CITY OF SEATTLE

2011 edition

STANDARD PLANS

FOR

MUNICIPAL CONSTRUCTION

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PREFACE

The 2011 Edition City of Seattle Standard Plans for Municipal Construction (henceforth referred to as the “2011 Standard Plans”) have been prepared by Seattle Public Utilities in cooperation with the Department of Finance and Administrative Services, Seattle Department of Transportation, Seattle Parks and Recreation, Seattle City Light, and the Seattle Center. These Plans have been coordinated with the 2011 Edition City of Seattle Standard Specifications.

The 2011 Standard Plans apply whenever any public or private construction is performed within the Rights-of-Way of the City of Seattle including work performed by private parties at their own expense under authority granted by ordinance of the City Council or by permit of the SDOT Street Use section. The 2011 Standard Plans are designed to be used in conjunction with the 2011 Standard Specifications for Road, Bridge and Municipal Construction. Each individual 2011 Standard Plan has a reference located in the bottom left corner to the applicable 2011 Standard Specifications section(s) located in the bottom left corner.

For the convenience of our users, 2011 Standard Plans that are new or have been revised from the 2008 Edition Standard Plans are identified in the Table of Contents with bold text and a vertical bar along the outside page margin. Also, a revision date is located in the upper right corner of each individual Standard Plan to alert the reader to a Standard Plan that is new or has been recently revised.

Despite considerable efforts to produce 1) a completely error-free document, 2) a document consistent with the 2011 Standard Specifications, and 3) a web version of this document, some mistakes and inconsistencies among the versions seem to defy detection until after publication. If you discover errors in this document or inconsistencies between or among the versions please bring them to our attention by contacting the City’s Construction Standards Engineer at the following web address:


If conflicts are discovered between this hard copy version of the 2011 Standard Plans and any other version, this hard copy shall take precedence. If conflicts are discovered between this hard copy of the 2011 Standard Plans and any version of the 2011 Standard Specifications, the hard copy of the 2011 Standard Specifications shall take precedence.

Our sincere thanks and appreciation to all the individuals who participated in the effort of producing the 2011 Edition of our Standard Plans, and to the many City Departments for agreeing to standardize similar constructions. In particular, thanks to the following City-wide Standards Committee members who along with their various stakeholders shouldered most of the work in authoring and reviewing changes, coordinating among their departments’ subject matter experts, meeting deadlines, and cooperatively resolving inconsistencies within and between the Standard Specifications and the Standard Plans:

Department of Financial and Administrative Services: Maura Donoghue, Thuy Hong and Nancy Locke
Seattle Public Utilities: Dennis Hess, Jason Miller, Jeff Fowler, Liz Anderson and Steve Read
Seattle Department of Transportation: Mike Moderie, Greg Izzo and Doug Stanley
Seattle Parks and Recreation: Rebecca Rufin
Seattle City Light: Mike Nordin
Seattle Center: Bonnie Pendergrass
Seattle Law Department: Bill McGillin

Additional thanks to Dean Huber, Dean Noble, Shohreh Shahabian, David Hildahl, Joshua Jones, Jason Graham, Charlie Beck, Leonardo Asuan and Chang-Chi Hwang of the Seattle Public Utilities’ Project Support Division for their excellent work in preparing the 2011 Standard Plans.

The hardcopy version of this document is available at the Department of Finance and Administrative Services Treasury Services cashier counter located in the Seattle Municipal Tower, 700 Fifth Avenue, Suite 4200, Seattle, Washington 98104, 206-684-5214. The web version of the 2011 Standard Specifications and 2011 Standard Plans can be viewed and downloaded in pdf format at the web address listed above.

This preface is for informational purposes only and is not to be used to interpret or affect the terms of the Contract between the City of Seattle as the Contracting Agency and the Contractor.

Randy Earlywine, P.E. Brian Patton, P.E.
City Construction Standards Engineer Director
Construction Management Division Project Support Division
Seattle Public Utilities Seattle Public Utilities
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| Conduit Risers                    | Conduit Risers                               | 580 |
## 600 Signs

**Overhead**
- Span Wire Installation 601a
- Overhead Wood Signs Span Wire Mounted 601b
- Sign Installation (Non-Spanwire Mounting) 601c

**Pole Mounted**
- Standard Sign Installation Steel Poles 610
- SDS Bracket for Steel Mast Arm Poles 612
- SDS Bracket for Steel or Wood Poles 613
- SNS Bracket for Steel Poles 615
- Traffic Sign Mounting on Metal Poles 616

**Post Mounted**
- Stop and Yield Sign
  - Wood Post and Anchor Installation 620
- Warning and Regulatory Sign Post 621a
- Warning and Regulatory Sign Post Anchor Installation 621b
- Street Name Sign Installation 622
- Street Name Sign Pedestal Installation 623
- Post Cap 624
- Traffic Sign Posts 625
- Object Marker Installation in Traffic Circle 626
- Parking Meter Post & Accessories 627
  - Surface Mount Meter Post Installation Detail 628
  - Direct Burial Meter Post Installation Detail 629
  - Metro Bus Zone Sign Installation 630

## 700 Pavement Markings

- Traffic Buttons / Lane Markers
  - Traffic Buttons and Lane Markers 700

**Channelization**
- Typical Left Turn Channelization and Legend Placement 710
- Typical Crosswalk & Stop Line Installation Details 712
  - Curb Space Marking Details 713

**Legends / Symbols**
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- Pavement Markings Legends / Symbols 720b
- Pavement Markings Legends / Symbols 721
- Bicyclist & Pedestrian Symbols 722
- Pavement Markings Legends / Symbols 723
- Bicycle Symbol 724
- Bicycle Detector Pavement Marking 725

## 800 Structures

- Walls
  - Support Wall 800
  - Curb Wall 801
Vertical Datums within the City of Seattle:

The National Geodetic Survey (NGS) Benchmark 944 7130 TIDAL 7 PID SY0289 is a disk set 3.0 feet above the concrete sidewalk in the SW granite cornerstone of the National Building located on the NE corner of the intersection of the Western Avenue and Madison Street, Seattle, Washington.

The following elevations are values for that benchmark in different datums.

- NAVD 88 = 19.26 feet
- NGVD 29 = 15.67 feet
- King Co & Metro = 115.67
- Obsolete COS Datum = 9.54 feet
- USACOE = 22.51 feet
- MLLW = 21.59 feet

NAVD88 = The North American Vertical Datum of 1988 (Official City of Seattle Datum per Ordinance #121291 of October 9, 2003)

NGVD 29 = The National Geodetic Vertical Datum of 1929

King Co & Metro = Add 100 feet to NGVD 29

Obsolete COS = The Old City of Seattle Elevation. Plans, profiles and records prior to 2004 use this datum. Add 9.7 feet to this datum to get to NAVD88.

USACOE = US Army Corps of Engineers Lake Washington & Lake Union Datum

MLLW = Mean Lower Low Water Datum (TIDAL EPOCH 1983 TO 2001)

NOTES

1. Tidal elevations vary according to tidal observations in 18 year epochs.
2. The Old (Obsolete) City of Seattle Datum varies between 9.1 and 9.9 feet below NAVD88 depending on the location in the City. The difference between these two datums must be ascertained from field observations in each specific area. Add approximately 9.7 feet to the old COS Datum to get to the NAVD elevation.
+18.60 Lake Washington High Water (USACE Permits)
+16.75 Lake Washington Low Water (USACE Permits)

Conversion Instructions:
From another datum to NAVD88 City of Seattle,
add the value shown.
From NAVD88 City of Seattle to another datum,
subtract the value shown.

+12.14 Highest Tide Observed Water Level by NOAA 1/27/83
+9.7± Old, Obsolete City of Seattle Datum – See Note 2
+9.01 Mean Higher High Water – See Note 1
+8.15 Mean High Water – See Note 1

+4.32 Mean Tide Level – See Note 1
+4.29 Mean Sea Level – See Note 1
+3.58 NGVD29, King County, Metro Datums
(Metro Datum also expressed as +103.58)

+0.49 Mean Low Water
0.00 NAVD88 = Current City of Seattle Datum

-2.35 Mean Lower Low Water (83-01 Epoch) – See Note 1
-3.25 Lake Washington Mean Lower Low Water (USACE Permits)

-7.38 Lowest Observed Water Level by NOAA 1/14/1919

Notes:
1. These elevations vary according to tidal observations for
   station ID 9447130, Seattle Puget Sound, by NOAA using
2. The Old Obsolete City of Seattle Datum varies between
   9.2 and 9.9 from NAVD88 (Current Approved City of Seattle
   Datum), depending on location in the city. The difference
   between these two datums must be ascertained from
   field observations in each specific area.

City of Seattle NOT TO SCALE ELEVATIONS & DATUMS
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<td>Automatic Control Valve</td>
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<tr>
<td>ACP</td>
<td>Asphalt Concrete Pavement</td>
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**REFERENCES:**

000 GENERAL/LEGAL/MISC

STANDARD PLAN NO 002a

REV DATE: DEC 2010

**City of Seattle**

NOT TO SCALE

ABBREVIATIONS

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REF STD SPEC SEC 1-01.2

City of Seattle

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ABBREVIATIONS

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**Reference:** STD SPEC SEC 1-01.2

City of Seattle

*NOT TO SCALE*

*ABBREVIATIONS*

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REF STD SPEC SEC 1-01.2

City of Seattle

NOT TO SCALE

ABBREVIATIONS

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REF STD SPEC SEC 1-01.2

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<td>Traffic Signal on Span Wire</td>
<td>![Existing Diagram]</td>
<td>![Proposed Diagram]</td>
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<tr>
<td>Multi-Directional Traffic Signal on Span Wire</td>
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<tr>
<td>Traffic Signal Conduit</td>
<td>![Existing Diagram]</td>
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<tr>
<td>Traffic Signal Cable</td>
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<tr>
<td>Detector Loop, Dipole (loop schedule)</td>
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<td>Detector Loop, Quadrapole (loop schedule)</td>
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<td>Vehicle Signal</td>
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<td>Vehicle Signal w/ Backplate</td>
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<td>Vehicle Signal (optically programmed)</td>
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<td>Pedestrian Signal</td>
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<td>Pedestrian Signal (optically programmed)</td>
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<td>●</td>
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<td>Pedestrian Push Button</td>
<td>▼</td>
<td>+PPB</td>
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<td>Illuminated Sign</td>
<td>▲</td>
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<td>Non-illuminated Sign</td>
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<tr>
<td>Junction Box</td>
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<tr>
<td>Handhole</td>
<td>□ HH</td>
<td>□ HH</td>
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<tr>
<td>Traffic Control Handhole</td>
<td>□ TCHH</td>
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<td>□ SLHH</td>
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<td>□ GRHH</td>
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<tr>
<td>Fire Alarm Handhole</td>
<td>□ FAHH</td>
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</table>
SIGNALIZATION

Vehicle & Pedestrian Signal Head
(?=Identification Number)

Illuminated Traffic Sign
(?=Identification Number)

Cable Runs
(?=Run Number per Wiring Schedule)

Removal/Relocation Item
(?=Identification Number per Removal/Relocation Plan)

Construction Item
(?=Identification Number per Signalization Plan)


CHANNELIZATION & SIGNAGE

Install Channelization Signage
(?=Channelization / Signage Identified on Plan)

Remove Channelization / Signage
(?=Channelization / Signage Identified on Plan)

Relocate Signage
(?=Signage Identified on Plan)
<table>
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<td><img src="image3" alt="Diagram" /></td>
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<tr>
<td>Inlet Type 252</td>
<td><img src="image7" alt="Diagram" /></td>
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<tr>
<td>Inlet Type 268</td>
<td><img src="image9" alt="Diagram" /></td>
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<tr>
<td>Catch Basin round inlet top</td>
<td><img src="image11" alt="Diagram" /></td>
<td><img src="image12" alt="Diagram" /></td>
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<tr>
<td>Private CB &amp; Inlet</td>
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<tr>
<td>Catch Basin Type 151 (pre 1985)</td>
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<td>Catch Basin Type 240C</td>
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<td><img src="image27" alt="Diagram" /></td>
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<td>Junction Box Type 277</td>
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<td>Clean Out</td>
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<tr>
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<td>12&quot; CC</td>
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<tr>
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<td>8&quot; PS</td>
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<td>Pipe Sewer Combined ≥1'-0&quot;Dia</td>
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<td>24&quot; PS</td>
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<tr>
<td>Side Sewer Combined</td>
<td>6&quot; SS</td>
<td>6&quot; SS</td>
</tr>
<tr>
<td>Pipe Sewer Sanitary &lt;1'-0&quot;Dia</td>
<td>8&quot; PSS</td>
<td>8&quot; PSS</td>
</tr>
<tr>
<td>Pipe Sewer Sanitary ≥1'-0&quot;Dia</td>
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<td>24&quot; PSS</td>
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<tr>
<td>Side Sewer Sanitary</td>
<td>6&quot; SSS</td>
<td>6&quot; SSS</td>
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<td>Pipe Storm Drain &lt;1'-0&quot;Dia</td>
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<td>Pipe Storm Drain ≥1'-0&quot;Dia</td>
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<td>8&quot; SD</td>
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REF STD SPEC SEC

City of Seattle NOT TO SCALE STANDARD SYMBOLS SEWER & DRAINAGE

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<td>Rebar/Cap, Pipe/Cap Rebar, Iron Pipe (found or set)</td>
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<td>H:V</td>
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<tr>
<td>Vertical Curve</td>
<td>V C</td>
<td>V C</td>
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<tr>
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North Arrow horizontal

North Arrow vertical
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<td>Telephone Conduit</td>
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<td>Telephone Duct</td>
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<td>Telephone Enclosure</td>
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<td>Telephone Maintenance Hole</td>
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<td>Telephone Pole</td>
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<td>Telephone Handhole</td>
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<td>Television Cable (direct Burial)</td>
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<td>Television Handhole</td>
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<td>Telegraph Maintenance Hole</td>
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REF STD SPEC SEC

City of Seattle | NOT TO SCALE | STANDARD SYMBOLS
PRIVATE UTILITIES

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<td>Butterfly Valve w/ Valve Box</td>
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<td>8&quot; BFV W/CH</td>
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<td>Water Chamber</td>
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<td>Sprinkler Head</td>
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</tr>
<tr>
<td>Irrigation Valve</td>
<td>$\times$</td>
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NOTES:
1. MEASUREMENT PER LINEAR FOOT. PIPE ENDING IN STRUCTURE MEASURED TO EITHER INSIDE FACE OR TO CENTERLINE OF STRUCTURE AS INDICATED, OR TO TEE OR WYE AS INDICATED.
2. TEE OR WYE INCLUDING PLUG - UNIT PRICE EACH
3. ALL PIPE SHALL BE MEASURED ON THE SLOPE ALONG THE CENTERLINE OF PIPE TO NEAREST 0.10 LF.

REF STD SPEC SEC 7

City of Seattle NOT TO SCALE SEWER/DRAINAGE MEASUREMENT DIAGRAM

NOTES:
1. MONUMENT CASE TO BE INSTALLED BY CONTRACTOR.
2. BASE TO BE PLACED ON A WELL COMPACTED FOUNDATION.
3. FRAME AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS FOR DELIVERY.
4. FRAME AND COVER SHALL BE CAST IRON AND HAVE COATING APPLIED TO ALL FACES.
5. CASTINGS IN RIGID PAVEMENT SHALL HAVE REINFORCING STEEL IN THE PAVEMENT.

RISER RING DIMENSIONS

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<th>Size</th>
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<th>2&quot;</th>
<th>3&quot;</th>
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<tr>
<td>D</td>
<td>10½&quot;</td>
<td>9½&quot;</td>
<td>8&quot;</td>
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<tr>
<td>B</td>
<td>3&quot;</td>
<td>2½&quot;</td>
<td>2½&quot;</td>
</tr>
<tr>
<td>C</td>
<td>3¾&quot;</td>
<td>3¾&quot;</td>
<td>3¾&quot;</td>
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RISER RING SECTION

COVER SECTION

CASE SECTION

SECTION A-A

REF STD SPEC SEC 8-13

City of Seattle
NOT TO SCALE
MONUMENT FRAME & COVER

NOTES:
1. STABILIZED ACCESS SHALL BE USED IN ALL AREAS OF THE SITE WITH VEHICLE TRAFFIC AND PARKING, INCLUDING PLANTING STRIPS.
2. SEE SECTION 9–37.2 (TABLE 3) FOR GEOTEXTILE REQUIREMENTS.
   GEOTEXTILE MODIFICATIONS BASED ON SPECIFIC PROJECT SITE CONDITIONS MAY BE APPROVED BY THE ENGINEER.
NOTES:
1. PLANTING INCLUDES REMOVAL OF STAKES ONE YEAR AFTER INSTALLATION.
2. SHAPE SOIL SURFACE TO PROVIDE 3" DIAM WATERING RING.
3. TREE CLEARANCE SHALL 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 (0.5" SLACK).
6. ROOT BARRIER REQUIRED ALONG EDGE OF ROADWAY, CURB, DRIVEWAY, TRAIL, SIDEWALK, OR OTHER STRUCTURES WHERE ROOTBALL IS WITHIN TWO FEET; PLACE VERTICAL ROOTBARRIER AS SHOWN IN STANDARD PLANS 424A OR 424B UNLESS OTHERWISE INDICATED IN THE CONTRACT OR DIRECTED BY THE ENGINEER.

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".

STAKE TREE WITH (2) TREATED 2"Ø LODGEPOLE PINE (DOWLED) TREE STAKES (8'-0" LENGTH). LOOP EACH TIE AROUND HALF TREE LOOSELY TO PROVIDE 1" SLACK FOR TRUNK GROWTH.

"CHAINLOCK" OR EQUAL TREE TIE MATERIAL (1" SIED) 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)

SET TOP OF ROOT CROWN 2" ABOVE ADJACENT CURB & SIDEWALK GRADE.

3" TO 4" HIGH WATERING RING (SEE NOTE 2)

24" ROOTBARRIER AT CURB

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

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

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.

TOP SOIL TYPE B, OR AS APPROVED BY ENGINEER.

REMOVE ALL WIRE, STRINGS, AND OTHER NON-BURLAP MATERIAL AND REMOVE BURLAP FROM TOP ¾ OF ROOTBALL.

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

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

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

REF STD SPEC SEC 8-02

DECIDUOUS TREE PLANTING IN PLANTING STRIP

City of Seattle
NOT TO SCALE

NOTES:
1. STAKE TREES PER STD PLAN NO 100a
2. ONE STAKE PER TREE ON WINDWARD SIDE; SECOND STAKE ON LEERAD SIDE
3. SLOPES STEEPER THAN 2:1 MAY REQUIRE AN APPROVED EMBANKMENT STABILIZATION SYSTEM TO CREATE A LEVEL TREE PIT SUCH AS:
   ROCK FACING
   PRECAST CONCRETE WALL UNITS
   TIMBER WALL
   MANUFACTURED SLOPE RETENTION UNITS
4. CHAINLINK TREE TIE LOOP EACH TIE AROUND TREE LOOSELY TO PROVIDE 1" SLACK FOR DIAMETER GROWTH.
5. SHAPE SOIL TO PROVIDE 3" DIAMETER OR ROOTBALL DIAMETER, WHICHER IS GREATER, WATERING RING.
6. REMOVE ALL WIRE, STRINGS, AND OTHER NON-BURLAP MATERIAL; AND REMOVE BURLAP FROM TOP 1/4 OF ROOTBALL.
PLASTIC LOCK-TIE OR RUBBER HOSE TREE TIE. SET LOOSE TO ALLOW FOR DIAMETER GROWTH.

2' x 8'-0" LENGTH LODGEPOLE PINE TREE STAKE

MIN 2"-3" OF MULCH

3"-4" HIGH WATERING RING

FINISH GRADE

REMOVE ALL WIRE, STRINGS, AND OTHER NON-BURLAP MATERIAL; AND REMOVE BURLAP FROM TOP 1/3 OF ROOTBALL.

TOP SOIL TYPE B FOR ENTIRE TREE PIT AREA (APPROXIMATELY ROOTBALL DEPTH)

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

6'-0" MIN. OR 2 TIMES ROOTBALL

6'-0" DIA. MULCH AREA CLEAR OF GRASS, WEEDS, ETC. TO REDUCE COMPETITION DURING ESTABLISHMENT

SEE STD PLAN NO 100b FOR PLANTING ON SLOPES

MIN 1/3 HEIGHT UP TREE (TOP)

1'-0"
TYPICAL GROUND COVER PLANTED AT NURSERY LEVEL

MIN 2" MULCH

FINISH GRADE

MIN. 6" DEPTH

TOP SOIL TYPE B

SCARIFIED SUBGRADE

SPACING Varies
SEE LANDSCAPE DRAWING
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 (TYP)

X = RECOMMENDED SPACING
(SEE LANDSCAPE DETAIL ON DRAWING)

= ACTUAL PLANT LOCATIONS

REF STD SPEC SEC 9-14
Discontinue perennial planting at tree
1'-0" MIN

Perennial Type 1
Perennial Type 2
Perennial Type 3
Evergreen Groundcover Type 1
Evergreen Groundcover Type 2

Quant Per 10'-0" LF Median
Groundcover 30
Shrub 5

Detail at Tree Plan

Typ Street Tree
2'-2" 1/2" Caliper
@ 30'-0" UC

Chainlock Tree Tie
Loop each tie around tree loosely to provide 1" slack for diameter growth

(2) 2" Ledgerole Pine Dowelled 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 scarified to a depth of 6" prior to placement of fill. Call for inspection before filling

3" Arborist Wood Chip Mulch

See Std Plan No's 110 & 111 for supplemental shrub and groundcover planting information

Median Width
10'-0" preferred; 8'-0" min

Soil Preparation Detail

Elevation

City of Seattle

Not to Scale

Median Planting

NOTE:
"U" SHAPED CUT-OUT IN VALVE
BOX THAT ALLOWS 2" CLEARANCE
FROM TOP OF PIPE TO TOP OF "U"

AUTOMATIC CONTROL VALVE

MANUAL DRAIN VALVE

REF STD SPEC SEC 8-03

City of Seattle

NOT TO SCALE

IRRIGATION VALVES
FINISH GRADE

10"(MIN) VALVE BOX W/ LOCKING LID

EXTENSIONS (AS REQUIRED)

GATE VALVE - 2 1/2" & LARGER

3" OF MINERAL AGGREGATE TYPE 4 OVER GEOTEXTILE FABRIC

NOTES:
USE TEFLOM TAPE ON ALL THREADED FITTINGS

SCH 80 PVC COUPLING

BRASS NIPPLES & FITTINGS (TYP)

SCH 40 ADAPTER

LINE SIZE GATE VALVE (SQ TOP)

SCH 40 ADAPTER

MAINLINE

SCH 80 PVC COUPLING

BRASS NIPPLES & FITTINGS (TYP)
CONCRETE VAULT W/ LOCKING STEEL HATCHES OR (WHEN APPROVED BY THE ENGINEER PLASTIC MOLDED VALVE BOX W/ LID SIZED TO PROVIDE 6"MIN CLEARANCE BETWEEN UNIONS AND INSIDE FACE OF BOX)

NON-SHRINK GROUT OPENING (TYP)

BRASS PVC ADAPTER

PVC MAIN

TO LATERALS

1½ PVC WEEP HOLE (TYP)

CONCRETE VAULT W/ LOCKING STEEL HATCHES OR (WHEN APPROVED BY THE ENGINEER PLASTIC MOLDED VALVE BOX W/ LID SIZED TO PROVIDE 6"MIN CLEARANCE BETWEEN UNIONS AND INSIDE FACE OF BOX)

NON-SHRINKING GROUT OPENINGS (TYP)

PRESSURE GAUGE

COPPER, BRASS

COPPER SWEAT TO THREADED ADAPTER

PRESSURE REDUCING VALVE ASSEMBLY W/ UNION

1" PVC WEEP HOLE SLOT DRAIN (TYP)

6" COMPACTED MINERAL AGGREGATE TYPE 4 BASE FOR OPEN BOTTOM VALVE BOX INSTALLATIONS

1/3 CU YD MINERAL AGGREGATE TYPE 4 AT BOTH ENDS OF VAULT UNDER WEEP HOLE/SLOT

PRESSURE REDUCER STRAINER

(located downstream from backflow prevention device)

6" COMPACTED MINERAL AGGREGATE TYPE 4 BASE FOR OPEN BOTTOM VALVE BOX INSTALLATIONS

1/3 CU YD MINERAL AGGREGATE TYPE 4 AT BOTH ENDS OF VAULT UNDER WEEP HOLE/SLOT

DOUBLE CHECK VALVE/BACKFLOW PREVENTER

1/3 CU YD MINERAL AGGREGATE TYPE 4 AT BOTH ENDS OF VAULT UNDER WEEP HOLE/SLOT

6" COMPACTED MINERAL AGGREGATE TYPE 4 BASE FOR OPEN BOTTOM VALVE BOX INSTALLATIONS

1/3 CU YD MINERAL AGGREGATE TYPE 4 AT BOTH ENDS OF VAULT UNDER WEEP HOLE/SLOT

PRESSURE REDUCER STRAINER

(located downstream from backflow prevention device)
LEGEND

1. CONTROLLER
2. #10 AWG SOLID BARE COPPER WIRE FROM GROUNDING ROD TO CONTROLLER
   MAKE WIRE AS SHORT AS POSSIBLE
3. COVER GROUNDING ROD WITH 10" ROUND VALVE BOX
4. #6X10-0" COPPER CLAD GROUNDING ROD, INSTALL 3 RODS IN SOIL IN A TRIANGULAR PATTERN,
   SPACES 8'-0" MIN APART, GROUNDING GRID TO HAVE A RESISTANCE OF 10 OHMS OR LESS
5. #10 AWG BARE COPPER WIRE BETWEEN GROUNDING RODS
6. BRASS WIRE CLAMP, USE SEPARATE CLAMP FOR EACH WIRE
7. FINISH GRADE

GROUND ROD LAYOUT

GROUND ROD ASSEMBLY

IRRIGATION CONTROLLER
PEDESTAL AND ENCLOSURE
GROUNDING
1. NEMA 3R RAINPROOF CABINET
2. NO 12 GA PREGALVANIZED STEEL WELDED SEAM CONSTRUCTION
3. TWO SCREENED, GASKETED LOUVERED VENTS
4. REMOVABLE EQUIPMENT MOUNTING PAN
5. VANDALPROOF LOCKABLE SLIDE BAR ACROSS FRONT DOOR
6. PADMOUNT DESIGN WITH 2" INSIDE FLANGE ON BOTTOM
7. DOOR:
   3 POINT LATCH
   CONCEALED HINGE
   LIFT-OFF TYPE (UPON OPENING)
   CLOSED CELL NEOPRENE GASKET
8. PAINT:
   OVEN BAKED ENAMEL
   DARK GREEN OUTSIDE
   WHITE INSIDE
   PREGALVANIZED METAL TREATED WITH COPPER SULFATE PRIOR TO PAINTING
9. ACTUAL CABINET DIMENSIONS ARE PROJECT SPECIFIC AND WILL BE SPECIFIED ON THE DRAWINGS.

REF STD SPEC SEC 8-03

SECTION A-A

IRRIGATION CONTROLLER CABINET

City of Seattle
NOT TO SCALE

NOTES:
CONSIDER TRAFFIC TURNING VISIBILITY AND PEDESTRIAN VISIBILITY WHEN SELECTING FENCE HEIGHT; TYPICALLY SHORTER FENCING AROUND TREE PITS BETWEEN SIDEWALK AND ROADWAY IS DESIRED.

4'-6" TO 6'-0" HIGH CHAIN LINK FENCE TO ENCLOSE ENTIRE OPEN TREE PIT (TYP EACH TREE PIT)

EXISTING TREE PIT

FACE OF CURB

TREE IN TREE PIT

SIDEWALK EDGE

PLANTING STRIP

FACE OF CURB

4'-6" TO 6'-0" HIGH CHAIN LINK FENCE TO ENCLOSURE ENTIRE OPEN TREE PIT (TYP EACH TREE PIT)

TREE IN PLANTING STRIP—OPTION 1

SIDEWALK EDGE

PLANTING STRIP

FACE OF CURB

4'-6" TO 6'-0" HIGH CHAIN LINK FENCE PROTECTS ENTIRE PLANTING STRIP

TREE IN PLANTING STRIP—OPTION 2

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

City of Seattle

NOT TO SCALE

TREE PROTECTION DURING CONSTRUCTION

A TREE, VEGETATION, AND SOIL PROTECTION PLAN (TVSPP) IS REQUIRED FOR ALL PROJECTS. APPROVAL OF PLAN REQUIRED PRIOR TO MOBILIZATION. SEE SECTION 8-01.

TRENCHING/EXCAVATION

ZONE A (CRITICAL ROOT ZONE)
1. NO DISTURBANCE ALLOWED WITHOUT SITE-SPECIFIC INSPECTION AND APPROVAL OF METHODS TO MINIMIZE ROOT DAMAGE
2. SEVERANCE OF ROOTS LARGER THAN 2" DIA REQUIRES ENGINEER'S APPROVAL
3. TUNNELING REQUIRED TO INSTALL LINES 3'-0" BELOW GRADE OR DEEPER

ZONE B (DRIPLINE)
1. ZONE B FOR ASYMMETRICAL COLUMNAR AND NARROW CONICAL TREE FORMS. ZONE B = 1" RADIUS FOR EVERY 1" OF TRUNK DIAMETER
2. TUNNELING MAY BE REQUIRED FOR TRENCHES DEEPER THAN 3'-0".
NOTES:
1. ALL SOIL AREAS DISTURBED OR COMPACTED DURING CONSTRUCTION, AND NOT COVERED BY BUILDINGS OR PAVEMENT, SHALL BE AMENDED WITH COMPOST TO A MINIMUM 8" DEPTH, AND SUBSOIL SCARIFIED 4" BELOW THAT COMPOST-AMENDED LAYER, FOR A FINISHED 12" OF UNCOMPACTED DEPTH IN ALL LANDSCAPE AREAS.

2. PLANTING BED AND TURF AREA SOIL PREPARATION ARE THE SAME, EXCEPT FOR AMOUNT OF COMPOST AMENDMENT, AND MULCH ADDED TO PLANTING BEDS.

3. COMPOST SHALL BE TILLED IN TO 8 INCH DEPTH INTO EXISTING SOIL, OR PLACE 8 INCHES OF COMPOST-AMENDED SOIL PER SOIL SPECIFICATION. SUBSOIL SHALL BE SCARIFIED (LOOSENED) 4 INCHES BELOW AMENDED LAYER, TO PRODUCE 12-INCH DEPTH OF UN-COMPACTED SOIL, EXCEPT WHERE SCARIFICATION WOULD DAMAGE TREE ROOTS.

4. TURF AREAS SHALL RECEIVE 1.75 INCHES OF COMPOST TILLED IN TO 8-INCH DEPTH, OR PLACE 8" OF IMPORTED SOIL CONTAINING 20-25% COMPOST BY VOLUME. THEN PLANT GRASS SEED OR SOD PER SPECIFICATION.

5. PLANTING BEDS SHALL RECEIVE 3 INCHES OF COMPOST TILLED IN TO 8-INCH DEPTH, OR PLACE 8" OF IMPORTED SOIL CONTAINING 35-40% COMPOST BY VOLUME. MULCH AFTER PLANTING, WITH 2-4 INCHES OF ARBORIST WOOD CHIP MULCH OR APPROVED EQUAL.

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>0.29</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>
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</table>

NOTES:
1. MATERIAL: CONCRETE—CLASS 4000
   REINFORCING STEEL—ASTM A615 GRADE 60
   CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS
   SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL
   BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
   LBS/SQ FT
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>
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</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.33</td>
<td>0.25</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.41</td>
<td>0.31</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.49</td>
<td>0.37</td>
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</table>

NOTES:
1. MATERIAL: CONCRETE—CLASS 4000
REINFORCING STEEL—ASTM A315 GRADE 60
CHANNEL AND SHELF MATERIAL: CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 476. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE

TYPE 205A 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>0.39</td>
<td>0.30</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.47</td>
<td>0.37</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.58</td>
<td>0.46</td>
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NOTES:
1. MATERIAL: CONCRETE—CLASS 4000
   REINFORCING STEEL—ASTM A615 GRADE 60
   CHANNEL AND SHELF MATERIAL: CONCRETE
   CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS
   SHALL CONFORM TO ASTM C 478. JOINTS
   BETWEEN PRECAST COMPONENTS SHALL BE
   RUBBER GASKETED CONFORMING TO ASTM
   C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
   LBS/SD FT

REF STD SPEC SEC 7-05
REINFORCING STEEL "A"

**Minimum SQ/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>0.42</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.51</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.60</td>
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</table>

**NOTES:**
1. MATERIAL: CONCRETE—CLASS 4000 REINFORCING STEEL—ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL: CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LB/FT²

**Type A MAINTENANCE HOLE**

**Top Slab Reinforcement**

**Handholds:** See STD PLAN NO 232

**Leveling Bricks or Concrete Collar:** 4'-0" TO 2'-0" CONE SECTION

**MH Ladder:** See STD PLAN NO 232

**G" Ring Rubber Gasket Joint:** See Note 2 (Typ All Joints)

**Shelf**

**Notes:**
1. MATERIAL: CONCRETE—CLASS 4000 REINFORCING STEEL—ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL: CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LB/FT²
**Type B Maintenance Hole**

**City of Seattle** | **NOT TO SCALE** | **TYPE 208B MAINTENANCE HOLE**

**Notes:**
1. Material: Concrete—Class 4000
   Reinforcing Steel—ASTM A615 Grade 60
   Channel and Shelf Material: Concrete Class 3000.
3. Minimum Required Soil Bearing = 3,000 LBS/50 SQ FT

**Ref Std Spec Sec 7-05**

Plan View

Location of manhole ladder for Type A maintenance hole.

Handholes, see std plan no. 233.

Leveled brick or concrete collar.

Manhole ladder, see std plan no. 232.

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 shall conform to ASTM C 478. Joints between precast components shall be rubber gasketed conforming to ASTM C 443.
3. Minimum required soil bearing = 3,000 lbs/sq ft.
NOTES:
1. MATERIAL: CONCRETE—CLASS 4000
   REINFORCING STEEL—ASTM A615 GRADE 60
   CHANNEL AND SHELF MATERIAL; CONCRETE
   CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS
   SHALL CONFORM TO ASTM C 478. JOINTS
   BETWEEN PRECAST COMPONENTS SHALL BE
   RUBBER GASKETED CONFORMING TO ASTM
   C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
   LBS/50 FT

REF STD SPEC SEC 7-05

City of Seattle NOT TO SCALE TYPE 210A MAINTENANCE HOLE
REINFORCING STEEL "A"

PRECAST BASE | CAST-IN-PLACE BASE
---|---
20' MAX | 0.52 | 0.45
30' MAX | 0.66 | 0.57
40' MAX | 0.81 | 0.70

NOTES:
1. MATERIAL: CONCRETE-CLASS 4000
   REINFORCING STEEL-ASTM A615 GRADE 60
   CHANNEL AND SHELF MATERIAL: CONCRETE
   CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS
   SHALL CONFORM TO ASTM C 478. JOINTS
   BETWEEN PRECAST COMPONENTS SHALL BE
   RUBBER GASKETED CONFORMING TO ASTM
   C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
   LBS/SQ FT
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>
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<tbody>
<tr>
<td>20' MAX</td>
<td>0.85</td>
<td>0.74</td>
</tr>
<tr>
<td>30' MAX</td>
<td>1.02</td>
<td>0.89</td>
</tr>
<tr>
<td>40' MAX</td>
<td>1.20</td>
<td>1.05</td>
</tr>
</tbody>
</table>

"H" 3" 13-#7 BF
4-#7 BF (CUT AS REQ'D)

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
SHALL CONFORM TO ASTM C 478. JOINTS
BETWEEN PRECAST COMPONENTS SHALL BE
RUBBER GASKETED CONFORMING TO ASTM
C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
LBS/SQ FT
REINFORCING STEEL "A"
MIN. SQ 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>0.62</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.79</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.97</td>
</tr>
</tbody>
</table>

PLAN VIEW
(TOP REMOVED)

MAINTENANCE HOLE FRAME & COVER. SEE STD PLAN NO 230
LEVELING BRICKS OR CONCRETE COLLAR
HANDHOLDS. SEE STD PLAN NO 232
"O" RING RUBBER GASKET JOINT SEE NOTE 2 (TYP ALL JOINTS)

NOTES:
1. MATERIAL: CONCRETE—CLASS 4000
REINFORCING STEEL—ASTM A615 GRADE 60
CHANNEL AND SHELF MATERIAL: CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 476. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

City of Seattle | NOT TO SCALE | TYPE 211B 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>1.01</td>
<td>0.89</td>
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<tr>
<td>30' MAX</td>
<td>1.28</td>
<td>1.13</td>
</tr>
<tr>
<td>40' MAX</td>
<td>1.56</td>
<td>1.37</td>
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</table>

**NOTES:**

1. MATERIAL: CONCRETE—CLASS 4000
   REINFORCING STEEL—ASTM A615 GRADE 60
   CHANNEL AND SHELF MATERIAL: CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 445.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

---

**City of Seattle**

NOT TO SCALE

TYPE 212A MAINTENANCE HOLE

REINFORCING STEEL "A"

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

PLAN VIEW
(TOP REMOVED)

EXTENDED END OF SEWER INTERSECT AT 45° OF MH

LOCATION OF MH LADDER FOR TYPE B MAINTENANCE HOLE

SLOPE: 3/4" 1'-0"
(TYP)

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

LEVELING BRICKS OR CONCRETE COLLAR

HANDHOLDS, SEE STD PLAN NO 232

1/2" SMOOTH MORTAR LINING

REINFORCING STEEL "A" SEE TABLE

TOP SLAB REINFORCEMENT

| 15"-0" #6 5/8" BF |
| #4 HOOP |
| TF |
| 3-#6 5/8" BF |
| (CUT AS REQ'D) |
| 3" |

NOTES:
1. MATERIAL: CONCRETE-CLASS 4000
REINFORCING STEEL-ASTM A615 GR.60
CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000;
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 476. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

City of Seattle    NOT TO SCALE    TYPE 212B MAINTENANCE HOLE
NEW TYPE 230 FRAME & COVER
NEW PAVEMENT GRADE

REMOVE EXISTING 1'-6" DIAMETER FRAME & COVER

REBUILD MH WITH NEW RADIAL BRICKS IN A RUNNING BOND PATTERN WITH 3/4" MIN TO 3/8" MAX. GROUT SO THAT NEW FRAME AND COVER IS AT THE NEW PAVEMENT GRADE.

NEW MH HANDHOLD
SEE STD PLAN NO 232

NEW MH STEP
SEE STD PLAN NO 232

REMOVE EXISTING MH BRICKS SO THAT ID OF MH IS 2'-6"

REPLACE EXISTING STEPS OR LADDER TO SHELF

EXISTING BRICK MAINTENANCE HOLE

NEW 3/4" MORTAR LINING SEE NOTE 4

-3" HANDHOLD

2'-6" DIA

1'-9" MIN CLR OPENING

26" DIA

RUNNING BOND PATTERN
GROUT BETWEEN ALL BRICKS

REF STD SPEC SEC 7-05
NOTES:
1. DESIGNATE LOCKING COVER AS TYPE 230L FOR USE IN NON-VEHICULAR TRAFFIC AREAS.
2. COVER THICKNESS IS MEASURED FROM THE BOTTOM OF THE PATTERN.
3. FRAMES SHALL BE MANUFACTURED FROM CAST IRON OR DUCTILE IRON.
4. COVERS SHALL BE MANUFACTURED FROM DUCTILE IRON.

REF STD SPEC SEC 7-05, 9-12

City of Seattle
NOTES:
1. MATERIAL - POLYPROPYLENE
2. DIMENSIONS FOR THE MH LADDER AND STEP ARE MINIMUM REQUIREMENTS ONLY.
3. STEPS AND HANDHOLDS SHALL BE INSTALLED AT 1'-0" SPACING. WHEN THE DISTANCE FROM THE LAST (HIGHEST) STEP OR HANDHOLD TO THE TOP OF THE MH FRAME EXCEEDS 1'-0" AND ANOTHER STEP OR HANDHOLD CANNOT BE INSTALLED BECAUSE OF THE LOCATION OF THE MH FRAME, A HANDHOLD SHALL BE INSTALLED BETWEEN THE TOP 2 LAYERS OF BRICK.
4. IF BOTH STEPS AND LADDER ARE REQUIRED IN ANY MH, THEY SHALL BE FROM THE SAME MANUFACTURER.
DUCTILE IRON OUTSIDE DROP CONNECTION

NOTES:
1. CONCRETE FOR DROP CONNECTION SUPPORT SHALL BE CL 3000.
2. DUCTILE IRON PIPE SHALL BE ANSI/AWWA C151/421.51 CL 50. DUCTILE IRON FITTINGS SHALL BE ANSI/AWWA C111/421.11.
3. DROP CONNECTIONS SHALL BE USED WHERE DROP IS NOT MORE THAN 20'-0".

CONCRETE CL 3000 BLOCK POURED IN PLACE
MJ X MJ DIP 90° BEND OR MJ X PE DIP 90° BEND
POUR TO UNDISTURBED EARTH OR COMPACTED SUBGRADE

TYPICAL MH BASE CONSTRUCTION
NOTE:
1. PROVIDE PIPE MANUFACTURER RECOMMENDATION FOR PIPE HANGER AND CONCRETE ANCHORAGE TO SPU FOR APPROVAL.
2. SIZE MH TO MEET MINIMUM INSIDE CLEARANCE.
4. PVC PIPE & ELBOW SHALL BE ASTM D 2241 CL200 OR ASTM 1785 SCH 40.
5. CLEAN-OUT SHALL BE LOCATED AS APPROVED BY SPU.

INSIDE DROP
(16" DIAMETER PIPE MAXIMUM)
NOTES:
1. PIPE AND FITTINGS SHALL BE PVC PER ASTM D 3034 SDR 35.
2. CONCRETE HAUNCHING IS TO BE CLASS 3000 CONCRETE.

DETAIL A
FOR MAIN ≤3′-0″ DIA OR SMALLER

DETAIL B
FOR MAIN ≥3′-6″ DIA OR LARGER

City of Seattle
NOT TO SCALE
6″ OR 8″ VERTICAL CONNECTION

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<th>1&quot;-4&quot; Max</th>
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NOTES:
1. FRAME & GRATE OR FRAME & COVER SHALL BE LOCATED OVER TRAP.
2. INVERT OF INLET PIPE SHALL BE 2" MIN ABOVE INVERT OF OUTLET PIPE.
3. SEE STD PLAN 261 FOR ALLOWABLE OUTLET LOCATIONS.

SECTION B-B

FLOW LINE

OUTLET TRAP SEE STD PLAN NO 267

SINGLE CIRCULAR CAGE 0.12 SQ IN/LF IN EACH DIRECTION

TYPE 9 MINERAL AGGREGATE W/ PORTLAND CEMENT 4" MIN

REINFORCING STEEL 0.15 SQ IN/LF IN EACH DIRECTION

SECTION A-A

LEVELING BRICK OR PRECAST RISER

PRECAST TOP SLAB PER STD PLAN NO 243a
- TYPE 240A: UNIT R SLAB
- TYPE 240B: UNIT P-48 SLAB
- TYPE 240C: UNIT T SLAB
- TYPE 240D: UNIT T SLAB

TYPE 240A FRAME & COVER PER STD PLAN NO 230
- TYPE 240B FRAME & GRATE PER STD PLAN NO 264
- TYPE 240C FRAME PER STD PLAN NO 262 AND GRATE PER STD PLAN NO 265
- TYPE 240D FRAME PER STD PLAN NO 263 AND GRATE PER STD PLAN NO 265

FLOW LINE

OUTLET TRAP SEE STD PLAN NO 267

SINGLE CIRCULAR CAGE 0.12 SQ IN/LF IN EACH DIRECTION

TYPE 9 MINERAL AGGREGATE W/ PORTLAND CEMENT 4" MIN

REINFORCING STEEL 0.15 SQ IN/LF IN EACH DIRECTION

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SECTION B-B

FLOW LINE

OUTLET TRAP SEE STD PLAN NO 267

SINGLE CIRCULAR CAGE 0.12 SQ IN/LF IN EACH DIRECTION

TYPE 9 MINERAL AGGREGATE W/ PORTLAND CEMENT 4" MIN

REINFORCING STEEL 0.15 SQ IN/LF IN EACH DIRECTION

SECTION B-B
NOTES:
1. THIS CATCH BASIN IS FOR INSTALLATIONS IN ALLEYS AND UNPAVED AREAS IN THE RIGHT-OF-WAY. ANY OTHER USE IN THE R/W WILL REQUIRE APPROVAL OF SPU.
2. FOR CURB DISCHARGE INSTALLATION SEE STD PLAN NO 241B.
3. INSTALL PER STD PLAN NO 261.
4. MATERIAL: CONCRETE CLASS 4000.
5. REINFORCING STEEL ASTM A615 GR60.
6. INLET INVERT EL TO BE HIGHER THAN OUTLET INVERT EL.
7. USE OF LEVELING BRICKS SHALL BE RUNNING BOND PATTERN WITH 1/2 TO 1/2 GROUT IN BETWEEN BRICKS.

SECTION A-A

FRAME & GRATE PER STD PLAN NO 264
LEVELING BRICK OR PRECAST RISER

FLOW LINE
8" MAX PIPE CONNECTION TO APPROVED OUTLET
OUTLET TRAP SEE STD PLAN NO 267
PRECAST BASE

SECTION B-B

TYPE 9 MINERAL AGGREGATE W/ PORTLAND CEMENT

NOTES:
1. MATERIAL: CONCRETE: CLASS 4000
   REINFORCING STEEL: ASTM A 615 GR 60
2. INSTALL & LOCATE PER STD PLANS NOS 260 & 261
3. OUTLET TRAP TO BE LOCATED DIRECTLY BELOW FRAME AND GRATE
4. USE OF LEVELING BRICKS SHALL BE RUNNING BOND PATTERN WITH $\frac{1}{4}$ TO $\frac{1}{2}$ GROUT IN BETWEEN BRICKS.
EXTENSION UNIT
SECTION A-A

UNIT S

NOTES:
1. CONCRETE: CLASS 4000
2. REINFORCING STEEL: ASTM A615 OR 60

EXTENSION UNIT
SECTION B-B

UNIT U

REF STD SPEC SEC 7-05

City of Seattle  NOT TO SCALE  PRECAST CATCH BASIN
EXTENSION RISERS

PLAN

SECTION A–A

FRAME & GRATE
SEE STD PLAN NO 264

LEVELING BRICKS OR PRECAST RISER AS REQ'D 1'-0" MAX

6" OR 8"Dia OUTLET PIPE AS NOTED ON DRAWINGS

TYPE & MINERAL AGGREGATE W/ PORTLAND CEMENT

GROUT BOTTOM AFTER INSTALLATION

SLOPE TO DRAIN

ALTERNATE OUTLET LOCATION

4"MIN

2'-6"

2'-10"

A

A

4"MIN

1'-0" MAX

4"MIN
CB/INLET LOCATION AT CURB RETURNS

CB/INLET LOCATION NOT AT CURB RETURNS

DETAIL A

DETAIL B

SECTION C–C

SECTION D–D

NOTE
CB INLET GRATES SHALL NOT BE PLACED IN CROSSWALKS WHEN PRACTICABLE. CB INLETS SHALL NOT BE PLACED IN CURB RAMP LANDINGS.

城巿於西雅圖 | NOT TO SCALE | INLET / CATCH BASIN LOCATION & INSTALLATION

**Type 240C CB**

- Curb detail (plan view) for Type 242B CB & Type 250B Inlet

**Type 242A CB**

- (Type 250A Inlet similar)

**Type 242B CB**

- (Type 250B Inlet similar)
NOTES:
2. TYPE B CONNECTIONS SHALL BE USED WITH CB TYPES 240C, 240D, 242A AND 242B.
3. CONNECTIONS SHALL MAINTAIN A MINIMUM OF 2% AND A MAXIMUM OF 100% GRADE.
4. MAX BEND SHALL BE 22½° OR ¾ BEND. USE OF ¾ BEND REQUIRES APPROVAL BY SPU.

SECTION C–C
SECTION D–D
SECTION A–A

SECTION B–B

1" DIA HOLE FOR 3/8" DIA STD STEEL BOLT WITH LOCK WASHER AND NUT

CURB INLET

SECTION C–C

NOT TO SCALE

TYPE 263 INLET FRAME

SECTION A–A

PAD 1 1/8" X 3/4" X 3/8" THICK (8 REQUIRED)

EMBOSSED ON GRATE

1" OPENING (TYP)

SECTION B–B

NOTES:
1. OTHER GRATES ACCEPTABLE; SPECIFY VANE, SOLID COVER, BI-DIRECTIONAL VANE, ADA OR BEEHIVE ON PLANS.
2. GRATE MATERIAL: DUCTILE IRON

SECTION C–C

1/4" NORMAL TO BAR
2" X 1/2" X 1 1/2" (TYP)
NOTES:
1. OPEN AREA = 100 SQUARE INCHES.
2. SEE STD PLAN 265 FOR VANE AND END DETAIL.
3. STD PLAN 266 DIMENSIONS GOVERN ON END DETAIL.
4. REPLACEMENT VANED GRATE FOR TYPE 154 INLET FRAMES.

REF STD SPEC SEC 7-20.3(7), 9-12
NOTES:
1. TRAP TO BE MADE OF 22 GA (0.0336") SHEET METAL OR 18GA (0.05") ALUMINUM
2. ALL JOINTS TO BE SEAMED AND SOLDERED, OR WELDED
3. ALL LONGITUDINAL JOINTS TO BE RIVETED OR WELDED
4. DIAMETER "D" IS NOMINAL DIAMETER OF OUTLET PIPE
5. LIFT HANDLE SHALL BE WELDED TO OUTSIDE OF TRAP (1" WIDE X 0.1" THICK)

SECTION A-A

REF STD SPEC SEC 9-12

SECTION B-B

TOP OF RESURFACED PAVING
TOP OF EXISTING PAVING
FIT FRAME TO TYPE 256 GRATING
BOTTOM OF FRAME AT OUTLET
BOTTOM OF FRAME AT CLOSED END

SHEET ASPHALT OR A WORKABLE MIX OF SAND AND EMULSIFIED ASPHALT OR 1:1½ CEMENT MORTAR

TYPE 164 INLET EXISTING

SECTION A-A

THese dimensions may be changed if necessary to fit existing castings

PLAN

EXTENSION FOR INLET

FLOW CONTROL STRUCTURE & DETENTION PIPE

**DETAIL A**

- **FRAME & COVER**
  - PER STD PLAN NO 230
- **TYPE A SLAB**
  - PER STD PLAN SERIES 204 WITH 2”-6” ROUND OPENING
- **MIN SERIES 200 TYPE B**
  - DIAMETER AS INDICATED ON PLAN
- **END PLATE**
  - PER STD PLAN NO 271

**OVERFLOW ELEV**
- V-NOTCH WEIR AS NEEDED
- SUPPORT (2 REQ'D)
- ORIFICE AS NEEDED
- CONTROL DEVICE
  - SEE DETAIL A

**FLOW CONTROL STRUCTURE**

- Type A agg w/ Portland cement
- DETENTION PIPE
  - (LENGTH, DIAMETER, MATERIAL THICKNESS)

**FILL**

- **END PLATE**
  - PER STD PLAN NO 271

**END CAP DETAIL**

- WHEN REQUIRED

**PIGE SUPPORT DETAIL B**

- **6” AIR VENT**
  - END PLATE

**DETAIL C**

- **D1 ≥ D2/2**
- THIS CONFIGURATION MAY BE USED FOR DETENTION PIPES LARGER THAN 3”-0” DIA. USE CONFIGURATION SHOWN ON CONSTRUCTION DRAWING PROFILE

**NOT TO SCALE**

- FLOW CONTROL STRUCTURE

**REF Std SPEC SEC 7-16**

- NOTE: INVERT OF DETENTION PIPE HIGHER THAN INVERT OF OUTLET PIPE NOT FOR USE IN ROW

City of Seattle

SECTION A--A

TYPE A

SECTION B--B

SECTION A--A

TYPE B

SECTION B--B

NOTE:
FOR D1, D2, t, S, S1, N & W
VALUES AND GENERAL NOTES SEE
STD PLAN NO 271C

REF STD SPEC SEC 7-16

City of Seattle

NOT TO SCALE

DETENTION STRUCTURE END
PLATE DETAILS

NOTE:
FOR D1, D2, t, s, s1, n & w
VALUES AND GENERAL NOTES SEE
STD PLAN NO 271C

SECTION A-A

TYPE C

SECTION B-B

DETAIL A

DETAIL B
FLAT STIFFENER

DETAIL C

DETAIL D

DETAIL E

REF STD SPEC SEC 7-16

City of Seattle
NOT TO SCALE

DETENTION STRUCTURE END PLATE DETAILS

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<td>3&quot; 8½&quot; 3</td>
<td>¼&quot;</td>
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NOTES:
1. DESIGNS VALID FOR PIPE INSTALLED WITH 6"-0" OR LESS OF COVER FROM CROWN OF PIPE TO GRADE. MAXIMUM WATER SURCHARGE 3"-0" ABOVE CROWN OF PIPE.
2. END PLATE MATERIAL: ALUMINUM 6061-T6
3. DESIGNS SHALL BE USED ONLY FOR ALUMINUM CMP.
FLEXIBLE JOINT
FOR EX CC USE COUPLINGS
FOR NEW CC USE BELL & SPIGOT

NEW OR EX 12" TO 18" CC

LEVELING BRICK
(USE GROUT FOR LESS THAN 4")

1'-5" MIN (12" CC)
1'-11" MIN (18" CC)

6" TO 12" SD TO MATCH CROWNS

GROUT

GROUT BOTTOM TO INVERT OF CC

APPROVED SAND MIX OR GROUT

TYPE 9 MINERAL AGGREGATE
W/ PORTLAND CEMENT

NOTE: CONCRETE: CLASS 4000

REF STD SPEC SEC 7-02 & 9-12.9

SECTION A-A

TYPE 277 JUNCTION
BOX & INSTALLATION

SECTION A--A

NOTES:
1. CORRUGATED FLANGE PLATE AND NON-CORRUGATED PIPE TO BE SAME MATERIAL AND HAVE SAME COATING AS CMP.
2. BOLTS TO BE STAINLESS STEEL MEETING ASTM A 307 OR STAINLESS STEEL MEETING ASTM A 193.

SECTION B--B

NOTE:
1. USE ALTERNATIVE NO 1 IF PIPE CONDITION PROHIBITS WELDING.

REF STD SPEC SEC 7-17 & 7-16.2

City of Seattle
NOT TO SCALE

TEE INSTALLATION
CORRUGATED METAL PIPE

FOR PIPES LESS THAN 48” DIAMETER

(HEdCAL OR ANNULAR)

REF STD SPEC SEC 7-16.2 & 9-05

CITY OF SEATTLE
NOT TO SCALE

CORRUGATED METAL PIPE COUPLING BANDS

NOTES:
1. ALL SANITARY PLUMBING OUTLETS SHALL BE CONNECTED TO THE SANITARY SEWER OR COMBINED SEWER.
2. 2'-6" MIN DISTANCE FROM HOUSE, EXCEPT FOR SOIL PIPE CONNECTION.
3. 1'-6" MIN COVER OF PIPE.
4. 2'-6" MIN COVER AT PROPERTY LINE.
5. 5'-0" MIN COVER AT CURB LINE.
6. LAY PIPE IN STRAIGHT LINE BETWEEN BENDS. MAKE ALL CHANGES IN GRADE OR LINE WITH BENDS OR WYES.
7. STANDARD 4" TO 6" INCREASER.
8. 6" SEWER PIPE, MIN SIZE IN STREET, AND ELSEWHERE AS DIRECTED, 2% MIN GRADE, 100% MAX.
9. 4" SEWER PIPE, MIN SIZE ON PROPERTY, 2% MIN GRADE, 100% (45°) MAX.
10. TEST "T" WITH PLUG.
11. CLEANOUT AT UPSTREAM END OF SIDE SEWER.

A. CONSTRUCTION IN STREET SHALL BE DONE BY A REGISTERED SIDE SEWER CONTRACTOR.
B. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT SIDE SEWER ORDINANCE.
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.

MINERAL AGGREGATE PER STD SPEC 9-03.16
TYPE 9 FOR DUCTILE IRON WHEN APPLICABLE
OR CONCRETE PIPE TYPE 22 FOR VITRIFIED CLAY AND FLEXIBLE PIPE
SELECTED NATIVE MATERIAL

CLASS B BEDDING

CLASS C BEDDING

CLASS D BEDDING

REF STD SPEC SEC 7-17

City of Seattle | NOT TO SCALE | PIPE BEDDING
SEWER/STORM DRAIN

NOTES
1. EXCEPTIONS TO STD PLAN NO. 288 SHALL BE APPROVED BY SEATTLE PUBLIC UTILITIES, WATER QUALITY DIVISION.
2. "SEWER" INCLUDES SANITARY SEWER, COMBINED SEWER AND SIDE SEWER.
3. WHERE MINIMUM CLEARANCES CANNOT BE MET, SEWER SHALL BE CONSTRUCTED OF MATERIALS AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS INCLUDING WATER MAIN PRESSURE TESTING REQUIREMENTS.
4. NO VERTICAL CLEARANCE REQUIRED.
5. IF MINIMUM VERTICAL SEPARATION CANNOT BE MET, WATER MAIN SHALL BE A STANDARD SINGLE 18'-0" NOMINAL LENGTH DUCTILE IRON WATER MAIN SECTION CENTERED AT THE POINT OF CROSSING.
6. SEWER SHALL HAVE ADEQUATE FOUNDATION SUPPORT TO PREVENT SETTLEMENT ON THE WATER MAIN AND TO PREVENT DEFLECTION OF WATER MAIN JOINTS.
7. CROSSINGS AT AN ANGLE BETWEEN 90° AND 45° MAY OCCUR BETWEEN 9'-0" AND 6'-0" OF WATER MAIN JOINT. FOR CROSSINGS LESS THAN 45°, SEE NOTE 1.

PARALLEL INSTALLATION

CROSSING WATER OVER SEWER

CROSSING WATER UNDER SEWER

REF STD SPEC SEC 1-07.17 & 7-11

City of Seattle

NOT TO SCALE

SEWER & WATER SPACING & CLEARANCES

STRUCTURE

SIDE SEWER
WATER SERVICE
SHUT-OFF DRAIN
VALVE REQ'D

PRIVATE PROPERTY

INSPECTED BY
AUTHORIZED
REPRESENTATIVE
OF SEATTLE
PUBLIC
UTILITIES

CURRENT SIDE SEWER
ORDINANCE APPLIES

WATER METER
SEE STD PLAN
NO 286a
WATER MAIN
CROSSING

PUBLIC R/W

SANITARY SEWER
OR COMBINED
SEWER

SEE NOTES ON STD PLAN NO. 286a.

REF STD SPEC SEC 1-07.17 & DIV 7

City of Seattle NOT TO SCALE SEWER & WATER SPACING & CLEARANCES

NOTES:
1. ALL 1/4" STEEL & L3" x 2" x 1/2" TO BE A-36.
2. 6" PIPE TO BE STANDARD WEIGHT STEEL.
3. AFTER FABRICATION, DRAIN ASSEMBLY TO BE HOT DIP GALVANIZED.
4. VANED GRATE TO BE PER STD PLAN NO 265.
NOTES:
1. ASTM D 2241 SDR 21 CLASS 200 PVC PIPE
   OR ASTM D 1785 SCH 40.
2. SLOT DIMENSIONS ARE 0.064" WIDE X 1.00"
   LONG SPACED ALONG PIPE AT 0.3" ON CENTER.
NOTES
1. ALL FITTINGS SHALL BE DUCTILE IRON
2. ALL EXCAVATION SHALL PROVIDE A MINIMUM OF 1'-0" CLEAR AROUND PIPE AND FITTINGS.
3. THESE PLANS ARE FOR DIP AND CIP WATERMAINS 12" OR SMALLER DIA OTHER SIZES AND TYPES SEE PROJECT DRAWINGS
4. REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) SHALL BE INSTALLED AS A UNIT (TWO SHUT-OFF VALVES, RELIEF PORT, TWO CHECK VALVES AND FOUR TEST COCKS). WHEN RPBA IS CONNECTED TO HYDRANT AND THE HOSE BIB FAUCET SAMPLE THEY SHALL BE CAPPED WHEN NOT IN USE. ASSEMBLY SHALL BE TESTED WHEN INSTALLED BY A WASHINGTON STATE CERTIFIED BACKFLOW ASSEMBLY TESTER (SAT) AND A CURRENT TEST REPORT SHALL BE ON SITE. FOR INSTALLATION PROCEDURES CALL 684-3536.

LEGEND
△ CLEAN & DISINFECTED POTABLE WATER HOSE ONLY. SIZE FLUSHING RISER PER TABLE IN STD SPEC SEC 7-11.3(12)
△ HYDRANT PERMIT REQUIRED
△ CHECK WITH SEWER UTILITY BEFORE DISCHARGE TO SEwers
① CONTRACTOR TO DETERMINE ALIGNMENT & GRADE OF EXISTING PIPE PRIOR TO INSTALLING NEW WATERMAIN. ENGINEER TO DETERMINE OUTSIDE DIAMETER OF EXISTING PIPE WHEN CONTRACTOR EXCAVATES TO DETERMINE ALIGNMENT & GRADE
② ALL EXCAVATION, PIPE, FITTINGS (EXCEPT AS NOTED BELOW), OTHER MATERIAL, BEDDING, BACKFILL, COMPACTION & STREET RESTORATION BY CONTRACTOR. ALL MATERIALS SHALL BE ON JOB SITE PRIOR TO SHUTDOWN OF EXISTING MAIN.
③ INSTALLED BY CONTRACTOR
④ CONNECTION PIPE: CONTRACTOR FURNISHED, INSTALLED BY SPU
⑤ WATERMAIN WITH PLAIN ENDS
⑥ MECHANICAL JOINT SLEEVE WITH SPACER CUT TO FIT GAP, FURNISHED AND INSERTED AT TIME OF CONNECTION BY SPU
⑦ TAPPING SLEEVE & TAPPING VALVE FURNISHED AND INSTALLED BY SPU
⑧ APPLIES TO PIPES 4" THROUGH 12", ALL LARGER SIZES TO BE ADDRESSED ON DRAWINGS
⑨ MECHANICAL JOINT SLEEVE, FURNISHED BY CONTRACTOR AND INSTALLED BY SPU, SPACERS BY SPU WHERE REQUIRED

REF STD SPEC SEC 7-11
TABLE

<table>
<thead>
<tr>
<th>SIZE WATERMAIN</th>
<th>L1</th>
<th>L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>4” # THRU 10” #</td>
<td>10'-0&quot;</td>
<td>14'-0&quot;</td>
</tr>
<tr>
<td>12” #</td>
<td>12'-0&quot;</td>
<td>16'-0&quot;</td>
</tr>
<tr>
<td>LARGER THAN 12” #</td>
<td>PER DRAWINGS</td>
<td></td>
</tr>
</tbody>
</table>

CONNECTIONS TO EXISTING MAIN, WITH A NEW TEE OR CROSS
(CUT IN NEW TEE)

CONNECTIONS TO EXISTING MAIN, STUB OR END OUTLET OF TEE OR CROSS

REF STD SPEC SEC 7-11

City of Seattle

NOTES:
1. HYDRANT CONNECTION PIPE SHALL BE DIP CL52.
2. HYDRANT TEES SHALL BE SET HORIZONTALLY.
3. THE THREADED NIPPLE ON THE 4" PUMPER NOZZLE SHALL BE EQUIPPED WITH THE BLUNT START OR HIGBEE CUT.
5. AFTER INSTALLATION, ALL SHACKLE BOLTS, NUTS, MECHANICAL JOINT GLANDS AND SHACKLE RODS SHALL BE CLEANED AND COATED WITH TWO COATS OF ROYSTON R28 MASTIC.
6. AFTER BACKFILLING, THE OUTSIDE OF THE HYDRANT (ABOVE THE GROUND LINE) SHALL BE THOROUGHLY CLEANED AND PAINTED WITH TWO COATS OF KELLY-MOORE LUXLITE 43-616 CAT YELLOW.
7. PUMPER PORT SHALL FACE CURB.
8. RESTRAINT SHALL BE BY WEDGE RESTRAINT SYSTEM SUCH AS MEGALUG OR UNIFLANGE. SEE STD SPEC 9-30.5(5).
GENERAL NOTES:
1. WHERE WATERMANS ARE INSTALLED WITH POLYETHYLENE ENCASEMENT OR TAPE COATINGS, THE HYDRANT BARREL AND VALVE SHALL BE SIMILARLY ENCASED, COATED AND/OR JOINTS BONDED. WHERE WATERMAIN IS THERMOPLASTIC COATED, THE HYDRANT BARREL SHALL BE TAPE COATED.
2. WHERE 6" GATE VALVE IS TO BE LOCATED WITHIN A PARKING-PERMITTED AREA, A SECOND 6" GATE VALVE SHALL BE INSTALLED AT THE HYDRANT ASSEMBLY PER STD PLAN NO 310A.

REF STD SPEC SEC 7-14

City of Seattle
NOT TO SCALE
TYPE 310 HYDRANT SETTING DETAIL

NOTES:
1. 6" HYDRANT CONNECTION PIPE SHALL BE DP CL52.
2. HYDRANT TEES SHALL BE SET HORIZONTALLY.
3. THE THREADED NIPPLE ON THE 4" PUMPER NOZZLE SHALL BE EQUIPPED WITH THE BLUNT START OR HIGH-CUT.
4. THE 21/2" NIPPLES SHALL BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION BULLETIN NO 194 DATED 1974.
5. AFTER INSTALLATION, ALL SHACKLE BOLTS, NUTS, AND SHACKLE RODS SHALL BE CLEANED AND COATED WITH TWO COATS OF ASPHALT, ROYSTON ROSKOTE R28.
6. AFTER BACKFILLING, THE OUTSIDE OF THE HYDRANT (ABOVE THE GROUND LINE) SHALL BE THOROUGHLY CLEANED AND PAINTED WITH TWO COATS OF KELLY-MOORE 6130-516 CAT YELLOW.
7. PUMPER PORT SHALL FACE CURB.
8. PUMPER PORT TO BE FITTED WITH QUICK CONNECT ADAPTOR PER FIRE MARSHAL.
9. RESTRAINT SHALL BE BY WEDGE RESTRAINT SYSTEM SUCH AS MEGALUG OR UNIFLANGE, SEE STD SPEC SEC 9.30.5(5).
GENERAL NOTES:

1. WHERE WATERMINS ARE INSTALLED WITH POLYETHYLENE ENCASMENT OR TAPE COATINGS, THE HYDRANT BARREL AND VALVE SHALL BE SIMILARLY ENCASED, COATED AND/OR JOINTS BONDED.
   WHERE WATERMAIN IS THERMOPLASTIC COATED, THE HYDRANT BARREL SHALL BE TAPE COATED.

2. WHERE 6" GATE VALVE IS TO BE LOCATED WITHIN A PARKING-PERMITTED AREA, A SECOND 6" GATE VALVE SHALL BE INSTALLED AT THE HYDRANT ASSEMBLY. PER STD PLAN NO 310A.

ALTERNATE A
TIEBOLT RESTRAINT

ALTERNATE B
MECHANICAL JOINT W/ WEDGE RESTRAINT GLANDS
NOTES
1. LAYOUT OF MARKER POST SHALL BE VERIFIED FIRST WITH SPU AND SDOT.
2. MARKER POST WITH HIGH INTENSITY REFLECTORIZED BANDS PROVIDED BY SPU.
NOTES:
1. BROKEN CONCRETE SLABS SHALL HAVE MINIMUM DIMENSIONS 0 3'-0" X 1'-6" AND BE NO LESS THAN 3 1/2" THICK. BROKEN CONCRETE SIDEWALK IS ACCEPTABLE. THE FACE SIDE OF CONCRETE SLAB SHALL BE STRAIGHT. SEE STD. SPEC SEC 8-15.3(5)
2. ROCK FOR ROCK FACING SHALL COMPLY WITH STD. PLAN NO. 141 SEE STD. SPEC 2-08.3(5)

SECTION A-A

REF STD SPEC SEC 2-08, 7-14 & 8-15

WALL REQUIREMENTS FOR HYDRANTS

City of Seattle

NOTES:
1. NO PARKING ZONE WITHIN 15'-0" RADIUS OF FIRE HYDRANT
2. MIN DISTANCE FROM BACK FACE OF HYDRANT TO FRONT EDGE OF CONCRETE WALK SHALL BE 2'-0"

EXPANSION JOINT
SCORED SECTION OF CURB RAMP

DETAIL A
HYDRANT NEAR CURB RAMP

R/W MARGIN
5'-0"
5'-0"

SIDES OF STREET
2'-0" 2'-0"

FACE OF CURB
3'-0"

3'-0" MIN, 15'-0" MAX ON CORNERS
7'-0" MAX MIDBLOCK

COURT OR EDGE OF TRAVELED PORTION OF ROADWAY

TREE
LOT LINE

10'-0" MIN
3'-0" MIN (TYP) OTHERWISE EASEMENT IS REQUIRED

SIDE SEWER

UTILITY POLE, GUARD POST, BUILDING WALL OR ANY OTHER FIXED STRUCTURE

SEE DETAIL A

REF STD SPEC SEC 7-14

City of Seattle
NOT TO SCALE

FIRE HYDRANT LOCATIONS & CLEARANCES

300 WATERMAIN

STANDARD PLAN NO 315a

REV DATE: 2003

LID, VALVE BOX
PAVEMENT

TOP SECTION, SEE SECTION A–A
OPERATING NUT EXTENSION
EXTENSION PIECE WHEN REQUIRED INSTALLED BETWEEN TOP & BASE SECTION
BASE SECTION SEE SECTION A–A

PLASTIC FOAM RING
SEE STD PLAN NO 315b
GATE VALVE
(SELECT INSTALLATION SIMILAR)

WATERMAIN

VALVE BOX ASSEMBLY
TYPICAL SETTING DETAIL

NOTE:
VALVE BOX FOR USE ON 12" OR SMALLER VALVE INSTALLATIONS

REF STD SPEC SEC 7-12

City of Seattle

CAST IRON VALVE BOX & OPERATING NUT EXTENSION

NOT TO SCALE

OPERATING NUT EXTENSION DETAIL

SECTION B-B

NOTES:
1. FRAME AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS FOR DELIVERY
2. CASTINGS AND EXTENSIONS SHALL BE HOT-DIPPED IN ASPHALTIC VARNISH ROYSTON ROSKOTE #612XM OR 2 COATS OF MASTIC ROYSTON INSIDE AND OUT.
3. VALVE BOXES SHALL BE RICH #045: TOP SECTION, LID AND BASE; OR OLYMPIC FOUNDRY: LID #1908-33, TOP SECTION #1106-33, BASE SECTION #1301-33
4. ALL CASTINGS SHALL BE DUCTILE OR GREY CAST IRON

LEGEND:
1. AN OPERATING NUT EXTENSION SHALL BE INSTALLED WHEN THE GROUND SURFACE IS MORE THAN 2'-6" ABOVE THE VALVE OPERATING NUT. THE OPERATING NUT EXTENSION SHALL EXTEND INTO THE TOP SECTION OF THE STANDARD VALVE BOX AND SHALL CLEAR THE BOTTOM OF THE LID BY 6" MIN.
2. EXTENSION PIECES (WHEN USED) SHALL CONFORM TO MINIMUM THICKNESS REQUIREMENTS AND SHALL FIT INTO THE TOP SECTION AND OVER THE BOTTOM SECTION

PLASTIC FOAM RING DETAIL

REF STD SPEC SEC 7-12 & 9-30
NOTES:
1. LOCATION AND SIZE OF BLOCKING FOR PIPE LARGER THAN 12" DIAMETER AND FOR SOIL TYPES DIFFERENT THAN SHOWN SHALL BE DETERMINED BY THE ENGINEER.
2. ALL BLOCKING FOR VERTICAL FITTINGS (POURED IN PLACE) SHALL BE AGAINST UNDISTURBED NATIVE GROUND.
3. ALL Poured THRUST BLOCKS SHALL BE BACKFILLED AFTER MIN. 1 DAY. PRESSURE TESTING SHALL OCCUR AFTER CONCRETE HAS REACHED f'c.
4. ALL BLOCKING SHALL BE CONCRETE CL 3000.
5. AFTER INSTALLATION, SHACKLE RODS & TURNBUCKLES SHALL BE CLEANED AND COATED WITH 2 COATS OF ASPHALTIC VARNISH, ROYSTON ROYKOTE #612M OR APPROVED EQUAL.
6. SHACKLE RODS SHALL BE FUSION BONDED EPOXY COATED ROUND MILD STEEL ASTM A 36, WITH THREADS ON ENDS ONLY.
7. BLOCKING AGAINST FITTINGS SHALL BE AGAINST THE GREATEST FITTING SURFACE AREA POSSIBLE, BUT SHALL NOT COVER OR ENCLODE BELL ENDS, JOINT BOLTS OR GLANDS. REASONABLE ACCESS TO BOLTS AND GLANDS SHALL BE PROVIDED.
### Thrust Block Area in Square Feet (See Std Plan No 331B)

<table>
<thead>
<tr>
<th>Soil</th>
<th>Firm Silt or Firm Silty Sand</th>
<th>Compact Sand</th>
<th>Compact Sand &amp; Gravel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90° BEND TEE</td>
<td>45° BEND or PLUG</td>
<td>11/2 &amp; 22/5 BEND TEE</td>
</tr>
<tr>
<td>PIPE SIZE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4&quot;</td>
<td>7.0</td>
<td>4.2</td>
<td>4.2</td>
</tr>
<tr>
<td>6&quot;</td>
<td>13.3</td>
<td>9.4</td>
<td>9.4</td>
</tr>
<tr>
<td>8&quot;</td>
<td>23.3</td>
<td>16.7</td>
<td>16.7</td>
</tr>
<tr>
<td>12&quot;</td>
<td>53.0</td>
<td>37.5</td>
<td>37.5</td>
</tr>
</tbody>
</table>

**Areas calculated on 300 PSI test pressure and 3'-0" min cover over watermain.**

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**ECOLOGY BLOCKS, PER STD PLAN NO 460, MAY BE USED IN LIEU OF POURING-IN-PLACE BLOCKING FOR FITTINGS IN HEAVILY OUTLINED PORTION OF TABLE.**

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**City of Seattle**

**NOT TO SCALE**

**WATERMAIN THRUST BLOCKING HORIZONTAL FITTINGS**

---

NOTES:

1. LOCATION AND SIZE OF BLOCKING FOR PIPE LARGER THAN 12" DIAMETER AND FOR SOIL TYPES DIFFERENT THAN SHOWN SHALL BE DETERMINED BY THE ENGINEER.
2. ALL BLOCKING FOR HORIZONTAL FITTINGS (POURED IN PLACE) SHALL BEAR AGAINST UNDISTURBED NATIVE GROUND.
3. ALL POURED THRUST BLOCKS SHALL BE BACKFILLED AFTER MIN. 1 DAY.
4. PRESSURE TESTING SHALL OCCUR AFTER CONCRETE HAS REACHED F.C.
5. ALL BLOCKING TO BE CONCRETE CL 3000.
6. BLOCKING AGAINST FITTINGS SHALL BEAR AGAINST THE GREATEST FITTING SURFACE AREA POSSIBLE, BUT SHALL NOT COVER OR ENCLOSE BELL ENDS, JOINT BOLTS OR GLANDS. ACCESS TO BOLTS AND GLANDS SHALL BE PROVIDED.
7. ALL HORIZONTAL BLOCKING THRUST AREAS SHALL BE CENTERED ON PIPE.
8. WHERE POURED-IN-PLACE BLOCKING IS REQUIRED AT A POINT OF CONNECTION TO AN EXISTING WATERMAIN, THE BLOCKING SHALL BE INSTALLED PRIOR TO CONNECTION.
9. TEMPORARY BLOCKING, IF USED, SHALL BE APPROVED BY ENGINEER.

REF STD SPEC SEC 7-11
For 4" watermains
4"x1½" fit ductile iron, double strapped saddle (see STD PLAN NO 340b)
W/ 1½"x2" corp stop, ball type brass body MPI x comp

For larger than 4" watermains
Direct tap 1½"x2" corp stop, ball type brass body, AWWA x corp

Standard box and lid
Olympic foundry type SM29
To be located in the field by the engineer

See note on STD PLAN NO 340b

Mechanical joint cap or plug
1/4" steel plate

Conc blocking per
STD PLAN NO 331

Undisturbed ground

Plan

2" galv steel pipe
2" plastic foam material
See STD PLAN NO 315

1 cu ft gravel
MNRL AGG TYPE 9

2" galvanized elbow
Drill 1/8" drain hole

2"x6" galvanized nipple

2" brass coupling
MPI x comp

Elevation

2" Blow Off Type A
Non Traffic Installation

Ref STD SPEC SEC 7-11
FOR 4" WATERMANS
4"x1½" FPT DUCTILE IRON,
DOUBLE STRAPPED SADDLE
W/ ½"x2" CORP STOP, BALL TYPE
BRASS BODY MIPT X COMP

FOR LARGER THAN 4" WATERMANS
DIRECT TAP (SEE STD PLAN NO 340A)
1½"x2" CORP STOP, BALL TYPE
BRASS BODY, AWWA X CORP

TYPE 361S FRAME & COVER
SEE NOTE THIS SHEET

MECHANICAL JOINT CAP OR PLUG
1/4" STEEL PLATE
CONC BLOCKING PER
STD PLAN NO 331
UNDISTURBLED GROUND

NOTE:
WHERE TAPE-WRAPPED DUCTILE IRON
PIPE IS USED, THE MECHANICAL JOINT
CAP, CORP AND SADDLE (IF REQUIRED)
SHALL BE WRAPPED PER AWWA C214

PLAN

TYPE 361S FRAME &
COVER
MIN 3 COURSES CONCRETE
BLOCK & MORTAR

2" PIPE CAP

2" IRON BODY GATE
Valve W/ 2" SQUARE
OPERATING NUT

Valve box see
STD PLAN NO 315

COMPACTED SUBGRADE (95%)

2" GALV STEEL PIPE

2" PLASTIC FOAM MATERIAL
SEE STD PLAN NO 315

1 CU FT GRAVEL
MNRL AGG TYPE 9

2" GALVANIZED ELBOW

DRILL 1/8" DRAIN HOLE

2"x6" GALVANIZED NIPPLE

2" BRASS COUPLING
MIPT X COMP

ELEVATION

REF STD SPEC SEC 7-11

City of Seattle
NOT TO SCALE
2" BLOW OFF DETAIL TYPE B
TRAFFIC INSTALLATION

NOTES:
1. EXCAVATE FOR THE BELL TO ENSURE UNIFORM SUPPORT FOR THE PIPE BARREL
2. SPECIAL COATED PIPE REQUIRES CLASS B BEDDING
FRAME & COVER SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS FOR DELIVERY.

BOTTOM VIEW

LIFTING HANDLE (2 REQUIRED)

BAR 3/4" Ø
R=7/8"
2" SQUARE NUTS
RIVETED

63/4"
SLIP JOINT BOND CONNECTION

THERMITE WELD CONNECTION (TYP) WITH THERMITE WELD CAP OR MASTIC TAPE COATING (TYP)

#2 AWG JOINT BOND CABLE

MECHANICAL JOINT BOND CONNECTION

THERMITE WELD CONNECTION (TYP) WITH THERMITE WELD CAP OR MASTIC TAPE COATING (TYP)

#2 AWG JOINT BOND CABLE

#10 AWG JOINT BOND CABLE

CONNECTION SEQUENCE:

1. REMOVE PIPE COATING TO BRIGHT & CLEAN METAL

2. STRIP INSULATION FROM TEST STION WIRE, INSTALL ADAPTER SLEEVE

3. HOLD MOLD FIRMLY WITH OPENING AWAY FROM OPERATOR AND IGNITE

4. REMOVE SLAG AND ALLOW TO COOL

5. 16 OUNCE HAMMER TEST PER STD. SPEC SEC 7-11.3(15)D1

6. FINAL CONNECTION TO BE MADE WATERTIGHT WITH MASTIC COATING OR PREFORMED THERMITE WELD CAP

REF STD SPEC SEC 7-11

City of Seattle

NOT TO SCALE

JOINT BONDING FOR DIP WATERMAINS & JOINTS BONDING DETAIL

* SEE RIGHT OF WAY IMPROVEMENT MANUAL FOR DIMENSIONS.
** UNLESS OTHERWISE APPROVED BY THE ENGINEER.
*** MAXIMUM 2%, MINIMUM 0.5%; USE 2% UNLESS OTHERWISE SHOWN IN CONTRACT OR APPROVED BY THE ENGINEER.

PAVING PER STD. PLAN NOS 401 OR 402 PER DRAWINGS
401A—CEMENT CONCRETE PAVEMENT WITH INTEGRAL CURB

401B—CEMENT CONCRETE PAVEMENT WITH EXISTING CURB & GUTTER

401C—HOT MIX ASPHALT ON CEMENT CONCRETE BASE

401D—HOT MIX ASPHALT OVER CRUSHED ROCK BASE

HMA DESIGN CRITERIA:
1. 3 MILLION ESAL'S UNLESS OTHERWISE SPECIFIED ON DRAWINGS
2. ASPHALT PG 64-22 UNLESS OTHERWISE SPECIFIED ON DRAWINGS
NOTES:
If conc thickness is 9 inch or greater
optional keyway may be used
See std plan no 405 for details

OPTIONAL KEYWAY
FOR LONGITUDINAL JOINT

ROADWAY CEMENT CONCRETE PAVEMENT (THICKNESS AS SPECIFIED IN CONTRACT DOCUMENTS)
SEE STD PLAN TYPE 410C CURB

COMPACTED SUBGRADE

6"MNRL AGG TYPE 2 (COMPACTED AS SPECIFIED IN CONTRACT DOCUMENTS)

402A—ROADWAY CONCRETE PAVEMENT ON CRUSHED ROCK

ROADWAY CEMENT CONCRETE PAVEMENT (THICKNESS AS SPECIFIED IN CONTRACT DOCUMENTS)
SEE STD PLAN TYPE 410C CURB

COMPACTED SUBGRADE

2"HMA (CL 2/3)

6"MNRL AGG TYPE 2 (COMPACTED AS SPECIFIED IN CONTRACT DOCUMENTS)

402B—HOT MIX ASPHALT ON CEMENT CONCRETE ON CRUSHED ROCK

HMA (CL 1") THICKNESS AS SPECIFIED IN CONTRACT DOCUMENTS
SEE STD PLAN TYPE 410B CURB & GUTTER

2"HMA (CL 2/3)

6"MNRL AGG TYPE 2 (COMPACTED AS SPECIFIED IN CONTRACT DOCUMENTS)

402C—HOT MIX ASPHALT ON CRUSHED ROCK BASE

HMA DESIGN CRITERIA:
1. AN ESAL COUNT OF 10 MILLION UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS.
2. ASPHALT PG 64–22 UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS.
CONCRETE ALLEY PAVEMENT

CEMENT CONCRETE ALLEY PAVEMENT
403B—FOR SHALLOW EMBANKMENT AREA

NOTES:
1. WHEN ALLEY PAVEMENT IS 16’-0” OR WIDER
   PLACE CONSTRUCTION JOINT WITH TIE BAR PER
   STD PLAN NO 405 ALONG CENTERLINE OF ALLEY.
2. FOR ADA ACCESSIBLE ACCESS TO ENTRY IN ALLEY
   CONSIDER ALTERNATIVE DESIGN, SUBJECT TO
   APPROVAL BY THE ENGINEER.
3. 8” OR AS SHOWN IN CONTRACT OR APPROVAL
   BY THE ENGINEER.
**DEPTHS OF RESTORATION SHALL MEET THE REQUIREMENTS OF "STREET AND SIDEWALK PAVEMENT OPENING AND RESTORATION RULES." WIDTH OF RESTORATION SHALL MEET REQUIREMENTS OF STANDARD PLAN 404C.**

**TYPICAL PATCH FOR FLEXIBLE PAVEMENT**

**TYPICAL PATCH FOR RIGID PAVEMENT**
ASPHALT OVER RIGID BASE OF BRICK OR STONE BLOCK PAVEMENT

HALF SECTION

** WIDTH OF RESTORATION SHALL MEET REQUIREMENTS OF STANDARD PLAN 404C. DEPTH OF RESTORATION SHALL MEET THE REQUIREMENTS OF "STREET AND SIDEWALK PAVEMENT OPENING AND RESTORATION RULES".**
NOTE:
THE ZONE OF INFLUENCE IS DEPENDENT ON SOIL TYPE AND
CONDITION METHOD. THE AMOUNT OF PAVEMENT REMOVAL THAT MAY
BE REQUIRED TO ALLOW FOR ADEQUATE RE-COMPACTATION OF THE
SOIL ADJOINING THE EXCAVATION IS BASED ON THE ESTIMATE OF
SOIL MOVEMENT RESULTING FROM THE INSTALLATION OF THE UTILITY.

* ZONE OF INFLUENCE IS DEPENDENT ON THE TYPE
AND CONDITION OF THE ADJACENT SOILS.
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. PLACE POLYETHYLENE FILM OR BUILDING PAPER ALONG THE LONGITUDINAL JOINT BETWEEN PARTIAL PANEL REPLACEMENT AND EXIST PANEL.
3. TIE BARS AND DOVELS ARE NOT REQUIRED:
3.1. WHEN INDICATED ON THE DRAWINGS BY "NO TIE BARS" OR "NO DOVEL BARS".
3.2. WHEN EXISTING PAVEMENT IS LESS THAN A THICKNESS OF 8" OR WHEN THE ENGINEER DETERMINES THE EXISTING CONC NOT TO BE COMPETENT.
4. DO NOT PLACE LONGITUDINAL JOINTS OR SKEWED JOINTS WITHIN BIKE LANES.

A. SEE SECTION A-A STANDARD PLAN 405B
B. SEE SECTION B-B STANDARD PLAN 405B
NEW CEMENT CONC PAVEMENT
EXIST CONCRETE PAVEMENT

SAWED GROOVE;
WIDTH 3/8" MIN. TO 3/4" MAX;
DEPTH D/3, WITH JOINT
SEALANT, OR 3/8" PREMOLDED
JOINT FILLER, DEPTH D/3

NEW DOWEL BAR
1-1/2" DIAM X 18"

1/2 CONC
PAVEMENT DEPTH

9"

SECTION A-A
DOWEL BAR DETAIL

NEW CEMENT CONC PAVEMENT
EXIST CONCRETE PAVEMENT

SAWED GROOVE;
WIDTH 3/8" MIN. TO 3/4" MAX;
DEPTH D/3, WITH JOINT
SEALANT, OR 3/8" PREMOLDED
JOINT FILLER, DEPTH D/3

NEW DOWEL BAR
1-1/2" DIAM X 18"

1'-3"

SECTION B-B
TIE BAR DETAIL

NEW CEMENT CONC PAVEMENT
EXIST CONCRETE PAVEMENT

SAWED GROOVE;
WIDTH 3/8" MIN. TO 3/4" MAX;
DEPTH D/3, WITH JOINT
SEALANT, OR 3/8" PREMOLDED
JOINT FILLER, DEPTH D/3

SAWCUT FULL DEPTH

WITHOUT TIE BAR OR DOWEL
USE ONLY WHEN SHOWN IN
CONTRACT OR APPROVED BY
THE ENGINEER

REF STD SPEC SEC 5-05

City of Seattle
NOT TO SCALE
PAVEMENT REPAIR
DOWEL BAR AND
TIE BAR DETAILS

NOTES
1. DO NOT PLACE LONGITUDINAL JOINTS OR SKEWED JOINTS WITHIN BIKE LANES.
2. WHEN A JOINT IS WITHIN 18 INCHES OF A CASTING JOINTS SHOULD BE SKEWED TO MEET THE CASTING AT 90 DEGREES UNLESS OTHERWISE DIRECTED BY THE ENGINEER OR SHOWN ON THE DRAWINGS.
3. SEE STD PLAN NO 406 OR DRAWINGS FOR REBAR DETAIL AROUND CASTING 18 INCHES OR GREATER FROM JOINTS.
4. DOWEL BARS SHALL NOT BE PLACED WITHIN 15 INCHES OF THE EDGE OF PAVEMENT OR A PARALLEL JOINT.

<table>
<thead>
<tr>
<th>DEPTH (D) OF RDWY CEM. CONC</th>
<th>DOWEL BAR SIZE (DIA Ø)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6&quot;≤D &lt;9&quot;</td>
<td>1&quot;X18&quot;</td>
</tr>
<tr>
<td>9&quot;≤D &lt;11&quot;</td>
<td>1½&quot;X18&quot;</td>
</tr>
<tr>
<td>11&quot;≤D</td>
<td>1½&quot;X18&quot;</td>
</tr>
</tbody>
</table>

TACK COAT PER SEC 5-04

SAWED GROOVE ~ WIDTH ¾" MIN., ¾" MAX. WITH JOINT SEALANT OR ¾" PREMOLDED JOINT FILLER

TIE BAR - ¾" BARX30" ON 36" CENTERS

DRILL AND GROUT (WHEN APPLICABLE)

SAWED GROOVE ~ WIDTH ¾" MIN., ¾" MAX. WITH JOINT SEALANT OR ¾" PREMOLDED JOINT FILLER

TIE BAR - 5" BARX30" ON 36" CENTERS

SAWED GROOVE ~ WIDTH ¾" MIN., ¾" MAX. WITH JOINT SEALANT OR ¾" PREMOLDED JOINT FILLER

Dowel Bar on 12" Center
THROUGH JOINTS
USE ONLY WHEN SHOWN IN CONTRACT OR APPROVED BY THE ENGINEER

KEYWAY DETAIL
LONGITUDINAL JOINT WITH KEYWAY (OPTIONAL FOR ≥9 INCHES ONLY)

NOTES
USE OF OPTIONAL KEYWAY MAY BE REVOKED BY THE ENGINEER AT ANYTIME DUE TO QUALITY CONTROL ISSUES WITH MAINTAINING PLACEMENT REQUIREMENTS WITHIN ±1/8 INCH VERTICALLY.
NOTES:
1. PLACE WIRE MESH AT ½ DEPTH OF CEMENT CONCRETE.
2. THE DIMENSIONS OF THE MESH SHALL BE ADJUSTED WHERE PAVEMENT JOINTS ARE ENCOUNTERED.
3. NO REINFORCING STEEL SHALL BE WITHIN 2½ INCHES OF ANY CEMENT CONCRETE SURFACE OR JOINT.

NOTES:
1. PLACE REBAR AT ½ DEPTH OF CEMENT CONCRETE.
2. NO REINFORCING STEEL SHALL BE WITHIN 2½ INCHES (3 INCHES DESIRED) OF ANY CEMENT CONCRETE SURFACE OR JOINT.
410B CURB & GUTTER

410C CURB

NOTES:
1. "H" SHALL BE 6" FROM FINISHED ROADWAY GRADE UNLESS OTHERWISE SHOWN ON DRAWINGS
2. GUTTER SHALL BE SLOPED THE SAME AS ADJACENT PAVEMENT OR 2% MIN. WHICHEVER IS GREATER.
3. SEE STD PLAN NO 411 FOR CURB DOWELS

REF STD SPEC SEC 8-04
CONSTRUCTION JOINT FOR CURB OR CURB & GUTTER

SECTION A-A

THROUGH JOINT FOR CURB OR CURB & GUTTER

SECTION B-B

#3 EPOXY COATED REINFORCING BARS Ø 2'-0" TO 4'-0" O.C.
#3 EPOXY COATED REINFORCING BARS Ø 2'-0" TO 4'-0" O.C.
DRILL 3/8" MIN. DIA. HOLES
FILL WITH EPOXY GROUT
(TYPE I OR IV EPOXY PER SEC 9-26)
TOP OF PROPOSED CURB

COLD JOINT

COMPACTED SUBGRADE

CURB DOWEL ON NEW PAVEMENT
CURB DOWEL PINS ON EXISTING PAVEMENT

DOWELS FOR DOWELLED CURB CONSTRUCTION

REF STD SPEC SEC 6-02 & 8-04

City of Seattle NOT TO SCALE CURB JOINTS & DOWELS

EXTRUDED ASPHALT CONCRETE CURB

EXTRUDED CEMENT CONCRETE CURB

NOTE:
ALTERNATELY, THE USE OF EPOXY BONDING AGENT,
IN PLACE OF #3 DEFORMED BARS, WILL BE ALLOWED.

REF STD SPEC SEC 8-06
Curb Plan

Section C–C

Section D–D

Nosing

Section B–B

Section A–A

Installation Detail for Straight Precast Traffic Curb

Note: Install 8" #4 rebar in every other hole and fill hole with grout.

8" #4 rebar in 1 1/2" grout filled hole

1/2" grout pad

Pavement

Section E–E

Ref Std Spec Sec 8-07

City of Seattle

Not to Scale

3' Precast Traffic Curb (Dual Sloped)

8" STRAIGHT BLOCK CURB
(SINGLE SLOPED)

RADIAL CURB

RADIUS CURB TABLE

FOR RADII GREATER THAN 10'-0" USE SEGMENTS OF STRAIGHT BLOCK CURB

8" STRAIGHT BLOCK CURB
(DUAL SLOPED)

8" BLOCK AND RADIAL TRAFFIC CURB

TYPICAL SIDEWALK & CURB RAMP DETAIL
6'-0"WIDE

NOTES:
1. 1/8" THROUGH JOINTS SHALL BE LOCATED AS REQUIRED BY SECTION 8-14.3(6).
2. 1/4" GROOVES SHALL MATCH PATTERN IN ADJACENT EXISTING SIDEWALK.
3. FOR CURB RAMPS, SEE STANDARD PLAN 422.
4. FOR TREE HUGS, SEE STANDARD PLAN 424.
5. WHEN PLANTING STRIP PAVEMENT IS APPROVED, 1/8" THROUGH JOINT IS REQUIRED ALONG ENTIRE PERIMETER.
6. 12" MINIMUM BETWEEN EDGE OF RAMPS AND PLANTING STRIP IS DESIRABLE.
7. ALL SIDEWALK SHALL BE NON-ROADWAY CEM CONC W/ 25% POZZOLANS.

REF STD SPEC SEC 8-14

City of Seattle

NOTES:
1. "H" SHALL BE 6" FROM FINISHED ROADWAY GRADE UNLESS OTHERWISE SPECIFIED.
NOTES:

1. TYPE 422A PERPENDICULAR CURB RAMP SHALL BE USED UNLESS OTHERWISE DIRECTED BY ENGINEER.
2. TWO CURB RAMPS SHALL BE INSTALLED AT EACH CORNER UNLESS OTHERWISE DIRECTED BY ENGINEER. RECOMMENDED MINIMUM DISTANCE BETWEEN TWO ADJACENT CURB RAMPS SHALL BE 3'-0". WHERE SPACE IS RESTRICTED THE MINIMUM DISTANCE BETWEEN TWO ADJACENT CURB RAMPS MAY BE REDUCED TO 1'-0".
3. CURB RAMP SHALL BE CONSTRUCTED WITH COMPANION RAMP ON OPPOSITE SIDE OF THE ROADWAY UNLESS OTHERWISE DIRECTED BY ENGINEER.
5. DETECTABLE WARNING SHALL HAVE A TRUNCATED DOME PATTERN AS SHOWN. A MINIMUM WIDTH OF 2'-0" AND SHALL BE PLACED AT THE RAMP BOTTOM STARTING AT THE BACK OF CURB. DETECTABLE WARNING COLOR SHALL BE "CITY OF SEATTLE SAFETY YELLOW", UNLESS OTHERWISE DIRECTED.
6. UPPER LANDING SHALL BE FULL WIDTH OF THE RAMP AND SHALL HAVE A MINIMUM DEPTH OF 4'-0". SLOPE ON THE UPPER LANDING SHALL BE BETWEEN 0.5% AND 2%. AVOID PLACING HANDHOLES, UTILITY CASTINGS OR OTHER OBSTRUCTIONS IN THE UPPER LANDING.
7. LOWER LANDING SHALL BE FULL WIDTH OF THE RAMP AND SHALL EXTEND A MINIMUM 4'-0" BEYOND DETECTABLE WARNING. THE LOWER LANDING SHALL BE THE WIDTH OF THE RAMP AND FALL WHOLLY WITHIN THE LEGAL CROSSWALK, MARKED OR UNMARKED. SLOPE ON THE LOWER LANDING SHALL BE BETWEEN 0.5% AND 2%. GUTTER FLOW LINE SHALL BE SURVEYED BY THE CONTRACTOR PRIOR TO CONSTRUCTION TO ENSURE PONDING OF WATER SHALL NOT OCCUR ON THE LOWER LANDING.
8. WINGS SHALL HAVE A MAXIMUM SLOPE OF 10H:1V. IF UPPER LANDING HAS A DEPTH LESS THAN 4'-0", THE MAXIMUM SLOPE FOR THE WINGS SHALL BE 12H:1V. WINGS SHALL HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB SHALL CONTINUE THROUGH EACH WING.
9. POLES, HYDRANTS AND OTHER ABOVE GROUND OBSTRUCTIONS SHALL HAVE A MINIMUM LATERAL CLEARANCE OF 1'-0" FROM THE UPPER LANDING AND RAMP SURFACE.
10. ALL CHANGES IN LEVEL ACROSS JOINTS SHALL BE FLUSH. ANY DIFFERENCE IN ELEVATION OF 3/8 INCH OR GREATER SHALL BE REMOVED OR REPLACED.
11. ALL SLOPE GRADATIONS 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.

REF STD SPEC SEC 8-14
PARALLEL CURB RAMP
(TYPE 422b)

USE PARALLEL CURB RAMPS ONLY WHEN SHOWN IN DRAWINGS OR WITH APPROVAL OF ENGINEER.
PARALLEL CURB RAMPS MAY ALSO BE USED ON CURVES; ALL REQUIREMENTS SHALL APPLY.

SECTION A-A
CURB MONOLITHIC WITH RAMP, NEW PAVEMENT BLOCKED OUT FULL DEPTH, EXISTING PAVEMENT REMOVED AT FACE OF CURB

SECTION B-B

SEE SECTION A-A ABOVE

SEE NOTE 5

SAW CUT EXISTING PAVEMENT

Pavement

6'-0" MIN

6" 2'

SCORE LINE (TYP) 3/4"

2% MAX

DETECTABLE WARNING

1'-0"

Pavement

SEE NOTE 5

SEE SECTION A-A ABOVE

CROSSWALK

CURB RAMP LOCATIONS

SEE STD PLAN NO 422a FOR NOTES

REF STD SPEC SEC 8-14
NOTE
1. SEE STD PLAN 420 FOR CW SCORING DETAILS.
2. INSTALL ROOT BARRIER PER STANDARD PLAN NO. 100A.

TYPE A

TYPE B

REF STD SPEC SEC 8-02 & 8-14

City of Seattle
NOT TO SCALE
EXPANDABLE TREE PIT DETAIL

Tree Pit Dimensional Requirements:
- 24 sq ft min tree pit size
- 3'-0" min reg'd between tree & face of curb
- 2'-0" min reg'd between tree & conc sidewalk
- 6'-0" min conc walking surface

Note:
1. Installations requiring less than standard min clearances shall be allowed only with approval by the engineer.
2. Install root barrier per standard plan no 100A.
3. See std plan 420 for gw scoring details.

Type C

Sidewalk, non-roadway
CEM conc w/ 25% Pozzolans

Through joints
Through sidewalk

For additional sidewalk
Scoring requirements
See std plan no 420

Ref std spec sec 8-02 & 8-14

City of Seattle
Not to Scale
Tree Pit Detail

PERVIOUS CONCRETE SIDEWALK DEPTH TRANSITION AT DRIVEWAYS PROFILE VIEW

APPLY SEPARATION GEOTEXTILE SEC. 9-37, ON BOTTOM AND SIDES WHEN REQUIRED BY DESIGN. EXTEND GEOTEXTILE ABOVE PERVIOUS CONCRETE FOR SIDEWALK PAVEMENT. AFTER PAVEMENT HAS CURED AND ADJACENT FINISHED GRADE HAS BEEN STABILIZED, CUT SEPARATION GEOTEXTILE AT FINISHED GRADE (TYP.).

COMPACTED SUBGRADE PER SEC. 5-06 (TYP.)

5" DEPTH OF PERVIOUS CEMENT CONCRETE FOR SIDEWALK

(SEE SEC. 5-06)

6" MIN DEPTH OF AGGREGATE DISCHARGE SUBBASE

PERVIOUS CONCRETE SECTION A

NOTES:
1. DEPTHS SHOWN FOR PAVEMENT SECTIONS ARE COMPACTED DEPTH.
2. SIDEWALK DEPTH AT DRIVEWAY TO MATCH DRIVEWAY PAVEMENT DEPTH.
3. DEPTH OF POROUS CEMENT CONCRETE FOR DRIVEWAYS SHALL BE 8" MIN.
4. 5% MAX. PERVIOUS CEMENT CONCRETE PROFILE GRADE.

HOT MIX ASPHALT (HMA)

FINISHED GRADE

MIN 4" COMPACTED DEPTH MINERAL AGG. TYPE 2

COMPACTED SUBGRADE OR NATIVE SOIL

HOT MIX ASPHALT PAVEMENT SIDEWALK SECTION

CONCRETE PAVER SIDEWALK SECTION

REF STD SPEC SEC 5-04, 5-06

City of Seattle

NOT TO SCALE

ALTERNATIVE WALKWAYS
NOTES:
1. TYPE 430A SHALL BE USED UNLESS OTHERWISE DIRECTED BY ENGINEER. USE OF DRIVEWAY TYPE 430B IS SUBJECT TO ENGINEER APPROVAL.
2. RESIDENTIAL DRIVEWAYS SHALL BE NON-ROADWAY CEMENT CONCRETE, COMMERCIAL DRIVEWAYS SHALL BE NON-ROADWAY CEMENT CONCRETE, HIGH STRENGTH.
3. WING WIDTH ON ARTERIAL STREETS WHERE TRAVEL LANE IS NEXT TO THE CURB SHALL BE 5'-0". OTHERWISE, WING WIDTH SHALL BE 2'-0".
4. "V" GROOVE SCORING SHALL MATCH PATTERN IN ADJACENT EXISTING SIDEWALK. IN BUSINESS DISTRICT, USE 2" SQUARE SCORING PATTERN. WHERE THERE IS NO ADJACENT EXISTING SIDEWALK, USE 3'-0" SCORING SHOWN IN TYPICAL SIDEWALK DETAIL STANDARD PLAN 420.
5. FOR CONCRETE DRIVEWAY CONSTRUCTED WITH CONCRETE SIDEWALK, SEE STANDARD PLAN 431.
6. CONCRETE DRIVEWAYS WITH A WIDTH GREATER THAN 15'-0" SHALL HAVE A 3/4" TRANSVERSE CONTRACTION JOINT NEAR THE CENTERLINE OF DRIVEWAY. SEE DETAIL SECTION C-C STANDARD PLAN 420.
7. FOR TYPE 430A SLOPE IN THE 6'-0" MINIMUM WIDE AREA CONNECTING TO PW ON EACH SIDE OF THE DRIVEWAY SHALL BE MAXIMUM 2% AND MINIMUM 0.5%. FOR TYPE 430B, SLOPE OF THE DRIVEWAY BETWEEN THE TWO RAMP SECTIONS SHALL 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.
8. RAMP SURFACE FOR DRIVEWAY 430B SHALL HAVE maximum SLOPE 12H:1V AND HAVE A TEXTURED SURFACE OBTAINED WITH A PLATTENED EXPANDED METAL ¾"-9/16" MESH PRESSED INTO THE STILL FRESH CONCRETE LONG AXIS OF THE DIAMOND SHALL BE PARALLEL TO THE CURB.
9. ALL CHANGES IN LEVEL ACROSS JOINTS SHALL BE Flush WITH A MAXIMUM DIFFERENCE IN ELEVATION OF ¾" INCH.
10. ALL SLOPE GRADES SHALL BE MEASURED OFF THE HORIZON-LINE IF EXISTING SITE CONDITIONS CONFLICT WITH OBTAINING GRADES SHOWN, THE CONTRACTOR SHALL MAKE MINIMUM ADJUSTMENTS TO THE GRADES TO ACCOMMODATE EXISTING SITE CONDITIONS, ADJUSTMENTS ARE SUBJECT TO ENGINEER APPROVAL.

REF STD SPEC SEC 8-19

City of Seattle
NOT TO SCALE
TYPE 430 DRIVEWAY
SECTION A-A

NOTES:
1. DRIVEWAY WIDTH GREATER THAN 15'-0" AND LESS THAN OR EQUAL TO 30' SHALL HAVE TRANSVERSE CONSTRUCTION JOINTS AT IT'S CENTER.
2. DRIVEWAY GREATER THAN 30'-0" REQUIRES SDOT APPROVAL AND SHALL HAVE TRANSVERSE CONTRACTION JOINTS EQUALLY PLACED SO THE DISTANCE BETWEEN CONTRACTION JOINTS, OR BETWEEN THE EDGE THROUGH JOINTS AND CONTRACTION JOINTS IS NOT GREATER THAN 15'-0".

* UNLESS OTHERWISE APPROVED BY SDOT.
MULTI PURPOSE TRAIL @ ARTERIAL STREET W/BULB-OUT (TYP)

NOTES:
1. FOR CURB RAMP AND DETECTABLE WARNING DETAILS SEE STANDARD PLAN 422.
2. FOR CROSSWALK DETAILS SEE STANDARD PLAN 712.
3. FOR BOLLARD DETAIL SEE STANDARD PLAN 463.
4. ASPHALT TRAIL CROSS SLOPE MINIMUM 1%, MAXIMUM 2%.
5. CEMENT CONCRETE WARNING PAD THICKNESS TO MATCH ASPHALT.
6. CRUSHED ROCK ON EDGE OF TRAIL AS NEEDED TO DISBURSE
7. ALL CHANGES IN LEVEL ACROSS JOINTS SHALL BE FLUSH WITH A
8. ALL SLOPE GRADES SHALL BE MEASURED OFF THE HORIZON-LINE.
9. ALL CEMENT CONCRETE WARNING PADS SHALL BE BRUSHED

CEM CONC WARNING PAD

NOTES:
1. FLIGHTS OF STAIRS SHALL 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 SHALL BE 11" MIN, 12" MAX. RISERS SHALL BE 5" MIN, 7" MAX.
5. LANDINGS BETWEEN FLIGHTS OF RISERS MUST HAVE SAME WIDTH AS STEPS AND A MIN LENGTH OF 4'-0".
6. FLIGHTS OF 2' OR MORE STEPS SHALL HAVE HANDRAILS ON BOTH SIDES.
7. HANDRAILS SHALL BE CONTINUOUS ACROSS LANDINGS BETWEEN FLIGHTS OF STEPS.
8. HANDRAILS SHALL BE GALVANIZED AFTER FABRICATION.
9. PIPE MATERIAL SHALL BE ASTM A53.
10. REINFORCING STEEL SHALL BE ASTM A615 OR 60.
11. FOR FORMAL DRAINAGE PICK-UP SEE DETAIL B ON STD PLAN NO. 440b (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 C1500.
14. LANDINGS SHALL BE 0.50MIN FOR A MIN OF 4', ADJACENT SIDE WALK MAY BE PART OF LANDING IF SLOPE CRITERIA AND SETBACKS FROM HANDRAILS ARE MET.
15. TREAD SURFACE SHALL HAVE GROOVES AT THE NOSE FOR TRACTION.
16. IF LANDING IS ELEVATED, LANDING SHALL HAVE GUARDRAIL.
17. STAIRWAYS DEVIATING FROM STANDARD PLAN TO ACCOMMODATE BICYCLE FEATURES MAY BE USED UPON REVIEW.
18. BOTTOM LANDING DIMENSION FROM THE RAILING TO THE NOSE OF THE TREAD SHALL BE 2'-0" MIN + 1 TREAD WIDTH.

REF STD SPEC SEC 8-18

City of Seattle
NOT TO SCALE
CEMENT CONCRETE
STAIRWAY & HANDRAIL

SECTION A-A

NOTES:
1. CEMENT CONCRETE SHALL BE
   CL 3000 TROWEL FINISH
2. NUMBER OF STEPS SHALL SUIT
   INDIVIDUAL CONDITIONS WITH UNIFORM
   TREAD AND RISER DIMENSIONS
   AS FOLLOWS:
   TREADS SHALL BE 11'' MIN - 1'' 0'' MAX
   RISERS SHALL BE 5'' MIN - 2'' MAX
3. STEP WIDTH SHALL MATCH
   WIDTH OF EXISTING WALK, BUT SHALL
   BE NO LESS THAN 2'-6'' WIDE
4. ALL STAIRWAYS WITH 2 OR MORE STEPS
   SHALL INCLUDE A HANDRAIL ON BOTH SIDES.
   SEE STD PLAN NO 440
5. REINFORCING STEEL ASTM A 615 GR 60
6. TREAD SLOPES OUTWARD @ 1%
SECTION A–A

#4 REINFORCING U BAR AT EACH POST SEE DETAIL BELOW

4" 16GA GALV STEEL SLEEVES (TYP)

NON-SHRINK GROUT

MOUND FOR DRAINAGE (TYP)

SECTION B–B

DETAIL C

#4 REINFORCING U BAR AT EACH POST SEE DETAIL BELOW

4" 16GA GALV STEEL SLEEVES (TYP)

NON-SHRINK GROUT

MOUND FOR DRAINAGE (TYP)

SECTION C–C

REF STD SPEC SEC 8-14 & 8-18 DETAIL D

3'-0"
NOTES:
1. RAILING SHALL BE HOT DIP GALVANIZED AFTER FABRICATION
2. ALL POSTS SHALL BE PLUMB AND RAILS PARALLEL TO GRADE
3. PIPE MATERIAL SHALL CONFORM TO ASTM A53
4. REINFORCING STEEL ASTM A615 OR 60
5. IF THE CONCRETE WALK SLOPE IS 5% OR GREATER A GRIPPING
   HANDRAIL IS REQUIRED
6. PIPE DIAMETERS SHOWN ARE "NOMINAL" DIAMETERS AS GIVEN
   IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL

SECTION A–A

REF STD SPEC SEC 8-18
#1 REINFORCING
U BAR AT EACH POST
SEE DETAIL BELOW

4" 16ga GALV
STEEL SLEEVE (TYP)

NON-SHRINK CEMENT

MOUND FOR DRAINAGE (TYP)

DETAIL A

3'-0"

U BAR DETAIL

B

2" DOUBLE EXTRA STRONG STEEL PIPE POST OR
2" EXTRA STRONG STEEL PIPE POST

1/2" STD STEEL PIPE &
TOP OF GRIPPING HANDRAIL

1" GRIPPING HANDRAIL (STD STEEL PIPE)

3/4" STD STEEL PIPE

DETAIL B

C

2" STD STEEL PIPE POST OR
2" EXTRA STRONG STEEL PIPE POST &
1" GRIPPING HANDRAIL (STD STEEL PIPE)

1/2" STD STEEL PIPE &
TOP OF GRIPPING HANDRAIL

SECTION C-C

SECTION B-B

REF STD SPEC SEC 8-18

City of Seattle

NOT TO SCALE

STEEL PIPE RAILING
FOR BIKE PATH

CHAIN LINK FENCE TYPE 1

CHAIN LINK FENCE TYPE 3

CHAIN LINK FENCE TYPE 4

CHAIN LINK FENCE TYPE 6

REF STD SPEC SEC 8-12

City of Seattle

# ROLL FORMED SECTIONS

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## NOTES:
1. ALL CONCRETE POST BASES SHALL BE 10" MINIMUM DIAMETER, CL3000
2. POSTS SHALL BE SPACED AT 10'-0" MAXIMUM INTERVALS UNLESS OTHERWISE DIRECTED BY THE ENGINEER
3. TOP OR BOTTOM TENSION WIRING SHALL BE PLACED WITHIN THE LIMITS OF THE FIRST FILL FABRIC OR DECK
4. THE ILLUSTRATIVE DETAIL SHOWN HEREON SHALL NOT BE CONSTRUED AS LIMITING TO HARDWARE DESIGN OR POST SELECTION FOR ANY PARTICULAR FENCE TYPE
5. CONCRETE OR GROUT AROUND POST AT GROUND LINE SHALL BE MOUNTED FOR DRAINAGE

REF STD SPEC SEC 8-12

City of Seattle

NOT TO SCALE

CHAIN LINK FENCE

NOTES:
1. FENCE FABRIC SHALL BE SECURED TO GATE FRAMES WITH KNUCKLED SELVAGE ALONG TOP EDGE FOR TYPES 4&6 CHAIN LINK FENCE INSTALLATIONS.
2. MINIMUM POST LENGTH:
   - TYPES 1&3: 8'-8" 
   - TYPES 4&6: 5'-6"
3. CONCRETE OR GROUT AROUND POST AT GROUND LINE SHALL BE MOUNDED FOR DRAINAGE.
NOTE:
1. If the slope of the temporary crossing is 5% or greater, a gripping handrail shall be added that complies with ADA standards.
2. Ends of the temporary crossing shall be sloped to allow ADA access.
3. Surface of walkway shall be skid resistant.
4. The ramp shall be constructed of temporary pavement or compacted gravel embankment or as approved by engineer.
5. The temporary walkway could be recessed for the walking surface to be flush with adjoining grade.

TABLE

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<th>BRIDGE LENGTH</th>
<th>PLANK SIZE</th>
<th>NAIL SIZE</th>
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<td>4&quot;X12&quot;</td>
<td>60 PENNY</td>
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Lumber: Douglas Fir #2 or better
Post: #6 RAILS SAS
Planks - Rough
CONCRETE TONGUE & GROOVE BLOCK
NOTES:
1. UNLESS OTHERWISE SPECIFIED, TRAFFIC SIGNAL CONTROLLER CABINET SHALL BE FURNISHED BY THE CITY.
2. UNLESS OTHERWISE SPECIFIED, EXACT CABINET DIMENSIONS & ANCHOR BOLT LOCATIONS SHALL BE PROVIDED BY THE TRAFFIC SIGNAL SHOPS.
3. PLACE CABINET DOOR ON SIDEWALK SIDE OF FOUNDATION.
4. SEAL CABINET TO FOUNDATION WITH GREY OR CLEAR SILICON TO PREVENT MOISTURE FROM ENTERING THE CABINET.

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SIGNAL CONTROLLER CABINET – TYPES II, III, VI & AUXILIARY

- COLL 3' OF #4 SOLID BARE COPPER WIRE ABOVE FOUNDATION (UFER GROUND)
- LEVEL & FINISHED TOP OF FOUNDATION
- 1/2" PVC DRAIN TUBE TO LOW SIDE OF FINISHED GRADE
- (3) 3" SCH 80 PVC CONDUIT
- CLASS 3000
- 20' COIL OF #4 SOLID BARE COPPER WIRE, 2" MIN CLEAR FROM ALL SIDES (UFER GROUND)
- ANCHOR BOLT TYPE, SIZE & LOCATION (SEE NOTE 2)
- PARALLEL TO CURB

SIGNAL CONTROLLER FOUNDATION – TYPES II & III
SEE STD PLAN NO 500B FOR CONDUIT LAYOUT

REF STD SPEC SEC 8-31 & 8-32

City of Seattle
NOT TO SCALE
SIGNAL CONTROLLER CABINET & FOUNDATION

CONDUIT LAYOUT—TYPE II SIGNAL CONTROLLER FOUNDATION

ALL MEASUREMENTS TO CENTER OF CONDUIT

CONDUIT LAYOUT—TYPE III SIGNAL CONTROLLER FOUNDATION

ALL MEASUREMENTS TO CENTER OF CONDUIT

CABINET BOTTOM FLANGE (TYP)
NOTES:
1. FOR METAL POLES WITH ONLY OVERHEAD ACCESS, CONDUCTORS SHALL ENTER POLE THROUGH CABLE OUTLETS
2. CONDUCTORS SHALL BE CONTINUOUSLY COLOR CODED
   LINE 1 = BLACK
   LINE 2 = RED
   LINE 3 = BLUE
   NEUTRAL = WHITE
   GROUND = GREEN
3. BOND NEUTRAL TO GROUND AT ONLY ONE LOCATION

FOR CONDUIT RISER SEE STD PLAN NO 580

OVERHEAD SERVICE CONNECTION
UNDERGROUND SERVICE CONNECTION

NOTES:
1. *SCL MAY REQ NEUTRAL TO BE BONDED TO GROUND IN SCL SERVICE POINT
2. BOND NEUTRAL TO GROUND AT ONLY ONE LOCATION

REF STD SPEC SEC 8-30 & 8-31
SUSPENDED SIGNAL MOUNTING DETAIL

1 1/2" PIPE COUPLING
DRILL & TAP ONE WALL OF THE PIPE & COUPLER FOR (2) 3/8" X 3/4" STAINLESS STEEL BOLTS
1 1/2" PIPE NIPPLE SIZED TO GAIN MOUNTING HEIGHT AND TO LEVEL ALL RED HEAD SECTIONS
LOCK NUT WITH LOCKING SCREW
SEATED WASHER
SIGNAL HOUSING
NEOPRENE SEAL
STAINLESS STEEL WASHER
LOCK NUT
COTTER KEY

BRONZE WIRE ENTRANCE HANGER W/ INSULATING BUSHING

WITHOUT EXTENSION WITH EXTENSION

REF STD SPEC SEC 8-31
NOTES:
1. 3/8"x1/2" BOLT, 3/8" LOCK WASHER, 7/16"x13/8" WASHER of EACH REQUIRED PER ASSEMBLY; ALL STAINLESS STEEL
2. MOUNTING SHALL BE AS FOLLOWS:
   - ON METAL POLES THINNER THAN 7 GAUGE, USE 3/8"
     STAINLESS STEEL RIVNUTS
   - ON METAL POLES 7 GAUGE OR THICKER, DRILL AND TAP
     FOR 3/8" BOLT (STAINLESS STEEL RIVNUTS OPTIONAL).
   - ON POLES FILLED OR MADE WITH CONCRETE USE
     3/8"x21/2" MIN STUD BOLT ANCHORS, SLEEVE TYPE.
   - ON WOOD POLES USE 11/2"x21/2" LAG BOLTS.

REF STD SPEC SEC 8-31

City of Seattle

NOT TO SCALE

SIGNAL HEAD BRACKET ASSEMBLY

NOTES:
1. BOLT AND WASHERS SHALL BE STAINLESS STEEL
2. MOUNTING SHALL BE AS FOLLOWS:
   - ON METAL POLES THINNER THAN 7 GAUGE, USE 3/8" STAINLESS STEEL RIVNEST.
   - ON METAL POLES 7 GAUGE OR THICKER, DRILL AND TAP FOR 3/8" BOLT
     (STAINLESS STEEL RIVNEST OPTIONAL).
   - ON POLES FILLED WITH OR MADE FROM CONCRETE USE 3/8"X2 1/2" STUD BOLT
     ANCHORS WITH HEX NUT.
3. FOR STREET NAME SIGN PEDESTAL INSTALLATION, SEE STD PLAN NO 623

REF STD SPEC SEC 8-31

City of Seattle
NOT TO SCALE

PEDESTRIAN SIGNAL
CLAM SHELL MOUNTING

NOTES:
1. WRAP TOP OF ANCHOR BOLTS WITH CORROSION PROTECTION TAPE
FOR WOOD POLE
USE 3/8" GALV THRU BOLT FOR
TOP HOLE & 3/8" X 4" GALV LAG
BOLT & WASHER FOR BOTTOM HOLE

FOR METAL POLE
DRILL & TAP POLE FOR 3/8" X 3 1/2"
STAINLESS STEEL BOLTS & WASHERS
- USE 3/8" X 2 3/4" BOLT FOR 4" PIPE
PEDESTAL

DRILL HOLE FOR 3/4" NYLON
INSERT (TYP)

SECTION B-B

NOTES:
1. MOLDED ONE-PIECE ALUMINUM
   CONSTRUCTION
2. SIGNS SHALL BE FABRICATED FROM
   BAKED-ON ENAMEL DIRECTLY ON BOTH
   SIDES OF THE EXTRUSION
NOTES:
1. Fill cut after vertical placement and testing with hot paving grade liquid asphalt ASTM D 312 Type III or quick setting high strength grout.
2. Sharp edge tools shall not be used in placing conductors in saw cuts.
3. Each pair of loop wires in the return cut shall be twisted a minimum of 3 turns per foot and may share common return cuts with other twisted pairs.
4. Tape loop wire a minimum of 2 turns at each corner.
5. Remove sharp corner edges in saw cuts where loop wire will be bent around.
6. Perform resistance and continuity tests prior to sealing loop wires.
7. Coil 5'-0" of loop wire in handhole.

SECTION A-A

Pavement joint or crack

Fine grain sand

Loop wire (see loop schedule on drawings for number of turns)

SECTION A-A

Pavement joint or crack

Fine grain wet sand

Cut a 1/2" wide slot 6" long on each side of joint or crack.

Wrap ends and entire length of tubing with two layers of electrical tape to prevent asphalt or concrete from entering the tubing.

1/4" ID X 3/8" WALL PURE GUM NATURAL TUBING MUST CLEAR JOINT OR CRACK BY A MINIMUM OF 6" EACH SIDE

Pavement joint or crack detail

Ref Std Spec Sec 8-31

City of Seattle

NOT TO SCALE

Loop Detectors

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

**DIPOLE LOOP DETECTOR**

**QUADRIPOLE LOOP DETECTOR**

**DIPOLE**

**SQUARE OR RECTANGULAR**

REF STD SPEC SEC 8-31

City of Seattle  NOT TO SCALE  BICYCLE DETECTOR PAVEMENT MARKING LOCATIONS ON DETECTOR LOOPS

**Detector Lead-In Wire Splice Detail**

**Note:**
Solder connection after crimping

**Signal Cable Splice**

 Twist bare wire ends 7 turns

 Electrician's tape

 Signal cables

 Electrician's tape, wrap with adhesive side outside

 Electrician's tape

 Signal conductors
## Foundation Schedule

<table>
<thead>
<tr>
<th>Pole Type</th>
<th>Projection</th>
<th>Vertical Reinforcing</th>
<th>Depth (Lateral Bearing)</th>
<th>Anchor Bolts (Total 4 per Pole)</th>
<th>Anchor Plate Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>7½&quot; 8&quot; 8 #7</td>
<td>8' 6&quot; 7' 6&quot;</td>
<td>1½&quot; Dia X 60&quot;</td>
<td>3½&quot; X 16&quot; X 16&quot;</td>
<td>14½&quot; 1½&quot; 10&quot; 1½&quot;</td>
</tr>
<tr>
<td>V</td>
<td>9&quot; 9&quot; 8 #8</td>
<td>9' 6&quot; 8' 6&quot;</td>
<td>1¾&quot; Dia X 72&quot;</td>
<td>5½&quot; X 16&quot; X 16&quot;</td>
<td>18&quot; 1½&quot; 12½&quot; 1½&quot;</td>
</tr>
<tr>
<td>X</td>
<td>10&quot; 10&quot; 12 #8</td>
<td>12' 6&quot; 10' 6&quot;</td>
<td>2&quot; Dia X 72&quot;</td>
<td>7½&quot; X 18&quot; X 18&quot;</td>
<td>20&quot; 2½&quot; 14&quot; 2&quot;</td>
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<tr>
<td>Z</td>
<td>11½&quot; 11½&quot; 12 #8</td>
<td>15' 0&quot; 13' 0&quot;</td>
<td>2¾&quot; Dia X 72&quot;</td>
<td>5½&quot; X 20&quot; X 20&quot;</td>
<td>22&quot; 2½&quot; 15&quot; 2½&quot;</td>
</tr>
</tbody>
</table>

### Anchor Plate

- Center hole diameter
- Corner radius
- Bolt circle diameter

### Inclined Condition

- Inclined sidewalk or grade
- Anchor bolts
- Bolt circle

### Notes:

1. Concrete strength shall be class 4000 air entrained, 3/4" max size coarse aggregate.
4. All reinforcing bars shall be deformed billet steel conforming to ASTM class A515, grade 60.
5. Anchor bolts shall be hot dip galvanized ASTM A153 including nuts & washers (full length) with 18" of threads on top & 12" on bottom.
6. Tape the top of anchor bolts with corrosion protection tape per std spec sec 8-32.3(2A) prior to pouring concrete.

Ref Std Spec Sec 8-32

City of Seattle

NOT TO SCALE

Strain Pole Foundation Schedule & Notes (Type T, V, X & Z)

NOTES:
1. FOR POLE DIAMETER GREATER THAN 9 1/2" BUT NOT MORE THAN 10' 0D, 
   A 10" COLLAR SHALL BE USED & THE FLUTES ON THE TOP OF THE 
   COLLAR MAY HAVE TO BE GROUNDED OFF TO ALLOW A SNUG FIT AGAINST 
   THE POLE.
2. FOR POLE DIAMETER GREATER THAN 10' BUT NOT MORE THAN 12 1/2' 0D, 
   A 12" COLLAR SHALL BE USED.
3. FOR POLE DIAMETER IN EXCESS OF 12 1/2" BUT NOT MORE THAN 13' 0D, 
   THE COLLAR SHALL NOT BE USED. SOME GRINDING MAY BE REQUIRED TO 
   ALLOW THE TWO PIECE CAST BASE TO FIT SNUGLY AROUND THE POLE.
4. BASE SHALL BE EMBEDDED 1/2 AT LOW POINT OF SIDEWALK GRADE.
5. ONLY FOR USE IN PIONEER SQUARE, WHEN INDICATED IN THE CONTRACT, 
   OR WITH APPROVAL FROM THE ENGINEER.

REFER TO STANDARD 
PLAN ON 5416

<table>
<thead>
<tr>
<th>POLE TYPE</th>
<th>G</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>61/2&quot;</td>
<td>9&quot;</td>
</tr>
<tr>
<td>V</td>
<td>61/2&quot;</td>
<td>9&quot;</td>
</tr>
<tr>
<td>X</td>
<td>7&quot;</td>
<td>10&quot;</td>
</tr>
<tr>
<td>Z</td>
<td>111/2&quot;</td>
<td>111/2&quot;</td>
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</tbody>
</table>

POLE MOUNTING & GROUT DETAIL

CHIEF SEATTLE BASE (CSB)

ANCHOR BOLT 
3 THREAD PROJECTION ABOVE NUT 
6 ACCESS DOOR OF CHIEF SEATTLE BASE

COLD JOINT FOR TEMP 3'-0"X3'-0" SQ 
BLOCKOUT

TOP OF FOUNDATION

INSTALL CONDUIT PER DRAWINGS

GROUT

ANCHOR BOLTS PER PLAN 
EACH BOLT SHALL HAVE 2 NUTS, 
2 FLAT WASHERS AND 1 LOCK WASHER

INSTALL 3/4" PVC DRAIN TUBE ON 
THE LOW SIDE TO A ROCK POCKET OUTSIDE FOUNDATION

POLE SHAFT
ANCHOR BOLT (TYP)
POLE
SKIRT
7 1/4" R
BOLT CIRCLE
18" R

GROOVE FOR DRAINAGE

PLAN

A

B

GROUT
COLD JOINT FOR 3"X3" SQ BLOCKOUT
TOP OF FOUNDATION
CONDUIT PER DRAWINGS (TYP)
ANCHOR BOLT (TYP) 1" 1/2" X 36" X 4"
GALVANIZED FULL LENGTH ASTM A307 OR
ASTM A576 WITH 12" THREADS ON TOP (TYP)
CLASS 5 (1 1/2"
CONCRETE

VIEW A-A

TYPE A

BOLT PATTERN MUST BE
DIAMOND SHAPE TO CURB.

NOTES:
1. FOR TYPE "A" FOUNDATION ALIGN THE CHIEF SEATTLE BASE ACCESS
   COVER ON THE SAME SIDE WITH THE POLE HANDBOKE, AND CONDUCTS.
2. INSTALL UFER GROUND IN FOUNDATION (SEE STD PLAN NO 524a)
3. ONLY FOR USE IN PIONEER SQUARE, WHEN INDICATED IN THE CONTRACT,
   OR WITH APPROVAL FROM THE ENGINEER.

PLAN

GROUT
SIDEWALK
COLD JOINT FOR 3"X3" SQ BLOCKOUT
3/4" DRAIN TUBE TO 0.5 SF GRAVEL POCKET
TOP OF FOUNDATION
CONDUIT PER DRAWINGS (TYP)
ANCHOR BOLT (TYP)
3/4" 1/2" X 36" X 4"
GALVANIZED FULL LENGTH ASTM A307 OR
ASTM A576 WITH 12" THREADS ON TOP (TYP)
CLASS 5 (1 1/2"
CONCRETE

VIEW B-B

TYPE B

TO BE USED FOR CONCRETE FILLED POLE,
BOLTS ARE PARALLEL TO CURB.
NOTES:
1. BOLT CIRCLE: 11½" TYP
2. SEE STD PLAN NO 553A FOR POLE MOUNTING AND GROUT DETAIL
3. ANCHOR BOLTS SHALL BE HOT DIP GALVANIZED (ASTM A153) FULL LENGTH AND FABRICATED FROM ASTM F1554 OR A576 WITH 12" THREADS ON TOP
4. INSTALL UFER GROUND IN FOUNDATION (SEE STD PLAN NO 524A)

REF STD SPEC SEC 8-32

STREET LIGHT POLE FOUNDATIONS
NOTES:
1. THE COVER SHALL HAVE 3/4" TO 3/8" CLEARANCE ON EACH EDGE WITHIN THE FRAME AFTER GALVANIZING.
2. THE GROUND ROD SHALL EXTEND 4" ABOVE THE BOTTOM OF THE HANDHOLE OR MINERAL AGGREGATE.
3. TYPE 1, 2, 3, 5 & 6 HANDHOLE COVERS SHALL HAVE "GC" AND/OR "SL" ON THEM, AS APPROPRIATE.
4. TYPE 4 HANDHOLE SHALL BE INSTALLED IN ROADWAYS, PARKING LOTS, ETC.
5. FOR PAVEMENT DEPTH GREATER THAN 7" USE FRAME EXTENSIONS (SEE STD PLAN NO 231) TO BRING THE COVER UP TO THE LEVEL OF THE FINISHED PAVEMENT WITHOUT EMBEDDING THE BOTTOM FLANGE OF THE CASTING IN THE PAVEMENT.
6. A 4' LENGTH OF #6 THICK OR THIN COPPER WIRE SHALL BE SECURED FROM THE HANDHOLE COVER TO THE FRAME WITH A 4'-0" LENGTH FROM FRAME THAT CAN BE HOOKED UP TO A GROUND ROD.
7. ALL HANDHOLE COVERS AND FRAMES SHALL HAVE A NON-SKID SURFACE (SEE STD SPEC SEC 9-34.6)
8. ALL HANDHOLES SHALL HAVE A LOAD RATING OF H20.
TYPE 6 MANHOLE

GALV PULLING IRON, 1 EACH SIDE
(4) 4½" KNOCKOUT, ALL SIDES
KNOCKOUT ALL SIDES
(SEE KNOCKOUT DETAIL)

1½" LIFT HOLES, 1 EACH SIDE
GALV "C" CHANNEL, 2' LONG, 1 EACH SIDE

SOLID STEEL COVER, GALV W/LOCKING LATCH
RECESSED LIFT HANDLE

6" MIN. MINERAL AGGREGATE TYPE 9

NOTES:
1. ALL MANHOLES SHALL HAVE A H2O LOAD RATING.

GROUND ROD HANDHOLE (GRHH)

CONCRETE COVER WITH "GROUND ROD" CAT IN COVER

8" ROUND

4" DEPTH MINERAL AGGREGATE TYPE 9

GROUND ROD
NOTES:
1. POLE AND MAST ARM DESIGN SHALL CONFORM TO "AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" (CURRENT EDITION)
**POLE FOUNDATION NOTES**

1. CONCRETE STRENGTH SHALL BE CLASS 4000 AIR ENTRAINED.
3. BOTTOM ANCHOR PLATE: ASTM A36, HOT DIP GALVANIZED.
4. ALL REINFORCING BARS SHALL BE DEFORMED BILLET STEEL CONFORMING TO ASTM CLASS A615, GRADE 60.
5. ANCHOR BOLTS SHALL BE HOT DIP GALVANIZED ASTM A153 INCLUDING NUTS & WASHERS (FULL LENGTH) WITH A MINIMUM OF 18" OF THREADS ON TOP & 12" ON BOTTOM.
6. TAPE THE TOP OF ANCHOR BOLTS WITH CORROSION PROTECTION TAPE PER STD SPEC SEC 8-32.3(2A) PRIOR TO POURING CONCRETE.
7. SEE STD PLAN NO 541a FOR FOUNDATION DETAILS.

**FOUNDATION SCHEDULE**

<table>
<thead>
<tr>
<th>MAST ARM LENGTH</th>
<th>FOUNDATION DEPTH (LATERAL BEARING)</th>
<th>ANCHOR BOLTS (FY=55 KSI MIN.)</th>
<th>VERTICAL REINFORCING</th>
<th>ANCHOR PLATE DIMENSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>150#/SF/FT</td>
<td>100#/SF/FT</td>
<td>PROJECTION</td>
<td>BOLT CIRCLE 3/4A</td>
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<tr>
<td>15'-0&quot; TO 30'-0&quot;</td>
<td>7'-6&quot;</td>
<td>8'-0&quot;</td>
<td>7½&quot;</td>
<td>1¾&quot; X 60&quot;</td>
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<tr>
<td>31'-0&quot; TO 40'-0&quot;</td>
<td>8'-6&quot;</td>
<td>9'-6&quot;</td>
<td>9&quot;</td>
<td>1¾&quot; X 72&quot;</td>
</tr>
<tr>
<td>41'-0&quot; TO 45'-0&quot;</td>
<td>8'-6&quot;</td>
<td>9'-6&quot;</td>
<td>9&quot;</td>
<td>1¾&quot; X 72&quot;</td>
</tr>
<tr>
<td>46'-0&quot; TO 60'-0&quot;</td>
<td>10'-6&quot;</td>
<td>12'-6&quot;</td>
<td>10&quot;</td>
<td>20&quot;</td>
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</tbody>
</table>

**REF STD SPEC SEC 8-32**

City of Seattle

NOT TO SCALE

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

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

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

BRACKET ARM FLANGE
PLATE ON POLE

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

REF STD SPEC SEC 8-32

NOTES:
1. ALL OUTLETS SHALL BE PLUGGED WITH THREADED INSERT PLUGS DURING SHIPMENT TO PREVENT DAMAGE TO PLUGS.
2. REMOVE BURRS AND SHARP EDGES TO PREVENT DAMAGE TO ELECTRICAL CABLE.
3. SPLIT COUPLING SHALL EXTEND INTO THE POLE 1/4" MAX AS SHOWN.

HOSPITAL GRADE GFCI OUTLET (20 AMP RATED)
WEATHERPROOF GASKET
WEATHERPROOF COVER WHILE-IN-USE APPLICATIONS, NEMA JR RATED TYPE
### Pole Schedule

<table>
<thead>
<tr>
<th>POLE TYPE</th>
<th>LOAD MOMENT (kip-ft)</th>
<th>GROUND LINE Dia &quot;A&quot;</th>
<th>POLE BASE PLATE SIZE</th>
<th>BOLT CIRCLE Dia &quot;B&quot;</th>
<th>BOLT HOLE</th>
<th>ANCHOR BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>51</td>
<td>12&quot;</td>
<td>1¾&quot;X18&quot;X18&quot;</td>
<td>1¾&quot;X23&quot;X23&quot;</td>
<td>18&quot;</td>
<td>2½&quot;DIA X 72&quot;</td>
</tr>
<tr>
<td>X</td>
<td>93</td>
<td>14&quot;</td>
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<td>15&quot;</td>
<td>--</td>
<td>2¾&quot;X23&quot;X23&quot;</td>
<td>--</td>
<td>2½&quot;DIA X 72&quot;</td>
</tr>
</tbody>
</table>

### Notes:
1. The yield moment shall be 2X the dead load moment. The ultimate plastic moment shall be 2.5X the dead load moment.
2. Pole shaft and reinforcing sleeve: ASTM A572 Grade 50, 60 or 65 (Fy=50, 60 or 65 ksi respectively) or ASTM A365 Grade A or B (Fy=55 or 60 ksi respectively).
3. Base plate and handhole reinforcing rim: ASTM A36 or ASTM A572 Grade 42. Base plate fy=20.65 pole shaft Fy. The base plate thickness may be reduced by ¼" if ASTM A572 Grade 42 steel is used.
4. Reinforcing sleeve shall be fabricated from the same material and yield strength as the pole shaft.
5. Pole shafts shall have no more than two longitudinal welds in each ply.
6. Minimum shaft wall thickness of each ply shall be 0.239" (3 gauge). Pole shall have a maximum of two plies not including the ¼" reinforcing sleeve.
7. Maximum silicon content in steel shall be 0.04%. See Std Spec Section 9-33.1(3) for general galvanizing requirements.
8. Pole diameter for 12 or more sided poles shall be measured from the point to point dimension.
9. Poles shall meet deflection criteria stated in Std Spec Section 9-33.2(2) with the dead load applied at 25' above ground line.

---

REF STD SPEC SEC 8-32, 9-33

City of Seattle

NOT TO SCALE

COMBINED USE METRO

STRAIN POLE DETAILS

(TYPE V, X, Z POLES)
NOTES:
1. THE DEAD LOAD MOMENT AT THE GROUNDLINE SHALL BE 40 KIP-FT. THE YIELD MOMENT SHALL BE 2X DEAD LOAD MOMENT.
2. POLE STRENGTH SHALL MEET REQUIREMENTS OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (CURRENT EDITION).
3. POLE SHAFT: ASTM A572 GRADE 50, 60 OR 65 (Fy=50, 60 OR 65 KSI RESPECTIVELY), OR ASTM A595 GRADE A OR B (Fy=55, 60 OR 65 KSI RESPECTIVELY)
4. BASE PLATE AND HANDBOHE REINFORCING RIM: ASTM A36 OR ASTM A572 GRADE 42. BASE PLATE Fx=0.65 POLE SHAFT Fy THE BASE PLATE THICKNESS MAY BE REDUCED BY 1/8" IF ASTM A572 GRADE 42 STEEL IS USED.
5. POLE SHAFTS SHALL HAVE NO MORE THAN TWO LONGITUDINAL WELDS IN EACH PLY.
6. MINIMUM SHANK WALL THICKNESS OF EACH PLY SHALL BE 0.239" (3 GAUGE). POLE SHALL HAVE A MAXIMUM OF TWO PLYS.
7. MAXIMUM SILICON CONTENT IN STEEL SHALL BE 0.04%. SEE STD SPEC SECTION 9-33.1(3) FOR GENERAL GALVANIZING REQUIREMENTS.
8. POLE DIAMETER FOR 12 OR MORE SIDED POLES SHALL BE MEASURED FROM THE POINT TO POINT DIMENSION.
9. POLES SHALL MEET DEFLECTION CRITERIA STATED IN STD SPEC SECTION 9-33.2(2) WITH THE DEAD LOAD APPLIED AT 27" ABOVE GROUND LINE.
10. THE POLES SHALL BE COMPACT AND MUST MEET THE REQUIREMENTS IN AASHTO SECTION 4, TABLE 1.4 "B(1).

ALTERNATE POLE BASE DETAIL

POLE BASE DETAIL
NOTES:
1. ON POLES WITH EXISTING CONDUITS, NEW CONDUITS SHALL BE INSTALLED IN ACCORDANCE WITH THIS STANDARD PLAN.
2. RIGID STEEL CONDUIT SHALL BE GROUNDED JUST BELOW COUPLING, APPROXIMATELY 8'-0" TO 10'-0" ABOVE GROUND, AS SHOWN.
3. WHEN 2 OR MORE RIGID STEEL CONDUITS ARE INSTALLED ON ONE POLE, ONE CONDUIT SHALL BE GROUNDED AS SHOWN. THE CONDUIT SUPPORTS & STRAPS SHALL SERVE AS A BONDING DEVICE BETWEEN THE STEEL CONDUITS.
4. THE GROUND WIRE SHALL BE ONE CONTINUOUS LENGTH. INSERT THE GROUND WIRE FORM THE BOTTOM OF THE GROUND CLAMP & BEND OVER THE CLAMP BEFORE TIGHTENING.
5. PLACE GROUND WIRE IN QUADRANT BETWEEN POLE FACE & SECONDARY NEUTRAL.
6. ALL STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123.
7. CONDUIT CLAMP SPACING SHALL BE PER THE NEC WITH A MINIMUM OF TWO HOLE CLAMP PER 10'-0" LENGTH OF CONDUIT.
8. POWER AND SIGNAL CONDUCTORS SHALL NOT BE PLACED IN THE SAME CONDUIT.

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

City of Seattle
WOOD POLE INSTALLATION

METAL POLE INSTALLATION

BULL RING INSTALLATION

NOTES:
1. ALL STEEL HARDWARE TO BE HOT DIP GALVANIZED OR STAINLESS STEEL UNLESS OTHERWISE STIPULATED IN THE DRAWINGS.
2. SPAN WIRE SHALL BE ALUMINUM COATED STEEL.
3. SPREAD THIMBLE TO FIT THE BAIL OF THE AUTOMATIC DEAD END.
STREET DESIGNATION SIGN
WOOD SIGNS ONLY

SPAN WIRE MOUNTED
WOOD SIGN

NOTES
1. ALL HARDWARE SHALL BE STAINLESS STEEL. OTHER HARDWARE SHALL BE HOT DIP GALVANIZED.
2. NEOPRENE GASKETS SHALL NOT BE USED FOR SPAN WIRE OR AERIAL CONNECTIONS.

TONGUE CLEVIS

90° TWISTED STEEL EXTENSION LINK

TONGUE CLEVIS

OVERHEAD WOOD SIGNS
SPANWIRE MOUNTED
SIGN MOUNTING ON MAST ARM

NOTES:
1. EXCEPT AS NOTED OTHERWISE, ALL HARDWARE SHALL BE STAINLESS STEEL.
2. MOUNTING OF TRAFFIC SIGNS SHALL BE AS FOLLOWS: ON METAL POLES THINNER THAN 7 GAUGE, USE 3/8" STAINLESS STEEL RIVNUTS ON METAL POLES 7 GAUGE OR THICKER, FOR 3/8" BOLT (STAINLESS STEEL RIVNUT OPTIONAL) ON POLES FILLED WITH OR MADE FROM CONCRETE, USE 3/8"X21/2"MIN STUD BOLT ANCHORS WITH HEX NUT.
3. FOR SIGN FEATURE, CONTACT TRAFFIC ENGINEER.

TEMPORARY SIGN MOUNTING ON METAL POLE

REF STD SPEC SEC 8-21

City of Seattle
NOT TO SCALE
SIGN INSTALLATION
(NON-SPANWIRE MOUNTING)

INSTALL STREET DESIGNATION SIGN
SEE SDS MAST ARM BRACKET, STD
PLAN NO 612.

STREET NAME
SIGN, BLADES
SEE STD PLAN
NO. 615

PEDESTRIAN
SIGNAL

11'-0"
8'-0"

REF STD SPEC SEC 8-21

City of Seattle
NOT TO SCALE
STANDARD SIGN INSTALLATION
STEEL POLES

NOTE

ALL HARDWARE SHALL BE STAINLESS STEEL

C3X2.1 EXTRUDED Al

SDS BRACKET FOR STEEL MAST ARM POLES
NOTES:
1. WHEN INSTALLING BRACKET ONTO WOOD POLE DRILL OUT THE TOP & BOTTOM TWO HOLE TO 9/16" FOR 1/2"DIA X 2 1/2"LONG BOLT WITH 1/2"D x 1" O.D FLAT WASHER DRILL AND TAP POLE AS FOLLOWS: FOR STEEL POLES LESS THAN SEVEN (7) GAUGE USE 3/8" STAINLESS STEEL RIVNUTS. ON ALUMINUM POLES USE 3/8" ALUMINUM RIVNUTS. RIVNUTS OPTIONAL ON HEAVIER GAUGE STEEL POLES.
2. WHEN INSTALLING SIGN BOARD ONTO BRACKET, USE SIX (6) 3/8"DIA X 11/2"LONG BOLT WITH FLAT WASHER, LOCK WASHER & NUT
3. BRACKET TO BE STEEL, PAINTED INTERNATIONAL GREEN
4. ALL BOLTS, NUTS AND STEEL WASHERS TO BE STAINLESS STEEL, EXCEPT FOR ALUMINUM RIVNUT ON ALUMINUM POLE.
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 RV NUTS ON ALUMINUM POLES.

INSTALL SIGN MOUNTING TO POLE WITH BANDS AS SHOWN ON STD PLAN NO 601C

DETAIL A
ALUMINUM MOUNTING BRACKET
NOTES:
1. ON POLES FILLED WITH OR MADE FROM CONCRETE USE 5/16" X 2½" MIN STUD BOLT ANCHORS WITH HEX NUT
2. FOR SIGNS OVER 2'-6" X 3'-6" USE STD PLAN NO 612. MOUNT SIGNS VERTICALLY ON STRAIN POLE WITH THREE (3) FASTENERS MIN
3. FOR DARK COLORED POLES PAINT BAND TO MATCH POLE
4. ALL HARDWARE TO BE STAINLESS STEEL.

REF STD SPEC SEC 8-21

City of Seattle  NOT TO SCALE  TRAFFIC SIGN MOUNTING ON METAL POLES

POST ANCHOR INSTALLATIONS

NOTES:
1. 5/16"x31/4" GALVANIZED OR PLATED LAG SCREW &
   3/8"ID X 1"OD NYLON WASHER.
2. CONTACT SEATTLE DEPARTMENT OF TRANSPORTATION
   (684-5087) FOR DETAILS REGARDING SIGN MESSAGE
   AND FOUNDATION.

REF STD SPEC SEC 8-21
NOTE:
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.

3/8" DRIVE RIVET (2 PER SIGN)

1'-0" MIN

3'-0"

DELETE CLEARANCE FROM GROUND TO THE LOWEST SIGN PER ASSEMBLIES

CURB FACE
CW OR GROUND SURFACE

TS-10
(SEE STD PLAN 621b FOR POST ANCHOR DETAILS)

4'-0" MIN

3'-0"

CURB FACE
CW OR GROUND SURFACE

TS-5
(SEE STD PLAN 621b FOR POST ANCHOR DETAILS)

REF STD SPEC SEC 8-21

SURFACE MOUNT

(1) ¾" GALV ANGLE BOLT
IN (2) ADJACENT HOLES

STUD TYPE EXPANSION
ANCHOR BOLT, STAINLESS STEEL
¾"X3 3/4" IN ¾" HOLES
(1 EACH CORNER)

CONC WALK

NOTE: FOR UNLEVEL SIDEWALKS INSERT
WASHERS AS SPACERS BETWEEN PLATE
AND SIDEWALK. GROUT ALL SPACE AS
SHOWN. IF BOLT CANNOT PENETRATE
SIDEWALK AT LEAST 2", CONTACT THE ENGINEER.

LIGHT DUTY ANCHOR

3 HOLE
OVERLAP (TYP)

30"

3" 1/2"

12 GA

HEAVY DUTY ANCHOR

3 HOLE
OVERLAP

3"

21"

7 GA

NON-SHRINK
GROUT
BACKFILL

CW

6" MORTAR
ANCHOR

TS-5, TS-8, TS-10, TS-12
PER DRAWINGS

(1) ¾" GALV ANGLE BOLT
IN (2) ADJACENT HOLES

30"
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 RELLOCATION: 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
"STREET" SIGN BLADE IN TOP LOCATION

"AVENUE" SIGN BLADE IN BOTTOM LOCATION

#6-24X1/2" PAN HEAD MACHINE SCREW & NUT (STAINLESS STEEL)

1/4"X1/2" SET SCREW

2"ID NIPPLE

21/2" REDUCER

PEDESTAL AND FOUNDATION (SEE STD PLAN NO 524)

REF STD SPEC SEC 8-21

City of Seattle
NOT TO SCALE
STREET NAME SIGN
PEDESTAL INSTALLATION

NOTES:
1. CAP SHALL BE MADE OF THE SAME MATERIAL AS THE SURROUNDING PAVED SURFACE AND SHALL BE MOUNDED FOR DRAINAGE AWAY FROM POST.
2. BLOCKOUTS SHALL BE PROVIDED FOR POST LOCATIONS WHERE NEW CONCRETE PAVEMENT (SIDEWALK, ROADWAY, ETC) IS BEING INSTALLED.
3. WHERE POST IS BEING INSTALLED IN EXISTING PAVED AREAS, HOLE IN PAVED SURFACE SHALL NOT EXCEED 1'-0" NOMINAL DIAMETER.
QWIK PUNCH TELESPAR STANDARD SIGN POST
(TS–5, TS–8, TS–10, TS–12)

NOTES:
1. SEE STD PLAN NO 620
NOTES:
1. IN THE CASE WHERE ALL APPROACHES OF THE INTERSECTION ARE PRIMARILY AT THE SAME LEVEL WITH RESPECT TO GRADES (LESS THAN 3%) THE LOWER SET OF SIGNS SHALL FACE THE HIGHER TRAFFIC VOLUME STREET.
2. IN THE CASE WHERE AN APPROACH HAS A GRADE LARGER THAN 3% THE HIGHER SIGNS WILL FACE THE STEEPEST APPROACH TO ALLOW BETTER SIGHT DISTANCE.
3. PLACE A MINIMUM OF THREE (3) REFLECTORS ON EACH AND EVERY SIDE OF POST OR PLACE THREE (3) HIGH INTENSITY REFLCTORIZED STRIPS COMPLETELY AROUND POST.

REF STD SPEC SEC 8-21

City of Seattle

OBJECT MARKER INSTALLATION IN TRAFFIC CIRCLE

NOT TO SCALE
GALV STEEL CAP – SEE STD PLAN NO 627

SIGN INSTALLATION:
DRILL (2) ¾" HOLES
USE SELF TAPPING SCREW W/ 1" D.O.D. NYLON WASHER

2" NOM DIA ASTM A 53 SCHED 40 GALV STD STEEL PIPE

ALUMINUM BASE CANOPY
SEE STD PLAN NO 627

NON-SHRINK CEMENT GROUT

4 3/8" DIA CONC EXPANSION ANCHORS
DRILL 1/2" HOLES IN CW (4 PLACES)

FACE OF CONC CURB

3'-0"

3'-4"

8" +

0.5" +

1/2" TYP

REF STD SPEC SEC 8-21

City of Seattle

NOT TO SCALE

SURFACE MOUNT METER POST INSTALLATION DETAIL
NOTES:
1. POST TO BE PLUMB
2. NOTIFY SEATTLE DEPARTMENT OF TRANSPORTATION (684-5087) FOR REMOVAL OF EXISTING POSTS
3. WHEN NEW POSTS HAVE BEEN SET, NOTIFY SSO TO REINSTALL METERS
4. A 2 1/2" NOM DIA ASTM A 53 GALV STD STEEL PIPE SHALL BE FITTED OVER THE 2" PIPE FULL LENGTH. ENDS OF SLEEVE PIPE TO BE GROUND SMOOTH AND FREE OF BURRS

MOUND FOR DRAINAGE
EXISTING SURFACE
JET-SET CEMENT (ONE SACK)
FLATTEN PIPE

TOP END OF PIPE TO BE GROUND SMOOTH AND FREE OF BURRS

WEEP HOLE 1/2" (TYPE 2 PLACES, PIPE & SLEEVE)

2" NOM DIA ASTM A 53 SCHED 40 GALV STD STEEL PIPE

2 1/16" NOM DIA ASTM A 53 SCHED 40 GALV STD STEEL PIPE SLEEVE

REV DATE: 2003

REF STD SPEC SEC 8-21

City of Seattle  NOT TO SCALE  DIRECT BURIAL METER POST INSTALLATION DETAIL

NOTES:
1. POST ANCHOR RIVETS SHALL BE 11/16" ABOVE GROUND LEVEL
2. 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 METER EXCEPT WHERE NOTED OTHERWISE ON THIS STD PLAN
5. WHERE SURFACE MOUNTED BUS ZONE SIGNS ARE REQUIRED ON SLOPED SIDEWALK, THE CONTRACTOR SHALL PLUMB 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" INCH EMBEDMENT THROUGH THE GROUT INTO THE EXISTING CONCRETE

DIRECT BURIAL INSTALLATION

SIGN LOCATION DETAIL

R-404 (TS) SIGN TOWARD STREET ON POST
R-404 (AS) SIGN AWAY FROM STREET ON POST

METRO BUS ZONE SIGN INSTALLATION

a = 5/8" ± 1/8"
b = 1/8" ± 1/16"

PLASTIC

4" ± 1/8"

LANE MARKER—TYPE 1

SECTION B–B

LANE MARKER—TYPE 2A
4" PRISMATIC REFLECTIVE MARKER

SECTION C–C

LANE MARKER—TYPE 2B

4.7 ±

REF STD SPEC SEC 9-21
TYPICAL TYPE 1 TRAFFIC BUTTON (4") INSTALLATION DETAILS
TRAFFIC BUTTONS SHALL BE INSTALLED TO CONFORM WITH TYPE OF PAVEMENT MARKING
(DENOTED AS L-1, L-4, L-5, ETC) AND ARE TO BE ARRANGED AND SPACED AS SHOWN
ON THIS DRAWING. COLOR OF TRAFFIC BUTTONS IS TO MATCH COLOR OR PAVEMENT
MARKINGS. TRAFFIC BUTTONS SHALL BE INSTALLED PRIOR TO ANY PAINT LINE INSTALLATION,
EXISTING CHANNELIZATION IN CONFLICT WITH NEW OR REVISED CHANNELIZATION SHALL BE
REMOVED (SEE STD SPEC SEC 2-02.3(3))
TYPICAL LEFT TURN CHANNELIZATION
NUMBER OF LEGEND SETS REQUIRED BASED ON THE LENGTH OF APPROACH LINES

<table>
<thead>
<tr>
<th>APPROACH LINE LENGTH</th>
<th>LEGEND SETS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LESS THAN 50 FEET</td>
<td>1 SET AT X-WALK END OF POCKET</td>
</tr>
<tr>
<td>50 FEET - 120 FEET</td>
<td>2 SETS</td>
</tr>
<tr>
<td>125 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 PLACEMENT
LEGENDS IN ADJACENT LANES SHALL BE ALIGNED AS SHOWN

LEGEND COMBINATIONS
OBLIQUE LEFT & 90° LEFT LEGENDS AND OBLIQUE RIGHT & 90° RIGHT LEGENDS MAY BE COMBINED AS SHOWN
TYPICAL TRANSVERSE LINE CROSSWALK
(SHOWING CURB RAMPS & STOP LINE PLACEMENT)

TYPICAL "LADDER STYLE" PEDESTRIAN CROSSWALK
*WHERE TRAFFIC LANE LINES ARE NOT USED, LADDER BARS SHALL BE 3'-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. SEE STANDARD PLAN NO 422a.
3. WHERE EXISTING TRAFFIC LOOP LOCATIONS ARE BETWEEN 4'-0" AND 2'-0" FROM THE EDGE OF CROSSWALK, STOP LINE MAY BE PLACED UP TO 2'-0" FROM THE CROSSWALK.
4. EXACT LOCATION OF CROSSWALK AND STOP LINES SHALL BE APPROVED BY SDOT.
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 SHALL BE REMOVED BY GRINDING.
L-10
PASSENGER LOAD ZONE, ETC
(WHITE)

L-11
TOW-AWAY ZONE
(RED)

L-12
COMMERCIAL LOAD, TRUCK LOAD & UNLOAD ZONE, ETC
(YELLOW)

L-13
BUS ZONE (NON PARKING METERED AREAS)
BUS ZONES ARE PAINTED ON TOP & FACE OF CURB

NOTES:
1. TOTAL LENGTH OF CURB MARKINGS SHALL BE AS SHOWN ON DRAWINGS
2. PAINT SHALL BE APPLIED NEATLY ON THE CURB AND ALL PAINT SMEARS ON ADJACENT SURFACES SHALL BE REMOVED

REF STD SPEC SEC 8-22

City of Seattle | NOT TO SCALE | CURB SPACE MARKING DETAILS
NOTES:
1. "1" = THERMOPLASTIC
2. L-28AT INCLUDE BICYCLE SYMBOL AND ARROW

REF STD SPEC SEC 8-22
City of Seattle  NOT TO SCALE  BICYCLIST & PEDESTRIAN SYMBOLS

3" TO 12" PER DRAWINGS
OR AS REQUIRED BY SDOT (TYP)

DIRECTION OF TRAVEL

B = BASE WIDTH (12" OR 24" TYPICALLY)
H = HEIGHT (18" OR 36" TYPICALLY)

(1.5 x B) = H

YIELD LINE
NOTES:
1. ALL ROUNDED CORNERS SHALL HAVE A 1" RADIUS

REF STD SPEC SEC 8-22

City of Seattle
NOT TO SCALE
BICYCLE SYMBOL

NOTES:
1. BASE OF SUPPORT WALL TO BE BEARING ON COMPACTED SUITABLE MATERIAL
2. BACK FORM FOR SUPPORT WALL MAY BE OMITTED AND CONCRETE PLACED AGAINST NATIVE EARTH WHEN GROUND CONDITIONS PERMIT. CLEARANCE TO REINF STEEL IN BACK FACE SHALL BE 21/2"
3. WHEN CONSTRUCTION OF ALLEY PAVEMENT IS NOT PLACED INTEGRAL WITH SUPPORT WALL, SHEAR KEYS SHALL BE INSTALLED 1"-6" ON CENTERS
4. CONCRETE FOR SUPPORT WALL SHALL BE CLASS 4000
5. REINFORCING STEEL ASTM A615 GR 60
6. VEHICULAR & PEDESTRIAN RAILING PER RIGHT OF WAY IMPROVEMENT MANUAL

REF STD SPEC SEC 5-05

City of Seattle  NOT TO SCALE  SUPPORT WALL

NOTES:
1. MATCH WALL THROUGH JOINTS WITH PAVEMENT THROUGH JOINTS. DISCONTINUE HORIZONTAL REINFORCEMENT AT JOINTS AND MAINTAIN 1 1/2" CLEAR TO ALL REINFORCING AT JOINTS
2. CONC CLASS 4000 FOR CURB WALL
3. MAX HEIGHT 4"-0" (MIN PAVEMENT WIDTH IS 12"-0" FOR WALLS HIGHER THAN 3'-0"
4. WHEN CONSTRUCTION OF WALL IS NOT PLACED INTEGRAL WITH PAVEMENT, SHEAR KEY INDENTATIONS SPACED 1'-6" OC SHALL BE INSTALLED IN THE PAVEMENT SLAB
5. REINF STEEL ASTM A615 GR 60
6. ANY RAILING ON TOP OF WALL PER RIGHT OF WAY IMPROVEMENT MANUAL
7. NON-WOVEN GEOTEXTILE TO BE MODERATE SURVIVABILITY, ANY CLASS PER TABLES 1 AND 2 STD SPEC SEC 9-37
8. ALLEY THICKNESS PER STANDARD PLAN NO 403.

REF STD SPEC SEC 5-05

City of Seattle  NOT TO SCALE  CURB WALL