlicing SHALL BE PERFORMED BY CITY OF TACOMA CREWS.
8. ALL LOOPS SHALL BE COMPLETELY INSTALLED BY THE CONTRACTOR INCLUDING SAW-CUTTING, LAYING WIRE, TESTING AND SEALANT.
9. A MINIMUM OF THREE (3) FEET OF SLACK LOOP WIRE OR LEAD-IN WIRE SHALL BE LEFT AT JUNCTION BOX.

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DEPARTMENT OF PUBLIC WORKS

CITY ENGINEER

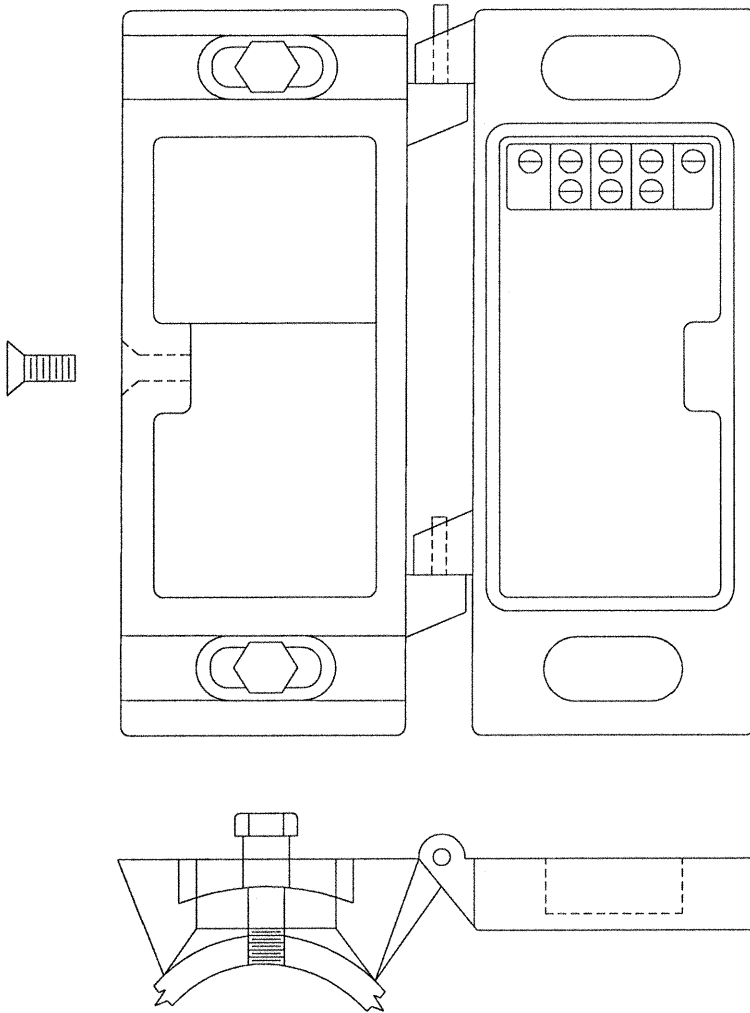
4/24/06
DATE

INDUCTION LOOP
DETAILS

STANDARD PLAN NO. TS-11

POLE HALF

SIGNAL HALF



MATERIAL:

CAST ALUMINUM ALLOY

STANDARD PAINT FINISHES:

DARK OLIVE GREEN

DIMENSIONS:

11-1/4" H MAXIMUM x5-1/2" W MAXIMUM x2-3/4 D MAXIMUM

WEIGHT:

TOTAL WEIGHT SHALL NOT EXCEED 7-1/2 LBS.

CONSTRUCTION:

THE CLAMSHELL CONSISTS OF A TWO PART MOUNTING ASSEMBLY. THE HINGE PINS ON THE POLE MOUNTED HALF SHALL BE STAINLESS STEEL AND FIT INTO THE EARS ON THE SIGNAL MOUNTED HALF.

MOUNTING:

THE POLE HALF OF THE ASSEMBLY SHALL BE DESIGNED TO FIT THE CURVATURE OF POLES 4" IN DIAMETER AND LARGER.

THE CLAMSHELL SHALL BE MECHANICALLY DESIGNED TO ALLOW FOR VARIOUS TYPES OF MOUNTING SUCH AS BANDING, THRU-BOLT OR LAG SCREW MOUNTING. THE BOLT HOLES SHALL BE ELONGATED HORIZONTALLY TO ALLOW FOR ROTATION ON THE POLE.

THE SIGNAL HALF OF THE ASSEMBLY SHALL BE SECURED TO THE POLE HALF THROUGH USE OF A FLATHEAD SOCKET BOLT AND TIGHTENED USING A 3/16" ALLEN WRENCH.

THE POLE HALF SHALL BE MOUNTED TO THE STRAIN POLE USING BOLTS EXCEPT AS DIRECTED BY THE ENGINEER.

THE BOTTOM OF THE PEDESTRIAN SIGNAL HEAD SHALL BE 8' ABOVE THE FINISHED SIDEWALK GRADE.

WIRING:

THE FIELD WIRING SHALL BE TERMINATED ON A HORIZONTALLY MOUNTED 3 POSITION TERMINAL BLOCK LOCATED IN THE UPPER HALF OF THE SIGNAL HALF.

MISCELLANEOUS:

A NEOPRENE GASKET WILL PROVIDE A RAIN-TIGHT SEAL

DRILL AND TAP HOLE IN STEEL POLE FOR 3/4" INSULATED CHASE NIPPLE FOR WIRING.

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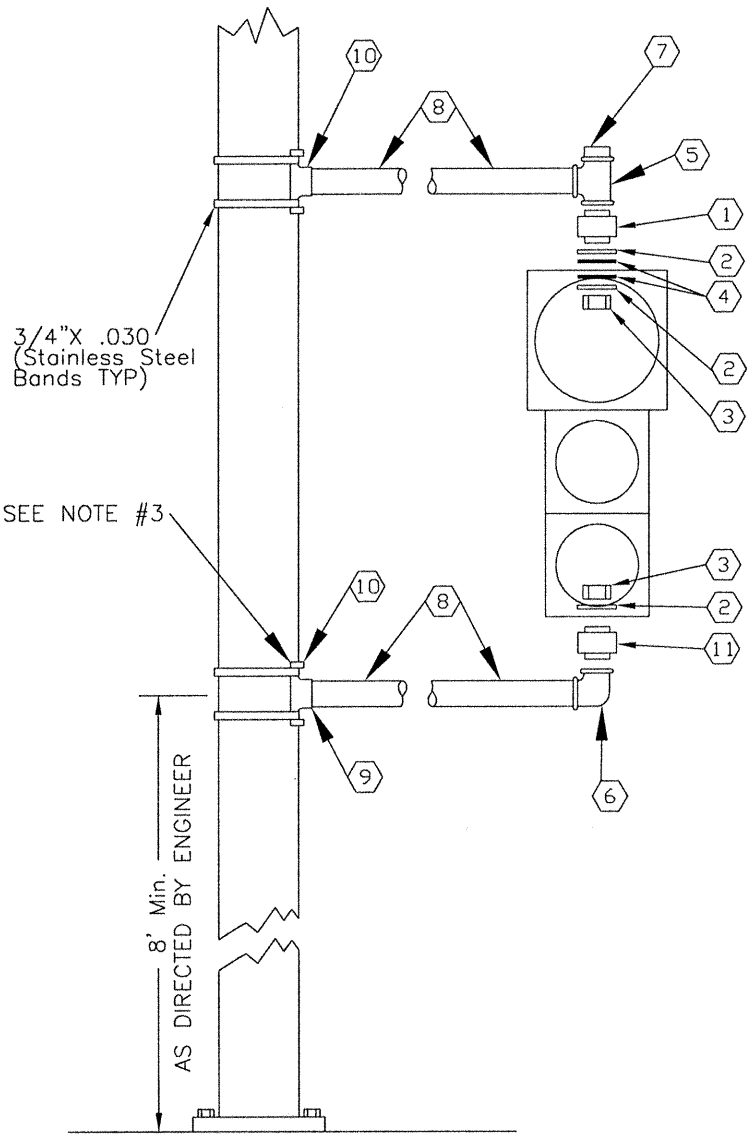
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CITY ENGINEER

DATE 2/4/03

PEDESTRIAN SIGNAL
CLAMSHELL POLE
MOUNTING DETAIL

STANDARD PLAN NO. TS-12



STEEL POLE

NOTES:

1. ALL METAL THREADS SHALL BE PAINTED WITH A HIGH QUALITY RUST PREVENTATIVE PAINT AND DRIED BEFORE ASSEMBLY. AFTER ASSEMBLY, A COAT OF GALVANIZED BONDING PRIMER PAINT SHALL BE APPLIED (AND THOROUGHLY DRY BEFORE PAINTING). COMPLETE BRACKET ASSEMBLY SHALL HAVE A FINISH COAT OF EXTERIOR QUALITY GREEN PAINT. ANY PAINTED HARDWARE DAMAGED DURING ASSEMBLY OR SHIPPING SHALL BE PAINTED AGAIN.
2. ALL TEES AND ELBOWS SHALL BE MADE FLAT AND LEVEL AT CONTACT POINTS, FOR WATERTIGHT SEAL.
3. THE BOTTOM BRACKET FLANGE ON A STEEL POLE SHALL HAVE A 5/16" X 3/4" FLATHEAD BRASS OR BRONZE SCREW LOCATED IN THE TOP OF THE FLANGE. THE SCREW SHALL BE TAPPED INTO THE CENTERLINE OF THE POLE BEFORE BANDING.

LEGEND:

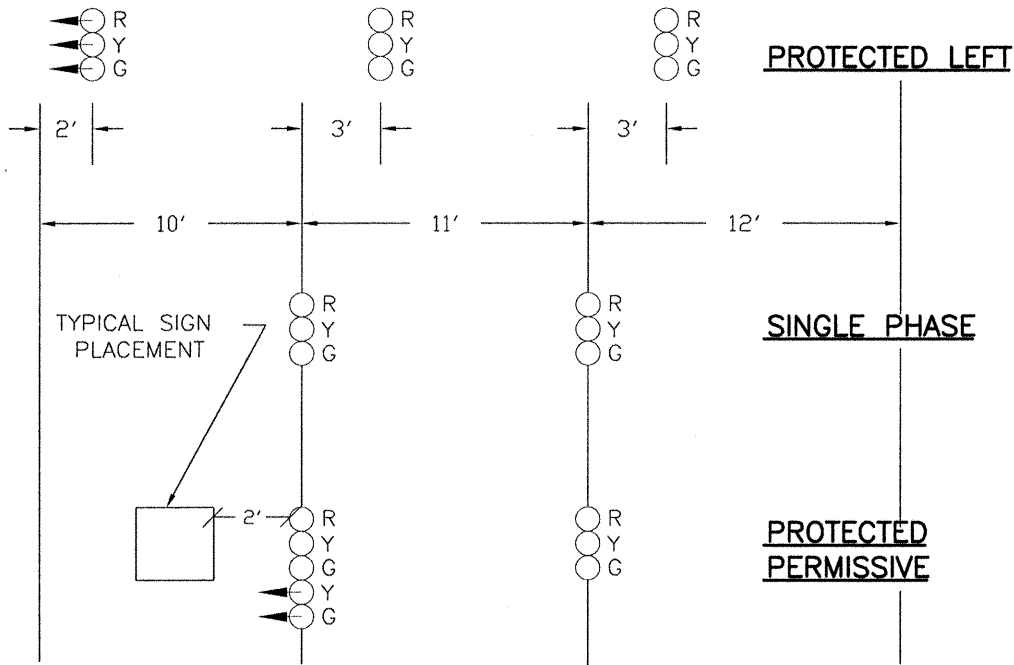
1. 1-1/2" GALVANIZED NIPPLE TO PROVIDE FULL NUT, (REAMED AND PRIMED) WITH 1" LONG PIECE OF PVC CONDUIT USED AS SPACER.
2. 1-1/2" DIAMETER NON-CORROSIVE SLIP RING.
3. 1-1/2" MALLEABLE NUT, NON-CORROSIVE.
4. 1-1/2" DIAMETER FLAT CORK GASKET. (NEOPRENE OK)
5. 1-1/2" GALVANIZED TEE.
6. 1-1/2" GALVANIZED ELBOW.
7. GALVANIZED PIPE PLUG.
8. FOR STEEL OR WOOD POLES 1-1/2" GALVANIZED NIPPLE 12" LONG.
9. FOR CONCRETE POLES, SEE CONCRETE POLE MOUNTING DETAIL.
9. DRILL AND TAP HOLE IN STEEL POLE FOR 3/4" INSULATED CHASE NIPPLE FOR WIRING.
10. ALUMINUM POLE FLANGE. SEE NOTE #3.
11. 1-1/2" GALVANIZED NIPPLE TO PROVIDE FULL NUT, (REAMED AND PRIMED) WITH 3" LONG PIECE OF PVC CONDUIT USED AS SPACER.

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CITY ENGINEER  DATE 2/12/03 2/4/03

VEHICLE SIGNAL HEAD
POLE MOUNT
DETAIL
STANDARD PLAN NO. TS-13

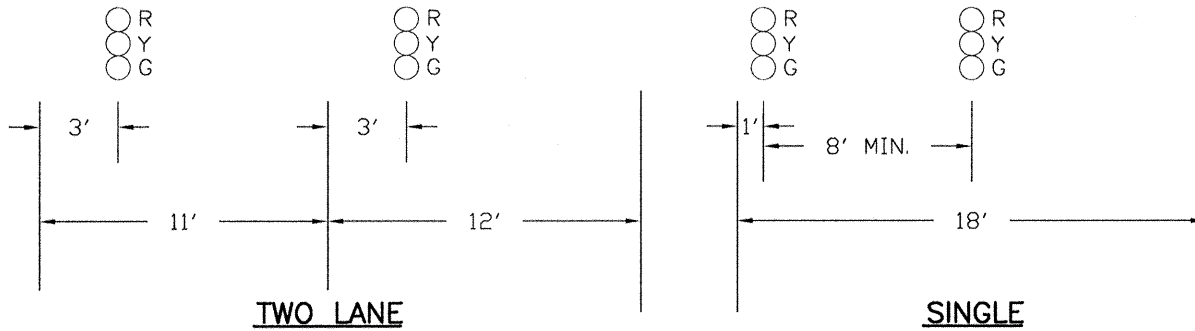


NOTE:

THIS STANDARD DEPICTS A VEHICLE HEAD PLACEMENT AS IT RELATES TO THE LANE LINES ON THE APPROACH TO THE GIVEN HEADS.

SIGNAL HEADS MUST BE LEVELED TO SPEC FROM A POINT 80 FEET FROM THE STOP BAR.

OVERHEAD SIGNS SHALL BE PLACED 2 FEET FROM VEHICLE HEAD.



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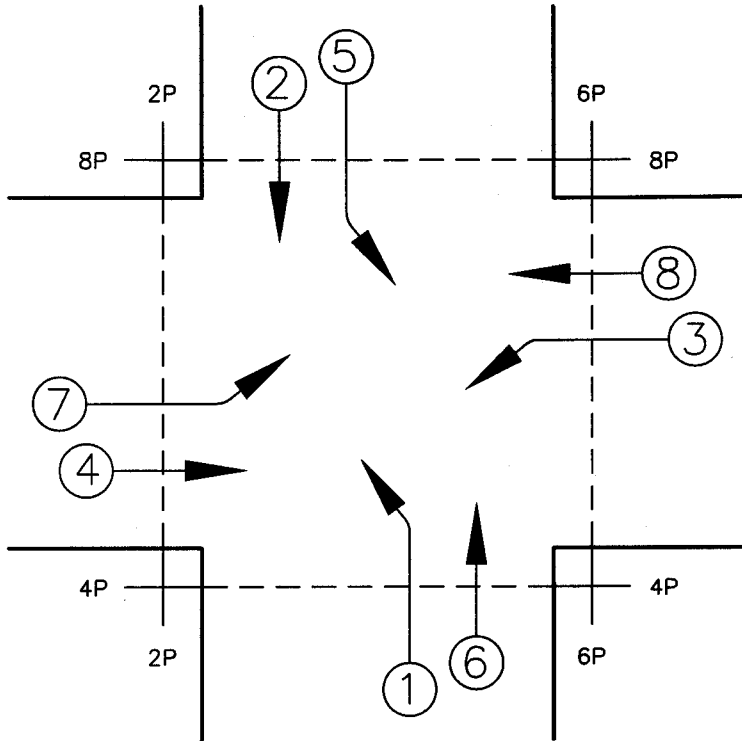
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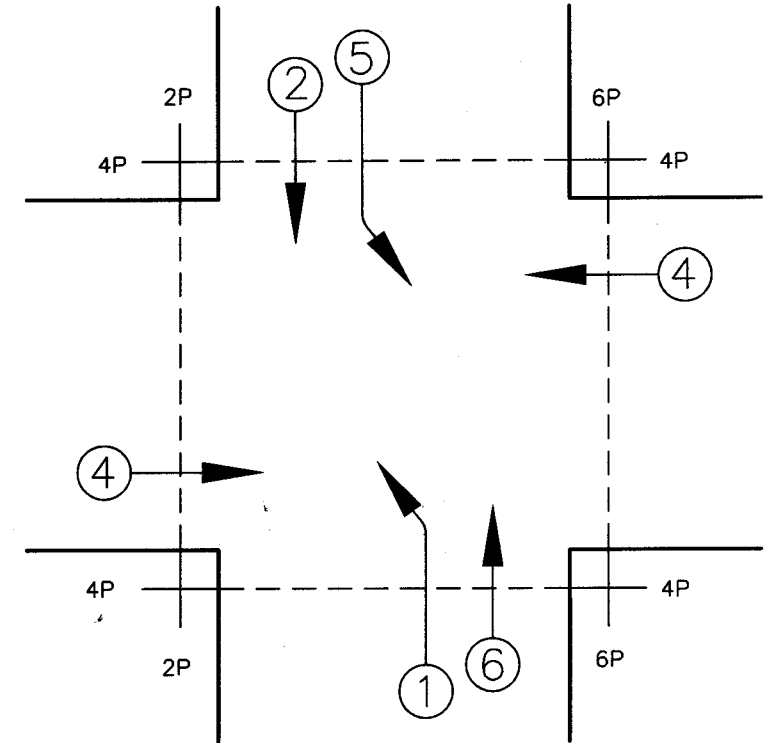
STANDARDS FOR
SIGNAL
PLACEMENT

STANDARD PLAN NO. TS-14

"P" CABINET



"M" CABINET



PEDESTRAIN SIGNAL WIRING

RED N/S - DW
 GREEN N/S - WK
 ORANGE E/W - DW
 BLACK E/W - WK
 WHITE NEUTRAL

PEDESTRAIN PUSH BUTTON WIRING

RED N/S
 GREEN SPARE
 ORANGE SPARE
 *BLACK E/W
 WHITE COMM BETWEEN PUSH BUTTONS

*BLACK USED WHEN ONLY ONE PUSH BUTTON IS USED FOR CROSSING EITHER STREET.

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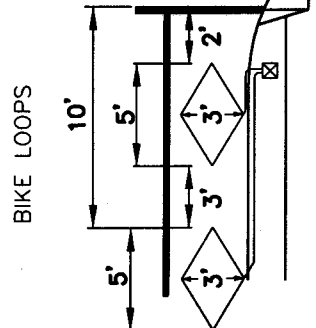
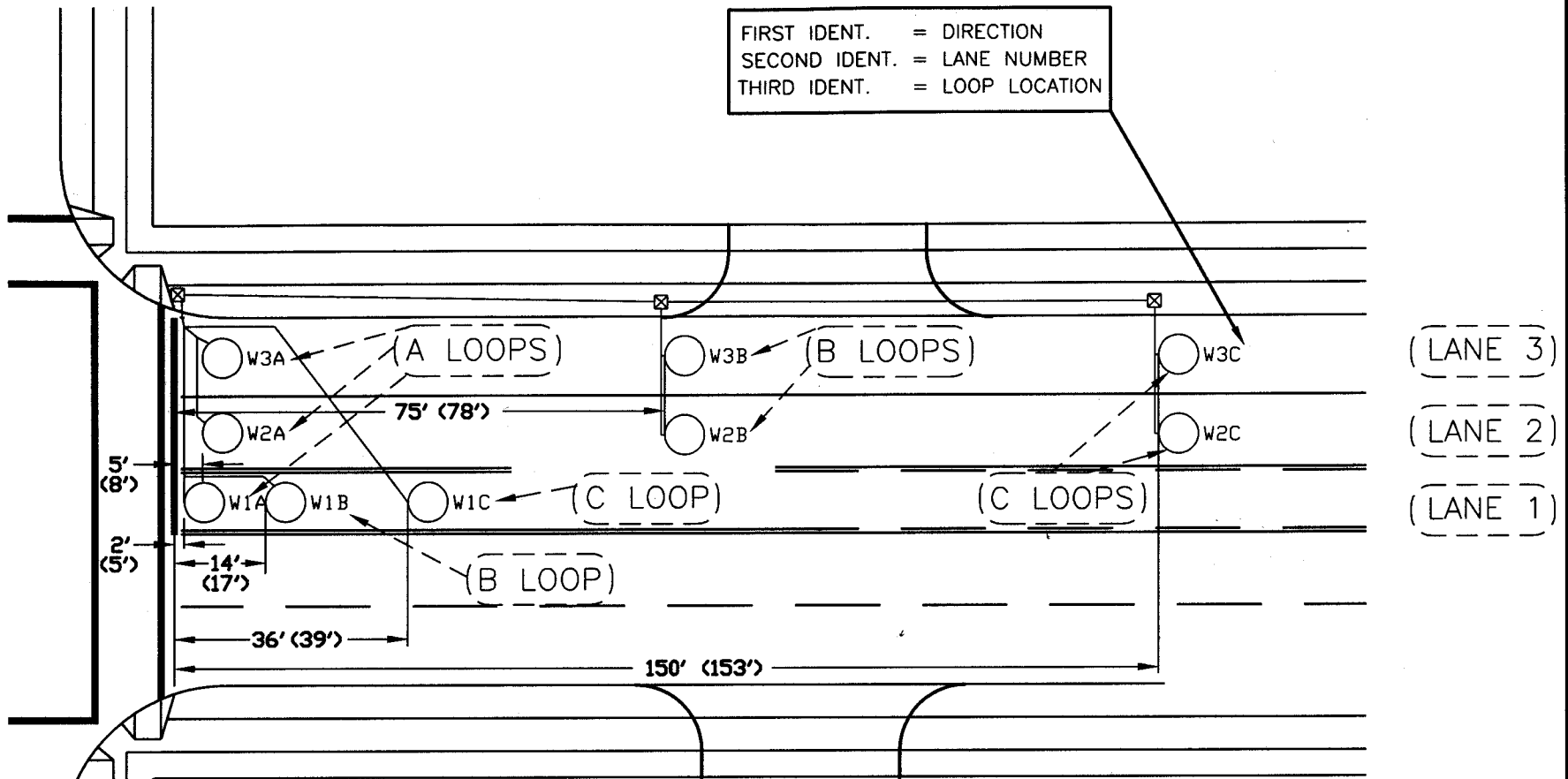
CITY ENGINEER

DATE

TRAFFIC SIGNAL
 PHASE ORIENTATION

STANDARD PLAN NO. TS-15

FIRST IDENT. = DIRECTION
 SECOND IDENT. = LANE NUMBER
 THIRD IDENT. = LOOP LOCATION



NOTES:

1. (DISTANCE TO CENTER OF ROUND LOOP)
2. ALL DISTANCES MEASURED FROM FRONT EDGE OF STOP BAR.
3. VEHICLE LOOPS ARE 6' X 6' SQUARE OR 6' DIAMETER ROUND.

CITY OF TACOMA
 DEPARTMENT OF PUBLIC WORKS

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VEHICLE INDUCTION LOOP
 TYPICAL LAYOUT

STANDARD PLAN NO. TS-16