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**Abbreviations Reference:**

City of Seattle | NOT TO SCALE | ABBREVIATIONS

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*new abbreviation added*
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REF STD SPEC SEC 1-01.2

City of Seattle  NOT TO SCALE  ABBREVIATIONS

ITEM
Traffic Signal Mast
Arm Pole

Traffic Signal Mast Arm
Pole w/ Luminaire

Traffic Signal on
Span Wire

Multi-Directional Traffic
Signal on Span Wire

Traffic Signal Conduit

Traffic Signal Cable

Detector Loop, Dipole
(loop schedule)

Detector Loop, Quadrapole
(loop schedule)

pressure detector symbol removed
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Pervious Concrete Walk added
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<td>8”PSD</td>
</tr>
<tr>
<td>Pipe Storm Drain</td>
<td>24”PSD</td>
<td>24”PSD</td>
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</table>

standard plan revised due to new symbols on 003g

City of Seattle | NOT TO SCALE | STANDARD SYMBOLS | SEWER & DRAINAGE

<table>
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<tr>
<th>ITEM</th>
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<tbody>
<tr>
<td>Service Drain</td>
<td>$\text{-} - 8''\text{SD} - - - -$</td>
<td>$\text{-} 8''\text{SD} -$</td>
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<tr>
<td>Inlet &amp; CB Connection</td>
<td>$\text{-} - - - - - - - -$</td>
<td>$\text{-} 8'' -$</td>
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<tr>
<td>Open Ended Pipe</td>
<td>$\text{-} 8''\text{PSD} -$</td>
<td>$\text{-} 8''\text{PSD} -$</td>
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<tr>
<td>Ditch</td>
<td>$\text{-}-\text{\rightarrow}-\text{\rightarrow}$</td>
<td>$\text{-}-\text{\rightarrow}-\text{\rightarrow}$</td>
</tr>
<tr>
<td>Stream</td>
<td>$\text{-}-\text{\rightarrow}-\text{\rightarrow}$</td>
<td>$\text{-}-\text{\rightarrow}-\text{\rightarrow}$</td>
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*standard plan revised due to new symbols on 003g*
<table>
<thead>
<tr>
<th>ITEM</th>
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</thead>
<tbody>
<tr>
<td>Bench Mark (found or set)</td>
<td><img src="image" alt="Marker" /></td>
<td><img src="image" alt="Marker" /></td>
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<tr>
<td>Brass Plug/Cap (found or set)</td>
<td><img src="image" alt="Marker" /></td>
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<tr>
<td>Hub/Tack (found or set)</td>
<td><img src="image" alt="Marker" /></td>
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<tr>
<td>Monument in Case (found or set)</td>
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<tr>
<td>Conc. Mon. (found or set)</td>
<td><img src="image" alt="Marker" /></td>
<td><img src="image" alt="Marker" /></td>
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<tr>
<td>Section Corner (found or set)</td>
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</tr>
<tr>
<td>Quarter Corner (found or set)</td>
<td><img src="image" alt="Marker" /></td>
<td><img src="image" alt="Marker" /></td>
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<tr>
<td>Section Corner (calculated)</td>
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<tr>
<td>Quarter Corner (calculated)</td>
<td><img src="image" alt="Marker" /></td>
<td><img src="image" alt="Marker" /></td>
</tr>
<tr>
<td>Rebar/Cap, Pipe/Cap Rebar, Iron Pipe (found or set)</td>
<td><img src="image" alt="Marker" /></td>
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</tr>
<tr>
<td>Tack/Lead, Tack PK Nail, Spike (found or set)</td>
<td><img src="image" alt="Marker" /></td>
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<tr>
<td>Bench Mark (not found)</td>
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<td>Brass Plug/Cap (not found)</td>
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<td>MIC. (not found)</td>
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<td>Conc. Mon. (not found)</td>
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<tr>
<td>Tack/Lead, Tack PK Nail, Spike (not found)</td>
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<tr>
<td>Survey Shot Point</td>
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<td>ITEM</td>
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<tr>
<td>Center Line</td>
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<td>Monument Line</td>
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<tr>
<td>Survey Line</td>
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<td>Right of Way Line</td>
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<tr>
<td>Permanent Easement Line</td>
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<tr>
<td>Temp Const Easement Line</td>
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<tr>
<td>Vacated Street or Alley</td>
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<tr>
<td>State Highway Limited Access Line</td>
<td>STATE LAL</td>
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<tr>
<td>Building</td>
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<tr>
<td>Chain Link Fence</td>
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</tr>
<tr>
<td>Wood Fence</td>
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<td>Guardrail</td>
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<td>Rock Facing</td>
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</tr>
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<td>Riprap</td>
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<tr>
<td>Trees</td>
<td>16&quot; TREE</td>
<td>PER DRAWINGS</td>
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<td></td>
<td>16&quot; TREE</td>
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REF STD SPEC SEC

City of Seattle | NOT TO SCALE | STANDARD SYMBOLS TOPOGRAPHIC & MISC

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<tr>
<th>ITEM</th>
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<tr>
<td>Shrub or Bush</td>
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<tr>
<td>Ground, Grade Line</td>
<td>![Ground Grade Line]</td>
<td>![Ground Grade Line]</td>
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<tr>
<td>Grade (arrow downhill)</td>
<td>5.6%</td>
<td>5.6%</td>
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<tr>
<td>Rail Road Tracks</td>
<td>![Rail Road Tracks]</td>
<td>![Rail Road Tracks]</td>
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| City Limits                      | CITY OF SEATTLE  
KING COUNTY | ![City Limits] |
<p>| Slope Line                       | SLOPE LINE | ![Slope Line] |
| Contours                         | ![Contours] | ![Contours] |
| Slope Angle Horiz:Vert           | ![Slope Angle Horiz:Vert] | ![Slope Angle Horiz:Vert] |
| Vertical Curve                   | V | ![Vertical Curve] |
| Depression                       | ![Depression] | ![Depression] |
| Stump                            | ![Stump] | ![Stump] |
| Top of Cut Toe of Fill           | ![Top of Cut Toe of Fill] | ![Top of Cut Toe of Fill] |
| Dimension Line                   | ![Dimension Line] | ![Dimension Line] |
| Match Line                       | ![Match Line] | ![Match Line] |
| Test Hole &amp; Number (test boring) | (TB) TH-7 | (TB) TH-7 |
| Bench Mark                       | ![Bench Mark] | ![Bench Mark] |</p>
<table>
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<tr>
<th>ITEM</th>
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<tbody>
<tr>
<td>Monitor Well</td>
<td>MW</td>
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<td>Street Name Sign</td>
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<tr>
<td>Traffic Sign</td>
<td>◔</td>
<td>◔</td>
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<tr>
<td>US Mail Box</td>
<td>US</td>
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<tr>
<td>Private Mail Box</td>
<td></td>
<td></td>
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<tr>
<td>Bollard</td>
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<td>●</td>
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<tr>
<td>Posts</td>
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<td>●●</td>
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<td>Parking Meter &amp; Pay Station</td>
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<tr>
<td>Rectangular Casting</td>
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<tr>
<td>Circular Casting</td>
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<td>○</td>
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<tr>
<td>Column</td>
<td></td>
<td>○</td>
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<tr>
<td>Jersey Barrier &amp; Eco Block</td>
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<td>[ ]</td>
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<tr>
<td>Tree Pit</td>
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<tr>
<td>North Arrow horizontal</td>
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<tr>
<td>North Arrow vertical</td>
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**Redactions:**
- **renumbered**
- **added**
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<tr>
<td>Telephone Cable (direct burial)</td>
<td></td>
<td>( \chi(TCB) ) renumbered</td>
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<tr>
<td>Telephone Conduit</td>
<td></td>
<td>( \chi(3''TCD) )</td>
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<tr>
<td>Telephone Duct</td>
<td></td>
<td>( \chi(12''X12''TD) )</td>
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<tr>
<td>Telephone Enclosure</td>
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<td>( \chi(TEB) )</td>
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<td>Telephone Maintenance Hole</td>
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<td>( \chi(TELVAULT) )</td>
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<td>Telephone Pole</td>
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<td>( \chi(\text{TP}) )</td>
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<tr>
<td>Telephone Handhole</td>
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<td>( \chi(\text{THH}) )</td>
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<td>( \chi(TVCB) )</td>
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<td>Television Handhole</td>
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<td>( \chi(TVHH) )</td>
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<tr>
<td>Telegraph Maintenance Hole</td>
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<td>( \chi(TELEGVAULT) )</td>
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<tr>
<td>Steam Log</td>
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<td>( \chi(6''STM \ 14''X14''LOG) )</td>
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<td>Steam Vault</td>
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<td>( \chi(STEMV) )</td>
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<td>Gas Main</td>
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<td>( \chi(12''G) )</td>
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<td>( \chi(\text{G-V}) )</td>
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<td>( \chi(\text{GM}) )</td>
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<td>Gas Regulator</td>
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<td>( \chi(G-\text{REG}) )</td>
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<td>Petroleum or Oil</td>
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<tr>
<td>Abandon(ed)</td>
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<td>( \chi(2''ECD(ABAN)) )</td>
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REF STD SPEC SEC

City of Seattle | NOT TO SCALE | STANDARD SYMBOLS

PRIVATE UTILITIES

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<tr>
<th>ITEM</th>
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<td>Watermain &lt;1'-0&quot; Dia</td>
<td>8&quot;W</td>
<td>8&quot;W</td>
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<td>Watermain ≥1'-0&quot; Dia</td>
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<td>36&quot;W</td>
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<td>11 1/4° Bend w/ Conc Blocking</td>
<td></td>
<td>8&quot; - 11 1/4° HBorVB</td>
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<td>22 1/2° Bend</td>
<td></td>
<td>8&quot; - 22 1/2° HBorVB</td>
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<td>45° Bend</td>
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<td>8&quot; - 45° HBorVB</td>
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<td>90° Bend</td>
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<td>8&quot; - 90° HBorVB</td>
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<tr>
<td>Cross</td>
<td></td>
<td>8&quot;X8&quot;X6&quot;X6&quot; CR</td>
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<tr>
<td>Tee</td>
<td></td>
<td>8&quot;X8&quot;X6&quot; T</td>
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<tr>
<td>Pipe Sleeve</td>
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<tr>
<td>Plug w/ Conc Blocking</td>
<td></td>
<td>or</td>
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<tr>
<td>Hydrant</td>
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<tr>
<td>Water Meter</td>
<td>WM</td>
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<td>Valve Box</td>
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<td>Gate Valve</td>
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<td>4&quot; GV W/VBOX</td>
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<tr>
<td>Gate Valve w/ Chamber</td>
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<td>8&quot; GV W/CH</td>
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<td>Gate Valve w/ Vault Chamber</td>
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<td>16&quot; GV W/VCH</td>
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<td>8&quot;W</td>
<td>8&quot;X4&quot; RED</td>
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<td>ITEM</td>
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<td>Air Valve</td>
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<tr>
<td>Blowoff</td>
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<td>$\frac{1}{2}''$ BO</td>
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<td>Fire Standpipe</td>
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<td>Water Test Station</td>
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<tr>
<td>Water Chamber</td>
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<tr>
<td>Sprinkler Head</td>
<td>$\times$</td>
<td>$\times$</td>
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<tr>
<td>Irrigation Valve</td>
<td>$\times$</td>
<td>\text{IRRV}</td>
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<td>Angle Valve</td>
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<tr>
<td>Butterfly Valve</td>
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<td>Plug Valve</td>
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<tr>
<td>Resilient Seal Gate Valve</td>
<td>$\times$</td>
<td>$\blacktriangledown$</td>
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<tr>
<td>Vertical Bend</td>
<td>|</td>
<td>|</td>
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<tr>
<td>Concrete Blocking</td>
<td>\blacktriangleup</td>
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</table>

\text{new std plan due to renumbering}
MINIMUM TREE CLEARANCES
CENTERLINE OF TREE TO CENTERLINE OF:
30'-0" TO EXTENSION OF CROSS STREET CURB (AT INTERSECTION)
20'-0" TO UTILITY POLE (WITH OR WITHOUT LIGHT)
10'-0" TO PAVEMENT EDGE (NO EXISTING CURB)
5'-0" TO UNDERGROUND FACILITY (EXCEPT AS NOTED OTHERWISE)

CENTERLINE OF TREE TO EDGE OF:
7'-0" TO DRIVEWAY OR ALLEY
3'-6" TO FACE OF CURB
2'-0" TO EDGE OF SIDEWALK

EDGE OF TREE TO EDGE OF:
5'-0" TO FIRE HYDRANT, HYDRANT BRANCH, WATER METER, WATER
SERVICE, WATER MAIN AND WATER BLOW OFF
5'-0" TO CDS, INLETS, OTHER DRAINAGE STRUCTURES, MANHOLES, SEWER,
STORM DRAIN OR SERVICE CONNECTIONS.

FOR CLEARANCES, SEE
STD PLAN NO 3419

FOR TABLE 1
FOR WATERMAIN DEPTHS

NOTES:
1. SERVICE LATERALS OR APPURTENANCES:
   • 1'-8" TO 2'-6" DEPTH FROM CURB TO PROPERTY LINE RESERVED FOR
     SERVICE LATERALS AND APPURTENANCES.
   • SANITARY SIDE SEWER MINIMUM COVER IS 2'-6" AT PROPERTY LINE
     AND 5'-0" AT THE CURB.
   • SERVICE DRAIN MAY RUN UNDER THE SIDEWALK, THROUGH THE CURB OR
     THROUGH RESERVED SPACES IDENTIFIED IN NOTE 1.
2. ELECTRIC POWER, GAS, TELEPHONE, TELEVISION AND TREES SHALL BE INSTALLED
   IN THE SAME RELATION TO THE CURB ON STREETS WITH PAVEMENT WIDTHS FROM
   25'-0" TO 36'-0".
3. LAYOUT IS APPLICABLE TO 60'-0" R/W AND 25'-0" RESIDENTIAL PAVING.
4. REDUCING CLEARANCE BETWEEN A NEW UTILITY AND EXISTING TREE PLANTING STRIP,
   REDUCING CLEARANCE BETWEEN A NEW/REPLACEMENT TREE AND EXISTING UTILITY,
   INCORPORATING GSI (BIORETENTION) INTO PLANTER STRIP OR CURB EXTENSION OR
   CHANGING THE 10'-6" WIDTH OF PLANTING STRIP REQUIRES REVIEW AND APPROVAL
   OF THE ENGINEER AND MAY REQUIRE ADDITIONAL MITIGATING MEASURES.
5. BACKFILL OVER ALL UTILITY INSTALLATIONS BETWEEN BACK OF CURB AND R/W AND
   WITHIN 5' OF CENTERLINE OF TREES SHALL BE PLANTING SOIL FOR A MINIMUM
   DEPTH EQUAL TO THE DEPTH OF THE ROOTBALL (NO CSB ALLOWED IN THIS ZONE).
1. REMOVE STAKES ONE YEAR AFTER INSTALLATION.
2. SHAPE SURFACE TO PROVIDE 4" DIA. WATERING RING.
3. TREE CLEARANCE MUST BE PER STD PLAN NO 030.
4. SEE STD PLAN NO 424 FOR TREE PIT DETAIL.
5. ADJUST TREE TIES DURING ESTABLISHMENT TO ALLOW ROOM FOR GROWTH (1/2" SLACK).
6. ROOT BARRIER REQUIRED ALONG EDGE OF ROADWAY, CURB, DRIVEWAY, TRAIL, SIDEWALK, OR OTHER STRUCTURES WHERE ROOTBALL IS WITHIN TWO FEET. PLACE VERTICAL ROOTBARRIERS AS SHOWN IN STANDARD PLANS NO 424a OR 424b. INSTALL ROOT BARRIERS FOR NEWLY PLANTED TREES ONLY.

"CHAINLOCK" OR EQUAL TREE TIE MATERIAL (1" SIZE) NAIL OR STAPLE TREE TIE MATERIAL TO STAKE TO HOLD VERTICALLY. LOOP EACH TIE AROUND HALF TREE LOOSELY TO PROVIDE 1" SLACK FOR TRUNK GROWTH.

2"-3" MULCH DEPTH
(TAPERED AT TRUNK)

MULCH TREE PIT MIN 5'-0"
LENGTH X FULL PLANTING STRIP WIDTH BETWEEN CURB AND SIDEWALK (FOR PLANTING STRIPS LESS THAN 6'-0" WIDE), OR PROVIDE 5'-0" DIA MULCH RING FOR PLANTING STRIPS WIDER THAN 6'-0".

SIDEWALK

18" ROOTBARRIER AT SIDEWALK.

ROUGHEN SIDES OF PLANTING HOLE MAXIMIZE EXCAVATED AREA WITHOUT UNDERMINING ADJACENT PAVING/CURB.

ROOTBARRIER; PLACE AT EDGE OF PAVEMENT/SIDEWALK/ETC.; PLACE PRIOR TO PLACEMENT OF NEW SIDEWALK OR CURB TO PREVENT UNDERMINING.

SEE STD SPEC SECTION 6-02.36(6.1), OR AS APPROVED BY ENGINEER.

REMOVE ALL WIRE, STRINGS, AND OTHER NON-BURLAP MATERIAL; AND REMOVE BURLAP FROM TOP ½ OF ROOTBALL MINIMUM. REMOVE ENTIRELY WHEN DIRECTED BY THE ENGINEER.

MIN WIDTH OF TREE PIT = 2 TIMES ROOTBALL DIAMETER OR 5'-0", WHICHEVER IS GREATER

MULCH AREA TO BE CLEAR OF GRASS, WEEDS, ETC. TO REDUCE COMPETITION WITH TREE ROOTS

24" ROOTBARRIER AT CURB WHEN SHOWN ON THE DRAWINGS.

TREE PIT DEPTH = ROOTBALL DEPTH (MEASURE BEFORE SEEDING TO AVOID OVEREXCAVATION).

DRIVE STAKES 6" TO 1'-0" INTO UNDISTURBED SOIL BELOW ROOTBALL.

UNDISTURBED SUBGRADE (PROVIDES FIRM BASE SO THAT ROOTBALL WILL NOT SINK.)

---

City of Seattle
NOT TO SCALE
DECIDUOUS TREE PLANTING IN PLANTING STRIP

CONTINUOUS OUTER ROW AT X FEET ON CENTER, 2/3X FEET SETBACK FROM EDGE OF PLANTING BED WITH TRIANGULAR SPACING INSIDE BED (TYP)

EDGE OF PLANTING BED OR PAVEMENT

AREA FOR SPACING

ADJUSTMENT

2/3X OR 8" MIN. WHICHEVER IS GREATER (TYP)

X = RECOMMENDED SPACING (SEE LANDSCAPE DETAIL ON DRAWING)

= ACTUAL PLANT LOCATIONS

callout revised
**100 LANDSCAPE PLANTING**

**STANDARD PLAN NO 113**

**REV DATE: JAN 2017**

**END CAP DETAIL**

- **PERENNIAL TYPE 1**: 4
- **PERENNIAL TYPE 2**: 6
- **PERENNIAL TYPE 3**: 5
- **EVERGREEN GROUNDCOVER TYPE 1**: 13
- **EVERGREEN GROUNDCOVER TYPE 2**: 12

**QUANT PER END CAP**

- GROUNDCOVER: 30
- SHRUB: 5

**DETAILED AT TREE PLAN**

**TYP STREET TREE**

2"-2 1/2" CALIFER
2"CALIFER

**CHAINLOCK TREE TIE**

LOOP EACH TIE AROUND TREE LOOSELY TO PROVIDE 1" SLAG FOR DIAMETER GROWTH

(2) 2" LODGEPOLE PINE Doweled tree stakes (8'-0" LENGTH)

SEE STD PLAN NO 100 FOR SUPPLEMENTAL TREE PLANTING INFORMATION

**PLACE 3" OF PLANTING SOIL & MIX WITH SUBSOIL BEFORE ADDING**

**SUBSEQUENT QUANTITIES OF PLANTING SOIL (IN 6" LIFTS COMPACTED TO 85%**

**NATIVE SUBGRADE TO BE SCARRIFIED TO A DEPTH OF 6" PRIOR TO PLACEMENT OF FILL CALL FOR INSPECTION BEFORE FILLING**

**2"-3" ARBORIST WOOD CHIP MULCH**

SEE STD PLANS NO 110 & 111 FOR SUPPLEMENTAL SHRUB AND GROUNDCOVER PLANTING INFORMATION

**ELEVATION**

**SOIL PREPARATION DETAIL**

**MEDIAN PLANTING**

**REF STD SPEC SEC 8-02**

City of Seattle

NOTE:
1. USE TEFLOM TAPE ON ALL THREADED FITTINGS
2. DETECTABLE MARKING TAPE COLOR PER STANDARD SPECIFICATIONS SECTION 9-15.11 FOR POTABLE OR NON-POTABLE WATER
NOTES:
1. SLEEVE SIZE AS SHOWN ON DRAWINGS OR ID OF SLEEVE TO BE 1" GREATER THAN OD OF PIPE
2. SLEEVES REQUIRED UNDER ALL SWING JOINTS
3. DETECTABLE MARKING TAPE COLOR PER STANDARD SPECIFICATIONS SECTION 9-15.11 FOR POTABLE OR NON-POTABLE WATER
NOTES:
1. REUSABLE TEMPORARY PROTECTION FENCING USED TO PROTECT TREES IN TREE PITS MUST SURROUND THE ENTIRE UNPAVED TREE PIT AREA AND BE ANCHORED AND MAINTAINED IN A STABLE UPRIGHT CONDITION. SEE SECTION B-01.3.2(2).

note added

title revised

REUSABLE TEMPORARY PROTECTION FENCE

REF STD SPEC SEC 1-07.16(2) & 8-01

City of Seattle

NOTES:

1. All soil areas disturbed or compacted during construction, and not covered by buildings or pavement, must be amended with compost as described below.

2. Subsoil should be scarified (loosened) 4 inches below amended layer to produce 12-inch depth of un-compacted soil except where scarification would damage tree roots or as determined by the engineer.

3. Compost must be tilled in to 8-inch depth into existing soil or place 6 inches of compost-amended soil per soil specification.

4. Turf areas must receive 1.75 inches of compost tilled in to 8-inch depth, or may substitute 8" of imported soil containing 20-25% compost by volume. Then plant grass seed or sod per specification.

5. Planting beds must receive 3 inches of compost tilled in to 8-inch depth, or may substitute 8" of imported soil containing 35-40% compost by volume. Mulch after planting, with 2-3 inches of arborist wood chip mulch or approved equal.

6. Setbacks: To prevent uneven settling, do not compost-amend soils within 3 feet of utility infrastructures (poles, vaults, meters etc.), within one foot of pavement edge, curbs and sidewalks. Soil should be compacted to approximately 90% proctor to ensure a firm surface.
REINFORCING STEEL "A"
MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION

<table>
<thead>
<tr>
<th></th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20&quot; MAX</td>
<td>0.25</td>
<td>0.17</td>
</tr>
<tr>
<td>30&quot; MAX</td>
<td>0.31</td>
<td>0.22</td>
</tr>
<tr>
<td>40&quot; MAX</td>
<td>0.36</td>
<td>0.25</td>
</tr>
</tbody>
</table>

NOTES:
1. MATERIALS: CONCRETE—CLASS 4000; REINFORCING STEEL—ASTM A615 GRADE 60 MIN.; CHANNEL AND SHELF MATERIAL — CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 2,000 LBS/SQ FT.
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 5 IN., MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3 IN., MIN CLEAR DISTANCE BETWEEN HOLES IS 8 IN.

SECTION A-A

SECTION B-B

PRECAST BASE W/ INTEGRAL RISERS

REINFORCING STEEL "A" SEE TABLE

MORTAR FILLET

CAST-IN-PLACE BASE

Undisturbed earth or type 2 mineral aggregate 4'' min thickness for cast-in-place base section

ladder step removed

dim revised

City of Seattle
NOT TO SCALE
TYPE 204a MAINTENANCE HOLE

REINFORCING STEEL "A"

<table>
<thead>
<tr>
<th></th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.29</td>
<td>0.21</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.36</td>
<td>0.26</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.42</td>
<td>0.31</td>
</tr>
</tbody>
</table>

NOTES:
1. MATERIALS: CONCRETE—CLASS 4000; REINFORCING STEEL—ASTM A615 GRADE 60 MN; CHANNEL AND SHELF MATERIAL—CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LB/FS FT.
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 6 IN. MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE BETWEEN HOLES IS 8 IN.

SECTION B-B

H' SEE TABLE

1-6' MIN CLEAR OPENING

LOCATION OF MH LADDER FOR TYPE A MAINTENANCE HOLE

PLAN VIEW
(TOP REMOVED)

SLOPE 3/8" 1:0" (TYP)

EXTENDED "L" OF SEWER PIPES INTERSECT AT 90° OF MAINTENANCE HOLE

MANTLEHOLE FRAME & COVER,
SEE STD PLAN NO 230

HANDHOLDS, SEE STD PLANS NO 232 & 232B

LEVELING BRICKS OR CONCRETE COLLAR

4' 6" TO 2' 0"
PREECAST CONCENTRIC CONE SECTION SHOWN

MH LADDER SEE STD PLANS NO 232a & 232b

SECTION A-A

CAST-IN-PLACE BASE

REINFORCING STEEL "A"
SEE TABLE

PRECAST BASE W/ INTEGRAL RISERS

UNDISTURBED EARTH OR TYPE 2 MINERAL AGGREGATE 4" MIN THICKNESS FOR CAST-IN-PLACE BASE SECTION

NOT TO SCALE

TYPE 204.5a MAINTENANCE HOLE

City of Seattle

NOTES:
1. MATERIALS: CONCRETE—CLASS 4000;
   REINFORCING STEEL—ASTM A615 GRADE
   60 MIN. CHANNEL AND SHELF MATERIAL—
   CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE
   COMPONENTS MUST CONFORM TO ASTM C
   478. JOINTS BETWEEN PRECAST
   COMPONENTS MUST BE RUBBER
   GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING —
   3,000 LBS/SQ FT
4. MAX HOLE SIZE MUST BE OD OF PIPE
   PLUS 6 IN. MIN HOLE SIZE MUST BE
   OD OF PIPE PLUS 3 IN. MIN CLEAR
   DISTANCE BETWEEN HOLES IS 8 IN.
NOTES:
1. MATERIALS: CONCRETE - CLASS 4000; REINFORCING STEEL - ASTM A615 GRADE 60 MIN. CHANNEL AND SHELF MATERIAL - CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/50 FT.
4. MAX HOLE SIZE MUST BE 2" OF PIPE PLUS 7" MIN. HOLE SIZE MUST BE 2" OF PIPE PLUS 3" MIN CLEAR DISTANCE BETWEEN HOLES IS 12 IN.

SECTION A-A

REINFORCING STEEL "A"
MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION

<table>
<thead>
<tr>
<th></th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20'MAX</td>
<td>0.29</td>
<td>0.24</td>
</tr>
<tr>
<td>30'MAX</td>
<td>0.41</td>
<td>0.32</td>
</tr>
<tr>
<td>40'MAX</td>
<td>0.49</td>
<td>0.41</td>
</tr>
</tbody>
</table>

REINFORCING STEEL "A" SEE TABLE

MORTAR FILLET

UNDISTURBED EARTH OR TYPE 2 MINERAL AGGREGATE 4" MIN. THICKNESS FOR CAST-IN-PLACE BASE SECTION

SECTION A-A

REF STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE
TYPE 206b MAINTENANCE HOLE

REINFORCING STEEL "A"
MIN. SQ IN/FT. TOP FACE, IN EACH DIRECTION

<table>
<thead>
<tr>
<th></th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.42</td>
<td>0.34</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.51</td>
<td>0.41</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.60</td>
<td>0.48</td>
</tr>
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</table>

TOP SLAB REINFORCEMENT

NOTES:
1. MATERIALS: CONCRETE - CLASS 4000;
   REINFORCING STEEL - ASTM A615 GRADE 60
   MIN; CHANNEL AND SHELF MATERIAL - CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478, JOINTS
   BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C
   443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT.
4. MAX HOLE SIZE MUST BE OD OF PIPE
   PLUS 6 IN. MIN HOLE SIZE MUST BE OD
   OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE
   BETWEEN HOLES IS 12 IN.

REF STD SPEC SEC 7-05

City of Seattle

REINFORCING STEEL "A"

MIN. 50 IN/FT, TOP FACE, IN EACH DIRECTION

<table>
<thead>
<tr>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.34</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.43</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.52</td>
</tr>
</tbody>
</table>

"H"

THE GREATER OF 3/8 INSIDE PIPE DIAMETER OR 1'-0" (TYP)

TOP SLAB REINFORCEMENT

NOTES:
1. MATERIAL: CONCRETE—CLASS 4000;
   REINFORCING STEEL—ASTM A615 GRADE 60;
   CHANNEL AND SHELF MATERIAL—CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 445.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/50 FT.
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 6 IN. MIN HOLE SIZE MUST BE OD OF PIPE PLUS 6 IN. MIN CLEAR DISTANCE BETWEEN HOLES IS 12 IN.
REINFORCING STEEL "A"

<table>
<thead>
<tr>
<th>MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREAMOUNT BASE</td>
</tr>
<tr>
<td>20' MAX</td>
</tr>
<tr>
<td>30' MAX</td>
</tr>
<tr>
<td>40' MAX</td>
</tr>
</tbody>
</table>

NOTES:
1. MATERIAL: CONCRETE—CLASS 4000
REINFORCING STEEL—ASTM A615 GR. 60 MIN.
CHANNEL AND SHELF MATERIAL: CONCRETE
CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST
CONFORM TO ASTM C 442.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
LBS/50 FT.
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 9". 
MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3". 
MIN DISTANCE BETWEEN HOLES IS 12".

SECTION A-A

REF STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE
TYPE 208b MAINTENANCE HOLE

REINFORCING STEEL "A"

<table>
<thead>
<tr>
<th>MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION</th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' max</td>
<td>0.70</td>
<td>0.60</td>
</tr>
<tr>
<td>30' max</td>
<td>0.85</td>
<td>0.73</td>
</tr>
<tr>
<td>40' max</td>
<td>1.00</td>
<td>0.86</td>
</tr>
</tbody>
</table>

NOTES:
1. MATERIAL: CONCRETE—CLASS 4000
   REINFORCING STEEL—ASTM A615 GRADE 60 MIN
   CHANNEL AND SHELF MATERIAL—CONCRETE
   CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS
   MUST CONFORM TO ASTM C 478. JOINTS
   BETWEEN PRECAST COMPONENTS MUST BE
   RUBBER GASKETED CONFORMING TO ASTM C
   443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
   LBS/SQ. FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS
   11". MIN HOLE SIZE MUST BE OD OF PIPE
   PLUS 3". MIN DISTANCE BETWEEN HOLES IS 12".

H" 4-7 BF
(CUT AS REQ'D)

TOP SLAB REINFORCEMENT

FAN 5 #7 BARS @4
EQUAL SPACES BF

#7 BF (Typ)

#4 HOOP TF

#4 CLرعا

1'-0" LTN

TYPE B MINERAL AGGREGATE
W/ PORTLAND CEMENT FOR
PRECAST BASE OR PRECAST
BASE WITH INTEGRAL RISER

base dimension corrected
**SECTION A-A**

**UNDISTURBED EARTH OR TYPE 2 MINERAL AGGREGATE, 4" MIN THICKNESS FOR CAST-IN-PLACE BASE SECTION**

**REINFORCING STEEL**

- **"H"**
  - MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION
  - **PRECAST BASE**
    - 20' MAX: 0.85
    - 30' MAX: 1.02
    - 40' MAX: 1.20
  - **CAST-IN-PLACE BASE**
    - 20' MAX: 0.74
    - 30' MAX: 0.89
    - 40' MAX: 1.05

**NOTES:**
1. **REINFORCING STEEL**—ASTM A615 GRADE 60 MIN CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. **PRECAST MAINTENANCE HOLE COMPONENTS** MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. **MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT**
4. **MAX HOLE SIZE MUST BE 0" OD OF PIPE PLUS 12". MIN HOLE SIZE MUST BE 0" OD OF PIPE PLUS 3". MIN DISTANCE BETWEEN HOLES IS 12".

**FAN 5#7 BARS @ 4 EQUAL SPACES BF**

**#7 BF (TYPE)**

**TOP SLAB REINFORCEMENT**

**MORTAR FILLET**

**CHANNEL**

**SHELF**

**PRECAST BASE**

**REFSTD SPEC SEC 7-05**

**NOT TO SCALE**

**TYPE 211a MAINTENANCE HOLE**

**City of Seattle**

**2017 Edition City of Seattle Standard Plans for Municipal Construction**
NOTES:

1. MATERIAL: CONCRETE—CLASS 4000  
   REINFORCING STEEL—ASTM A615 GRADE 60 MIN 
   CHANNEL AND SHELF MATERIAL—CONCRETE 
   CLASS 3000.

2. PRECAST MAINTENANCE HOLE COMPONENTS 
   MUST CONFORM TO ASTM C 478, JOINTS 
   BETWEEN PRECAST COMPONENTS MUST BE 
   RUBBER GASKETED, CONFORMING TO ASTM C 
   443.

3. MINIMUM REQUIRED SOIL BEARING = 3,000 
   LBS/SQ FT.

4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 
   12". MIN HOLE SIZE MUST BE OD OF PIPE 
   PLUS 3". MIN DISTANCE BETWEEN HOLES IS 12".

SECTION A-A 

REINFORCING STEEL "A"—SEE TABLE 

BASE DIMENSION CORRECTED
**200 SEWER-DRAINAGE APPURTENANCES**

**STANDARD PLAN NO 212a**

**REINFORCING STEEL "A"**

**MIN. 50 IN/FT, TOP FACE, IN EACH DIRECTION**

<table>
<thead>
<tr>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20&quot; MAX</td>
<td>1.01</td>
</tr>
<tr>
<td>30&quot; MAX</td>
<td>1.28</td>
</tr>
<tr>
<td>40&quot; MAX</td>
<td>1.56</td>
</tr>
</tbody>
</table>

**PLAN VIEW**

- Location of MH ladder for Type A maintenance hole
- Plan view (top removed)
- Handholds: See Std Plans No 232a & 232b
- 3/4" Smooth mortar lining
- Leveling bricks or concrete collar
- 4" to 2" cone section
- MH ladder: See Std Plans No 232a & 232b

**TOP SLAB REINFORCEMENT**

- Fan 5#7 bars @ 4 equal spaces BF
- #7 BF (Typ)

**NOTES:**

1. Material: Concrete-Class 4000
   Reinforcing steel: ASTM A615 Grade 60 min
   Channel and shelf material: Concrete Class 3000
2. Precast maintenance hole components must conform to ASTM C 476. Joints between precast components must be rubber gasketed conforming to ASTM C 443.
3. Minimum required soil bearing = 3,000 LBS/SQ FT
4. Max hole size must be OD of pipe plus 2". Min hole size must be OD of pipe plus 3". Min distance between holes is 12".

**SECTION A-A**

- Mortar fillet
- Cast-in-place base
- Undisturbed earth or Type 2 mineral aggregate
- 4" min thickness for cast-in-place base section

**REF STD SPEC SEC 7-05**

**2017 Edition City of Seattle Standard Plans for Municipal Construction**

*base dimension corrected*
REINFORCING STEEL "A"

<table>
<thead>
<tr>
<th>MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION</th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' VAX</td>
<td>0.81</td>
<td>0.72</td>
</tr>
<tr>
<td>30' VAX</td>
<td>1.09</td>
<td>0.96</td>
</tr>
<tr>
<td>40' VAX</td>
<td>1.36</td>
<td>1.20</td>
</tr>
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</table>

NOTES:
1. MATERIAL: CONCRETE—CLASS 4000
   REINFORCING STEEL—ASTM A615 GRADE 60 MIN
   CHANNEL AND SHELF MATERIAL CONCRETE
   CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS
   MUST CONFORM TO ASTM C 478. JOINTS
   BETWEEN PRECAST COMPONENTS MUST BE
   RUBBER GASKETED CONFORMING TO ASTM C
   443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
   LBS/SQ FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS
   13". MIN HOLE SIZE MUST BE OD OF PIPE
   PLUS 3". MIN DISTANCE BETWEEN HOLES IS 12".

REF STD SPEC SEC 7-05

City of Seattle

NOT TO SCALE

TYPE 212b MAINTENANCE HOLE


base dimension corrected
NOTES:
1. MATERIAL – STEEL REINFORCED POLYPROPYLENE
2. DIMENSIONS FOR THE MH LADDER AND STEP ARE MINIMUM REQUIREMENTS ONLY.
3. WHEN THE DISTANCE FROM THE LAST (HIGHEST) STEP OR HANDHOLD TO THE TOP OF THE MH FRAME EXCEEDS 1'-6", A HANDHOLD MUST BE INSTALLED MID-WAY IN THE LEVELING BRICK OR COLLAR.
4. EITHER STEPS, LADDERS OR A COMBINATION OF THE TWO CAN BE USED. IF BOTH STEPS AND LADDERS ARE USED IN ANY MH, THEY MUST BE FROM THE SAME MANUFACTURER.
5. A VERTICAL HANDHOLD MUST BE INSTALLED 4'-0" ABOVE THE SHELF WHEN INDICATED IN MH PLAN VIEW.

REFERENCES:
REF STD SPEC SEC 7-05

City of Seattle

SECTION B-B

NOTES:

1. FRAME & GRATE OR FRAME & COVER MUST BE LOCATED OVER TRAP.
2. INVERT OF INLET PIPE MUST BE 2' MIN ABOVE INVERT OF OUTLET PIPE.
3. SEE STD PLAN 261 FOR ALLOWABLE OUTLET LOCATIONS.

<table>
<thead>
<tr>
<th>CB TYPE</th>
<th>CASTING</th>
<th>COVER</th>
</tr>
</thead>
<tbody>
<tr>
<td>240A</td>
<td>PER STD PLAN 230</td>
<td>PER STD PLAN 230</td>
</tr>
<tr>
<td>240B</td>
<td>PER STD PLAN 264</td>
<td>PER STD PLAN 264</td>
</tr>
<tr>
<td>240C</td>
<td>PER STD PLAN 265</td>
<td>PER STD PLAN 265</td>
</tr>
<tr>
<td>240D</td>
<td>PER STD PLAN 263A</td>
<td>PER STD PLAN 265</td>
</tr>
</tbody>
</table>

TABLE 1

<table>
<thead>
<tr>
<th>Grade</th>
<th>8” Min</th>
<th>1”-4” Max</th>
<th>8” Min</th>
<th>1”-4” Max</th>
<th>12” Min</th>
<th>2”-0” Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>6”</td>
<td>8”</td>
<td>1”-4”</td>
<td>10”</td>
<td>1”-4”</td>
<td>1”-3”</td>
<td>2”-0”</td>
</tr>
</tbody>
</table>

REINFORCING STEEL 0.15 SQ IN/FT IN EACH DIRECTION
SINGLE CIRCULAR CAGE 0.12 SQ IN/FT IN EACH DIRECTION
LEVELING BRICK OR PRECAST RISER
PRECAST TOP SLAB PER STD PLAN NO 243a
TYPE 240A: UNIT R SLAB
TYPE 240B: UNIT P-45 SLAB
TYPE 240C: UNIT T SLAB
TYPE 240D: UNIT T SLAB

FLOW LINE
OUTLET TRAP
SEE STD PLAN NO 267

TABLE 1

<table>
<thead>
<tr>
<th>6”</th>
<th>8” Min</th>
<th>1”-4” Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>6”</td>
<td>8”</td>
<td>1”-4”</td>
</tr>
<tr>
<td>8”</td>
<td>10”</td>
<td>1”-4”</td>
</tr>
<tr>
<td>12”</td>
<td>1”-3”</td>
<td>2”-0”</td>
</tr>
</tbody>
</table>
**NOTES:**
1. **MATERIAL:** CONCRETE: CLASS 4000
   REINFORCING STEEL: ASTM A-615 OR 60
2. **INSTALL & LOCATE PER STD PLANS NO 260 & 261**
3. **OUTLET TRAP TO BE LOCATED DIRECTLY BELOW FRAME AND GRATE**
4. **USE OF LEVELING BRICKS MUST BE RUNNING BOND PATTERN WITH 1/4 TO 1/2 GROUT IN BETWEEN BRICKS.**

**TABLE REVISED**

<table>
<thead>
<tr>
<th>CB TYPE</th>
<th>CASTING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FRAME</td>
</tr>
<tr>
<td>A</td>
<td>NO 262</td>
</tr>
<tr>
<td>B</td>
<td>NO 263A</td>
</tr>
<tr>
<td>C</td>
<td>NO 263A</td>
</tr>
</tbody>
</table>

**PLAN VIEW**

- Center casting over opening on Type A
- Frame & Grate (Type 242A shown)
- Curb side

**TYPE A**

- Precast base
- #10B8' each way
- Type 9 Mineral aggregate w/ Portland cement

**TYPE B**

- Outlet trap
- Precast base
- #10B8' each way
- Type 9 Mineral aggregate w/ Portland cement

**SECTION A-A**

**SECTION B-B**

**OVERALL DIMENSIONS:**
- 3'-6"
- 4'-0"
- 6'-0"

**CIRCUMFERENCE REF:** 0.12 SQ. YD./L.F.

**SECTIONS:**
- 7-05
- A-A
- B-B

**REF:** Std Spec Sec 7-05

City of Seattle

NOT TO SCALE

TYPE 242 CATCH BASIN

TYPE 240C CB

TYPE 242A CB

Curb Detail (Plan View) for Type 240D & 242C CB & Type 250B Inlet

New std plan
This page contains a diagram of a Type 263 inlet frame and hood, with sections labeled A-A, B-B, and C-C. The diagram is renumbered due to a new standard plan 263b.

REF STD SPEC SEC 9-12

City of Seattle

NOT TO SCALE

TYPE 263 INLET FRAME AND HOOD

new standard plan

Curb Inlet

Section A-A

Non-slip surface per Std Spec Section 1-07.1(3)

City of Seattle

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NOTES:
1. GRATE MATERIAL: DUCTILE IRON
2. FRAME PER STD PLAN NO 264
LOCKING FRAME & COVER

2"-6" x 2"-6" x 1'-0"
CONC PAD

12" DIA DIP, 12" LONG
FIBER JOINT PACKING

6" MINERAL AGGREGATE TYPE 2

LOCKING FRAME & COVER IS OPTIONAL ON PRIVATE PROPERTY.

NOTE:

CAST IRON FRAME & COVER

2" RAISED LETTERS

10"
9"
8"
7"
6"
5"
1'-3" 1/8 BEND

PLUG SHALL BE SEALED IN SAME MANNER AS MAIN SEWER JOINTS

WYE OR 1/8 BEND

DRILL AND TAP FOR LOCKING AS REQUIRED, APPLY ANTI-SEIZE COATING AND BOLT DOWN WITH 3/8" S.S. ALLEN-HEAD BOLTS - 2 PLACES

NOTE:

COVER PATTERN

2" RAISED LETTERS

1/4" WIDE BORDER

1/2" RAISE, 1/2" WIDE BORDER

1/8" SQ 1/8" SQ 1/8"
CLASS B BEDDING

CLASS C BEDDING

CLASS D BEDDING

SAND BEDDING AT TRENCH CROSSING OF METAL PIPE
AT METALLIC PIPE CROSSING OF FLUIDIZED THERMAL BACKFILL OR CDF CONDUIT CROSSINGS

- MINERAL AGGREGATE PER STD SPEC 9-03.16 TYPE B FOR DUCTILE IRON WHEN APPLICABLE
- OR CONCRETE PIPE TYPE 22 FOR VITRIFIED CLAY AND FLEXIBLE PIPE
- SELECTED NATIVE MATERIAL PER STD SPEC 2-10.2(1)
- SUITABLE BACKFILL
- FLUIDIZED THERMAL BACKFILL PER SCL MATERIAL STD 7150.00 OR CDF (SEE CONTRACT DRAWINGS)
- MINERAL AGGREGATE PER STD SPEC 9-03.16, TYPE 6 OR TYPE 7

NOTES:
1. FOR TRENCH WIDTH SEE STD PLAN NO 284
2. A=4 WHEN ID IS LESS THAN 2'-6", A=6 WHEN ID IS 2'-6" OR MORE
3. UNIFORMLY SUPPORT PIPE BARREL. EXCAVATE HOLES FOR BELLS AND COUPLING.

REF STD SPEC SEC 2-10.2, 7-11, 7-17, 9-03.16

City of Seattle

NOT TO SCALE

SEWER/STORM DRAIN

NOTES:
1. TYPICAL MAXIMUM SLOPE ALLOWED IS 2.5H=1V, 3H=1V MAX WHEN WITHIN 50- FEET OF INTERSECTIONS OR CURBLESS ROADWAY.
2. BIORETENTION OVERFLOW ELEVATIONS MUST BE SET BELOW SIDEWALK ELEVATION.
3. SCARIFY SUBGRADE 4" MIN IN THE AREA SUBJECT TO TEMPORARY PONDING BEFORE BIORETENTION SOIL INSTALLATION.
4. PROVIDE 1.5" MIN BIORETENTION SOIL FOR WATER QUALITY TREATMENT PER STORMWATER CODE REQUIREMENT.
5. CELL MUST BE PLANTED PER APPROVED LANDSCAPE PLAN.
6. SOIL AT THE EDGE MUST BE UNDISTURBED NATIVE SOIL OR APPROVED SOIL COMPACTED TO 95% DENSITY.
7. FACE OF CURB TO TOP OF SLOPE MUST BE MIN 2'-0" FOR NON-MAJOR ARTERIAL STREET, MIN 4'-0" FOR MAJOR ARTERIAL STREET.
8. PROVIDE MIN ONE INCH GAP BETWEEN TOP OF CURBS, PAVEMENTS AND DRIVEWAYS AND TOP OF ARBORIST WOODCHIP MULCH.

REF STD SPEC SEC 7-21

City of Seattle

NOT TO SCALE

INfiltrating Bioretention
With SLOPed SiDES

DETAIL A
CURBED ROADWAY
(ADJACENT TO PARKING ZONE)

DETAIL B
CURBLESS ROADWAY

NOTES:
1. TYPICAL MAXIMUM SLOPE ALLOWED IS 2.5H=1V, 3H=1V MAX WHEN WITHIN 50- FEET OF INTERSECTIONS OR CURBLESS ROADWAY.
2. BIORETENTION OVERFLOW ELEVATIONS MUST BE SET BELOW SIDEWALK ELEVATION.
3. SCARIFY SUBGRADE 4" MIN IN THE AREA SUBJECT TO TEMPORARY PONDING BEFORE BIORETENTION SOIL INSTALLATION.
4. PROVIDE 1.5" MIN BIORETENTION SOIL FOR WATER QUALITY TREATMENT PER STORMWATER CODE REQUIREMENT.
5. CELL MUST BE PLANTED PER APPROVED LANDSCAPE PLAN.
6. SOIL AT THE EDGE MUST BE UNDISTURBED NATIVE SOIL OR APPROVED SOIL COMPACTED TO 95% DENSITY.
7. FACE OF CURB TO TOP OF SLOPE MUST BE MIN 2'-0" FOR NON-MAJOR ARTERIAL STREET, MIN 4'-0" FOR MAJOR ARTERIAL STREET.
8. PROVIDE MIN ONE INCH GAP BETWEEN TOP OF WALKS, CURBS, PAVEMENTS AND DRIVEWAYS AND TOP OF ARBORIST WOODCHIP MULCH.

REF STD SPEC SEC 7-21

City of Seattle

NOT TO SCALE

INfiltrating BIORETENTION
WITH SLOPED SIDES & UNDER DRAIN

NOTES:
1. TYPICAL MAXIMUM SLOPE ALLOWED IS 2.5H:1V, 3H:1V MAX WHEN WITHIN 50- FEET OF INTERSECTIONS OR CURBLESSES ROADWAY.
2. BIOTRETENTION OVERFLOW ELEVATIONS MUST BE SET BELOW SIDEWALK ELEVATION.
3. PROVIDE 1.5" MIN BIOTRETENTION SOIL FOR WATER QUALITY TREATMENT PER STORMWATER CODE REQUIREMENT.
4. CELL MUST BE PLANTED PER APPROVED LANDSCAPE PLAN.
5. SOIL AT THE EDGE MUST BE UNDISTURBED NATIVE SOIL OR APPROVED SOIL COMPACTED TO 95% DENSITY.
6. FACE OF CURB TO TOP OF SLOPE MUST BE MIN 2'-0" FOR NON-MAJOR ARTERIAL STREET, MIN 4'-0" FOR MAJOR ARTERIAL STREET.
7. PROVIDE MIN ONE INCH GAP BETWEEN TOP OF WALKS, CURBS, PAVEMENTS AND DRIVEWAYS AND TOP OF ARBORIST WOODCHIP MULCH.

REF STD SPEC SEC 7-21
NOTES:
1. TYPICAL MAXIMUM SLOPE ALLOWED IS 2.5H/1V, 3H/1V MAX WHEN WITHIN 50-FEET OF INTERSECTIONS OR CURBLESS ROADWAY.
2. CONVEYANCE SWALE OVERFLOW ELEVATIONS MUST BE SET BELOW SIDEWALK ELEVATION.
3. LONGITUDINAL SLOPE GREATER THAN OR EQUAL TO 4%, CHECK DAM REQUIRED.
4. UNDISTURBED NATIVE SOIL OR APPROVED SOIL, COMPACTED TO 95% DENSITY.
5. PROVIDE MIN ONE INCH GAP BETWEEN TOP OF WALKS, CURBS, PAVEMENTS AND DRIVEWAYS AND TOP OF TREATMENT LAYER.
6. PLANTING PER APPROVED LANDSCAPE PLAN.
7. FACE OF CURB TO TOP OF SLOPE MUST BE MIN 2'-0" FOR NON-MAJOR ARTERSL STREET, MIN 4'-0" FOR MAJOR ARTERIAL STREETS.

REF STD SPEC SEC 7-21
new std plan
NOTES:
1. DRAIN CURB CUTS MUST NOT BE LOCATED WITHIN CONCRETE ROAD PAVEMENT JOINT.
2. USE DRAIN CURB CUT TYPE 1 WHERE GUTTER LINE LONSDORFIAL SLOPE IS 0 TO 5% WHERE LONSDORFIAL SLOPE IS GREATER THAN 5%, DRAIN CURB CUT OPENING WILL BE DESIGNED BY THE ENGINEER.

START CURB HEIGHT TRANSITION (NO JOINT)

MATCH EXIST CURB HEIGHT

NEW STD PLAN

EXISTING CONCRETE OR STD 410B GUTTER

PLAN

EXIST CONCRETE PAVEMENT OR STD 410B GUTTER

MATCH EXIST CURB (TYP)

#4X14" DOWEL

#4X14" REBAR

GUTTER DEPRESSION – GRIND PANEL TO DRAINstormwater TO CURB CUT

GRIND TO DROP 1" AT GUTTER FACE OF CURB 1'-0"

BIORETENTION SOIL

#20" DEPTH

GUTTER DEPRESSION

BIORETENTION CELL BOTTOM

SECTION A-A

EXCAVATION

EXISTING CONCRETE PANEL

6" 12% 4% 8%

SPLIT AT FACE OF CURB, NO FILLER @ JOINT

INSTALL AS MONOLITHIC POUR FOR ENTIRE DRAIN CURB CUT

2×#4X9" DOWELS (TYP)

SAW CUT AT FACE OF CURB

COMPACTED SUBGRADE OR MINERAL AGGREGATE TYPE 2

ENLARGED SUBGRADE OR MINERAL AGGREGATE TYPE 2

GEOCLAY FOR SEPARATION

4" SCARIFIED NATIVE

UNDISTURBED NATIVE

MODIFIED CONC CURB

STREAM BED AGGREGATE TYPE 4

STREAM BED AGGREGATE TYPE 4

START CURB HEIGHT TRANSITION (NO JOINT)

CONC CURB PER COS STD PLAN NO 410c MODIFIED MATCH EXIST CURB AND PAVEMENT LINE

EXIST CONC PAVEMENT OR STD 410B GUTTER

EXIST CURB

GRIND TO FORM GUTTER DEPRESSION

ISOMETRIC VIEW

REF STD SPEC SEC 7-21, 9-03
**NOTES:**
1. Drain curb cut must not be located within concrete road panel joint.

**SECTION A-A**
- Grind existing panel
- 2-4x9" dowels (typ)
- Sawcut at face of curb, no filler @ joint
- Install as monolithic pour for entire drain curb cut
- Compacted subgrade or mineral aggregate type 2
- Gutter depression - grind panel to direct stormwater to curb cut
- Streamed aggregate type 4, 10" wide on each side of pad
- Conc curb, match exist curb and pavement line
- Exist curb

**SECTION B-B**
- Biotreatment soil
- Geotextile for separation
- Undisturbed native
- Streamed aggregate type 4
- Streamed aggregate type 4
- Conc curb, match exist curb and pavement line
- Exist curb

**ISOMETRIC VIEW**

**REF STD SPEC SEC 7-21, 9-03**

**City of Seattle**
**NOT TO SCALE**
**DRAIN CURB CUT TYPE 2**

NOTES:
1. TAPER CURB HEIGHT FROM TOP OF EXISTING CURB TO TOP OF BAY.

2. VERTICAL DROP FROM EXIST GUTTER TO TOP OF BAY.

3. CONCRETE CURB PER COS STD PLAN NO 410c. DOWEL INTO EXIST PAVEMENT.

SECTION A-A

STATION & EXIST BOTTOM OF CURB/GUTTER ELEVATION FOR LOCATING CURB CUT PER PLAN

EXIST CURB

EXIST SUBGRADE

EXIST PAVEMENT

RADIUS OF CURB BULB PER PLAN

4" MIN

10"

44 CURB DOWEL SEE STD PLAN NO 410-

EXIST GUTTER

CURB RETURN

HAND PLACED STREAMBED AGGREGATE TYPE 4

TOP OF BAY

2" VERTICAL DROP FROM EXIST GUTTER TO TOP OF BAY

TOP OF NEW CURB, SEE NOTE 1

TOP OF SWALE

#4X9" DOWEL (TYP OF 4)

BIORETENTION CELL PER PLAN

BAY-4" THICK CONC PAD

STREAMBED AGGREGATE TYP 4, 6" DEPTH

EXTEND AGGREGATE TO BOTTOM OF SWALE SIMILAR TO TYPE 1 & 2 DRAIN CURB CUT

EDGE OF SAWCUT OF EXIST PAVEMENT

INLET PLAN VIEW

OUTLET PLAN VIEW

EXIST CURB

EXIST PAVEMENT

1"-0" 6"

STATION & EXIST BOTTOM OF CURB/GUTTER ELEVATION FOR LOCATING CURB CUT PER PLAN

PT PER PLAN

RADIUS OF CURB BULB PER PLAN

CONCRETE CURB PER COS STD PLAN NO 410c. DOWEL INTO EXIST PAVEMENT

OUTLET-2" VERTICAL DROP AT INTERFACE BETWEEN EXIST GUTTER & BAY

REFERENCES:

REF STD SPEC SEC 7-21, 9-03

City of Seattle NOT TO SCALE DRAIN CURB CUT TYPE 3

NOTES:
1. ATTACH THE HOOD TO THE FRAME WITH TWO $\frac{3}{4}\" \times 2\"$ HEX HEAD BOLTS, NUTS, AND OVERSIZED WASHERS. THE WASHERS MUST HAVE DIAMETERS ADEQUATE TO ENSURE FULL BEARING ACROSS THE SLOTS.
2. ONLY DUCTILE IRON VANED GRATES MUST BE USED.

SECTION A–A

FRAME DETAIL

SECTION B–B

6" HOOD

9" HOOD
new std plan

EMBOSSED ON GRATE

SECTION A--A

Curb Material: Ductile Iron

SECTION B--B

Flow

City of Seattle
NOT TO SCALE
CURB INLET VANED GRATE

NOTES:
1. ROUGHENED CONCRETE PAD MUST BE MIN 2' LONG & 2.5 SF OR 5.0SF PER SPU DIRECTOR'S RULE 200.
2. ROUGHENED CONCRETE PAD MUST BE CONSTRUCTED WITH COMMERCIAL CONCRETE (STD SPEC 6-02) EMBED WELL MIXED 6"-8" STREAMBED AGGREGATE TO CREATE ROUGHNESS. 50% MIN OF THE SURFACE MUST HAVE PROTRUDING AGGREGATE.

DRAIN CURB CUT TYPE 1 OR TYPE 2. SEE STD PLANS 2956 OR 2956C

STREAMBED AGGREGATE TYPE 4

ROUGHENED CONCRETE PAD (SEE NOTE 1 & 2)

Curb

FLOW

REF STD SPEC SEC 7-21, 9-03

**BEDDING MATERIAL**

- CLASS B:
  - For distribution watermain, mineral aggregate per std spec 9-03.16 type 6 or type 7
  - For transmission watermain, mineral aggregate per std spec 9-03.16 type 9
  - Special bedding to be indicated on drawings

**NOTES:**

1. Excavate for the bell to ensure uniform support for the pipe barrel.
2. For fluidized thermal backfill (FTB) or CDF crossings of metallic pipe, increase class B sand depth & cover to 12" min & encase metallic pipe in 8 mil polyethylene encasement for full trench width.
3. Fluidized thermal bedding per SCL material standard 7150.00

**BEDDING AT TRENCH CROSSING**

REF STD SPEC SEC 7-11, 7-17, 9-03.16
NOTES:
1. SPU CORROSION PROTECTION MAY SPECIFY TYPE AND REQUIRED SPACING OF ANODE(S) LONGITUDINALLY ALONG WATER MAIN TO BE SHOWN IN DESIGN DRAWINGS. MAXIMUM SPACING MUST BE 36" UNLESS OTHERWISE NOTED ON PLANS.
2. FOR VERTICAL ANODE INSTALLATION, IF ANODE IS NOT PRE-PACKAGED, BARE ANODE MUST BE INSTALLED W/MIN 6" SACRIFICIAL ANODE BACKFILL PER SPEC SECTION 9-30.(7), AROUND ALL SIDES OF ANODE.
3. ANODE SIZE MUST BE 17/8" HIGH POTENTIAL MAGNESIUM ANODE, UNLESS OTHERWISE NOTED ON THE PLANS.
4. PLACE RED "CAUTION" OR "DANGER" TAPE 6" OVER ANODE WIRES. TAPE MUST BE MIN 3" WIDE.
5. BACKFILL OVER ANODE WITH SUITABLE NATIVE MATERIAL OR APPROVED EQUAL.

REF STD SPEC SEC 7-11, 9-30

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SACRIFICIAL ANODE BONDED TO PIPE INSTALLATION DETAILS

**NOTES:**
1. Required spacing of anode(s) to be shown in design drawings.
2. For vertical installation, if anode is not pre-packaged, bare anode must be installed w/ min 6" sacrificial anode backfill per spec section 9-30.9(7). Around all sides of anode.
3. Anode size must be 1 7/8 high potential magnesium anode, unless otherwise noted on the plans.
4. Place red "CAUTION" or "DANGER" tape 6" over anode wires and conduit. Tape shall be min 3" wide.
5. Backfill over anode with suitable native material or approved equal.

**TERMINAL BOARD DETAIL A**

**SECTION A-A**

**ELEVATION VIEW**
**Typical Patch for Rigid Pavement**

- **Half Section**
  - Rigid Pavement with Asphalt Concrete Surface
  - Remove asphalt overlay
  - Sawcut asphalt conc (remove loosened areas)
  - Existing asphalt concrete pavement

- **Half Section**
  - Cement concrete pavement
  - Sawcut concrete full depth
  - Existing concrete pavement

**Half Section**
- Cement concrete pavement
- Sawcut concrete full depth
- Existing concrete pavement

**Half Section**
- Step excavation to avoid undermining ex pavement (typ)
- Compact mineral aggregate type 2

**Typical Patch for Flexible Pavement**

- **Half Section**
  - Flexible Pavement (2-3" typ)
  - Plane asphalt prior to placing final lift
  - Existing oil mat

- **Half Section**
  - Flexible Pavement (2-3" typ)
  - Plane asphalt prior to placing final lift
  - Sawcut asphalt conc

- **Existing Flexible Base**
- HMA (CL ½")
- Step excavation to avoid undermining ex pavement (typ)

**Trench Width**
- Compact backfill

**Notes**: Revised
- **Depth of Restoration** must meet the requirements of "Right-of-way Opening and Restoration Rules".
- **Width of Restoration** must meet requirements of Standard Plan 404a.

REF STD SPEC SEC 2-02, 5-04 & 5-05

City of Seattle NOT TO SCALE PAVEMENT PATCHING

ASPHALT OVER RIGID BASE OF BRICK OR STONE BLOCK PAVEMENT

HALF SECTION

- MIN WIDTH FOR RESTORATION**: MUST MEET REQUIREMENTS OF STANDARD PLAN 404A
- DEPTH OF RESTORATION MUST MEET THE REQUIREMENTS OF "RIGHT-OF-WAY OPENING AND RESTORATION RULES"

REF STD SPEC SEC 2-02, 5-04 & 5-05
NOTES:
1. DUE TO POTENTIAL LOSS OF SOIL STRENGTH IN AREAS ADJACENT TO TRENCH OPENINGS, PAVEMENT REMOVAL MUST BE WIDENED TO INCLUDE THE ZONE OF INFLUENCE.
2. SEE "RIGHT-OF-WAY OPENING AND RESTORATION RULES" FOR MORE INFORMATION ON PAVEMENT OPENINGS ZONE OF INFLUENCE. HTTP://WWW.SEATTLE.GOV/TRANSPORTATION/STUSE_PAVEMENTOPEN.HTM

MINIMUM FULL DEPTH PAVEMENT REMOVAL LIMITS

ZONE OF influence* TRENCH WIDTH ZONE OF influence*

PAVEMENT DEPTH

DEPTH (D)

*TYPICALLY D/4

REF STD SPEC SEC 2-02, 2-04
NOTES
1. INSTALL TIE BARS ALONG LONGITUDINAL JOINT BETWEEN FULL PANEL REPLACEMENT AND EXIST CEMENT CONC PAVEMENT. TIE BARS ARE NOT INSTALLED BETWEEN CEMENT CONC PAVEMENT AND HOT MIX ASPHALT SHOULDERS.
2. TIE BARS AND DOWELS ARE NOT REQUIRED.
2.1. WHEN INDICATED ON THE DRAWINGS BY "NO TIE BARS" OR "NO DOWEL BARS".
2.2. WHEN EXISTING PAVEMENT IS LESS THAN A THICKNESS OF 8" OR WHEN THE ENGINEER DETERMINES THE EXISTING CONC NOT TO BE COMPETENT.
3. DO NOT PLACE LONGITUDINAL JOINTS OR SKewed JOINTS WITHIN BIKE LANES.
4. WHEN PAVING ADJACENT TO EXISTING PANELS, THE NEW TRANSVERSE JOINTS MUST BE PLACED TO MATCH JOINT LOCATIONS OF THE EXISTING ADJACENT PAVEMENT UNLESS OTHERWISE DIRECTED BY THE ENGINEER. SEE STD PLAN NO 405C FOR MAXIMUM TRANSVERSE JOINT SPACING.

A* SEE SECTION A-A STANDARD PLAN 405a
B* SEE SECTION B-B STANDARD PLAN 405b

REF STD SPEC SEC 5-05

City of Seattle
NOT TO SCALE
ROADWAY CONCRETE PAVEMENT REPAIR

NOTES:
1. PLACE WIRE MESH AT 3/8 DEPTH OF CEMENT CONCRETE.
2. THE DIMENSIONS OF THE MESH MUST BE ADJUSTED WHERE PAVEMENT JOINTS ARE ENCOUNTERED.
3. NO REINFORCING STEEL MUST BE WITHIN 2-1/2 INCHES OF ANY CEMENT CONCRETE SURFACE OR JOINT.

NOTES:
1. PLACE REBAR AT 3/8 DEPTH OF CEMENT CONCRETE.
2. NO REINFORCING STEEL MUST BE WITHIN 2-1/2 INCHES (3 INCHES DESIRED) OF ANY CEMENT CONCRETE SURFACE OR JOINT.

section callout removed
this SP was removed for the 2011 & 2014 editions and is now being reinstated.

### SPACING CHART

<table>
<thead>
<tr>
<th>DIAMETER OF CIRCLE</th>
<th>DEGREE OF SPACING</th>
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<tbody>
<tr>
<td>&lt;12'-0&quot;</td>
<td>EVERY 45'</td>
</tr>
<tr>
<td>&lt;20'-0&quot;</td>
<td>EVERY 30'</td>
</tr>
<tr>
<td>&gt;20'-0&quot;</td>
<td>EVERY 22 1/2&quot;</td>
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</tbody>
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*Facing Vehicle Approaches*

### NOTES:

1. DIMENSIONS ABOVE PAVEMENT EXTENSION TO MATCH SECTION DETAILED ELSEWHERE ON THIS STD PLAN.
2. EXTEND CURB DEPTH TO MATCH ADJACENT ASPHALT THICKNESS OR 7" WHICHEVER IS GREATER.

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City of Seattle

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TRAFFIC CIRCLE DETAILS

NOTES:
1. RAMP CENTERLINE SHALL BE RADIAL/PERPENDICULAR TO THE ALIGNMENT OF THE FACE OF CURB.
2. UPPER LANDING AT THE TOP OF THE CURB RAMP SHALL MATCH THE FULL WIDTH OF THE RAMP AND SHALL HAVE A MINIMUM DEPTH OF 4'-0". IF THE LANDING IS LIMITED AT THE BACK-OFF-SIDEWALK BY A PERMANENT VERTICAL BARRIER, THE DEPTH OF THE TURNING SPACE SHALL BE 6'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP. SLOPE ON THE LANDING SHALL BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
3. WINGS SHALL HAVE A MAXIMUM SLOPE OF 10%. WINGS SHALL HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB SHALL CONTINUE THROUGH EACH WING.
4. RAMP SURFACE SHALL HAVE A HEAVY BROOM BRUSHED SURFACE PARALLEL TO THE CURB.
5. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.

PAY LIMITS
NOTES:
1. RAMP CENTERLINE(S) SHALL BE PARALLEL TO THE ALIGNMENT OF THE FACE OF CURB. THE WIDTH OF THE RAMP SHALL BE 5'-0"
MINIMUM BUT 6'-0" IS PREFERRED.
2. SHARED LOWER CURB RAMP LANDING SHALL HAVE A MINIMUM WIDTH OF 5'-0". SLOPE OF THE LANDING SHALL BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
3. RAMP SURFACE SHALL HAVE A HEAVY BROOM BRUSHED SURFACE RADIAL/PERPENDICULAR TO THE CURB.
4. REFER TO DETAILS 422K AND 422E FOR GENERAL NOTES AND TYPICAL SECTIONS.

PAY LIMITS
NOTES:
1. RAMP CENTERLINE(S) SHALL BE PARALLEL TO THE ALIGNMENT OF THE FACE OF CURB. THE WIDTH OF THE RAMP SHALL BE 5'-0" MINIMUM BUT 6'-0" IS PREFERRED.
2. SHARED LOWER CURB RAMP LANDING SHALL HAVE A MINIMUM WIDTH OF 5'-0" SLOPE OF THE LANDING SHALL BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
3. RAMP SURFACE SHALL HAVE A HEAVY BROOM BRUSHED SURFACE RADIAL/PERPENDICULAR TO THE CURB.
4. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.

substantially revised plan

PAY LIMITS

PARALLEL CURB RAMPS (CORNER) (TYPE 422C)

422C CURB RAMP LOCATIONS

REF STD SPEC SEC 8-14

City of Seattle

NOT TO SCALE

CURB RAMP DETAILS

NOTES:
1. RAMP CENTERLINE SHALL BE PARALLEL TO CROSSWALK AND/OR THE SIDEWALK.
2. UPPER LANDING AT THE TOP OF THE CURB RAMP SHALL MATCH THE FULL WIDTH OF THE RAMP AND SHALL HAVE A MINIMUM DEPTH OF 4"-0". IF THE LANDING IS LIMITTED AT THE BACK-OFF-SIDEWALK BY A PERMANENT VERTICAL BARRIER, THE DEPTH OF THE TURNING SPACE SHALL BE 5'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP. SLOPE ON THE LANDING SHALL BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
3. WINGS SHALL HAVE A MAXIMUM SLOPE OF 10%. WINGS SHALL HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB SHALL CONTINUE THROUGH EACH WING.
4. WING ON THE OPEN SIDE OF THE CURB RAMP SHALL HAVE A MINIMUM SLOPE OF 5% TO ASSIST PEDESTRIANS WITH VISUAL IMPAIRMENTS WHERE THE DETECTABLE WARNING SURFACE IS OFFSET FROM THE CURB LINE.
5. RAMP SURFACE SHALL HAVE A HEAVY BROOK BRUSHED FINISH PERPENDICULAR TO THE PATH OF TRAVEL.
6. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.

DIRECTIONAL CURB RAMPS
(TYPE 422D)

422D CURB RAMP LOCATIONS

PAY LIMITS

REF STD SPEC SEC 8-14

City of Seattle NOT TO SCALE CURB RAMP DETAILS

NOTES:
1. RAMP CENTERLINE SHALL BE PARALLEL TO CROSSWALK AND/OR THE SIDEWALK.
2. UPPER LANDING AT THE TOP OF THE CURB RAMP SHALL MATCH THE FULL WIDTH OF THE RAMP AND SHALL HAVE A MINIMUM DEPTH OF 4'-0" IF THE LANDING IS LIMITED AT THE BACK OF SIDEWALK BY A PERMANENT VERTICAL BARRIER. THE DEPTH OF THE TURNING SPACE SHALL BE 5'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP SLOPE ON THE LANDING SHALL BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
3. WINGS SHALL HAVE A MAXIMUM SLOPE OF 10%. WINGS SHALL HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB SHALL CONTINUE THROUGH EACH WING.
5. DIRECTIONAL CURB RAMPS WITH LARGE SETBACK FROM BACK OF CURB TO BOTTOM OF THE CURB RAMP ARE NOT PREFERRED DESIGNS BUT MAY BE USED IF NECESSARY DUE TO EXISTING SITE CONSTRAINTS. THIS DESIGN WILL LIKELY REQUIRE THE CUTTING OR ALTERING A DETECTABLE WARNING SURFACE TO FIT.
6. STRAIGHT SECTIONS OF DETECTABLE WARNING SURFACE IS PERMITTED AS AN ALTERNATE IF USED, THERE SHALL BE 2" MAXIMUM FROM THE DETECTABLE WARNING SURFACE TO THE BACK OF CURB AT ANY POINT.
7. RAMP SURFACE SHALL HAVE A HEAVY BROOM BRUSHED FINISH PERPENDICULAR TO THE PATH OF TRAVEL.
8. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.
NOTES:
1. RAMP CENTERLINE(S) SHALL BE PARALLEL TO CROSSWALK AND/OR THE SIDEWALK.
2. UPPER LANDING AT THE TOP OF THE CURB RAMP SHALL MATCH THE FULL WIDTH OF THE RAMP AND SHALL HAVE A MINIMUM DEPTH OF 4'-0". IF THE LANDING IS LIMITED AT THE BACK-OFT-SIDEWALK BY A PERMANENT VERITCAL BARRIER, THE DEPTH OF THE TURNING SPACE SHALL BE 2'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP. SLOPE ON THE LANDING SHALL BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
3. WINGS SHALL HAVE A MAXIMUM SLOPE OF 10%. WINGS SHALL HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB SHALL CONTINUE THROUGH EACH WING.
4. WING ON THE OPEN SIDE OF THE CURB RAMP SHALL HAVE A MINIMUM SLOPE OF 5% TO ASSIST PEDESTRIANS WITH VISUAL IMPAIRMENTS WHERE THE DETECTABLE WARNING SURFACE IS OFFSET FROM THE CURB LINE.
5. RAMP SURFACE SHALL HAVE A HEAVY BROOM BRUSHED FINISH PERPENCULAR TO THE PATH OF TRAVEL.
6. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SIZINGS.

PAY LIMITS

NEW STD PLAN
NOTES:
1. Ramp centerline(s) shall be parallel to crosswalk and/or the sidewalk.
2. Upper landing at the top of the curb ramp shall match the full width of the ramp and shall have a minimum depth of 4'-0". If the landing is limited at the back-of-sidewalk by a permanent vertical barrier, the depth of the turning space shall be 5'-0" minimum, measured parallel to the run of the curb ramp. Slope on the landing shall be between 0.5% and 2% in any direction.
3. Wings shall have a maximum slope of 10%. Wings shall have a brushed finish parallel to the curb. The concrete wing thickened edge along the curb shall continue through each wing.
4. Ramp surface shall have a heavy broom-brushed surface parallel to the curb.
5. Refer to details 422K and 422L for general notes and typical sections.

PARALLEL AND PERPENDICULAR COMBINATION CURB RAMPS W/ SHARED LANDING
(TYPE 422G)

REF STD SPEC SEC 8-14
NOTES:
1. SHARED DIAGONAL PERPENDICULAR Ramps shall not be installed unless all other design options are unable to be constructed due to existing site constraints.
2. RAMP CENTERLINE SHALL BE RADIAL/PERPENDICULAR TO THE ALIGNMENT OF THE FACE OF CURB.
3. UPPER LANDING AT THE TOP OF THE CURB RAMP SHALL MATCH THE FULL WIDTH OF THE RAMP AND SHALL HAVE A MINIMUM DEPTH OF 4'-0". IF THE LANDING IS LIMITED AT THE BACK OF SIDEWALK BY A PERMANENT VERTICAL BARRIER, THE DEPTH OF THE TURNING SPACE SHALL BE 5'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP. SLOPE ON THE LANDING SHALL BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
4. CLEAR SPACE AT THE BOTTOM OF THE RAMP SHALL BE 4'-0" MINIMUM IN WIDTH AND SHALL EXTEND A MINIMUM OF 4'-0" BEYOND THE RAMP LOWER GRADE BREAK. THE CLEAR SPACE SHALL FALL WHOLLY WITHIN THE LEGAL CROSSWALK MARKED OR UNMARKED. THE CLEAR SPACE SHALL FIT BEHIND LINES EXTENDING FROM THE FACE OF CURB RUNNING PARALLEL TO EACH ROADWAY. THERE IS NO ALLOWABLE EXEMPTION FOR MINIMUM CLEAR SPACE REQUIREMENTS AT SHARED DIAGONAL PERPENDICULAR CURB RAMPS.
5. WINGS SHALL HAVE A MAXIMUM SLOPE OF 10%. WINGS SHALL HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALL THICKENED EDGE ALONG THE CURB SHALL CONTINUE THROUGH EACH WING.
6. RAMP SURFACE SHALL HAVE A HEAVY BROOM BRUSHED SURFACE PARALLEL TO THE CURB.
7. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.

SHARED DIAGONAL PERPENDICULAR CURB RAMP
(TYPE 422H)

PAY LIMITS

422H CURB RAMP LOCATIONS
NOTES:
1. THE SIDEWALK SHALL TRANSITION DOWN TO THE ROADWAY WITH A MAXIMUM RUNNING SLOPE OF 5%. THE CROSS SLOPE ON THE TRANSITION SHALL NOT EXCEED 2% AT ANY POINT.
2. A MINIMUM BYPASS ROUTE SHALL BE PROVIDED AT THE TOP OF THE BLENDED TRANSITION WITH A MINIMUM WIDTH OF 4'-0". THE CROSS SLOPE OF THE BYPASS ROUTE SHALL NOT EXCEED 2% IN ANY DIRECTION.
3. WINGS SHALL HAVE A MAXIMUM SLOPE OF 10%. WINGS SHALL HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB SHALL CONTINUE THROUGH EACH WING.
4. BLENDED TRANSITION SURFACE SHALL HAVE A HEAVY BROOM BRUSHED SURFACE RADIAL/PERPENDICULAR TO THE CURB.
5. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTION D.

SECTION G-G
CURB MONOLITHIC WITH RAMP, NEW PAVEMENT BLEDGED OUT FULL DEPTH, EXISTING PAVEMENT REMOVED AT FACE OF CURB.

SECTION G-G
DEPRESSED CURB & GUTTER SEPARATE FROM RAMP.

BLENDED TRANSITION
(TYPE 422i)

SAW CUT IF EXISTING PAVEMENT (TYP)
PROVIDE BOND BREAKER (UNLESS ASPHALT SURFACING)

SCORE LINE (TYP)
DETECTABLE WARNING

3" RADIUS (TYP)

PAY LIMIT

PAY LIMIT

422i CURB RAMP LOCATIONS

NOTES:
1. SEE SHAPE AND/OR DIMENSIONS OF CHANNELIZING ISLANDS OR PEDESTRIAN REFUGE ISLANDS MAY VARY. DETAILS SHOWN ARE INTENDED TO SHOW MINIMUM REQUIRED CLEARANCES AND DETECTABLE WARNING SURFACE PLACEMENT LOCATIONS.
2. ACCESS THROUGH CHANNELIZING ISLANDS OR PEDESTRIAN REFUGE ISLANDS MAY BE CUT-THROUGH OR ACCESS MAY BE PROVIDED USING STANDARD CURB RAMP DETAILS.
3. AT PEDESTRIAN REFUGE ISLANDS, DETECTABLE WARNING IS NOT TO BE INSTALLED IF THE REFUGE AREA IS LESS THAN 6'-0" IN DEPTH (IN THE DIRECTION OF TRAVEL).
4. PROVIDE A MINIMUM 4'-0" WIDTH X 4'-0" DEPTH CLEAR SPACE FOR ACCESS FROM THE CHANNELIZING ISLAND OR PEDESTRIAN REFUGE ISLAND FOR EACH CROSSWALK.

SECTION G-G

ROADWAY CURB
STD PLAN 410 OR
STD PLAN 421

SIDEWALK

3" RADIUS
(TYP)

2'-0" MIN
SEE NOTE 3

ROADWAY CURB (TYP)

3" RADIUS
SEE NOTE 3

DETECTABLE WARNING
STD PLAN 422K

CLEAR SPACE
SEE NOTE 4
(TYP)

ISLAND CUT-THROUGHS
(TYPE 422J)

5'-0" MIN
(TYP)

5'-0" MIN
2% MAX SLOPE

6"
**CURB RAMP GENERAL NOTES:**

1. **TWO CURB RAMPS SHALL BE INSTALLED AT EACH CORNER UNLESS OTHERWISE DIRECTED BY ENGINEER.**
   - PERPENDICULAR RAMPS SHALL NOT BE INSTALLED UNLESS ALL OTHER DESIGN OPTIONS ARE UNABLE TO BE CONSTRUCTED DUE TO EXISTING SITE CONSTRAINTS.

2. **CURB RAMPS SHALL BE AS CLOSELY ALIGNED WITH THE SIDEWALK AND THE PEDESTRIAN STREET CROSSING SERVED AS POSSIBLE.**

3. **CURB RAMP SHALL BE CONSTRUCTED WITH COMPARISON RAMP ON OPPOSITE SIDE OF THE ROADWAY WHERE NO RAMP IS PROVIDED UNLESS OTHERWISE DIRECTED BY ENGINEER.**

4. **RAMPS SHALL TYPICALLY HAVE A MAXIMUM RUNNING SLOPE OF 8.3% AND A MINIMUM WIDTH OF 4'-0" UNLESS OTHERWISE DIRECTED BY ENGINEER.**
   - **THE CROSS SLOPE OF RAMPS SHALL BE MAXIMUM OF 2%.**
   - **CURB RAMPS ARE NOT REQUIRED TO EXCEED A LENGTH OF 15 FEET UNLESS OTHERWISE DIRECTED BY ENGINEER.**

5. **GRADE BREAKS AT THE TOP AND THE BOTTOM OF CURB RAMP RUNS MUST BE PERPENDICULAR TO THE PATH OF TRAVEL. CURB RAMP RUNS ARE DEFINED BY RUNNING SLOPES THAT EXCEED 5% BUT ARE NO MORE THAN 8.3%. SURFACES ABUTTING AT CURB RAMP GRADE BREAKS SHALL BE FLUSH.**

6. **AREAS ADJACENT TO CURB RAMPS OR CURB RAMP LANDINGS USEABLE BY PEDESTRIANS SHALL COMPLY WITH STANDARD PLAN SIDEWALK SLOPE LIMITS OR A CURB RAMP WING MUST BE PROVIDED AS SHOWN IN THE APPROPRIATE CURB RAMPS DETAILS.**
   - **THE INSTALLATION OF CURVED EDGES IS NOT REQUIRED BUT MAY BE USED AT THE SIDES OR BACKS OF CURB RAMPS OR CURB RAMP LANDINGS WHERE THE ADJACENT SURFACE IS LANDSCAPED OR OTHERWISE NOT USEABLE BY PEDESTRIANS.**

7. **THE COUNTER SLOPE OF THE GUTTER OR THE STREET AT THE BOTTOM OF CURB RAMP RUNS SHALL BE 3% MAXIMUM.**
   - **IF TURNING OR CHANGE OF ORIENTATION IS REQUIRED WITHIN THE PEDESTRIAN CROSSING AT THE BOTTOM OF CURB RAMP RUNS, THE SLOPE SHALL BE 2% MAXIMUM IN ANY DIRECTION FOR A MINIMUM 4'-0" WIDTH X 4'-0" DEPTH MEASURED FROM THE RAMP BOTTOM GRADE BREAK.**

8. **CURB RAMPS WITH RAMPS THAT TERMINATE AT THE ENTRANCE TO THE PEDESTRIAN STREET CROSSING SHALL HAVE A CLEAR SPACE AT THE BOTTOM OF THE RAMP 4'-0" MINIMUM IN WIDTH AND SHALL EXTEND A MINIMUM 4'-0" BEYOND THE RAMP LOWER GRADE BREAK.**
   - **THE CLEAR SPACE SHALL FALL WHOLLY WITHIN THE LEGAL CROSSWALK, MARKED OR UNMARKED.**

9. **DETECTABLE WARNING SHALL BE PROVIDED AT CURB RAMPS AND AT LOCATIONS WHERE THE SIDEWALK AND ROADWAY ARE FLUSH. THE DETECTABLE WARNING SURFACE SHALL HAVE A TRUNCATED DOME SHAPE AS SHOWN, WITH A MINIMUM DEPTH OF 2'-0", AND SHALL BE PLACED AT THE BACK OF CURB BUT NO MORE THAN 8" FROM THE FACE OF CURB FOR MONOLITHIC CURB OR ATTACH CURB WIDTHS.**
   - **DETECTABLE WARNING SHALL MATCH THE WIDTH OF THE RAMP RUN OR THE OPENING WHERE THE SIDEWALK AND ROADWAY ARE FLUSH. THE TRUNCATED DOMES ON THE DETECTABLE WARNING SURFACE SHOULD ALIGN WITH THE CURB RAMP RUN OR THE DIRECTION OF TRAVEL. DOMES MAY BE ON A RADIAL GRID PATTERN WHERE THE DETECTABLE WARNING SURFACE IS PLACED AT CURB RADIUS.**
   - **DETECTABLE WARNING COLOR SHALL BE "FEDERAL SAFETY YELLOW", UNLESS OTHERWISE DIRECTED BY ENGINEER.**
   - **DETECTABLE WARNING SURFACES SHOULD GENERALLY NOT BE CUT OR ALTERED TO FIT UNLESS THERE IS NO ALTERNATIVE AVAILABLE.**
   - **IF REQUIRED, CUT OR ALTER THE DETECTABLE WARNING SURFACE PER THE MANUFACTURER'S DIRECTIONS.**
   - **DETECTABLE WARNING SURFACES PLACED AT CURB RADIUS SHALL MATCH THE CURB RADIUS WITHOUT GAPS OR INCONSISTENCIES IN SCAFFING.**
   - **CURB RAMP OR CURB RAMP LANDINGS QUALIFIED AS RAMP RADIUS OR CURB RAMP IS GENERALLY NOT RECOMMENDED AT CURB GRADE BREAKS.**
   - **AVOID LOCATED HANDBOLES, UTILITY CASTINGS, OR ANY OTHER OBSTRUCTIONS IN THE CURB RAMP RUN(S) OR LANDINGS(S), IF NEEDED TO MEET EXISTING CONSTRAINTS, HANDHOLES, UTILITY CASTINGS, OR OTHER OBSTRUCTIONS MAY BE LOCATED WITHIN A CURB RAMP, SANDING, OR TURNING SPACE BUT MUST ADEQUATE TO SURFACE REQUIREMENTS. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED 3/4" OR 1/2" WITH A 1/2" BEVEL. GAPS BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED 1/16". SURFACES MUST BE FIRM, STABLE, AND SLIP RESISTANT.**
   - **IN HANDBOLES, UTILITY CASTINGS, OR OTHER OBSTRUCTIONS SHALL NOT REDUCE THE REQUIRED DEPTH OF DETECTABLE WARNING.**
   - **POLES, HYDRANTS AND OTHER ABOVE GROUND OBSTRUCTIONS SHALL HAVE A MINIMUM LATERAL CLEARANCE OF 1'-0" FROM THE UPPER CLIMBING OR LOW RAMP SURFACE.**
   - **ALL CHANGES IN LEVEL ACROSS JOINTS SHALL BE FLUSH, ANY DIFFERENCE IN ELEVATION OF 3/16 INCH OR GREATER SHALL BE REPAIRED OR REPLACED.**

10. **CURB RAMPS SHALL BE DESIGNED AND CONSTRUCTED SO THAT WATER WILL NOT ACCUMULATE ON RAMPS.**
    - **CURB FLOW LINE SHALL BE SURVEYED BY THE CONTRACTOR PRIOR TO CONSTRUCTION TO ENSURE PONDING OF WATER SHALL NOT OCCUR AT THE BOTTOM OF CURB RAMPS OR AT CURB RAMPS LOWER LANDINGS.**

11. **ALL SLOPE GRADES SHALL BE MEASURED OFF THE HORIZON-LINE. IF EXISTING SITE CONDITIONS CONFLICT WITH OBTAINING GRADES SHOWN, THE DESIGNER / CONTRACTOR SHALL MAKE MINIMUM ADJUSTMENTS TO THE GRADES SHOWN TO MEET EXISTING SITE CONDITIONS, ADJUSTMENTS ARE SUBJECT TO ENGINEER APPROVAL.**

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**NEW STD PLAN**

**SIDE CURB DETAIL**

**BACK CURB DETAIL**

**DEPRESSED CURB AND GUTTER DETAIL**

**DETECTABLE WARNING TRUNCATED DOMES PATTERN**
PERVERS CONC CEM SIDEWALK DEPTH TRANSITION AT DRIVEWAYS PROFILE VIEW

NOTES:
1. DEPTHS SHOWN FOR PAVEMENT SECTIONS ARE COMPACTED DEPTHS.
2. SIDEWALK DEPTH AT DRIVEWAY TO MATCH DRIVEWAY PAVEMENT DEPTH.
3. DEPTH OF PERVERS CEMENT CONCRETE FOR DRIVEWAYS MUST BE 8" MIN.
4. 6% MAX. PERVERS CEMENT CONCRETE PROFILE GRADE.
5. WHERE PERVERS CONCRETE IS SHOWN FOR ALLEY, PERVERS CONCRETE MUST BE 8" WITH 3" AGGREGATE DISCHARGE SUBBASE.
6. APPLY SEPARATION GEOTEXTILE SEC. 8-37, ON BOTTOM AND SIDES, EXTEND GEOTEXTILE ABOVE PERVERS CONCRETE FOR SIDEWALK PAVEMENT, AFTER PAVEMENT HAS CURRED AND ADJACENT FINISHED GRADE HAS BEEN STABILIZED, CUT SEPARATION GEOTEXTILE AT FINISHED GRADE (TYP.)
7. CONTRACTION JOINTS FOR PERVERS CONCRETE SIDEWALKS MUST BE PLACED AT A MAXIMUM OF 15 FT ON CENTER SPACING.
NOTES:
1. TYPE 430A MUST BE USED UNLESS OTHERWISE DIRECTED BY ENGINEER. USE OF DRIVEWAY TYPE 430B IS SUBJECT TO ENGINEER APPROVAL.
2. DRIVEWAYS MUST BE NON-RoadWAY CEILING, CONC. HIGH STRENGTH.
3. WING WIDTH ON ARTIFICIAL STREETS WHERE TRAVEL LANE IS NEXT TO THE CURB MUST BE 5'-0". OTHERWISE, WING WIDTH MUST BE 2'-6".
4. "V" GROOVE SCORING MUST MATCH PATTERN IN ADJACENT EXISTING SIDEWALK.
5. FOR CONCRETE DRIVEWAY CONSTRUCTED WITH CONCRETE SIDEWALK, SEE STANDARD PLAN NO 431.
6. CONCRETE DRIVEWAYS WITH A WIDTH GREATER THAN 15'-0" MUST HAVE A 3/8" TRANSVERSE CONTRACTION JOINT NEAR THE CENTERLINE OF DRIVEWAY. SEE DETAIL SECTION C-C STANDARD PLAN NO 420.
7. FOR TYPE 430A SLOPE IN THE 6'-0" MINIMUM WIDE AREA CONNECTING TO CW ON EACH SIDE OF THE DRIVEWAY MUST BE MAXIMUM 2% AND MINIMUM 0.5%.
8. FOR TYPE 430B, SLOPE OF THE DRIVEWAY BETWEEN THE TWO RAMP SECTIONS MUST BE MAXIMUM 2% AND MINIMUM 0.5% DRIVEWAY ON THE PRIVATE SIDE OF THE CW MAY BE SLOPED AS NEEDED TO MATCH EXISTING SITE CONDITIONS.
9. RAMP MUST HAVE A MAXIMUM SLOPE 12H:1V AND A MINIMUM WIDTH OF 6'-0".
10. THE CROSS SLOPE OF THE RAMP MUST BE MAXIMUM 50H:1V. RAMP SURFACE MUST HAVE A HORIZONTAL BRUSHED SURFACE PERPENDICULAR TO THE CURB.
11. ALL CHANGES IN LEVEL ACROSS JOINTS MUST BE FLUSH WITH A MAXIMUM DIFFERENCE IN ELEVATION OF 3/4" INCH.
12. ALL SLOPE GRADES MUST BE MEASURED OFF THE HORIZON-LINE. IF EXISTING SITE CONDITIONS CONFLICT WITH DETAILING GRADES SHOWN, THE CONTRACTOR MUST MAKE MINIMUM ADJUSTMENTS TO THE GRADES TO ACCOMMODATE EXISTING SITE CONDITIONS. ADJUSTMENTS ARE SUBJECT TO ENGINEER APPROVAL.

City of Seattle

NOTES:
1. FLIGHTS OF STAIRS MUST HAVE MAX VERTICAL RISE OF 12" BEFORE A LANDING.
2. AVOID FEWER THAN 2 RISERS PER FLIGHT.
3. STEPS IN FLIGHT MUST HAVE UNIFORM TREAD RUNS AND UNIFORM RISER HEIGHTS WITH TOLERANCE OF ±3/8".
4. TREADS MUST BE 11" MIN, 12" MAX, RISERS MUST BE 5" MIN, 7" MAX.
5. LANDING BETWEEN FLIGHTS OF RISERS MUST HAVE SAME WIDTH AS STEPS AND A MIN LENGTH OF 4"—0".
6. FLIGHTS OF 2" OR MORE STEPS MUST HAVE HANDRAILS ON BOTH SIDES.
7. HANDRAILS MUST BE CONTINUOUS ACROSS LANDINGS BETWEEN FLIGHTS OF STEPS.
8. ALL STEEL MUST BE HOT DIPPED GALVANIZED.
9. PIPE MATERIAL MUST BE ASTM A53.
10. REINFORCING STEEL MUST BE ASTM A615 GR 60.
11. FOR FORMAL DRAINAGE PICK-UP SEE DETAIL B ON STD PLAN NO 4408 (THIS IS OPTIONAL AND MUST BE CALLED OUT ON DRAWINGS).
12. PIPE DIAMETERS SHOWN ARE "NOMINAL" DIAMETERS AS GIVEN IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL.
13. CONCRETE CLASS C3000.
14. LANDINGS MUST BE 0.50 MIN FOR A MIN LENGTH OF 4', ADJACENT SIDEWALK MAY BE PART OF LANDING IF SLOPE CRITERIA AND SETBACKS FROM HANDRAILS ARE MET.
15. TREAD SURFACE MUST HAVE GROOVES AT THE NOSE FOR TRACTION.
16. IF LANDING IS ELICATED, LANDING MUST HAVE VERTICAL RAILING PER RIGHT OF WAY IMPROVEMENT MANUAL.
17. STAIRWAYS DEVIATING FROM STANDARD PLAN TO ACCOMMODATE BICYCLE FEATURES MAY BE USED PER STD PLAN NO 440C OR 440D.
18. DIMENSION FROM THE BOTTOM LANDINO RAILING TO THE NOSE OF THE TREAD MUST BE 12"—0" MIN, 1 TREAD LENGTH.
19. BOTTOM HANDRAIL EXTENSION MUST EXTEND ONE TREAD LENGTH MINIMUM PARALLEL TO THE SLOPE OF THE STAIR BEYOND BOTTOM STAIR NOISING.
20. TOP HANDRAIL EXTENSION MUST EXTEND HORIZONTALLY ABOVE LANDING 12"—0" MINIMUM BEYOND TOP STAIR NOISING.
21. REBAR SIZING AND SPACING MAY CHANGE FOR WIDER OR NARROWER STAIRWAYS.
NOTES:
1. REFER TO STANDARD PLAN NO. 440a AND 440b FOR ADDITIONAL NOTES, DETAILS & DIMENSIONS.
2. (BLANK)
3. FIELD WELDED AND GROUND SURFACES MUST BE CLEANED AND COATED WITH ZING SPRAY TO A MIN. OF 3 MILS, DRY PAINT THICKNESS.
4. DIMENSIONS SHOWN ON ONE SIDE OF THE SECTION VIEW ARE TYPICAL TO THE OTHER SIDE, UNLESS NOTED OTHERWISE.
5. DISTANCE BETWEEN HANDGRIFF SUPPORTS MUST NOT EXCEED 6'-0".
6. BIKE RUNNEL SLAB THICKNESS VARIES WITH STEP RISER HEIGHT. MIN. 10.5", MAX. 12.5".
7. RUNNEL LIP HEIGHT 1.5" ABOVE STEP NOISING AND LANDING.
8. INTERMEDIATE STAIR LANDINGS THAT INTERSECT OTHER STAIRS OR WALKS MUST BE AT LEAST 6' LONG TO ALLOW FOR A MIN. 4' OF CLEAR AREA WITHOUT RUNNEL & RAIL.
9. STAMP CONCRETE AT TOP AND BOTTOM OF RUNNEL. SEE CONCRETE STAMP DETAIL STD PLAN NO. 440d.
10. LONG STAIRWAYS OR STAIRWAYS WITH SIGHT OBSTRUCTIONS TO CYCLISTS MUST HAVE SIDEWALK BREAKS TO ALLOW ONGOING CYCLISTS PASSAGE. LOCATIONS OF SIDEWALK BREAKS TO BE DETERMINED BY ENGINEER.
11. ANY CONSTRUCTION OUTSIDE OF RUNNEL MUST ALLOW ENOUGH CLEARANCE FOR BIKE PEDALS AND HANDLEBARS FROM INTERFERING WITH MOVEMENT.

SECTION A-A

HANDGRIFF END SHOULD BE ROUNDED. SEE DETAIL A THIS SHEET (TYP.)

#4 BARS @ 0'-11" OC
#4 6'-6" @ 2'-0" OC
12" MIN REBAR OVERLAP (TYP.)

CITY OF SEATTLE
NOTES:
1. RAILING MUST BE HOT DIP GALVANIZED AFTER FABRICATION.
2. ALL POSTS MUST BE PLUMB AND RAILS PARALLEL TO THE GROUND.
3. PIPE MATERIAL MUST CONFORM TO ASTM A53.
4. REINFORCING STEEL ASTM A 706 OR SIMILAR.
5. IF THE CONCRETE WALK SLOPE IS 5% OR GREATER A GRIPPING HANDRAIL IS REQUIRED. GRIPPING HANDRAILS ON RAMPS (SLOPE EXCEEDS 5%) MUST EXTEND HORIZONTALLY A MINIMUM OF 12" BEYOND TOP AND BOTTOM OF RAMPS.

PIPE DIAMETERS SHOWN ARE "NOMINAL" DESIGNER'S ARE GIVEN IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL.

SECTION A-A
- MOUND FOR DRAINAGE (TYP)
- #4 REINFORCING U-BAR AT EACH POST
- SEE DETAIL BELOW
- 4" 16GA GALV STEEL SLEEVE (TYP)
- NON-SHRINK GROUT

SECTION B-B
- DETAIL C
- DETAIL D

SECTION C-C
- DETAIL D

REF STD SPEC SEC 8-14 & 8-18

City of Seattle
NOT TO SCALE
STEEL PIPE HANDRAIL

**GALVANIZED PIPE SLEEVE**

**NOTES:**
1. All pipe sections must be constructed of Schedule 40 steel pipe and all components must be hot-dipped galvanized after fabrication.
2. Bollard shall not exceed 50 lbs.

**SLEEVE IN CONCRETE SECTION VIEW**

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**BOLLARD PLAN VIEW**

**BOLLARD ELEVATION**

City of Seattle

NOT TO SCALE

REMOVABLE STEEL BOLLARD

NOTES:
1. UNLESS OTHERWISE SPECIFIED, TRAFFIC SIGNAL CONTROLLER CABINET MUST BE FURNISHED BY THE CITY.
2. UNLESS OTHERWISE SPECIFIED, EXACT CABINET DIMENSIONS & ANCHOR BOLT LOCATIONS MUST 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.

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<th>TYPE III</th>
<th>TYPE VI</th>
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<td>36&quot; TO 52&quot;</td>
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SIGNAL CONTROLLER CABINET-TYPES II, III, VI

LEVEL & FINISHED TOP OF FOUNDATION
1" CHAMFER (TYP)
3' PVC DRAIN TUBE TO LOW SIDE OF FINISHED GRADE
CONDUIT PER DRAWINGS
CLASS 3000 CONCRETE

ANCHOR BOLT TYPE, SIZE & LOCATION (SEE NOTE 2)
PARALLEL TO CURB

SIGNAL CONTROLLER FOUNDATION
SEE STD PLANS NO 500b & 500c FOR CONDUIT LAYOUT

REF STD SPEC SEC 8-31 & 8-32

controller bases removed

call-outs added

1-2" SERVICE CONDUIT

3-3" CONDUITS

ALL MEASUREMENTS TO EDGE OF CONDUIT

callout revised

dimension added

dimension added

dimension added

CONDUIT LAYOUT – SIGNAL CONTROLLER FOUNDATION

REF STD SPEC SEC 8-31 & 8-32

City of Seattle

SIGNAL CONTROLLER FOUNDATION CONDUIT LAYOUT

NOTES:
1. 36" MINIMUM CLEARANCE MUST BE REQUIRED IN FRONT OF BOTH FRONT AND BACK CABINET DOOR.
2. SEAL CABINET TO FOUNDATION WITH GREY OR CLEAR SILICON TO PREVENT MOISTURE FROM ENTERING THE CABINET.
3. EXACT SERVICE CABINET DIMENSIONS, ANCHOR BOLT LOCATIONS AND PEDESTAL MOUNTING HOLES MUST BE PROVIDED BY THE MANUFACTURER.
4. GROUND ROD 3/4"x120" COPPER CLAD WITH GROUND ROG CLAMP. A SECOND GROUND MUST BE INSTALLED A MINIMUM 8' AWAY IN A GROUND ROD HANDBOKE AS PER CITY OF SEATTLE STANDARD PLAN NO 5506. COORDINATE WITH ELECTRICAL INSPECTOR FOR LOCATION. INSTALL #4 AWG COPPER GROUND WIRE BETWEEN CABINET FOUNDATION AND GROUND ROD HANDBOKE.

spec sections added
Joint Signal Controller/Service Cabinet Foundation Detail

NOTES:

1. For signal controller dimensions and other requirements, see Std Plan No. 500a.
2. For service cabinet dimensions and other requirements, see Std Plan No. 501a.
3. All cabinets to foundation with grey or clear silicon to prevent water from entering the cabinet.
4. The service cabinet must be placed on the opposite side of the controller cabinet from the ups.

Reflections:
- Substantially revised standard plan
- Spec sections added
- Note 4 added

City of Seattle

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 & SOOT TRAFFIC HANDHOLE,
   SEE SCL CONST STD 1810.05

REF STD SPEC SEC 8-30 & 8-31
**TYPICAL SIGNAL FACES**

W/ TUNNEL VISORS & 5" BEAK PLATE (UNLAMINATED)
1" YELLOW, DIAMOND GRADE RETRO REFLECTIVE TAPE

**NOTE ADDED**

8" heads removed

**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

**PEDESTAL TOP MOUNTING**

FOR PEDESTAL SEE STD PLAN NO 524

**BRAACKET MOUNTING**

FOR SIGNAL HEAD BRACKET ASSEMBLY SEE STD PLAN NO 511
NOTES:
1. PUSHBUTTON MUST HAVE DIRECTIONAL ARROW AS SPECIFIED ON THE PLANS.
2. INSTALLATION OF TWO PEDESTRIAN PUSHBUTTON ASSEMBLIES MUST BE ON A 4" OR LARGER POLE.
3. DETAIL SHOWS PUSHBUTTON INSTALLED ON METAL POLE. PUSHBUTTON INSTALLED ON OTHER MATERIALS MUST BE PER MANUFACTURER'S RECOMMENDATION.

note 2 revised, note 3 added
NOTES:
1. PUSHBUTTON MUST HAVE DIRECTIONAL ARROW AS SPECIFIED ON THE PLANS.
2. INSTALLATION OF TWO PEDESTRIAN PUSHBUTTON ASSEMBLIES MUST BE ON A 4½" OR LARGER POLE.
3. DETAIL SHOWS PUSHBUTTON INSTALLED ON METAL POLE. PUSHBUTTON INSTALLED ON OTHER MATERIALS MUST BE PER MANUFACTURER'S RECOMMENDATION.

note 2 revised, note 3 added

City of Seattle

ACCESSIBLE PEDESTRIAN SIGNAL (APS)
PED. PUSHBUTTON ASSEM.
AREA REVISED

DIMENSION REVISED

BOTTOM VIEW

BOTTO M VIEW

PEDESTAL FOUNDATION

BOTH VIEWS RERRAFTED TO MATCH

GROUNDING LUG ADDED

GROUNDING LUG REMOVED

ANCHOR BOLT
HEX NUT
LOCK WASHER
FLAT WASHER
LEVELING NUT
SLOPE

CENTER 2" SCH 80 PVC
CLASS 3000 CONCRETE

1 1/2" BOLT CIRCLE

4" PIPE
THREAD FOR 4" PIPE

1 1/2"

8"X6 1/2" ACCESS DOOR LOCATE FACING SIDEWALK

3 THREAD PROTRUSION ABOVE NUT

HEX NUT

FOR GROUT DETAIL SEE
STD PLAN NO 563

1/2" PLASTIC DRAIN TUBE ON LOW SIDE OF FINISH GRADE

WRAP WITH TAPE TO SEAL OUT GROUT

FOR GROUT DETAIL SEE
STD PLAN NO 563

1/2" PLASTIC DRAIN TUBE ON LOW SIDE OF FINISH GRADE

SQUARE BASE PEDESTAL

4 J-BOLTS 5/8"X20"X4"
HOT DIP GALV. FULL LENGTH. ASTM A307, TOP 6" MUST BE THREADED

CENTER 2" SCH 80 PVC
CLASS 3000 CONCRETE

EXIST GROUND
COLD JOINT FOR BLOCKOUT
CONCRETE WALK

TOP OF FOUNDATION
4" ON HIGH SIDE OF FINISH GRADE

SET BOLT

LEVELING NUT SLOPE

1/2"

4" ON HIGH SIDE OF FINISH GRADE

GEOTEXTILE
CURB/PAVEMENT ENTRANCE FOR DETECTOR LOOP WIRES

NOTES:

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

QUADRIPOLE LOOP DETECTOR

*NOTE:
OVERLAP CUT FOR FULL DEPTH AT CORNERS (TYP.) CHIP 1" BACK THEN ROUND OFF CORNERS WHERE LOOP WIRE WILL BE BENT 90° OR LESS.

BICYCLE DIPOLE

BICYCLE QUADRIPOLE

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.

SECTION A–A

SPEED LIMIT

ADVANCE PLACEMENT FROM STOP BAR

6' DIAM LOOP (TYP.)

DETECTOR LOOP DETAILS
DETECTOR LEAD-IN WIRE SPlice DETAIL

NOTE:
SOLDER CONNECTION AFTER CRIMPING

signal splice detail removed
### 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></td>
<td></td>
<td>100#/SF/FT 150#/SF/FT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>7½&quot;</td>
<td>10 #8</td>
<td>5'-0&quot; 7'-6&quot;</td>
<td>½&quot; Dia X 60&quot;</td>
<td>⅜&quot; X 16&quot; 16&quot; 14½&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>¾&quot; Dia X 72&quot;</td>
<td>⅜&quot; X 16&quot; 16&quot; 18&quot; 1½&quot;</td>
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<tr>
<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>⅛&quot; X 18&quot; 18&quot; 20&quot; 2½&quot;</td>
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<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>⅛&quot; X 20&quot; 20&quot; 22&quot; 2½&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**
1. Concrete strength must be Class 4000, 3/4" Max Size Coarse Aggregate.
4. All reinforcing bars must be deformed billet steel conforming to ASTM Class A706, Grade 60.
5. Anchor bolts must 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.

**Inclined Condition**

**Notes:**
- Center hole diameter
- Corner radius
- Bolt circle diameter
- Inclined sidewalk or finished grade

**Anchor Plate**

**REF STD SPEC SEC 8-32**

*City of Seattle* | *Not to Scale* | *Strain Pole Foundation Schedule & Notes (Type T, V, X & Z)*

*2017 Edition City of Seattle Standard Plans for Municipal Construction*
NOTES:
1. BOLT CIRCLE TYP. INS.
2. SEE SCL CONSTRUCTION STANDARD 1716.34 FOR POLE MOUNTING AND GROUT DETAIL
3. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED ASTM A153 OR F2323, FULL LENGTH AND FABRICATED FROM ASTM F1594 OR A576 WITH 1/2" THREADS ON TOP

REF STD SPEC SEC 8-32

City of Seattle

STREET LIGHT
POLE FOUNDATIONS

NOTES:

1. THE COVER MUST HAVE ¾" TO 1" CLEARANCE ON EACH EDGE WITHIN THE FRAME AFTER GALVANIZING.
2. THE GROUND ROD MUST EXTEND 4" ABOVE THE BOTTOM OF THE HANDHOLE OR MINERAL AGGREGATE.
3. TYPE 1, 2, 3, 5 & 6 HANDHOLE COVERS MUST HAVE "TC" AND/OR "SL" ON THEM, AS APPROPRIATE.
4. TYPE 4 HANDHOLE MUST 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 THE THE LEVEL OF THE FINISHED PAVEMENT WITHOUT EXTENDING THE BOTTOM FLANGE OF THE CASTING IN THE PAVEMENT.
6. A 4" LENGTH OF #6 THIN OR THICK COPPER WIRE MUST BE SECURED FROM THE HANDHOLE COVER TO THE FRAME, BOND FROM FRAME LD, AND LD TO GROUND ROD.
7. ALL HANDHOLE COVERS AND FRAMES MUST HAVE A NON-SKID SURFACE (SEE STD SPEC SEC 9-34.8).
8. ALL HANDHOLES MUST HAVE A LOAD RATING OF H20.
9. GROUND ROD REQUIRED IN ALL STREETLIGHT HANDHOLES PER SCL CONSTR STD 1716.03.
10. SEE SCL CONSTRUCTION STANDARD 1716.07 FOR STREETLIGHT HANDHOLE AND CONDUIT REQUIREMENTS.

NEW NOTE

6" MIN THICKNESS MNRL AGG TYPE 9

HANDHOLE INSTALLATION DETAIL

6" WIDE X 3½" DEEP CONCRETE COLLAR WHEN INSTALLED IN EARTH

CONDUIT (PER DRAWINGS)
ALL COUPLINGS MUST BE WATERTIGHT

TOTAL 180° OPEN

(4) ¾" LIFT INSERTS

RECESSED LIFT HANDLE

COVER

STEEL PLATE COVER (GALV) W/LOCKING LATCH

FULL 180° OPEN

TOP OF PAVEMENT

TYPE 2 HANDHOLE

TRAFFIC BEARING

CONC MAINTENANCE HOLE
ADJUSTMENT RINGS

MINERAL AGGREGATE TYPE 9

GALV "C" CHANNELS
18" LONG ON ALL SIDES

TOP UNIT INSIDE EXTENSION COVER
DIMENSIONS

<table>
<thead>
<tr>
<th>TYPE</th>
<th>TOP UNIT L</th>
<th>H</th>
<th>W</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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</tr>
<tr>
<td>4</td>
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<td>42&quot;</td>
<td>42&quot;</td>
<td>36&quot;</td>
<td>36&quot;</td>
</tr>
</tbody>
</table>

CRHH 8 9

6½" STEEL PLATE(GALV)

COVER

SLIDE LOCK

6½" STEEL PLATE(GALV)

COVER

SLIDE LOCK

#3 BAR (TYP)

#3 BAR (TYP)

#3 BAR (TYP)

#3 BAR (TYP)

TYPE 3 HANDHOLE

(COVER SAME AS TYPE 5)

TYPE 4 HANDHOLE

(COVER SAME AS TYPE 5)

#3 BAR (TYP)

#3 BAR (TYP)

#3 BAR (TYP)

#3 BAR (TYP)

TYPE 5 HANDHOLE

(COVER SAME AS TYPE 5)

#3 BAR (TYP)

#3 BAR (TYP)

#3 BAR (TYP)

#3 BAR (TYP)
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 25 APPLICATION. MARKINGS SHOWING THE TIER 25 RATING MUST BE EMBOSSED OR STENCILED ON THE INSIDE & OUTSIDE OF THE BOX.
3. ALL NON-DELIBERATE TRAFFIC PULL BOXES & COVERS MUST BE MADE OF POLYMERIC 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.
4. ALL NON-DELIBERATE TRAFFIC PULL BOXES & COVERS MUST BE TESTED & CERTIFIED, MEETING ALL TEST PROVISIONS ON THE ANSI/SCTE 77 TO THE 60RF, MEETING ALL TEST PROVISION OF THE LATEST REVISION OF ANSI/SCTE 77.
5. PULL SLOTS MUST BE RATED FOR MINIMUM PULL OUT OF 5,000 POUNDS.
6. TYPE A HANDHOLE MUST BE INSTALLED IN ROADWAYS PAVING LOTS, ETC. ALL COVERS MUST BE COMPLETE WITH A MOLDED LOGO, MANUFACTURER'S NAME & TIER RATING LOGO (NO GLUE IN LOGO). LOGO MUST READ "TC" AND/OR "SL" UNLESS STATED OTHERWISE BY THE CITY OF SEATTLE.
7. THE GROUND ROD MUST 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 THIN OR THIN COPPER WIRE MUST BE SECURED TO THE HANDHOLE COVER TO THE FRAME. AS A 4-0" LENGTH FROM FRAME THAT CAN BE MONITORED.
10. ALL HANDHOLE COVERS AND FRAMES MUST HAVE A NON-SKID SURFACE (SCL MATERIAL STANDARD 720.18).
11. SEE SCL CONSTRUCTION STANDARD 17 637.07 FOR STREET HANDHOLE AND CONDUIT REQUIREMENTS.

HANDHOLE INSTALLATION DETAIL

PER DRAWINGS removed

NOTE: Handhole installation detail with "PER DRAWINGS" removed and a new note 11 added.

HANDHOLE SCHEDULE

<table>
<thead>
<tr>
<th>HANDHOLE TYPE</th>
<th>TOP UNIT INSIDE DIMENSION</th>
<th>EXTENSION UNIT(S)</th>
<th>COVER DIMENSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L  W  H</td>
<td>L  W</td>
<td></td>
</tr>
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<td>1</td>
<td>24&quot; 15&quot; 12&quot;</td>
<td>24&quot; 15&quot;</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>30&quot; 17&quot; 12&quot;</td>
<td>30&quot; 17&quot;</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>36&quot; 24&quot; 18&quot;</td>
<td>36&quot; 24&quot;</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>24&quot; 6   VAR  NA</td>
<td>NA NA</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>30&quot; 48&quot; 36&quot;</td>
<td>30&quot; 48&quot;</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>48&quot; 48&quot; 48&quot;</td>
<td>48&quot; 48&quot;</td>
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</tr>
<tr>
<td>GRH</td>
<td>8&quot; 8&quot;   NA</td>
<td>NA NA</td>
<td></td>
</tr>
</tbody>
</table>

TYPE 3 HANDHOLE
(COVER SAME AS TYPE A)

SCL material std added

TYPE 1 & 2 HANDHOLE

TYPE 5 HANDHOLE

6' DRAIN HOLE (OPENED)

Galv strut 18' long on all sides

12' x 12' knockout 1 each side

(2) 1" ground rod knockouts

City of Seattle
NOT TO SCALE
pole height corrected from 32'-6" to 33'-6"

NOTE:
POLE AND MAST ARM DESIGN MUST CONFORM TO "AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" (2013 EDITION)

"CURRENT EDITION" changed to "2013 EDITION"

dimension added

callout revised
dimensions added

3'-0" CLR TO FACE OF POLE OR EDGE OF Curb

ROADWAY

Curb Line

FINISHED GRADE

TERMINAL CABINET
SEE STD PLAN NO 564.
FACTORY DRILL HOLES IN POLE COUPLING TO BE FABRICATED & INSTALLED BEFORE GALVANIZING

4" X 6\(\frac{1}{2}\)" OVAL HANDHOLE W/COVER

10\(\frac{1}{2}\)" X \(\frac{1}{2}\)" LOWER HOLE

10\(\frac{1}{2}\)" X \(\frac{1}{2}\)" UPPER HOLE

ID PLATE

4" X 6\(\frac{1}{2}\)" OVAL HANDHOLE W/COVER

POLE BASE PLATE

FOR POLE MOUNTING AND GROUT DETAIL, SEE STD PLAN NO 583

SEE FOUNDATION SCHEDULE, STD PLAN NO 562b AND FOUNDATION DETAIL, STD PLAN NO 541a

REF STD SPEC SEC 8-32
## Pole Schedule

<table>
<thead>
<tr>
<th>Pole Type</th>
<th>Dead Load Moment Kip-FT (at ground line)</th>
<th>Pole Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ground Line Dia. 'A'</td>
<td>Pole Base Plate Size</td>
</tr>
<tr>
<td></td>
<td>Std</td>
<td>CSB</td>
</tr>
<tr>
<td>V</td>
<td>51</td>
<td>12”</td>
</tr>
<tr>
<td>X</td>
<td>93</td>
<td>14”</td>
</tr>
<tr>
<td>Z</td>
<td>164</td>
<td>15”</td>
</tr>
</tbody>
</table>

**Notes:**

1. The yield moment must be 2x the dead load moment. The ultimate plastic moment must be 2.5X the dead load moment.
2. Pole shaft and reinforcing sleeve: ASTM A572 Grade 50, 60 or 65 (F_y=50, 60 or 65 ksi respectively) or ASTM A595 Grade A or B (F_y=85 or 60 ksi respectively).
3. Base plate and handhole reinforcing rim: ASTM A36 or ASTM A572 Grade 42. Base plate F_y=20.65 pole shaft F_y. The base plate thickness may be reduced by \(\frac{1}{4}\)” if ASTM A572 Grade 42 steel is used.
4. Reinforcing sleeve must be fabricated from the same material and yield strength as the pole shaft.
5. Pole shafts must have no more than two longitudinal welds in each ply.
6. Minimum shaft wall thickness of each ply must be 0.239” (3 gauge). Pole must have a maximum of two plies not including the \(\frac{1}{4}\)" reinforcing sleeve.
7. Maximum silicon content in steel must be 0.04%. See Std Spec Section 9-33.1(3) for general galvanizing requirements.
8. Pole diameter for 12 or more sided poles must be measured from the point to point dimension.
9. Poles must meet deflection criteria stated in Std Spec Section 9-33.7(3) with the new load applied at 3’ above ground line.

AASHTO date changed to 2013

---

Ref: Std Spec Sec 8-32, 9-33

City of Seattle

NOT TO SCALE

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

NOTES:
1. THE DEAD LOAD MOMENT AT THE GROUNDLINE MUST BE 40 KIP-FT. THE YIELD MOMENT
   MUST BE 2X DEAD LOAD MOMENT.
2. POLE STRENGTH MUST MEET REQUIREMENTS OF AASHTO STANDARD SPECIFICATIONS FOR
   STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (2013
   EDITION).
3. POLE SHAFTS: 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).
4. BASE PLATE AND HANDHOLE REINFORCING RNM: ASTM A36 OR ASTM A572 GRADE 42.
   BASE PLATE Fy=20.65 POLE SHAFT FY THE BASE PLATE THICKNESS MAY BE REDUCED BY
   1/8" IF ASTM A572 GRADE 42 STEEL IS USED.
5. POLE SHAFTS MUST HAVE NO MORE THAN TWO LONGITUDINAL WELDS IN EACH PLY.
6. MINIMUM SHAFT WALL THICKNESS OF EACH PLY MUST BE 0.039" (3 GAUGE). POLE MUST
   HAVE A MAXIMUM OF TWO PLYS.
7. MAXIMUM SILICON CONTENT IN STEEL MUST BE 0.04%. SEE STD SPEC SECTION
   9-33.1(3) FOR GENERAL GALVANIZING REQUIREMENTS.
8. POLE DIAMETER FOR 12 OR MORE SIDED POLES MUST BE MEASURED FROM THE POINT TO
   POINT DIMENSION.
9. POLES MUST 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 MUST BE COMPACT AND MUST MEET THE REQUIREMENTS IN AASHTO SECTION
    4, TABLE 1.4 1B(1).

AASHTO date changed to
2013

ALTERNATE POLE BASE DETAIL

POLE BASE DETAIL

REF STD SPEC SEC 8-32, 9-33
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.
NOTES:
1. ON POLES WITH EXISTING CONDUITS, NEW CONDUITS MUST BE INSTALLED IN ACCORDANCE WITH THIS STANDARD PLAN.
2. RIGID STEEL CONDUIT MUST BE GROUNDED JUST BELOW COUPLING, APPROXIMATELY 8'-0" TO 10'-0" ABOVE GROUND, AS SHOWN.
3. WHEN 2 OR MORE RIGID STEEL CONDUITS ARE INSTALLED ON ONE POLE, ONE CONDUIT MUST BE GROUNDED AS SHOWN. THE CONDUIT SUPPORTS & STRAPS MUST SERVE AS A BONDING DEVICE BETWEEN THE STEEL CONDUITS.
4. THE GROUND WIRE MUST BE ONE CONTINUOUS LENGTH. INSERT THE GROUND WIRE FORM THE BOTTOM OF THE GROUND CLAMP & BEND OVER THE CLAMP BEFORE TIGHTENING.
5. PLACE GROUND WIRE IN QUADRANT BETWEEN POLE FACE & SECONDARY NEUTRAL.
6. ALL STEEL HARDWARE MUST BE HOT DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123.
7. CONDUIT CLAMP SPACING MUST BE PER THE NEC WITH A MINIMUM OF TWO HOLE CLAMP PER 10'-0" LENGTH OF CONDUIT.
8. POWER AND SIGNAL CONDUCTORS MUST NOT BE PLACED IN THE SAME CONDUIT.
9. WHEN POSSIBLE, RISER MUST BE INSTALLED ON DOWNSTREAM SIDE OF TRAFFIC.
10. SEE SCL CONSTRUCTION STANDARD 1716.07 FOR STREETLIGHT HANDHOLE AND CONDUIT REQUIREMENTS & 0224.34 FOR STREETLIGHT CONDUIT RISERS.

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

City of Seattle

NOT TO SCALE

TRAFFIC CONDUIT RISER
CALLOUT REVISED

INSTALL STREET DESIGNATION SIGN

STREET NAME SIGN BLADES
SEE STD PLAN NO. 615

PEDESTRIAN SIGNAL

8'-0"
11'-0"

REF STD SPEC SEC 8-21
NOTES:
1. STAGGER SNS BLADES WITH THE "AVENUE" DESIGNATION BLADE BELOW THE "STREET" DESIGNATION BLADE
2. SNS SHALL BE INSTALLED PARALLEL TO CORRESPONDING STREET
3. ALL NUTS, BOLTS & WASHERS TO BE STAINLESS STEEL EXCEPT ALUMINUM RIV NUTS ON ALUMINUM POLES.

substantially revised std plan

DETAIL A
ALUMINUM MOUNTING BRACKET

STREET NAME SIGN BRACKET FOR STEEL POLES
STOP AND YIELD
SIGNS SHALL BE
RED-BACKED WITH A
RETROREFLECTIVE
MATERIAL CONSISTENT
WITH THAT ON THE
SIGN FACE

FACE OF CURB
EDGE OF TRAVELED WAY

3⁄8” DRIVE RIVET
(2 PER SIGN TYP)

OPEN SIDE SLEEVE

TELESPAR TRAFFIC
SIGN POST SEE
STD PLAN NO 625

SEE HEAVY DUTY ANCHOR
STD PLAN 621b

POST ANCHOR INSTALLATIONS

NOTE:
1. CONTACT SEATTLE DEPARTMENT OF TRANSPORTATION (684-5087) FOR
DETAILS REGARDING SIGN MESSAGE AND FOUNDATION.
2. STEEL SELF-TAPPING #10 X 3⁄4” WITH HEX WASHER HEAD zinc PLATED
3. RED AND WHITE SLEEVE
4. SEE STANDARD 621a FOR OTHER WARNING & REGULATORY SIGN POST

REF STD SPEC SEC 8-21
substantially revised std plan

TS-10
(See Std Plan No 621b for post anchor details)

TS-5
(See Std Plan No 621b for post anchor details)

NOTES:
1. Sign shall be attached with top edge of sign flush with top of square section of post.
2. TS-5 assemblies shall be used only with approval of Engineer, in areas not subject to pedestrian travel.
3. Fluorescent yellow green or FHWA yellow.
SURFACE MOUNT

HEAVY DUTY ANCHOR

NOTES:
1. FOR UNLEVEL SIDEWALKS INSERT WASHERS AS SPACERS BETWEEN PLATE AND SIDEWALK. IF BOLT CANNOT PENETRATE SIDEWALK AT LEAST 3", CONTACT THE ENGINEER.
2. USE CONCRETE FOOTINGS FOR ALL SIGNS LARGER THAN 96 SQUARE INCHES.

REF STD SPEC SEC 8-21

NOTES:
1. SNS BLADE SHALL BE INSTALLED PARALLEL TO CORRESPONDING STREET.
2. INSTALLATION OF SNS ON ANY OTHER METAL POLE SHALL REQUIRE REVIEW AND APPROVAL BY THE ENGINEER.
3. SNS/SP RELOCATION: OLD CONCRETE SHALL BE REMOVED AND NEW CONCRETE BASE SHALL BE CONSTRUCTED.
4. CITY OF SEATTLE SHALL FABRICATE SNS BLADES AND SUPPLY MOUNTING HARDWARE AT PROJECT OR CONTRACTOR EXPENSE.
5. FOR BILINGUAL SIGNS, CONTACT THE ENGINEER TO OBTAIN THE BILINGUAL STREET NAME SIGN INSTALLATION PRACTICES CURRENTLY IN USE BY SDOT CREWS.

REF STD SPEC SEC 8-21
substantially revised std plan

"STREET" SIGN BLADE IN TOP LOCATION

"AVENUE" SIGN BLADE IN TOP LOCATION

2½" TO NIPPLE

2½" REDUCER

ROUND TO SQUARE ADAPTER

"B" St

"A" Ave

"C" Way

PEDESTAL AND FOUNDATION (SEE STD PLAN NO 524)

REF STD SPEC SEC 8-21

Qwik Punch Telespar Standard Sign Post (TS-5, TS-10, TS-12)

NOTES:
1. SEE STD PLANS NO 620 & 621

TS-8 removed
NOTES:

2. Post anchor rivets shall be 1/2" above ground level.
   Attachment brackets shall face away from street as when post is located 3'-0" from edge of curb.
   Attachment brackets shall face towards street (TS) when post is located at back side of sidewalk.

3. For post relocations, old concrete shall be removed from post.

4. All signs, structures, and hardware provided by Metro except where noted otherwise on this standard.
   Where surface mounted bus zone signs are required on sloped sidewalk, the contractor shall plum the post
   by building a non-shrink grout pad under pedestal assembly with smooth 1H to 1V taper on the grout
   edge. The bolt anchor length shall be adjusted to provide a min. 3/4" embedment through the grout into
   the existing concrete.

5. Alternate location

Direct Burial Installation

Surface Mount Installation

Callouts Revised

Callouts Revised

Callout Revised

Callout Revised

Dim Revised

Dim Added

Dim Added

HIGHWAY ENGINEERING DEPARTMENT


City of Seattle
**SURFACE MOUNT DETAIL**

- Use heavy duty anchor for non-concrete installation.

**NOTES:**

1. Wayfinding blade shall be installed pointing in the direction of the location on blade.
2. City of Seattle shall fabricate wayfinding blades and supply mounting hardware at project or contractor expense.
3. Maintain 8 feet minimum of vertical clearance from concrete walk to the bottom of pedestrian wayfinding blades.

---

**SURFACE MOUNT**
TYPICAL TYPE 2A LANE MARKER INSTALLATION DETAILS

Lane markers shall be installed to conform with type of pavement marking (designated as L-1, L-3, L-4, L-5A) and are to be arranged and spaced as shown on this drawing. Color of lane markers is to match color of pavement marking. Existing channelization in conflict with new or revised channelization shall be removed (see Std Spec Sec 2-02.3(3)).

REF STD SPEC SEC 8-22
TYPICAL LEFT TURN CHANNELIZATION

NUMBER OF LEGEND SETS REQUIRED BASED ON THE LENGTH OF APPROACH LINES

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<thead>
<tr>
<th>APPROACH LINE LENGTH</th>
<th>LEGEND SETS</th>
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<tbody>
<tr>
<td>LESS THAN 50 FEET</td>
<td>1 SET AT X-WALK END OF POCKET</td>
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<tr>
<td>50 FEET - 120 FEET</td>
<td>2 SETS</td>
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<tr>
<td>120 FEET - 300 FEET</td>
<td>3 SETS (SECOND LEGEND LOCATED MIDWAY BETWEEN FIRST AND LAST LEGENDS)</td>
</tr>
<tr>
<td>OVER 300 FEET</td>
<td>ADDITIONAL SETS SPACED AT APPROX 100 FT INTERVALS BETWEEN FIRST AND LAST SETS</td>
</tr>
</tbody>
</table>

TYPICAL TWO WAY LEFT TURN LANES

NUMBER OF LEGEND SETS REQUIRED BASED ON THE LENGTH OF TYPICAL TWO WAY LEFT TURN LANES

<table>
<thead>
<tr>
<th>LANE LENGTH</th>
<th>LEGEND SETS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LESS THAN 50 FEET</td>
<td>1 SET (CENTERED BETWEEN BOTH ENDS OF LANE)</td>
</tr>
<tr>
<td>50 FEET - 300 FEET</td>
<td>2 SETS</td>
</tr>
<tr>
<td>OVER 300 FEET</td>
<td>3 SETS (SECOND LEGEND LOCATED MIDWAY BETWEEN FIRST AND LAST LEGENDS) ADDITIONAL SETS SPACED AT APPROX 300 FT INTERVALS</td>
</tr>
</tbody>
</table>

LEGEND COMBINATIONS

Oblique Left & 90° Left Legends and Oblique Right & 90° Right Legends may be combined as shown.

LEGENDS SHALL BE CENTERED WITHIN THE LANE TO WHICH THEY APPLY, AS SHOWN.
TYPICAL "LADDER STYLE" PEDESTRIAN CROSSWALK

(STANDING CURB RAMP'S & STOP LINE PLACEMENT)

"WHERE TRAFFIC LANE LINES ARE NOT USED,
LADDER BARS SHALL BE 5'-0" CENTER TO CENTER, BEGINNING AT THE MARKED CENTERLINE OF THE ROADWAY"

NOTES:
1. "LADDER STYLE" CROSSWALK SHALL BE USED IN MOST APPLICATIONS. "TRANSVERSE LINE" CROSSWALK MAY ONLY BE USED WITH APPROVAL OF ENGINEER.
2. LOWER LANDING OF CURB RAMP SHALL FALL WHOLLY WITHIN CROSSWALK LINES.
3. WHERE EXISTING TRAFFIC LOOP LOCATIONS ARE BETWEEN 4'-0" AND 1'-0" FROM THE EDGE OF CROSSWALK, STOP LINE MAY BE PLACED UP TO 1'-0" FROM THE CROSSWALK.
4. EXACT LOCATION OF CROSSWALK AND STOP LINES SHALL BE APPROVED BY SOOT.
5. COLORED OR TEXTURED PAVEMENT CROSSWALKS SHALL BE SUPPLEMENTED WITH EITHER "LADDER STYLE" OR "TRANSVERSE LINE" CROSSWALK MARKINGS.
6. EXISTING CROSSWALK MARKINGS THAT CONFLICT WITH NEW CROSSWALK MARKINGS MUST BE REMOVED.

REF STD SPEC SEC 8-22
NOTE:
"T"= THERMOPLASTIC

REF STD SPEC SEC 8-22
new std plan

L-35, L-35T
"SCHOOL" LEGEND
NOTES:
1. T = THERMOPLASTIC
2. L-28T INCLUDES BICYCLE SYMBOL AND ARROW

arrow revised

wheel size fixed

L-27T
PEDESTRIAN STYLE

L-28T
BICYCLIST SYMBOL
(INCLUDES L-28A, LT-28AT)
(SEE NOTE 2)

REF STD SPEC SEC 8-22

City of Seattle
NOT TO SCALE
BICYCLIST & PEDESTRIAN SYMBOLS