NOTES:
1. UNLESS OTHERWISE SPECIFIED, TRAFFIC SIGNAL CONTROLLER CABINET SHALL BE FURNISHED BY THE CITY.
2. UNLESS OTHERWISE SPECIFIED, EXACT CABINET DIMENSIONS & ANCHOR BOLT LOCATIONS SHALL BE PROVIDED BY THE TRAFFIC SIGNAL SHOPS.
3. PLACE CABINET DOOR ON SIDEWALK SIDE OF FOUNDATION.
4. SEAL CABINET TO FOUNDATION WITH GREY OR CLEAR SILICONE TO PREVENT MOISTURE FROM ENTERING THE CABINET.

<table>
<thead>
<tr>
<th>DIMENSION</th>
<th>TYPE III</th>
<th>TYPE VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>30&quot;</td>
<td>44&quot;</td>
</tr>
<tr>
<td>B</td>
<td>17&quot;</td>
<td>25 ½&quot;</td>
</tr>
<tr>
<td>C</td>
<td>36&quot; TO 52&quot;</td>
<td>50&quot; TO 58&quot;</td>
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</tbody>
</table>

SIGNAL CONTROLLER CABINET—TYPES II, III, VI

LEVEL & FINISHED TOP OF FOUNDATION
¾" PVC DRAIN TUBE TO LOW SIDE OF FINISHED GRADE
CLASS 3000 CONCRETE
CONDUIT PER DRAWINGS
SIGNAL CONTROLLER FOUNDATION
SEE STD PLANS NO 500b & 500c FOR CONDUIT LAYOUT

REF STD SPEC SEC 8-31 & 8-32

City of Seattle
NOT TO SCALE
SIGNAL CONTROLLER CABINET & FOUNDATION

CONDUIT LAYOUT—TYPE II SIGNAL CONTROLLER FOUNDATION

REF STD SPEC SEC 8-31 & 8-32

City of Seattle

NOTES:
1. EXACT TRAFFIC SIGNAL CABINET DIMENSIONS AND ANCHOR BOLT LOCATIONS SHALL BE PROVIDED BY THE SIGNAL SHOP.
2. TRAFFIC SIGNAL CABINET SHALL BE INSTALLED WITH DOOR ON SIDEWALK SIDE OF FOUNDATION.
3. SEAL CABINETS TO FOUNDATION WITH GREY OR CLEAR SILICON TO PREVENT MOISTURE FROM ENTERING THE CABINET.
4. EXACT SERVICE CABINET DIMENSIONS AND ANCHOR BOLT LOCATIONS SHALL BE PROVIDED BY THE MANUFACTURER.

3" SCH 80 PVC CONDUIT. SEE STANDARD PLAN 5008 FOR CONDUIT LAYOUT IN CABINET.
(1) 2" SCH 80 PVC CONDUIT FOR SIGNAL SERVICE.

SIDE VIEW

CABINET WIDTH
PARALLEL TO CURB
ANCHOR BOLT TYPE, SIZE AND LOCATION (SEE NOTE 1)

CABINET DEPTH
SCH 80 PVC CONDUIT TO HANDHOLE (TYP.)
3/4" DIAMETER DRAIN TUBE TO LOW SIDE OF FINISHED GRADE

TOP VIEW

GROUND ROD 5/8" x 120" COPPER-CLAD WITH GROUND CLAMP. A SECOND GROUND SHALL BE INSTALLED A MINIMUM 6" AWAY IN A GROUND ROD HANDHOLE AS PER CITY OF SEATTLE STANDARD PLAN NO 5508. COORDINATE WITH ELECTRICAL INSPECTOR FOR LOCATION. INSTALL #4 AWG COPPER-CLAD STEEL GROUND WIRE BETWEEN CABINET FOUNDATION AND GROUND ROD HANDHOLE.
NOTES:
1. FOR METAL POLES WITH ONLY OVERHEAD ACCESS, CONDUCTORS SHALL ENTER POLE THROUGH CABLE OUTLETS
2. CONDUCTORS SHALL BE CONTINUOUSLY COLOR CODED
   LINE 1 = BLACK
   LINE 2 = RED
   NEUTRAL = WHITE
   GROUND = GREEN
3. BOND NEUTRAL TO GROUND AT ONLY ONE LOCATION
4. SERVICE SHALL BE 1 PHASE 3 WIRE 120/240V OR 120/208V (IN SCL NETWORK)
UNDERGROUND SERVICE CONNECTION

NOTE:
BOND NEUTRAL TO GROUND AT ONLY ONE LOCATION

COIL 20' OF #4 SOLID BARE COPPER WIRE IN CONTROLLER CABINET FOUNDATION W/2" MINIMUM CLEARANCE FROM ALL SIDES (UNDER GROUND)

REF STD SPEC SEC 8-30 & 8-31
COIL 8'-0" OF WIRE FOR SCL FINAL CONNECTION

NOTES:
1. FOR METAL POLES WITH ONLY OVERHEAD ACCESS, CONDUCTORS SHALL ENTER POLE THROUGH CABLE OUTLETS
2. CONDUCTORS SHALL BE CONTINUOUSLY COLOR CODED BY SERVICE VOLTAGE
   NEUTRAL = WHITE
   GROUND = GREEN
3. BOND NEUTRAL TO GROUND AT ONLY ONE LOCATION IN SCL DISTRIBUTION MH/HH
4. WHEN POSSIBLE, RISER SHALL BE INSTALLED ON DOWNSTREAM SIDE OF TRAFFIC

OVERHEAD SERVICE CONNECTION

BOND RGS RISER TO GROUND

FINISHED GRADE

HANDHOLE

FOR CONDUIT RISER SEE STD PLAN NO 580

SUBMERSIBLE CONNECTORS PER SCL MATL STD 6780.0

FUSE PER DRAWINGS

SL DET MH/HH

BLACK

RED

WHITE

BOND NEUTRAL TO GROUND

#4 BARE CU

TO LIGHTING LOADS SEE SCL CONST STD 1710.50

LIGHTING SERVICE

LIGHTING SERVICE CONNECTION & LIGHT POLE WIRING DETAIL

UNDERGROUND SERVICE CONNECTION

NOTES:
1. SCL RED NEUTRAL TO BE BONDED TO GROUND IN SCL SERVICE POINT.
2. BOND NEUTRAL TO GROUND AT ONLY ONE LOCATION.
3. FOR JOINT SCL STREETLIGHT & SDOT TRAFFIC HANDHOLE, SEE SCL CONST STD 1810.05.

REF STD SPEC SEC 8-30 & 8-31
**Typical Signal Faces**

W/ Tunnel Visors & 5” Backplate (Louvered)

**Signal Hanger Detail**

**Notes:**
1. Vertical Clearance: 17’ Min to Roadway 19’-0” Max (on truck routes use 18’ to 19’)
2. Backplates have been omitted from various views for clarity

**Bracket Mounting**

For Signal Head Bracket Assembly

See Std Plan No 511

**Pedestal Top Mounting**

For Pedestal See Std Plan No 524

**Attatch Signal Cable to Span Wire With Friction Tape or UV Rated Cable Tie Wraps and Trm Ends**

**City of Seattle**

SUSPENDED SIGNAL MOUNTING DETAIL

WITHOUT EXTENSION

WITH EXTENSION

BRONZE WIRE ENTRANCE HANGER W/ INSULATING BUSHING

1½" PIPE COUPLING

DRILL & TAP ONE WALL OF THE PIPE & COUPLER FOR (2) ¾" X ¾" STAINLESS STEEL BOLTS

1½" PIPE NIPPLE SIZED TO GAIN MOUNTING HEIGHT AND TO LEVEL ALL REAR HEAD SECTIONS

LOCK NUT WITH LOCKING SCREW

STEEL WASHER

SIGNAL HOUSING

NEOPRENE SEAL

STAINLESS STEEL WASHER

LOCK NUT

COTTER KEY

REF STD SPEC SEC 8-31

City of Seattle

NOT TO SCALE

VEHICULAR SIGNAL MOUNTING

NOTES:
1. 3/8"x1/2" BOLT, 5/8" LOCK WASHER, 3/4"x13/4" WASHER 4 OF EACH REQUIRED PER ASSEMBLY, ALL STAINLESS STEEL.
2. MOUNTING SHALL BE AS FOLLOWS:
   - ON METAL POLES THINNER THAN 7 GAUGE, USE 3/8" STAINLESS STEEL RHNUTS.
   - ON METAL POLES 7 GAUGE OR THICKER, DRILL AND TAP FOR 3/8" BOLT (STAINLESS STEEL RHNUTS OPTIONAL).
   - ON POLES FILLED OR MADE WITH CONCRETE USE 3/4"x2 1/4" MIN STUD BOLT ANCHORS, SLEEVE TYPE.
   - ON WOOD POLES USE 1 1/4"x2 1/2" LAG BOLTS.
NOTES:
1. BOLT AND WASHERS SHALL BE STAINLESS STEEL PER ASTM A 563 DH AND
   ASTM F 436
2. MOUNTING SHALL BE AS FOLLOWS:
   - ON METAL POLES THINNER THAN 7 GAUGE, USE ¾" STAINLESS STEEL
     RINNUTS
   - ON METAL POLES 7 GAUGE OR THICKER, DRILL AND TAP FOR ¾" BOLT
     (STAINLESS STEEL RINNUTS OPTIONAL)
   - ON POLES FILLED WITH OR MADE FROM CONCRETE USE ¾"X2½" STUD BOLT
     ANCHORS WITH HEX NUT
3. FOR STREET NAME SIGN PEDESTAL INSTALLATION, SEE STD PLAN NO 623

REF STD SPEC SEC 8-31
NOTE:
WRAP TOP OF ANCHOR BOLTS
WITH CORROSION PROTECTION
TAPE

2" SCH 40 STL PIPE GALV

CENTER OF
PUSHBUTTON

PEDESTRIAN PUSHBUTTON
& MOUNTING PER STD
PLAN NO 522b

BOLT COVER

2" STANDARD IRON PIPE FLANGE
W/4½" BOLT CIRCLE (DRILL FLANGE
FOR (4) ½" BOLTS)

(4) ½"X8" ANCHOR BOLTS Ø4½"
BOLT CIRCLE W/2 NUTS AND 2
WASHERS PER EACH BOLT

TOP OF SIDEWALK

TOP OF FOUNDATION

COLD JOINT

SIDEWALK REMOVAL &
RESTORATION LIMITS

PEDESTRIAN PUSHBUTTON
POST FOUNDATION CLASS
3000 CONCRETE

1" SCH 80 PVC

1'-6"

ROUND OR SQUARE

FINISH GRADE

REF STD SPEC SEC 8-31 & 8-32

City of Seattle
NOT TO SCALE

PEDESTRIAN PUSHBUTTON
POST & FOUNDATION

NOTES:
1. PUSHBUTTON SHALL HAVE DIRECTIONAL ARROW AS SPECIFIED ON THE PLANS.
2. INSTALLATION OF TWO PEDESTRIAN PUSHBUTTON ASSEMBLIES SHALL REQUIRE A MOUNTING ADAPTER.
1. PUSHBUTTON SHALL HAVE DIRECTIONAL ARROW AS SPECIFIED ON THE PLANS.
2. INSTALLATION OF TWO PEDESTRIAN PUSHBUTTON ASSEMBLIES SHALL REQUIRE A MOUNTING ADAPTER.

NOTES:

MUTCD R10-3
800-87 5"x7" SIGN

1/4-20 X 3/8" LONG STAINLESS STEEL SCREW

1/4-20 STAINLESS STEEL BOLT WITH WASHER & LOCK WASHER

PUSHBUTTON STATION

FRONT VIEWS

DRILL & TAP POLE FOR 1/4" BOLT

DRILL & TAP POLE FOR 3/8" MIN WIRE GUIDE HOLE, ADD INSULER

SIDE VIEW

1/4-20 X 3/8" LONG STAINLESS STEEL SCREW

MUTCD R10-3
800-87 5"x7" SIGN

PUSHBUTTON STATION

NOT TO SCALE

ACCESSIBLE PEDESTRIAN PUSHBUTTON STATION

CURB/PAVEMENT ENTRANCE FOR DETECTOR LOOP WIRES

NOTES:
1. SHARP EDGE TOOLS SHALL NOT BE USED IN PLACING CONDUCTORS IN SAW CUTS
2. EACH PAIR OF LOOP WIRES IN THE RETURN CUT SHALL BE TWISTED A MINIMUM OF 3 TURNS PER FOOT AND MAY SHARE COMMON RETURN CUTS WITH OTHER TWISTED PAIRS
3. TAPE LOOP WIRE A MINIMUM OF 2 TURNS AT EACH CORNER
4. REMOVE SHARP CORNER EDGES IN SAW CUTS WHERE LOOP WIRE WILL BE BENT AROUND
5. PERFORM RESISTANCE AND CONTINUITY TESTS PRIOR TO SEALING LOOP WIRES
6. COIL 5'-0" OF LOOP WIRE IN HANHOLE

REF STD SPEC SEC 8-31

City of Seattle
NOT TO SCALE
LOOP DETECTORS

NOTES:
1. SEE STD PLAN NO. 725 FOR BICYCLE DETECTOR PAVEMENT MARKER DETAIL.
2. FILL CUT AFTER VERTICAL PLACEMENT AND TESTING WITH HOT PAVING GRADE LIQUID ASPHALT ASTM D 312 TYPE III OR QUICK SETTING HIGH STRENGTH GROUT.

REF STD SPEC SEC 8-31

City of Seattle

NOT TO SCALE

BICYCLE DETECTOR PAVEMENT MARKING LOCATIONS ON DETECTOR LOOPS

DETECTOR LEAD-IN WIRE SPLICE DETAIL

NOTE:
SOLDER CONNECTION AFTER CRIMPING

SIGNAL CABLE SPLICE

REF STD SPEC SEC 8-31
NOTE:
FOR STEEL MAST ARM POLE FOUNDATION SEE STD PLAN NO 562b

#3 SPIRAL
ANCHOR BOLT CIRCLE SEE FOUNDATION SCHEDULE ON STD PLAN NO 541b

VERTICAL BARS SEE FOUNDATION SCHEDULE ON STD PLAN NO 541b

#4 BARE STRANDED COPPER WIRE
CONDUIT PER DRAWINGS

PRE-CAST CONCRETE BLOCK SPACERS ATTACHED TO REBAR (3 MIN) TO PROVIDE 3" CLEAR FROM VERTICAL BARS TO SOIL

CLASS 4000 CONCRETE

ELECTRICALLY BOND GROUND WIRE TO REINFORCING STEEL (CADWELD OR EQUAL)

ANCHOR PLATE SEE FOUNDATION SCHEDULE ON STANDARD PLAN NO 541b

SECTION A-A

PLAN VIEW
STRAIN POLE FOUNDATION IN SIDEWALK

REF STD SPEC SEC 8-32, 6-02

City of Seattle
NOT TO SCALE
FOUNDATION STRAIN POLE FOUNDATION DETAIL (TYPE T, V, X & Z)

# Foundation Schedule

<table>
<thead>
<tr>
<th>Pole Type</th>
<th>Projection</th>
<th>Vertical Reinforcing</th>
<th>Depth (Lateral Bearing)</th>
<th>Anchor Bolts (Total 4 Per Pole)</th>
<th>Anchor Plate Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>7½&quot;</td>
<td>10 #8</td>
<td>8'-0&quot; 7'-6&quot;</td>
<td>½&quot; Dia X 60&quot;</td>
<td>¾&quot; X 16&quot; X 16&quot;</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1¾&quot; 1½&quot; 10&quot; 1½&quot;</td>
</tr>
<tr>
<td>V</td>
<td>9&quot;</td>
<td>10 #8</td>
<td>9'-6&quot; 8'-6&quot;</td>
<td>1¾&quot; Dia X 72&quot;</td>
<td>¾&quot; X 16&quot; X 16&quot;</td>
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<td>X</td>
<td>10&quot;</td>
<td>12 #8</td>
<td>12'-6&quot; 10'-6&quot;</td>
<td>2&quot; Dia X 72&quot;</td>
<td>¾&quot; X 18&quot; X 18&quot;</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>20&quot; 2½&quot; 14&quot; 2&quot;</td>
</tr>
<tr>
<td>Z</td>
<td>11½&quot;</td>
<td>12 #8</td>
<td>15'-0&quot; 13'-0&quot;</td>
<td>2½&quot; Dia X 72&quot;</td>
<td>¾&quot; X 20&quot; X 20&quot;</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>22&quot; 2½&quot; 15&quot; 2½&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**
1. Concrete strength shall be Class 4000, 3/4" max size coarse aggregate.
4. All reinforcing bars shall be deformed billet steel conforming to ASTM Class A705, Grade 60.
5. Anchor bolts shall be hot dip galvanized ASTM A153 including nuts & washers (full length) with 18" of threads on top & 12" on bottom.
6. Tape the top of anchor bolts with corrosion protection tape per Std Spec Sec 8–32.3(2)a prior to pouring concrete.

**REF STD SPEC SEC 8-32**

City of Seattle NOT TO SCALE STRAIN POLE FOUNDATION SCHEDULE & NOTES (TYPE T, V, X & Z)

NOTES:
1. BOLT CIRCLE: 11\(\frac{1}{2}\)" TYP
2. SEE STD PLAN NO 563a FOR POLE MOUNTING AND GROUT DETAIL
3. ANCHOR BOLTS SHALL BE HOT DIP GALVANIZED (ASTM A153) FULL LENGTH AND FABRICATED FROM ASTM F1554 OR A576 WITH 12" THREADS ON TOP
4. INSTALL UFER GROUND IN FOUNDATION (SEE STD PLAN NO 524a)
NOTES:
1. BOLT CIRCLE: 9" TYP
2. SEE STD PLAN NO 563a FOR POLE MOUNTING AND GROUT DETAIL
3. ANCHOR BOLTS SHALL BE HOT DIP GALVANIZED (ASTM A153) FULL LENGTH AND FABRICATED FROM ASTM F1554 OR AS76 WITH 12" THREADS ON TOP
4. SEE SSL MATERIAL STANDARD 5756.09 FOR POLES

REF STD SPEC SEC 8-32

City of Seattle

NOT TO SCALE

PEDESTRIAN STREET LIGHT POLE FOUNDATIONS

NOTES:

1. The cover shall have 3/4" to 3/8" clearance on each edge within the frame after galvanizing.
2. The ground rod shall extend 4" above the bottom of the handhole or mineral aggregate.
3. Type 1, 2, 3, 5 & 6 handhole covers shall have "TC" and/or "SL" on them, as appropriate.
4. Type 4 handhole shall be installed in roadways, parking lots, etc.
5. For pavement depth greater than 7" use frame extensions (see Std Plan No 231) to bring the cover up to the level of the finished pavement without embedding the bottom flange of the casting in the pavement.
6. A 4' length of #6 thin or thin copper wire shall be secured from the handhole cover to the frame, with a 4"-0" length from frame that can be hooked up to a ground rod.
7. All handhole covers and frames shall have a non-skid surface (see Std Spec Sec 9-34.6).
8. All handholes shall have a load rating of H20.
9. Ground rod required in all streetlight handholes per SCL Constr Std 1710.50

HANDHOLE SCHEDULE

<table>
<thead>
<tr>
<th>Handhole Type</th>
<th>Top Unit Inside Dimension</th>
<th>Extension Unit(s)</th>
<th>Cover Dimension(s)</th>
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<tbody>
<tr>
<td></td>
<td>L</td>
<td>W</td>
<td>H</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>15&quot;</td>
<td>14&quot;</td>
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<tr>
<td>2</td>
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<tr>
<td>GRHH</td>
<td>8&quot;</td>
<td>NA</td>
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</tbody>
</table>

HANDHOLE INSTALLATION DETAIL

- ASPH or CONC finish to grade with 3/4" x 2" joint in conc area
- PARKING STRIP or PLANTING AREA
- 6" MIN THICKNESS MNRL AGG TYPE 9
- 5" wide x 3½" deep CONCRETE COLLAR when installed in earth
- CONDUIT (PER DRAWINGS) ALL COUPLINGS SHALL BE WATER-TIGHT
- GROUND ROD

TYPE 1 & 2 HANDHOLE

- FULL 180° OPEN
- STEEL PLATE COVER (GALV) W/LOCKING LATCH
- (4) 3/4" LIFT INSETS
- RECESSED LIFT HANDLE
- COVER

TYPE 4 HANDHOLE

- TRAFFIC BEARING
- BASE
- (2) 1½" LIFT HOLES
- GALV "C" CHANNELS 18" long on all sides
- 12" X 12" KNOCKOUT 2 EACH SIDE
- RISER
- 6" DRAIN HOLE (OPENED)
- #3 BAR (TYP)
- 6" DRAIN HOLE (OPENED)
- #3 BAR (TYP)
- GROUND ROD KNOCKOUTS

TYPE 3 HANDHOLE

- COVER SAME AS TYPE 5
- GROUND ROD

TYPE 5 HANDHOLE

- FULL 180° OPEN
- STEEL PLATE COVER (GALV) W/LOCKING LATCH
- (4) 3/4" LIFT INSETS
- RECESSED LIFT HANDLE
- COVER

NOT TO SCALE

City of Seattle

TYPE 6 HANDHOLE

NOTES:
1. ALL HANDHOLES SHALL HAVE A H20 LOAD RATING.
2. ALL HANDHOLE COVERS AND FRAMES SHALL HAVE A NON-SKID SURFACE (SEE STD SPEC SEC 9-34.6)

GROUND ROD HANDHOLE (GRHH)

REF STD SPEC SEC 8-33
NOTES:
2. ALL NON-DELIBERATE TRAFFIC PULL BOXES MUST COMPLY WITH ALL TEST PROVISIONS OF ANSI/SCTE 77 2012 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY", & MUST MEET THE TIER 22 APPLICATION. MARKINGS SHOWING THE TIER 22 RATING MUST BE LACED OR STENCILLED ON THE INSIDE & OUTSIDE OF THE BOX.
3. ALL NON-DELIBERATE TRAFFIC PULL BOXES & COVERS MUST BE MADE OF POLYMER CONCRETE WITH FIBERGLASS REINFORCEMENT. THE BOX MUST HAVE CONTINUOUS FIBERGLASS CLOTH REINFORCEMENT ON THE INSIDE & OUTSIDE PERIMETERS. THE COVER MUST HAVE A MINIMUM OF TWO LAYERS OF FIBERGLASS CLOTH REINFORCEMENT.
5. PULL SLOTS MUST BE RATED FOR MINIMUM PULL OF 10,000 POUNDS.
6. TYPE 4 HANDHOLE SHALL BE INSTALLED IN ROADWAYS PULLING LOTS, ETC. ALL COVERS MUST BE COMPLETE WITH A MOLDED LOGO, MANUFACTURER'S NAME & TIER RATING LOGO (NO GLUE IN LOGO). LOGO SHALL READ "S" & "5C" UNLESS STATED OTHERWISE BY THE CITY OF SEATTLE.
7. THE GROUND ROD SHALL EXTEND 4" ABOVE THE BOTTOM OF THE HANDHOLE OR MINERAL AGGREGATE.
8. FOR PAVEMENT DEPTH GREATER THAN 7" USE FRAME EXTENSIONS (SEE STD PLAN NO 231) TO BRING THE COVER UP TO THE LEVEL OF THE FINISHED PAVEMENT WITHOUT EMBEDDING THE BOTTOM FLANGE OF THE CASTING IN THE PAVEMENT.
9. A 4" LENGTH OF #6 THINN OR THINN COPPER WIRE SHALL BE SECURED FROM THE HANDHOLE COVER TO THE FRAME, WITH A 4" LENGTH FROM FRAME THAT CAN BE MOUNTED TO A GROUND ROD.
10. ALL HANDHOLE COVERS AND FRAMES SHALL HAVE A NON-SKID SURFACE (SEE STD SPEC SEC 9-34.6)

HANDHOLE INSTALLATION DETAIL

2X #8/16 [18] THRU HOLE
6" WIDE X 36" DEEP CONCRETE COLLAR WHEN INSTALLED IN EARTH
CONDUIT (PER DRAWINGS) ALL COUPLINGS SHALL BE WATERPROOF
GROUND ROD (PER DRAWINGS)
ASPH OR CONC FINISH TO GRADE WITH 1/2 X 2"
JOINT IN CONC AREA
PARKING STRIP OR PLANTING AREA
6" MIN THICKNESS MNRL AGG TYPE 9

POLYMER CONCRETE HANDHOLES

TYPE 1 & 2 HANDHOLE

3/8-7 X 4 [102] LONG S.S. HEX HEAD AUGER BOLT 2 PLACES
2X #8/16 [18] THRU HOLE W/ 1/4 [6] CENTER PIN (2 PLACES)
3/8-7 X 3 [76] LONG S.S. HEX HEAD AUGER BOLT 2 PLACES
SKID RESISTANT SURFACE WITH A 0.6 COEFFICIENT OF FRICTION
6" X 18" KNOCKOUT 2 EACH END
6" MIN THICKNESS MNRL AGG TYPE 9
6" DRAIN HOLE (OPENED)

TYPE 3 HANDHOLE
(COVER SAME AS TYPE 2)

3/8-7 X 4 [102] LONG S.S. HEX HEAD AUGER BOLT 2 PLACES
2X #8/16 [18] THRU HOLE W/ 1/4 [6] CENTER PIN (2 PLACES)

TYPE 4 HANDHOLE

3/8-7 X 4 [102] LONG S.S. HEX HEAD AUGER BOLT 2 PLACES
2X #8/16 [18] THRU HOLE W/ 1/4 [6] CENTER PIN (2 PLACES)
3/8-7 X 3 [76] LONG S.S. HEX HEAD AUGER BOLT 2 PLACES
SKID RESISTANT SURFACE WITH A 0.6 COEFFICIENT OF FRICTION
6" X 18" KNOCKOUT 2 EACH END
6" MIN THICKNESS MNRL AGG TYPE 9
6" DRAIN HOLE (OPENED)

TYPE 5 HANDHOLE

12" X 12" KNOCKOUT 1 EACH SIDE
(2) 1/2" GROUND ROD KNOCKOUTS

HANDHOLE SCHEDULE

<table>
<thead>
<tr>
<th>TYPE</th>
<th>TOP UNIT INSIDE DIMENSION</th>
<th>EXTENSION UNIT (L)</th>
<th>COVER DIMENSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>W</td>
<td>H</td>
<td>L</td>
</tr>
<tr>
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<td>24&quot; x 13&quot; x 12&quot;</td>
<td>12&quot;</td>
<td>24&quot; x 15&quot;</td>
</tr>
<tr>
<td>2</td>
<td>30&quot; x 17&quot; x 12&quot;</td>
<td>12&quot;</td>
<td>30&quot; x 17&quot;</td>
</tr>
<tr>
<td>3</td>
<td>36&quot; x 24&quot; x 18&quot;</td>
<td>12&quot;</td>
<td>36&quot; x 24&quot;</td>
</tr>
<tr>
<td>4</td>
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<td>NA</td>
<td>30&quot; x 48&quot;</td>
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<td>6</td>
<td>48&quot; x 48&quot; x 48&quot;</td>
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<td>48&quot; x 48&quot;</td>
</tr>
</tbody>
</table>

City of Seattle
NOT TO SCALE

NOTES:
1. FOR DETAILS NOT SHOWN, SEE STD PLAN NO 5506
2. ALL HANDBOle COVERs AND FRAMES SHALL HAVE A NON-SKID SURFACE (SEE Std SPEC SEC 9-34.6)

REF STD SPEC SEC 8-33

POLYMER CONCRETE HANDHOLES
NOTE:
Pole and mast arm design shall conform to "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" (Current Edition).

Ref Std Spec Sec 8-32

City of Seattle	NOT TO SCALE	STEEL MAST ARM POLE

MAST ARM SCHEDULE

<table>
<thead>
<tr>
<th>MAST ARM LENGTH</th>
<th>FLANGE PLATE</th>
<th>POLE SCHEDULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOLT CIRCLE &quot;B&quot;</td>
<td>THREAD BOLT DIA</td>
<td>POLE BASE PLATE</td>
</tr>
<tr>
<td>11&quot;</td>
<td>1-8NC</td>
<td>16&quot; X 16&quot; 1-1/2&quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>3/8-17NC</td>
<td>18&quot; X 18&quot; 1-1/2&quot;</td>
</tr>
<tr>
<td>13/8&quot;</td>
<td>3/8-17NC</td>
<td>18&quot; X 18&quot; 1-1/2&quot;</td>
</tr>
<tr>
<td>14&quot;</td>
<td>1-1/2-6NC</td>
<td>20&quot; X 20&quot; 2&quot;</td>
</tr>
</tbody>
</table>

POLE FOUNDATION NOTES
1. CONCRETE STRENGTH SHALL BE CLASS 4000 AIR ENTRAINED.
3. BOTTOM ANCHOR PLATE: ASTM A36, HOT DIP GALVANIZED.
4. ALL REINFORCING BARS SHALL BE DEFORMED BILLET STEEL CONFORMING TO ASTM CLASS A706, GRADE 60.
5. ANCHOR BOLTS SHALL BE HOT DIP GALVANIZED ASTM A153 INCLUDING NUTS & WASHERS (FULL LENGTH) WITH A MINIMUM OF 18" OF THREADS ON TOP & 12" ON BOTTOM.
6. TAPE THE TOP OF ANCHOR BOLTS WITH CORROSION PROTECTION TAPE PER STD SPEC SEC 8-32.3(2)A PRIOR TO POURING CONCRETE.
7. SEE STD PLAN NO 541a FOR FOUNDATION DETAILS.

FOUNDATION SCHEDULE

<table>
<thead>
<tr>
<th>MAST ARM LENGTH</th>
<th>FOUNDATION DEPTH (LAT. GEAR)</th>
<th>ANCHOR BOLTS (FY = 55 KSI MIN.)</th>
<th>VERTICAL REINFORCING</th>
</tr>
</thead>
<tbody>
<tr>
<td>15'-0&quot; TO 30'-0&quot;</td>
<td>150#/SF</td>
<td>PROJECTION</td>
<td>BOLT CIRCLE DIA</td>
</tr>
<tr>
<td></td>
<td>FT</td>
<td></td>
<td>14 1/2&quot;</td>
</tr>
<tr>
<td></td>
<td>300#/SF</td>
<td></td>
<td>1 1/2&quot; X 60&quot;</td>
</tr>
<tr>
<td>31'-0&quot; TO 45'-0&quot;</td>
<td>9-6&quot;</td>
<td>9&quot;</td>
<td>16 1/2&quot;</td>
</tr>
<tr>
<td></td>
<td>12'-6&quot;</td>
<td>12'-6&quot;</td>
<td>16 1/2&quot;</td>
</tr>
<tr>
<td>45'-0&quot; TO 60'-0&quot;</td>
<td>10'-6&quot;</td>
<td>10'-6&quot;</td>
<td>16 1/2&quot;</td>
</tr>
<tr>
<td></td>
<td>12'-6&quot;</td>
<td>12'-6&quot;</td>
<td>16 1/2&quot;</td>
</tr>
</tbody>
</table>

ANCHOR PLATE DIMENSIONS

<table>
<thead>
<tr>
<th>SIZE</th>
<th>BOLT CIRCLE DIA</th>
<th>BOLT HOLE</th>
<th>CENTER HOLE</th>
<th>CORNER RADIUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15' X 16&quot; X 16&quot;</td>
<td>1 1/2&quot;</td>
<td>1 1/2&quot;</td>
<td>10&quot;</td>
<td>1 1/2&quot;</td>
</tr>
<tr>
<td>16 1/2&quot;</td>
<td>16 1/2&quot;</td>
<td>1 1/2&quot;</td>
<td>12 1/2&quot;</td>
<td>1 1/2&quot;</td>
</tr>
<tr>
<td>16 1/2&quot;</td>
<td>16 1/2&quot;</td>
<td>1 1/2&quot;</td>
<td>1 1/2&quot;</td>
<td>1 1/2&quot;</td>
</tr>
</tbody>
</table>

City of Seattle

NOT TO SCALE

STEEL MAST ARM POLE FOUNDATION SCHEDULE & DETAIL W/O METRO TROLLEY LOADS)

NOTE:
GROUT SHALL BE PREMIXED, NON-SHRINK AND NON-METALLIC

ANCHOR BOLT 3 THREAD PROJECTION ABOVE NUT

HEX NUT
LOCK WASHER
FLAT WASHER
LEVELING NUT
GROUT 60° SLOPE (TYP.)

WRAP PERIPHERY OF BOLTS WITH TAPE TO PREVENT GROUT FROM BEING PLACED UNDER POLE
CONDUIT PER DRAWINGS

POLE MOUNTING & GROUT DETAIL
(EXCEPT FOR POLES W/CHIEF SEATTLE BASE)

POLE BASE PLATE
7 1/2 MIN

3/4 PVC DRAIN TUBE LOW SIDE (TYP.)

CUT DRAIN TUBE FLUSH WITH GROUT, BOTH ENDS

BRACKET ARM FLANGE PLATE ON POLE

BOTTOM PLATE STEEL POLE

SIDE PLATES 3/4" X 3/4" X 7/8"

1% BOLT IN POLE W/ GROMMET

1% W/ CORRESPONDING HOLE IN POLE W/ GROMMET

DRILL & TAP FOR 3/4" BOLT (TYP.) UP TO 15'-0" MAX ARM LENGTH

6 FLANGE PLATE
2 3/4"
2 3/4"

SECTION C-C
STRUCTURAL CARBON STEEL PLATES SHALL BE ASTM A36

REF STD SPEC SEC 8-32

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MISCELLANEOUS STEEL POLE DETAILS

NOTES:
1. ALL OUTLETS SHALL BE PLUGGED WITH THREADED INSERT PLUGS DURING SHIPMENT TO PREVENT DAMAGE TO PLUGS.
2. REMOVE BURRS AND SHARP EDGES TO PREVENT DAMAGE TO ELECTRICAL CABLE.
3. SPLIT COUPLING SHALL EXTEND INTO THE POLE ¾” MAX AS SHOWN.

REF STD SPEC SEC 8-30 & 8-32

City of Seattle  NOT TO SCALE  MISCELLANEOUS STEEL POLE DETAILS

WIREWAY ISOMETRIC DETAIL

SECTION A-A

REF STD SPEC SEC 8-32

TERMINAL CABINET
POLE MOUNTING

City of Seattle
NOT TO SCALE

### POLE SCHEDULE

<table>
<thead>
<tr>
<th>POLE TYPE</th>
<th>DEAD LOAD MOMENT KIP-FT (AT GROUND LINE)</th>
<th>POLE TYPE</th>
<th>DEAD LOAD MOMENT KIP-FT (AT GROUND LINE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>12” x 12”</td>
<td>93</td>
<td>14” x 12½”</td>
</tr>
<tr>
<td></td>
<td>1½” x 1½”</td>
<td></td>
<td>2” x 2½”</td>
</tr>
<tr>
<td></td>
<td>1½” x 2½”</td>
<td></td>
<td>2” x 2½”</td>
</tr>
<tr>
<td></td>
<td>1½” x 2½”</td>
<td></td>
<td>2” x 2½”</td>
</tr>
<tr>
<td>Z</td>
<td>164</td>
<td></td>
<td>22”</td>
</tr>
</tbody>
</table>

### NOTES:

1. The yield moment shall be 2x the dead load moment. The ultimate plastic moment shall be 2.5x the dead load moment.
2. Pole shaft and reinforcing sleeve: ASTM A572 grade 50, 60 or 65 (Fy = 50, 60 or 65 ksi respectively) or ASTM A595 grade A or B (Fy = 65 or 60 ksi respectively).
3. Base plate and handle reinforcing rim: ASTM A36 or ASTM A572 grade 42. Base plate Fy = 20.65 pole shaft Fy. The base plate thickness may be reduced by ¼” if ASTM A572 grade 42 steel is used.
4. Reinforcing sleeve shall be fabricated from the same material and yield strength as the pole shaft.
5. Pole shafts shall have no more than two longitudinal welds in each ply.
6. Minimum shaft wall thickness of each ply shall be 0.239” (3 gauge). Pole shall have a maximum of two plies not including the ¼” reinforcing sleeve.
7. Maximum silicon content in steel shall be 0.04%. See Std Spec Section 9-33.1(3) for general galvanizing requirements.
8. Pole diameter for 12 or more sided poles shall be measured from the point to point dimension.
9. Poles shall meet deflection criteria stated in Std Spec Section 9-33.2(2) with the dead load applied at 25' above ground line.
10. Pole strength shall meet requirements of AASHTO standard specifications for structural supports for highway signs, luminaires and traffic signals (current edition).

REF STD SPEC SEC 8-32, 9-33

City of Seattle

STRAIN POLE DETAILS (TYPE V, X, Z POLES)

NOTES:
1. THE DEAD LOAD MOMENT AT THE GROUNDLINE SHALL BE 40 KIP-FT. THE YIELD MOMENT SHALL BE 2X DEAD LOAD MOMENT.
2. POLE STRENGTH SHALL MEET REQUIREMENTS OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (CURRENT EDITION).
3. POLE SHAFT: ASTM A572 GRADE 50, 60 OR 65 (Fy=50, 60 OR 65 KSI RESPECTIVELY), OR ASTM A595 GRADE A OR B (Fy=55 OR 60 KSI RESPECTIVELY)
4. BASE PLATE AND HANDHOLE REINFORCING HMG: ASTM A36 OR ASTM A572 GRADE 42. BASE PLATE Fy=20.65 POLE SHAFT FY. THE BASE PLATE THICKNESS MAY BE REDUCED BY 1/4" IF ASTM A572 GRADE 42 STEEL IS USED.
5. POLE SHAFTS SHALL HAVE NO MORE THAN TWO LONGITUDINAL WELDS IN EACH PLY.
6. MINIMUM SHAFT WALL THICKNESS OF EACH PLY SHALL BE 0.239" (3 GAUGE). POLE SHALL HAVE A MAXIMUM OF TWO PLYS.
7. MAXIMUM SILICON CONTENT IN STEEL SHALL BE 0.04%. SEE STD SPEC SECTION 9–33.1(3) FOR GENERAL GALVANIZING REQUIREMENTS.
8. POLE DIAMETER FOR 12 OR MORE SIDED POLES SHALL BE MEASURED FROM THE POINT TO POINT DIMENSION.
9. POLES SHALL MEET DEFLECTION CRITERIA STATED IN STD SPEC SECTION 9–33.2(2) WITH THE DEAD LOAD APPLIED AT 27" ABOVE GROUND LINE.
10. THE POLES SHALL BE COMPACT AND MUST MEET THE REQUIREMENTS IN AASHTO SECTION 4, TABLE 1.4 1B(1).

ALTERNATE POLE BASE DETAIL

POLE BASE DETAIL

REF STD SPEC SEC 8-32, 9-33

City of Seattle

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TYPE T STRAIN POLE DETAILS

TRAFFIC SIGNAL ONLY

NOTE:
1. ALL OTHER ARM LENGTHS REQUIRE SCL REVIEW AND APPROVAL

* THESE DIMENSIONS ARE ONLY ILLUSTRATIVE OF THE GENERAL OUTLINE AND MATERIALS USED IN THE CONSTRUCTION OF THESE ARMS AND ARE NOT INTENDED TO EXCLUDE MANUFACTURER'S STANDARD PRODUCTS.
CONDUIT RISER (WITH STAND-OFF BRACKET)

*When there will be only one conduit (1/2" or smaller) on the pole, one hole malleable iron clamps with 4" lag screws shall be used to secure the conduit to the pole in lieu of the stand-off brackets.

NOTES:
1. On poles with existing conduits, new conduits shall be installed in accordance with this standard plan.
2. Rigid steel conduit shall be grounded just below coupling, approximately 6'-0" to 10'-0" above ground, as shown.
3. When 2 or more rigid steel conduits are installed on one pole, one conduit shall be grounded as shown. The conduit supports & straps shall serve as a bonding device between the steel conduits.
4. The ground wire shall be one continuous length. Insert the ground wire form the bottom of the ground clamp & bend over the clamp before tightening.
5. All steel hardware shall be hot dipped galvanized after fabrication per ASTM A123.
6. Conduit clamp spacing shall be per the NEC with a minimum of two hole clamp per 10'-0" length of conduit.
7. Power and signal conductors shall not be placed in the same conduit.
8. When possible, riser shall be installed on downstream side of traffic.

REF STD SPEC SEC 8-33, SCL CONSTRUCTION GUIDELINES U 7-10