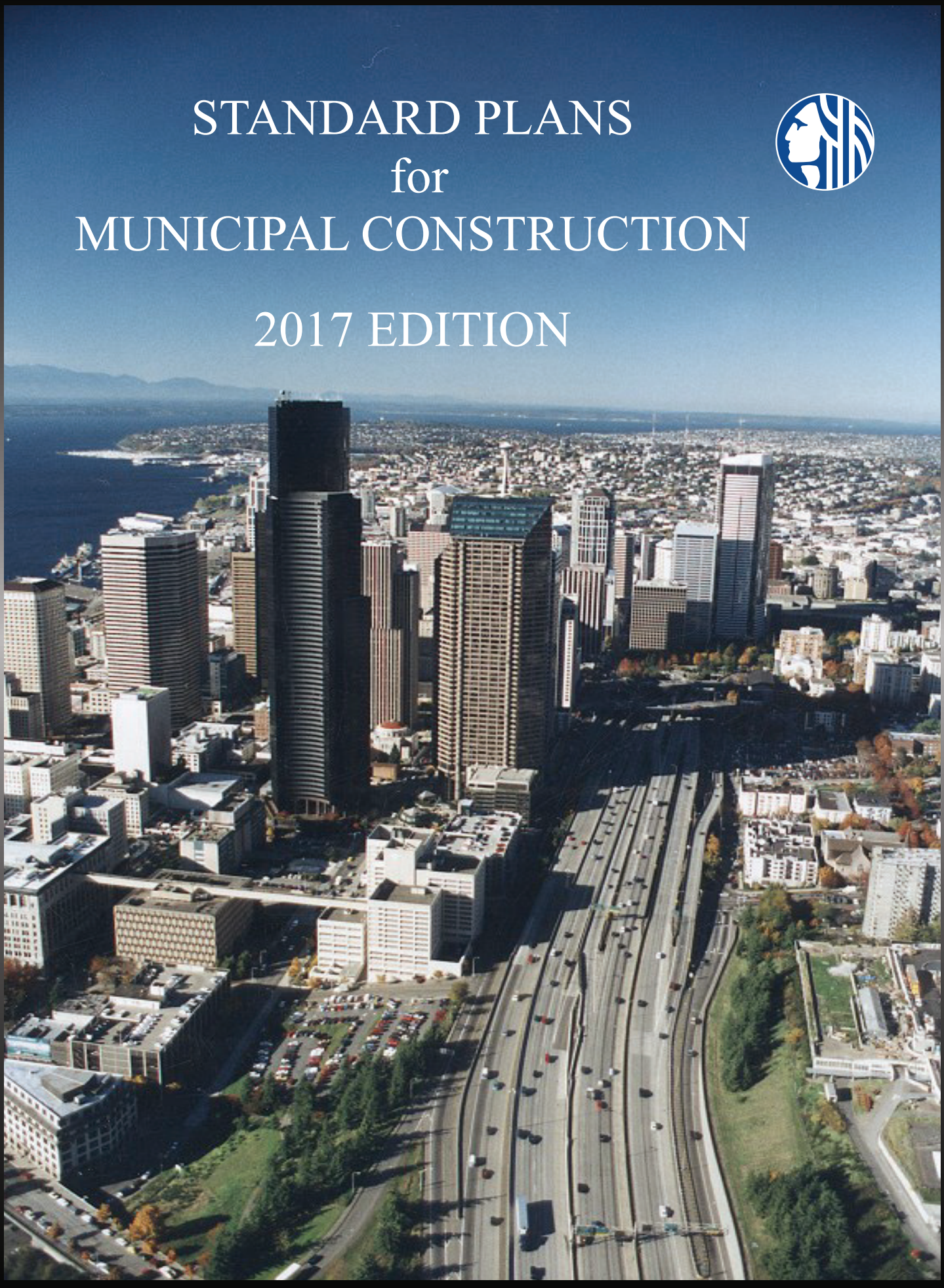
STANDARD PLANS for MUNICIPAL CONSTRUCTION

2017 EDITION



This Page Intentionally Left Blank

CITY OF SEATTLE

2017 edition

STANDARD PLANS

FOR

MUNICIPAL CONSTRUCTION

Prepared by
Seattle Public Utilities
Mami Hara, General Manager / CEO

Reviewed and Approved by

Lorelei Williams Seattle Transportation	1/17/17 Date	Tuan Tran Seattle City Light	1/30/2017 Date
Rebecca Rufin Seattle Parks and Recreation	1/26/17 Date	Jill Crary Seattle Center	1/25/17 Date

Henry Chen
Seattle Public Utilities — 1/30/17 Date

Adopted by

Nancy Locke
Finance and Administrative Services — 1-30-2017 Date

Distributed by

Seattle Public Utilities
700 – 5th Avenue
Suite 4700
Seattle, Washington 98124
206-684-5950

This Page Intentionally Left Blank

PREFACE

The 2017 Edition City of Seattle Standard Plans for Municipal Construction ("2017 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 2017 Edition City of Seattle Standard Specifications for Road, Bridge and Municipal Construction ("2017 Standard Specifications").

The 2017 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 2017 Standard Plans are designed to be used in conjunction with the 2017 Standard Specifications. Each individual 2017 Standard Plan has a reference located in the bottom left corner to the applicable 2017 Standard Specifications.

For the convenience of our users, 2017 Standard Plans that are new or have been revised from the 2014 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.

Our sincere thanks and appreciation to all the individuals who participated in the effort of producing this 2017 Edition of our Standard Plans, and to the many other City personnel who provided review and submitted comments.

In particular, thanks to the following stakeholders who 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: Nancy Locke, Aleanna Kondelis and City Contracting Staff.

Seattle Public Utilities: Adam Currie, Charles Oppelt, Andrew Behnke, Pat Lee, Vicki Marsten, Jeff Fowler, Steve Read, Steve Colony, Jason Miller, Teri Maringer-Franks, Monica Hall, Erin Walior, Liz Anderson, Aziz Alfi, Herman Wong, Fred Aigbe and Hanif Khan

Seattle Department of Transportation: Abner Gallardo, Erich Ellis, Ahmed Darrat, Mark Sliger, Scott Hart, Yuling Teo, Shane Dewald, Amy Yamabe, Lok Chan, Marvin Meischke, Mike Shaw, Joey Bullock, Ainalem Molla, Carter Danne, Brian Forsythe and James Clark

Seattle Parks and Recreation: Rebecca Rufin, R. Frank Robinson, Scott Stevens and Narinna Kay

Seattle City Light: Mike Nordin, Yaochiem Chao, Stan Eng, Jade Mott, Stephen Crume and Kelly Davidson

Seattle Center: Diane Hilmo and Eno Yliniemi

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 2017 Standard Plans may also be ordered on-line from the website listed below. Additional features on the website include; an archive of previous editions of our Standards dating back to 1910, CAD files of our Standard Plans and proposed amendments to this edition (including pdf redline markups showing what has changed).

http://www.seattle.gov/util/engineering/standardspecsplans/

Despite considerable efforts to produce a completely error-free document, some mistakes and inconsistencies seem to defy detection until after publication. If you discover errors in this document, please alert us by sending an email to the City's Construction Standards Engineer at **City_Standards_Engineer@Seattle.gov**.

If conflicts are discovered between this copy of the 2017 Standard Plans and any version of the 2017 Standard Specifications, the current edition of the 2017 Standard Specifications takes precedence.

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 Owner and the Contractor.

Randy Earlywine, P.E.
City Construction Standards Engineer
Project Services Division
Seattle Public Utilities

Dean Huber
CAD Technology Program Manager
Eng. and Tech. Services Division
Seattle Public Utilities

Tanya Treat, P.E.
Director
Eng. and Tech. Services Division
Seattle Public Utilities

This Page Intentionally Left Blank

2017 Edition City of Seattle Standard Plans for Municipal Construction

Table of Contents

For the convenience of some of our users, the Table of Contents shows revised Plans with a vertical bar as well as bold type.

200 Sewer-Drainage Appurtenances

300 Watermain Appurtenances

400 Street Paving & Appurtenances

500 Signalization-Lighting

600 Signs

700 Pavement Markings

800 Structures

REV DATE: DEC 2010

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)

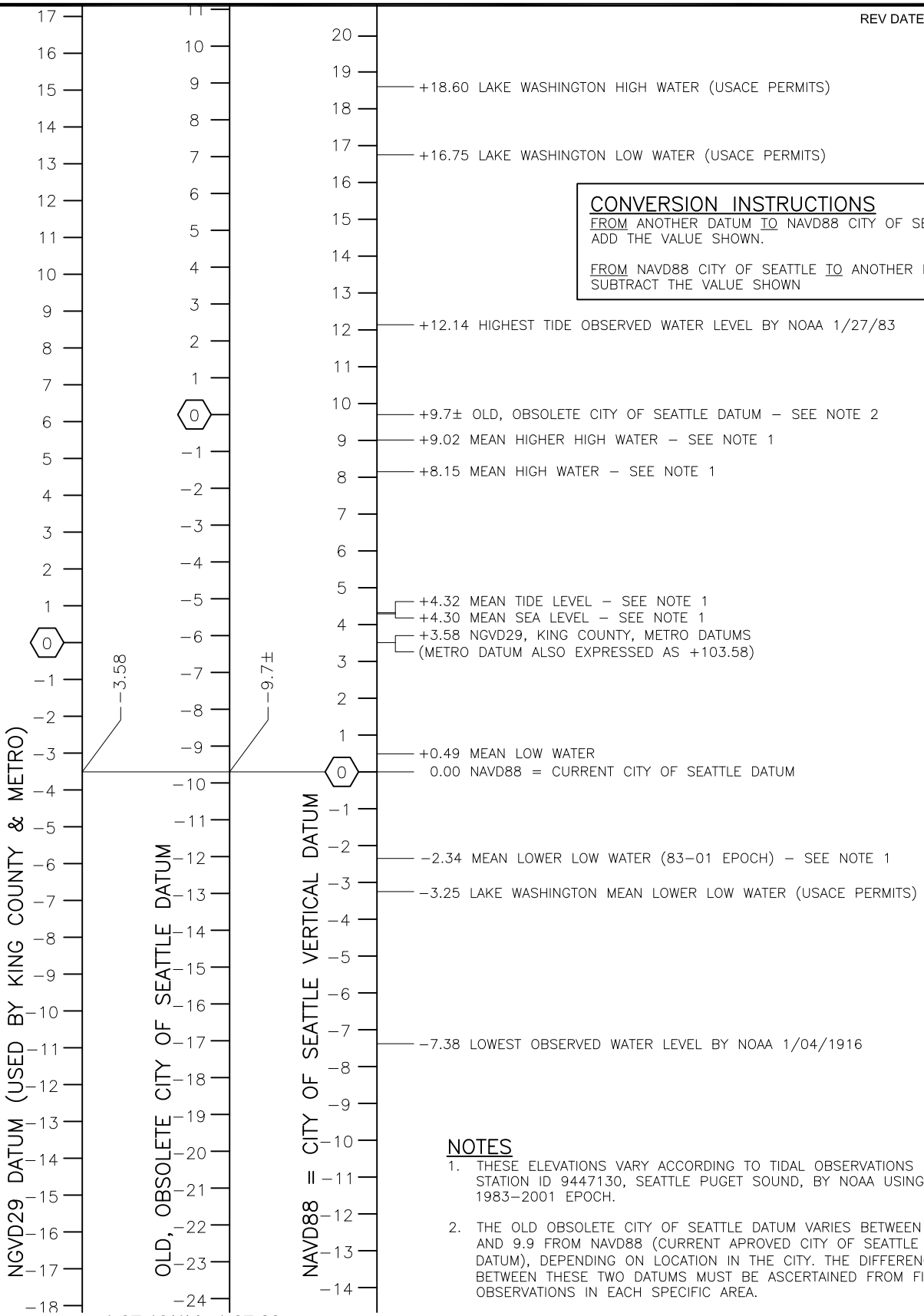
NOTES

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.

REF STD SPEC SEC 1-07.16(1)A, 1-07.28

City of Seattle	NOT TO SCALE	ELEVATIONS & DATUMS

REV DATE: JUL 2013



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

NOTES

1. THESE ELEVATIONS VARY ACCORDING TO TIDAL OBSERVATIONS FOR STATION ID 9447130, SEATTLE PUGET SOUND, BY NOAA USING 1983–2001 EPOCH.
2. THE OLD OBSOLETE CITY OF SEATTLE DATUM VARIES BETWEEN 9.2 AND 9.9 FROM NAVD88 (CURRENT APROVED 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.

REF STD SPEC SEC 1-07.16(1)A, 1-07.28

City of Seattle | NOT TO SCALE | ELEVATIONS & DATUMS

REV DATE: AUG 2013

ABAN	Abandon(ed)
ABW	Asphalt Bike Way
ACV	Automatic Control Valve
ACP	Asphalt Concrete Pavement
ADA	Americans with Disabilities Act
ADJ	Adjust
AHD	Ahead
AIC	Aerial Interconnect Cable
AL	Aluminum
AP	Angle Point
APP	Approved
APPROX	Approximate
APWA	American Public Works Association
ASPH	Asphalt
ATB	Asphalt Treated Base
AV	Air Valve
AVB	Automatic Vacuum Breaker
AVE	Avenue
AVG	Average
AW	Asphalt Walk
AWG	American Wire Gage
AWWA	American Water Works Assoc.
BAT	Backflow Assembly Tester
B&B	Ball & Burlap
BC	Bolt Circle, Back of Curb
BF	Bottom Face
BFV	Butterfly Valve
BK	Back
BLDG	Building
BLK	Block
BLKG	Blocking
BLKHD	Bulkhead
BLRD	Bollard

BLVD	Boulevard
BM	Bench Mark
BO	Blow Off
BOC	Beginning of Curb
BPD	Backflow Prevention Device
BR	Bare Root, Brick
BRG	Bearing
BRKN	Broken
BSMT	Basement
BTW	Between
BV	Ball valve
BVC	Beginning of Vertical Curve
C&G	Curb & Gutter
CAL	Caliper
CALC	Calculation
CB	Cable, Catch Basin
CBW	Concrete Bike Way
C–C	Center to Center
CC	Concrete Culvert
CD	Conduit
CDF	Controlled Density Fill
CEM	Cement
CF	Cubic Feet
CH	Chamber
CIP	Cast Iron Pipe
CL	Center Line or Class
℄	Center Line
CLF	Chain Link Fence
CLR	Clearance
CMP	Corrugated Metal Pipe
CO	Clean Out
COMP	Compression
CONC	Concrete

REF STD SPEC SEC 1-01.2

City of Seattle | NOT TO SCALE | ABBREVIATIONS

REV DATE: FEB 2016

COND	Condition
CONN	Connect/Connection
CONSTR	Construction
CONT	Continuous
CORP	Corporation
COS	City of Seattle
CPEP	Corrugated Polyethylene Pipe
CR	Cross, Curb Radius
CSB	Chief Seattle Base
CSECP	Construction Stormwater & Erosion Control Plan
CULV	Culvert
CW	Concrete Walk
CY	Cubic Yard
DB	Direct Burial Cable
DC	Direct Current
DCVA	Double Check Valve Assembly
DEPT	Department
DGV	District Gate Valve
DIA ø	Diameter
DIP or DI	Ductile Iron Pipe
DIPRA	Ductile Iron Pipe Research Assoc.
DR	Drive
DS	Downspout
DWG	Drawing
DWY	Driveway
E	East
EA	Each
ECB	Electrical Cable
ECC	Eccentric
ECD	Electrical Conduit
ED	Electrical Duct
EL/ELEV	Elevation
ELEC	Electric/Electrical

EMH	Electrical Maintenance Hole
ENCL	Enclosure
ENGR	Engineer
EOC	End of Curb
EQ	Equal
ESAL	Equivalent Single Axle Loads
ESMT	Easement
EV	Electrical Vault
EVC	End of Vertical Curb
EW	Each Way
EX	Existing
EXP	Expansion
FACB	Fire Alarm Cable
FAHH	Fire Alarm Handhole
FC	Face of Curb
FCS	Flow Control Structure
FDN	Foundation
FF	Far Face, Finished Floor
FG	Finished Grade
FIG	Figure
FIPT	Female Iron Pipe Thread
FL	Flow Line
FLG	Flange
FLR	Floor
FLT	Flat Bar
FM	Force Main
FO or FOC	Fiber Optics
FS	Far Side
FT	Feet
FTB	Fluidized Thermal Backfill
FTG	Footing
G	Gas
G REG	Gas Regulator

REF STD SPEC SEC 1-01.2

City of Seattle | NOT TO SCALE | ABBREVIATIONS

REV DATE: SEP 2013

GA	Gauge
GAL	Gallon
GALV	Galvanize/Galvanized
GAS V	Gas Valve
GFCI	Ground Fault Circuit Interrupter
GIP	Galvanized Iron Pipe
GM	Gas Meter
GND	Ground
GP	Guy Pole
GPM	Gallons Per Minute
GR	Grade
GRHH	Ground Rod Handhole
GS	Gas Service
GSI	Green Stormwater Infrastructure
GSP	Galvanized Steel Pipe
GV	Gate Valve
GVC	Gate Valve Chamber
GVL	Gravel
HB	Horizontal Bend
HBR	Hose Bib Riser
HDPE	High Density Polyethylene
HEX	Hexagon/Hexagonal
HGL	Hydraulic Grade Line
HH	Handhole
HI	High
HMA	Hot Mix Asphalt
HORIZ	Horizontal
HPG	High Pressure Gas
HPS	High Pressure Sodium
HR	Hour
HSE	House
HT	Height
HYD	Hydrant

ID	Inside Diameter/Dimension
I/D	Incentive/Disincentive
IE	Invert Elevation
IF	Inside Face
IN	Inch(es)
INL	Inlet
INT	Intersection
INV	Invert (Line)
IP(S)	Iron Pipe (Size)
IRC	Irrigation Controller
IRRG	Irrigation
IRRGV	Irrigation Valve
ISO	Isolation Coupling
JB	Junction Box
JT	Joint
K	Kips (1000 lbs)
KSI	Kips Per Square Inch
KV	Kilovolt
LAL	Limited Access Line
LB, LBS	Pound, Pounds
LF	Linear/Lineal Feet
LID	Local Improvement District
LIT	Large Inlet Top (Catch Basin)
LOC	Locate/Location
LONGIT	Longitudinal
LP	Light Pole
LS	Lump Sum
LSCAPE	Landscape, Landscaping
LT	Left
LTG	Lighting
LUM	Luminaire
MA	Mast Arm
MATL	Material

REF STD SPEC SEC 1-01.2

City of Seattle | NOT TO SCALE | ABBREVIATIONS

REV DATE: NOV 2015

MAX	Maximum
MB	Mailbox
MCV	Manual Control Valve
MDV	Manual Drain Valve
MH	Maintenance Hole
MIC	Monument in Case
MIN	Minimum
MIPT	Male Iron Pipe Thread
MISC	Miscellaneous
MJ	Mechanical Joint
ML ℳ	Monument Line
MNRL AGG	Mineral Aggregate
MOD	Modify/Modified
MON	Monument
MW	Monitor Well
N	North
NAD	North American Datum
NAVD	North American Vertical Datum
NF	Near Face
NGVD	National Geodetic Vertical Datum
NIC	Not in Contract
NO	Number
NOM	Nominal
NS	Near Side
NTS	Not To Scale
OC	On Center
OD	Outside Diameter/Dimension
OF	Outside Face
OH	Overhead
PAV	Pavement
PC	Point of Curvature
PCC	Point of Compound Curve
PCW	Pervious Concrete Walk

PDP	Perforated Drain Pipe
PE	Plain End
PED	Pedestrian
PG	Performance Grade
PH	Phase
PI	Point of Intersection
PL	Plate, Place, Polyethylene
ℙL	Property Line
POC	Point on Curve
PP	Power Pole
PPB	Pedestrian Push Button
PR	Pair
PRC	Point of Reverse Curve
PROP	Proposed
PRKG	Parking
PRV	Pressure Reducing Valve
PS	Pipe Sewer Combined
PSD	Pipe Storm Drain
PSDD	Pipe Storm Drain Detention
PSI	Pounds per Square Inch
PSIA	Pounds per Square Inch Absolute
PSIG	Pounds per Square Inch Gauge
PSS	Pipe Sewer Sanitary
PT	Point of Tangency
PVB	Pressure Vacuum Breaker
PVC	Polyvinyl Chloride
PVT	Private
QTY	Quantity
R	Radius
R&R	Remove & Replace
R/W	Right of Way
RCP	Reinforced Concrete Pipe
RD	Roof Drain

REF STD SPEC SEC 1-01.2

City of Seattle | NOT TO SCALE | ABBREVIATIONS

REV DATE: JAN 2014

RDWY	Roadway
RECONN	Reconnect
RED	Reducer
REF	Refer/Reference
REINF	Reinforce/Reinforcement
RELOC	Relocate
REM	Remove
REPL	Replace
REQD	Required
RET	Retire/Retired
RET WALL	Retaining Wall
RF	Rock Facing
RGS	Rigid Galvanized Steel
RIT	Round Inlet Top
RLWY	Railway
RP	Rock Pocket
RPBA	Reduced Pressure Backflow Assembly
RR	Railroad
RS	Rigid Steel
RT	Right
S	South
SB	Sandbox
SCH	Schedule
SCL	Seattle City Light
SDS	Street Designation Sign
SD	Service Drain
SDOT	Seattle Department of Transportation
SEC	Section
SHLD	Shield
SHT	Sheet
SL	Sleeve, Street Light
℄	Survey Line
SLHH	Street Light Handhole

SNS	Street Name Sign
SP	Strain Pole
SPCS	Spaces
SPEC	Specifications
SPR	Seattle Parks & Recreation
SPU	Seattle Public Utilities
SQ	Square
SS	Stainless Steel, Side Sewer–Combined
SSD	Sub–Surface Drain
SSS	Side Sewer–Sanitary
SSTONE	Sandstone
ST	Street
STA	Station
STD	Standard
STL	Steel
STL P	Steel Pipe
STM LOG	Steam Log
STRUCT	Structure/Structural
SW	Sidewalk
SY	Square Yard
SYS	System
T	Tee
TB	Test Boring
TC	Traffic Control
TCB	Telephone Cable
TCD	Telephone Conduit
TCHH	Traffic Control Handhole
TD	Telephone Duct
TEB	Telephone Enclosure Box
TEL	Telephone
TEMP	Temporary
TF	Top Face
TH	Test Hole

REF STD SPEC SEC 1-01.2

City of Seattle | NOT TO SCALE | ABBREVIATIONS

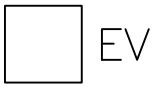
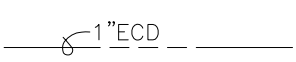
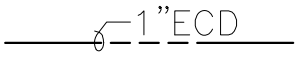
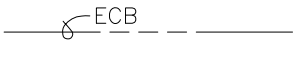
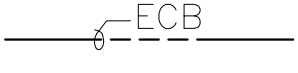
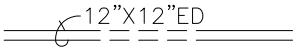
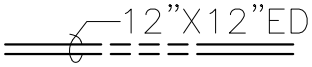
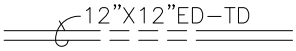
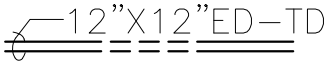
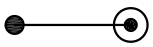
REV DATE: JAN 2016

THH	Telephone Handhole
TJO	Transfer of Jurisdiction Ordinance
TMH	Telephone Manhole
TMT	Treatment
TN	Ton
TOC	Top of Curb
TR	Traffic
TRCB	Traffic Signal Cable
TRCD	Traffic Signal Conduit
TRSCC	Traffic Signal Controller Cabinet
TVCB	Television Cable
TVCD	Television Conduit
TVHH	Television Handhole
TYP	Typical
UG	Underground
UIC	Underground Interconnect
UNC	Unified National Course
UP	Utility Pole
V	Valve, Variable
V/C	Vertical Curve
VAR	Variable/Varies
VB	Vertical Bend
VBOX	Valve Box
VCH or VC	Valve Chamber
VCP	Vitrified Clay Pipe
VEH	Vehicle
VERT	Vertical
VMS	Variable Message Sign
VO	Vacation Ordinance
W	Water, West
W/	With
WCR	Walkway Curb Ramp
WD	Wood/Wooden
WF	Wood Fence
WIF	Wrought Iron Fence
WM	Water Meter, Water Main
WMA	Warm Mix Asphalt
WMR	Water Main Radius
WP	Wood Pole
WS	Water Service
WSP	Wood Stave Pipe
WU	Western Union
WV	Water Valve
WWF	Welded Wire Fabric
XP	Transmission Pole

REF STD SPEC SEC 1-01.2

City of Seattle | NOT TO SCALE | ABBREVIATIONS

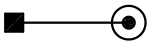
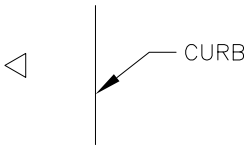
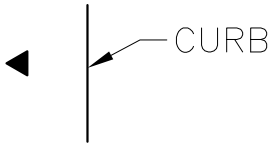
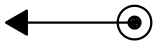
REV DATE: JAN 2013

ITEM	EXISTING	PROPOSED
Signal Controller Cabinet		
Electrical Vault		
Electrical Conduit		
Electrical Cable (direct burial)		
Electrical Duct		
Combined Electrical & Telephone Duct		
Span Wire		
Aerial Interconnect Cable		
Transmission Pole (steel w/ conc base)		
City Wood Pole		
City Wood Pole w/ HPS		

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS ELECTRICAL

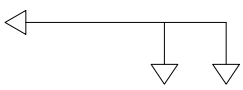
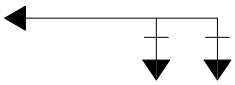
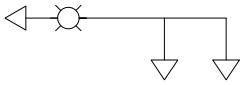
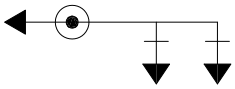
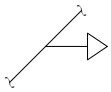
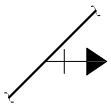
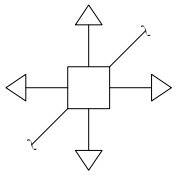
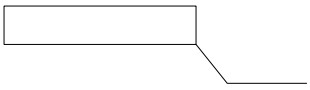
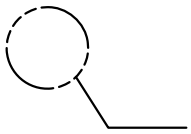
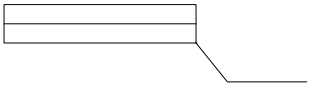
REV DATE: AUG 2013

ITEM	EXISTING	PROPOSED
Light Pole (metal) w/ HPS		
Strain Pole (metal)		
Combined Lighting Strain Pole HPS		
Luminaire		
Mercury Vapor Luminaire		
Double Light Pole		
Utility Wood Pole		
Utility Guy Pole		
Anchor		
Ground		

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS ELECTRICAL

REV DATE: JAN 2017

ITEM	EXISTING	PROPOSED
Traffic Signal Mast Arm Pole		
Traffic Signal Mast Arm Pole w/ Luminaire		
Traffic Signal on Span Wire		
Multi-Directional Traffic Signal on Span Wire		
Traffic Signal Conduit		
Traffic Signal Cable		
Detector Loop, Dipole (loop schedule)		
Detector Loop, Quadrapole (loop schedule)		

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS ELECTRICAL

REV DATE: JAN 2013

ITEM	EXISTING	PROPOSED
Signal Pedestal		
Vehicle Signal		
Vehicle Signal w/ Backplate		
Vehicle Signal (optically programmed)		
Pedestrian Signal		
Pedestrian Signal (optically programmed)		
Pedestrian Push Button Post		
Pedestrian Push Button		
Illuminated Sign		
Junction Box		
Handhole		
Traffic Control Handhole		
Streel Light Handhole		
Ground Rod Handhole		
Fire Alarm Handhole		

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS ELECTRICAL

REV DATE: MAR 2010

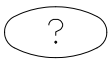
SIGNALIZATION

Vehicle & Pedestrian Signal Head
(?=Identification Number)

Illuminated Traffic Sign
(?=Identificaiton Number)

Cable Runs
(?=Run Number per Wiring Schedule)

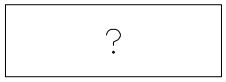
Removal/Relocation Item
(?=Identification Number per Removal/Relocation Plan)



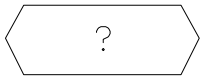
Construction Item
(?=Identification Number per Signalization Plan)

Signal Poles, Signal Pedestals, Push Button Pedestals &
Push Buttons Identified by Number on Signalization Plan.

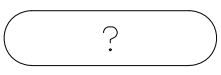
CHANNELIZATION & SIGNAGE



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



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

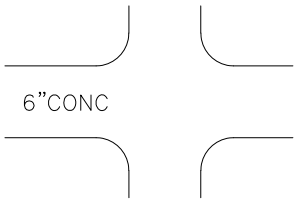
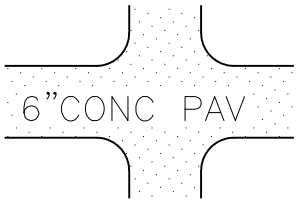
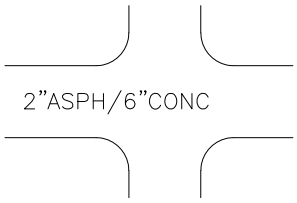
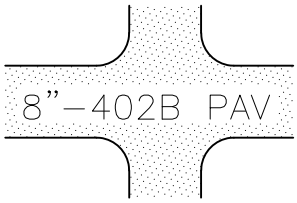
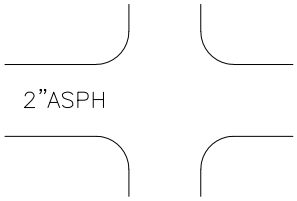
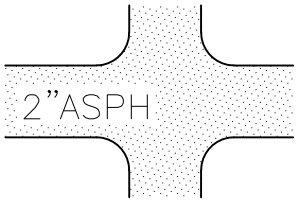
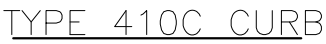
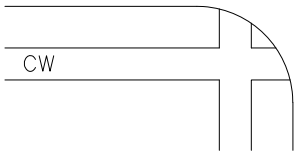
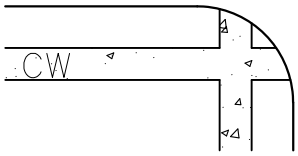
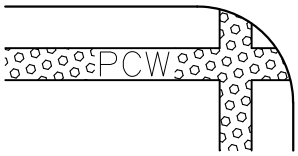


Relocate Signage
(?=Signage Identified on Plan)

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS SIGNALIZATION/CHANNELIZATION & SIGNAGE

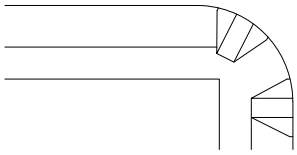
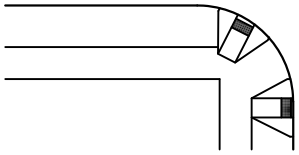
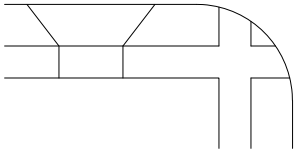
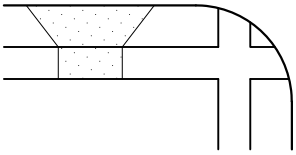
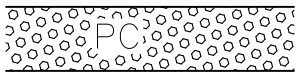
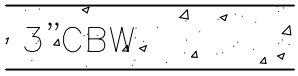
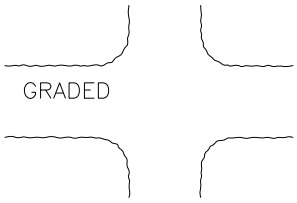
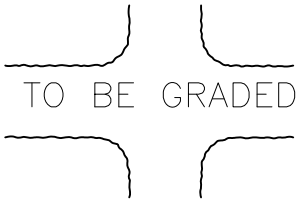
REV DATE: FEB 2016

ITEM	EXISTING	PROPOSED
Cement Concrete Pavement		
Asphalt Concrete Pavement		
Asphalt Concrete Surfacing		
Curb		
Cement Concrete Walk		
Pervious Concrete Walk		

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS PAVING

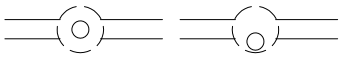
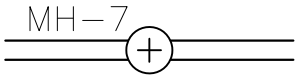
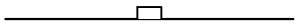
REV DATE: DEC 2016

ITEM	EXISTING	PROPOSED
Curb Ramp		
Conc Dwy		
Pervious Concrete Surface		
Cement Concrete Bike Way		
Asphalt Concrete Bike Way		
Grading		

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS PAVING

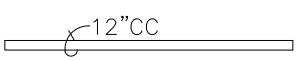
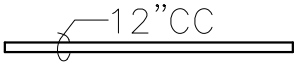
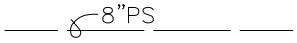
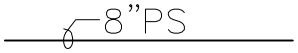
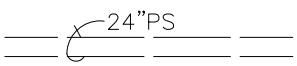
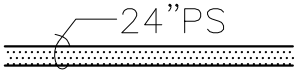
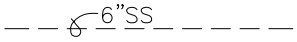
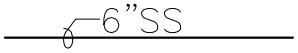
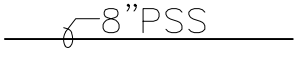
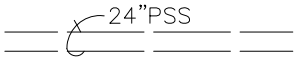
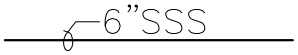
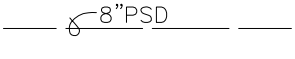
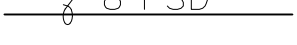
REV DATE: NOV 2015

ITEM	EXISTING	PROPOSED
Maintenance Holes		
Inlet Type 250A		
Inlet Type 250B		
Inlet Type 252		
Inlet Type 268		
Catch Basin round inlet top		
Private CB & Inlet		
Catch Basin Type 151 (pre 1985)		
Catch Basin Type 240A		
Catch Basin Type 240B		
Catch Basin Type 240C		
Catch Basin Type 240D		
Catch Basin Type 241		
Catch Basin Type 242A		
Catch Basin Type 242B		
Junction Box Type 277A		
Junction Box Type 277B		
Area Drain		

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS SEWER & DRAINAGE

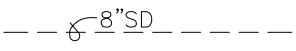
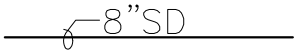
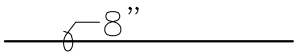
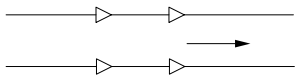
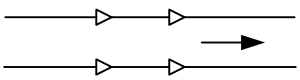
REV DATE: NOV 2015

ITEM	EXISTING	PROPOSED
Sand Box		
Clean Out		
Concrete Culvert		
Pipe Sewer Combined <1'-0"Dia		
Pipe Sewer Combined ≥1'-0"Dia		
Side Sewer Combined		
Pipe Sewer Sanitary <1'-0"Dia		
Pipe Sewer Sanitary ≥1'-0"Dia		
Side Sewer Sanitary		
Pipe Storm Drain <1'-0"Dia		
Pipe Storm Drain ≥1'-0"Dia		

REF STD SPEC SEC

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

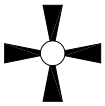
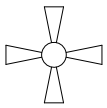
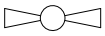
REV DATE: NOV 2015

ITEM	EXISTING	PROPOSED
Service Drain		
Inlet & CB Connection		
Open Ended Pipe		
Ditch		
Stream		

REF STD SPEC SEC

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

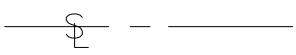
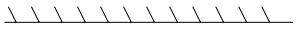
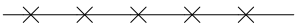
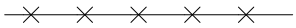
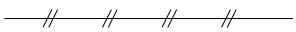
REV DATE: NOV 2015

ITEM	EXISTING	PROPOSED
Bench Mark (found or set)		
Brass Plug/Cap (found or set)		
Hub/Tack (found or set)		
Monument in Case (found or set)		
Conc. Mon. (found or set)		
Section Corner (found or set)		
Quarter Corner (found or set)		
Section Corner (calculated)		
Quarter Corner (calculated)		
Rebar/Cap, Pipe/Cap Rebar, Iron Pipe (found or set)		
Tack/Lead, Tack PK Nail, Spike (found or set)		
Bench Mark (not found)		
Brass Plug/Cap (not found)		
MIC. (not found)		
Conc. Mon. (not found)		
Rebar/Cap, Pipe/Cap Rebar, Iron Pipe (not found)		
Tack/Lead, Tack PK Nail, Spike (not found)		
Survey Shot Point		

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS TOPOGRAPHIC & MISC

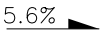
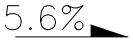
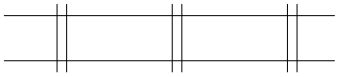
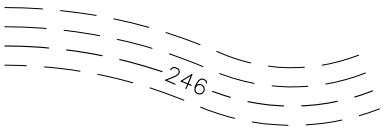
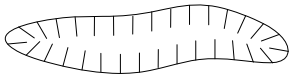
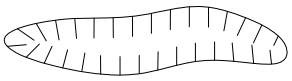
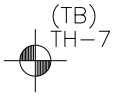
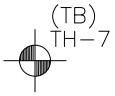
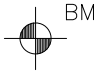
REV DATE: NOV 2015

ITEM	EXISTING	PROPOSED
Center Line		
Monument Line		
Survey Line		
Right of Way Line		
Lot & Ownership Line		
Permanent Easement Line		
Temp Const Easement Line		
Vacated Street or Alley		
State Highway Limited Access Line		
Building		
Chain Link Fence		
Wood Fence		
Guardrail		
Rock Facing		
Rock Facing		
Riprap		
Trees		PER DRAWINGS

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS TOPOGRAPHIC & MISC

REV DATE: NOV 2015

ITEM	EXISTING	PROPOSED
Shrub or Bush		
Ground, Grade Line		
Grade (arrow downhill)		
Rail Road Tracks		
City Limits		
Slope Line		
Contours		
Slope Angle Horiz:Vert		H:V
Vertical Curve		
Depression		
Stump		
Top of Cut Toe of Fill		
Dimension Line		
Match Line		
Test Hole & Number (test boring)		
Bench Mark		

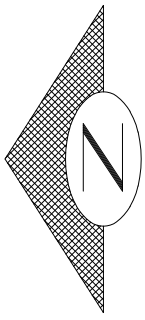
REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS TOPOGRAPHIC & MISC

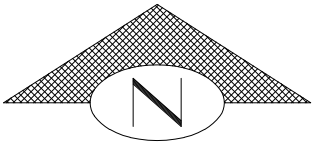
REV DATE: DEC 2016

ITEM	EXISTING	PROPOSED
Monitor Well	MW	
Street Name Sign		
Traffic Sign		
US Mail Box	US	
Private Mail Box		
Bollard		
Posts		
Parking Meter & Pay Station		
Rectangular Casting		
Circular Casting		
Column		
Jersey Barrier & Eco Block		
Tree Pit		

North Arrow horizontal



North Arrow vertical



REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS TOPOGRAPHIC & MISC

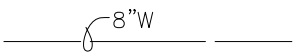
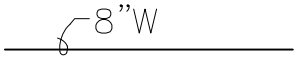
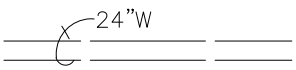
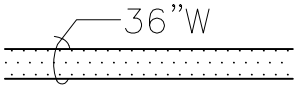
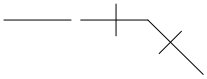
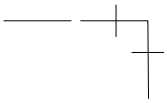
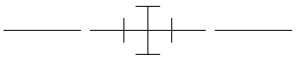
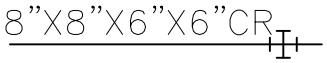
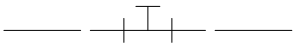
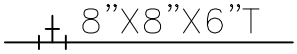
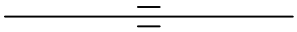
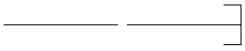
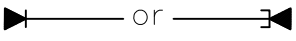
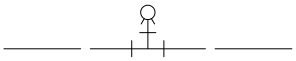
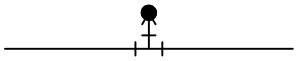
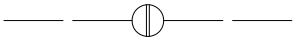
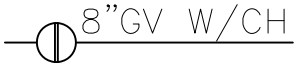
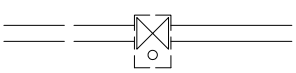
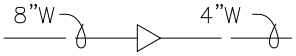
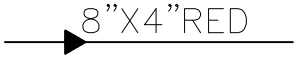
REV DATE: NOV 2015

ITEM	EXISTING	PROPOSED
Telephone Cable (direct burial)	TCB	
Telephone Conduit	3"TCD	
Telephone Duct	12'X12"TD	
Telephone Enclosure	TEB	
Telephone Maintenance Hole	TEL VAULT	
Telephone Pole	TP	
Telephone Handhole	THH	
Television Cable (direct Burial)	TVCB	
Television Handhole	TVHH	
Telegraph Maintenance Hole	TELEG MH	
Steam Log	6"STM 14"X14"LOG	
Steam Vault	STEMV	
Gas Main	12"G	
Gas Valve		
Gas Meter	GM	
Gas Regulator	G REG	
Petroleum or Oil	OIL	
Abandon(ed)	2"ECD(ABAN)	2"ECD-ABAN

REF STD SPEC SEC

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

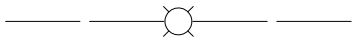
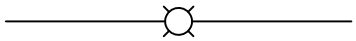
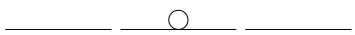
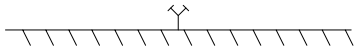
REV DATE: NOV 2015

ITEM	EXISTING	PROPOSED
Watermain <1'-0"Dia		
Watermain ≥1'-0"Dia		
11 1/4° Bend w/ Conc Blocking		
22 1/2° Bend		
45° Bend		
90° Bend		
Cross		
Tee		
Pipe Sleeve		
Plug w/ Conc Blocking		
Hydrant		
Water Meter		
Valve Box		
Gate Valve		
Gate Valve w/ Chamber		
Gate Valve w/ Vault Chamber		
Reducer		

REF STD SPEC SEC

City of Seattle | NOT TO SCALE | STANDARD SYMBOLS WATER

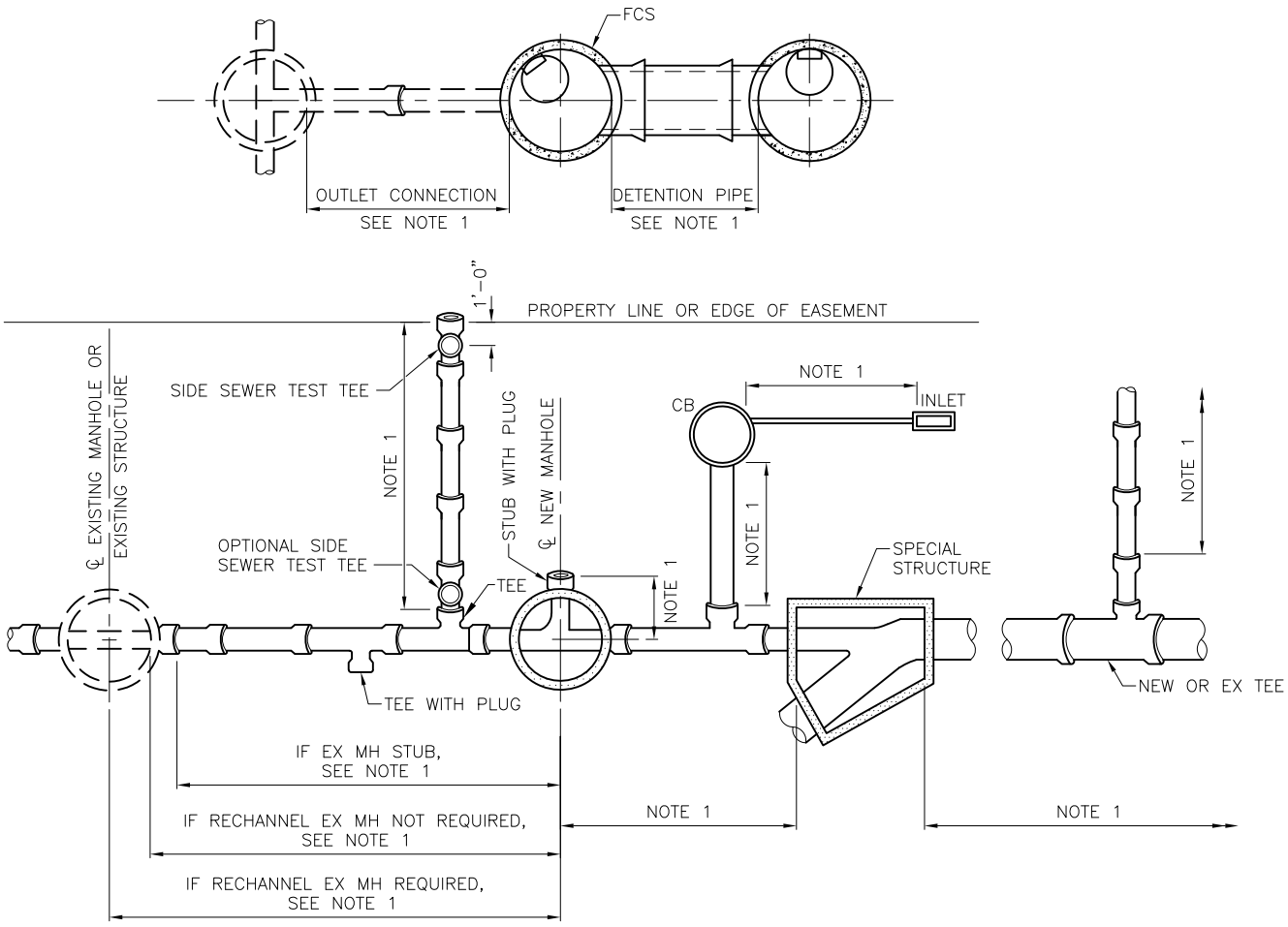
REV DATE: NOV 2015

ITEM	EXISTING	PROPOSED
Air Valve		
Blowoff		
Fire Standpipe		
Water Test Station		
Water Chamber		
Sprinkler Head		
Irrigation Valve		
Angle Valve		
Butterfly Valve		
Ball Valve		
Check Valve		
Cone Valve		
Globe Valve		
Needle Valve		
Plug Valve		
Resilient Seal Gate Valve		
Vertical Bend		
Concrete Blocking		

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS WATER

REV DATE: AUG 2013



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

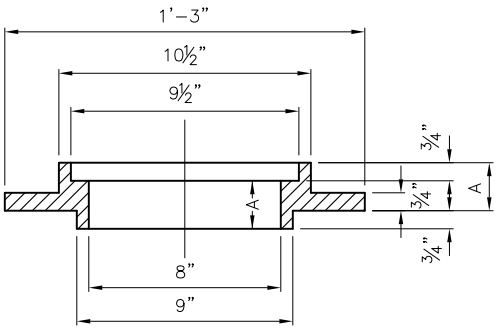
City of Seattle	NOT TO SCALE	SEWER/DRAINAGE MEASUREMENT DIAGRAM

REV DATE: MAR 2013

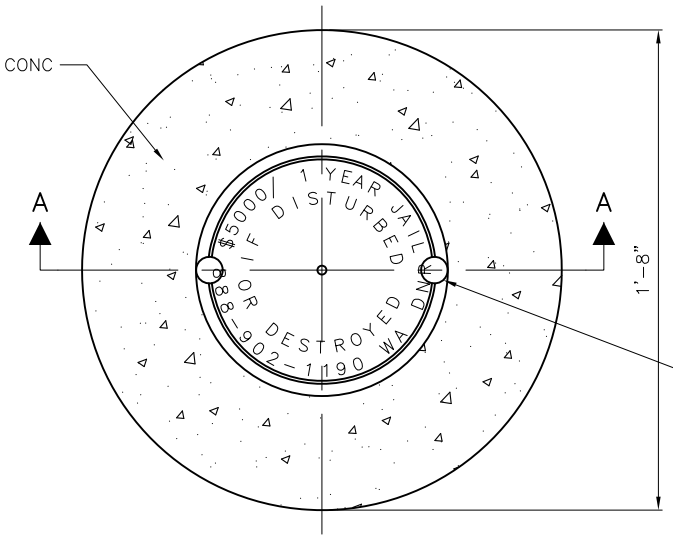
NOTES:

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.
6. USE LOCKING COVER IN R/W. DRILL AND TAP, APPLY ANTI-SEIZE COATING AND BOLT DOWN WITH ⅜"S.S. ALLEN-HEAD BOLTS -2 PLACES.

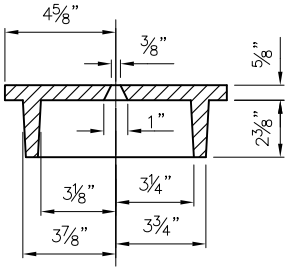
RISER RING DIMENSIONS			
A (SIZE)	1½"	2"	3"



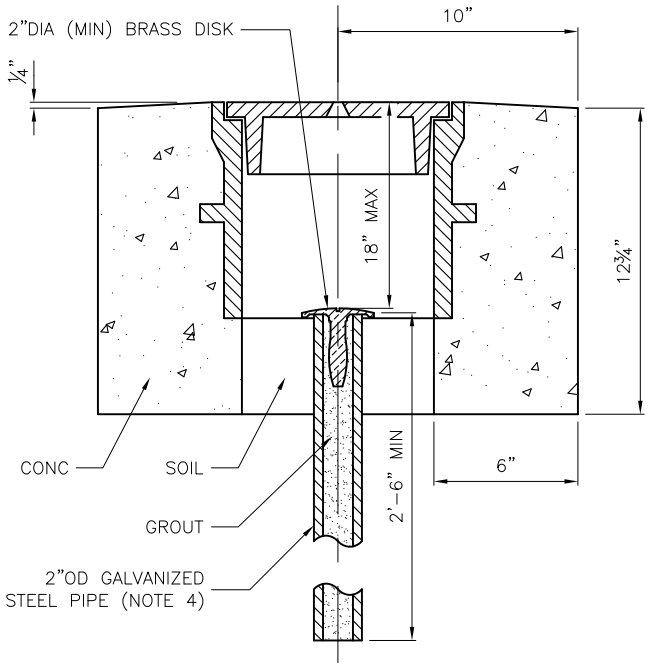
RISER RING SECTION



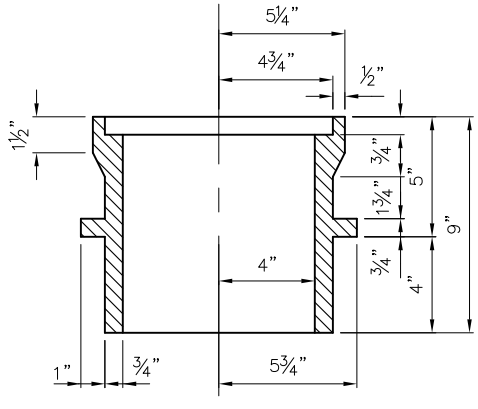
PLAN



COVER SECTION



SECTION A-A

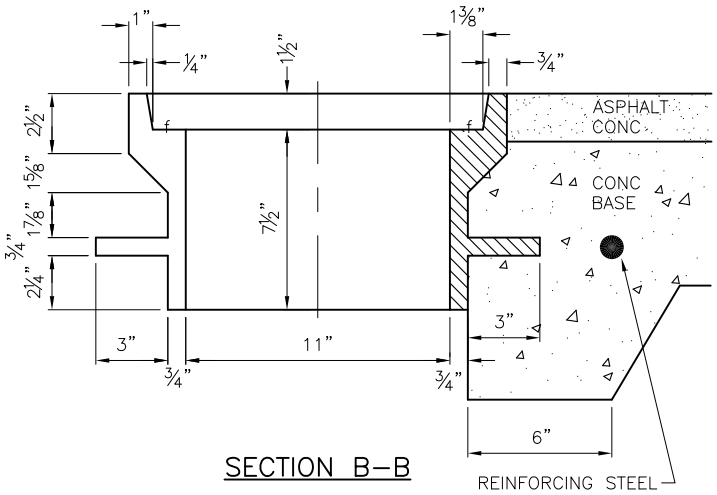


CASE SECTION

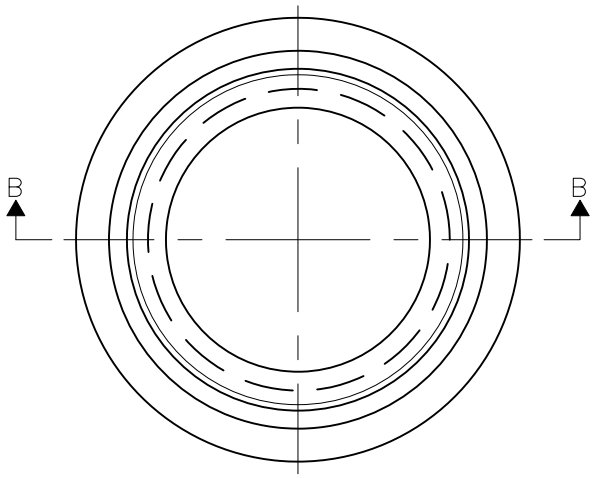
REF STD SPEC SEC 8-13

City of Seattle	NOT TO SCALE	MONUMENT FRAME & COVER

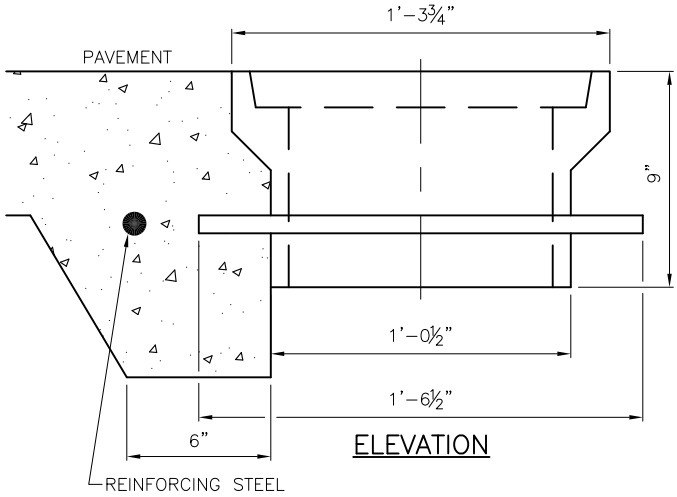
REV DATE: DEC 2013



SECTION B–B



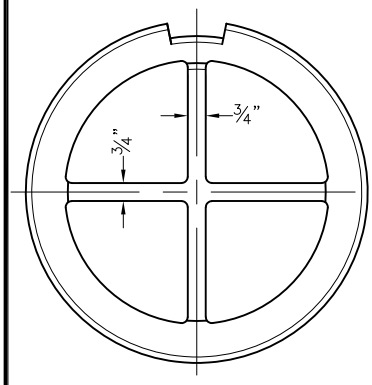
TOP VIEW



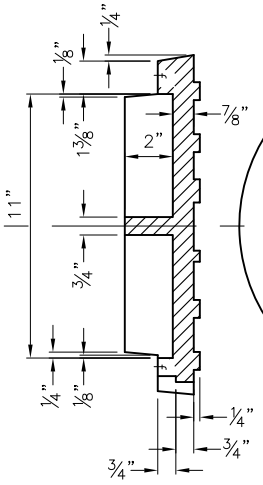
ELEVATION

NOTES:

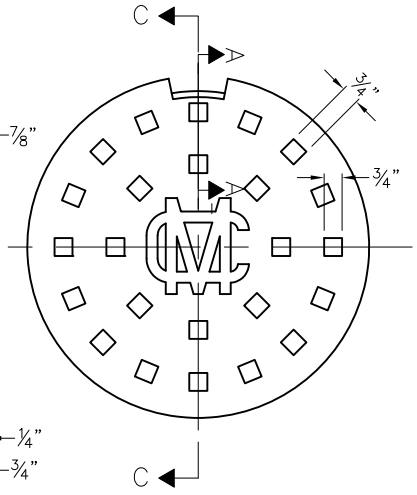
1. FRAME AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS FOR DELIVERY
2. FRAME AND COVER SHALL BE CAST IRON
3. "f"=FINISH
4. CASTINGS IN RIGID PAVEMENT SHALL HAVE REINFORCING STEEL IN THE PAVEMENT.



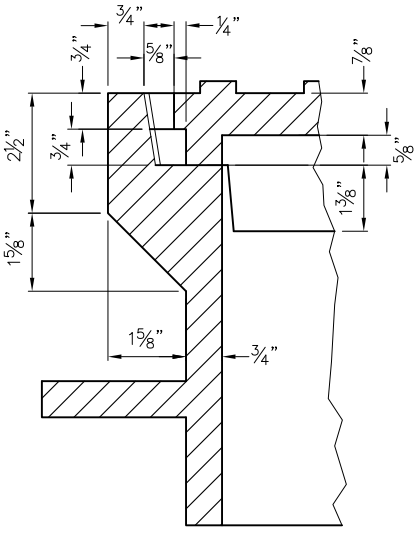
BOTTOM VIEW



SECTION C–C



TOP VIEW



SECTION A–A

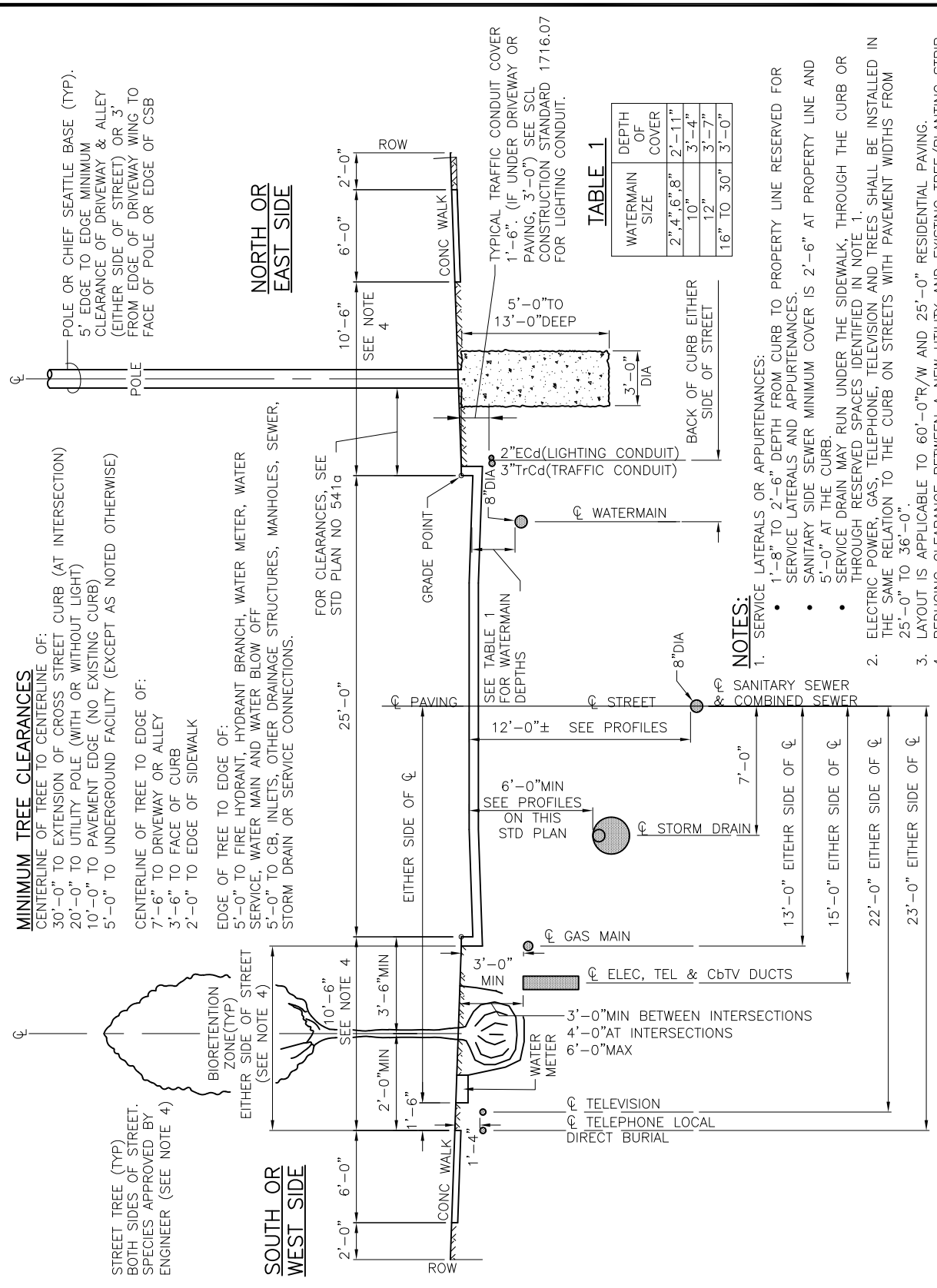
COVER

REF STD SPEC SEC 8-13

City of Seattle	NOT TO SCALE	MONUMENT FRAME & COVER

STANDARD PLAN NO 030

REV DATE: DEC 2016



WATERMAIN SIZE	DEPTH OF COVER
2",4",6",8"	2'-11"
10"	3'-4"
12"	3'-7"
16" TO 30"	3'-0"

TABLE 1

MINIMUM TREE CLEARANCES

CENTERLINE OF TREE TO CENTERLINE OF:
- 30'-0" TO EXTENSION OF CROSS STREET CURB (AT INTERSECTION)
- 20'-0" TO UTILITY POLE (WITH OR WITHOUT LIGHT)
- 10'-0" TO PAVEMENT EDGE (NO EXISTING CURB)
- 5'-0" TO UNDERGROUND FACILITY (EXCEPT AS NOTED OTHERWISE)

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

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

NOTES:

1. SERVICE LATERALS OR APPURTENANCES:
   - 1'-8" TO 2'-6" DEPTH FROM CURB TO PROPERTY LINE RESERVED FOR SERVICE LATERALS AND APPURTENANCES.
   - SANITARY SIDE SEWER MINIMUM COVER IS 2'-6" AT PROPERTY LINE AND 5'-0" AT THE CURB.
   - SERVICE DRAIN MAY RUN UNDER THE SIDEWALK, THROUGH THE CURB OR THROUGH RESERVED SPACES IDENTIFIED IN NOTE 1.
2. ELECTRIC POWER, GAS, TELEPHONE, TELEVISION AND TREES SHALL BE INSTALLED IN THE SAME RELATION TO THE CURB ON STREETS WITH PAVEMENT WIDTHS FROM 25'-0" TO 36'-0".
3. LAYOUT IS APPLICABLE TO 60'-0"R/W AND 25'-0" RESIDENTIAL PAVING.
4. REDUCING CLEARANCE BETWEEN A NEW UTILITY AND EXISTING TREE/PLANTING STRIP, REDUCING CLEARANCE BETWEEN A NEW/REPLACEMENT TREE AND EXISTING UTILITY, INCORPORATING GSI (BIORETENTION) INTO PLANTER STRIP OR CURB EXTENSION OR CHANGING THE 10'-6" WIDTH OF PLANTING STRIP REQUIRES REVIEW AND APPROVAL OF THE ENGINEER AND MAY REQUIRE ADDITIONAL MITIGATING MEASURES.
5. BACKFILL OVER ALL UTILITY INSTALLATIONS BETWEEN BACK OF CURB AND R/W AND WITHIN 5' OF CENTERLINE OF TREES SHALL BE PLANTING SOIL FOR A MINIMUM DEPTH EQUAL TO THE DEPTH OF THE ROOTBALL (NO CDF ALLOWED IN THIS ZONE).

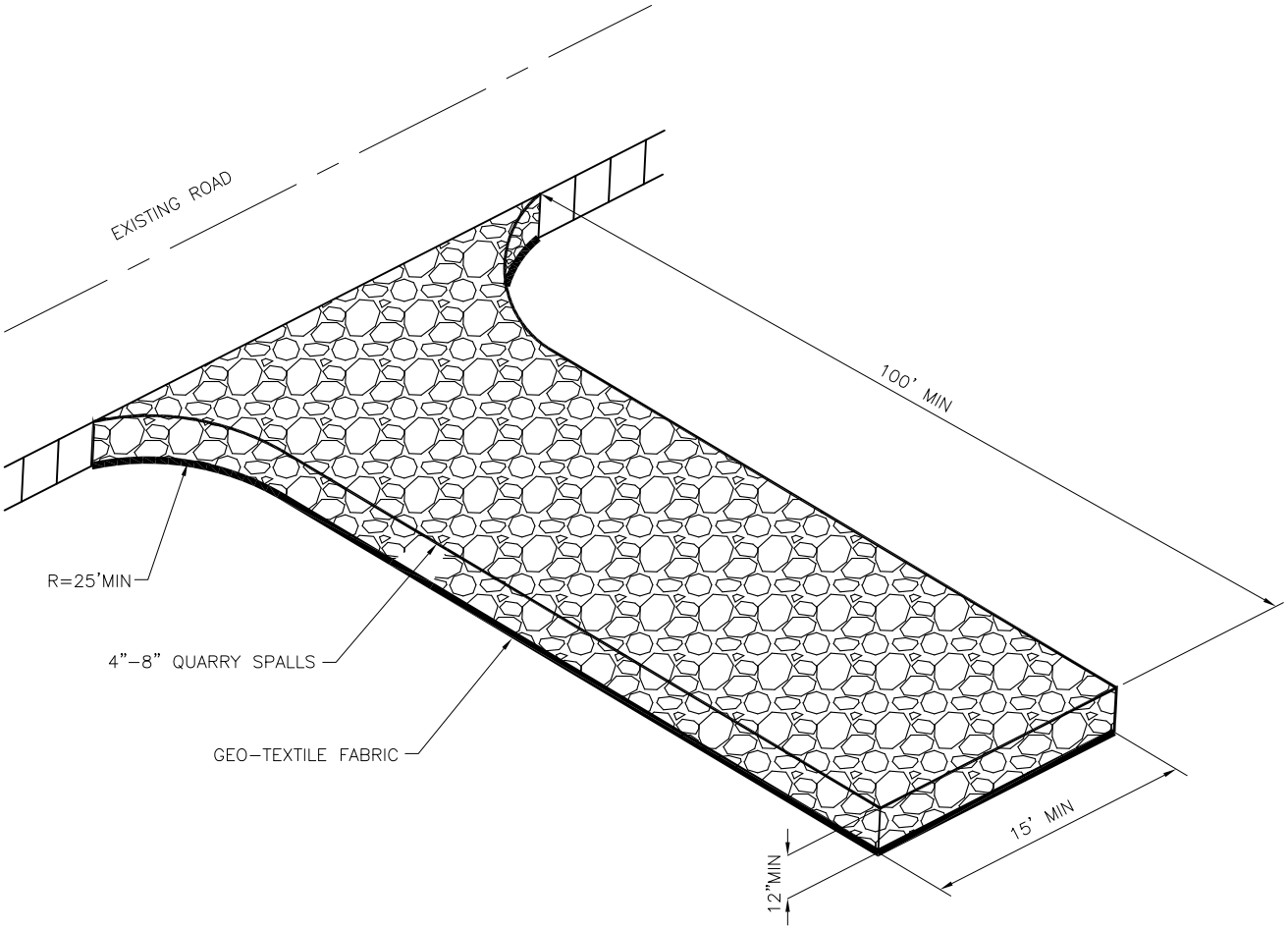
REF STD SPEC SEC 1-07.16, 1-07.17 & 1-07.28

City of Seattle

NOT TO SCALE

DESIRABLE LOCATIONS FOR UTILITIES (RESIDENTIAL STREET)

REV DATE: JUN 2010



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.

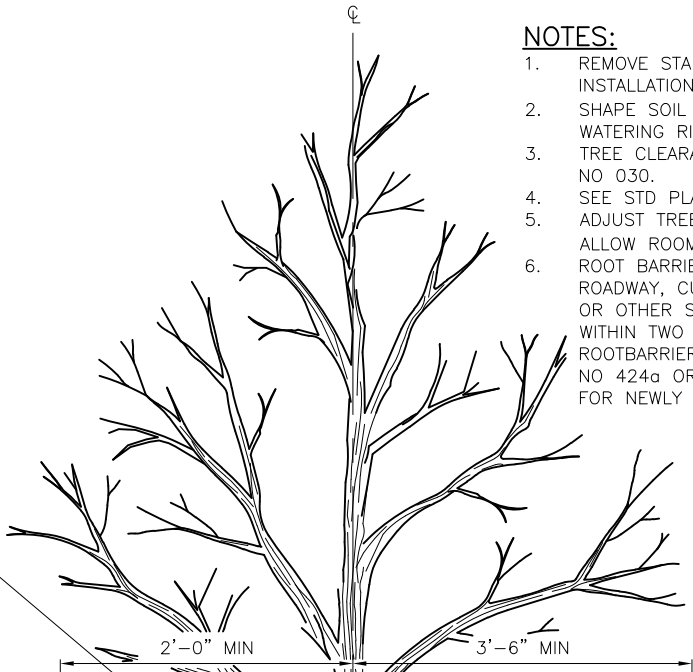
REF STD SPEC SEC 8-01

City of Seattle	NOT TO SCALE	STABILIZED CONSTRUCTION ENTRANCE

REV DATE: JAN 2017

NOTES:

1. REMOVE STAKES ONE YEAR AFTER INSTALLATION.
2. SHAPE SOIL SURFACE TO PROVIDE 4' DIA WATERING RING.
3. TREE CLEARANCE MUST BE PER STD PLAN NO 030.
4. SEE STD PLAN NO 424 FOR TREE PIT DETAIL.
5. ADJUST TREE TIES DURING ESTABLISHMENT TO ALLOW ROOM FOR GROWTH (@1" 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 NO 424a OR 424b. INSTALL ROOT BARRIERS FOR NEWLY PLANTED TREES ONLY.



STAKE TREE WITH (2) TREATED 2"ø LODGEPOLE PINE DOWELED 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" SIZE) NAIL OR STAPLE TREE TIE MATERIAL TO STAKE TO HOLD VERTICALLY. LOOP EACH TIE AROUND HALF TREE LOOSELY TO PROVIDE 1" SLACK FOR TRUNK GROWTH.

2"–3" MULCH DEPTH (TAPERED AT TRUNK)

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

SIDEWALK

18" ROOTBARRIER AT SIDEWALK.

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

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

SEE STD SPEC SECTION 8–02.3(6)B, OR AS APPROVED BY ENGINEER.

REMOVE ALL WIRE, STRINGS, AND OTHER NON–BURLAP MATERIAL; AND REMOVE BURLAP FROM TOP ⅔ OF ROOTBALL MINIMUM. REMOVE ENTIRELY WHEN DIRECTED BY THE ENGINEER.

2" TO 2½" CALIPER UNLESS OTHERWISE SPECIFIED

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

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

24" ROOTBARRIER AT CURB WHEN SHOWN ON THE DRAWINGS.

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

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

DRIVE STAKE AT ROOTBALL EDGE (TYP)(SEE NOTE 1)

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

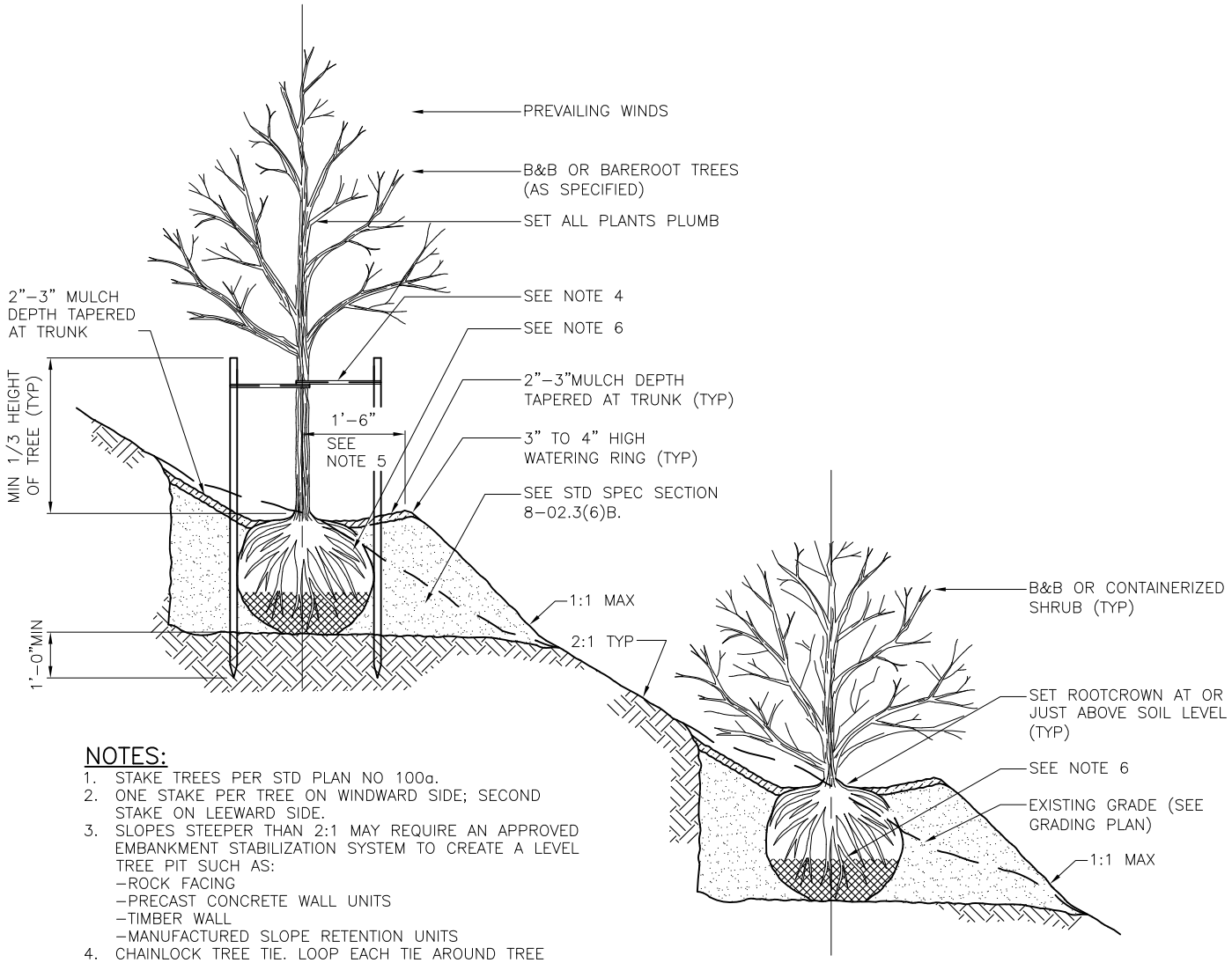
MULCH AREA TO BE CLEAR OF GRASS, WEEDS, ETC. TO REDUCE COMPETITION WITH TREE ROOTS

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

REF STD SPEC SEC 8-02

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

REV DATE: MAR 2013



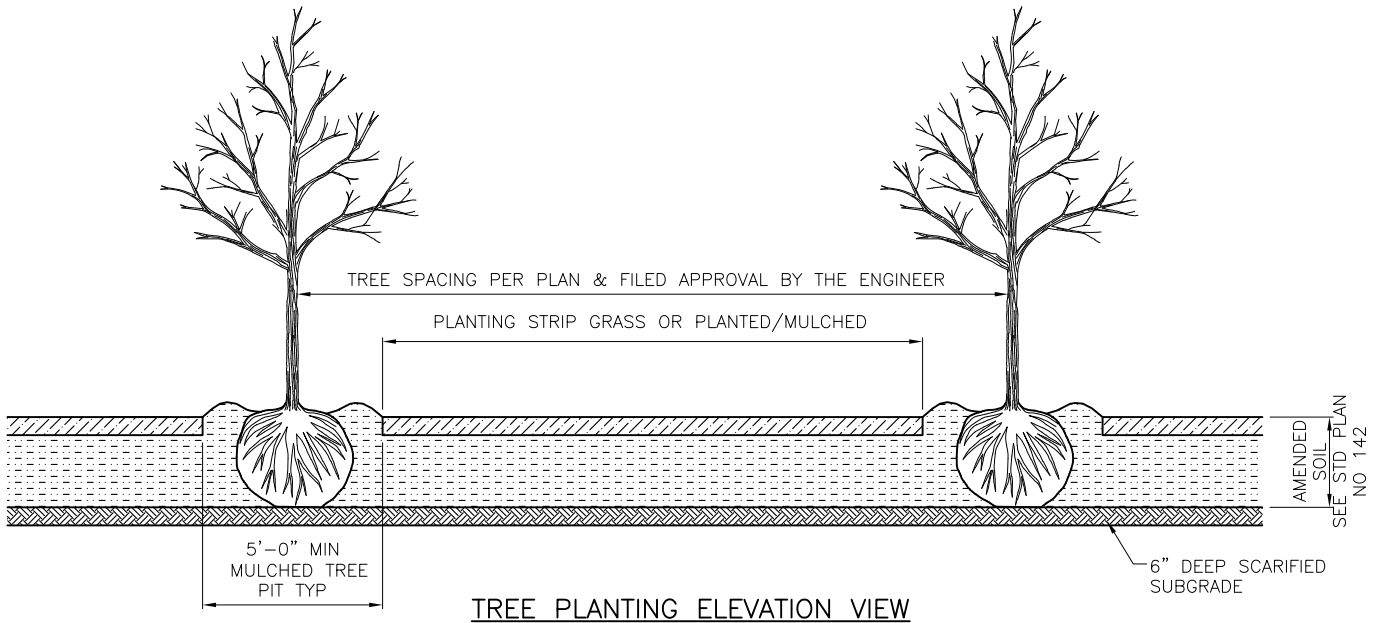
NOTES:

1. STAKE TREES PER STD PLAN NO 100a.
2. ONE STAKE PER TREE ON WINDWARD SIDE; SECOND STAKE ON LEEWARD 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. CHAINLOCK 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, WHICHEVER IS GREATER, WATERING RING.
6. REMOVE AL WIRE, STRINGS AND OTHER NON–BURLAP MATERIAL; AND REMOVE BURLAP FROM TOP ⅔ OF ROOTBALL.

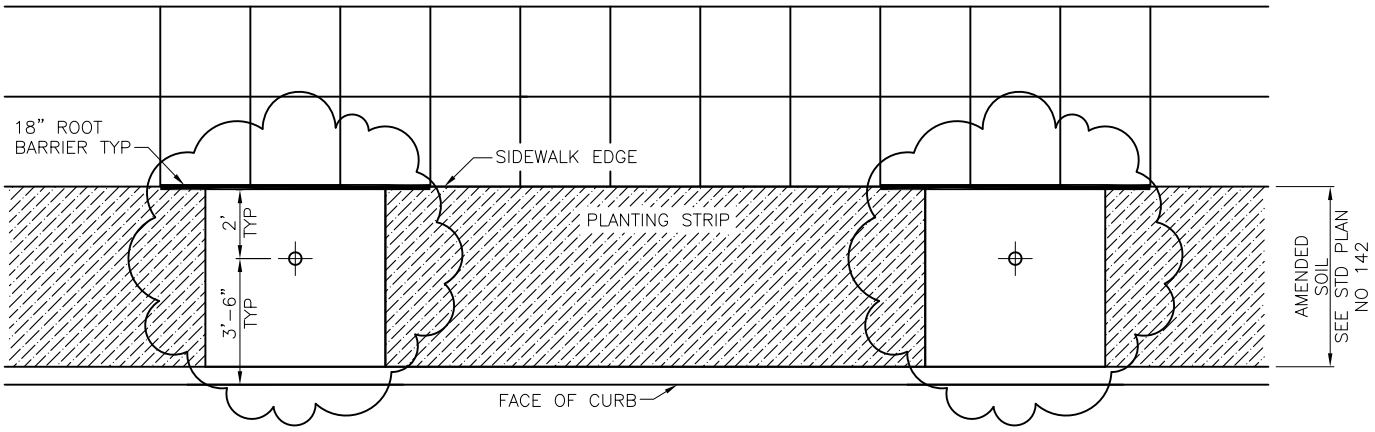
REF STD SPEC SEC 8-02

City of Seattle	NOT TO SCALE	TREE & SHRUB PLANTING ON SLOPES

REV DATE: DEC 2013



TREE PLANTING ELEVATION VIEW

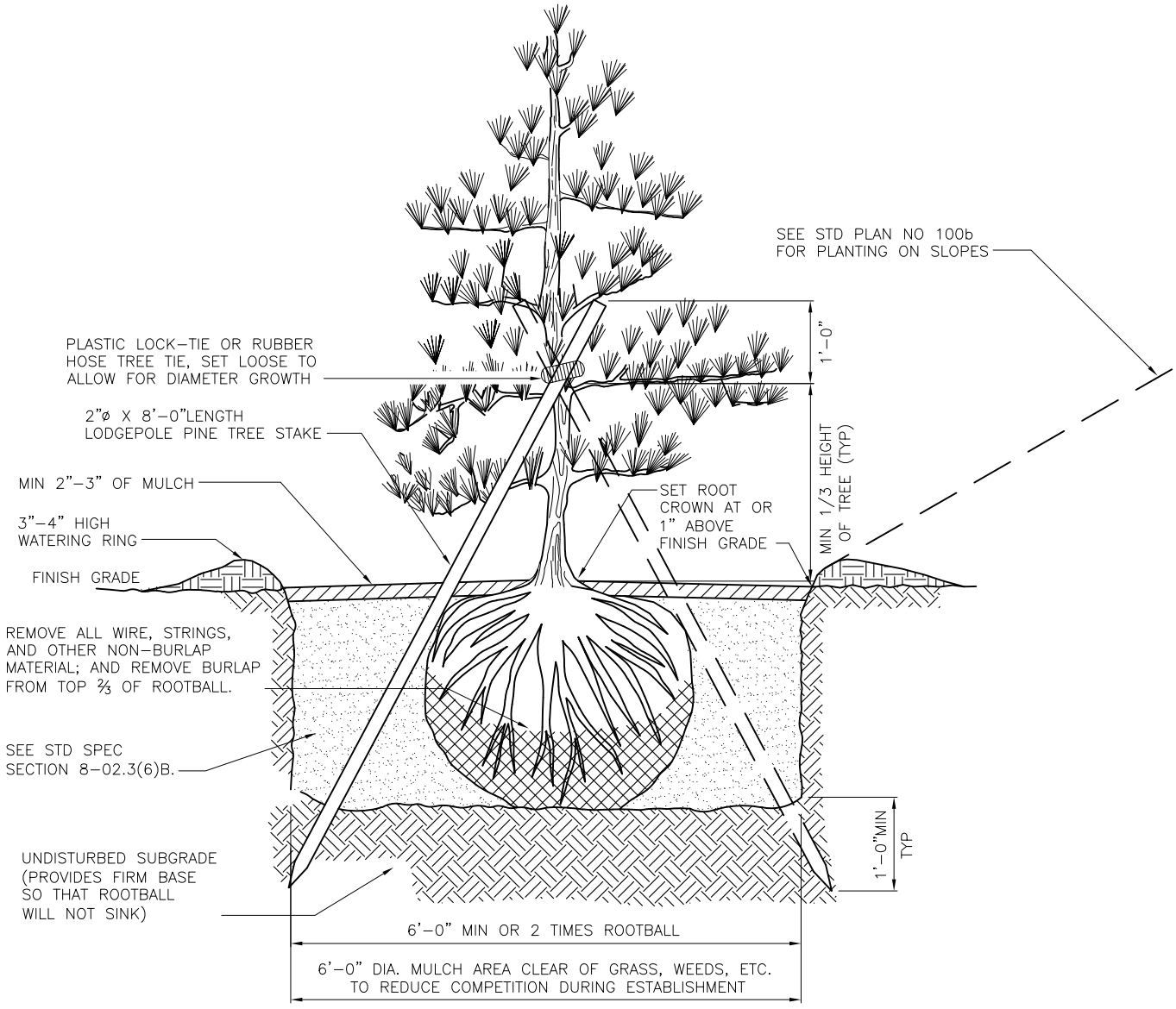


TREE PLANTING PLAN VIEW

REF STD SPEC SEC 8-02

City of Seattle	NOT TO SCALE	TREE PLANTING IN AMENDED TRENCH

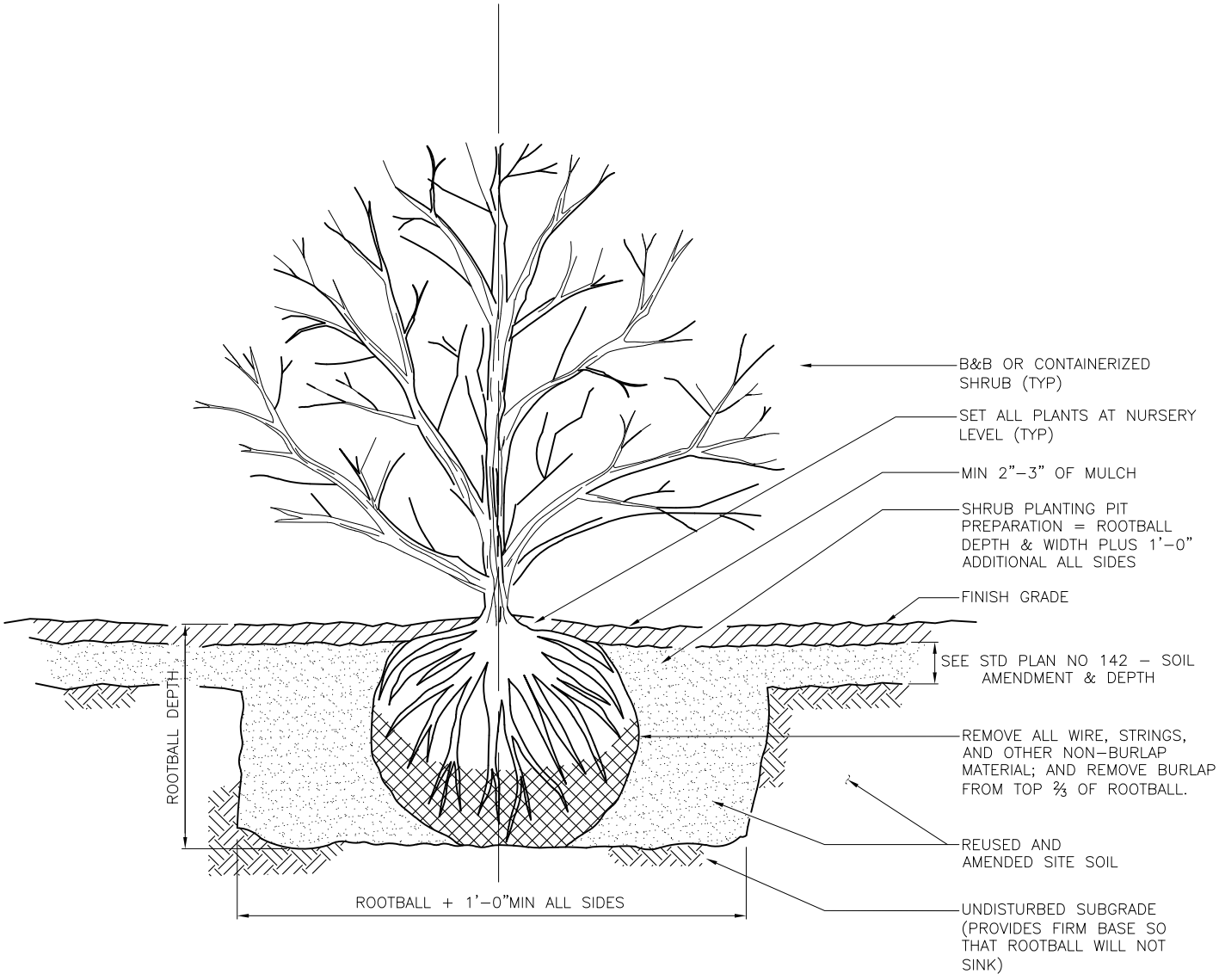
REV DATE: MAR 2013



REF STD SPEC SEC 8-02

City of Seattle	NOT TO SCALE	CONIFEROUS TREE PLANTING

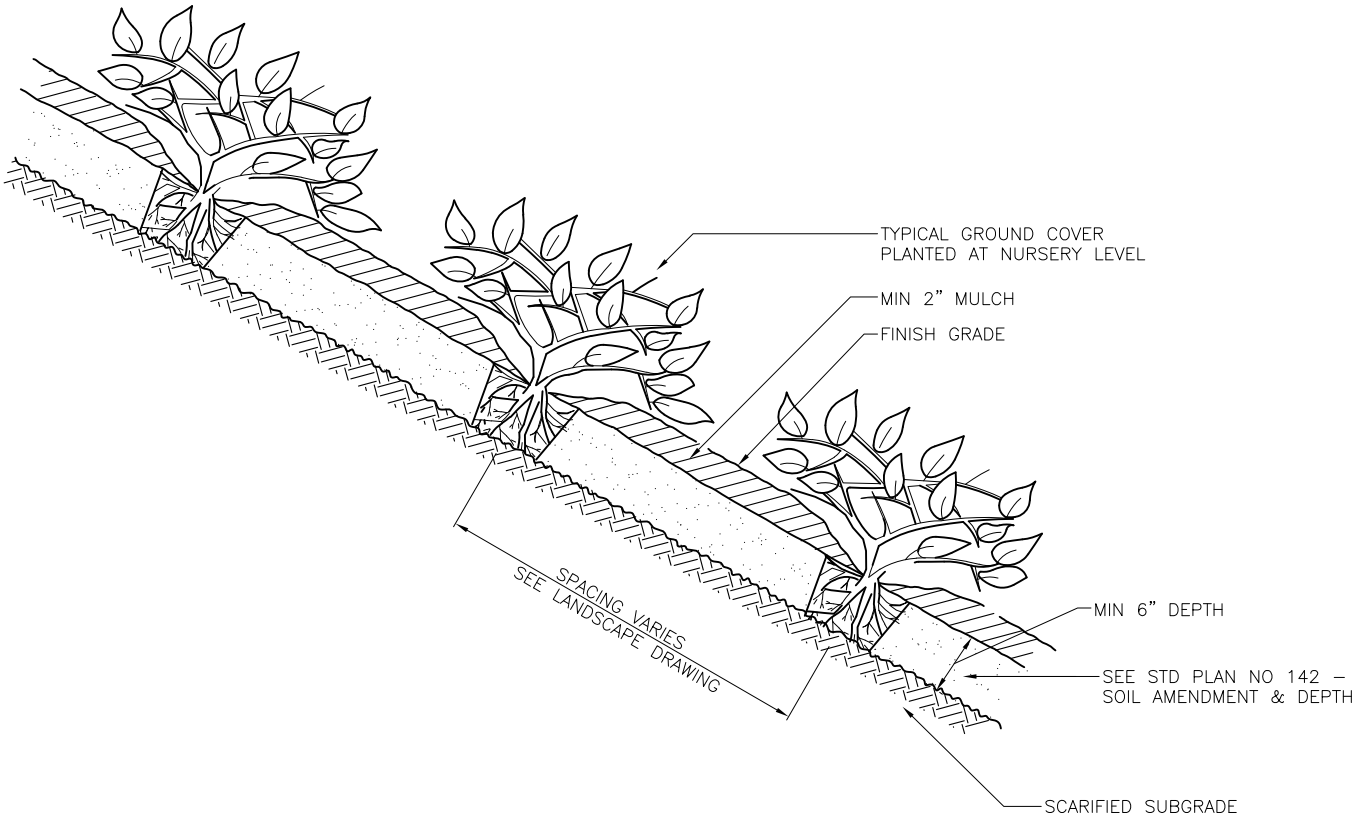
REV DATE: NOV 2013



REF STD SPEC SEC 8-02

City of Seattle	NOT TO SCALE	SHRUB PLANTING

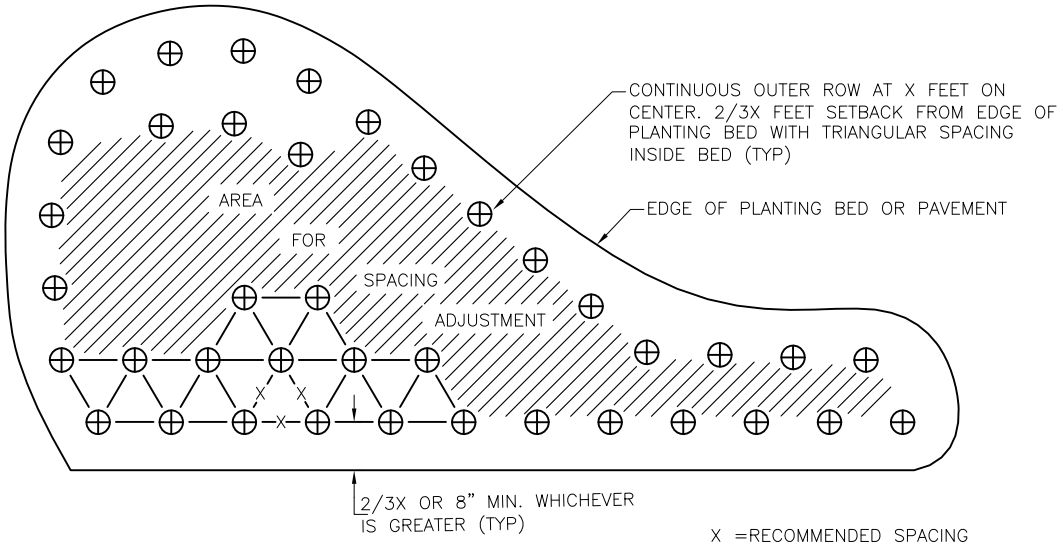
REV DATE: MAR 2013



REF STD SPEC SEC 8-02

City of Seattle	NOT TO SCALE	GROUND COVER PLANTING

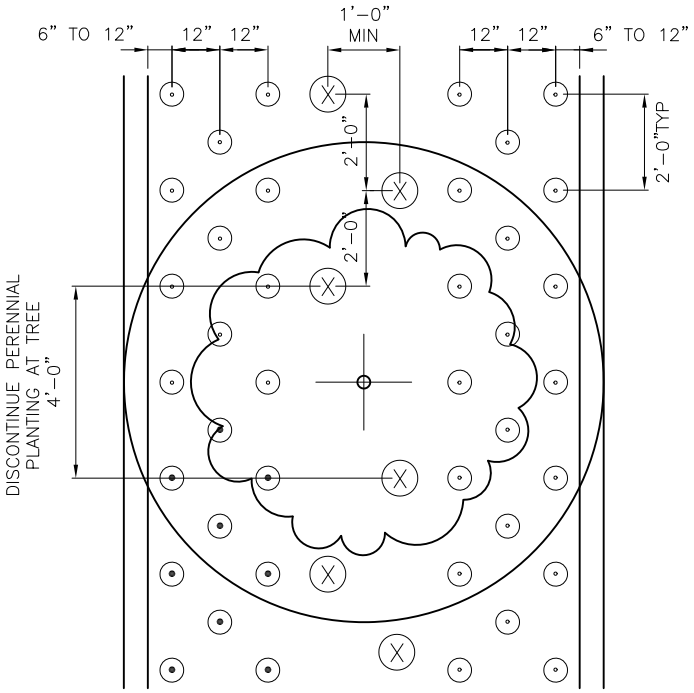
REV DATE: JAN 2017.



REF STD SPEC SEC 9-14

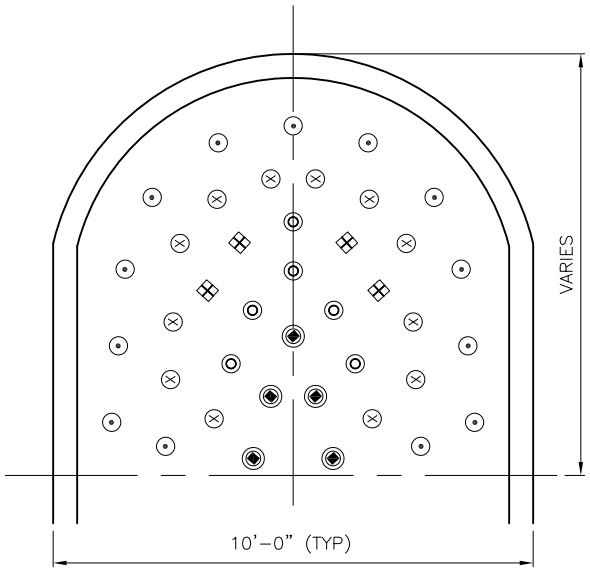
City of Seattle	NOT TO SCALE	PLANTING PATTERN

REV DATE: JAN 2017



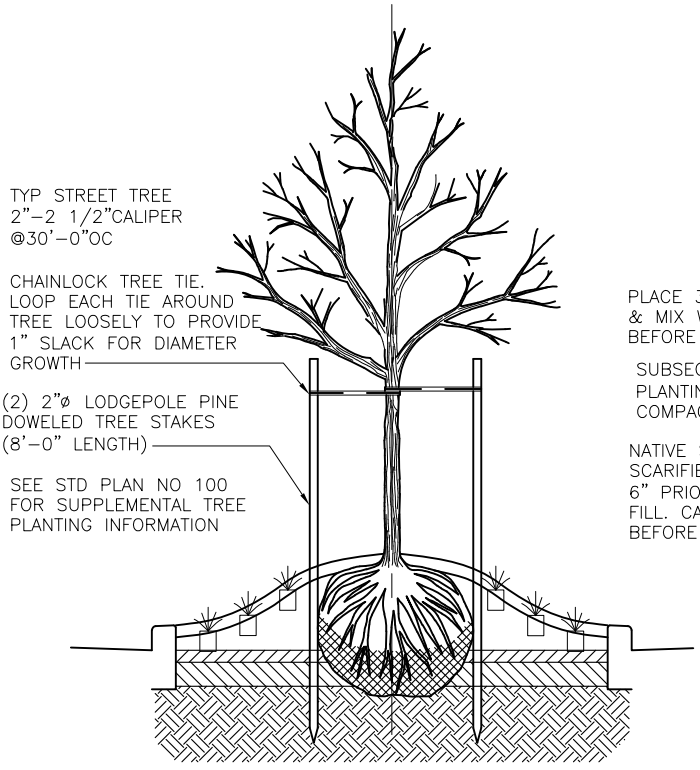
	QUANT PER 10'-0"LF MEDIAN
⊙ GROUNDCOVER	30
⊗ SHRUB	5

DETAIL AT TREE
PLAN

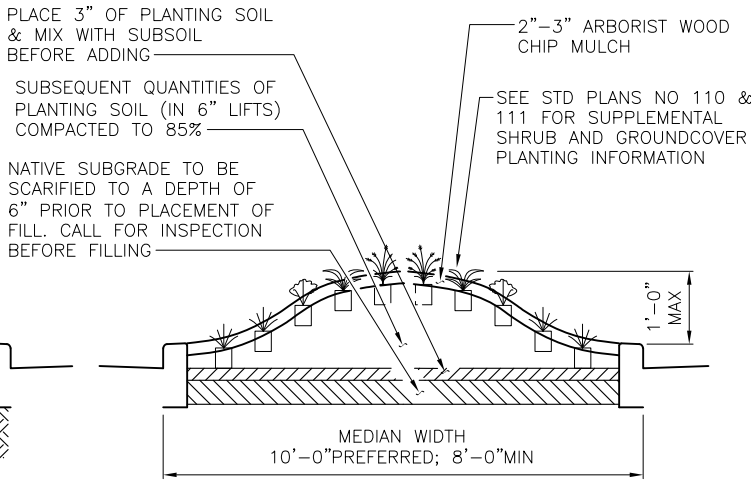


	QUANT PER END CAP
◈ PERENNIAL TYPE 1	4
◎ PERENNIAL TYPE 2	6
◉ PERENNIAL TYPE 3	5
⊙ EVERGREEN GROUNDCOVER TYPE 1	13
⊗ EVERGREEN GROUNDCOVER TYPE 2	12

END CAP DETAIL



ELEVATION

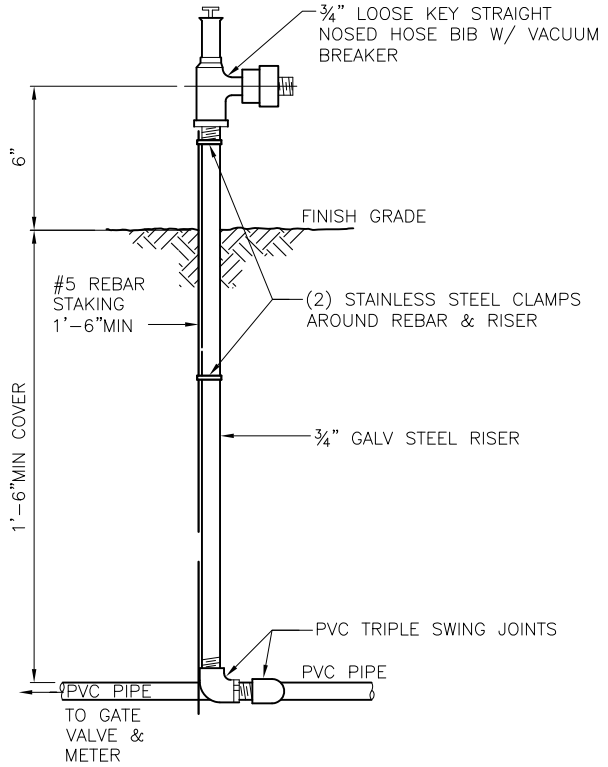


SOIL PREPARATION DETAIL

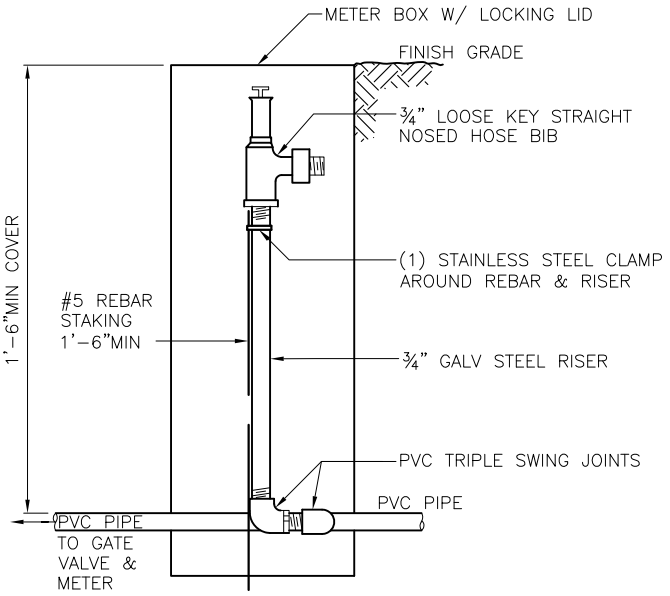
REF STD SPEC SEC 8-02

City of Seattle | NOT TO SCALE | MEDIAN PLANTING

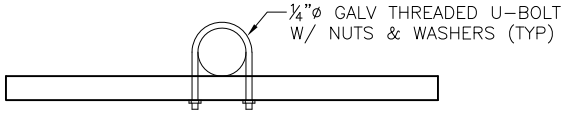
REV DATE: JUN 2005



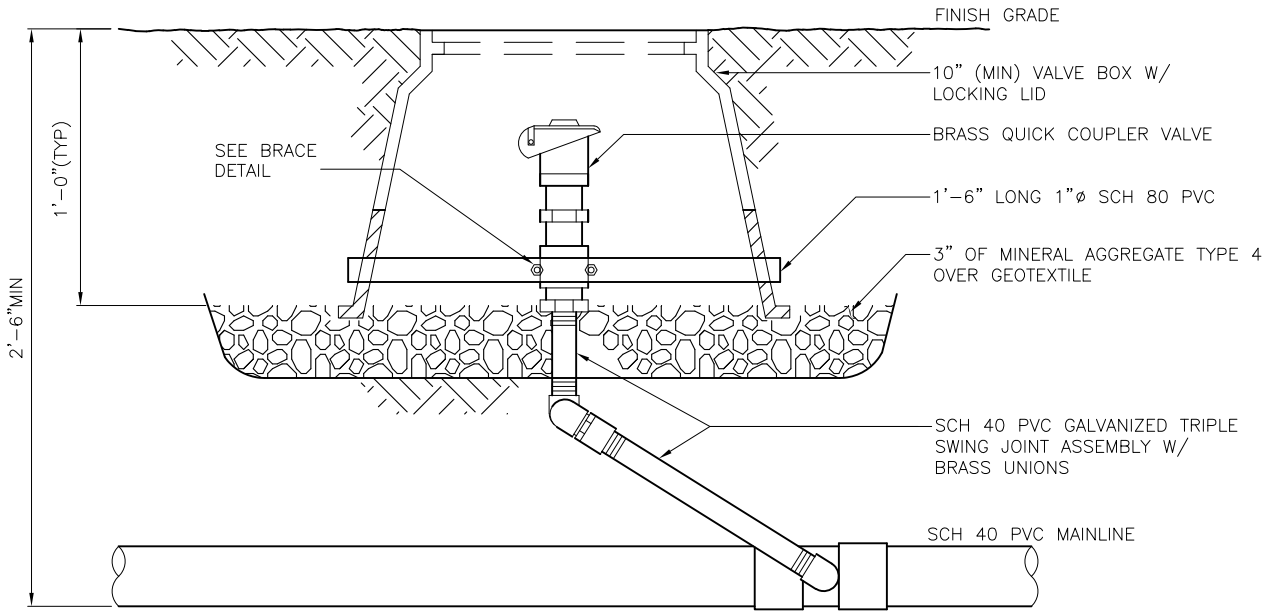
ABOVE GROUND HOSE BIB



BELOW GROUND HOSE BIB



BRACE DETAIL – PLAN VIEW



ELEVATION VIEW

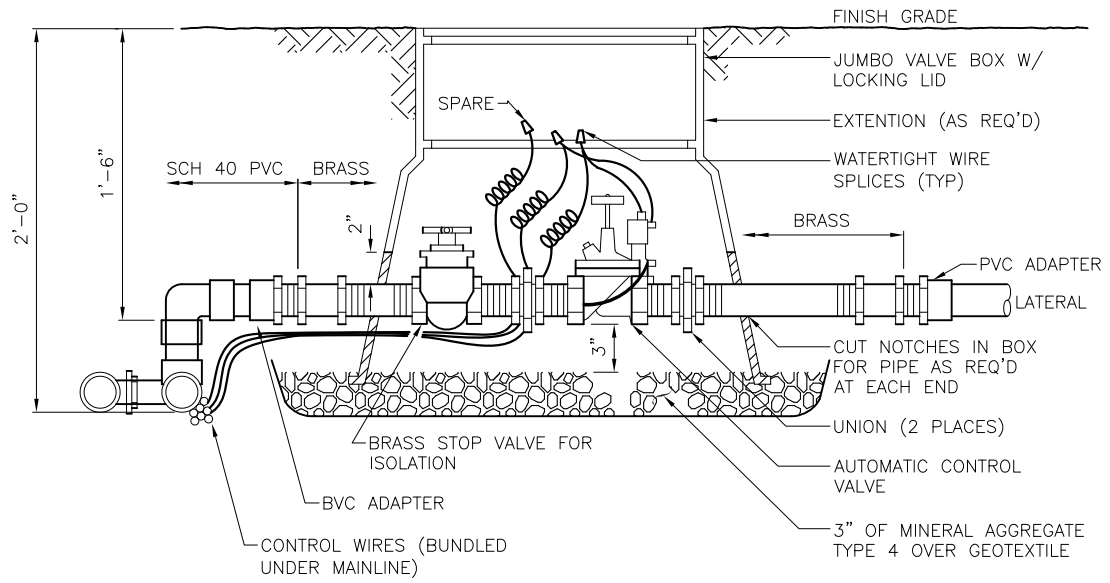
QUICK COUPLER VALVE

TURF OR BED AREAS

REF STD SPEC SEC 8-03

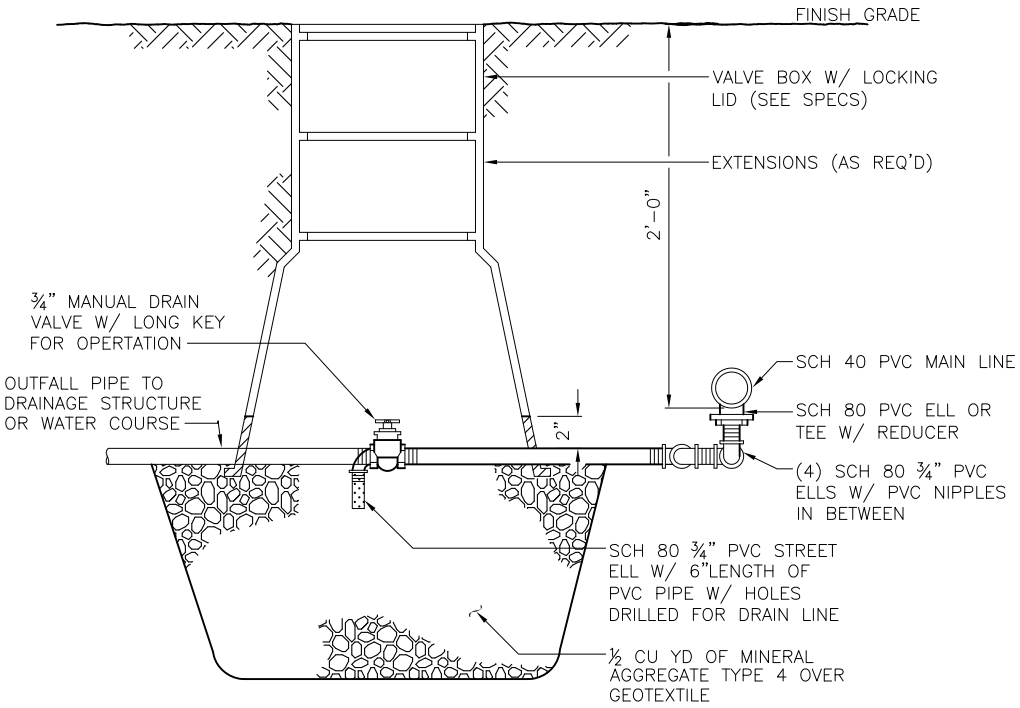
City of Seattle | NOT TO SCALE | HOSE BIB ASSEMBLY AND QUICK COUPLER VALVE

REV DATE: JUN 2005



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

AUTOMATIC CONTROL VALVE

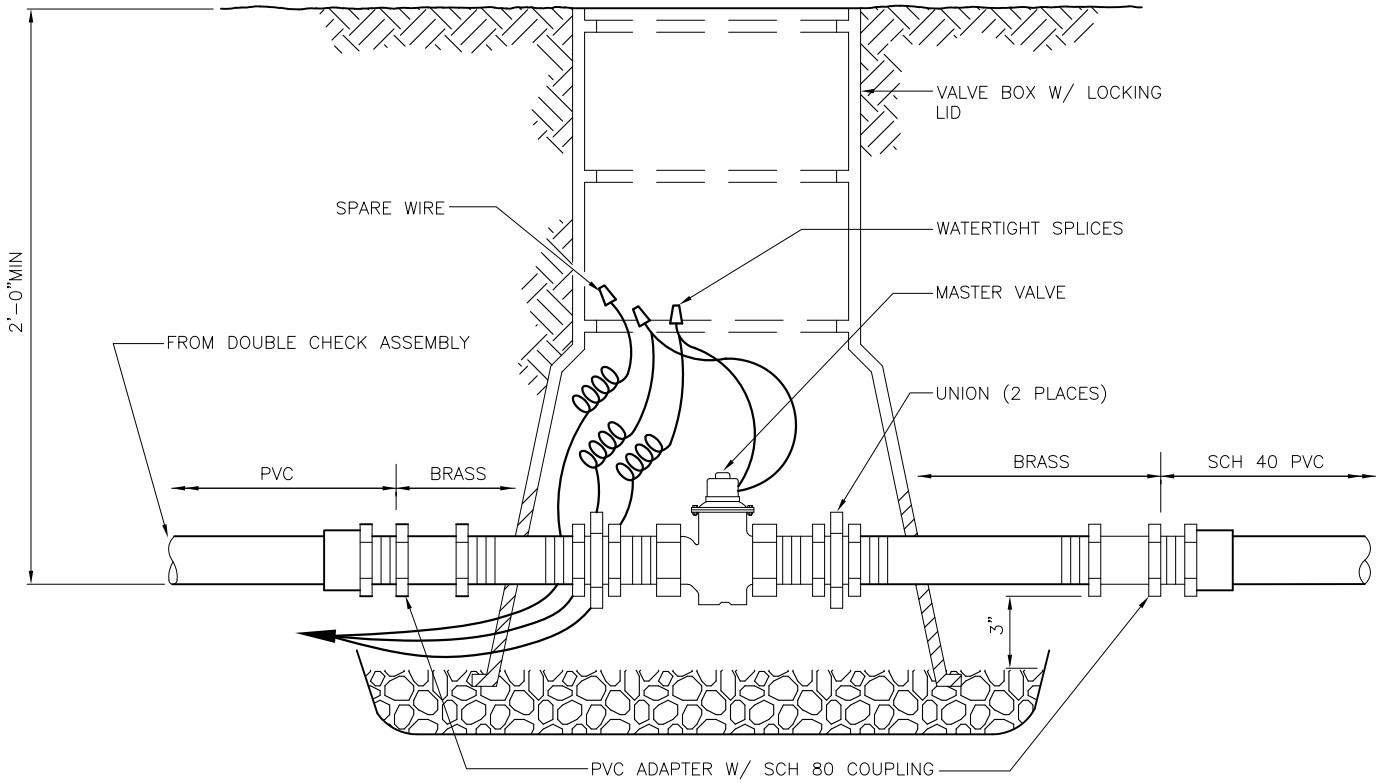


MANUAL DRAIN VALVE

REF STD SPEC SEC 8-03

City of Seattle	NOT TO SCALE	IRRIGATION VALVES

REV DATE: MAR 2013

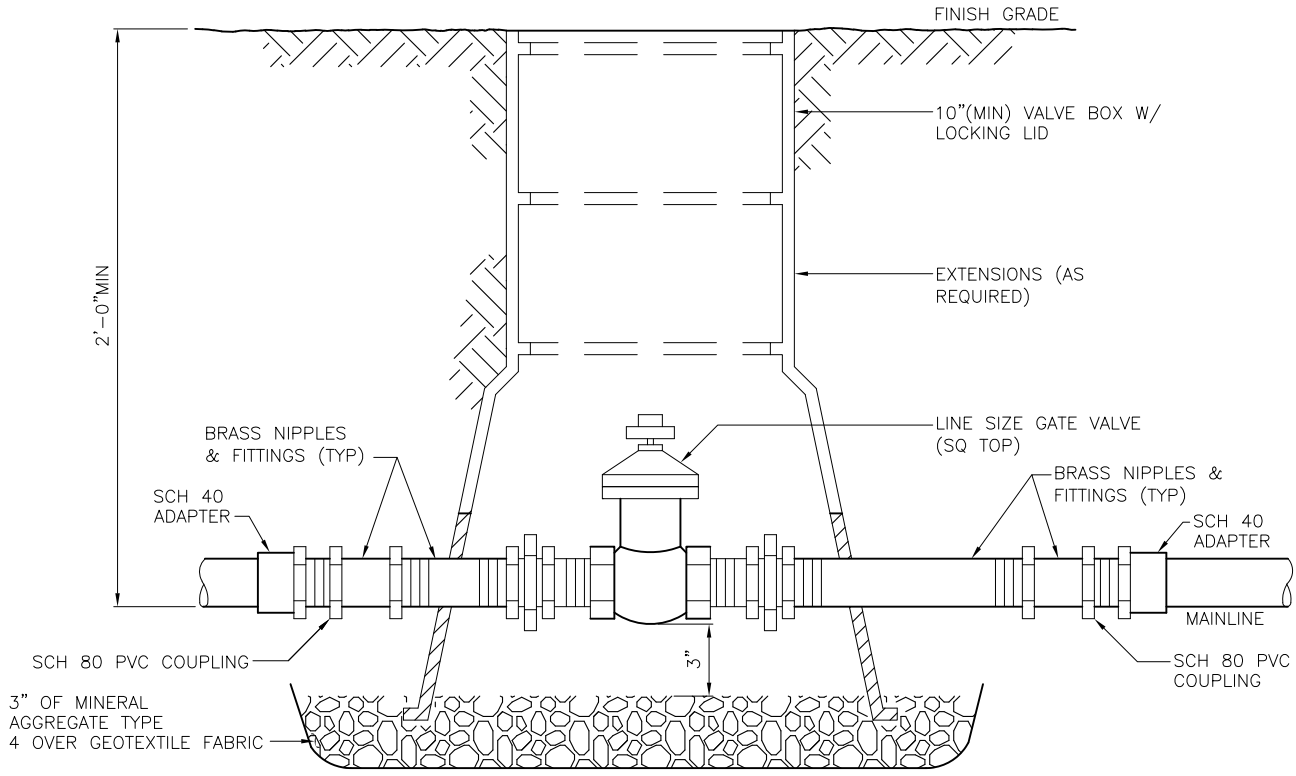


MASTER VALVE

REF STD SPEC SEC 8-03

City of Seattle	NOT TO SCALE	IRRIGATION VALVES

REV DATE: JUN 2005



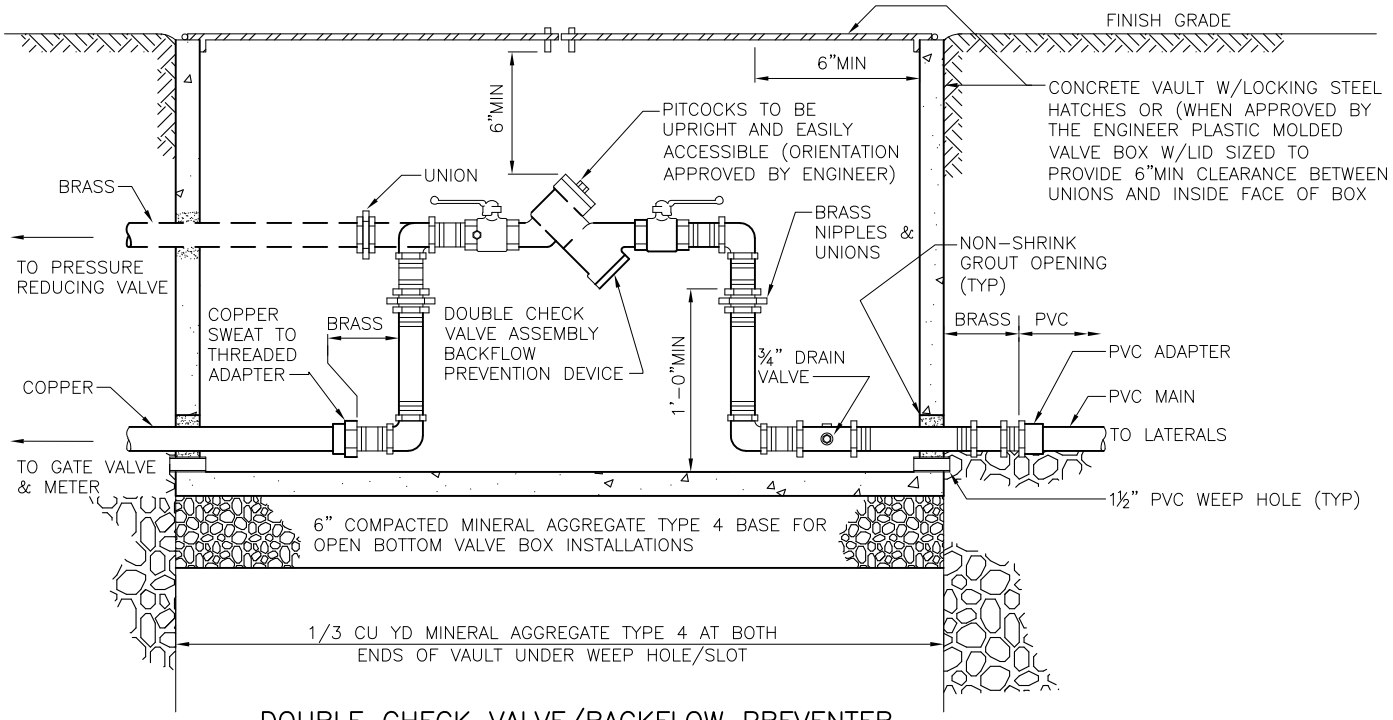
GATE VALVE – 2 1/2"& LARGER

NOTES:
USE TEFLON TAPE ON ALL THREADED FITTINGS

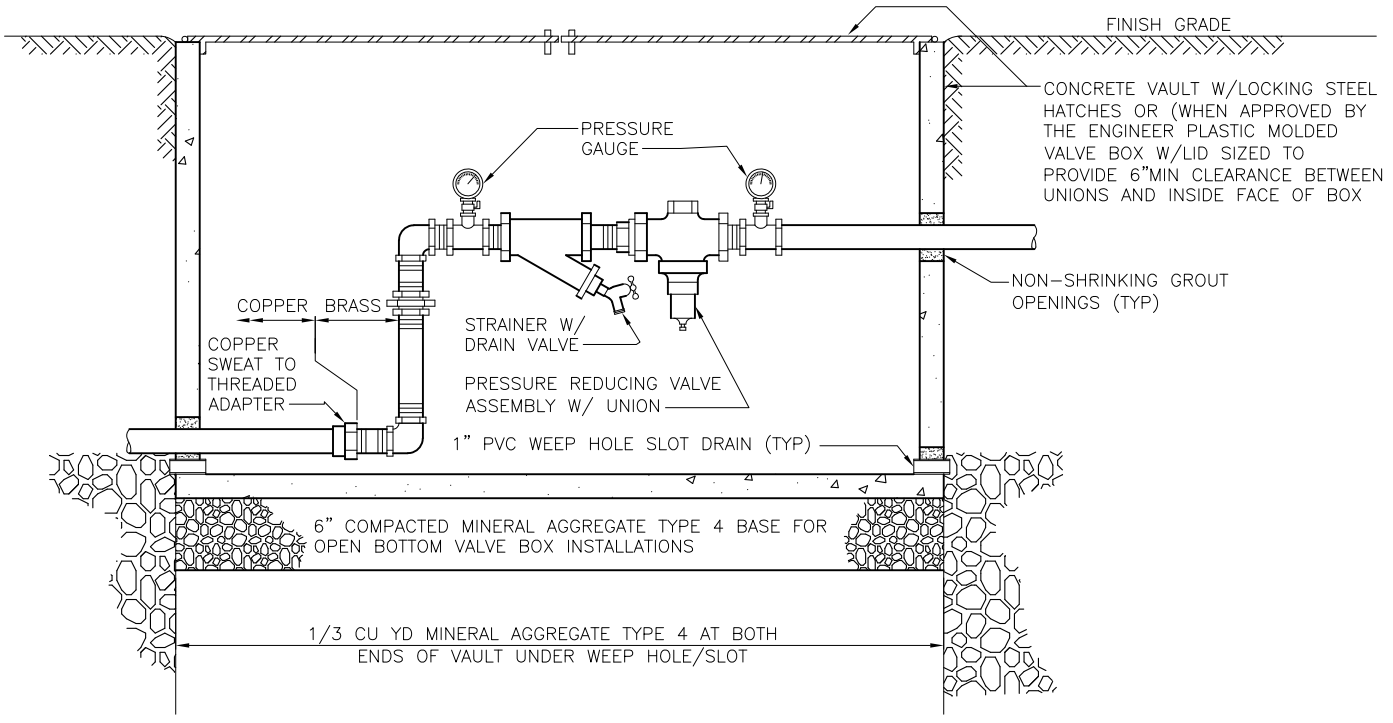
REF STD SPEC SEC 8-03

City of Seattle	NOT TO SCALE	IRRIGATION VALVES

REV DATE: JUN 2005



DOUBLE CHECK VALVE/BACKFLOW PREVENTER



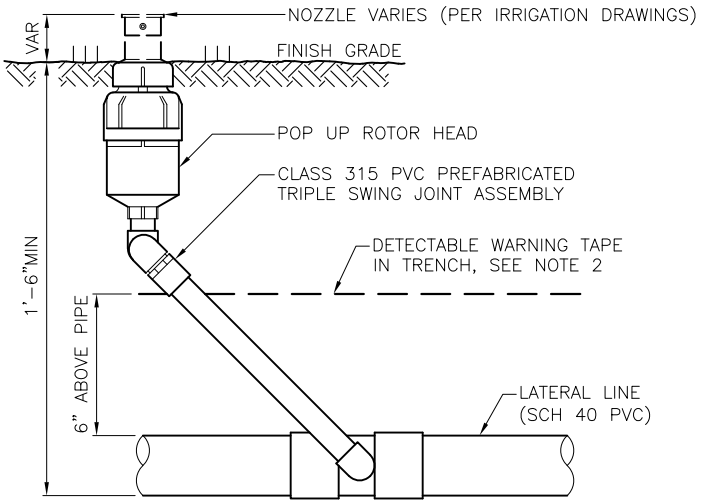
PRESSURE REDUCER STRAINER

(LOCATE DOWNSTREAM FROM BACKFLOW PREVENTION DEVICE)

REF STD SPEC SEC 8-03

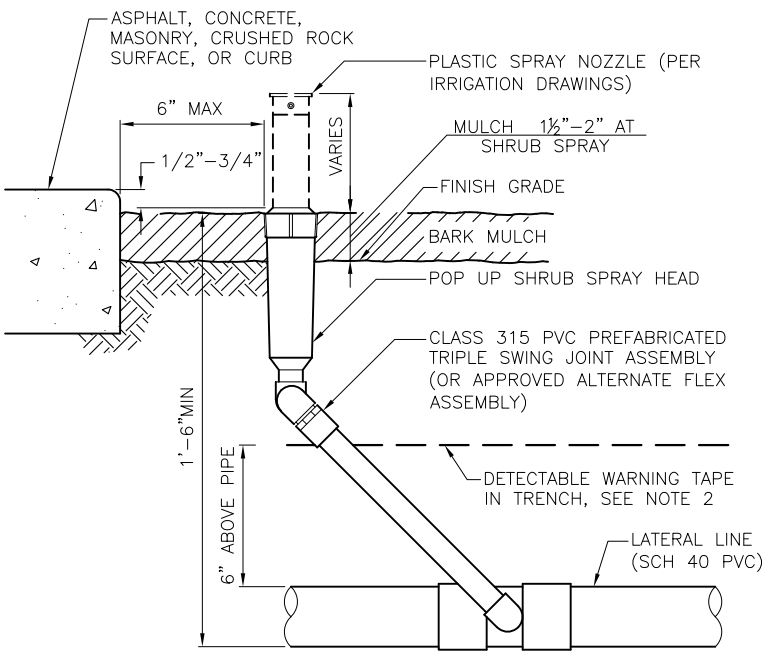
City of Seattle	NOT TO SCALE	IRRIGATION VALVES

REV DATE: SEP 2016

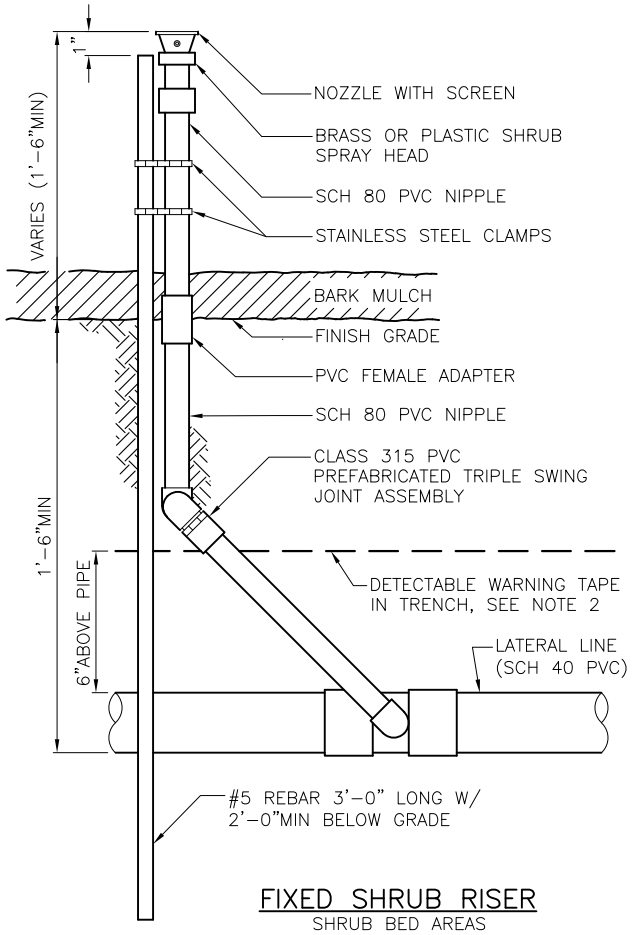


NOTE:
1. USE TEFLON TAPE ON ALL THREADED FITTINGS
2. DETECTABLE MARKING TAPE COLOR PER STANDARD SPECIFICATIONS SECTION 9-15.11 FOR POTABLE OR NON-POTABLE WATER

POP UP ROTOR HEAD
TURF AREAS



POP UP ROTOR HEAD (SHRUB BED AREAS)
AT EDGE OF PAVEMENT

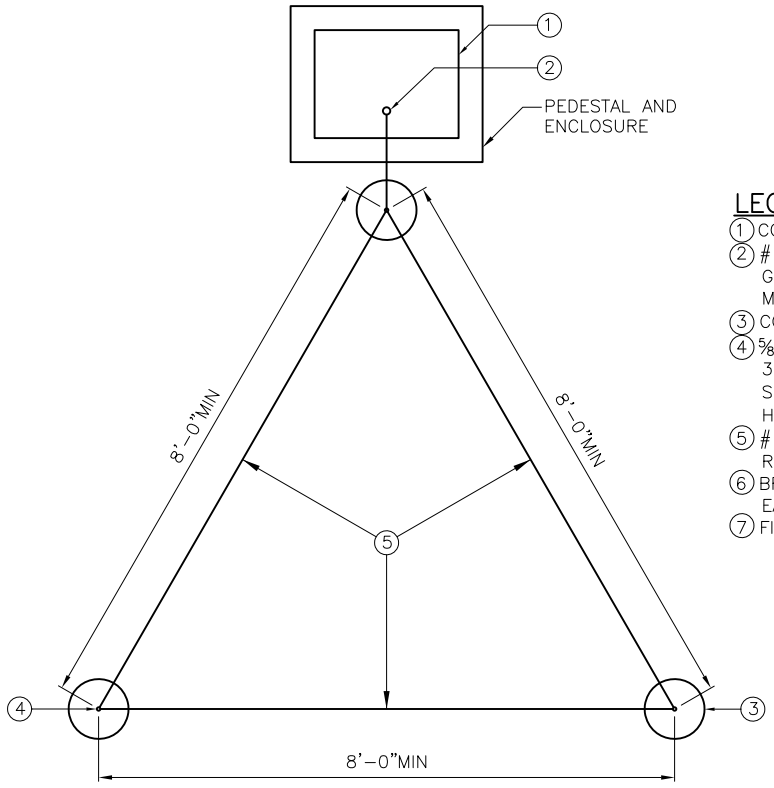


FIXED SHRUB RISER
SHRUB BED AREAS

REF STD SPEC SEC 8-03

City of Seattle	NOT TO SCALE	POP UP & FIXED IRRIGATION HEADS

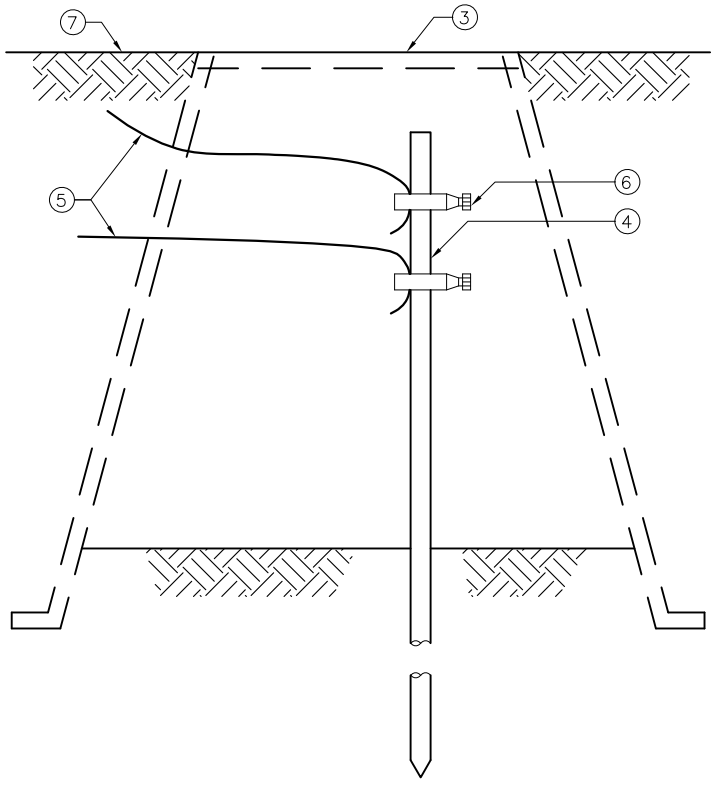
REV DATE: JUN 2005



GROUND ROD LAYOUT

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. 5/8"X10'-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 ASSEMBLY

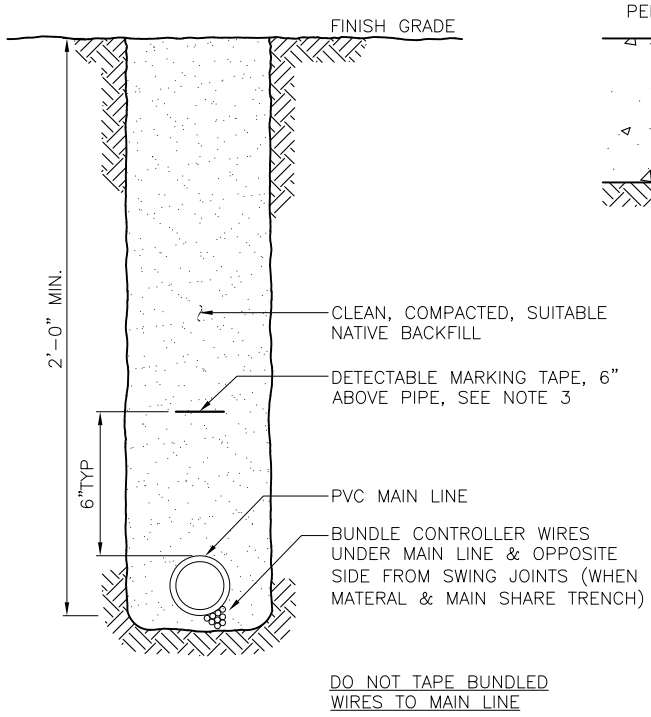
REF STD SPEC SEC 8-03

City of Seattle

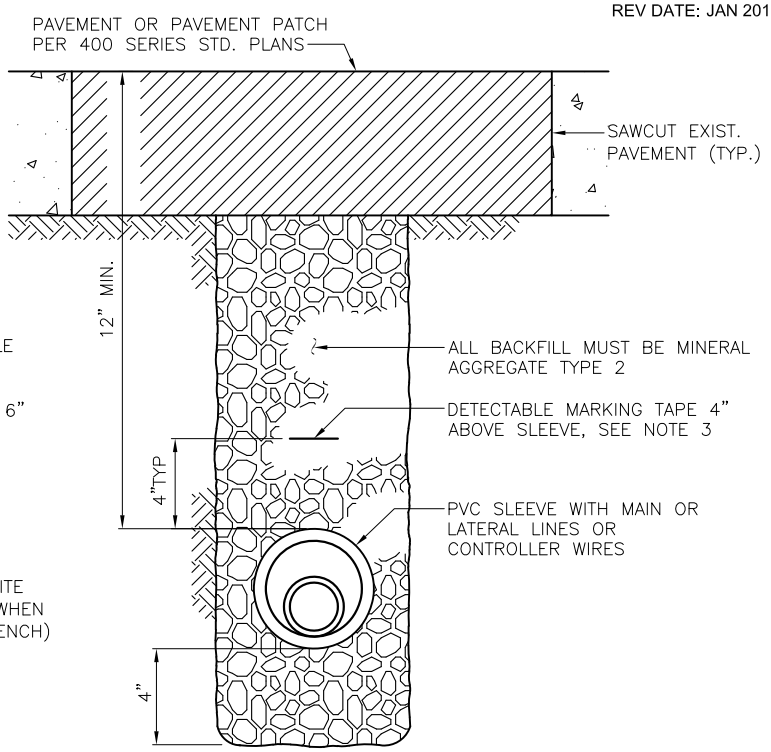
NOT TO SCALE

IRRIGATION CONTROLLER PEDESTAL AND ENCLOSURE GROUNDING

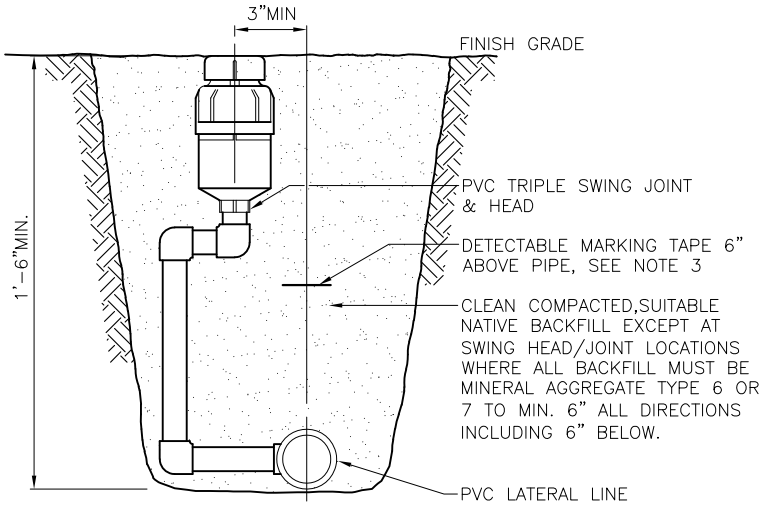
REV DATE: JAN 2017



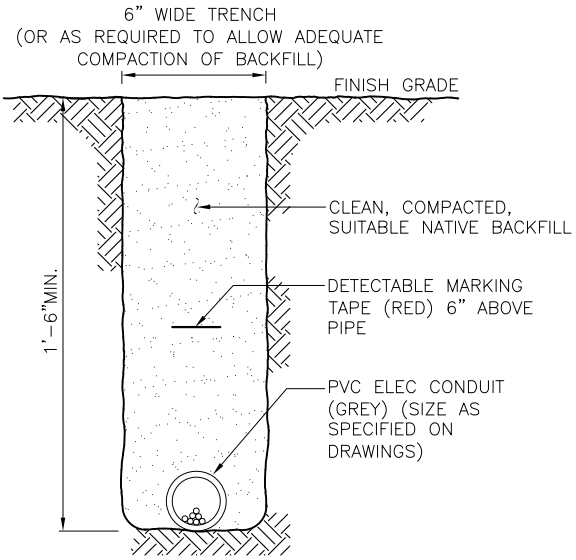
MAIN LINE



SLEEVE TRENCHING



LATERAL LINE



ELECTRICAL SUPPLY TRENCH

NOTES:

1. SLEEVE SIZE AS SHOWN ON DRAWINGS OR ID OF SLEEVE TO BE 1" GREATER THAN OD OF PIPE
2. SLEEVES REQUIRED UNDER ALL PAVED AREAS
3. DETECTABLE MARKING TAPE COLOR PER STANDARD SPECIFICATIONS SECTION 9-15.11 FOR POTABLE OR NON-POTABLE WATER

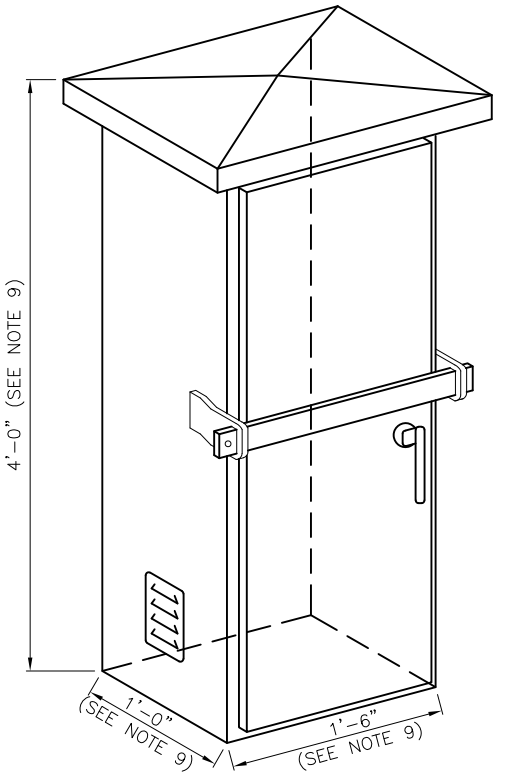
REF STD SPEC SEC 8-03

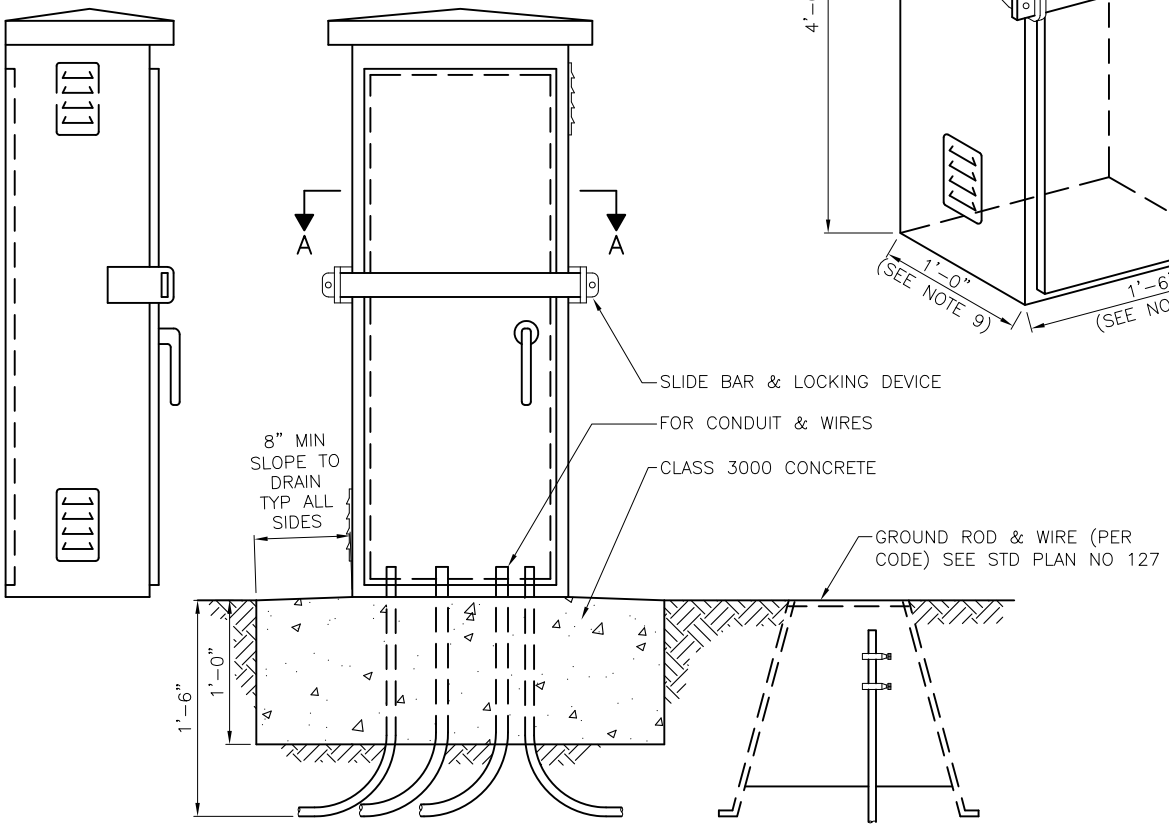
City of Seattle	NOT TO SCALE	IRRIGATION TRENCHES

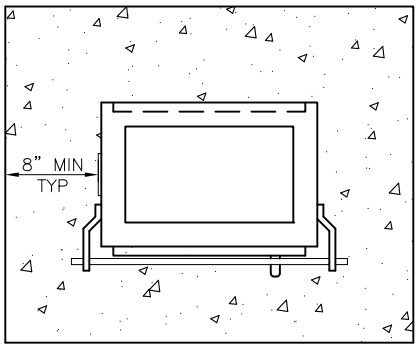
REV DATE: NOV 2013

NOTES:

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.







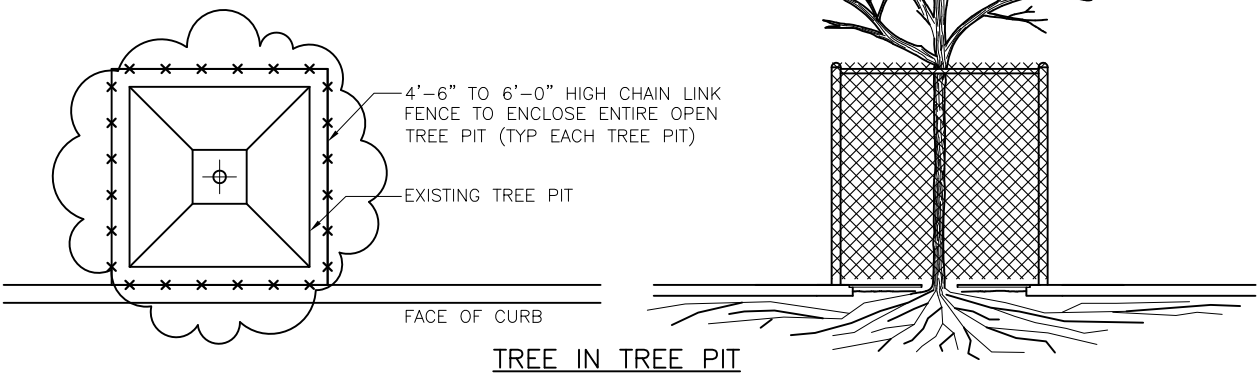
SECTION A–A

REF STD SPEC SEC 8-03

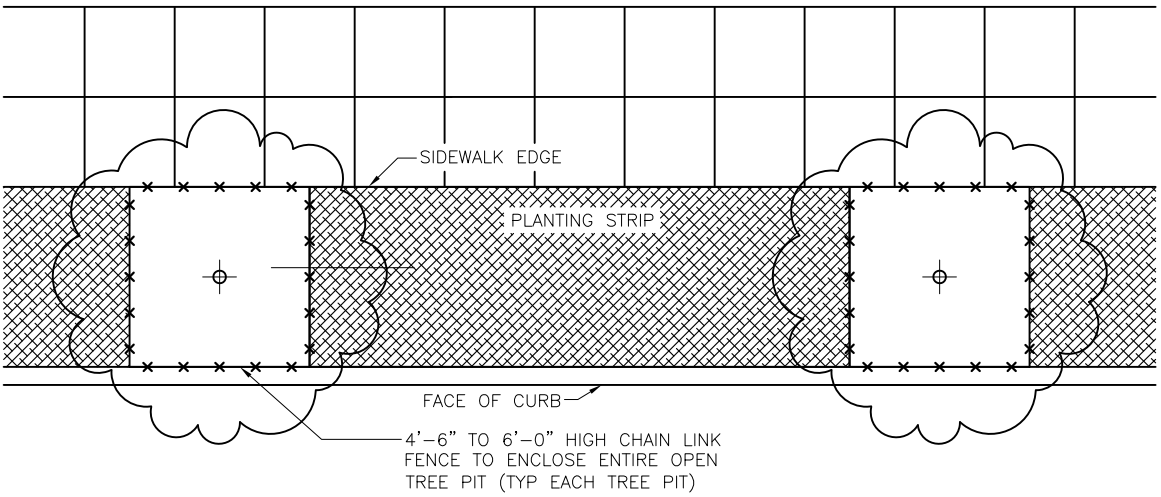
City of Seattle | NOT TO SCALE | IRRIGATION CONTROLLER CABINET

REV DATE: AUG 2010

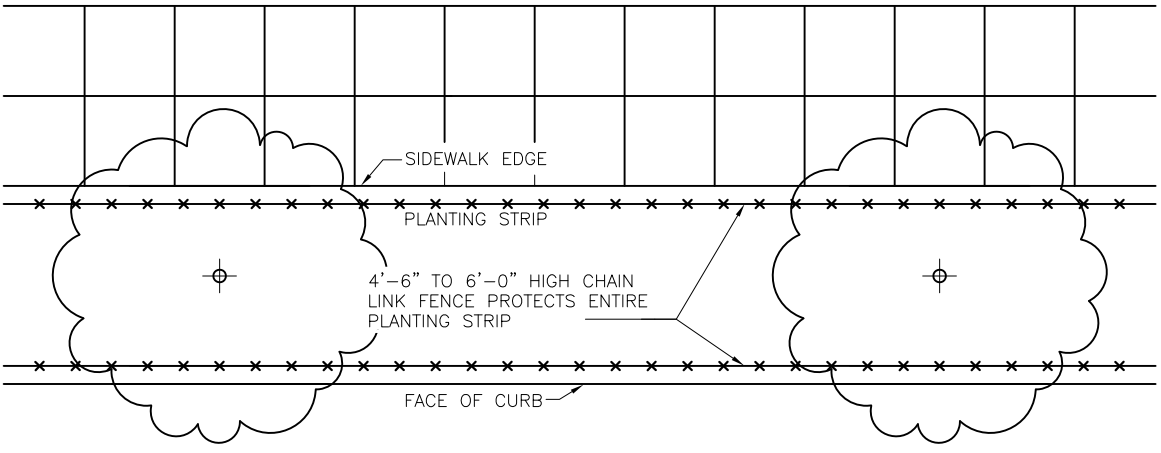
NOTE:
CONSIDER TRAFFIC TURNING VISIBILITY AND PEDESTRIAN VISIBILITY WHEN SELECTING FENCE HEIGHT; TYPICALLY SHORTER FENCING AROUND TREE PITS BETWEEN SIDEWALK AND ROADWAY IS DESIRED.



TREE IN TREE PIT



TREE IN PLANTING STRIP–OPTION 1

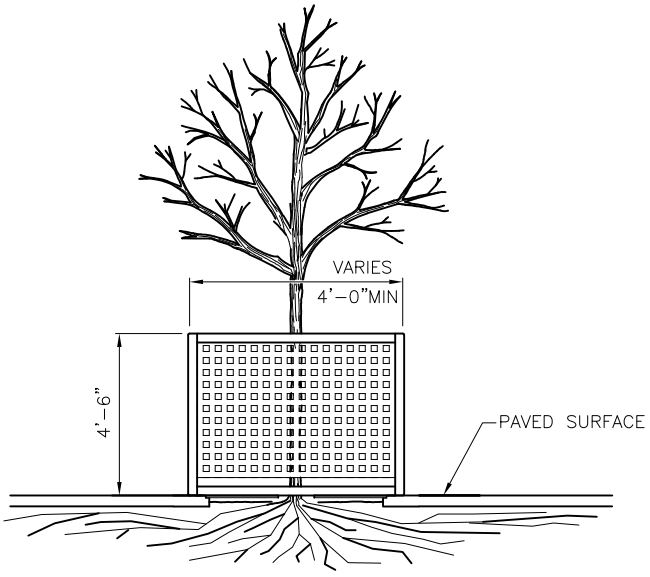


TREE IN PLANTING STRIP–OPTION 2

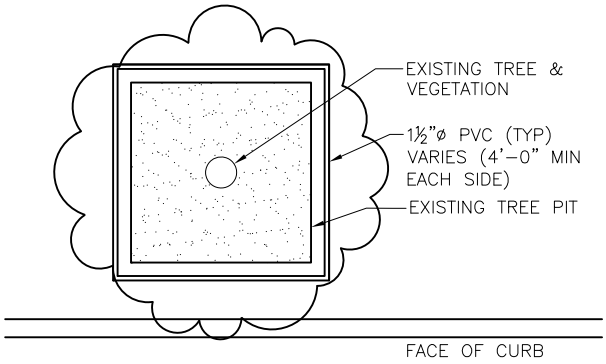
REF STD SPEC SEC 1-07.16(2), 8-01

City of Seattle	NOT TO SCALE	TREE PROTECTION DURING CONSTRUCTION

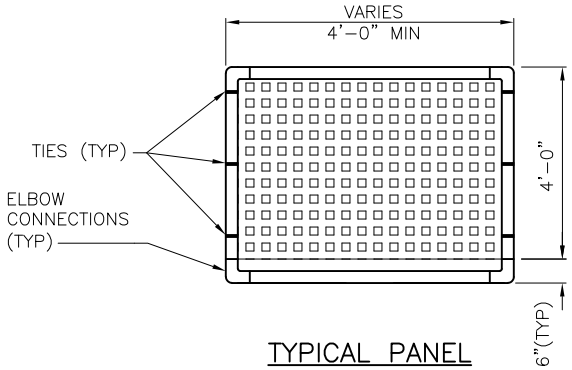
REV DATE: JAN 2017



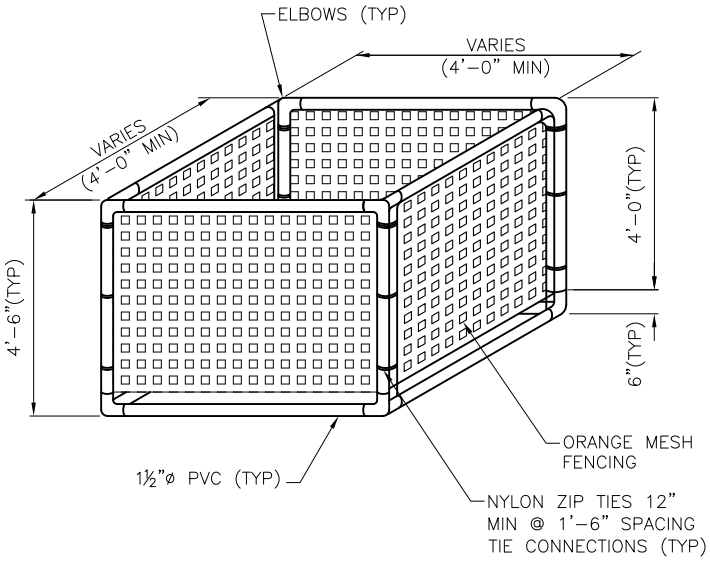
TYPICAL TREE GUARD RAIL



PLAN VIEW



TYPICAL PANEL



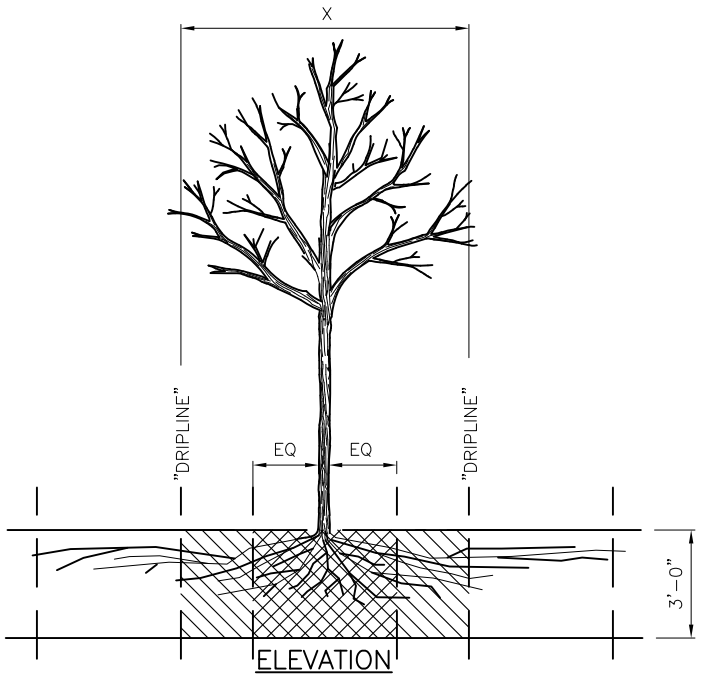
NOTES:

1. REUSABLE TEMPORARY PROTECTION FENCING USED TO PROTECT TREES IN TREE PITS MUST SURROUND THE ENTIRE UNPAVED TREE PIT AREA AND BE ANCHORED AND MAINTAINED IN A STABLE UPRIGHT CONDITION. SEE SECTION 8–01.3(2)B.

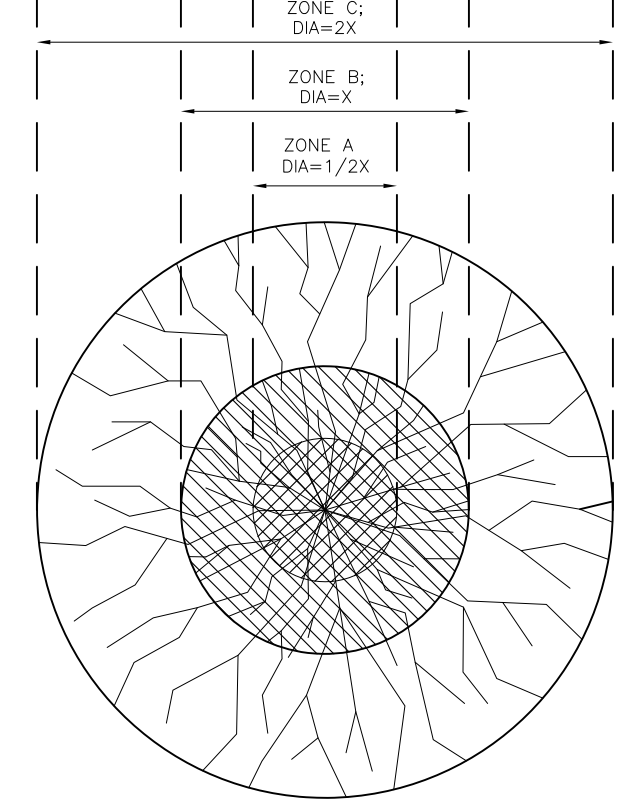
REF STD SPEC SEC 1-07.16(2) & 8-01

City of Seattle	NOT TO SCALE	REUSABLE TEMPORARY PROTECTION FENCE

REV DATE: DEC 2010



ELEVATION



PLAN

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".

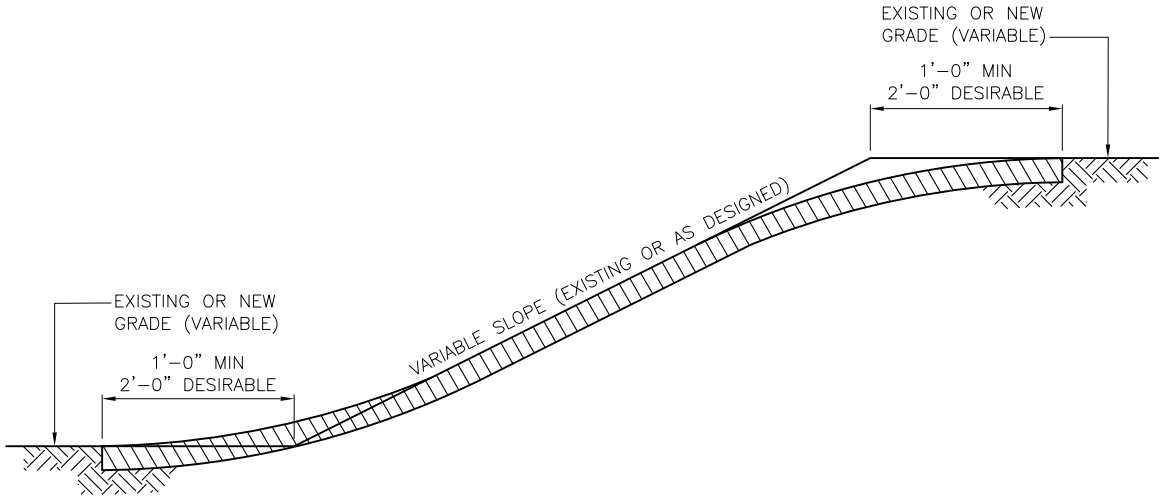
NOTE:

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

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

City of Seattle	NOT TO SCALE	TREE PROTECTION DURING TRENCHING, TUNNELING OR EXCAVATION

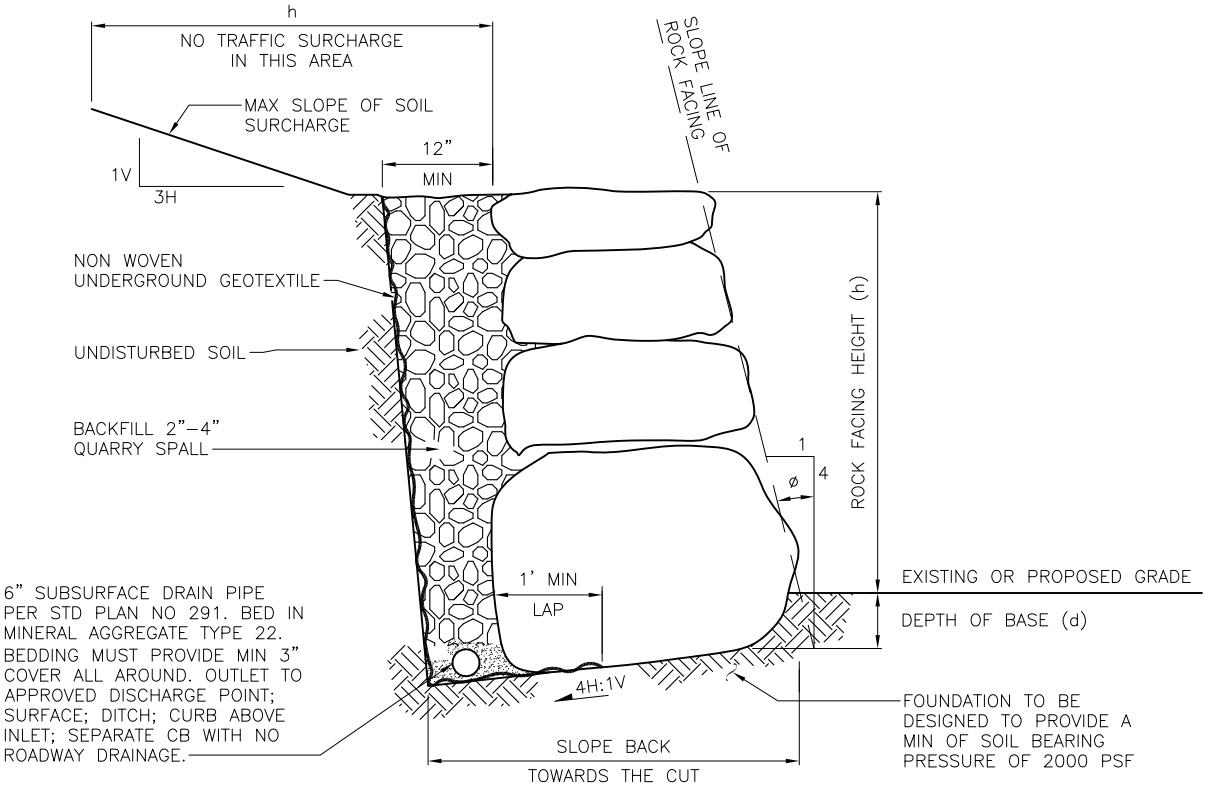
REV DATE: JUN 2005



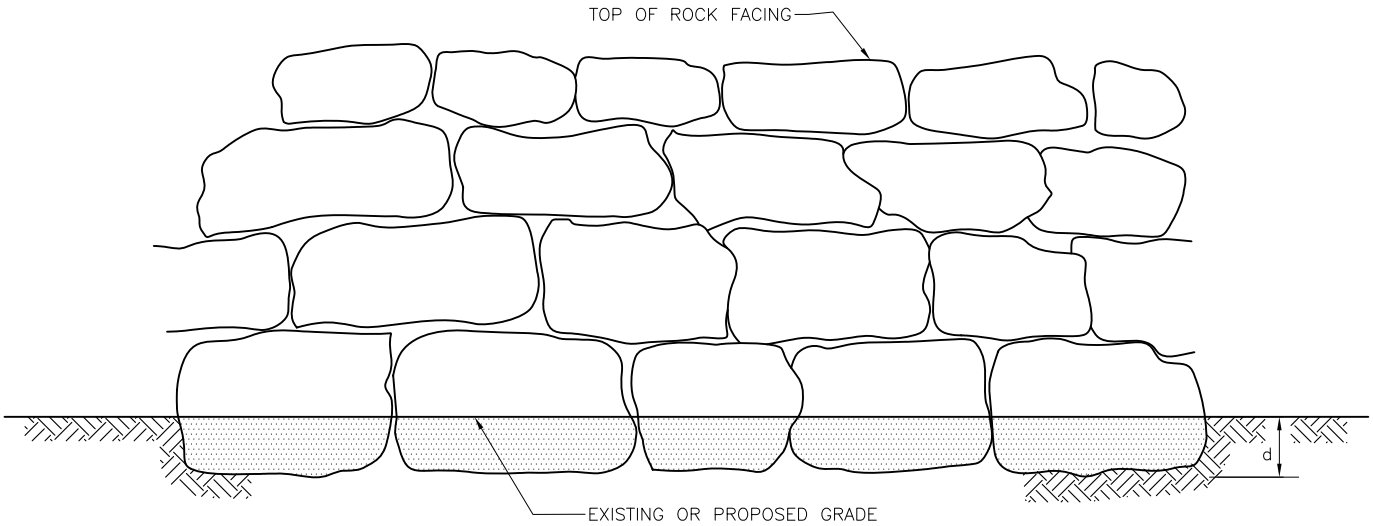
REF STD SPEC SEC 2-04

City of Seattle	NOT TO SCALE	SLOPE ROUNDING

REV DATE: JUN 2005



SECTION



ELEVATION

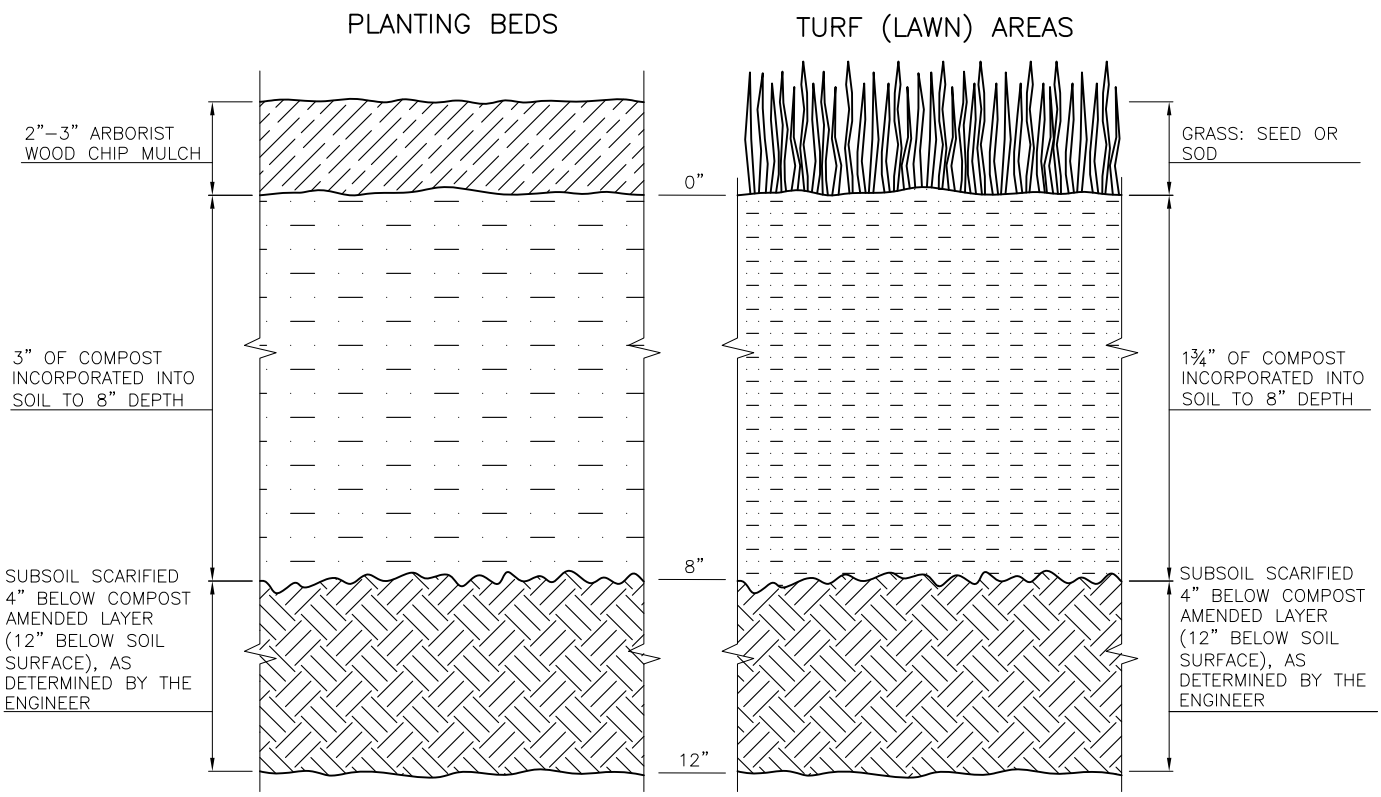
		MINIMUM ROCK	
(h)	(d)	SIZE(BASE)	SIZE(TOP)
2 FEET	3 INCHES	2–MAN	1–MAN
4 FEET	6 INCHES	3–MAN	2–MAN
6 FEET	9 INCHES	4–MAN	2–MAN
8 FEET	12 INCHES	5–MAN	2–MAN

ø = 14° ±1°

REF STD SPEC SEC 2-13

City of Seattle | NOT TO SCALE | ROCK FACING

REV DATE: JAN 2017



NOTES:

1. ALL SOIL AREAS DISTURBED OR COMPACTED DURING CONSTRUCTION, AND NOT COVERED BY BUILDINGS OR PAVEMENT, MUST BE AMENDED WITH COMPOST AS DESCRIBED BELOW.

2. SUBSOIL SHOULD BE SCARIFIED (LOOSENED) 4 INCHES BELOW AMENDED LAYER, TO PRODUCE 12–INCH DEPTH OF UN–COMPACTED SOIL, EXCEPT WHERE SCARIFICATION WOULD DAMAGE TREE ROOTS OR AS DETERMINED BY THE ENGINEER.

3. COMPOST MUST BE TILLED IN TO 8 INCH DEPTH INTO EXISTING SOIL, OR PLACE 8 INCHES OF COMPOST–AMENDED SOIL, PER SOIL SPECIFICATION.

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

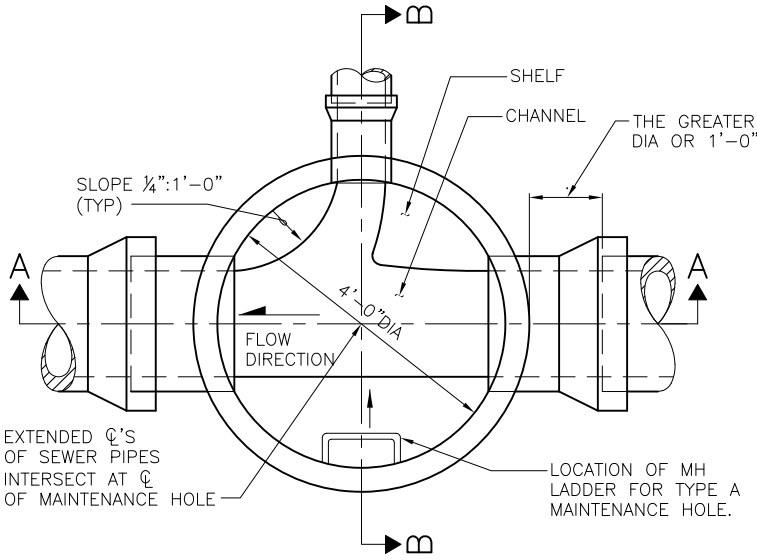
5. PLANTING BEDS MUST RECEIVE 3 INCHES OF COMPOST TILLED IN TO 8–INCH DEPTH, OR MAY SUBSTITUTE 8" OF IMPORTED SOIL CONTAINING 35–40% COMPOST BY VOLUME. MULCH AFTER PLANTING, WITH 2–3 INCHES OF ARBORIST WOOD CHIP MULCH OR APPROVED EQUAL.

6. SETBACKS: TO PREVENT UNEVEN SETTLING, DO NOT COMPOST–AMEND SOILS WITHIN 3 FEET OF UTILITY INFRASTRUCTURES (POLES, VAULTS, METERS ETC.). WITHIN ONE FOOT OF PAVEMENT EDGE, CURBS AND SIDEWALKS SOIL SHOULD BE COMPACTED TO APPROXIMATELY 90% PROCTOR TO ENSURE A FIRM SURFACE.

REF STD SPEC SEC 8-01, 8-02 & 9-14

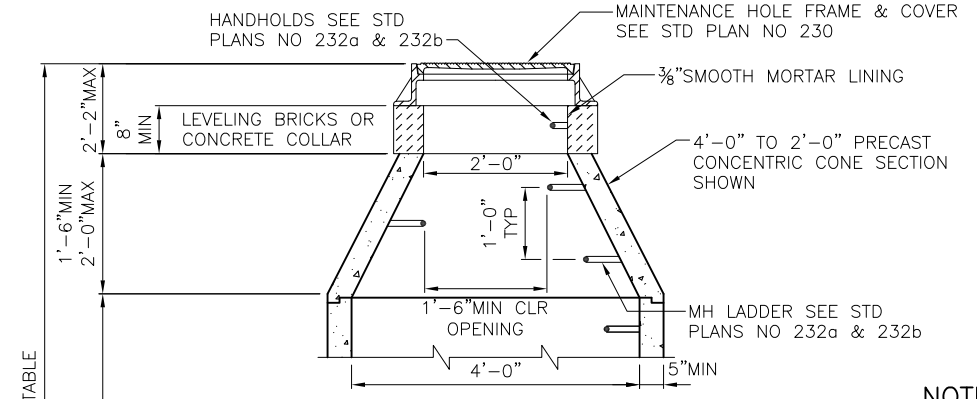
City of Seattle	NOT TO SCALE	SOIL AMENDMENT AND DEPTH

REV DATE: NOV 2014

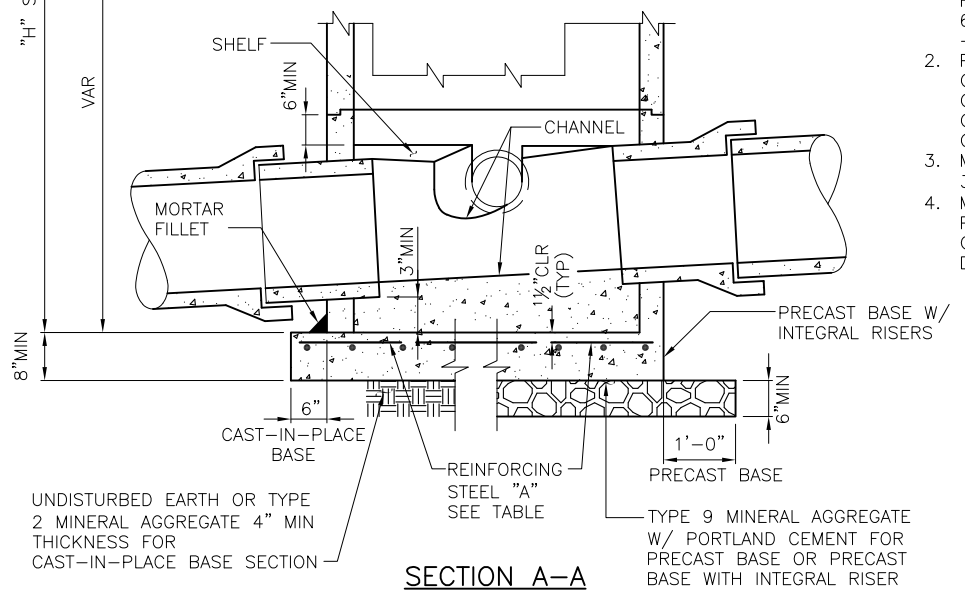


PLAN VIEW
(TOP REMOVED)

"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST–IN–PLACE BASE
20' MAX	0.25	0.17
30' MAX	0.31	0.22
40' MAX	0.36	0.25



SECTION B–B



SECTION A–A

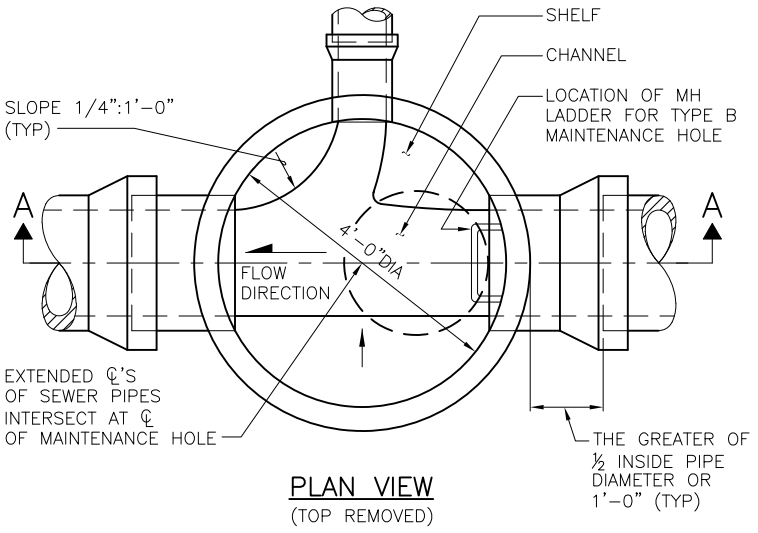
NOTES:

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

REF STD SPEC SEC 7-05

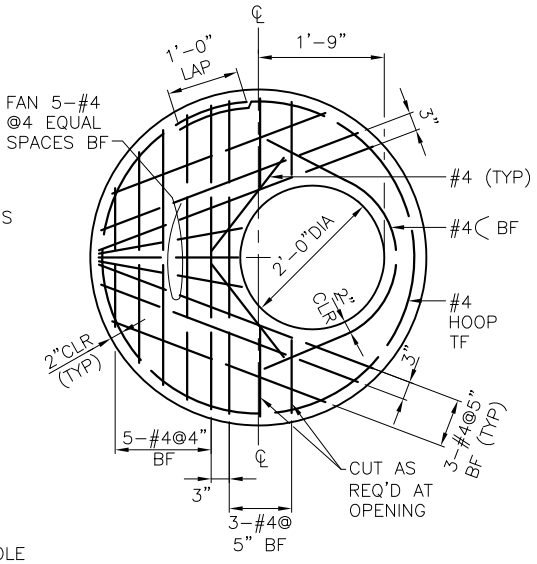
City of Seattle	NOT TO SCALE	TYPE 204a MAINTENANCE HOLE

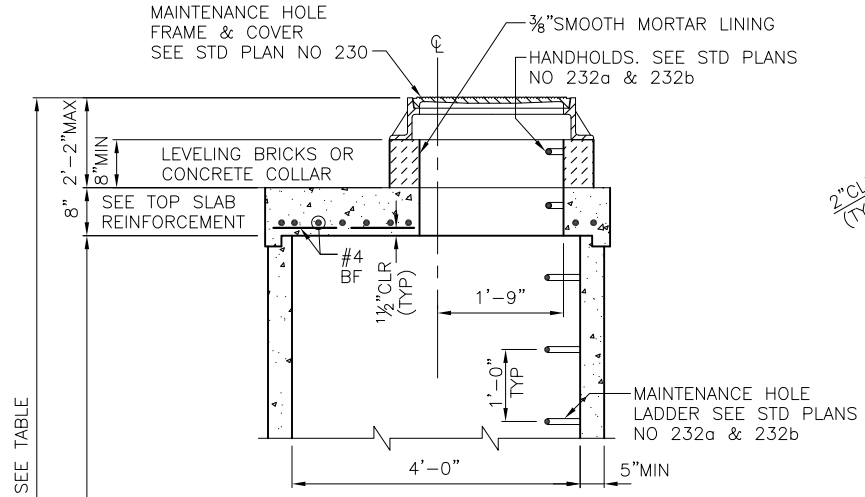
REV DATE: FEB 2016

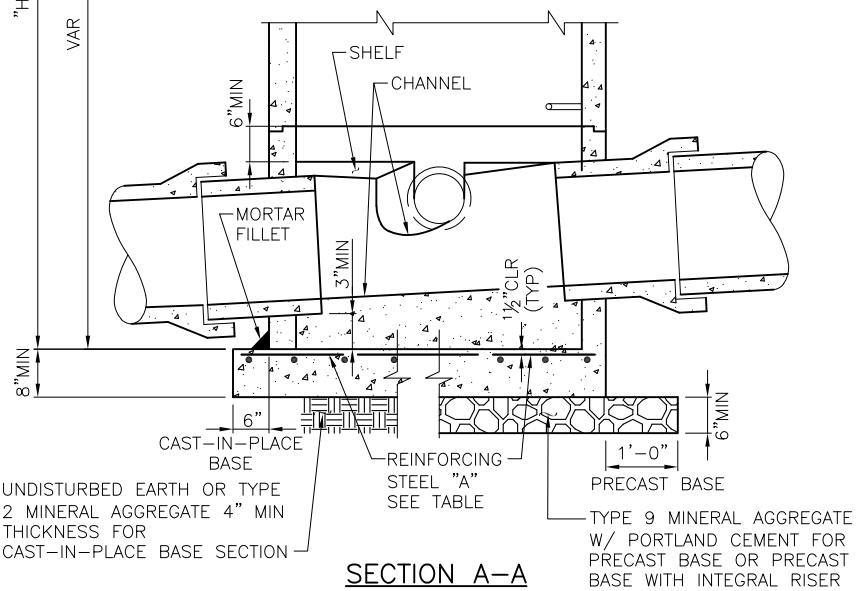


PLAN VIEW
(TOP REMOVED)

"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST-IN-PLACE BASE
20' MAX	0.25	0.17
30' MAX	0.31	0.22
40' MAX	0.36	0.25







SECTION A-A

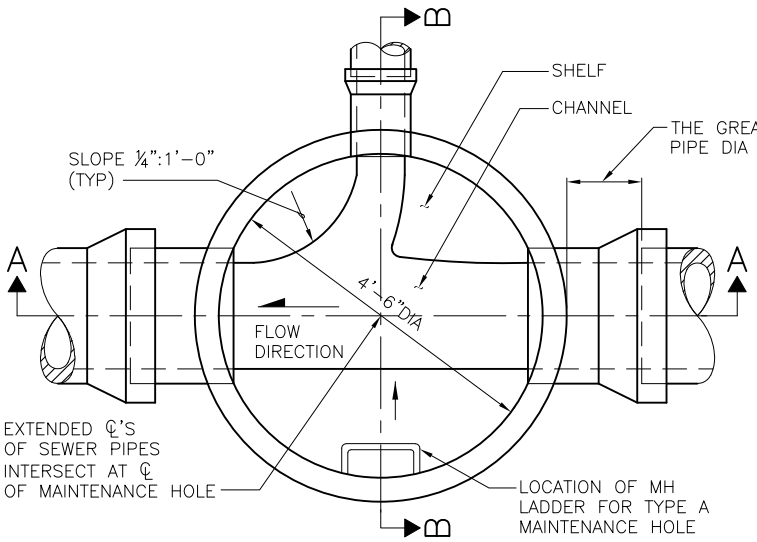
NOTES:

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

REF STD SPEC SEC 7-05

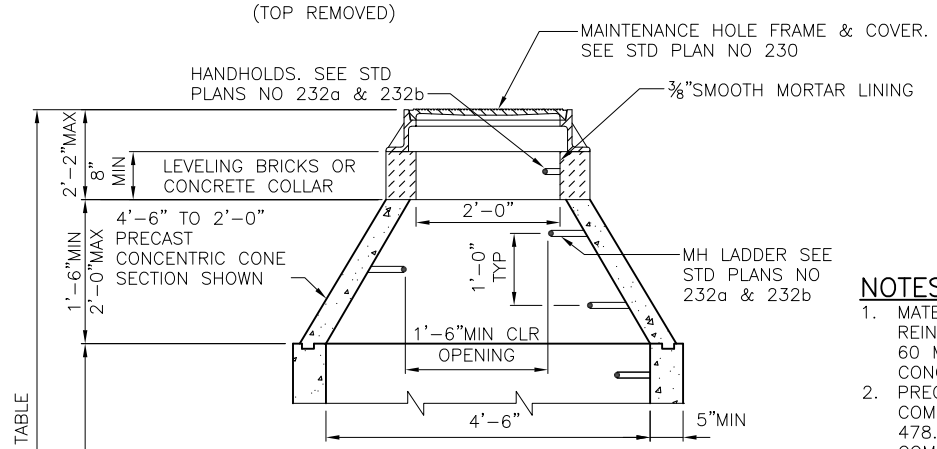
City of Seattle	NOT TO SCALE	TYPE 204b MAINTENANCE HOLE

REV DATE: NOV 2014

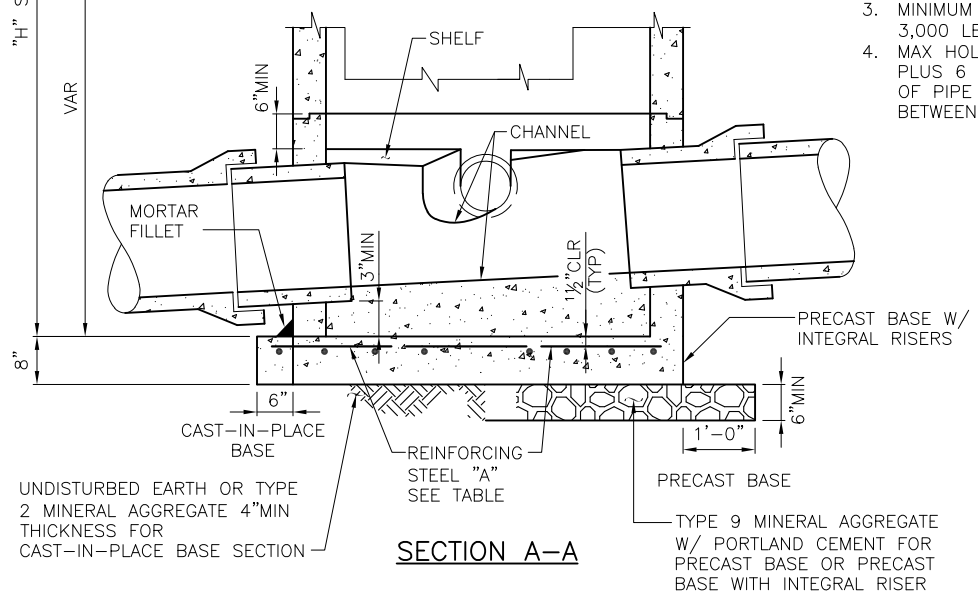


PLAN VIEW
(TOP REMOVED)

"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST–IN–PLACE BASE
20' MAX	0.29	0.21
30' MAX	0.36	0.26
40' MAX	0.42	0.31



SECTION B–B



SECTION A–A

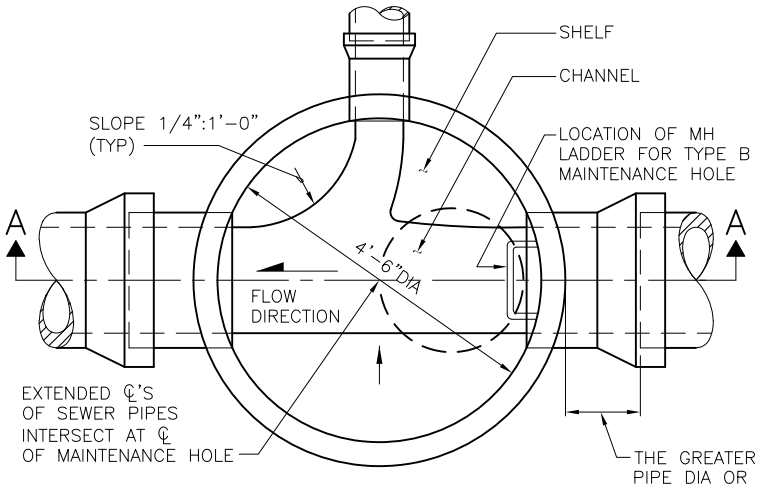
NOTES:

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

REF STD SPEC SEC 7-05

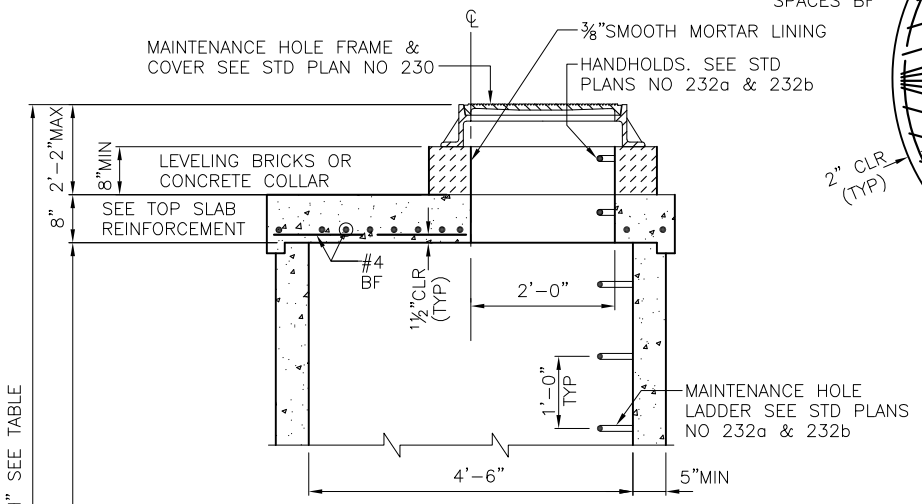
City of Seattle	NOT TO SCALE	TYPE 204.5a MAINTENANCE HOLE

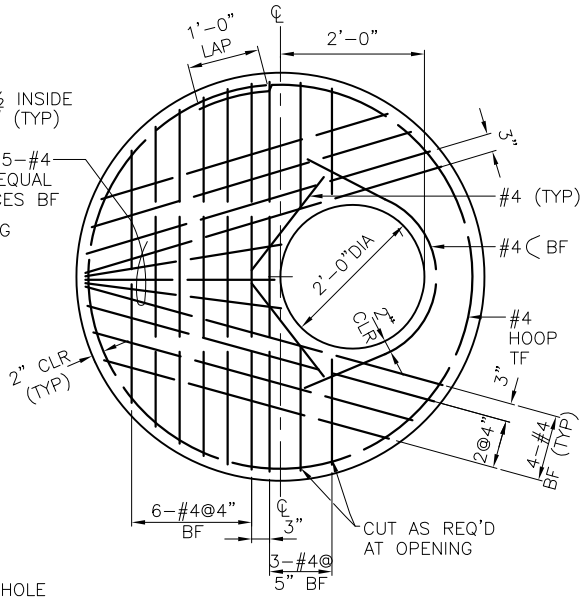
REV DATE: DEC 2013



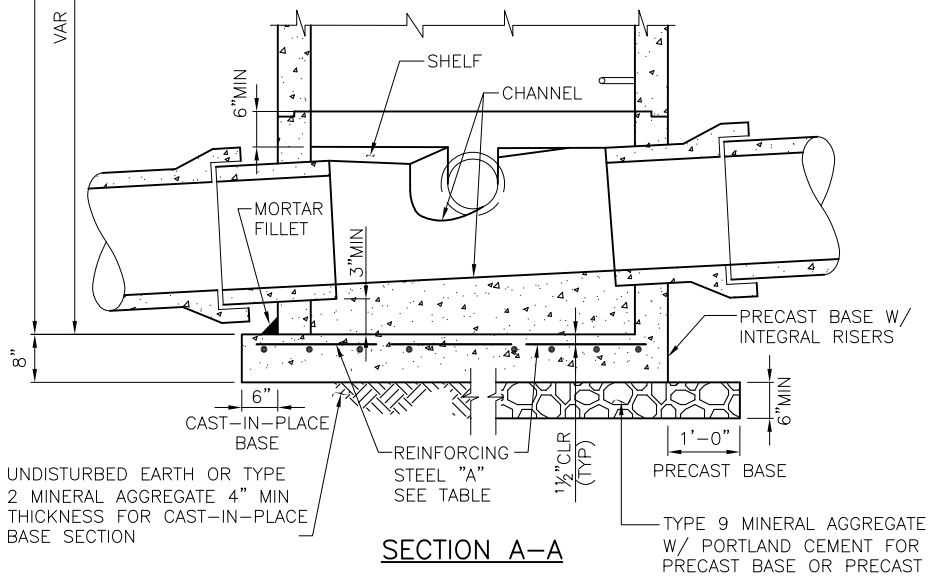
PLAN VIEW
(TOP REMOVED)

"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST-IN-PLACE BASE
20' MAX	0.29	0.21
30' MAX	0.36	0.26
40' MAX	0.42	0.31





TOP SLAB REINFORCEMENT



SECTION A-A

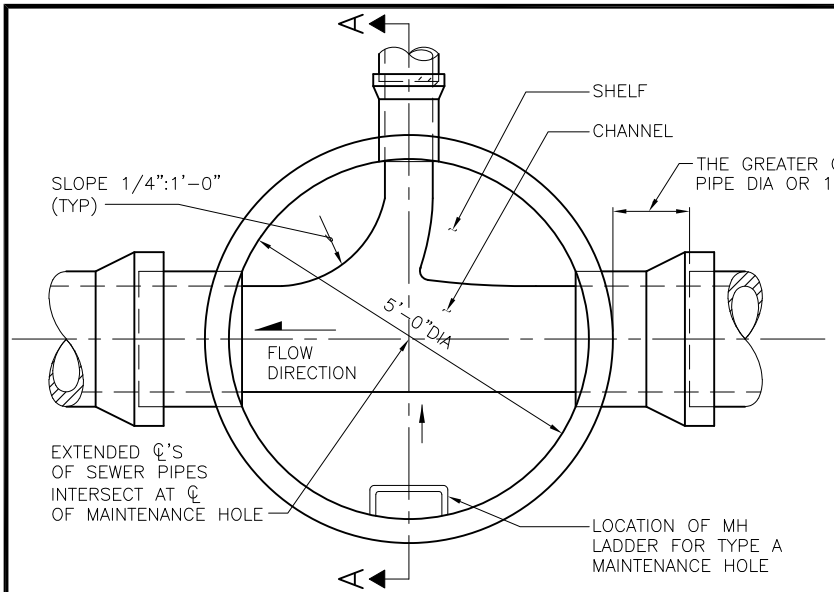
NOTES:

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

REF STD SPEC SEC 7-05

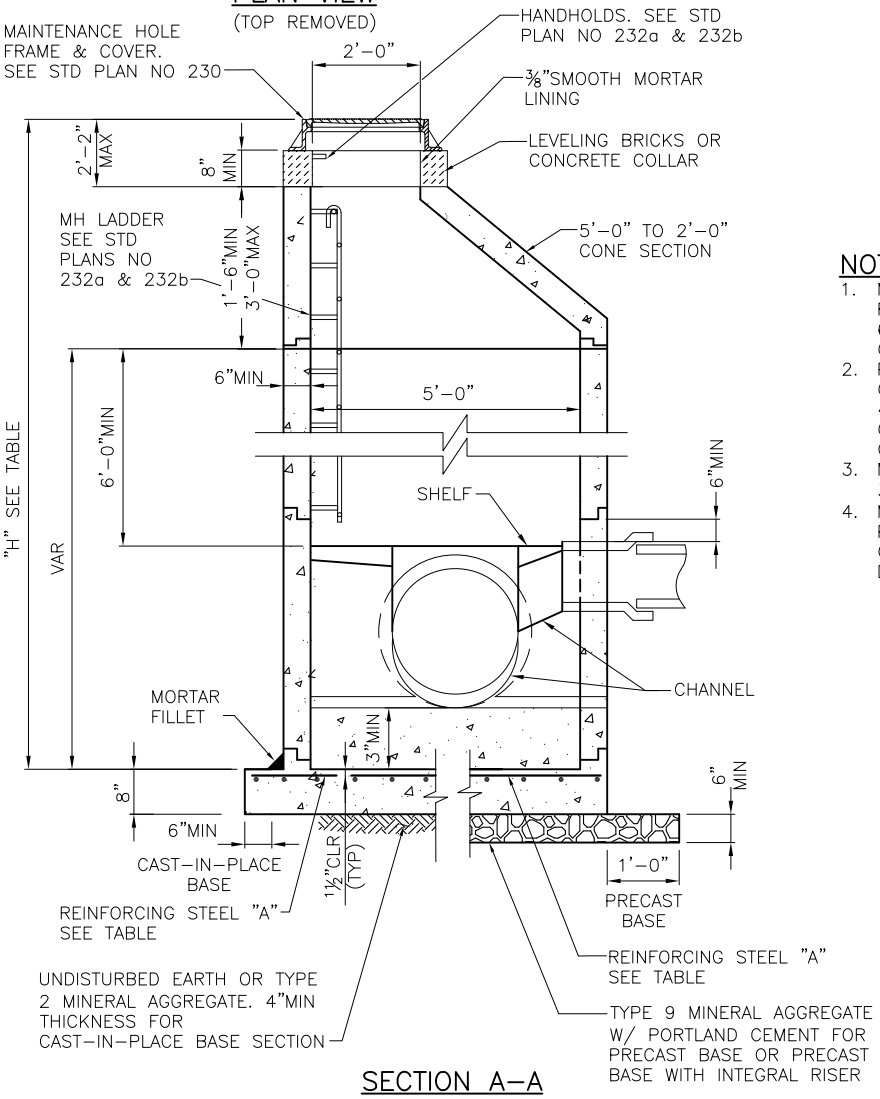
City of Seattle | NOT TO SCALE | TYPE 204.5b MAINTENANCE HOLE

REV DATE: AUG 2015



PLAN VIEW
(TOP REMOVED)

"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST–IN–PLACE BASE
20' MAX	0.33	0.25
30' MAX	0.41	0.31
40' MAX	0.49	0.37



SECTION A–A

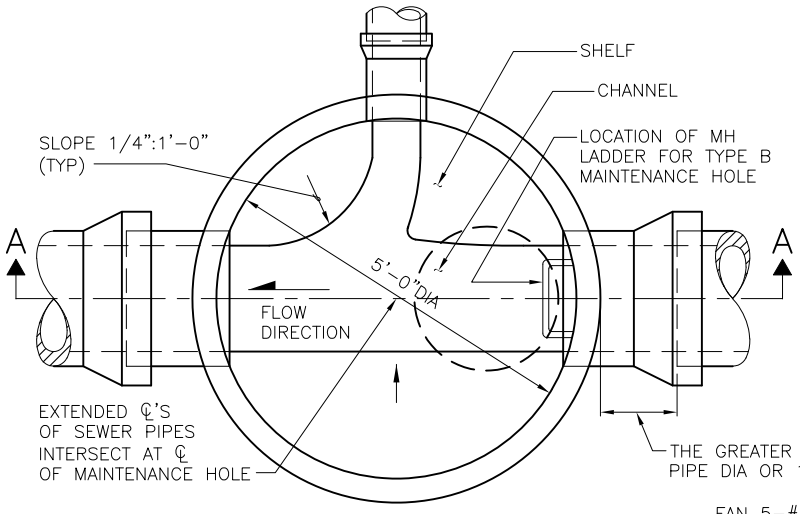
NOTES:

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

REF STD SPEC SEC 7-05

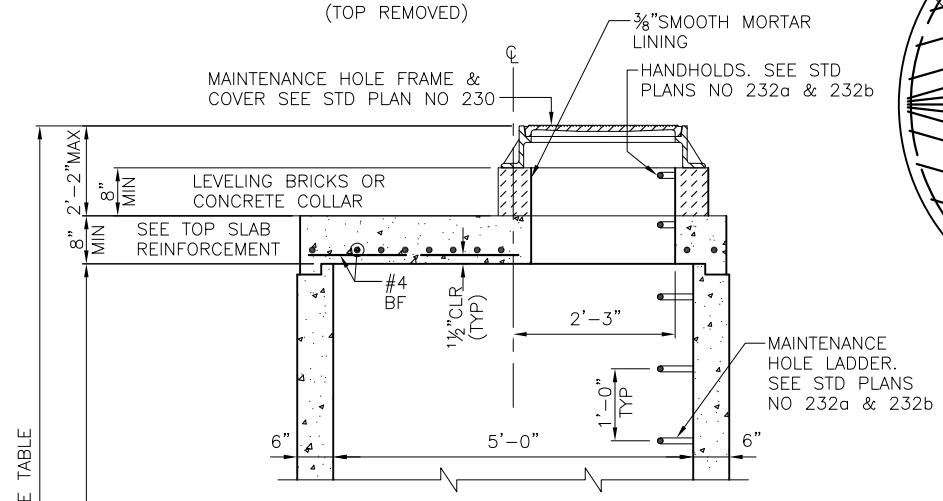
City of Seattle	NOT TO SCALE	TYPE 205a MAINTENANCE HOLE

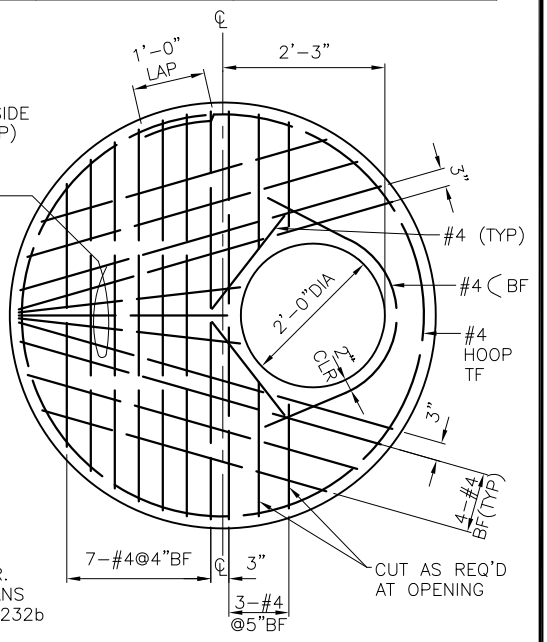
REV DATE: SEP 2013



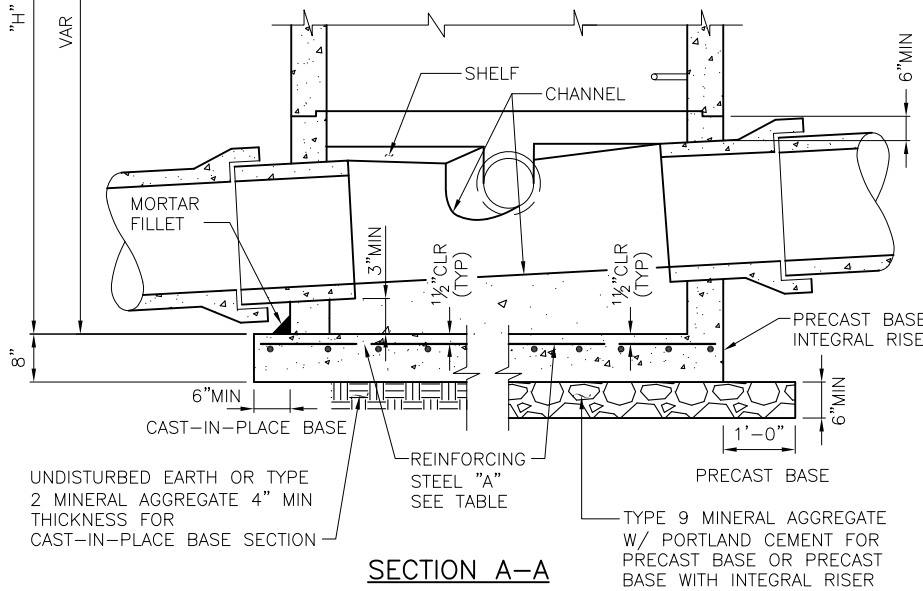
PLAN VIEW
(TOP REMOVED)

"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST-IN-PLACE BASE
20' MAX	0.33	0.25
30' MAX	0.41	0.31
40' MAX	0.49	0.37





TOP SLAB REINFORCEMENT



SECTION A-A

NOTES:

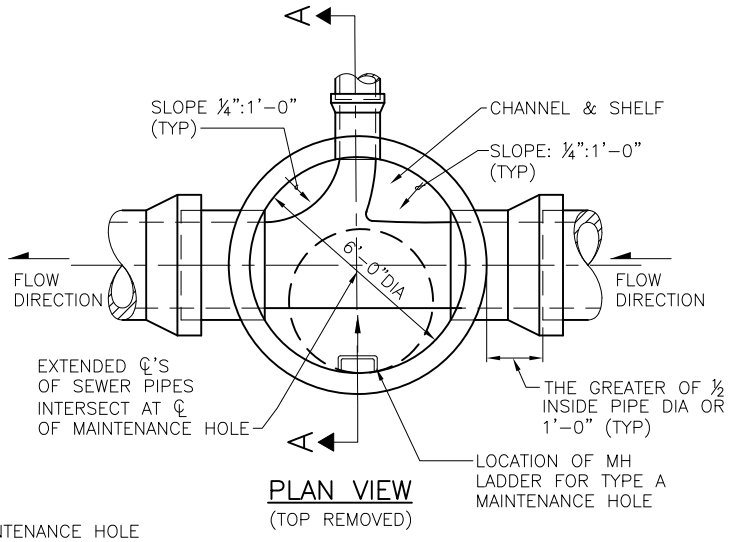
1. MATERIALS: CONCRETE-CLASS 4000; REINFORCING STEEL-ASTM A615 GRADE 60 MIN; CHANNEL AND SHELF MATERIAL - CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL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

REF STD SPEC SEC 7-05

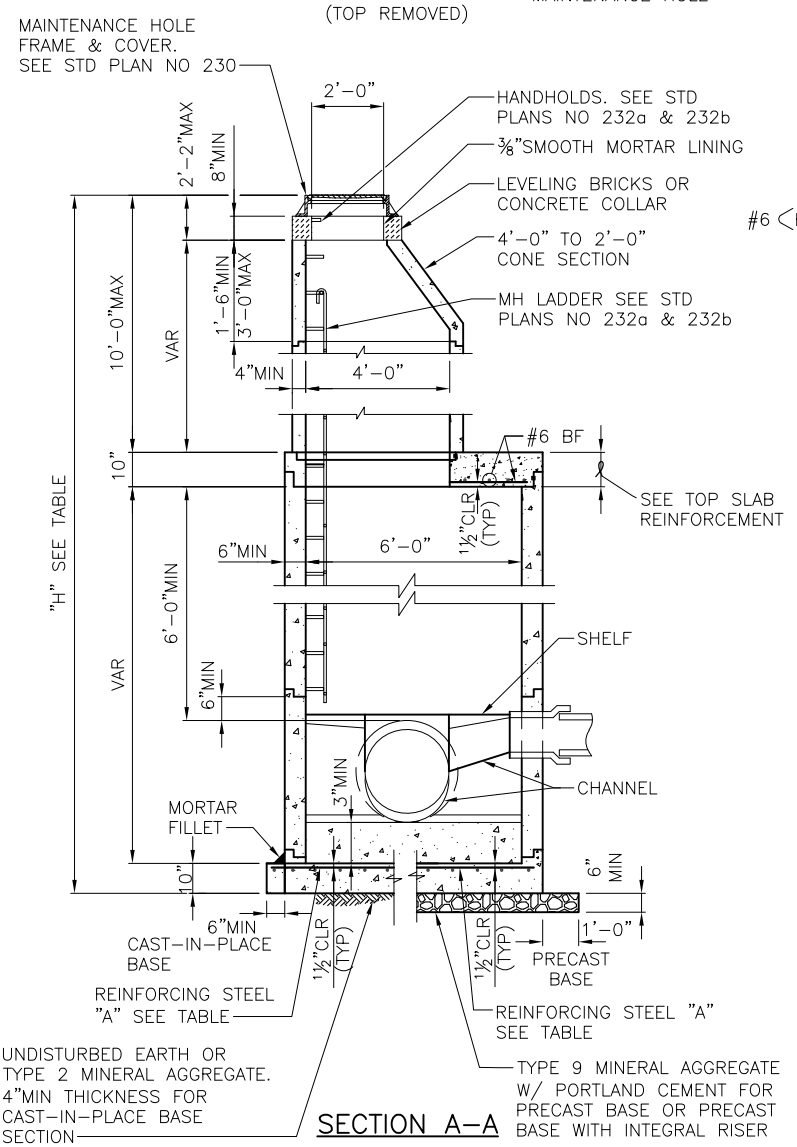
City of Seattle	NOT TO SCALE	TYPE 205b MAINTENANCE HOLE

REV DATE: AUG 2015

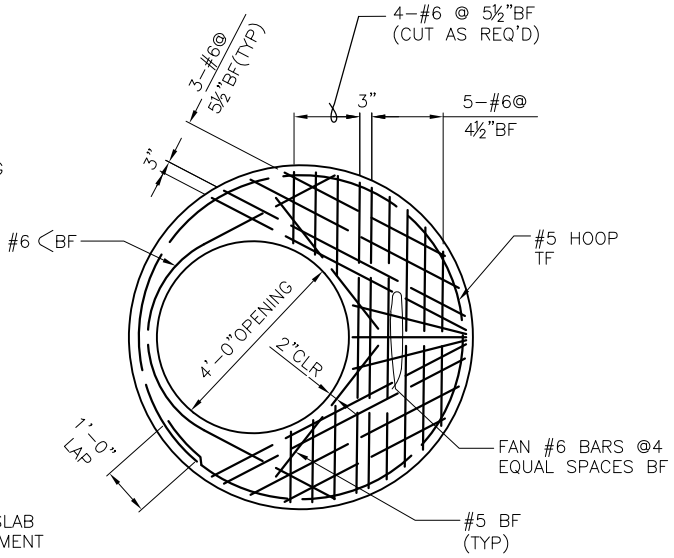
"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST-IN-PLACE BASE
20' MAX	0.39	0.30
30' MAX	0.47	0.37
40' MAX	0.56	0.46



PLAN VIEW
(TOP REMOVED)



SECTION A-A



TOP SLAB REINFORCEMENT

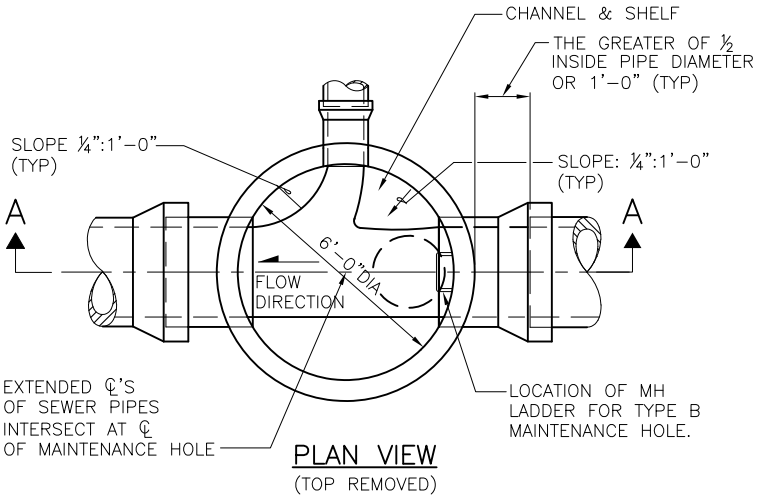
NOTES:

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

REF STD SPEC SEC 7-05

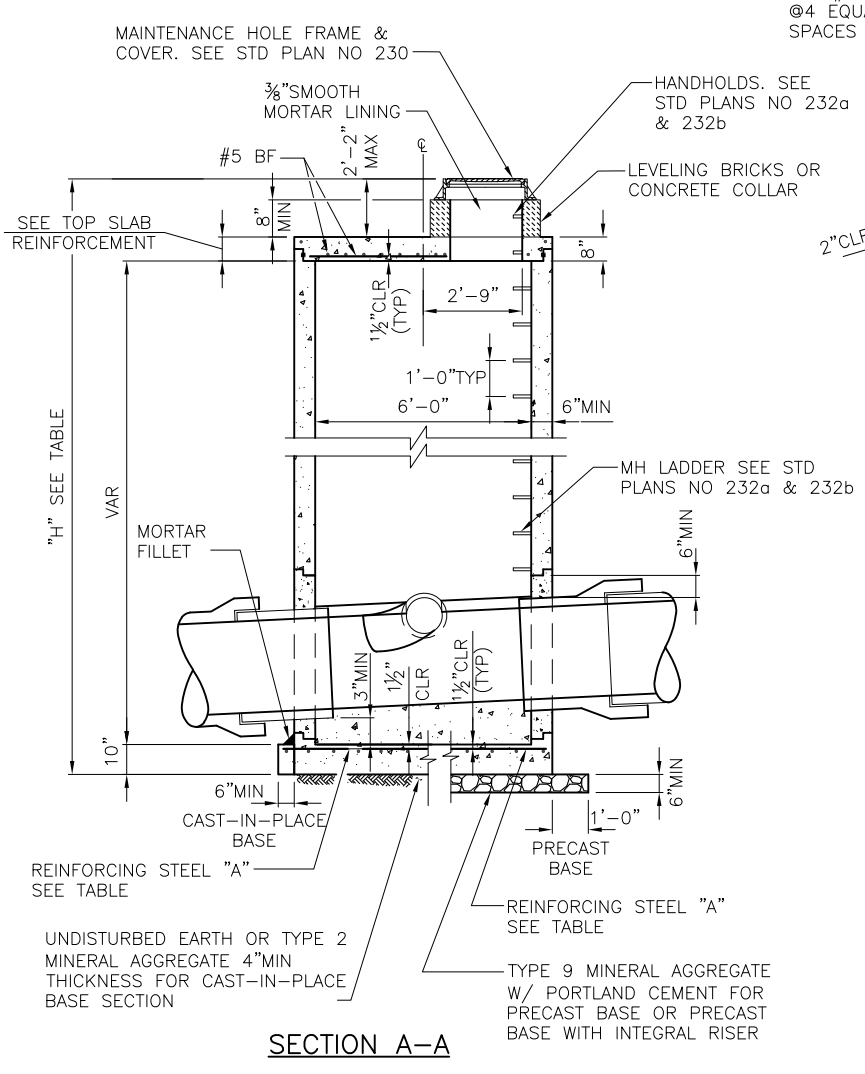
City of Seattle	NOT TO SCALE	TYPE 206a MAINTENANCE HOLE

REV DATE: AUG 2015

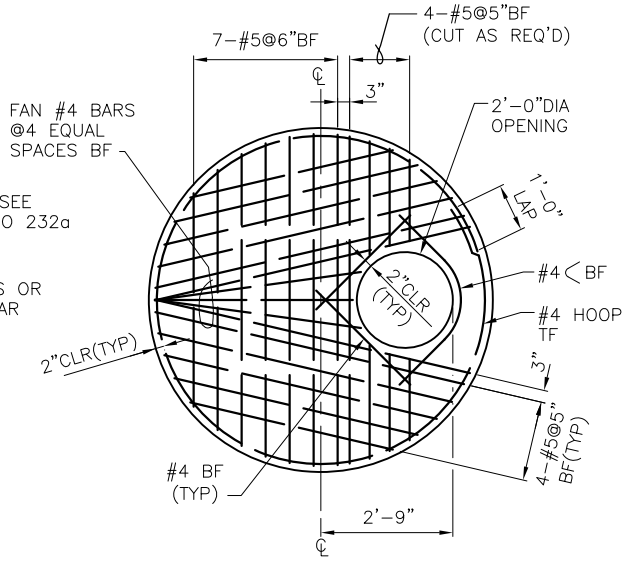


PLAN VIEW
(TOP REMOVED)

"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST–IN–PLACE BASE
20' MAX	0.29	0.24
30' MAX	0.41	0.32
40' MAX	0.49	0.41



SECTION A–A



TOP SLAB REINFORCEMENT

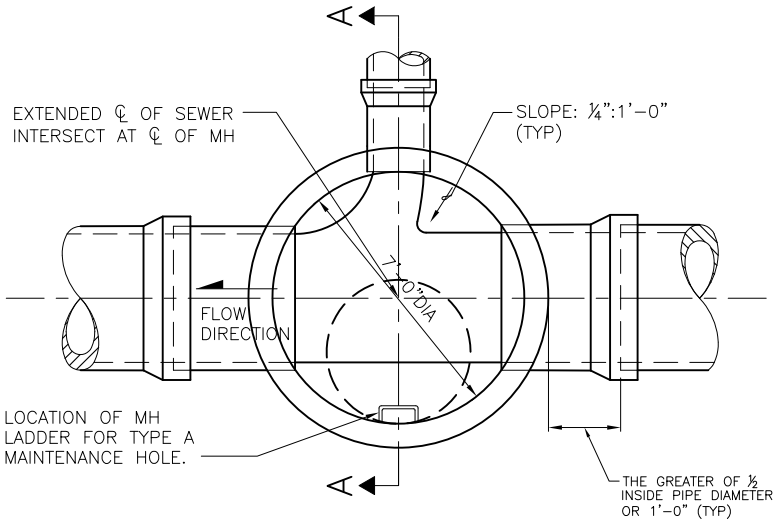
NOTES:

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

REF STD SPEC SEC 7-05

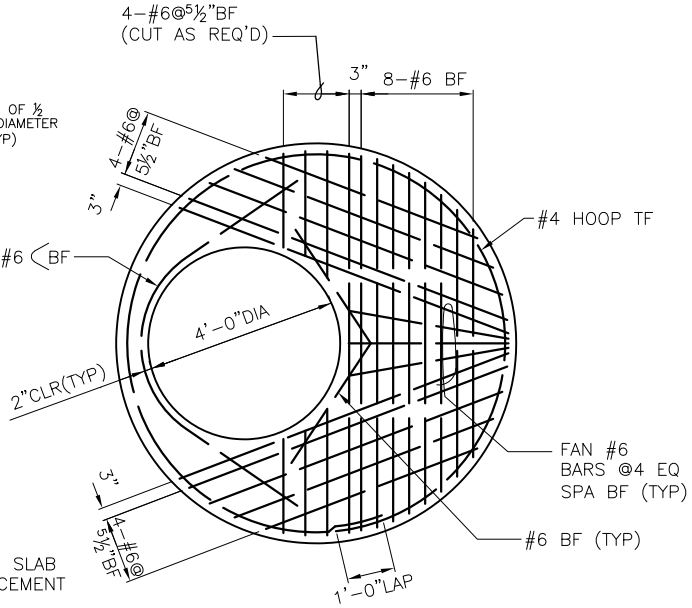
City of Seattle	NOT TO SCALE	TYPE 206b MAINTENANCE HOLE

REV DATE: AUG 2015

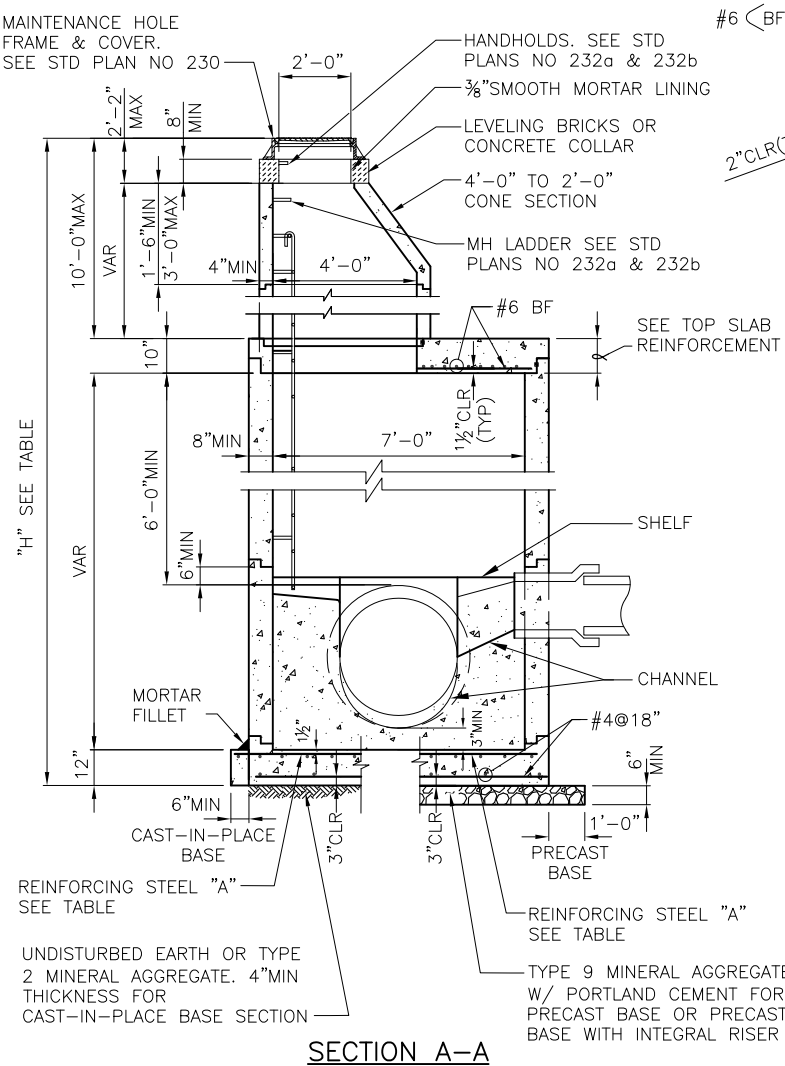


PLAN VIEW
(TOP REMOVED)

"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST–IN–PLACE BASE
20' MAX	0.42	034
30' MAX	0.51	0.41
40' MAX	0.60	0.48



TOP SLAB REINFORCEMENT



SECTION A–A

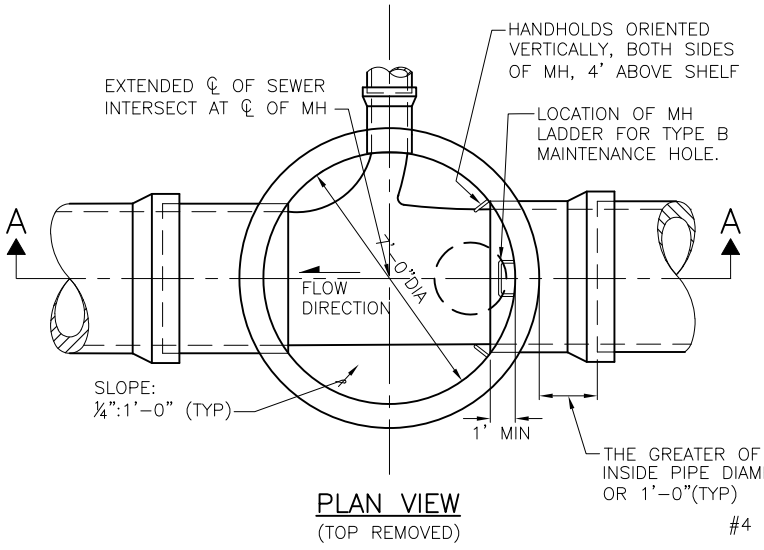
NOTES:

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

REF STD SPEC SEC 7-05

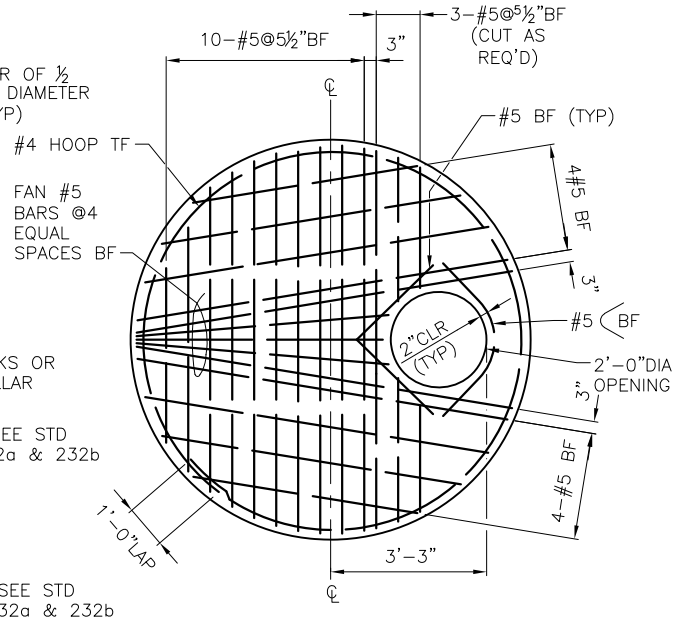
City of Seattle	NOT TO SCALE	TYPE 207a MAINTENANCE HOLE

REV DATE: AUG 2015

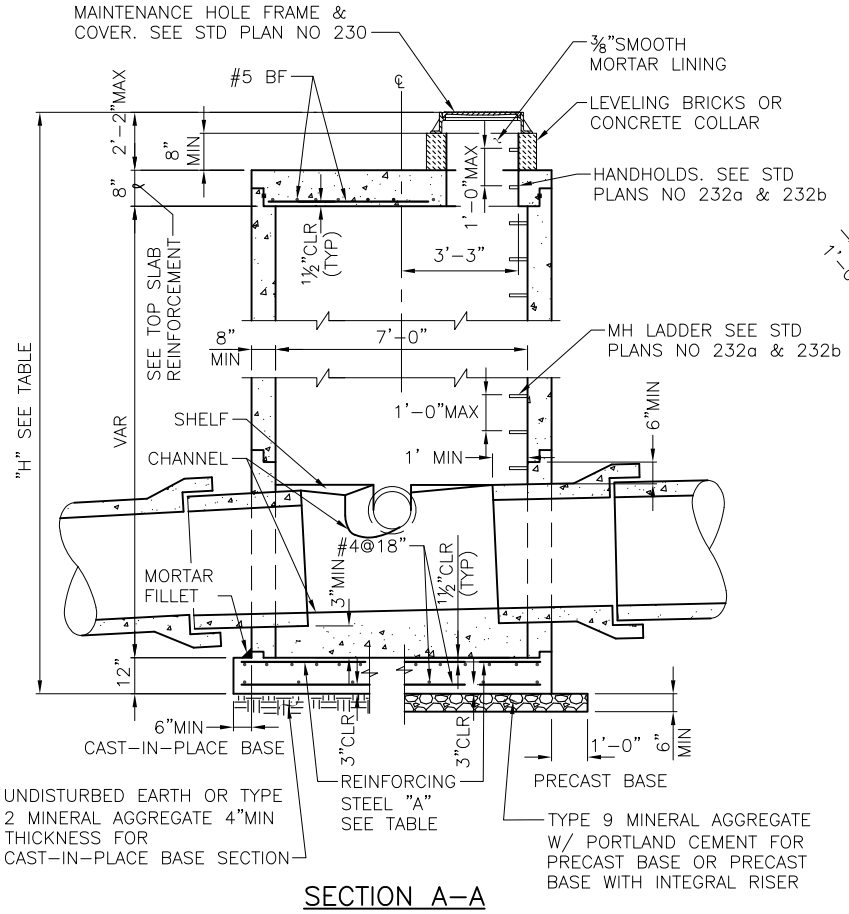


PLAN VIEW
(TOP REMOVED)

"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST-IN-PLACE BASE
20' MAX	0.34	0.27
30' MAX	0.43	0.35
40' MAX	0.52	0.42



TOP SLAB REINFORCEMENT



SECTION A-A

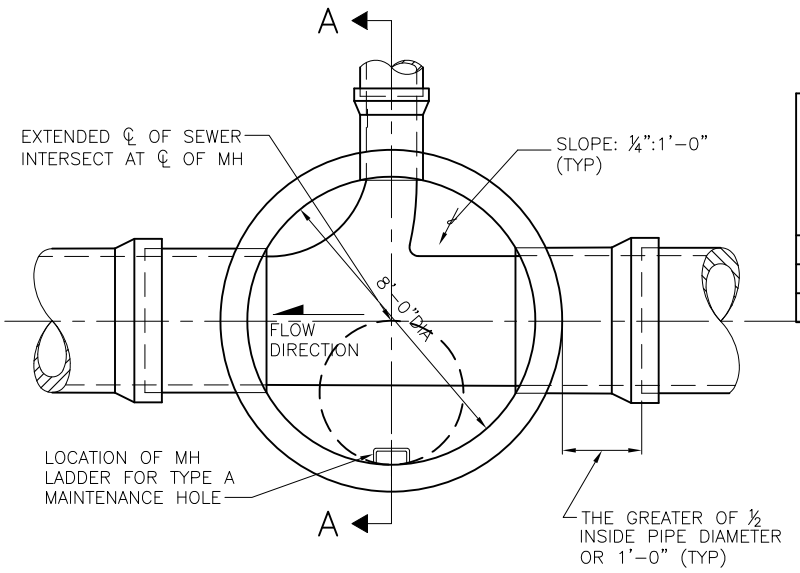
NOTES:

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

REF STD SPEC SEC 7-05

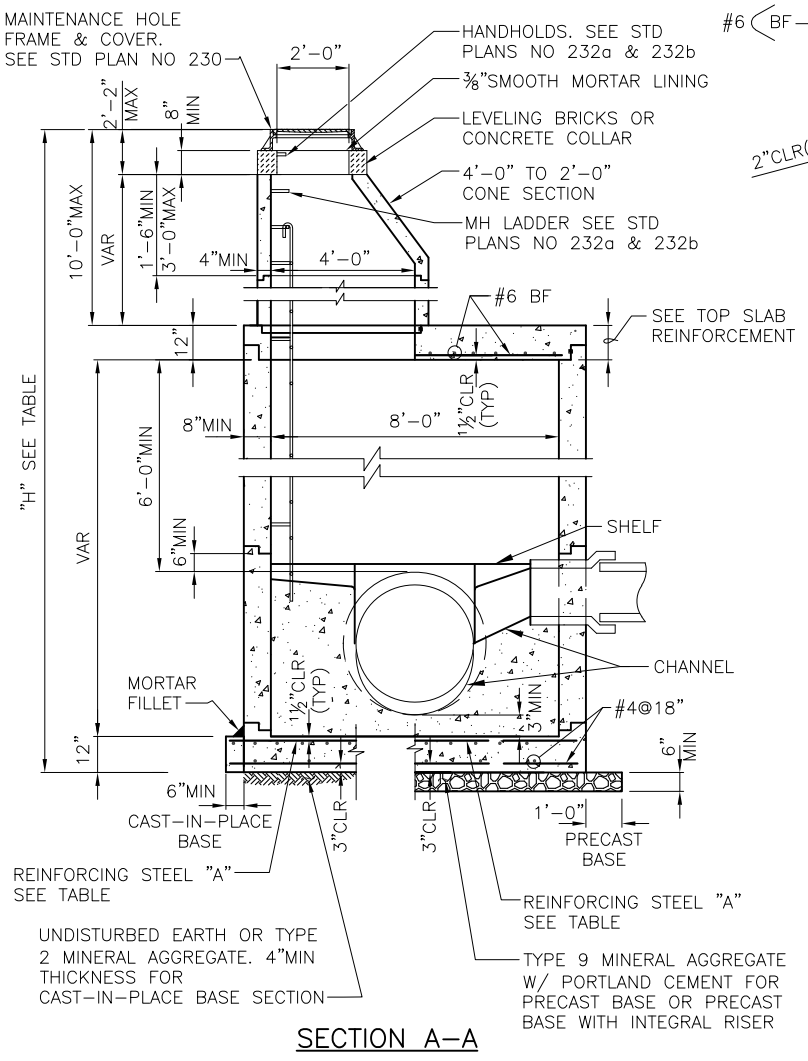
City of Seattle	NOT TO SCALE	TYPE 207b MAINTENANCE HOLE

REV DATE: AUG 2015

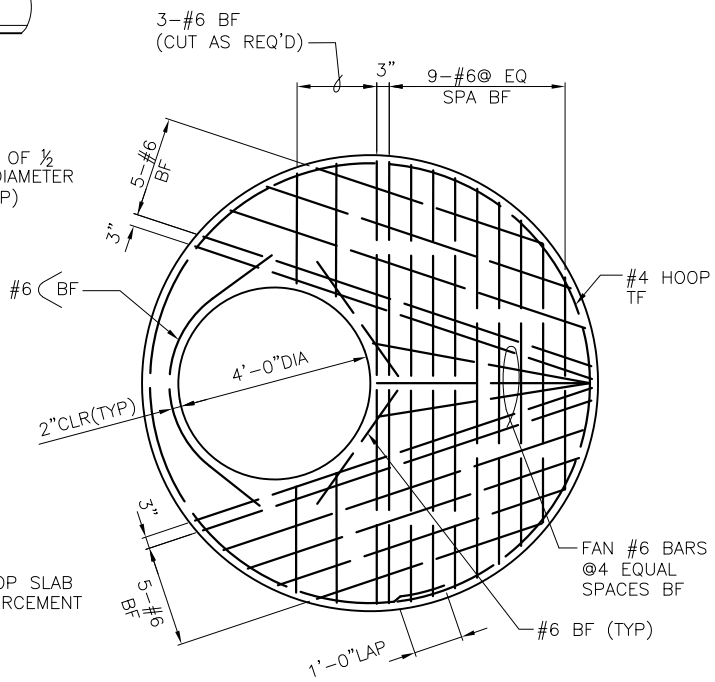


PLAN VIEW
(TOP REMOVED)

"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST–IN–PLACE BASE
20' MAX	0.54	0.45
30' MAX	0.66	0.55
40' MAX	0.78	0.64



SECTION A–A



TOP SLAB REINFORCEMENT

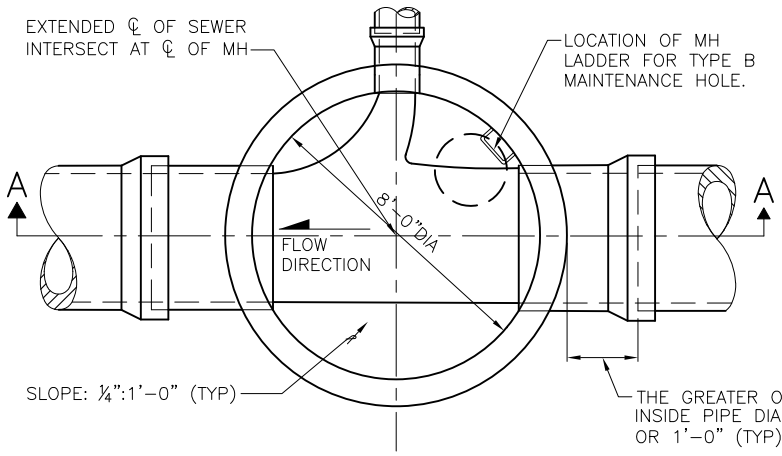
NOTES:

1. MATERIAL; CONCRETE–CLASS 4000 REINFORCING STEEL–ASTM A615 GRADE 60 MIN CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 9". MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3". MIN DISTANCE BETWEEN HOLES IS 12".

REF STD SPEC SEC 7-05

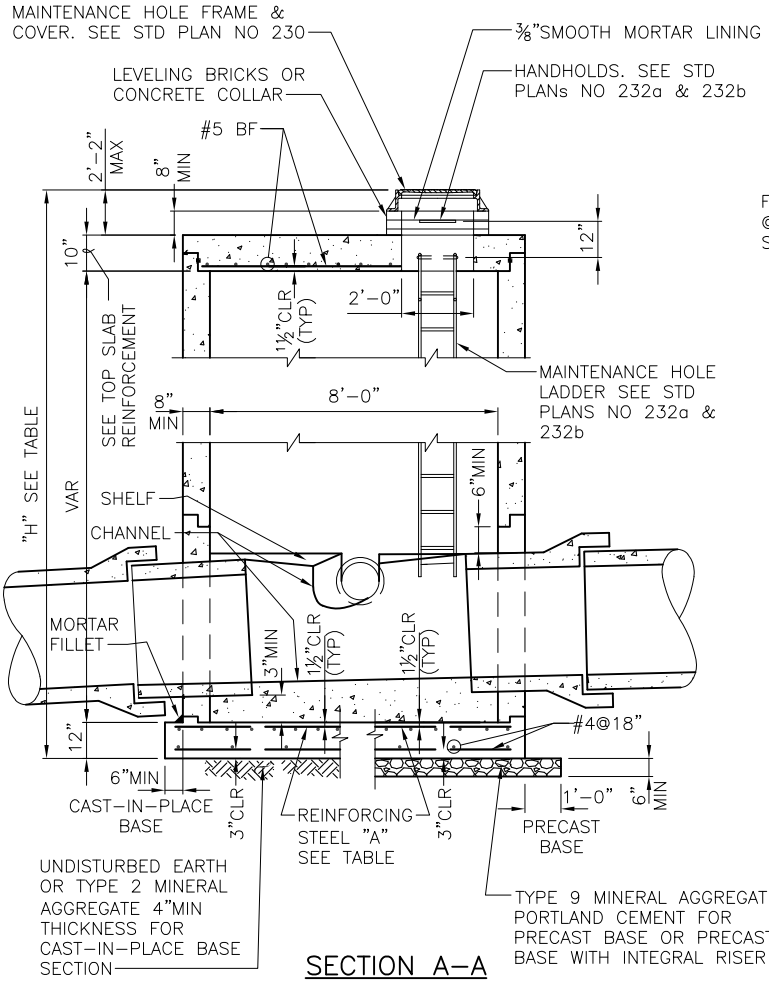
City of Seattle	NOT TO SCALE	TYPE 208a MAINTENANCE HOLE

REV DATE: AUG 2015

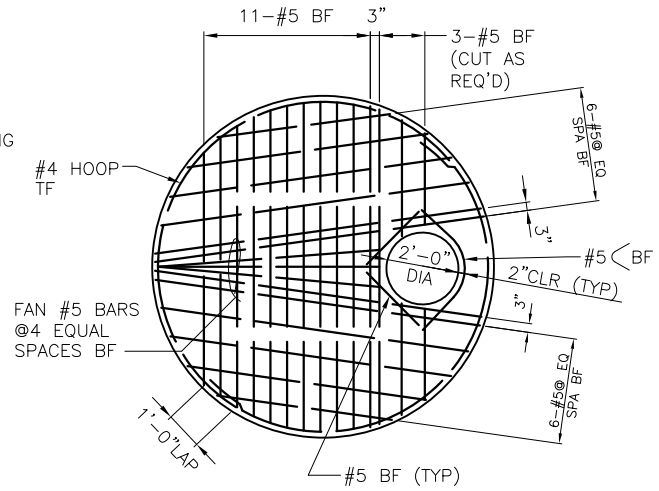


PLAN VIEW
(TOP REMOVED)

"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST-IN-PLACE BASE
20' MAX	0.42	0.35
30' MAX	0.53	0.45
40' MAX	0.65	0.54



SECTION A-A



TOP SLAB REINFORCEMENT

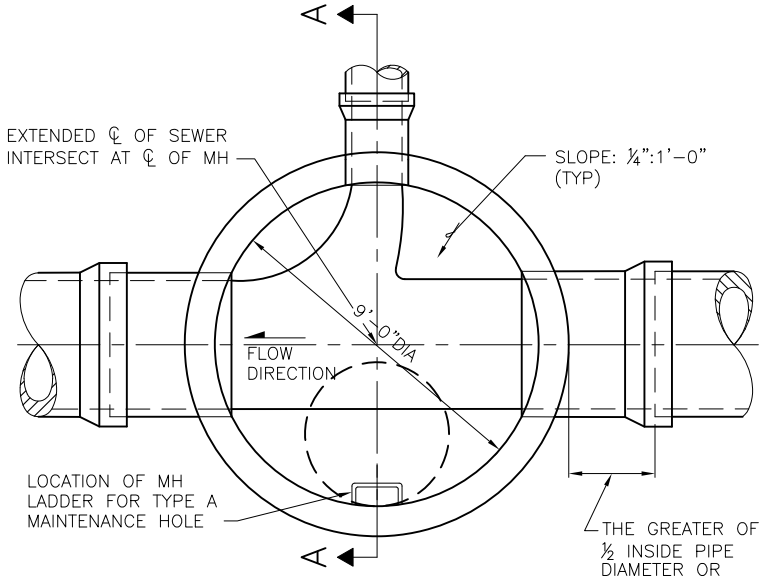
NOTES:

1. MATERIAL; CONCRETE-CLASS 4000 REINFORCING STEEL-ASTM A615 GRADE 60 MIN CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 9". MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3". MIN DISTANCE BETWEEN HOLES IS 12".

REF STD SPEC SEC 7-05

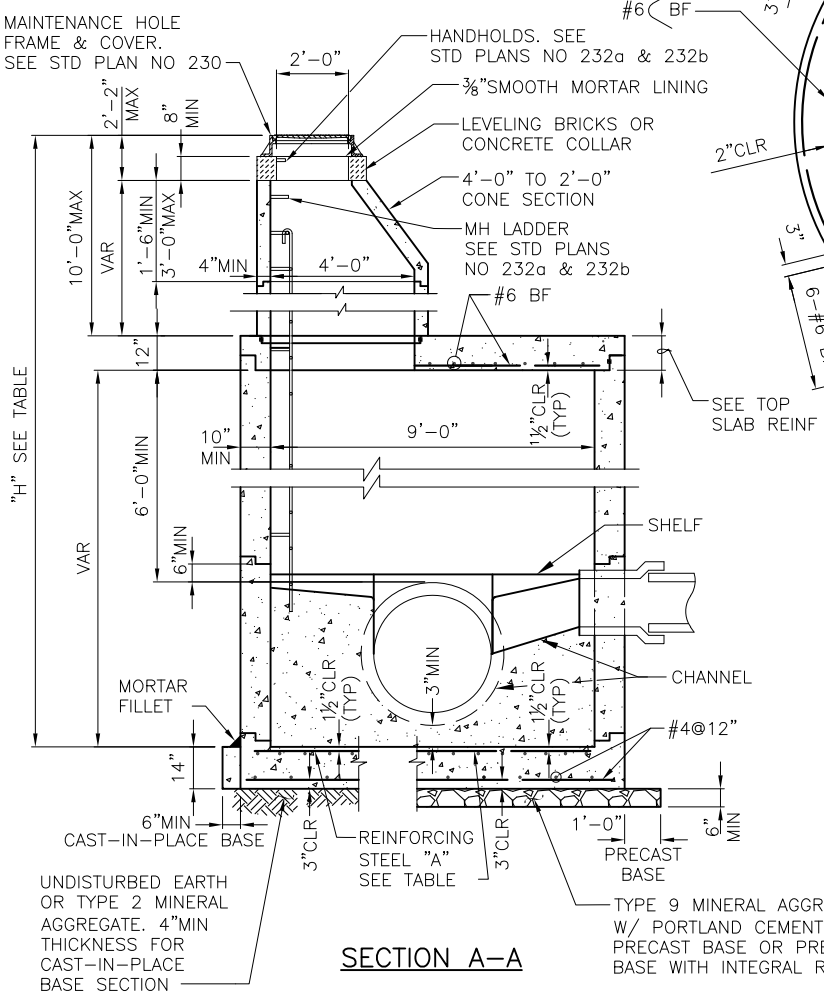
City of Seattle	NOT TO SCALE	TYPE 208b MAINTENANCE HOLE

REV DATE: AUG 2015

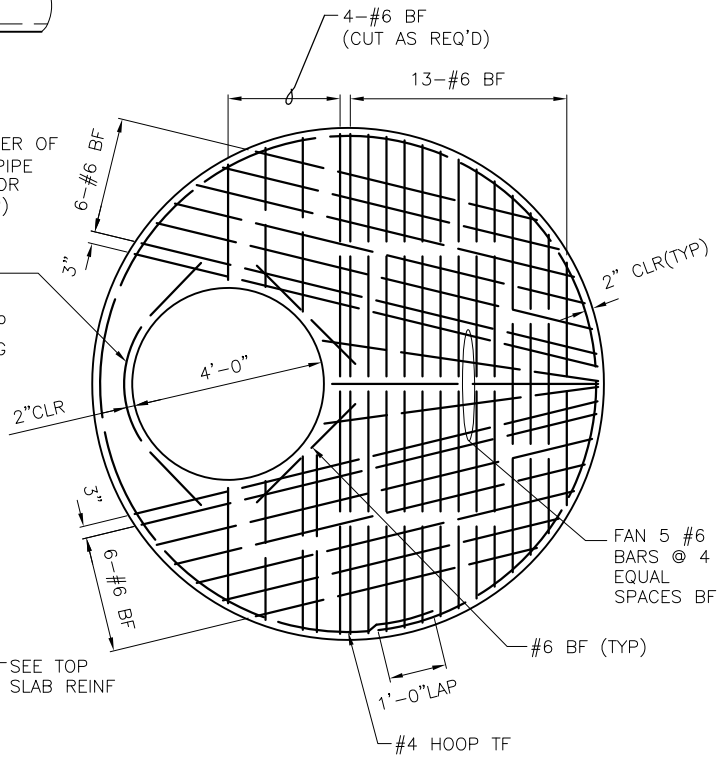


PLAN VIEW
(TOP REMOVED)

"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST–IN–PLACE BASE
20' MAX	0.57	0.49
30' MAX	0.70	0.59
40' MAX	0.81	0.69



SECTION A–A



TOP SLAB REINFORCEMENT

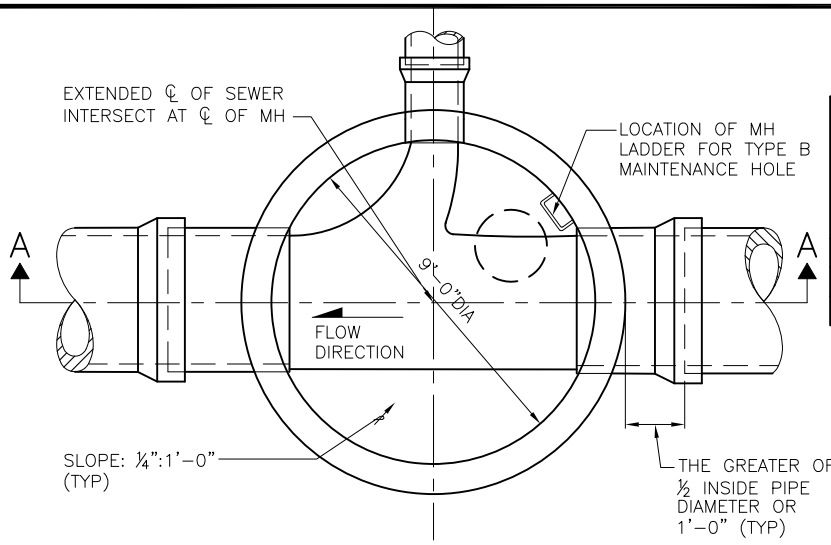
NOTES:

1. MATERIAL; CONCRETE–CLASS 4000 REINFORCING STEEL–ASTM A615 GRADE 60 MIN CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 10". MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3". MIN DISTANCE BETWEEN HOLES IS 12".

REF STD SPEC SEC 7-05

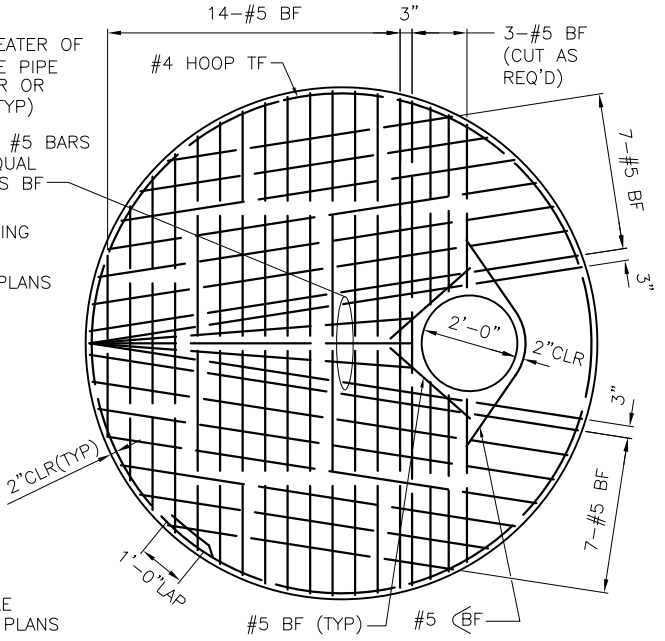
City of Seattle	NOT TO SCALE	TYPE 209a MAINTENANCE HOLE

REV DATE: AUG 2015

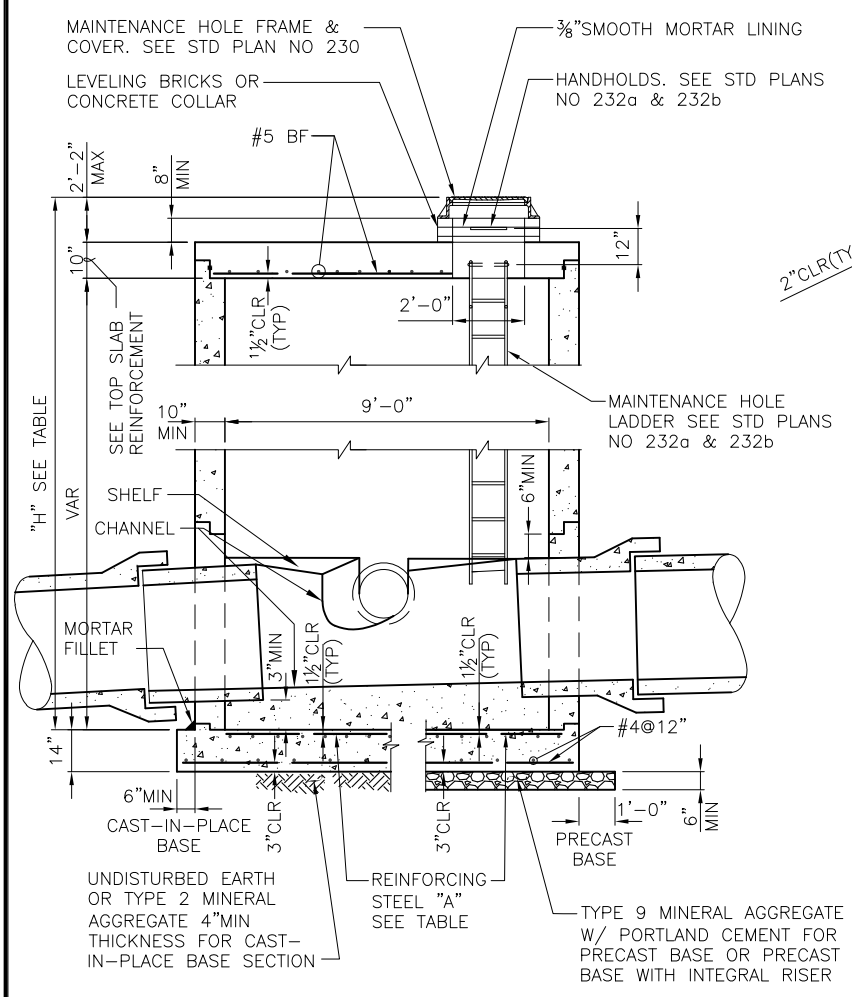


PLAN VIEW
(TOP REMOVED)

"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST-IN-PLACE BASE
20' MAX	0.44	0.37
30' MAX	0.56	0.48
40' MAX	0.68	0.58



TOP SLAB REINFORCEMENT



SECTION A-A

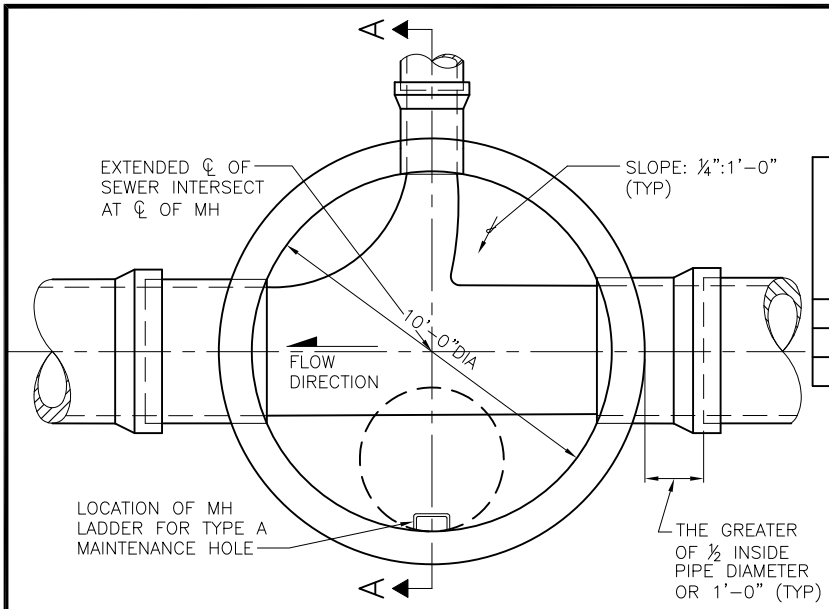
NOTES:

1. MATERIAL; CONCRETE-CLASS 4000 REINFORCING STEEL-ASTM A615 GRADE 60 MIN CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 10". MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3". MIN DISTANCE BETWEEN HOLES IS 12".

REF STD SPEC SEC 7-05

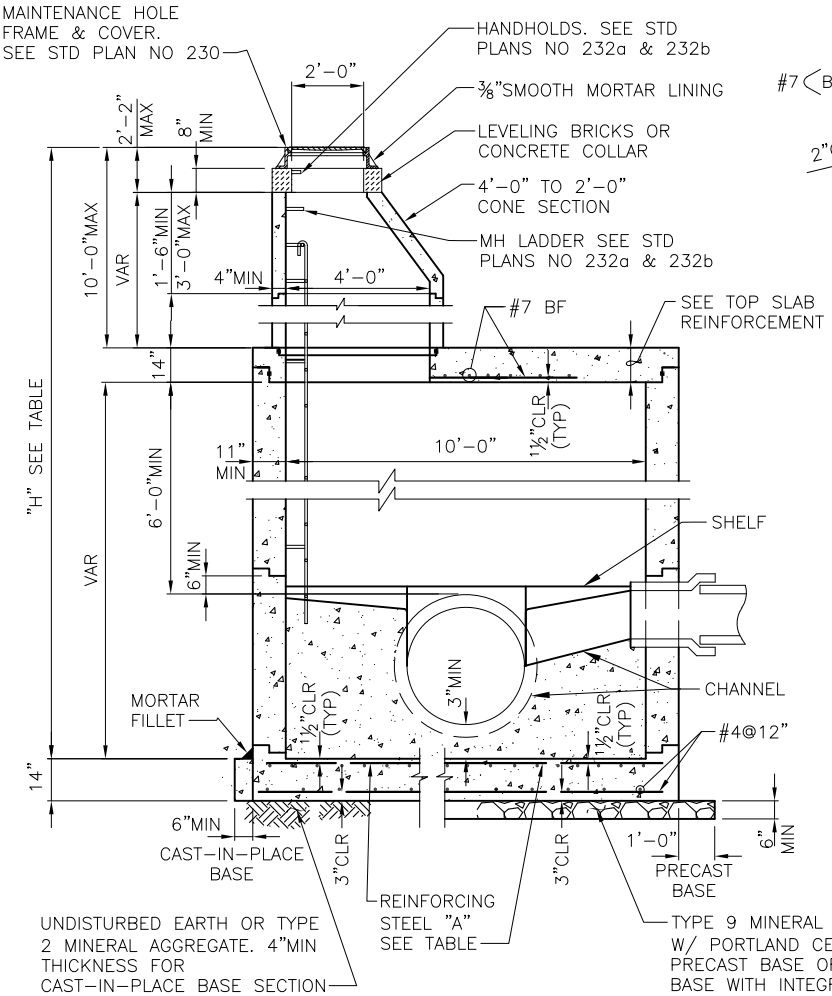
City of Seattle	NOT TO SCALE	TYPE 209b MAINTENANCE HOLE

REV DATE: AUG 2015

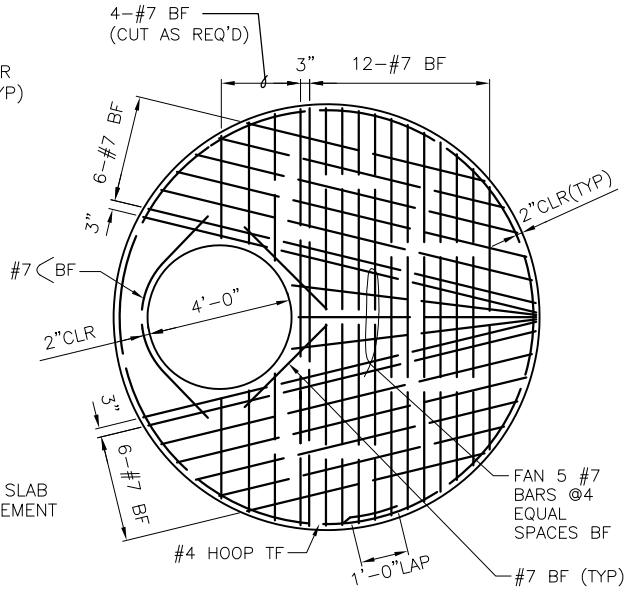


PLAN VIEW
(TOP REMOVED)

"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST–IN–PLACE BASE
20' MAX	0.70	0.60
30' MAX	0.85	0.73
40' MAX	1.00	0.86



SECTION A–A



TOP SLAB REINFORCEMENT

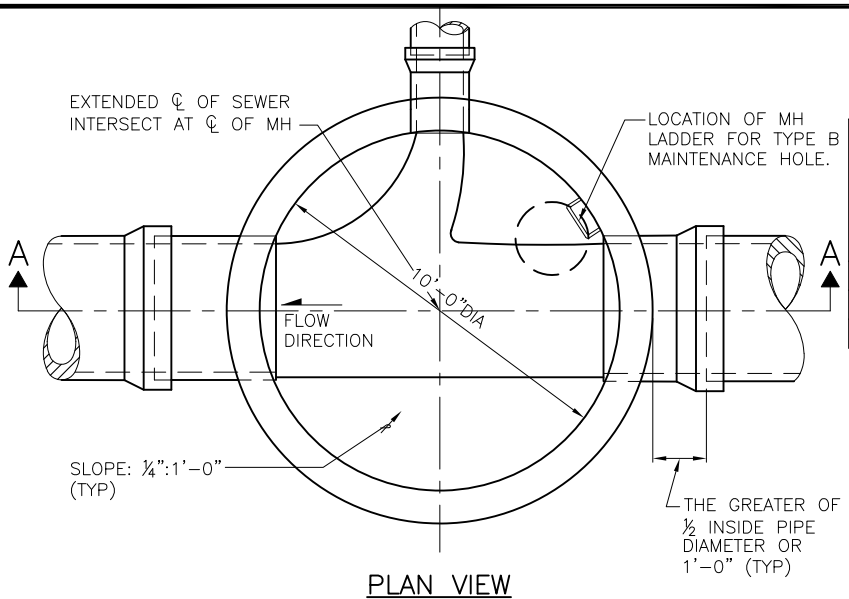
NOTES:

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

REF STD SPEC SEC 7-05

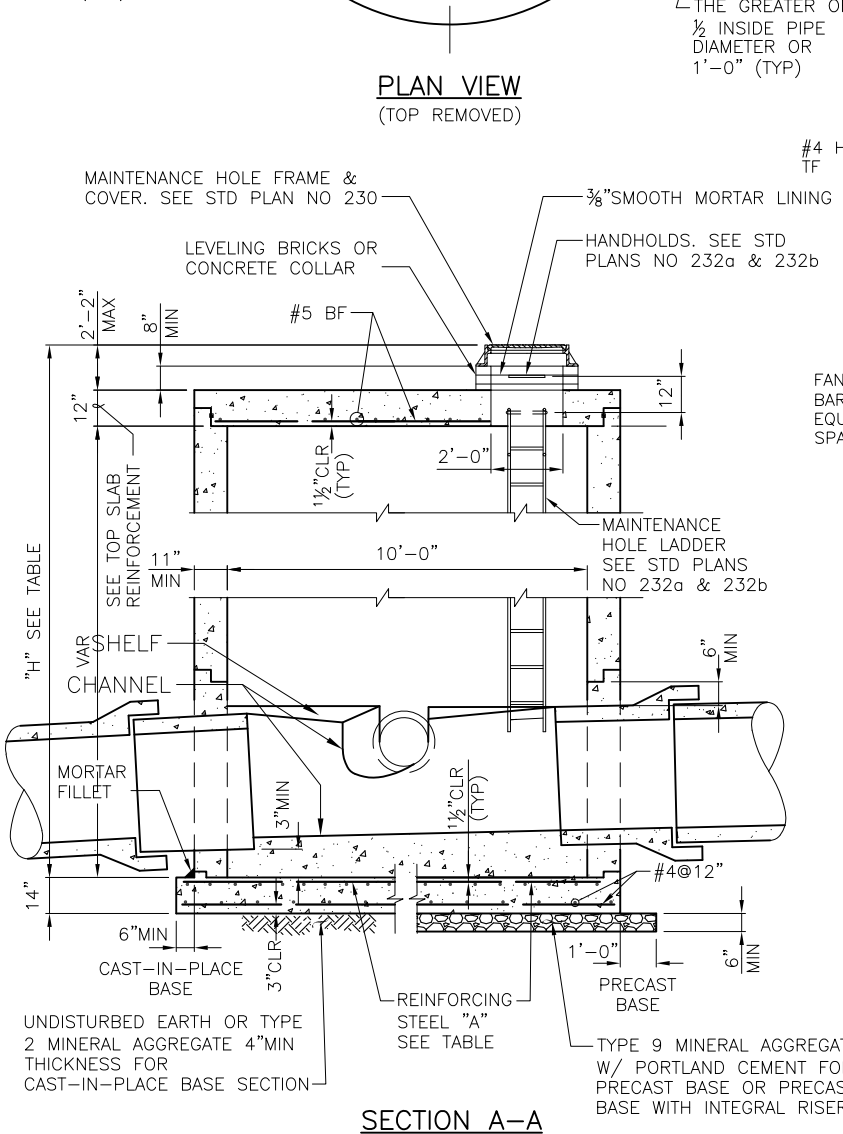
City of Seattle	NOT TO SCALE	TYPE 210a MAINTENANCE HOLE

REV DATE: AUG 2015

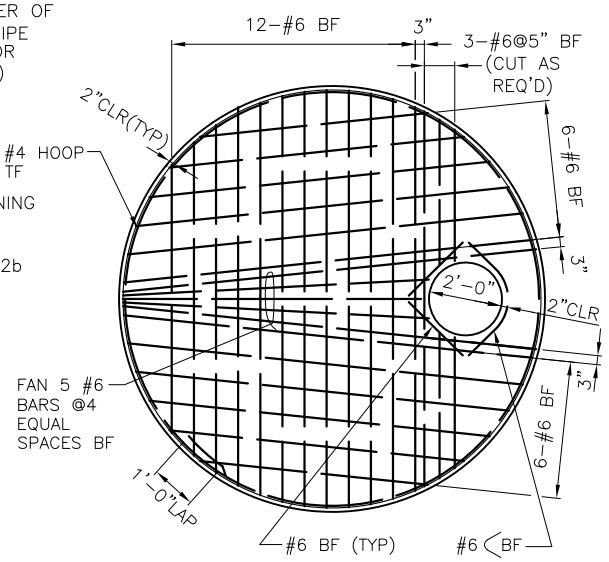


PLAN VIEW
(TOP REMOVED)

"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST-IN-PLACE BASE
20' MAX	052	0.45
30' MAX	0.66	0.57
40' MAX	0.81	0.70



SECTION A-A



TOP SLAB REINFORCEMENT

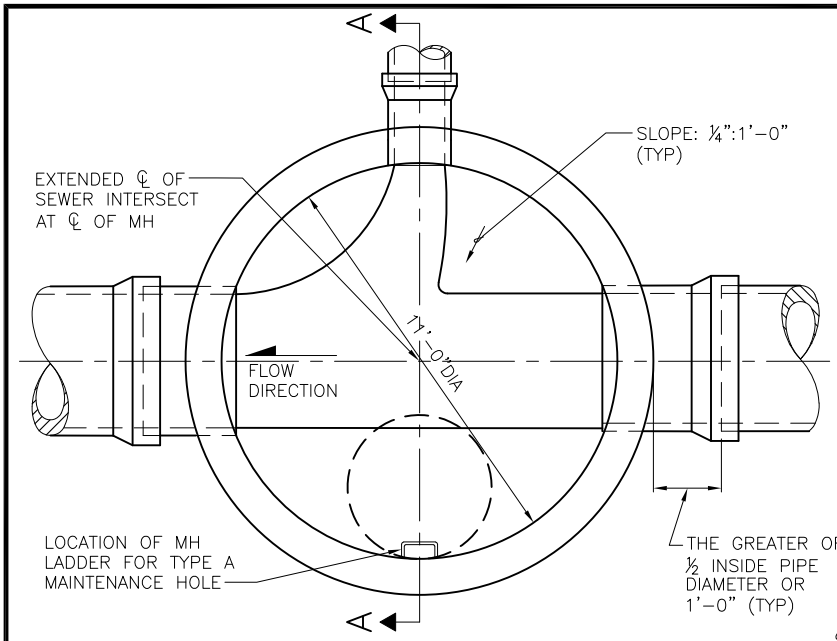
NOTES:

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

REF STD SPEC SEC 7-05

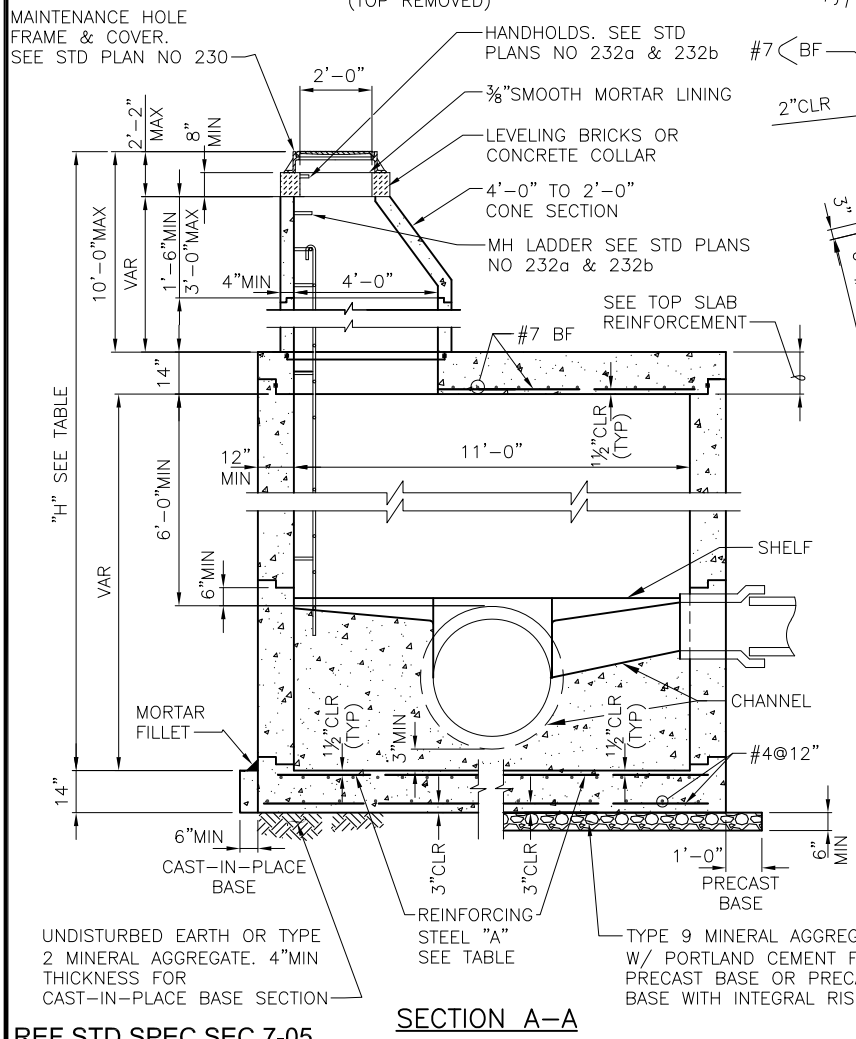
City of Seattle | NOT TO SCALE | TYPE 210b MAINTENANCE HOLE

REV DATE: AUG 2015

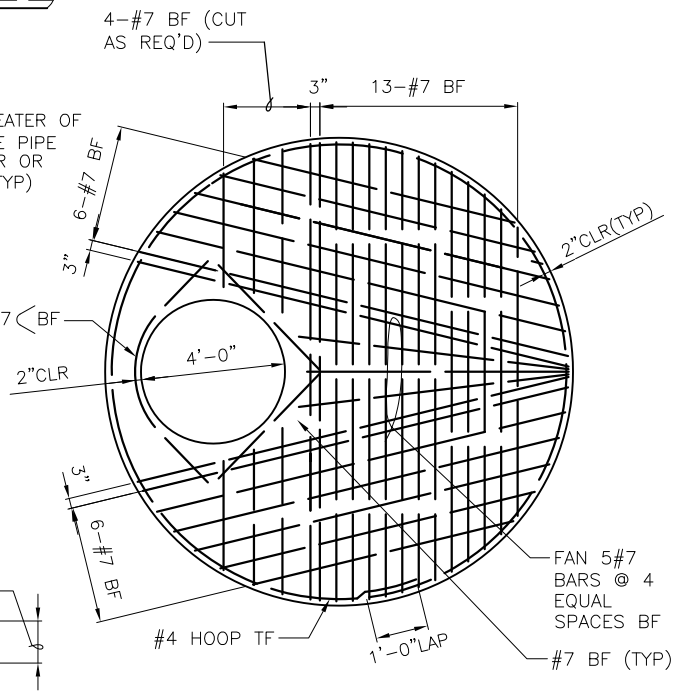


PLAN VIEW
(TOP REMOVED)

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



SECTION A–A



TOP SLAB REINFORCEMENT

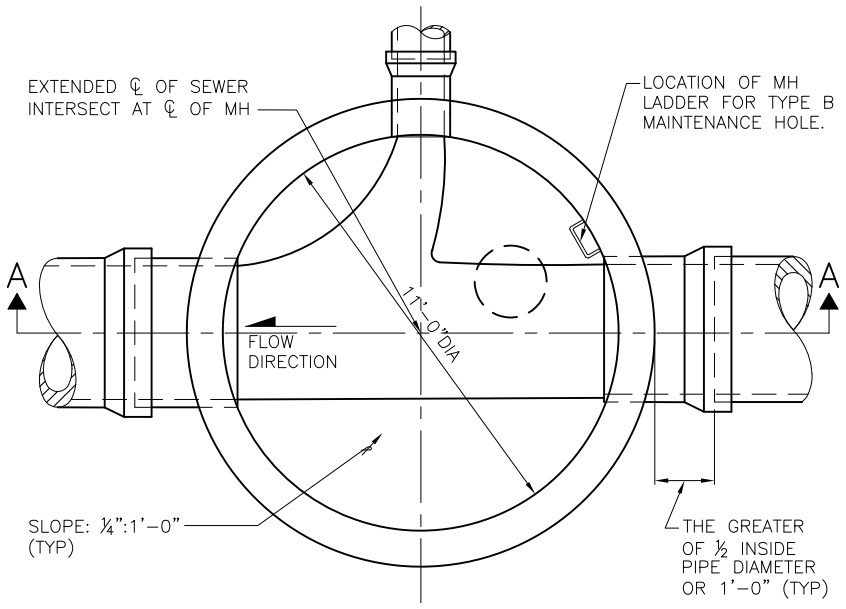
NOTES:

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

REF STD SPEC SEC 7-05

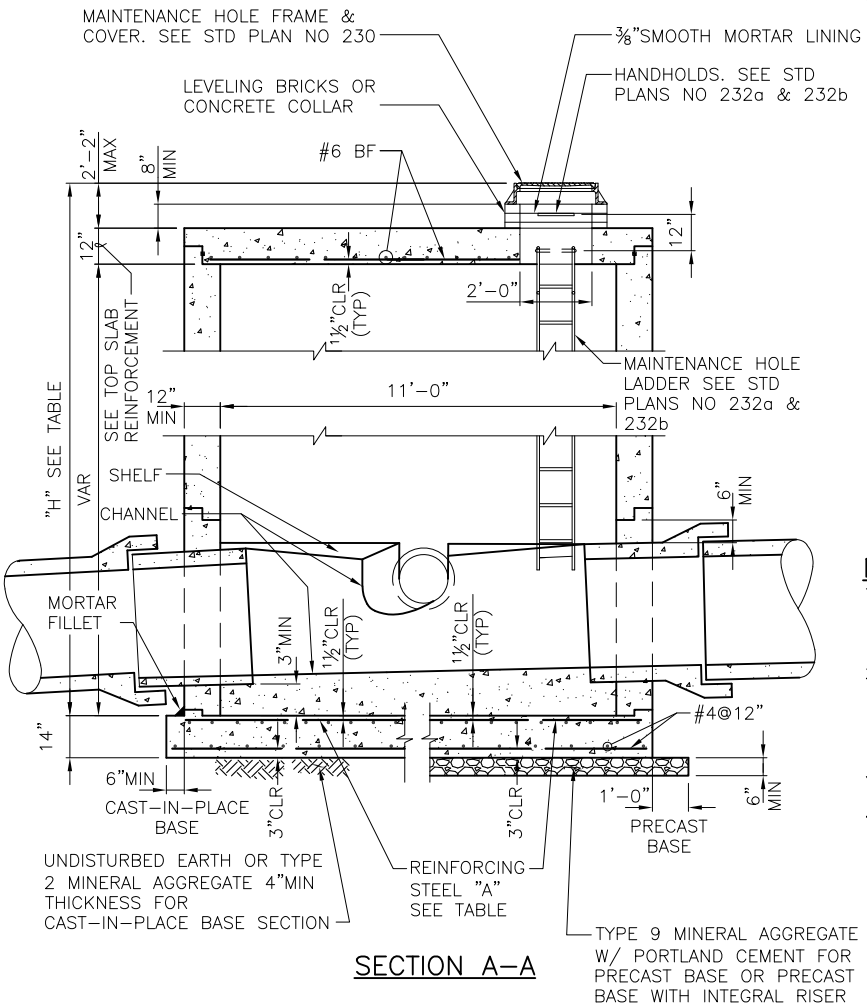
City of Seattle	NOT TO SCALE	TYPE 211a MAINTENANCE HOLE

REV DATE: AUG 2015

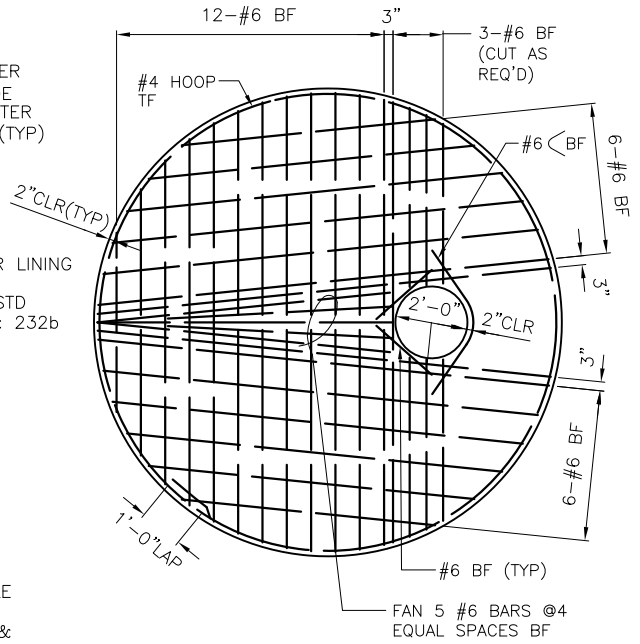


PLAN VIEW
(TOP REMOVED)

"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST-IN-PLACE BASE
20' MAX	0.62	0.54
30' MAX	0.79	0.69
40' MAX	0.97	0.85



SECTION A-A



TOP SLAB REINFORCEMENT

NOTES:

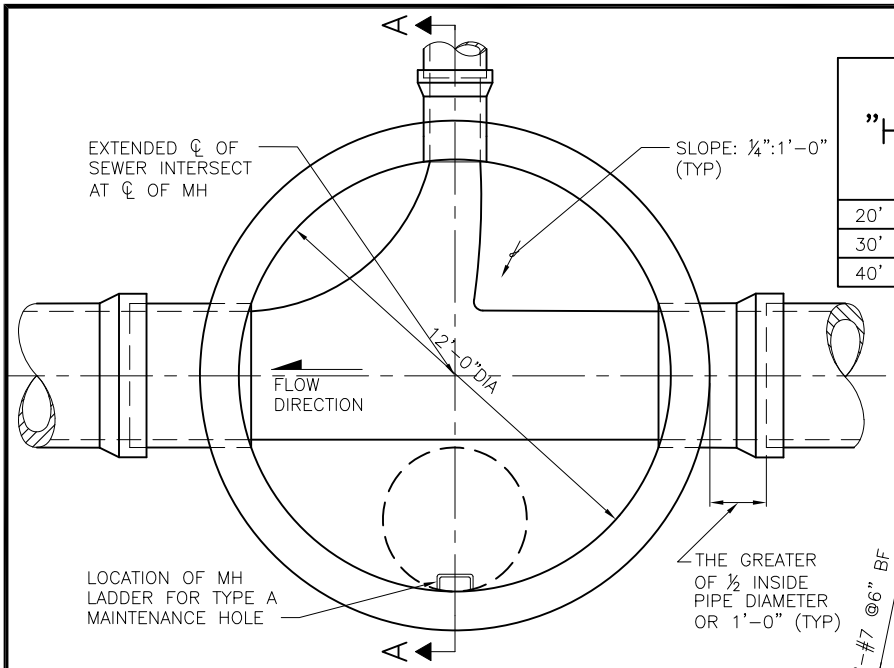
1. MATERIAL; CONCRETE-CLASS 4000 REINFORCING STEEL-ASTM A615 GRADE 60 MIN CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING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

REF STD SPEC SEC 7-05

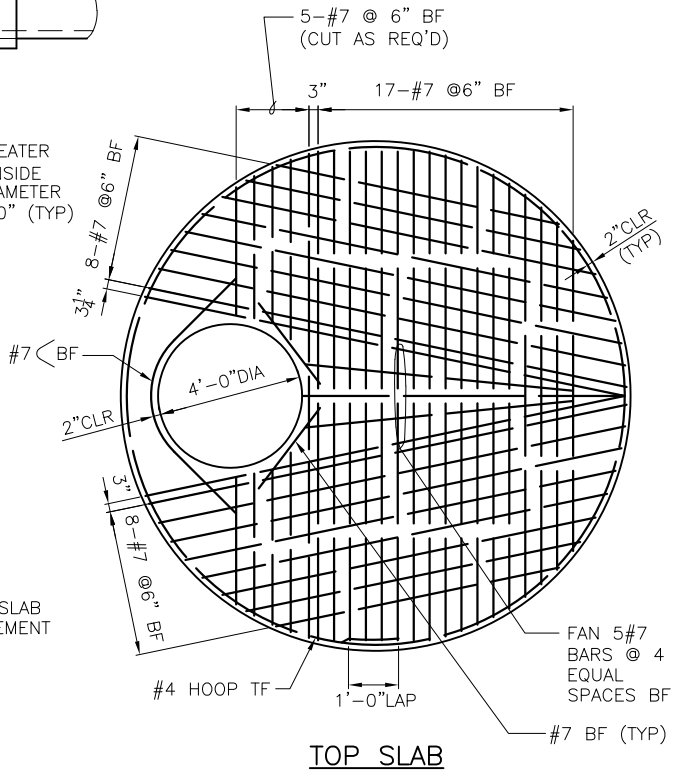
City of Seattle	NOT TO SCALE	TYPE 211b MAINTENANCE HOLE

REV DATE: AUG 2015

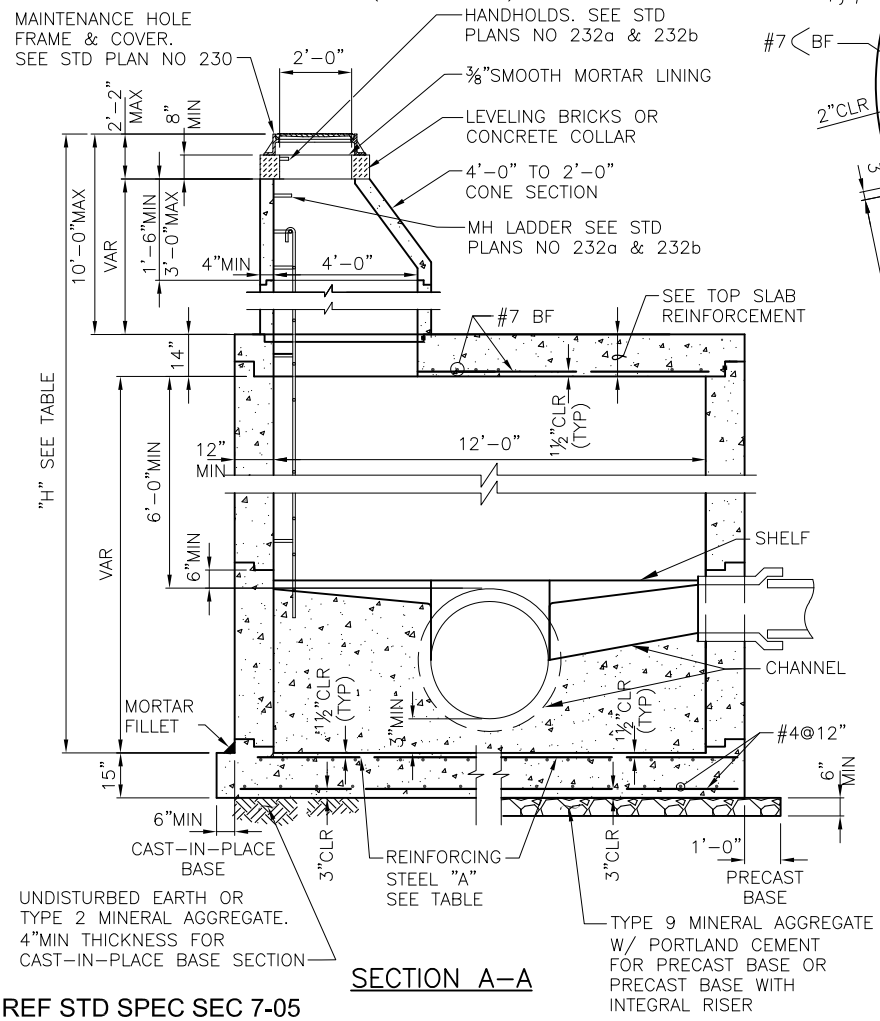
"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST-IN-PLACE BASE
20' MAX	1.01	0.89
30' MAX	1.28	1.13
40' MAX	1.56	1.37



PLAN VIEW
(TOP REMOVED)



TOP SLAB REINFORCEMENT



SECTION A-A

NOTES:

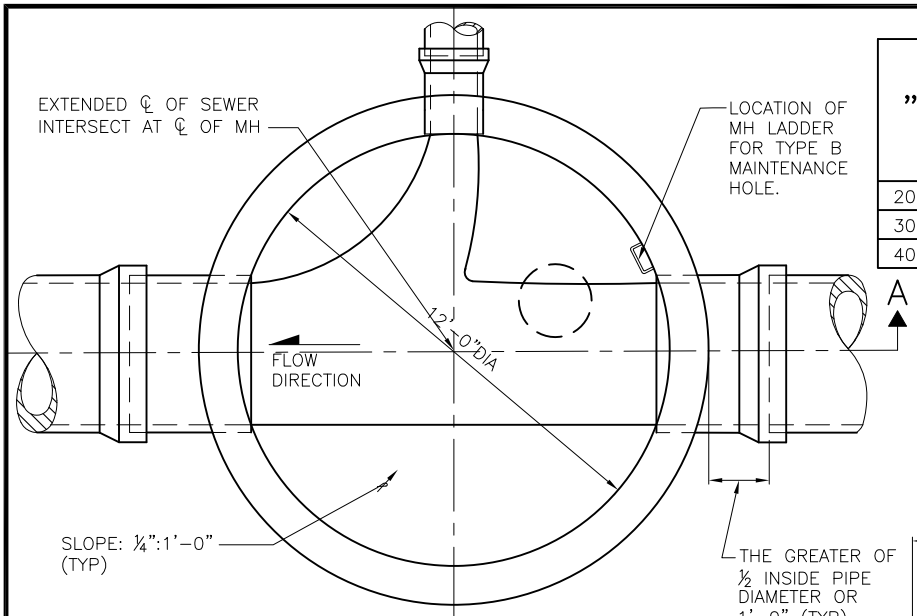
1. MATERIAL; CONCRETE-CLASS 4000 REINFORCING STEEL-ASTM A615 GRADE 60 MIN CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING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

REF STD SPEC SEC 7-05

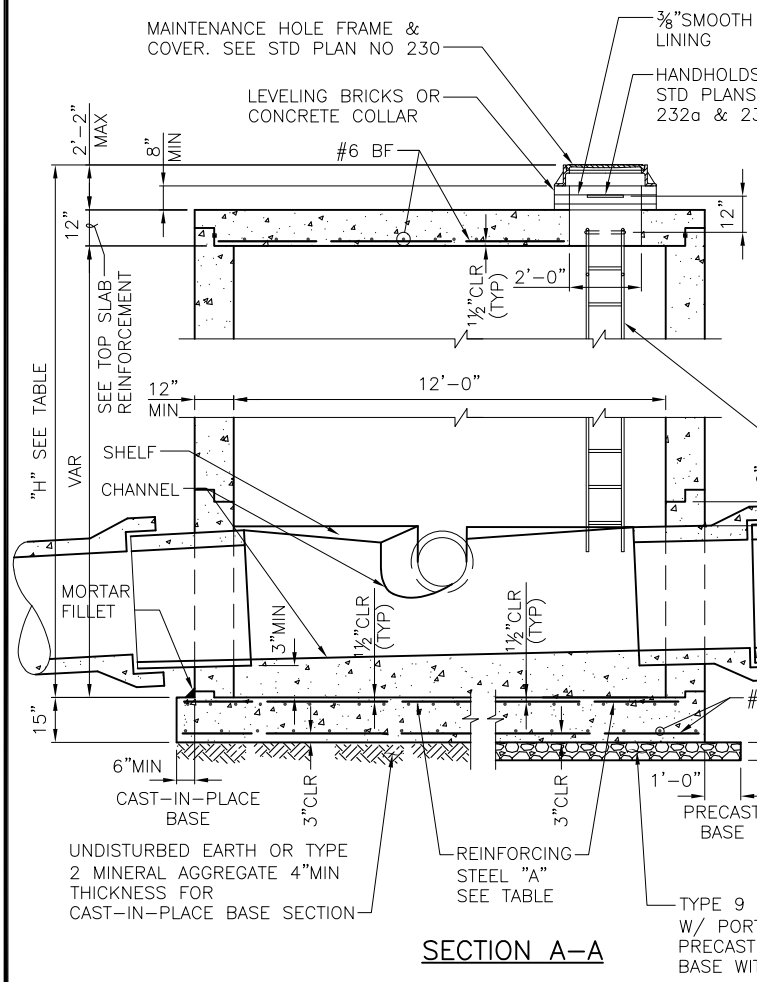
City of Seattle	NOT TO SCALE	TYPE 212a MAINTENANCE HOLE

REV DATE: AUG 2015

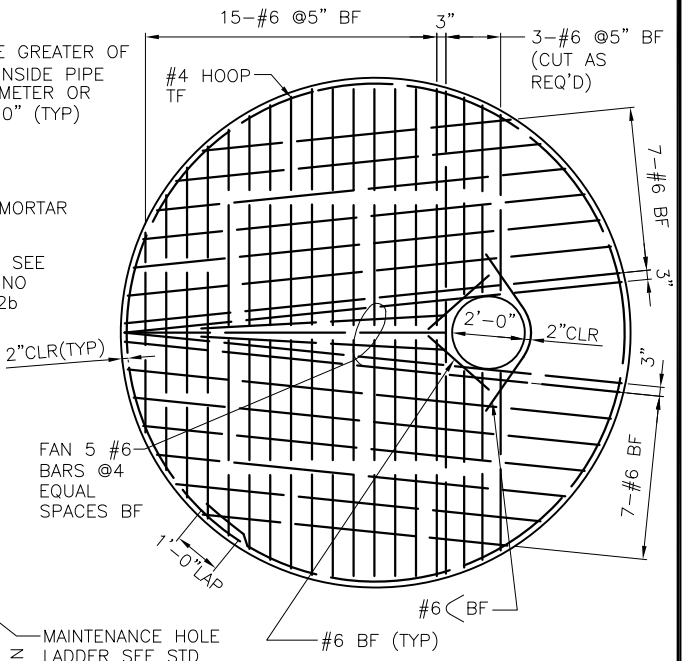
"H"	REINFORCING STEEL "A" MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST–IN–PLACE BASE
20' MAX	0.81	0.72
30' MAX	1.09	0.96
40' MAX	1.36	1.20



PLAN VIEW
(TOP REMOVED)



SECTION A–A



TOP SLAB REINFORCEMENT

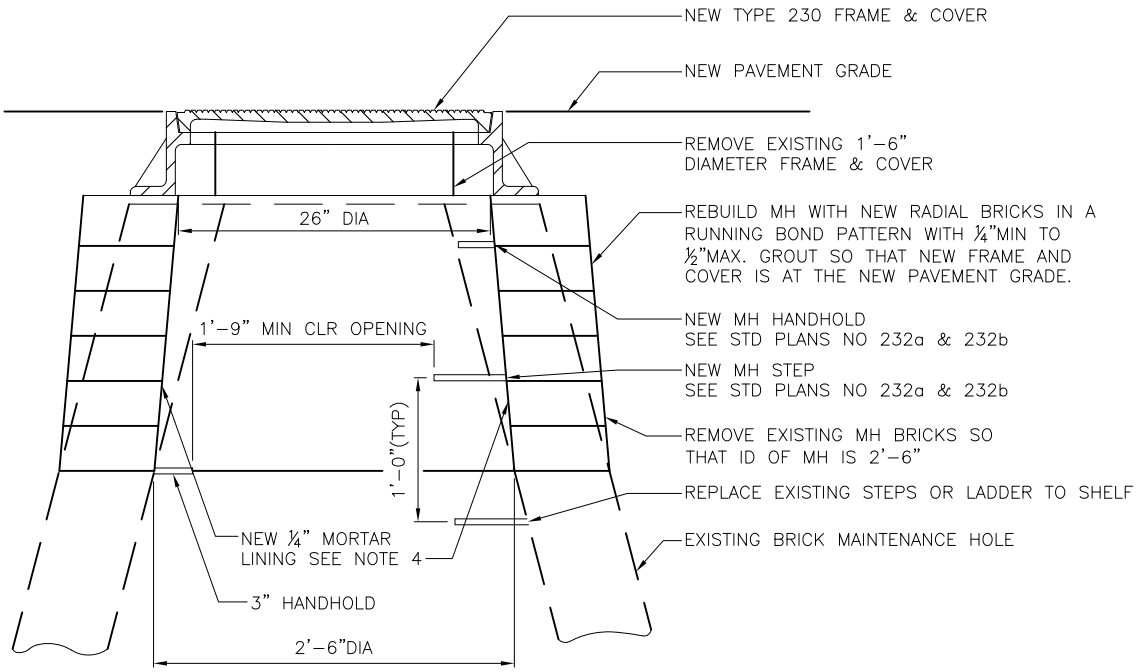
NOTES:

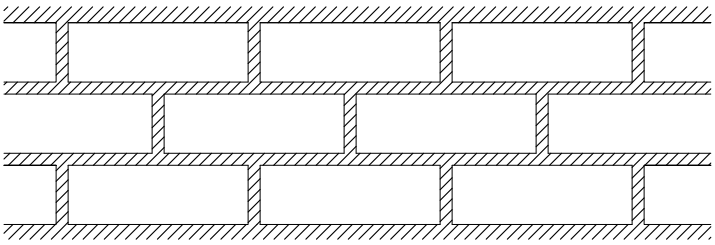
1. MATERIAL; CONCRETE–CLASS 4000 REINFORCING STEEL–ASTM A615 GRADE 60 MIN CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING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

REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	TYPE 212b MAINTENANCE HOLE

REV DATE: DEC 2012





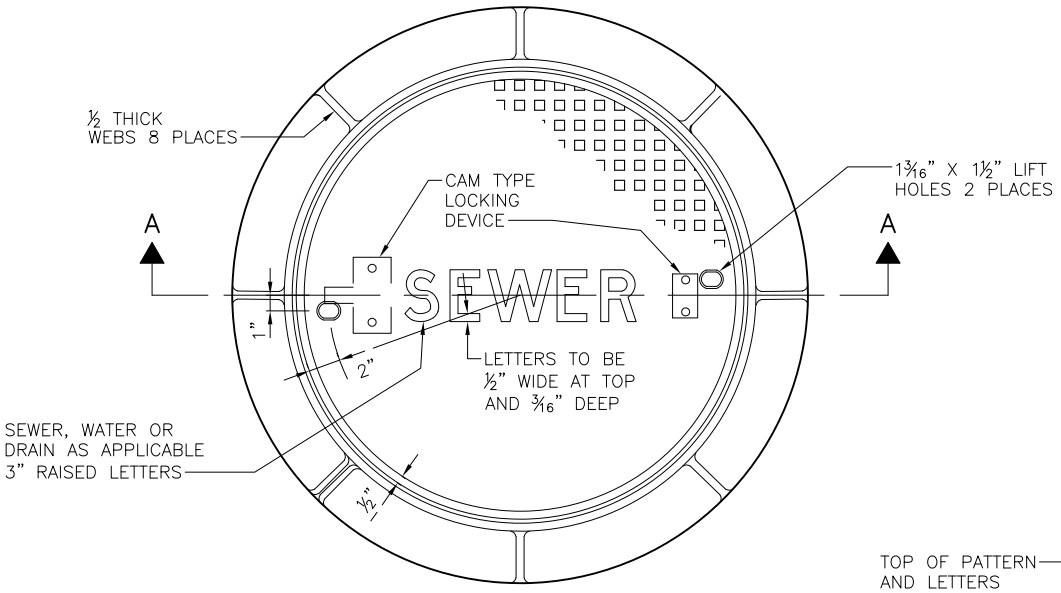
RUNNING BOND PATTERN

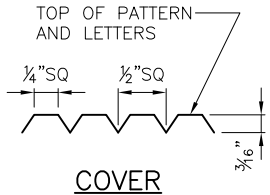
GROUT BETWEEN ALL BRICKS

REF STD SPEC SEC 7-05

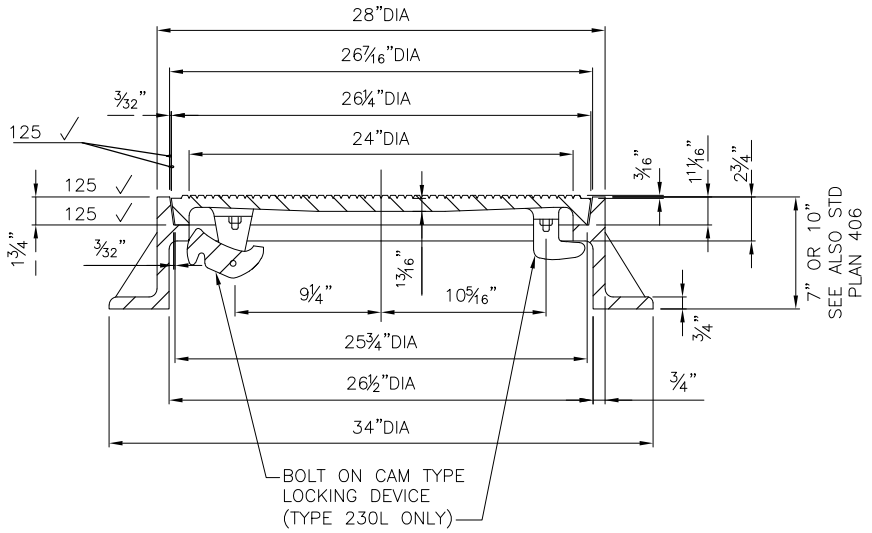
City of Seattle	NOT TO SCALE	REBUILD EXISTING BRICK MAINTENANCE HOLE

REV DATE: DEC 2010





COVER
DETAIL PATTERN



SECTION A–A

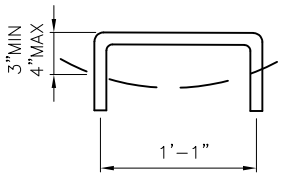
NOTES:

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 MUST BE MANUFACTURED FROM CAST IRON OR DUCTILE IRON.
4. COVERS MUST BE MANUFACTURED FROM DUCTILE IRON.

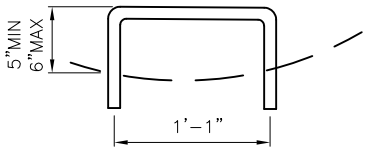
REF STD SPEC SEC 7-05, 9-12

City of Seattle	NOT TO SCALE	2'-0" DIAMETER FRAME & COVER

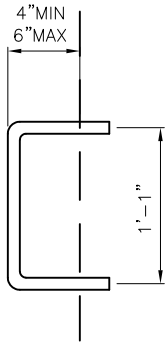
REV DATE: JUN 2014



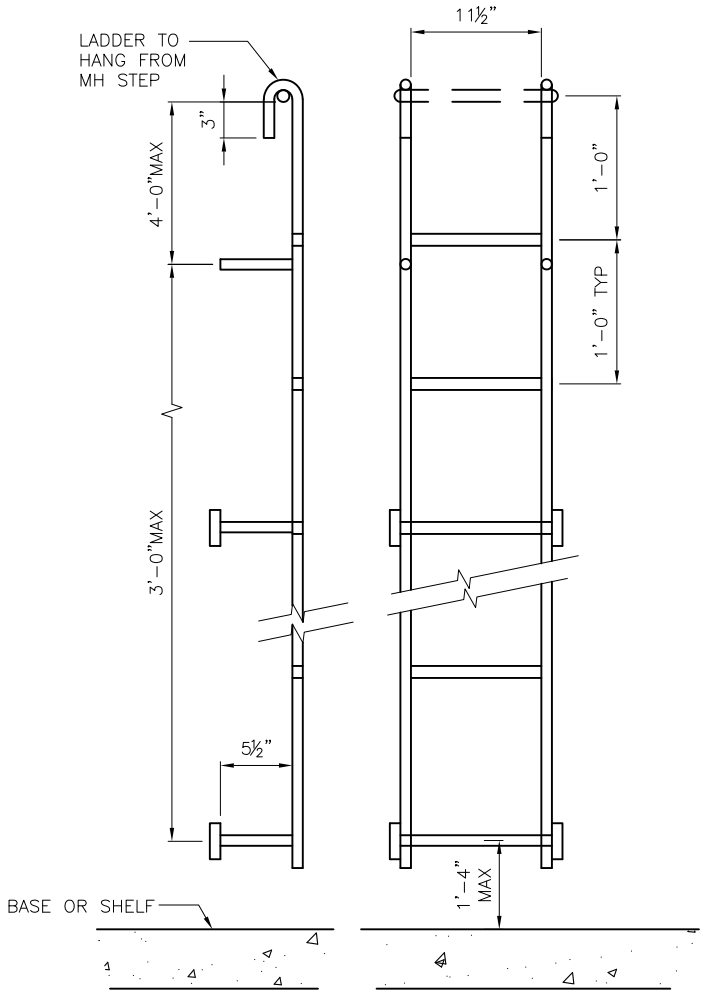
HANDHOLD



STEP



VERTICAL HANDHOLD



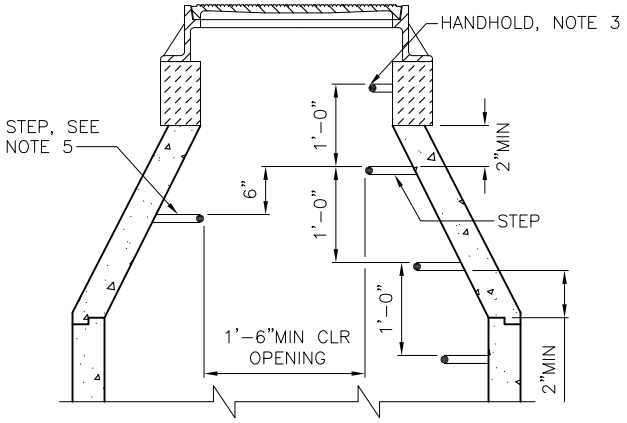
LADDER

NOTES:

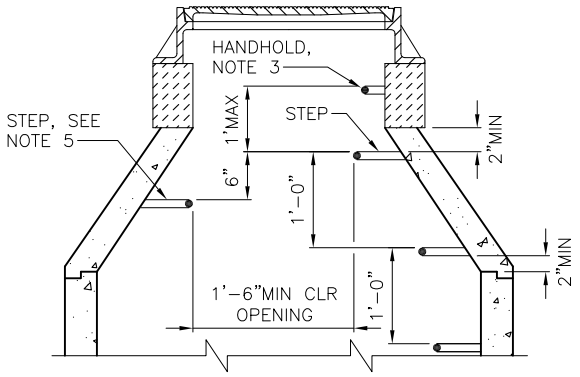
1. MATERIAL – STEEL REINFORCED POLYPROPYLENE
2. DIMENSIONS FOR THE MH LADDER AND STEP ARE MINIMUM REQUIREMENTS ONLY.
3. WHEN THE DISTANCE FROM THE LAST (HIGHEST) STEP OR HANDHOLD TO THE TOP OF THE MH FRAME EXCEEDS 1'–6", A HANDHOLD MUST BE INSTALLED MID–WAY IN THE LEVELING BRICK OR COLLAR.
4. EITHER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

REF STD SPEC SEC 7-05

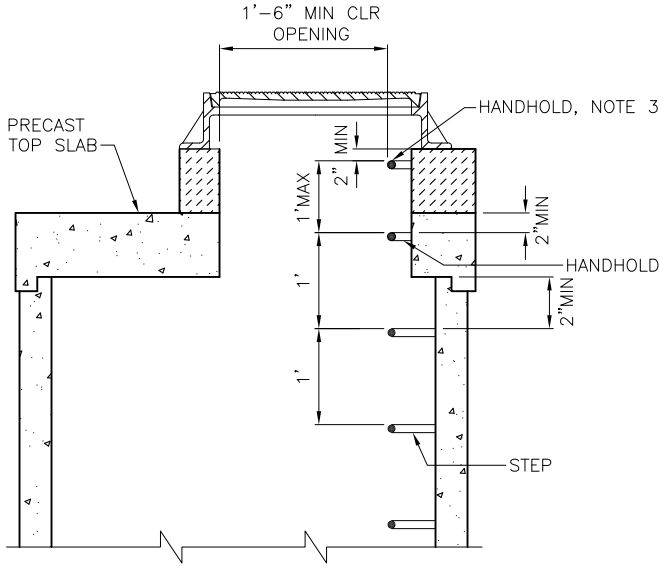
City of Seattle	NOT TO SCALE	MAINTENANCE HOLE LADDER, STEP AND HANDHOLD



24" HIGH CONCENTRIC CONE



18" HIGH CONCENTRIC CONE



MH WITH PRECAST TOP SLAB

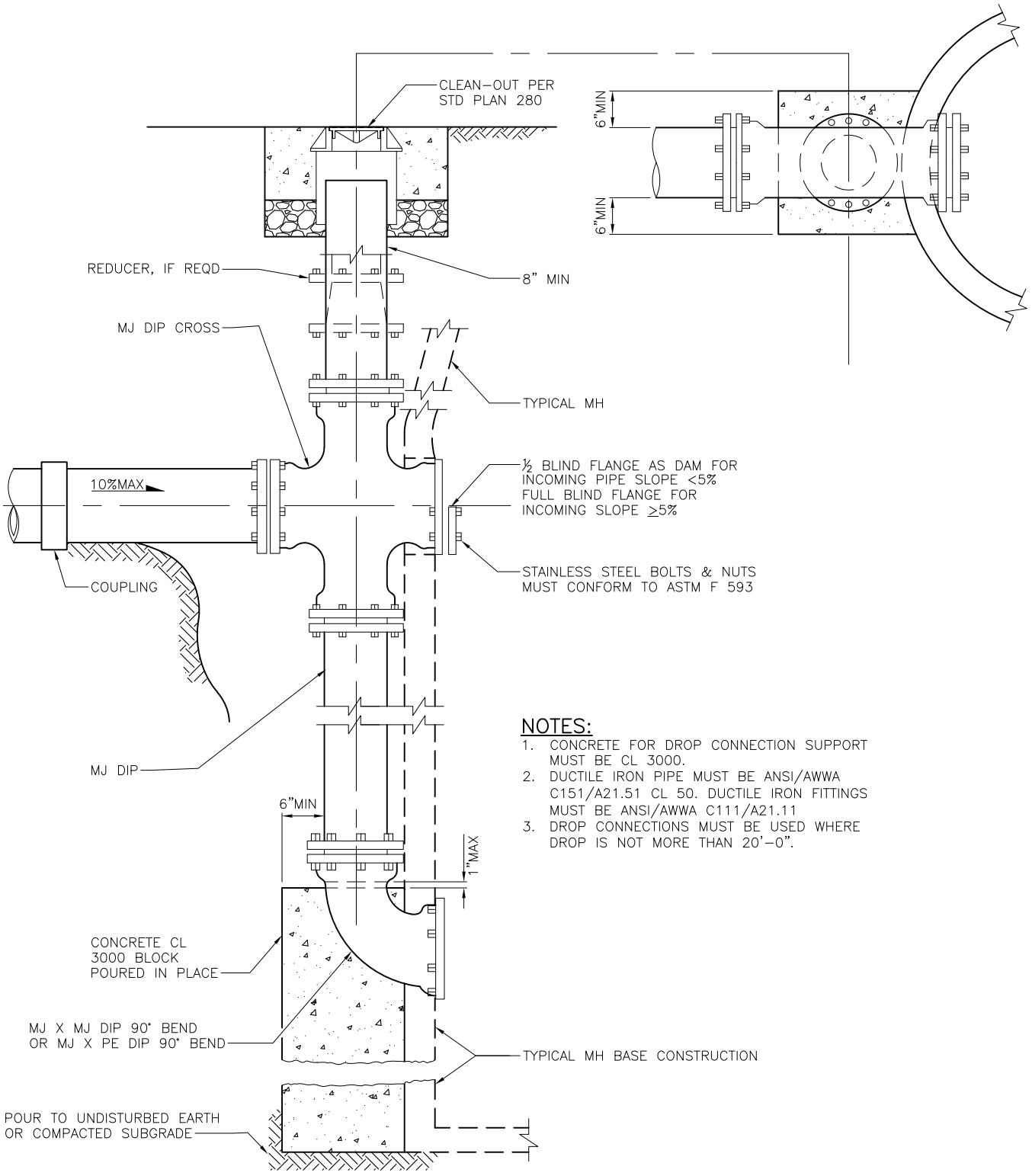
NOTES:

1. MATERIAL – STEEL REINFORCED POLYPROPYLENE.
2. DIMENSIONS FOR THE MH LADDER AND STEP ARE MINIMUM REQUIREMENTS ONLY.
3. WHEN THE DISTANCE FROM THE LAST (HIGHEST) STEP OR HANDHOLD TO THE TOP OF THE MH FRAME EXCEEDS 1'-6, A HANDHOLD MUST BE INSTALLED MID-WAY IN THE LEVELING BRICK OR COLLAR.
4. EITHER STEPS, LADDERS OR A COMBINATION OF THE TWO CAN BE USED. IF BOTH STEPS AND LADDERS ARE USED IN ANY MH, THEY MUST BE FROM THE SAME MANUFACTURER.
5. STEP ON OPPOSITE SIDE OF MH MUST BE PLACED MID WAY BETWEEN STEPS ON OPPOSING SIDE.

REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	MAINTENANCE HOLE LADDER, STEP AND HANDHOLD

REV DATE: JUN 2010



NOTES:

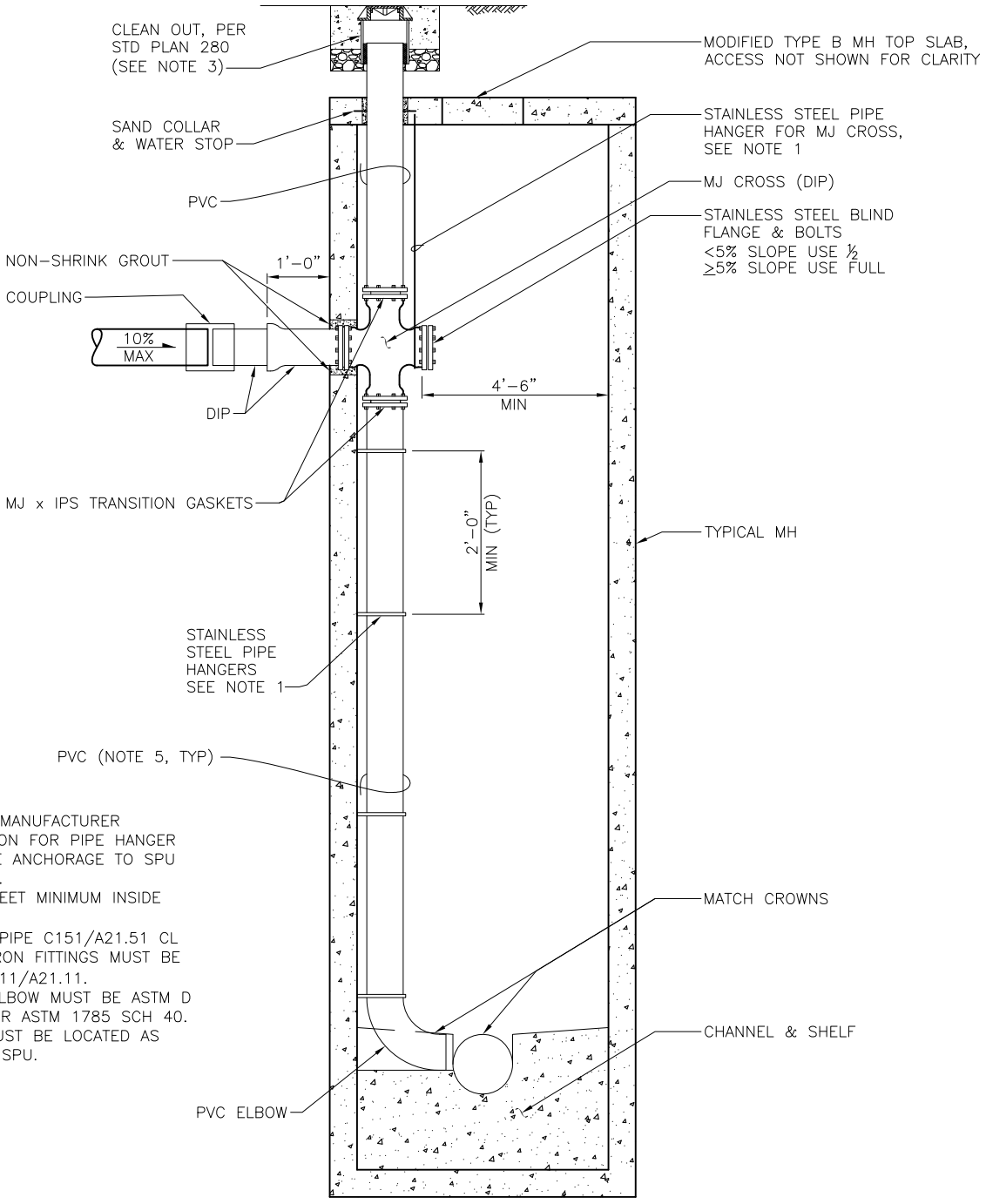
1. CONCRETE FOR DROP CONNECTION SUPPORT MUST BE CL 3000.
2. DUCTILE IRON PIPE MUST BE ANSI/AWWA C151/A21.51 CL 50. DUCTILE IRON FITTINGS MUST BE ANSI/AWWA C111/A21.11
3. DROP CONNECTIONS MUST BE USED WHERE DROP IS NOT MORE THAN 20'–0".

DUCTILE IRON OUTSIDE DROP CONNECTION

REF STD SPEC SEC 7-08

City of Seattle	NOT TO SCALE	OUTSIDE DROP CONNECTION

REV DATE: JUN 2005



NOTES:

1. PROVIDE PIPE MANUFACTURER RECOMMENDATION FOR PIPE HANGER AND CONCRETE ANCHORAGE TO SPU FOR APPROVAL.
2. SIZE MH TO MEET MINIMUM INSIDE CLEARANCE.
3. DUCTILE IRON PIPE C151/A21.51 CL 50, DUCTILE IRON FITTINGS MUST BE ANSI/AWWA 6111/A21.11.
4. PVC PIPE & ELBOW MUST BE ASTM D 2241 CL200 OR ASTM 1785 SCH 40.
5. CLEAN-OUT MUST BE LOCATED AS APPROVED BY SPU.

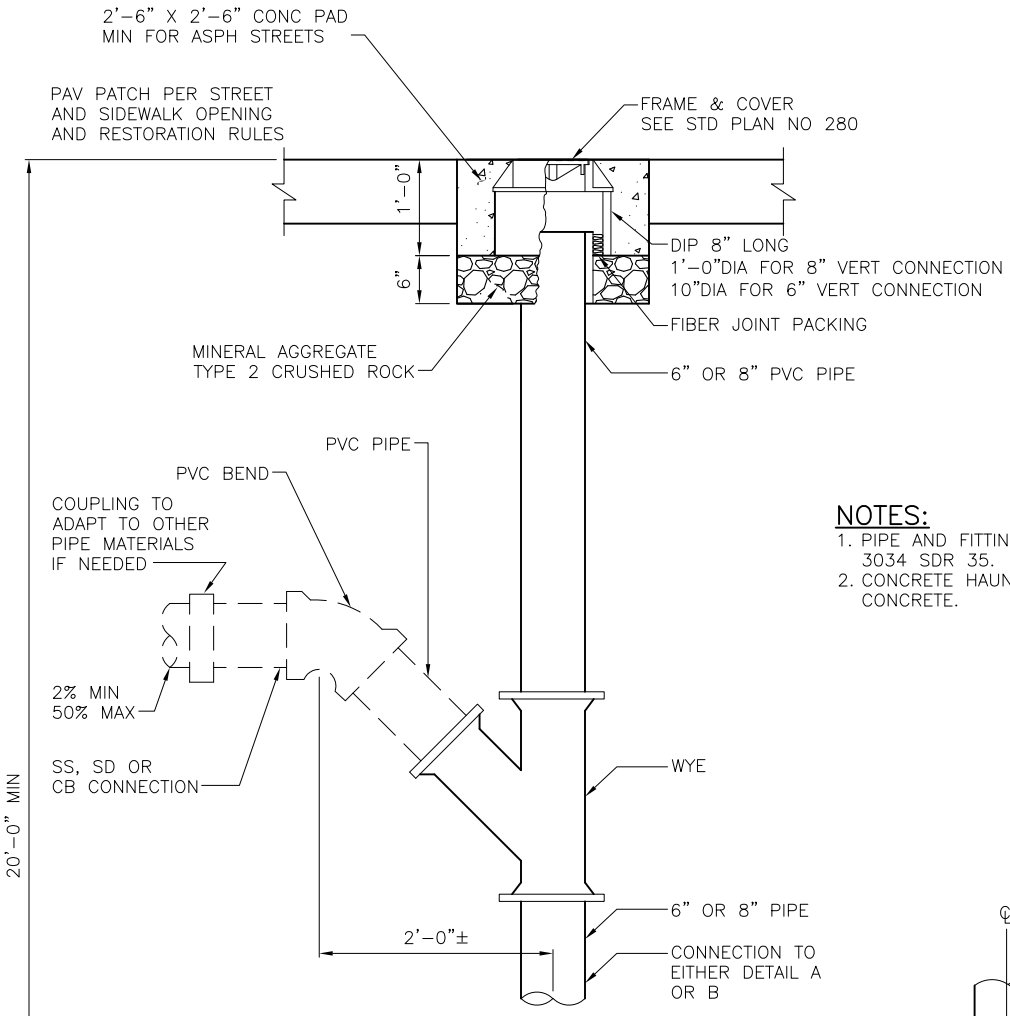
INSIDE DROP

(18" DIAMETER PIPE MAXIMUM)

REF STD SPEC SEC 7-08

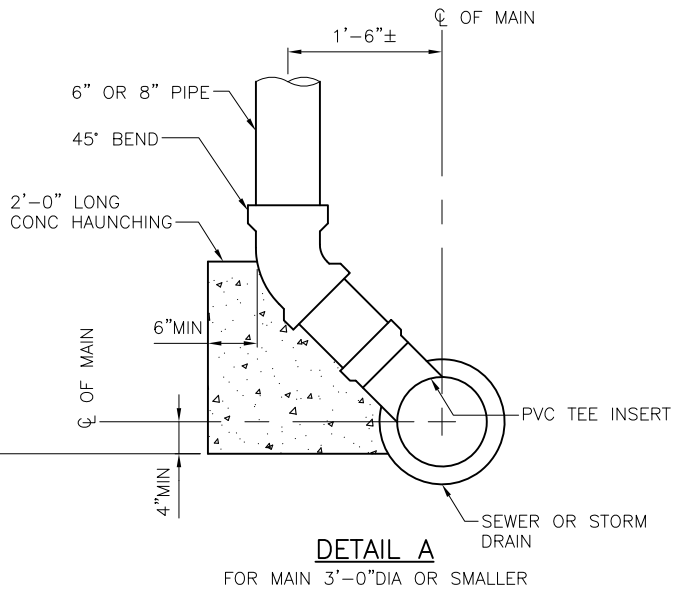
City of Seattle	NOT TO SCALE	INSIDE DROP CONNECTION

REV DATE: JUN 2010



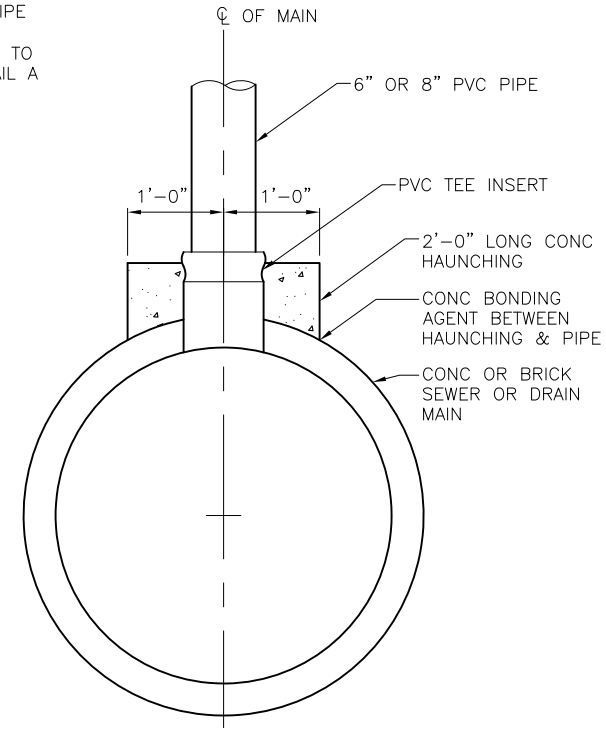
NOTES:

1. PIPE AND FITTINGS MUST 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



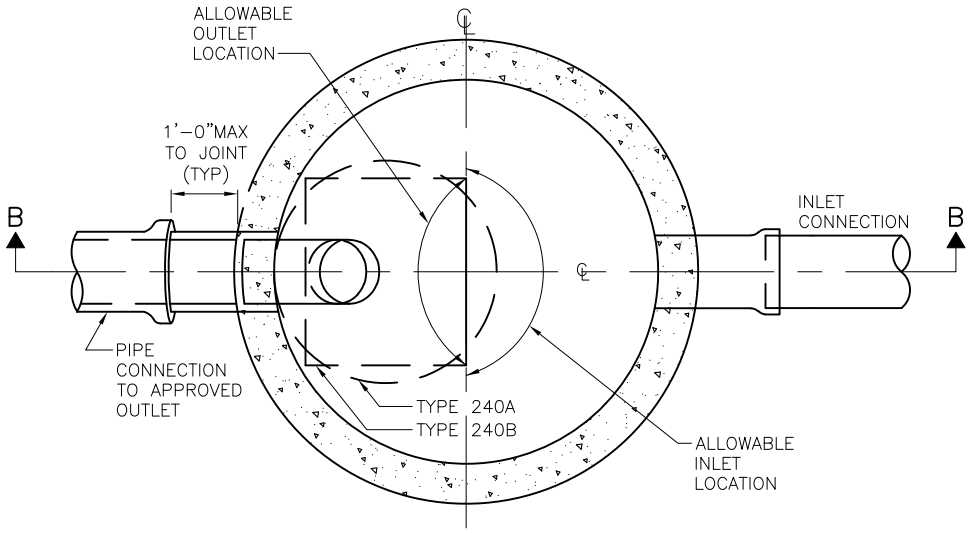
DETAIL B

FOR MAIN 3'–6"DIA OR LARGER

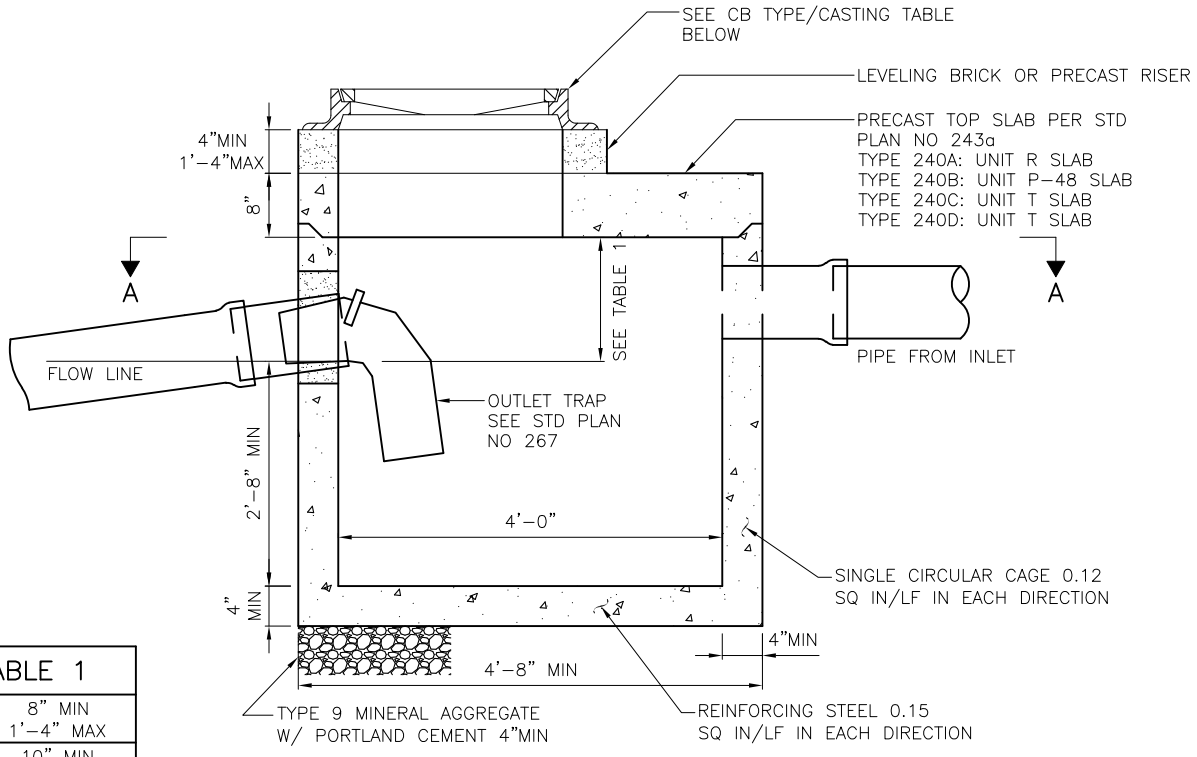
REF STD SPEC SEC 7-08 & 7-17

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

REV DATE: DEC 2015



SECTION A–A



SECTION B–B

TABLE 1	
6"ø	8" MIN 1'–4" MAX
8"ø	10" MIN 1'–4" MAX
12"ø	1'–3" MIN 2'–0" MAX

NOTES:

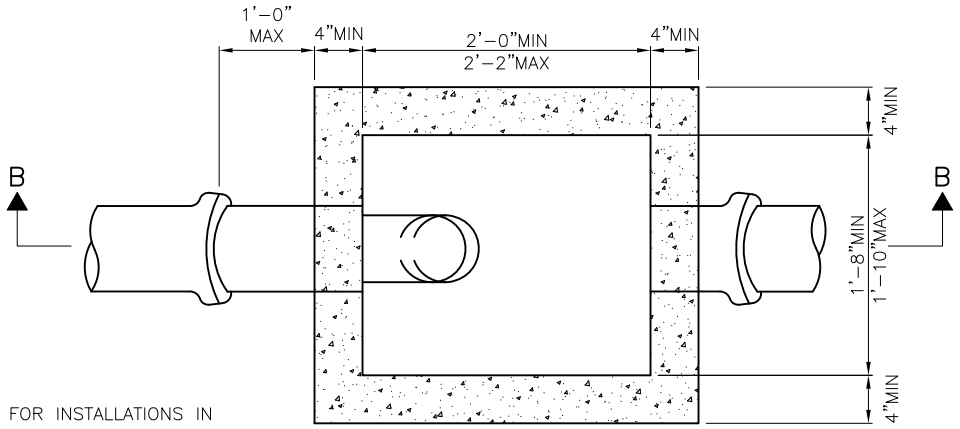
1. FRAME & GRATE OR FRAME & COVER MUST BE LOCATED OVER TRAP.
2. INVERT OF INLET PIPE MUST BE 2"MIN ABOVE INVERT OF OUTLET PIPE.
3. SEE STD PLAN 261 FOR ALLOWABLE OUTLET LOCATIONS.

CB TYPE	CASTING	
	FRAME	COVER
240A	PER STD PLAN 230	PER STD PLAN 230
240B	PER STD PLAN 264	PER STD PLAN 264
240C	PER STD PLAN 262	PER STD PLAN 265
240D	PER STD PLAN 263A	PER STD PLAN 265

REF STD SPEC SEC 7-05

City of Seattle | NOT TO SCALE | TYPE 240 CATCH BASIN

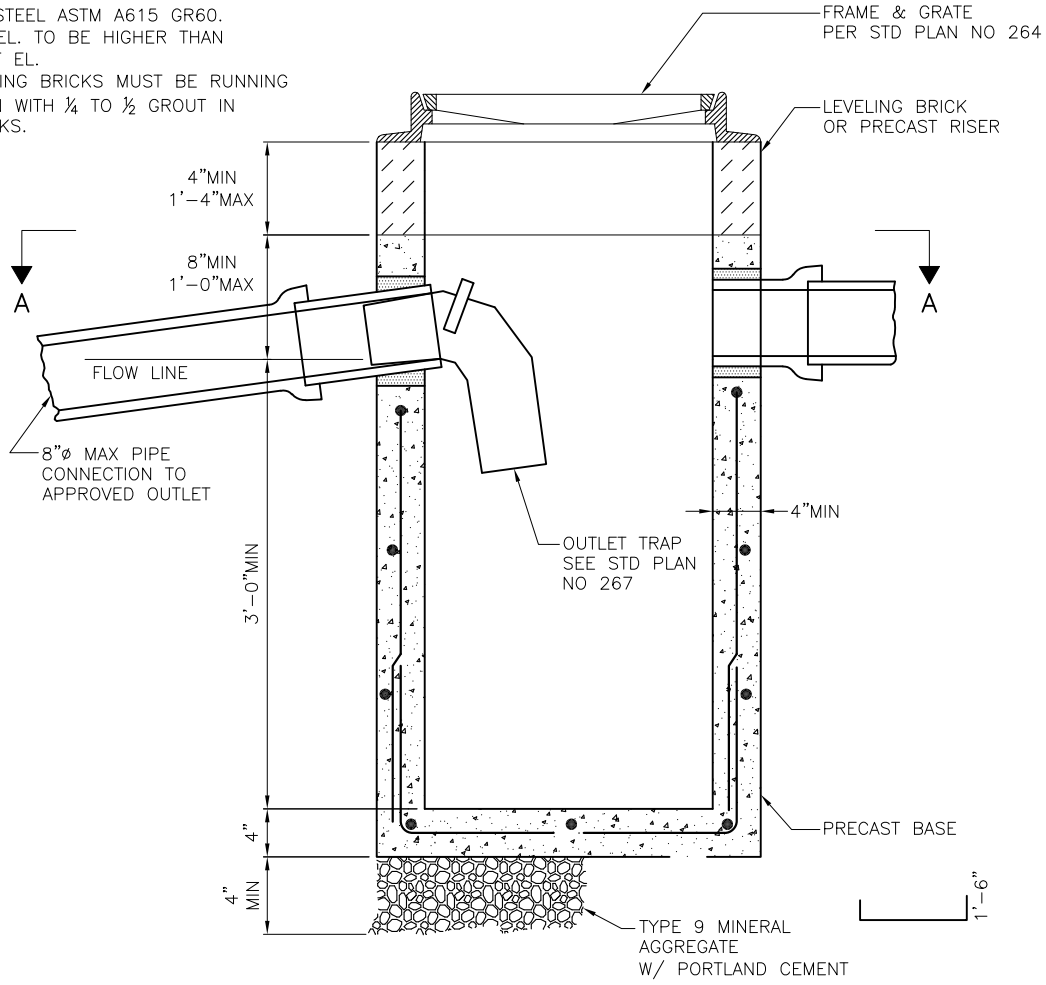
REV DATE: NOV 2012



SECTION A–A

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 THE 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 REINFORCING STEEL ASTM A615 GR60.
5. INLET INVERT EL. TO BE HIGHER THAN OUTLET INVERT EL.
6. USE OF LEVELING BRICKS MUST BE RUNNING BOND PATTERN WITH ¼ TO ½ GROUT IN BETWEEN BRICKS.

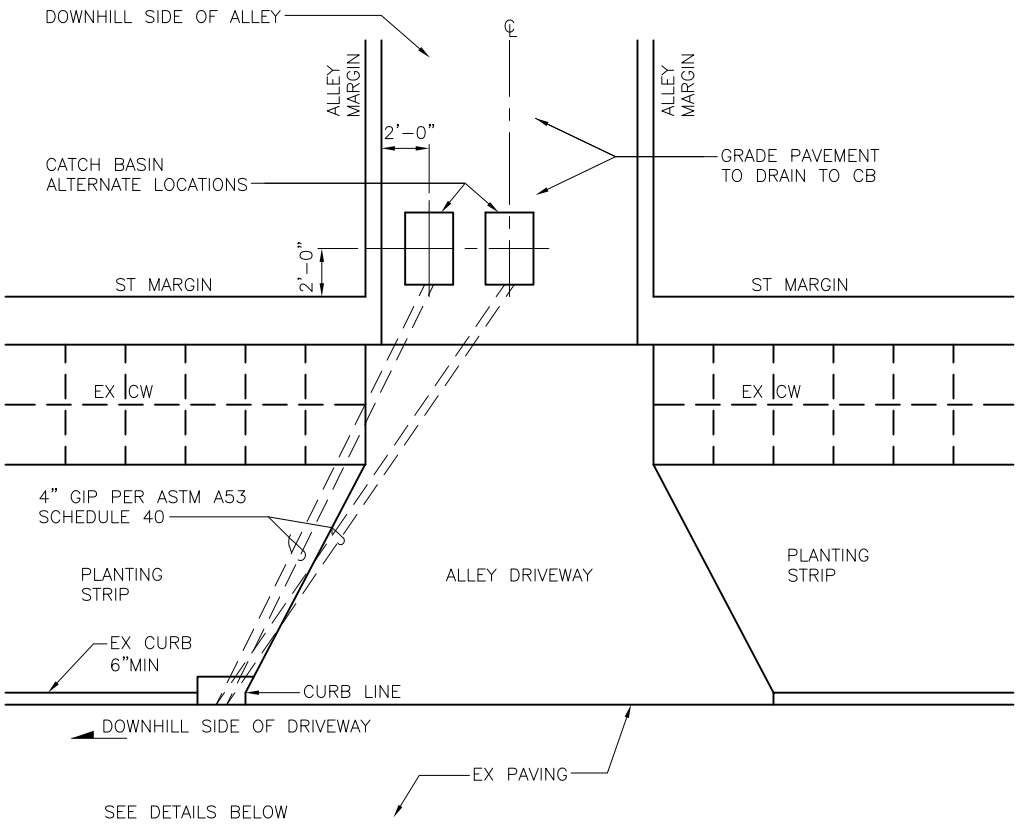


SECTION B–B

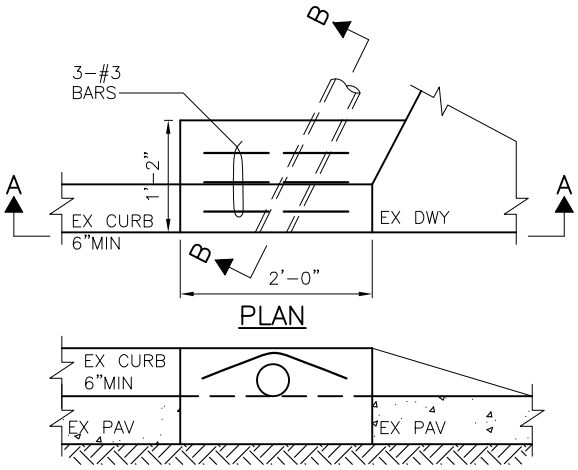
REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	TYPE 241 CATCH BASIN

REV DATE: 2005

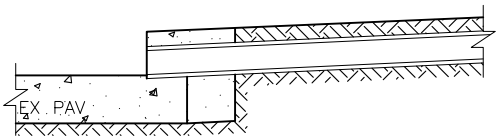


PLAN



PLAN

SECTION A–A

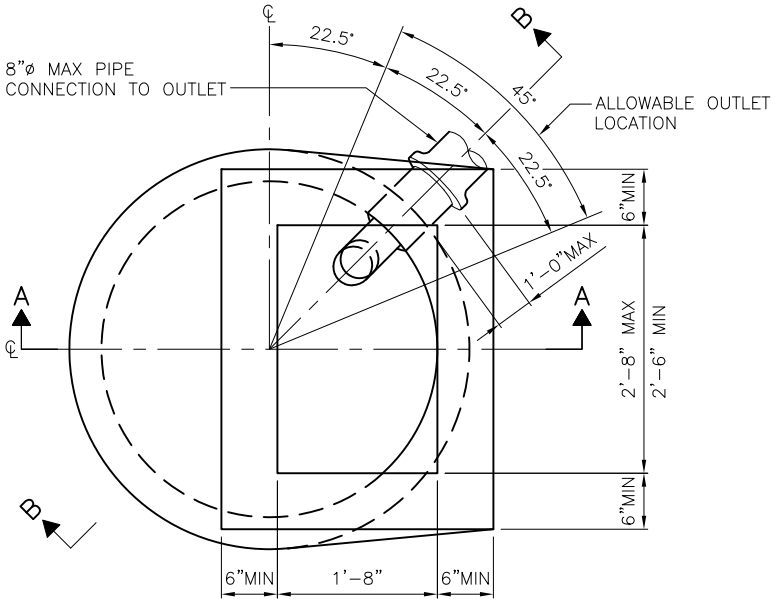


SECTION B–B

REF STD SPEC SEC 7-05 & 7-08

City of Seattle	NOT TO SCALE	TYPE 241 CATCH BASIN INSTALLATIONS

REV DATE: AUG 2014

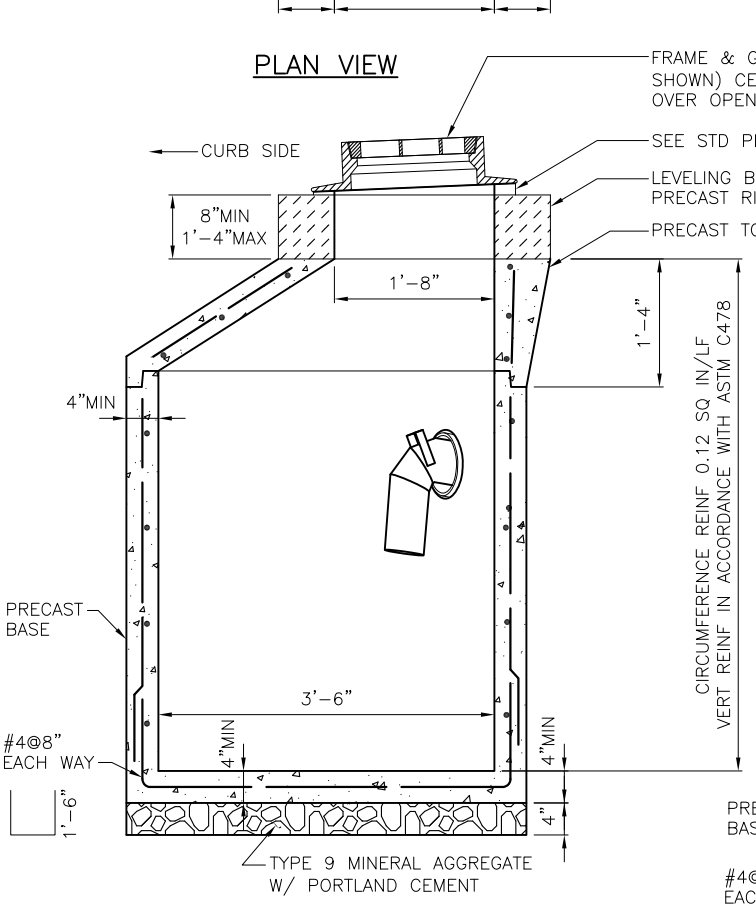


CB TYPE	CASTING		
	FRAME	GRATE	HOOD
A	NO 262	NO 265	NONE
B	NO 263A	NO 265	NO 263A
C	NO 263A	NO 265	NO 263B

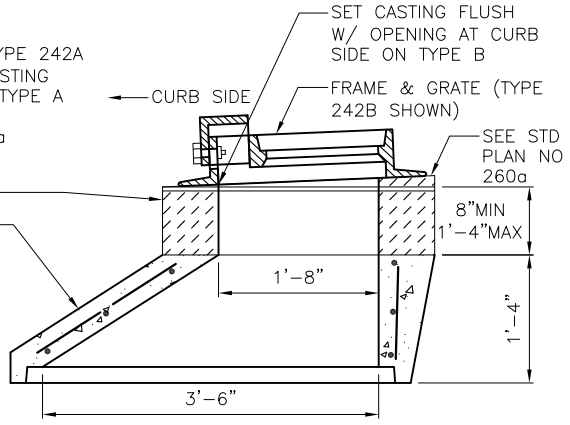
NOTES:

1. MATERIAL: CONCRETE: CLASS 4000 REINFORCING STEEL: ASTM A 615 GR 60
2. INSTALL & LOCATE PER STD PLANS NO 260 & 261
3. OUTLET TRAP TO BE LOCATED DIRECTLY BELOW FRAME AND GRATE
4. USE OF LEVELING BRICKS MUST BE RUNNING BOND PATTERN WITH ¼ TO ½ GROUT IN BETWEEN BRICKS.

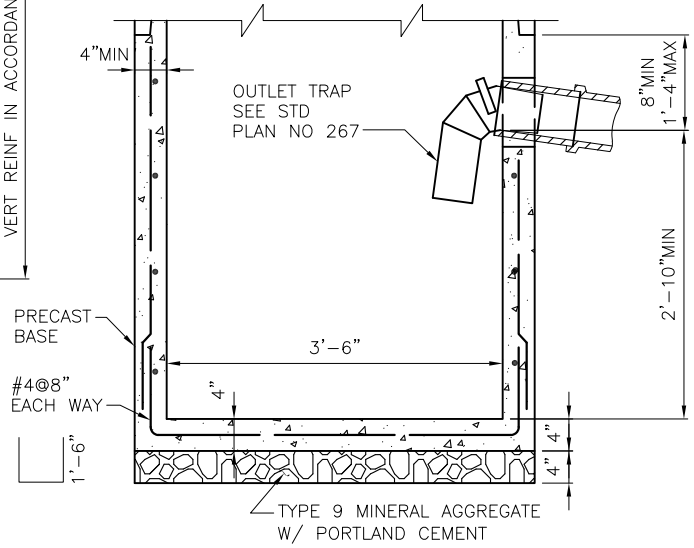
PLAN VIEW



TYPE A
SECTION A-A



TYPE B
SECTION A-A

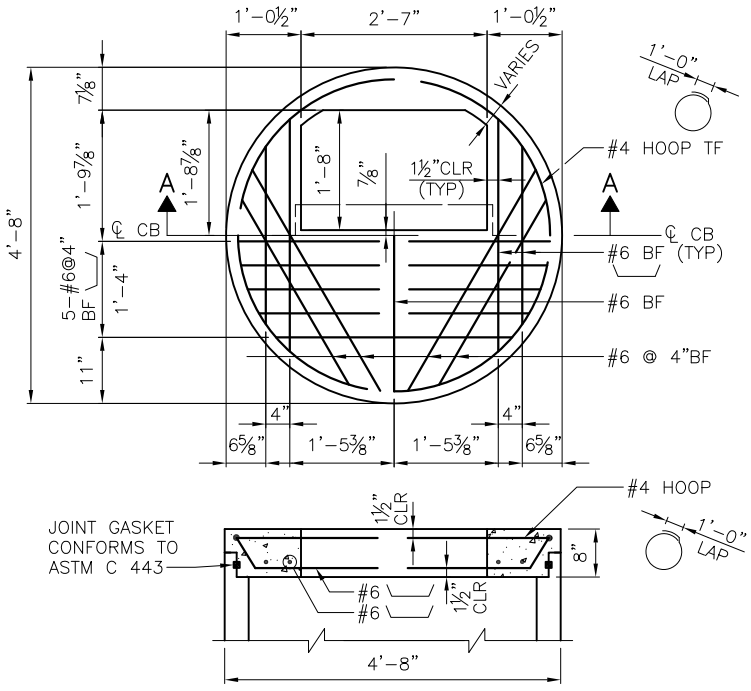


TYPE A & B
SECTION B-B

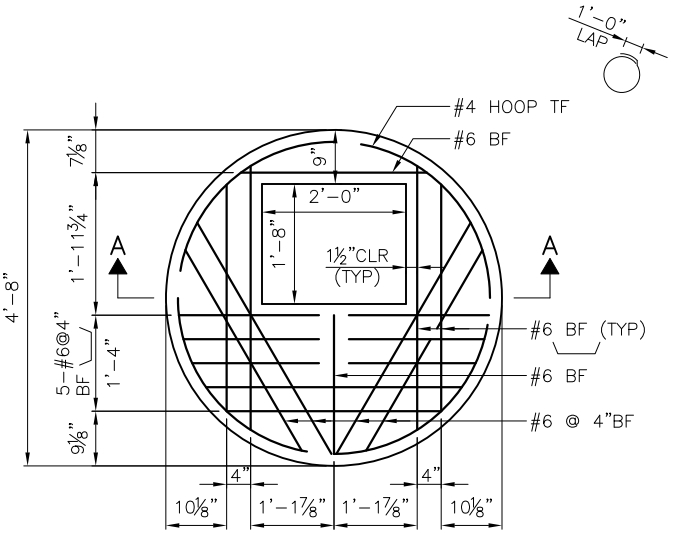
REF STD SPEC SEC 7-05

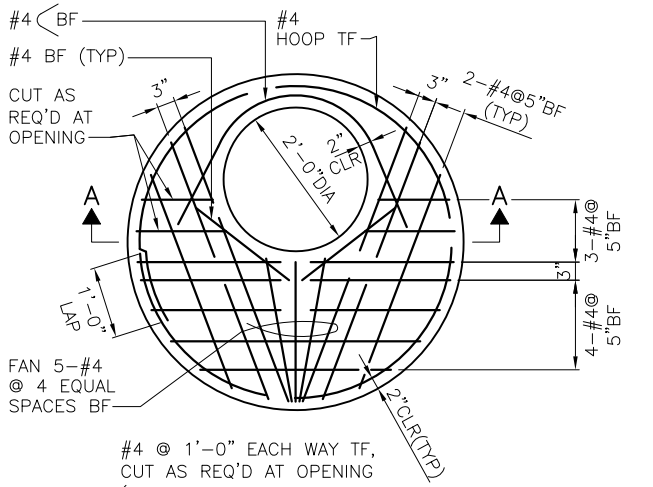
City of Seattle	NOT TO SCALE	TYPE 242 CATCH BASIN

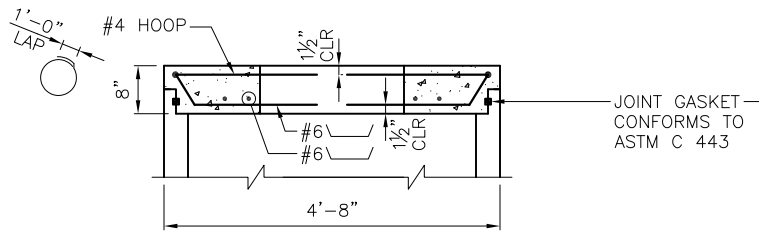
REV DATE: SEPT 2008



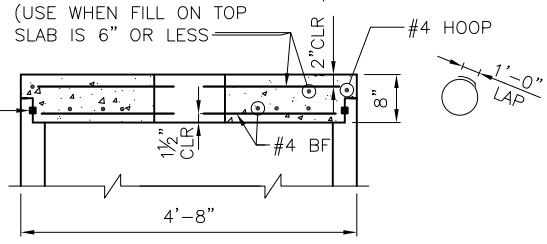
UNIT T
SECTION A–A







UNIT P–48
SECTION A–A

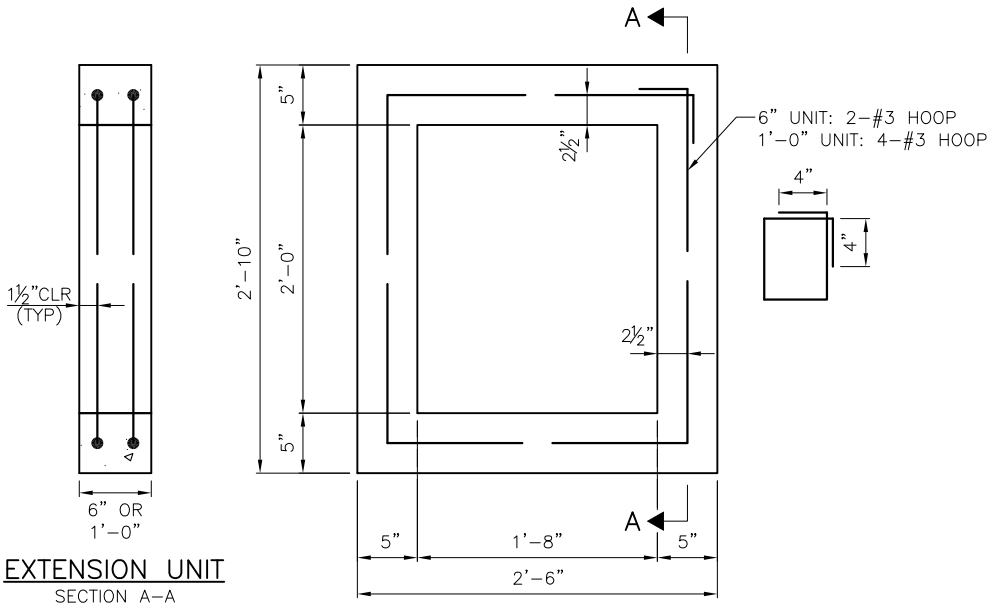


UNIT R
SECTION A–A

REF STD SPEC SEC 7-05

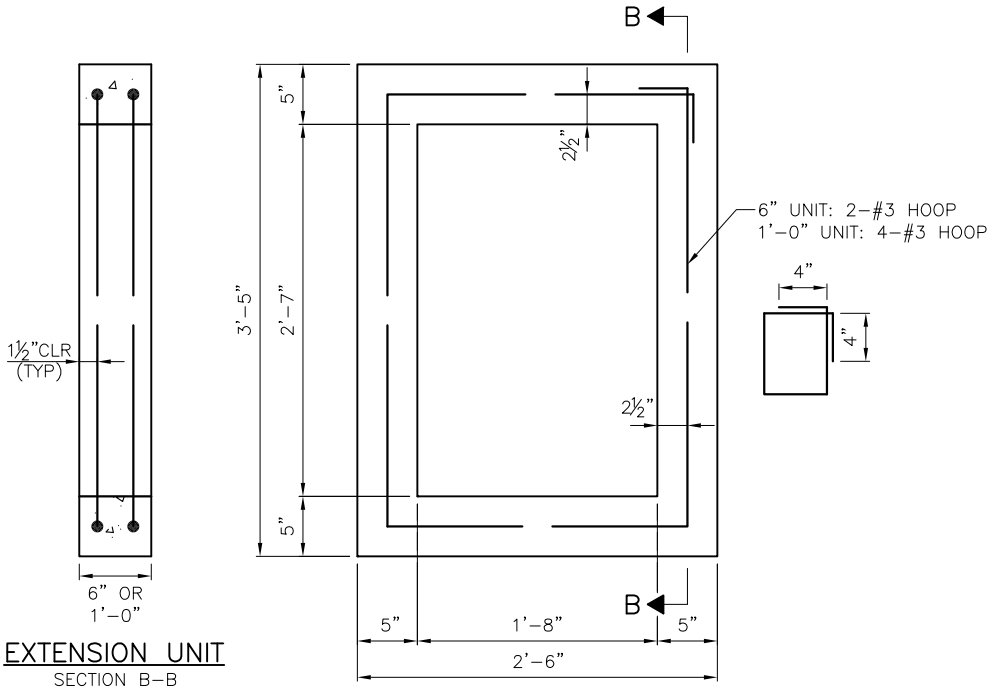
City of Seattle	NOT TO SCALE	PRECAST CATCH BASIN TOP SLAB

REV DATE: 2003



EXTENSION UNIT
SECTION A–A

UNIT S



EXTENSION UNIT
SECTION B–B

UNIT U

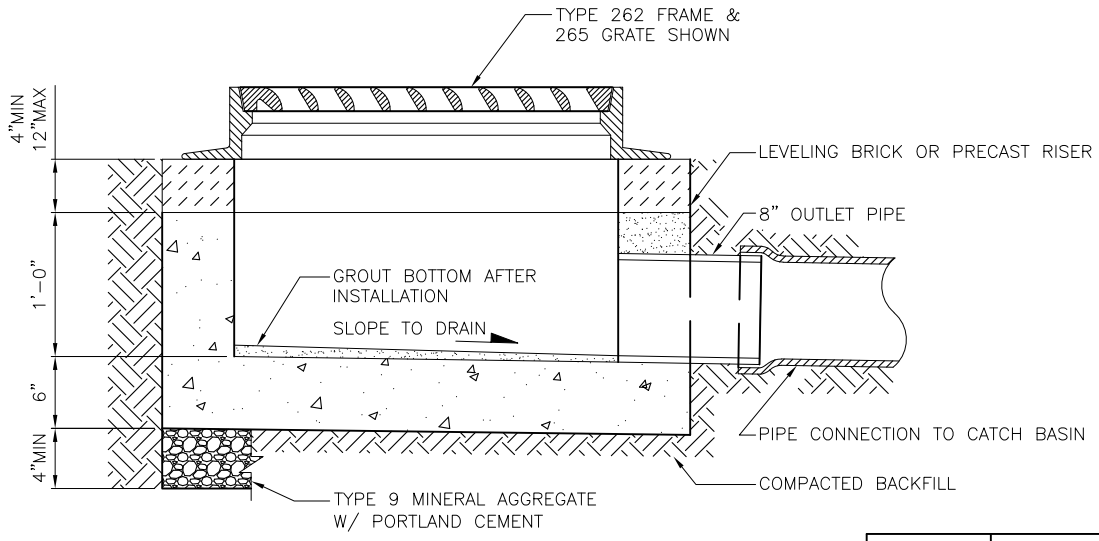
NOTES:

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

REF STD SPEC SEC 7-05

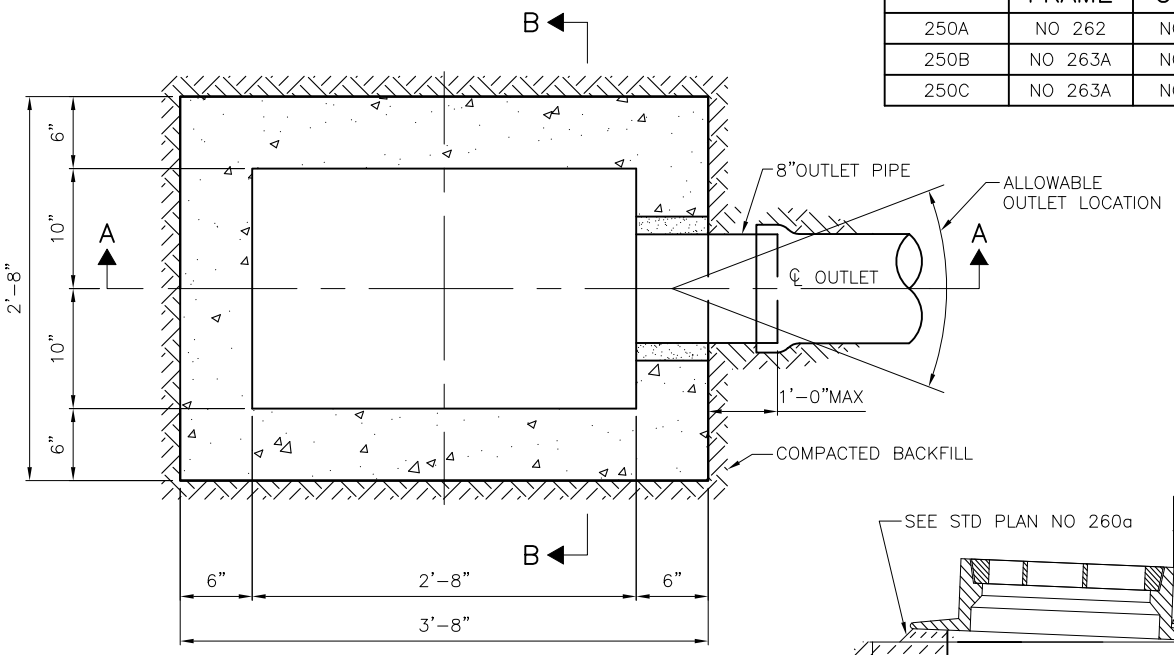
City of Seattle	NOT TO SCALE	PRECAST CATCH BASIN EXTENSION RISERS

REV DATE: SEP 2015

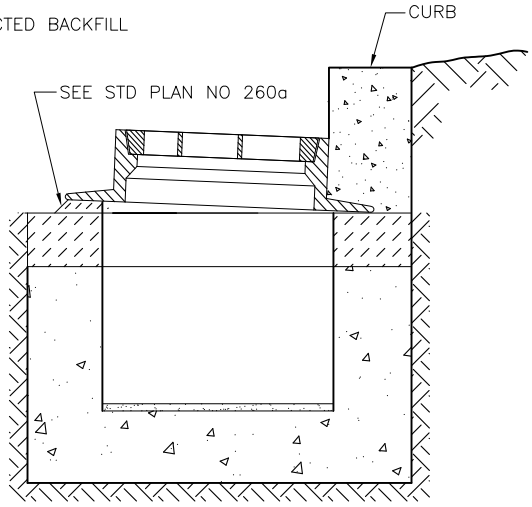


SECTION A–A

INLET TYPE	CASTING		
	FRAME	GRATE	HOOD
250A	NO 262	NO 265	NONE
250B	NO 263A	NO 265	NO 263A
250C	NO 263A	NO 265	NO 263B



PLAN VIEW

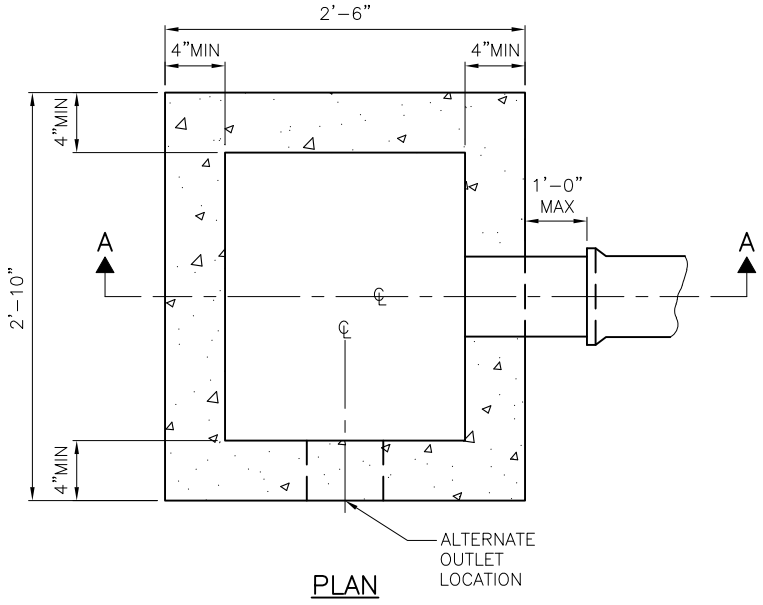


SECTION B–B
TYPE A ONLY

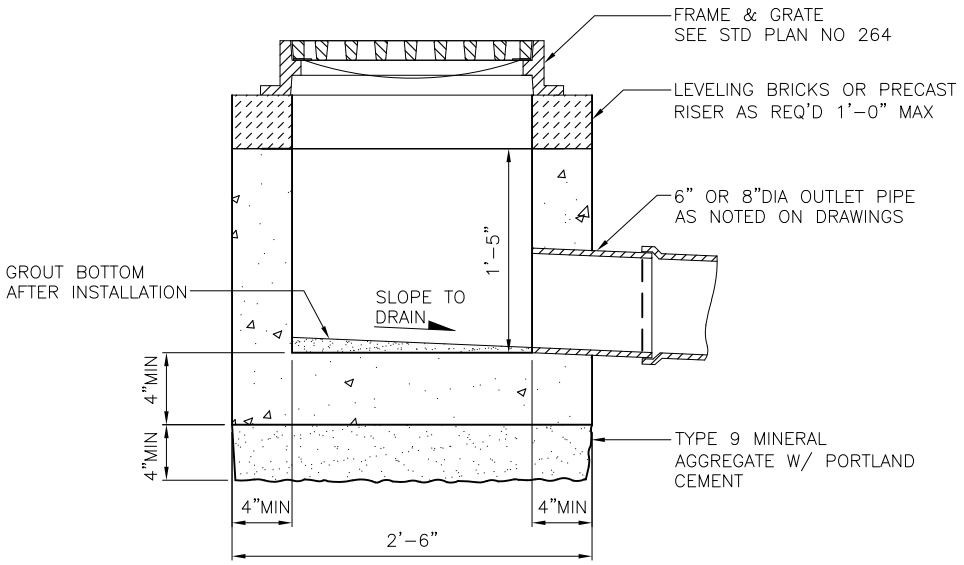
REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	TYPE 250 INLET

REV DATE: DEC 2013



PLAN

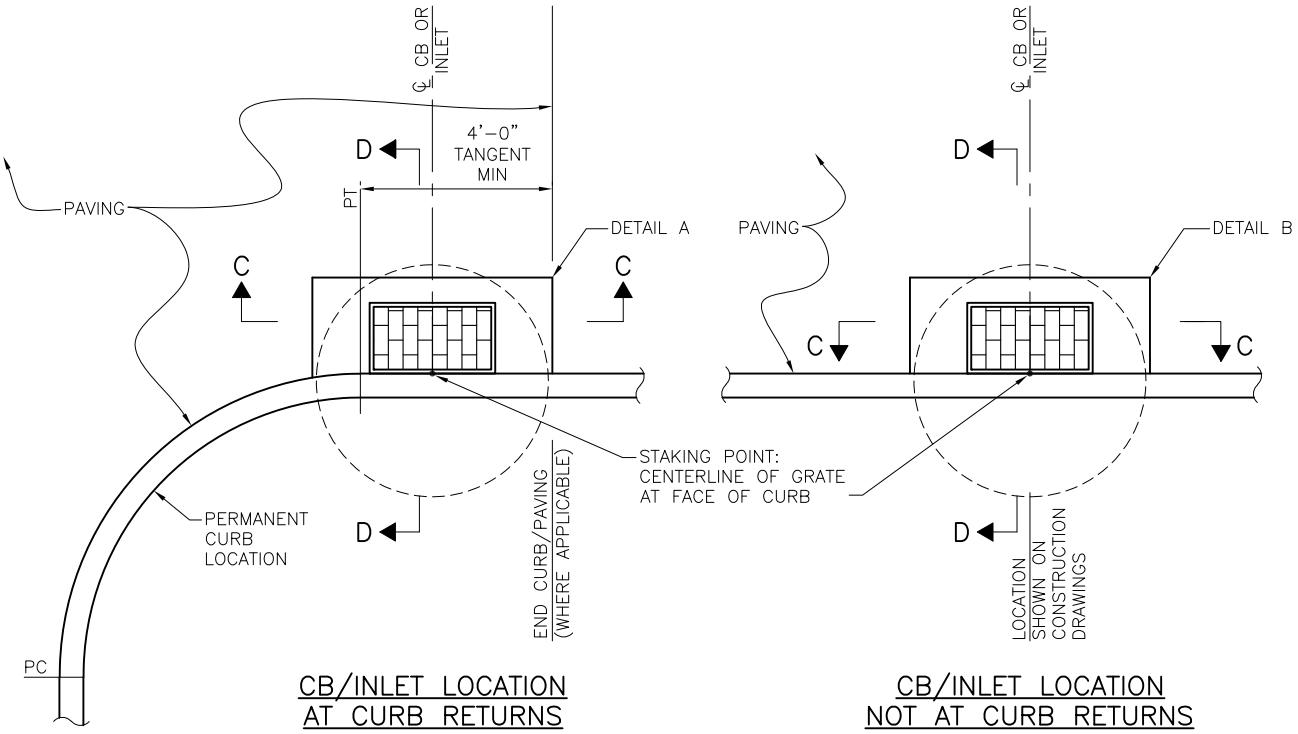


SECTION A–A

REF STD SPEC SEC 7-05

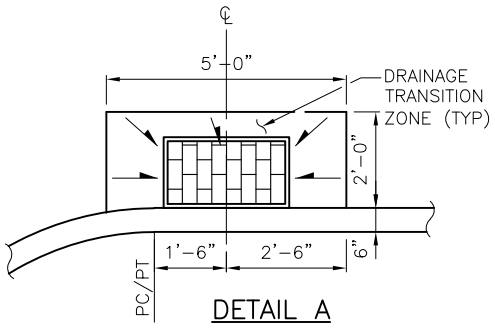
City of Seattle	NOT TO SCALE	TYPE 252 INLET

REV DATE: JAN 2013

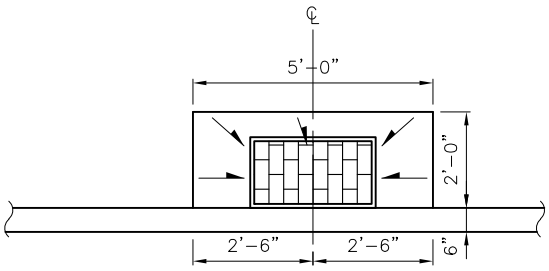


CB/INLET LOCATION AT CURB RETURNS

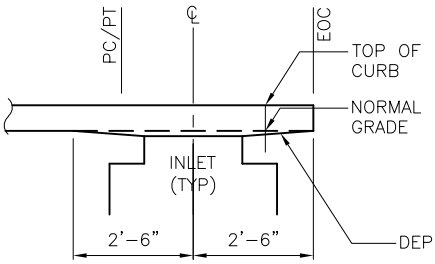
CB/INLET LOCATION NOT AT CURB RETURNS



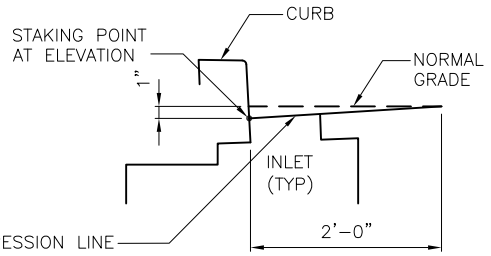
DETAIL A



DETAIL B



SECTION C–C



SECTION D–D

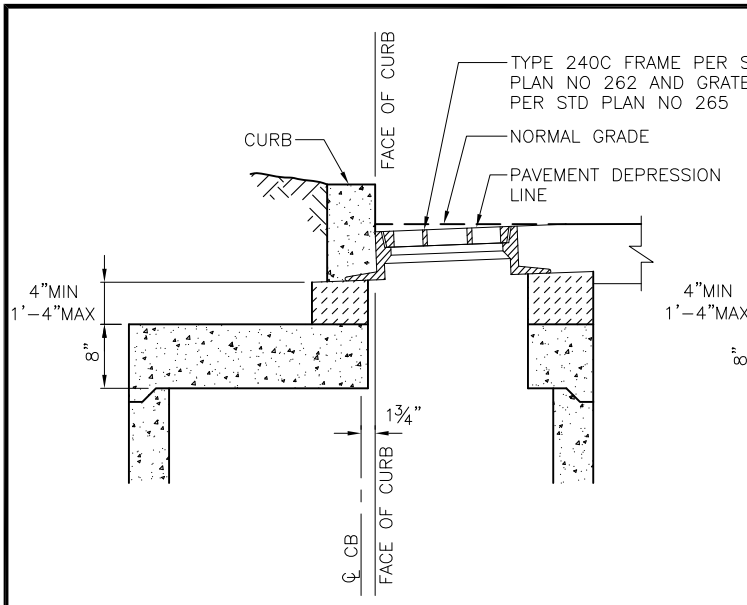
NOTES:

1. CB INLET GRATES MUST NOT BE PLACED IN CROSSWALKS.
2. CB INLETS MUST NOT BE PLACED IN CURB RAMP LANDINGS.

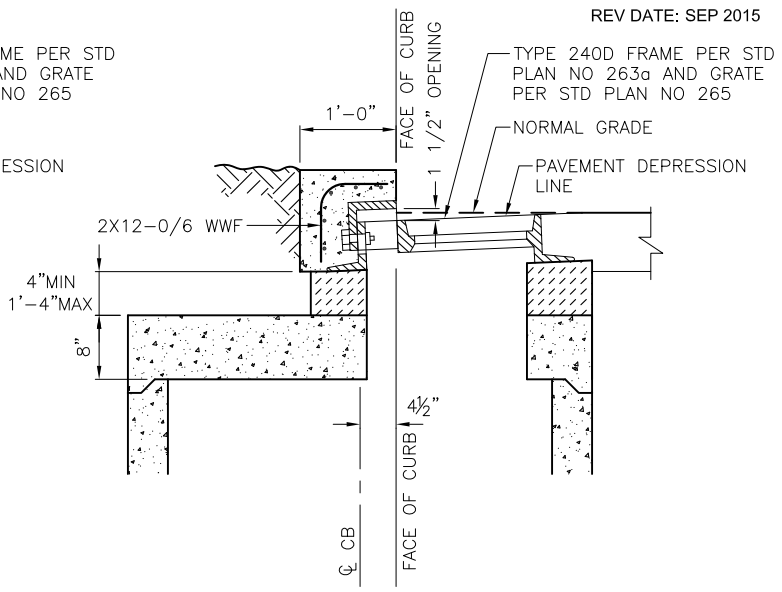
REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	INLET / CATCH BASIN LOCATION & INSTALLATION

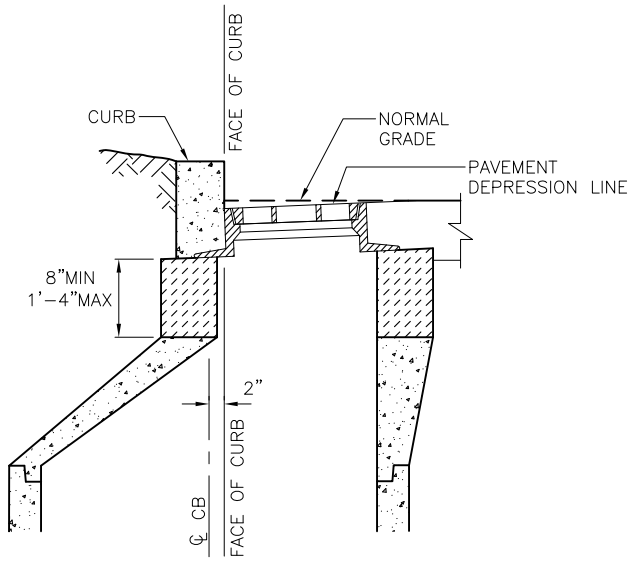
REV DATE: SEP 2015



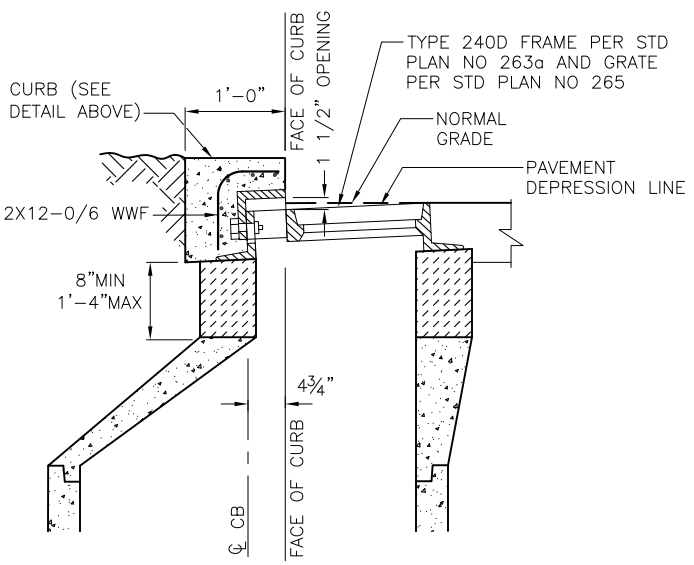
TYPE 240C CB



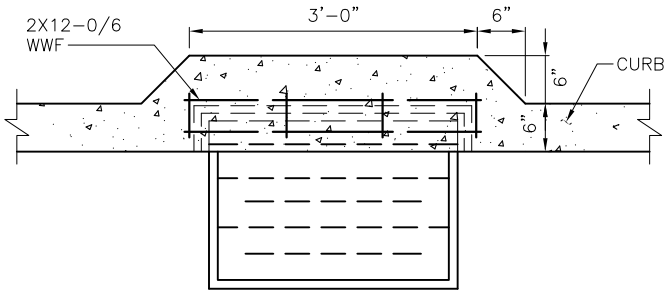
TYPE 240D CB



TYPE 242A CB
(TYPE 250A INLET SIMILAR)



TYPE 242B CB
(TYPE 250B INLET SIMILAR)

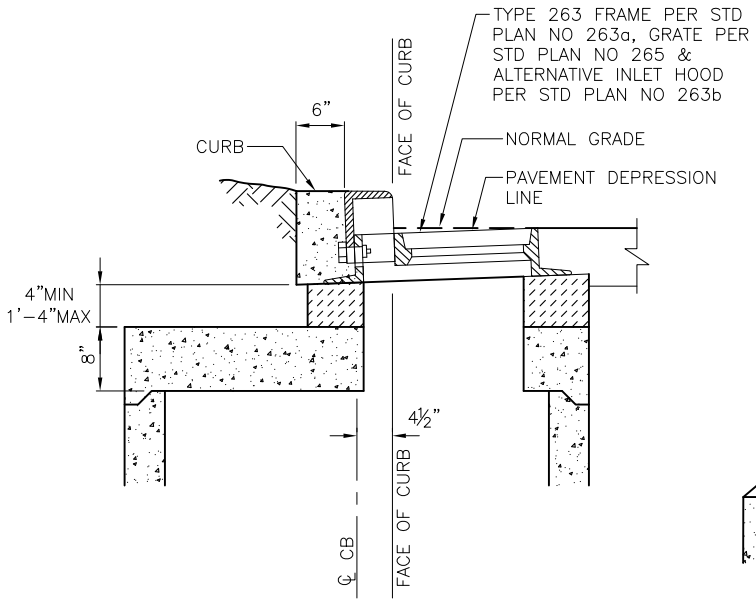


CURB DETAIL (PLAN VIEW) FOR
TYPE 240D & 242B CB & TYPE 250B INLET

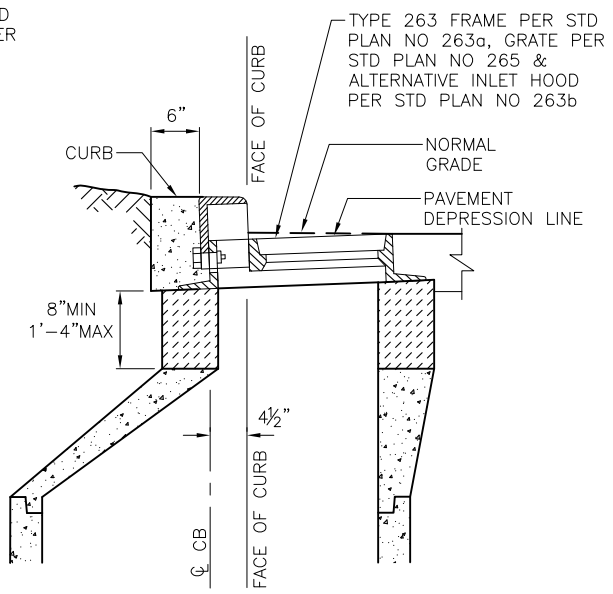
REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	CATCH BASIN & INLET INSTALLATION

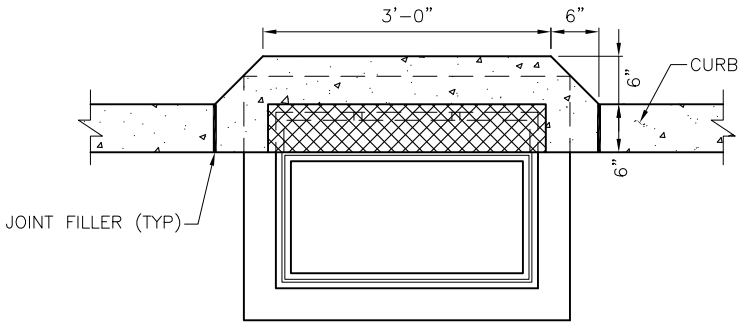
REV DATE: DEC 2015



TYPE 240C CB



TYPE 242A CB

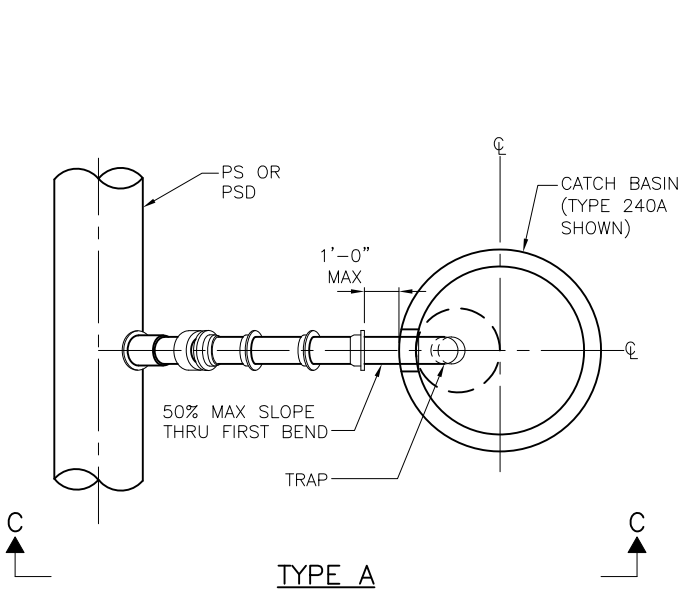


CURB DETAIL (PLAN VIEW) FOR
TYPE 240D & 242C CB & TYPE 250B INLET

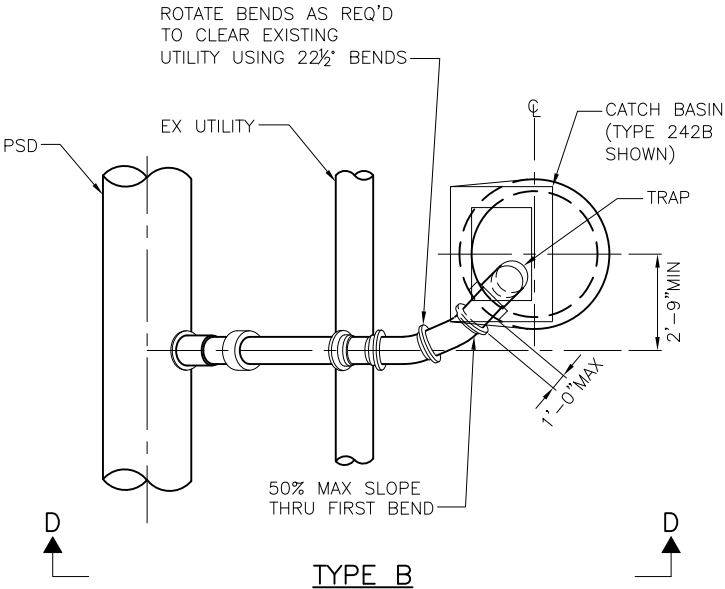
REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	CATCH BASIN & INLET INSTALLATION WITH STANDARD PLAN 263B ALTERNATIVE HOOD

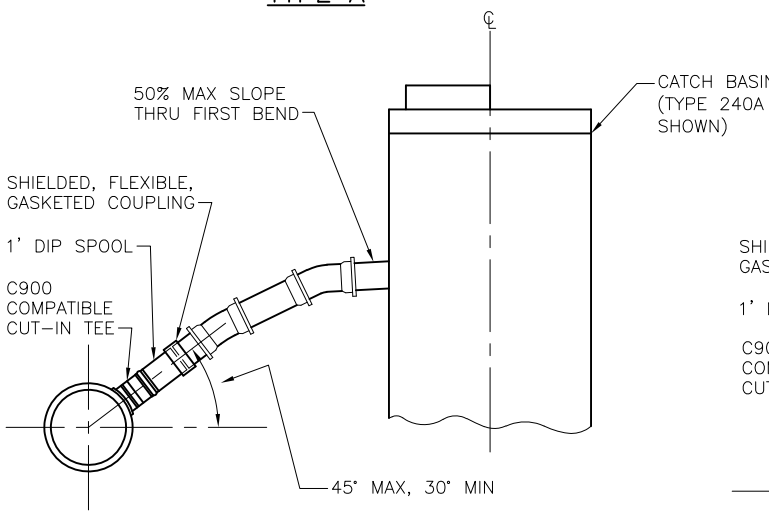
REV DATE: FEB 2014



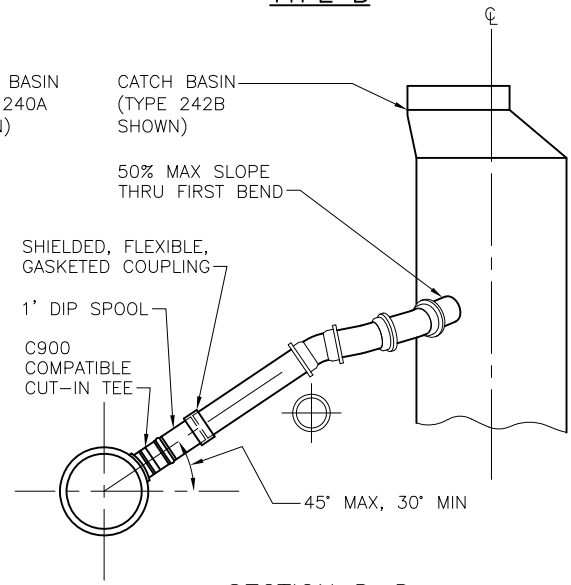
TYPE A



TYPE B



SECTION C–C



SECTION D–D

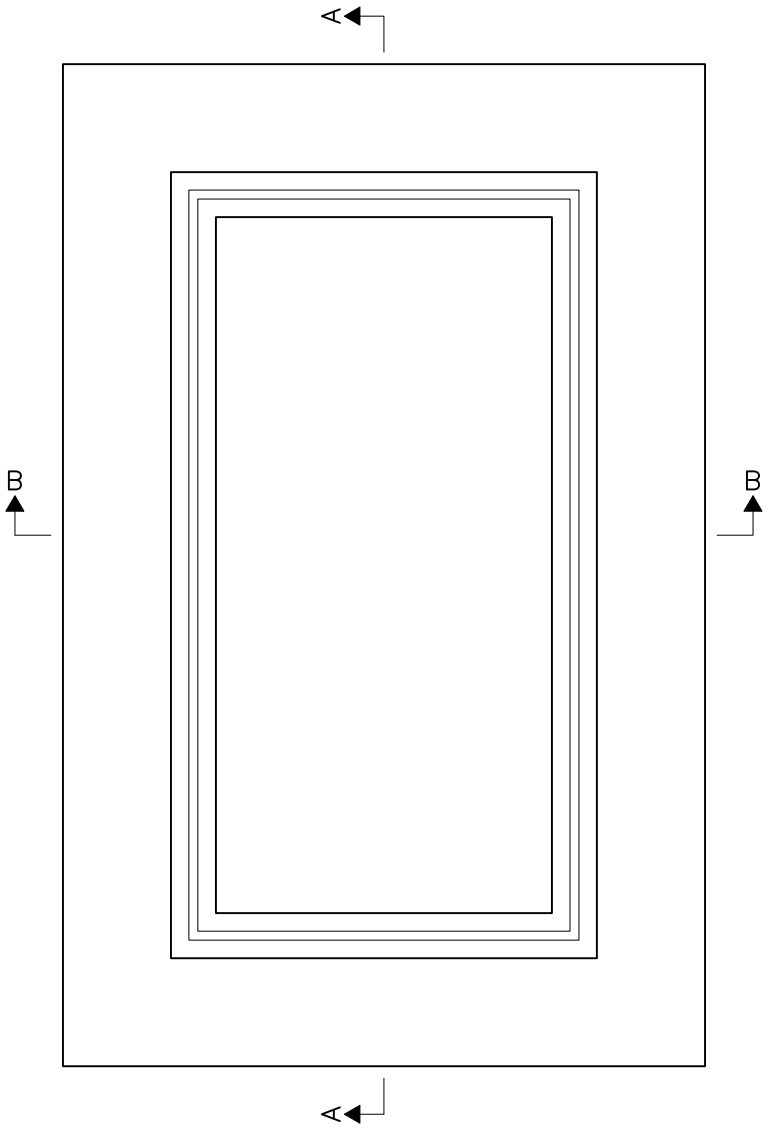
NOTES:

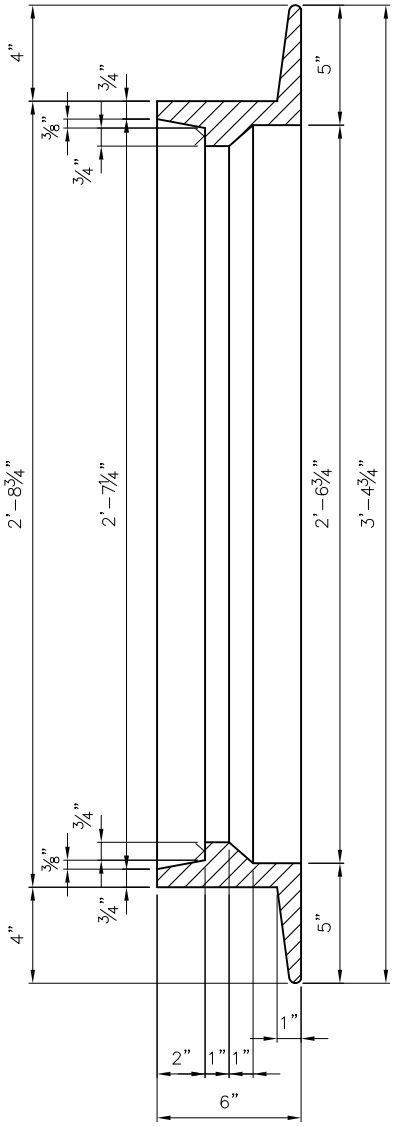
1. TYPE A CONNECTIONS MUST BE USED WITH CB TYPES 240A, 240B AND 241.
2. TYPE B CONNECTIONS MUST BE USED WITH CB TYPES 240C, 240D, 242A AND 242B.
3. CONNECTIONS MUST MAINTAIN A MINIMUM OF 2% AND A MAXIMUM OF 100% GRADE.
4. MAX BEND MUST BE 22½° OR 1/16 BEND. USE OF 1/8 BEND REQUIRES APPROVAL BY SPU.
5. 1' DI SPOOL AND COUPLING REQUIRED WITH CUT–IN TEE.

REF STD SPEC SEC 7-08

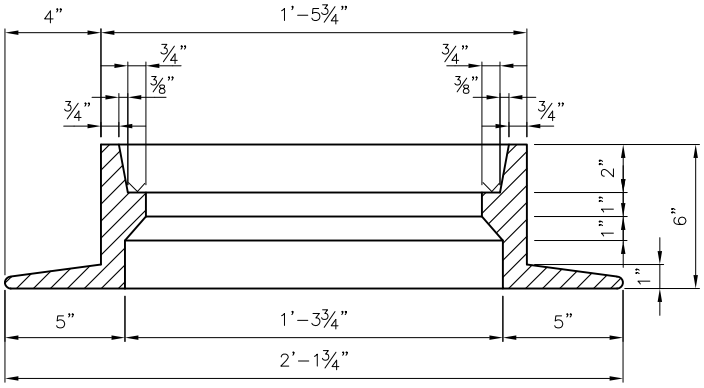
City of Seattle	NOT TO SCALE	TYPICAL CATCH BASIN CONNECTION

REV DATE: SEP 2012





SECTION A–A

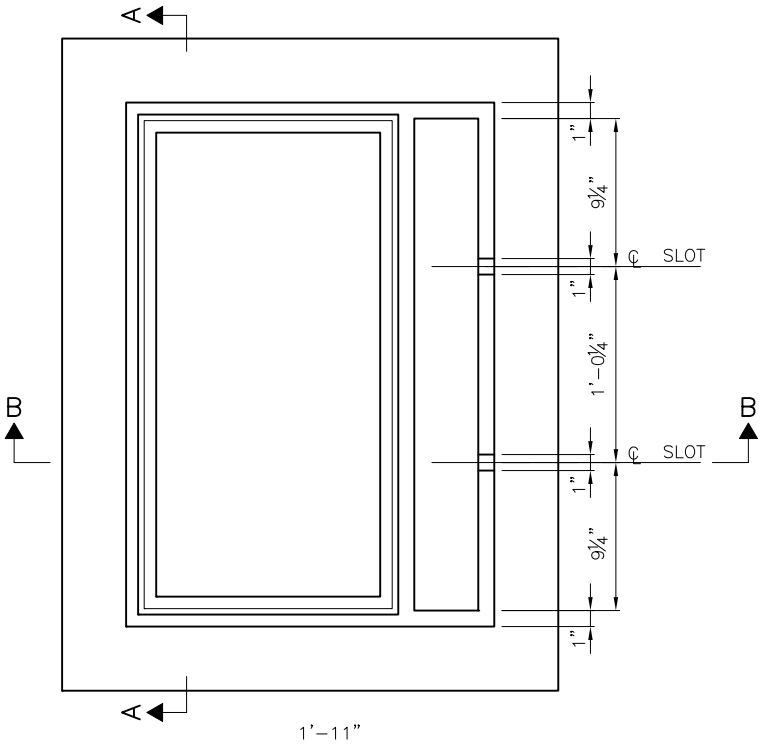


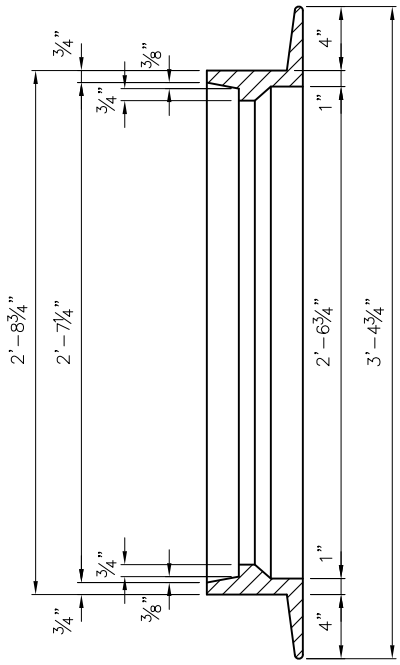
SECTION B–B

REF STD SPEC SEC 9-12

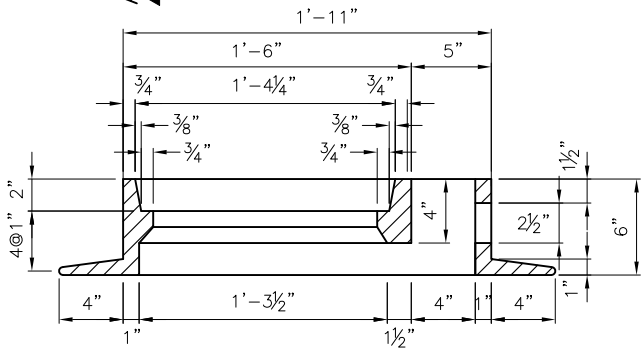
City of Seattle	NOT TO SCALE	TYPE 262 INLET FRAME

REV DATE: FEB 2015

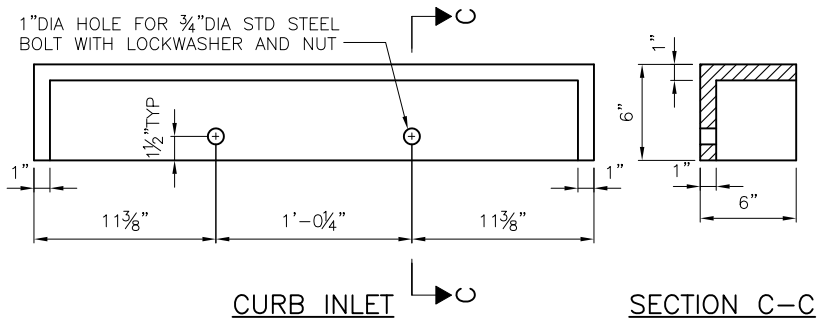




SECTION A–A



SECTION B–B

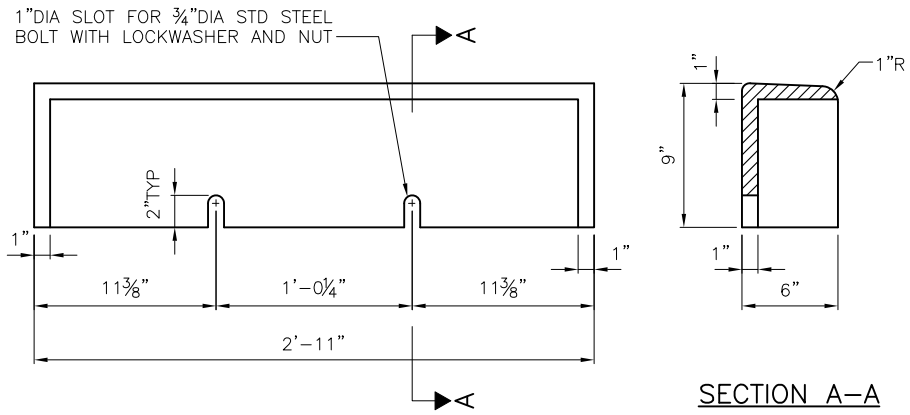


CURB INLET SECTION C–C

REF STD SPEC SEC 9-12

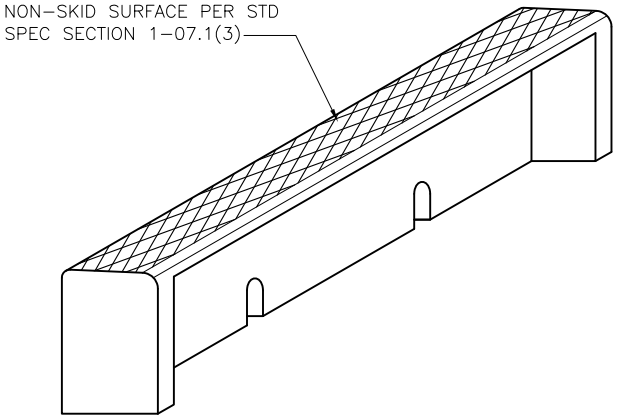
City of Seattle	NOT TO SCALE	TYPE 263 INLET FRAME AND HOOD

REV DATE: SEP 2015



CURB INLET

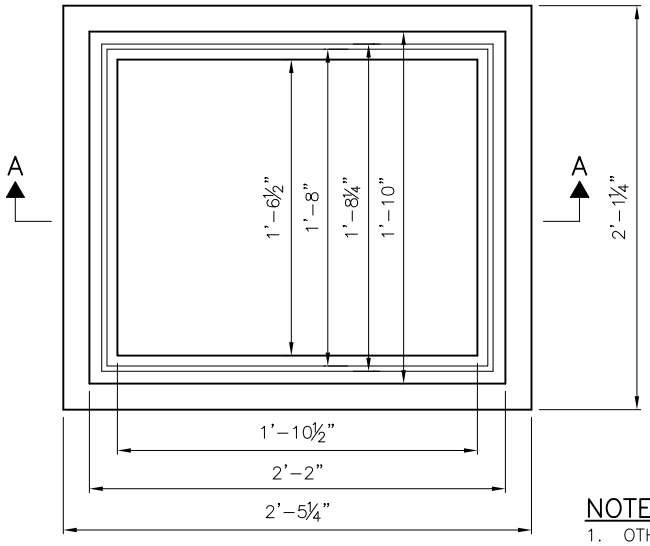
SECTION A–A



REF STD SPEC SEC 9-12

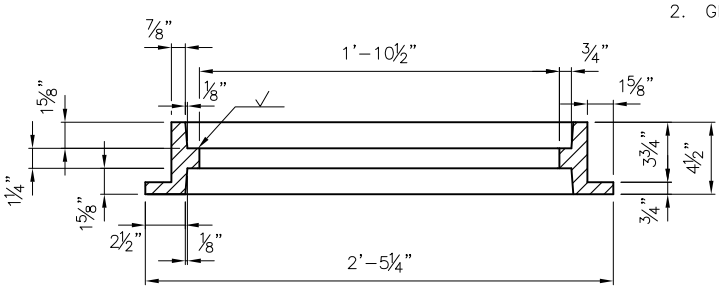
City of Seattle	NOT TO SCALE	TYPE 263 ALTERNATIVE INLET HOOD

REV DATE: MAR 2012

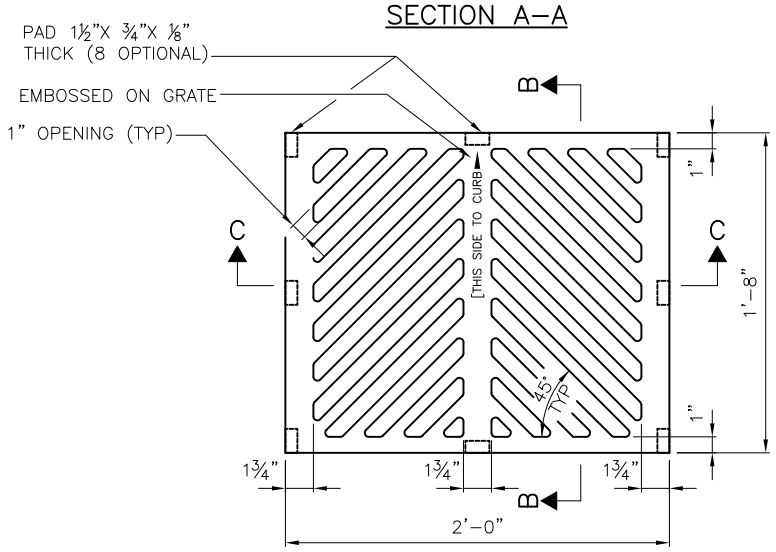


FRAME

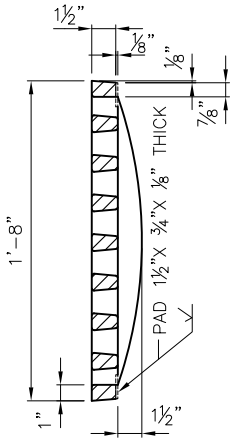
NOTES:
1. OTHER GRATES ACCEPTABLE; SPECIFY VANE, SOLID COVER, BI-DIRECTIONAL VANE, ADA OR BEEHIVE ON PLANS.
2. GRATE MATERIAL: DUCTILE IRON



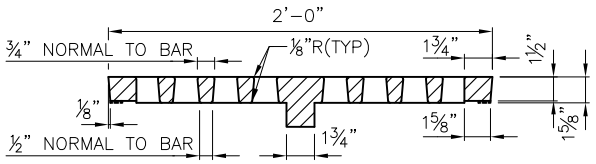
SECTION A-A



GRATE



SECTION B-B

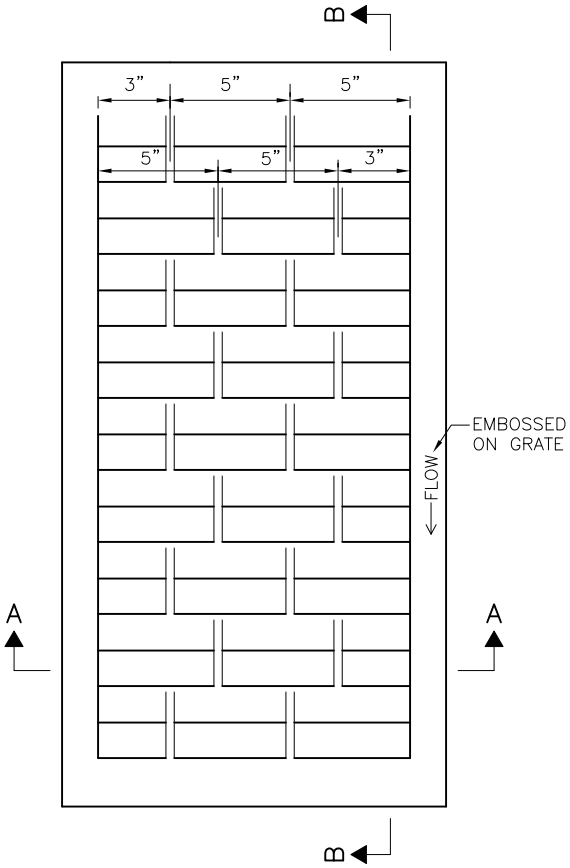


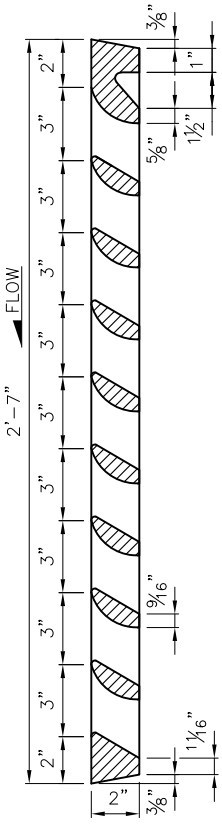
SECTION C-C

REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	INLET FRAME & GRATE

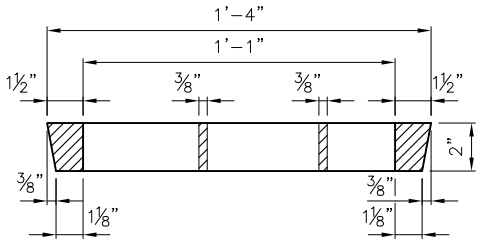
REV DATE: 2003



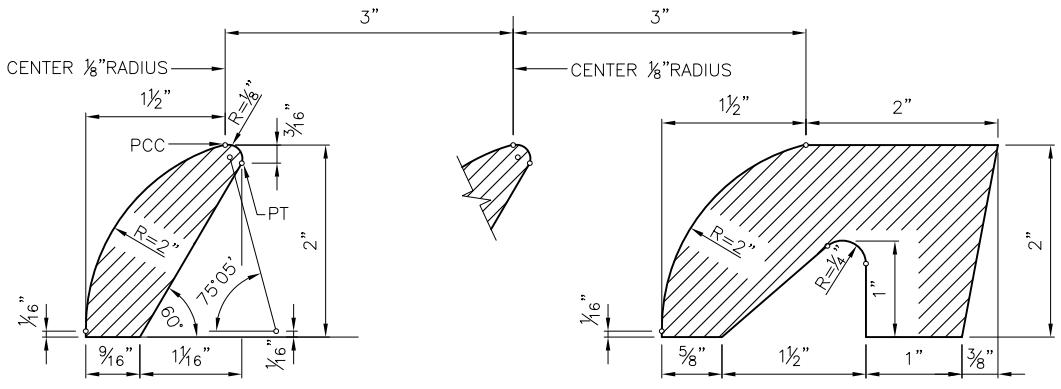


SECTION B–B

GRATE MATERIAL:
DUCTILE IRON



SECTION A–A



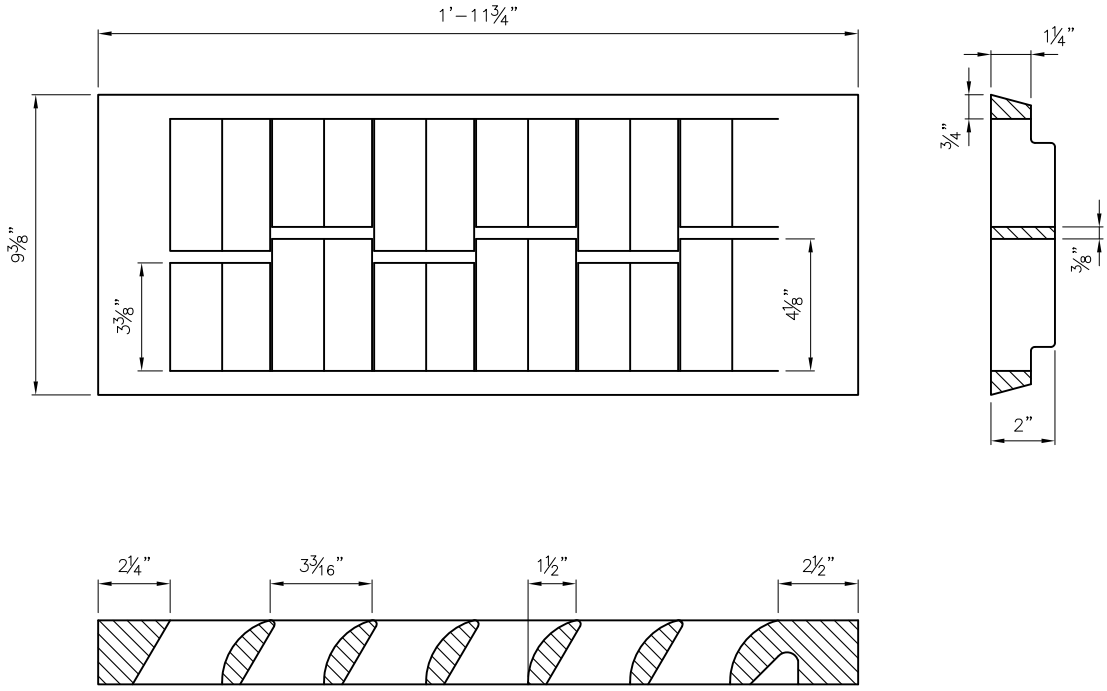
VANE DETAIL

END DETAIL

REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	VANED GRATE

REV DATE: DEC 2010



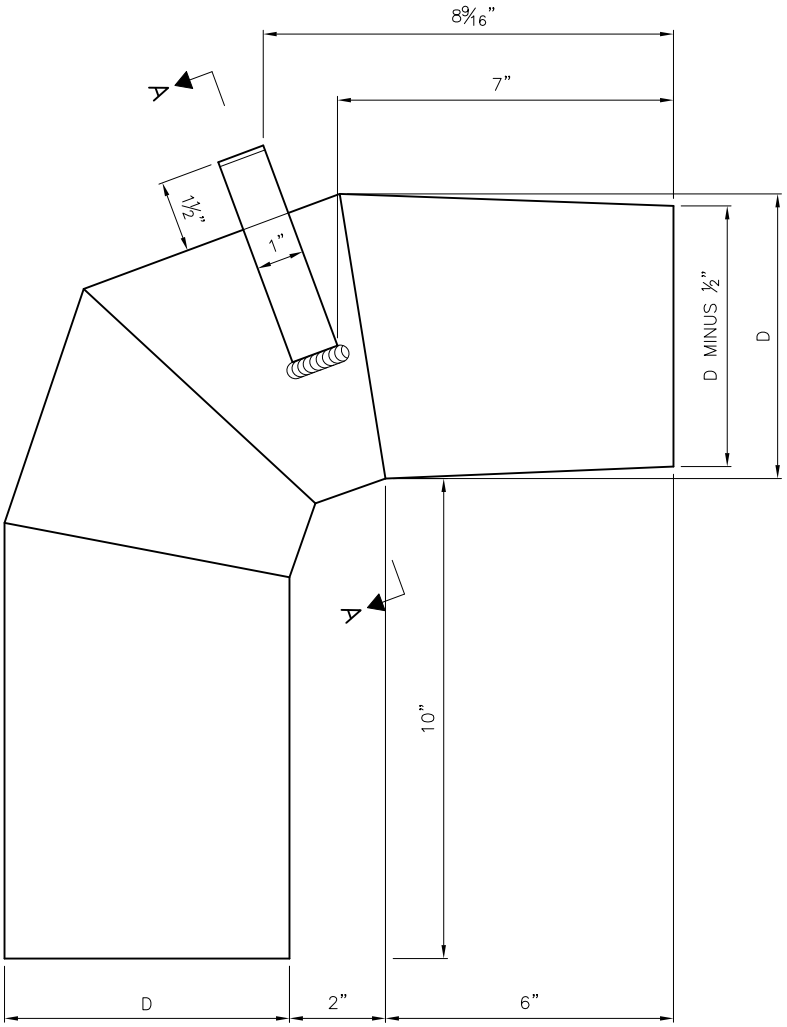
NOTES:

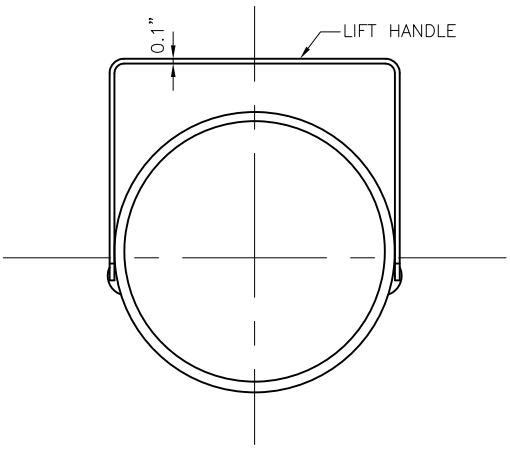
1. OPEN AREA – 100 SQUARE INCHES.
2. SEE STD PLAN NO 265 FOR VANE AND END DETAIL.
3. STD PLAN NO 266 DIMENSIONS GOVERN ON END DETAIL.
4. REPLACEMENT VANED GRATE FOR TYPE 164 INLET FRAMES.

REF STD SPEC SEC 7-20.3(7), 9-12

City of Seattle	NOT TO SCALE	TYPE 266 REPLACEMENT VANED GRATE

REV DATE: DEC 2013





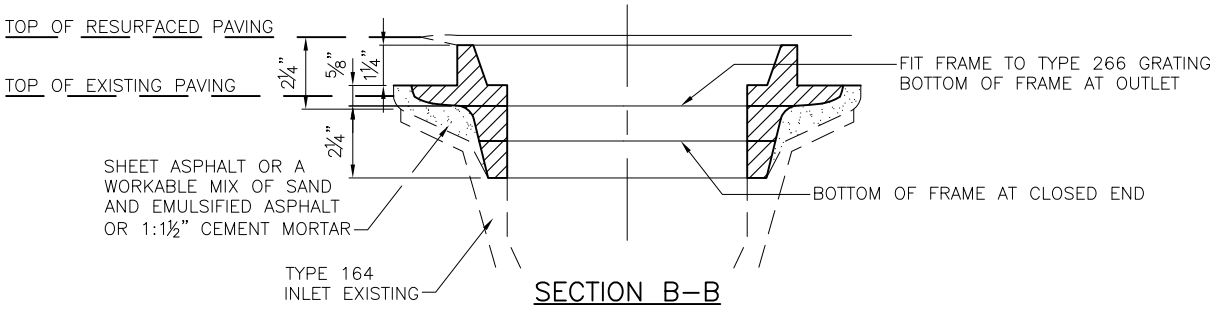
SECTION A–A
NTS

NOTES:
1. TRAP TO BE MADE OF 22 GA SHEET METAL OR 16 GA 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 MUST BE WELDED TO OUTSIDE OF TRAP (1" WIDE X 0.1" THICK)

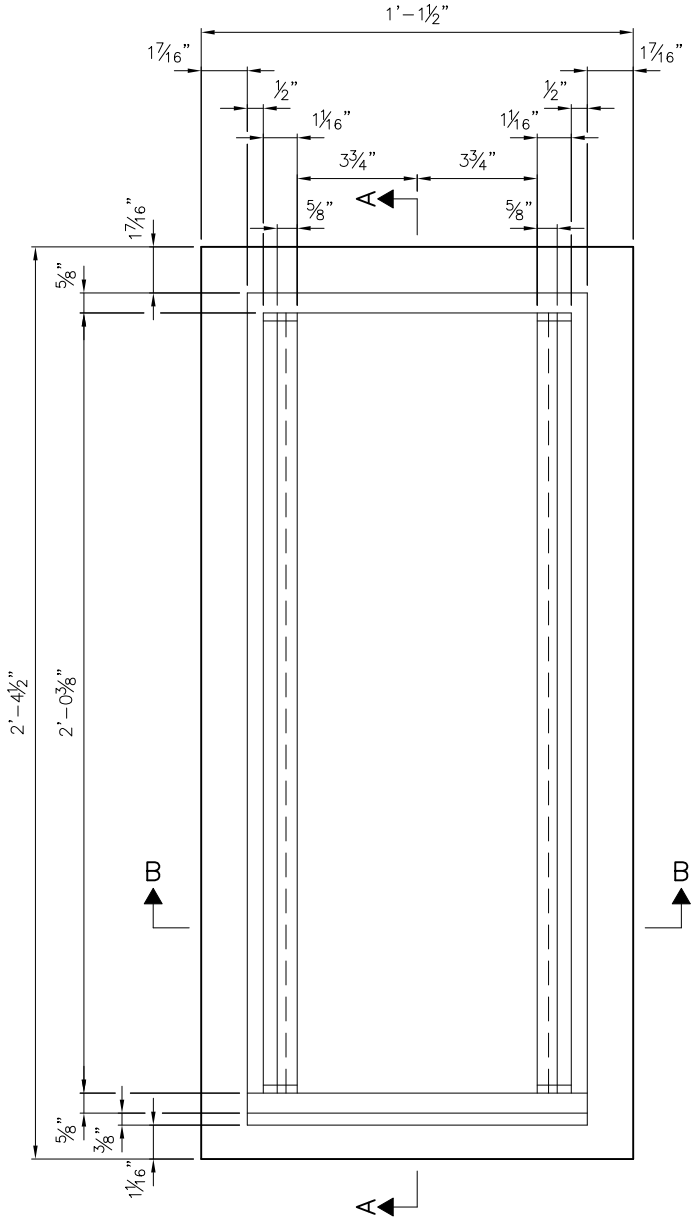
REF STD SPEC SEC 9-12

City of Seattle	NOT TO SCALE	OUTLET TRAP

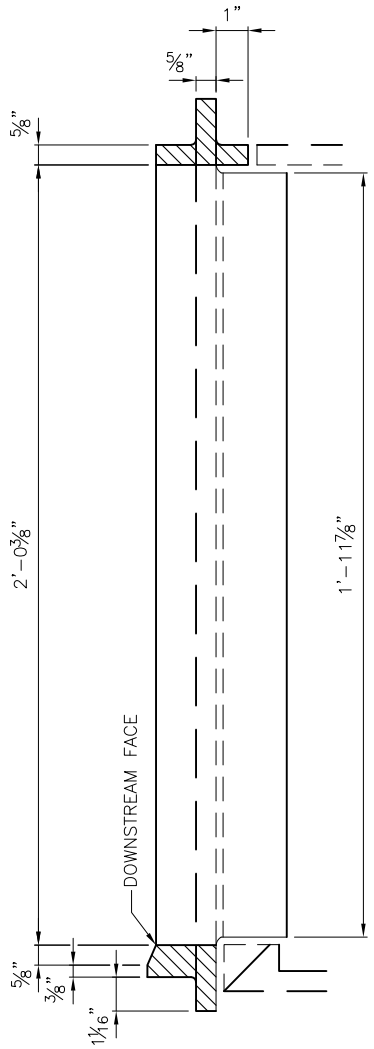
REV DATE: 2008



SECTION B–B



PLAN



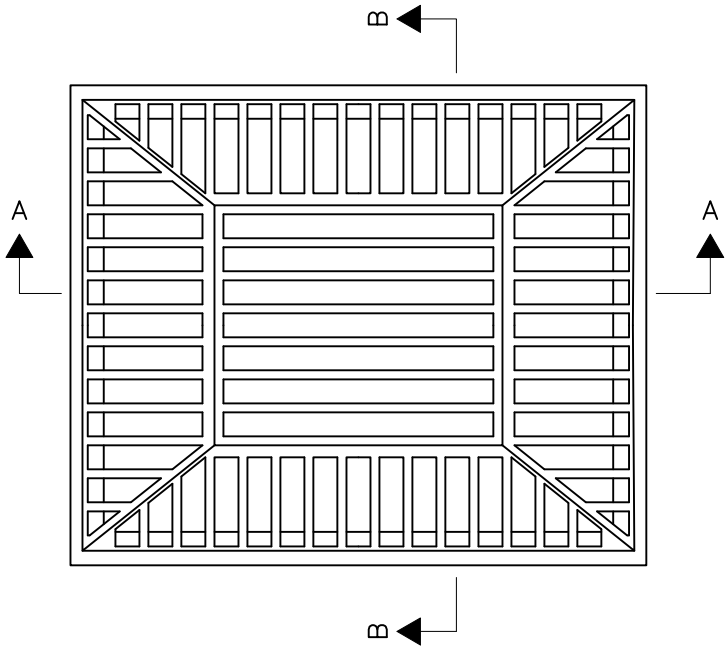
SECTION A–A

THESE DIMENSIONS MAY BE CHANGED IF NECESSARY TO FIT EXISTING CASTINGS

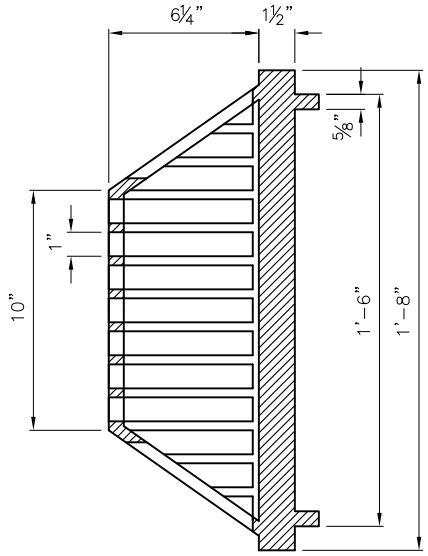
REF STD SPEC SEC 9-05

City of Seattle	NOT TO SCALE	EXTENSION FOR INLET

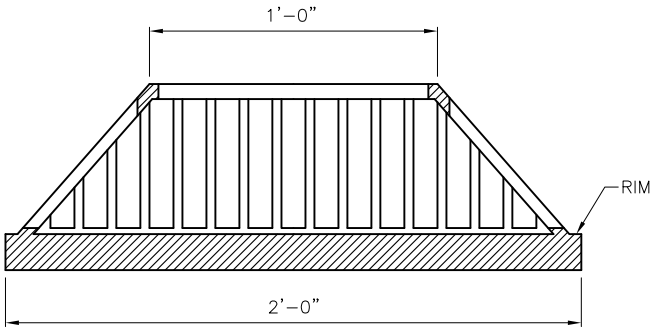
REV DATE: MAY 2015



GRATE



SECTION B–B



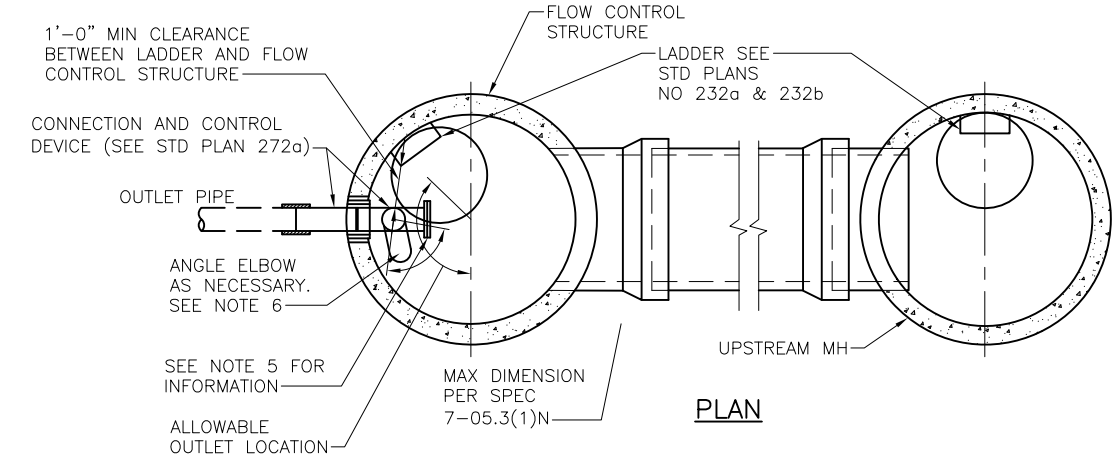
SECTION A–A

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

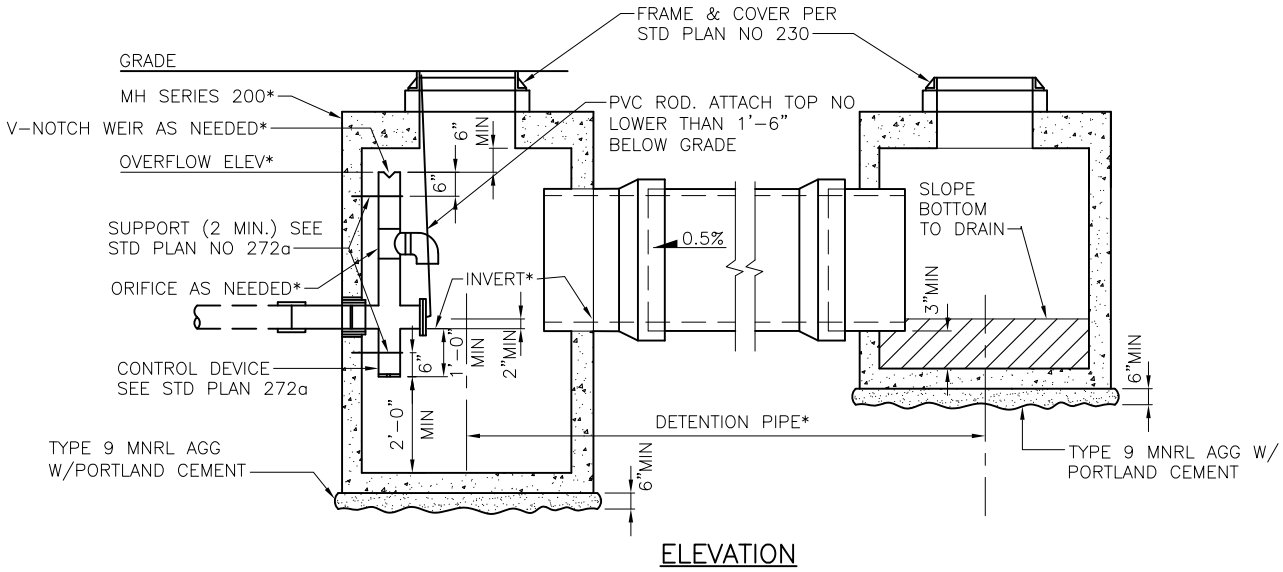
REF STD SPEC SEC 9-12

City of Seattle	NOT TO SCALE	BEEHIVE GRATE FOR BIORETENTION

REV DATE: SEP 2013



PLAN



ELEVATION

NOTES:

1. DETENTION PIPE MATERIAL MUST BE AS SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS. MATERIALS THAT MAY BE APPROVED FOR USE IN THE ROW INCLUDE:
   - DUCTILE IRON PIPE (DIP)
   - REINFORCED CONCRETE PIPE (RCP)
   - POLYPROPYLENE PIPE (PP DETENTION)
   - STEEL REINFORCED POLYETHYLENE PIPE (STL REINF PE DETENTION). ONLY MANUFACTURER SUPPLIED TEES MUST BE USED FOR CONNECTIONS.
2. BEDDING FOR DETENTION PIPE MUST BE CLASS B. DIP AND RCP MUST BE BEDDED IN MINERAL AGGREGATE TYPE 9. FLEXIBLE PIPE MUST BE BEDDED IN MINERAL AGGREGATE TYPE 22.
3. INTERMEDIATE MHS WILL BE REQUIRED FOR DETENTION PIPE LENGTHS GREATER THAN 350LF.
4. OUTLET PIPE MUST CONNECT TO MH ON MAINLINE.
5. STRUCTURE DESIGN MUST BE MODIFIED FOR PRIVATE SYSTEM WITH EXCLUSION OF SHEAR GATE
6. ROTATE ELBOW RESTRICTOR CLEAR OF ACCESS OPENING.
7. FRAME LADDER AND STEPS OFFSET:
   - 7.1. CLEAN OUT IS VISIBLE FROM TOP
   - 7.2. CLIMB DOWN SPACE IS CLEAR OF RISER AND CLEAN OUT GATE
   - 7.3. MH OPENING MUST NOT BE PLACED DIRECTLY OVER THE TOP OF INLET PIPE

DETENTION PIPE DIAMETER	FLOW CONTROL STRUCTURE* (MH SIZE)	UPSTREAM** (MH SIZE)
18"	204.5b	204b
24"	205b	204.5b
30"	205b	205b
36"	206b	206b
48"	207b	207b
60"	208b	208b
72"	210b	210b

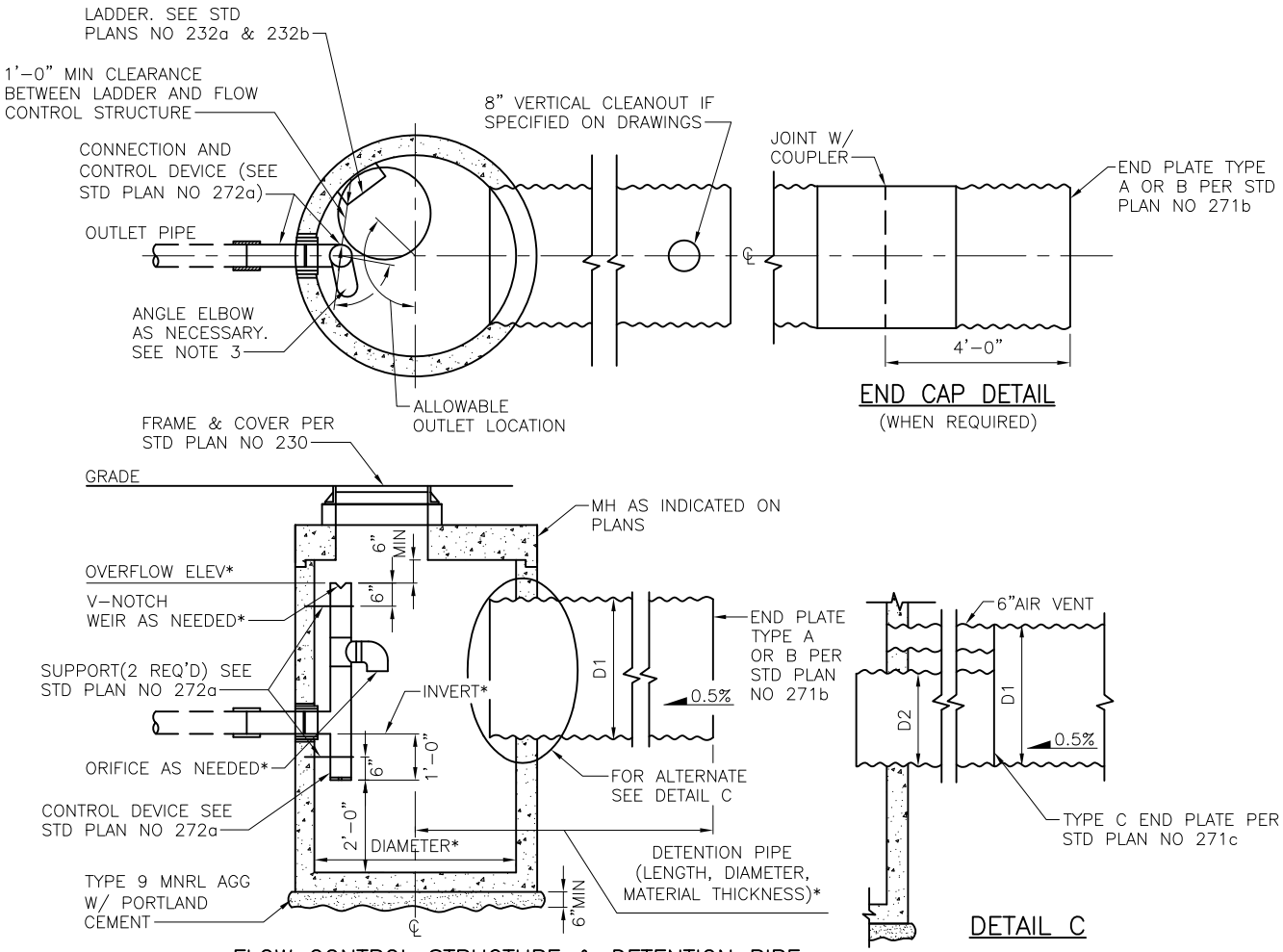
*SPECIFIC DESIGN INFORMATION AS INDICATED ON CONSTRUCTION DRAWINGS

**SIZE OF UPSTREAM MH MUST BE ADJUSTED FOR ALTERNATIVE PIPE MATERIAL

REF STD SPEC SEC 7-16

City of Seattle	NOT TO SCALE	FLOW CONTROL STRUCTURE WITH DETENTION PIPE

REV DATE: AUG 2013



FLOW CONTROL STRUCTURE & DETENTION PIPE
CMP

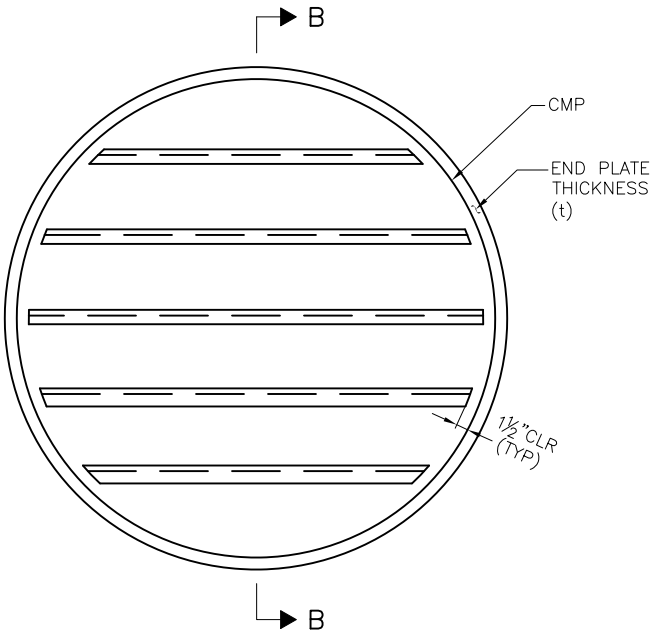
NOTES:

1. INVERT OF DETENTION PIPE TO BE HIGHER THAN INVERT OF OUTLET PIPE
2. *SPECIFIC DESIGN INFORMATION WILL BE INDICATED ON ACTUAL CONSTRUCTION DRAWINGS
3. ROTATE ELBOW RESTRICTOR CLEAR OF ACCESS OPENING
4. FOR ALTERNATIVE PIPE MATERIALS, REFER TO STD PLAN NO 270
5. FRAME LADDER AND STEPS OFFSET:
   - 5.1. CLEAN OUT IS VISIBLE FROM TOP
   - 5.2. CLIMB DOWN SPACE IS CLEAR OF RISER AND CLEAN OUT GATE
   - 5.3. MH OPENING MUST NOT BE PLACED DIRECTLY OVER THE TOP OF INLET PIPE

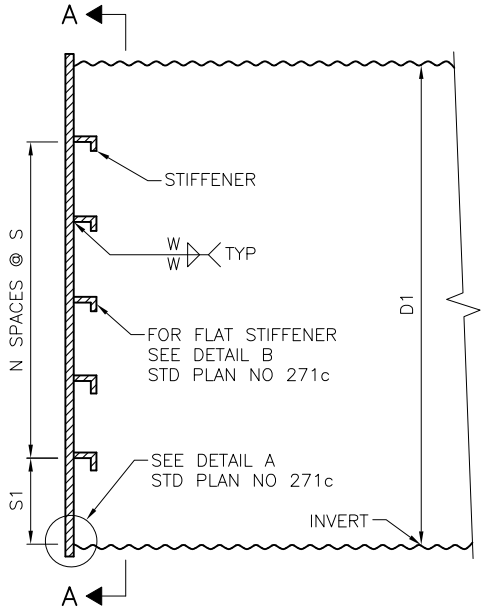
REF STD SPEC SEC 7-16

City of Seattle	NOT TO SCALE	CMP DETENTION PIPE PRIVATE SYSTEM ONLY

REV DATE: AUG 2013

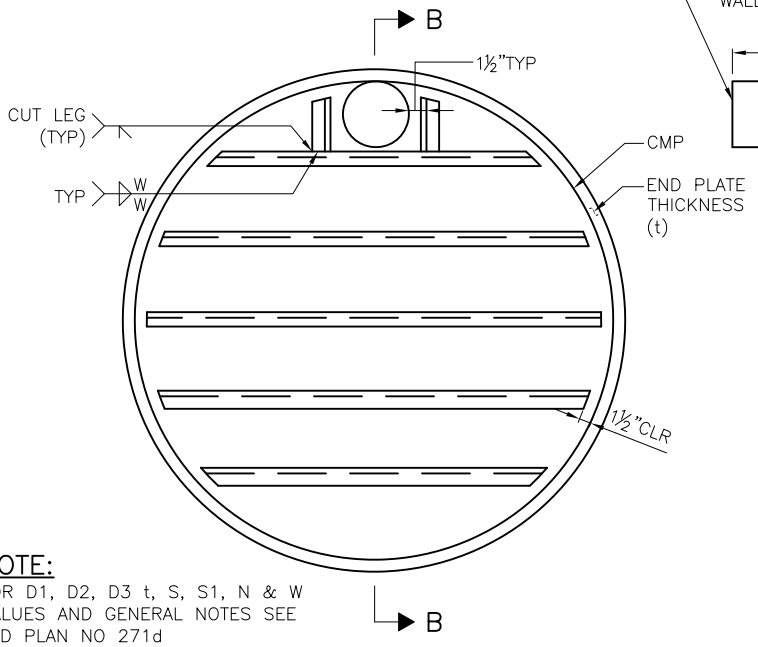


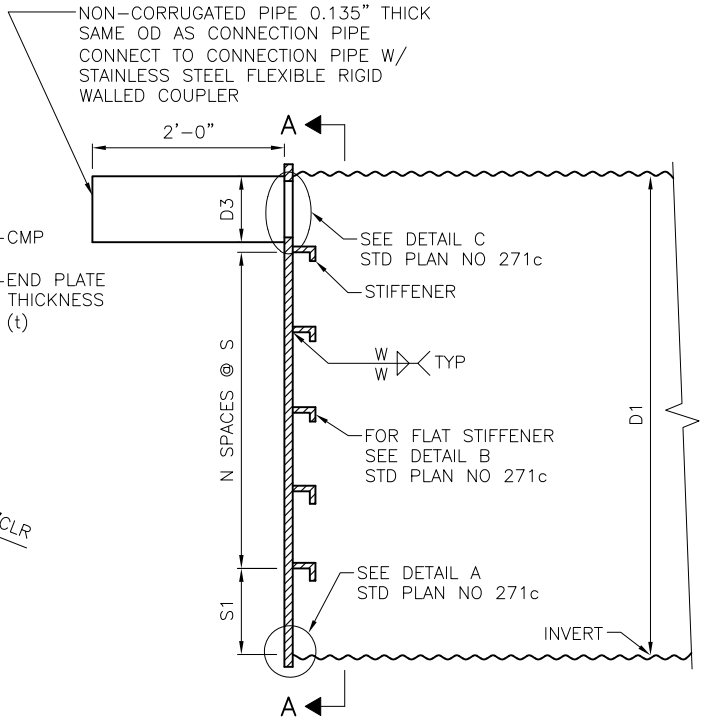
SECTION A–A



SECTION B–B

TYPE A





NOTE:
FOR D1, D2, D3 t, S, S1, N & W VALUES AND GENERAL NOTES SEE STD PLAN NO 271d

SECTION A–A

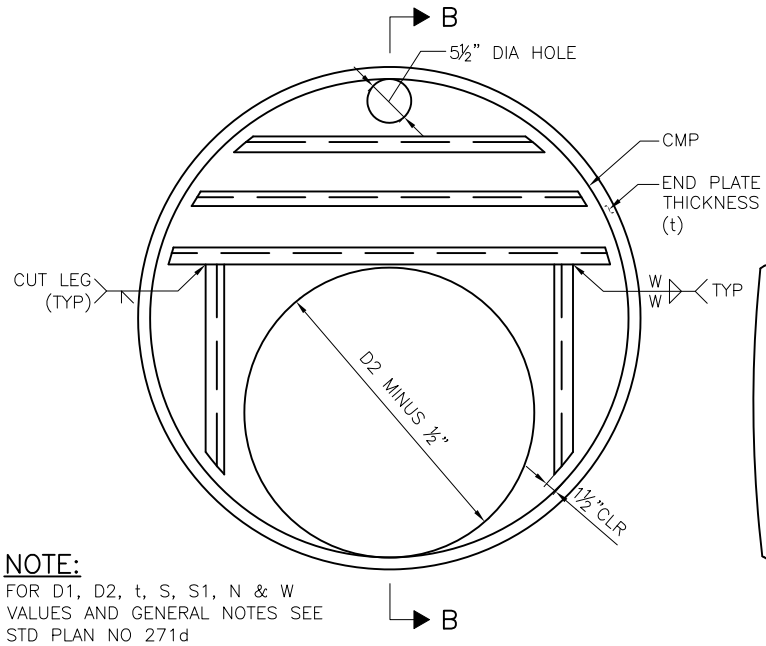
SECTION B–B

TYPE B

REF STD SPEC SEC 7-16

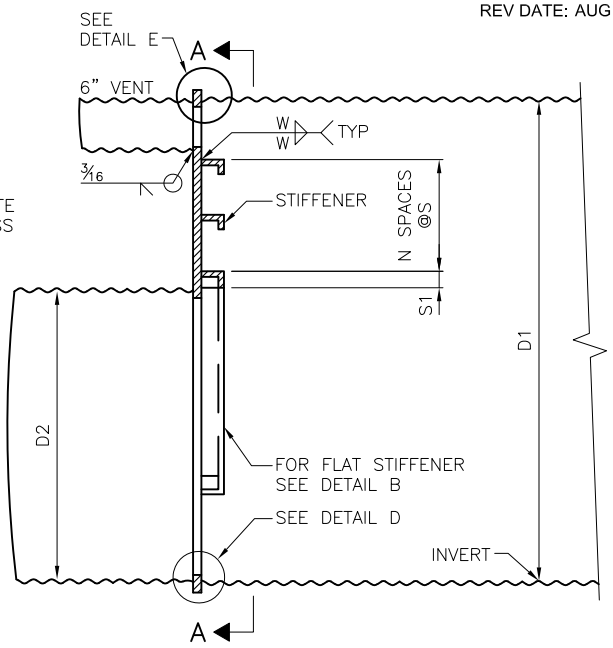
City of Seattle	NOT TO SCALE	CMP DETENTION STRUCTURE END PLATE DETAILS TYPES A & B

REV DATE: AUG 2013



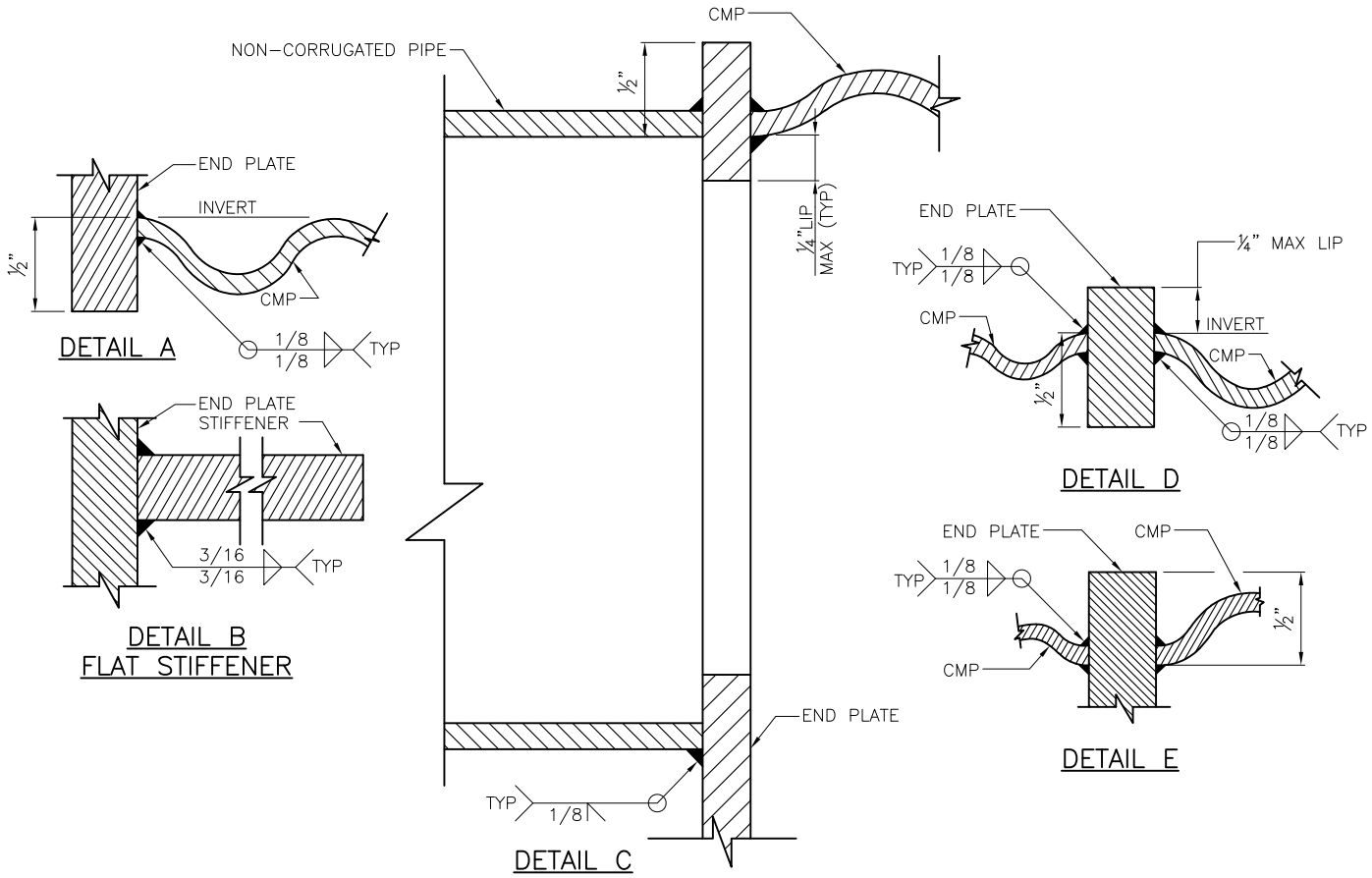
NOTE:
FOR D1, D2, t, S, S1, N & W VALUES AND GENERAL NOTES SEE STD PLAN NO 271d

SECTION A–A



SECTION B–B

TYPE C



REF STD SPEC SEC 7-16

City of Seattle	NOT TO SCALE	CMP DETENTION STRUCTURE END PLATE DETAILS TYPE C

REV DATE: AUG 2013

PIPE DIAMETER			END PLATE THICKNESS	STIFFENER TYPE & SIZE	STIFFENER SPACING			SIZE W
D1	D2	D3	t		S1	S	N	
TYPE A								
30"	–	–	¼"	FLAT 2½" X ¼"	6"	6"	3	3/16"
36"	–	–	¼"	FLAT 3" X ¼"	6"	6"	4	3/16"
48"	–	–	¼"	FLAT 4¼" X ¼"	8"	8"	4	3/16"
60"	–	–	⅜"	L 2½" X 2" X ⅜"	10"	10"	4	¼"
72"	–	–	⅜"	L 3" X 3" X ⅜"	6"	10"	6	¼"
TYPE B								
30"	–	6"	¼"	FLAT 2½" X ¼"	5½"	5½"	3	3/16"
	–	8"			5"	5"	3	
	–	12"			4"	6"	2	
36"	–	6"	¼"	FLAT 3" X ¼"	6"	5½"	4	3/16"
	–	8"			6"	5"	4	
	–	12"			5½"	5½"	3	
48"	–	6"	¼"	FLAT 4¼" X ¼"	8"	8"	4	3/16"
	–	8"			6"	8"	4	
	–	12"			4"	7½"	4	
60"	–	6"	⅜"	L 2½" X 2" X ⅜"	7"	9"	5	¼"
	–	8"			10"	10"	4	
	–	12"			6"	10"	4	
72"	–	6"	⅜"	L 3" X 3" X ⅜"	8"	8"	7	¼"
	–	8"			8"	9"	6	
	–	12"			8"	10"	5	
TYPE C								
48"	30"	–	¼"	FLAT 4¼" X ¼"	2"	8"	1	3/16"
60"	36"	–	⅜"	L 2½" X 2" X ⅜"	2"	7"	2	½"
72"	36"	–	⅜"	L 2" X 3" X ⅜"	3"	8½"	3	¼"

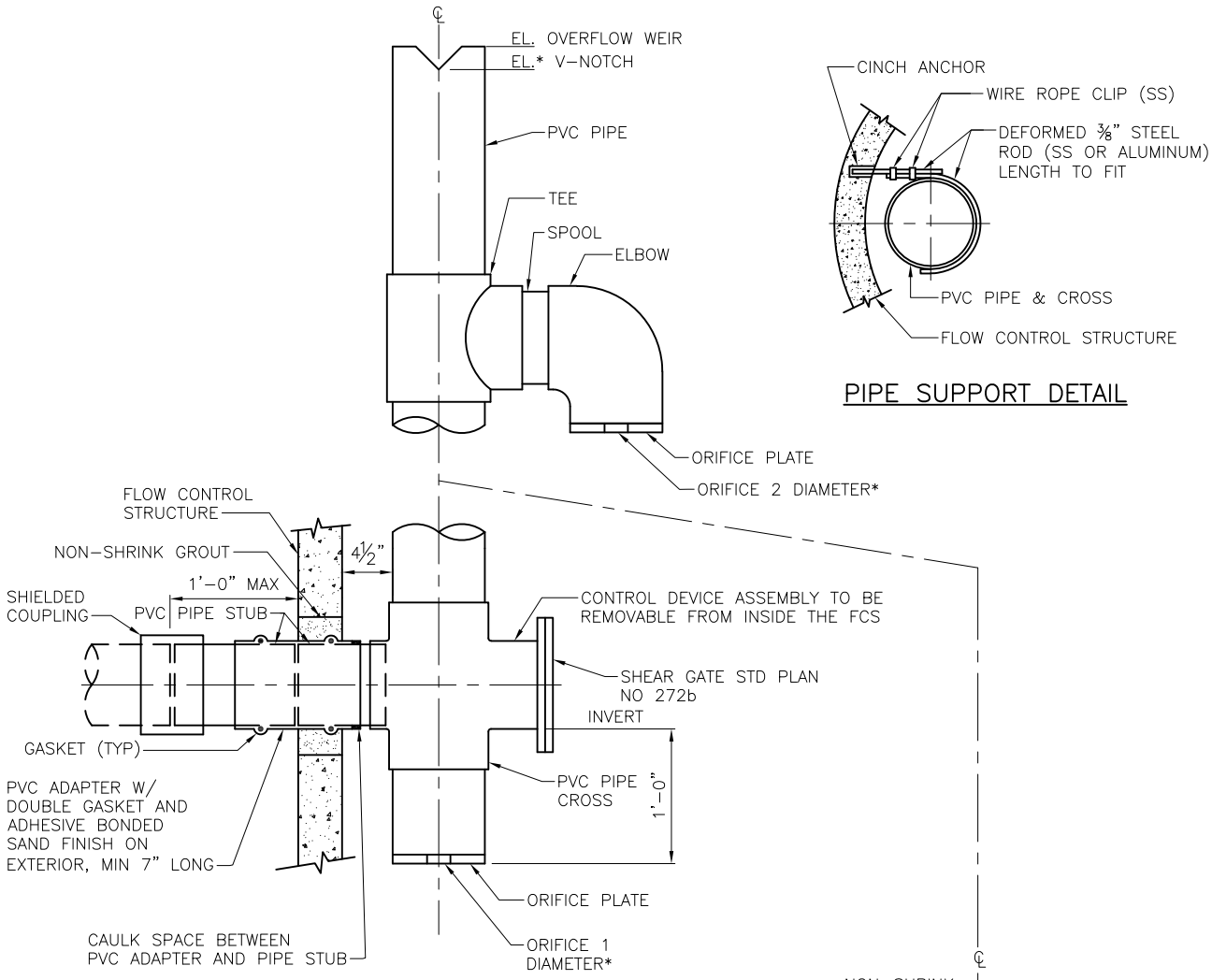
NOTES:

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 MUST BE USED ONLY FOR ALUMINUM CMP

REF STD SPEC SEC 7-16

City of Seattle | NOT TO SCALE | CMP DETENTION STRUCTURE END PLATE DIMENSIONS

REV DATE: FEB 2014

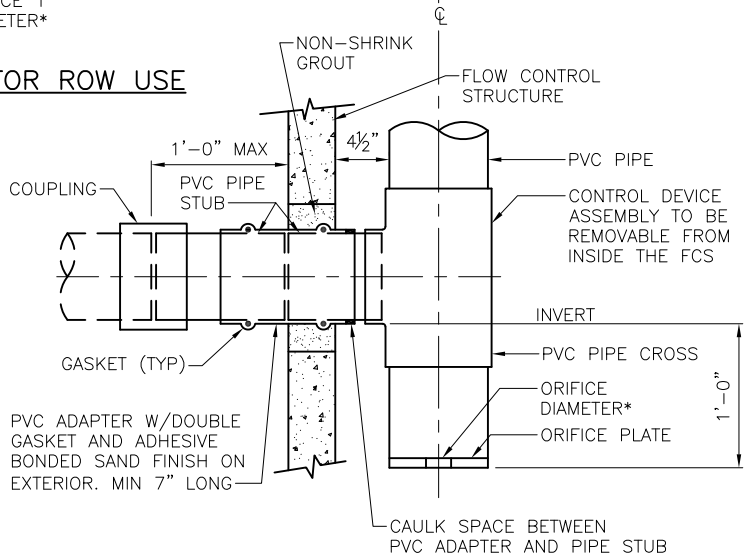


CONNECTION & CONTROL DEVICE FOR ROW USE

PIPE SUPPORT DETAIL

NOTES:

1. PVC PIPE MUST BE SCHEDULE 40, PER ASTM 1785.
2. *CONSTRUCTION DRAWINGS MUST PROVIDE ELEVATION AND DIAMETER FOR ORIFICE 1 AND ORIFICE 2 AND DIMENSIONS AND ELEVATION FOR THE BOTTOM OF THE V–NOTCH WEIR AND ELEVATION FOR OVERFLOW.
3. FIELD CHANGES TO DETENTION PIPE INVERT AND SLOPE REQUIRE CONFIRMATION FROM THE ENGINEER OF RECORD THAT THE CONSTRUCTION DRAWING ELEVATIONS FOR THE FLOW CONTROL DEVICE ASSEMBLY STILL MEET THE DESIGN REQUIREMENTS.

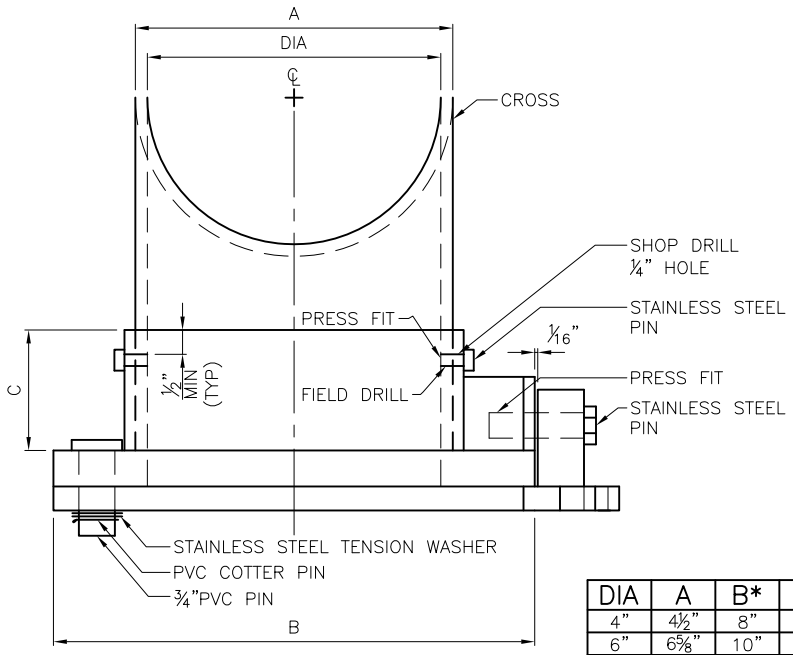


CONNECTION & CONTROL DEVICE FOR PRIVATE SYSTEM

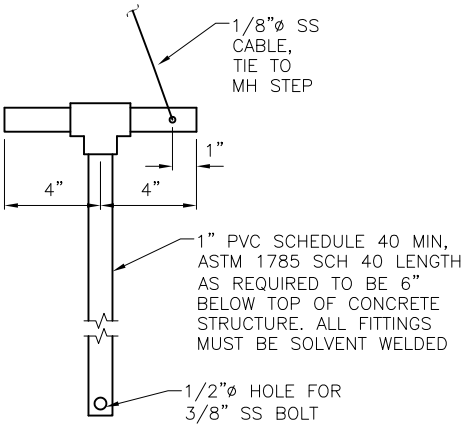
REF STD SPEC SEC 7-16

City of Seattle	NOT TO SCALE	FLOW CONTROL DEVICE ASSEMBLY

REV DATE: SEP 2013



TOP VIEW

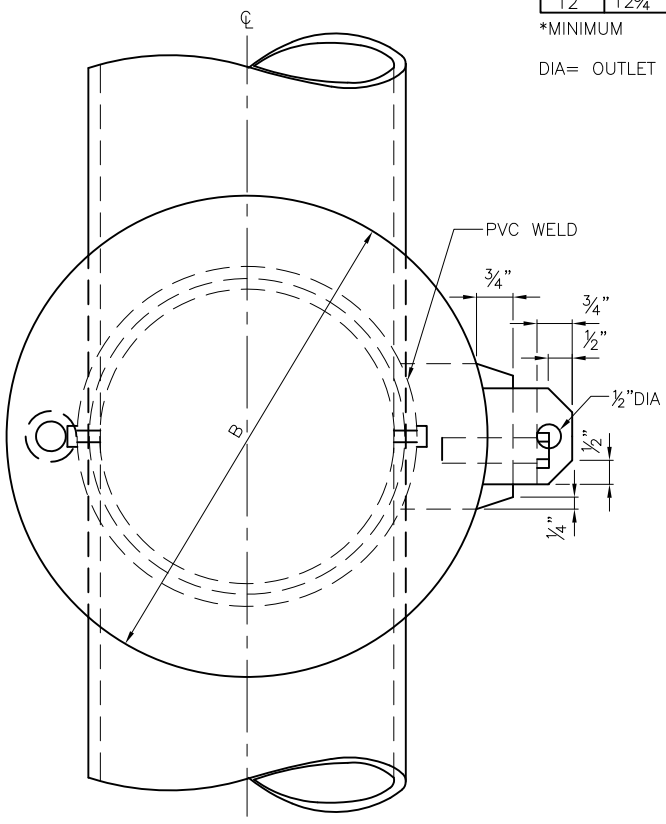


LIFT HANDLE

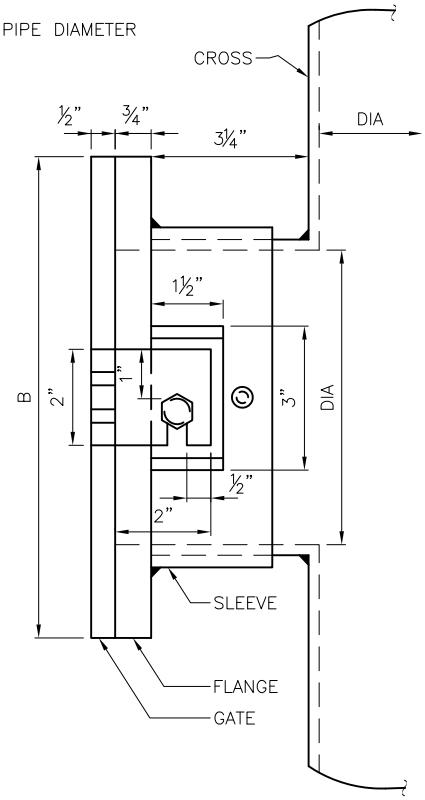
DIA	A	B*	C*
4"	4½"	8"	2"
6"	6⅝"	10"	2½"
8"	8⅝"	12"	3"
10"	10¾"	14"	3"
12"	12¾"	16"	3"

*MINIMUM

DIA= OUTLET PIPE DIAMETER



FRONT VIEW

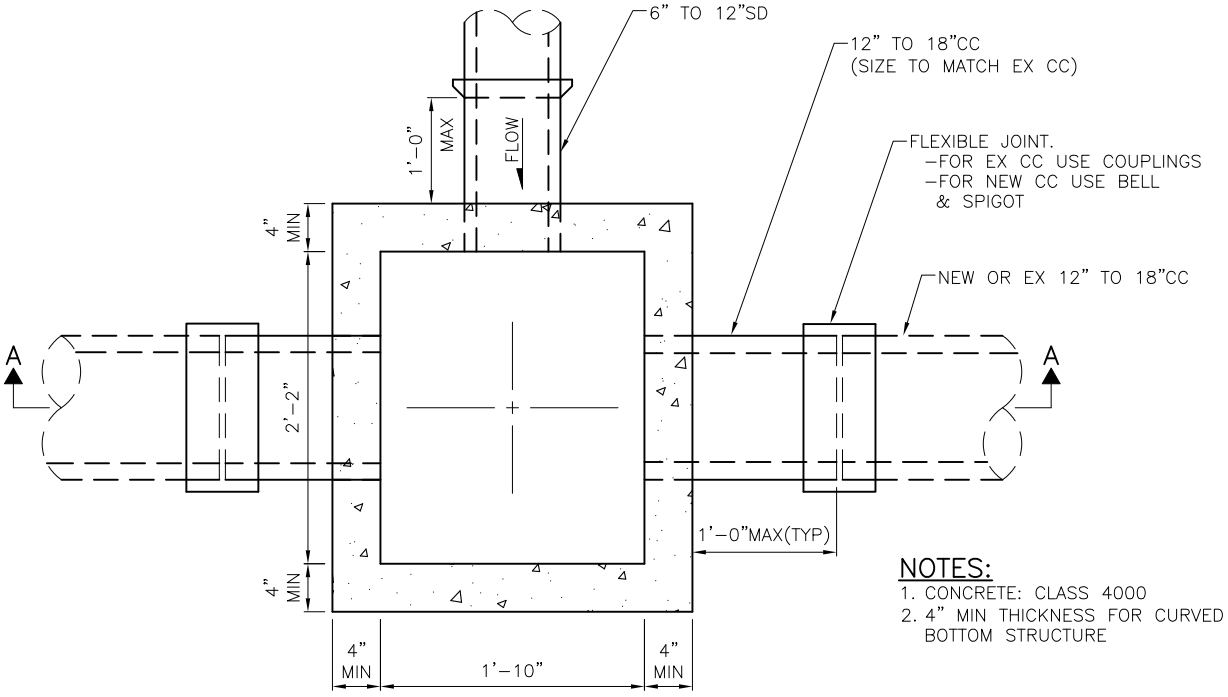


SIDE VIEW

REF STD SPEC SEC 7-16

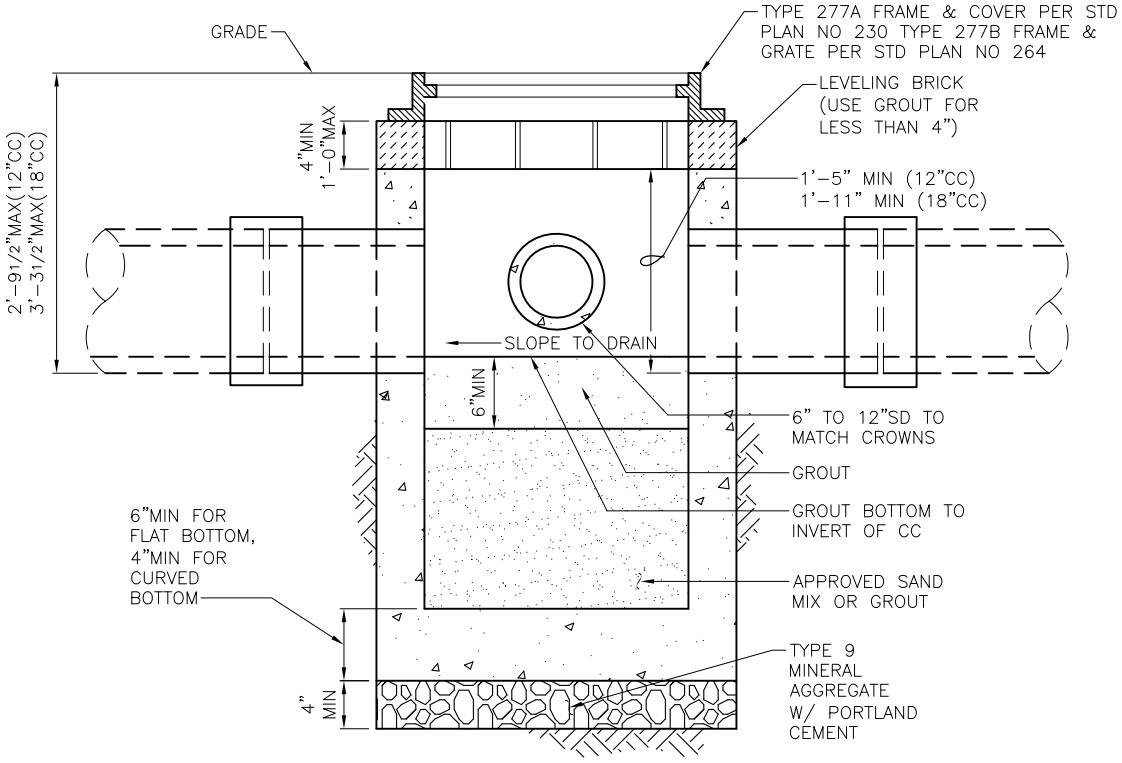
City of Seattle	NOT TO SCALE	PVC SHEAR GATE FOR USE IN ROW ONLY

REV DATE: DEC 2013



PLAN

NOTES:
1. CONCRETE: CLASS 4000
2. 4" MIN THICKNESS FOR CURVED BOTTOM STRUCTURE

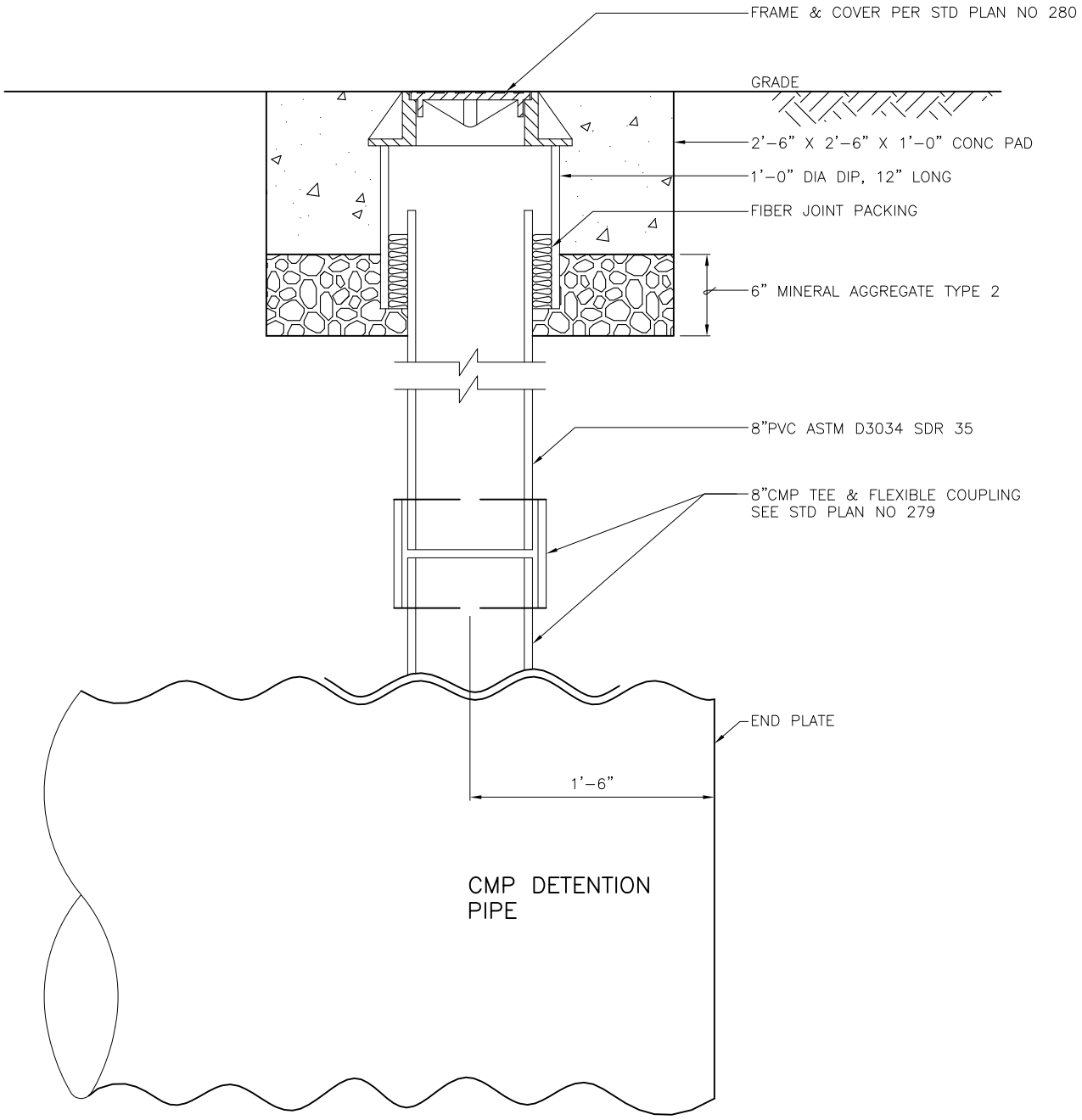


SECTION A–A

REF STD SPEC SEC 7-02 & 9-12.9

City of Seattle	NOT TO SCALE	TYPE 277 JUNCTION BOX & INSTALLATION

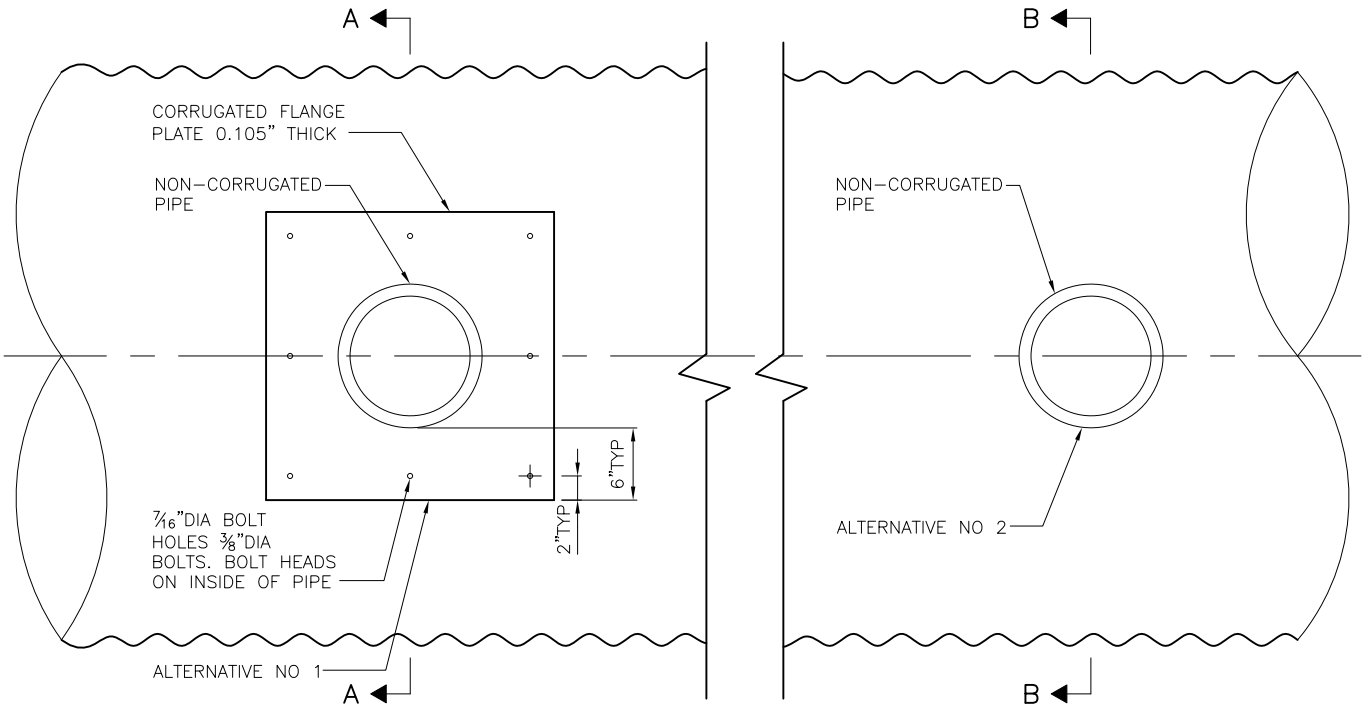
REV DATE: 2003

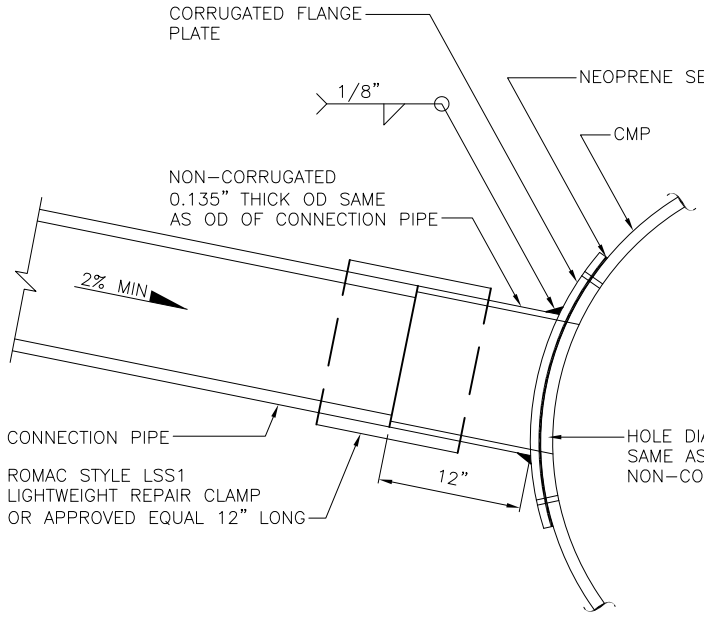


REF STD SPEC SEC 7-19 & 7-16.2

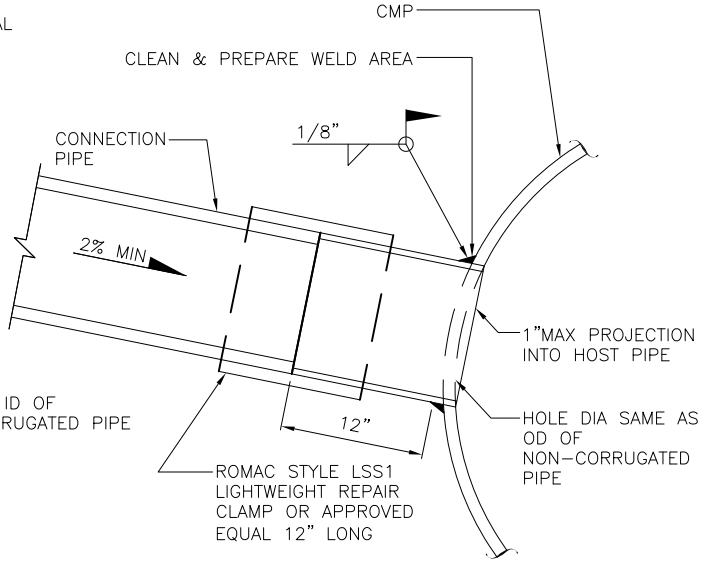
City of Seattle	NOT TO SCALE	VERTICAL CLEAN OUT/ CORRUGATED METAL PIPE

REV DATE: FEB 2010





SECTION A–A



SECTION B–B

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.

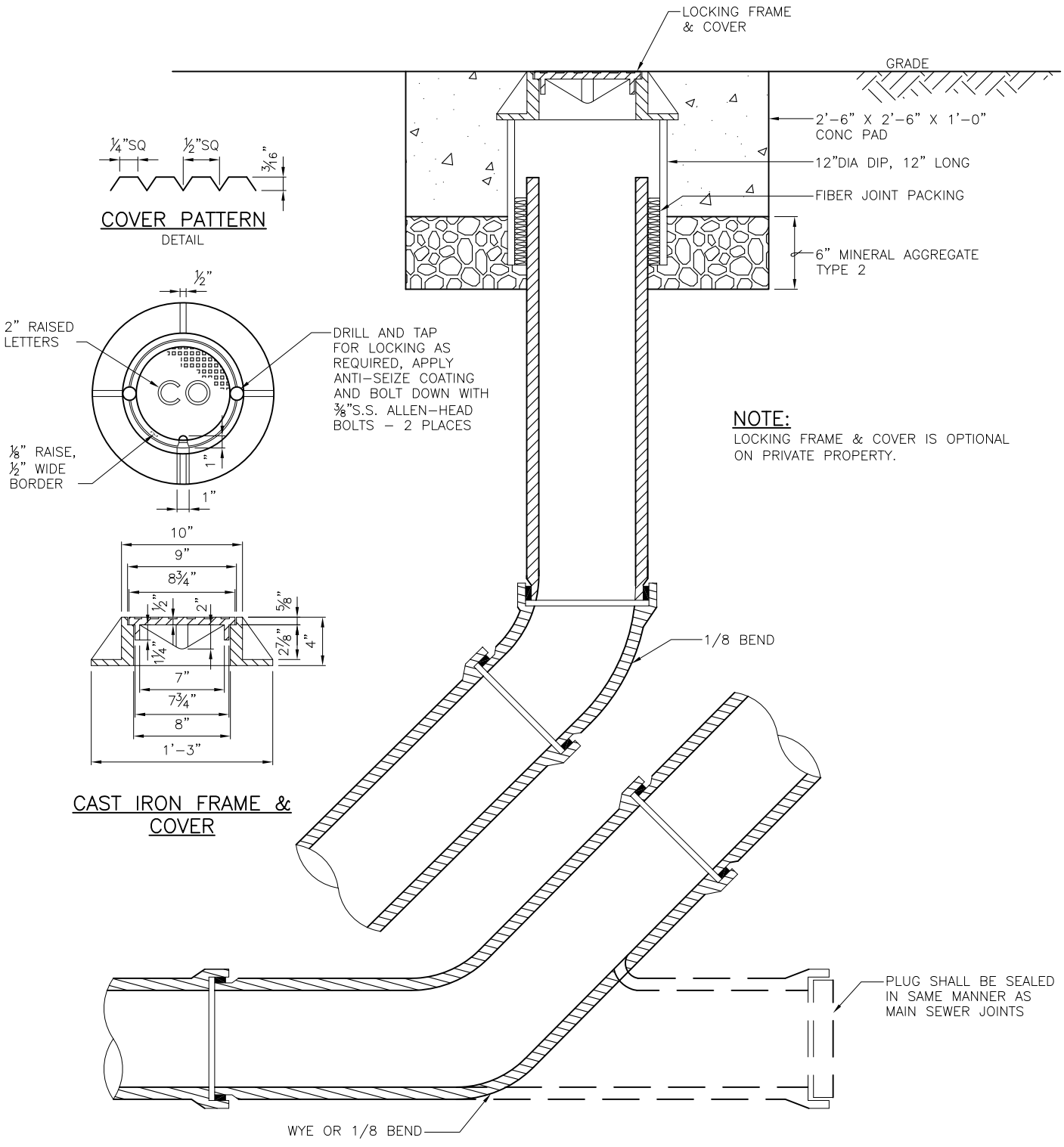
NOTE:

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

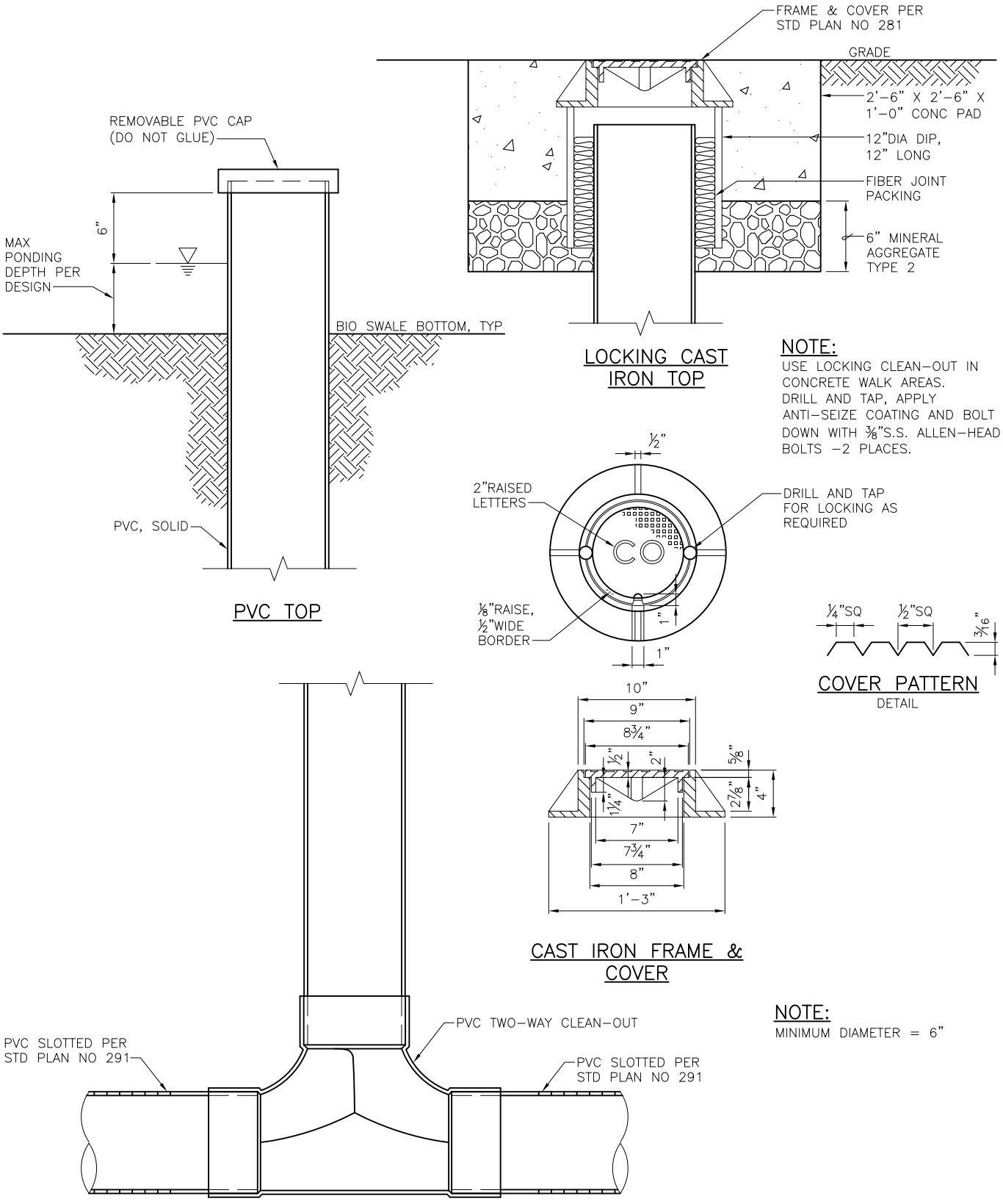
REV DATE: JAN 2016



REF STD SPEC SEC 7-19

City of Seattle	NOT TO SCALE	8" CLEAN-OUT

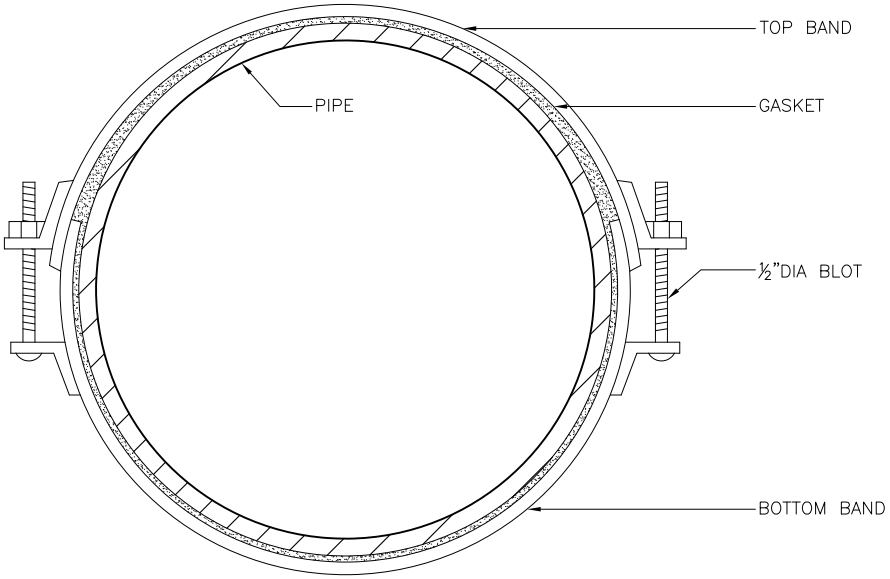
REV DATE: AUG 2013

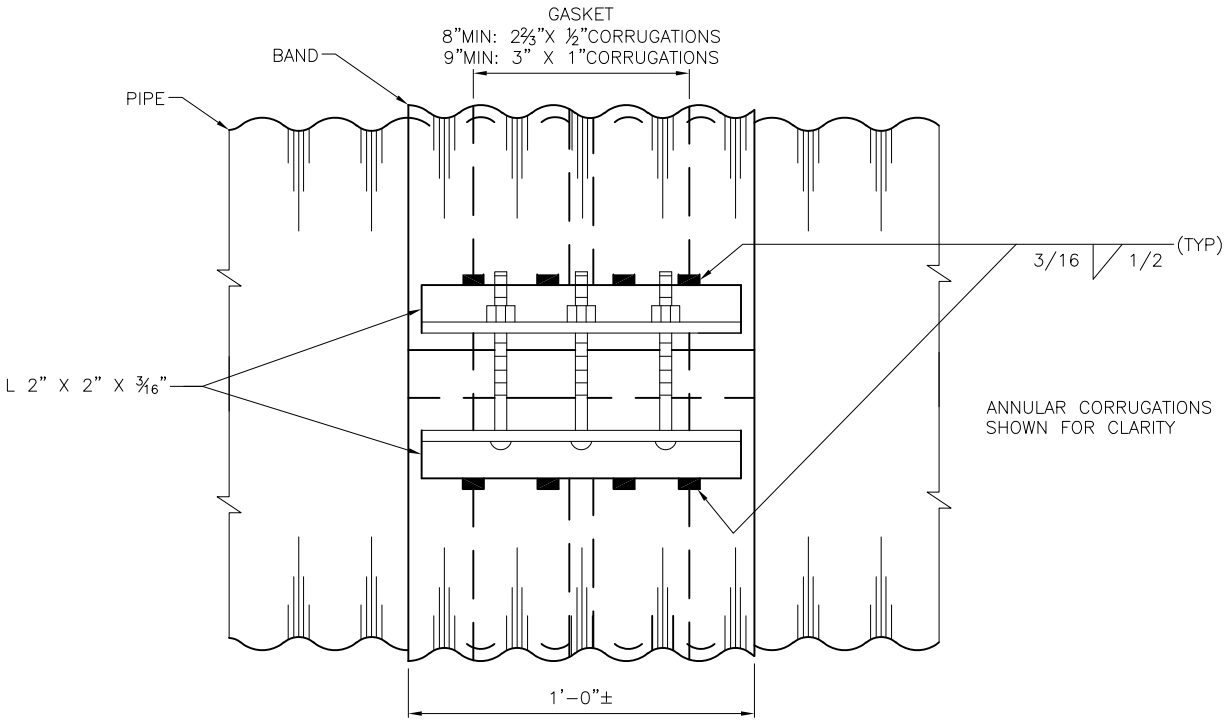


REF STD SPEC SEC 7-19

City of Seattle	NOT TO SCALE	BIORETENTION UNDER DRAIN CLEAN-OUT AND OBSERVATION PORT

REV DATE: 2003





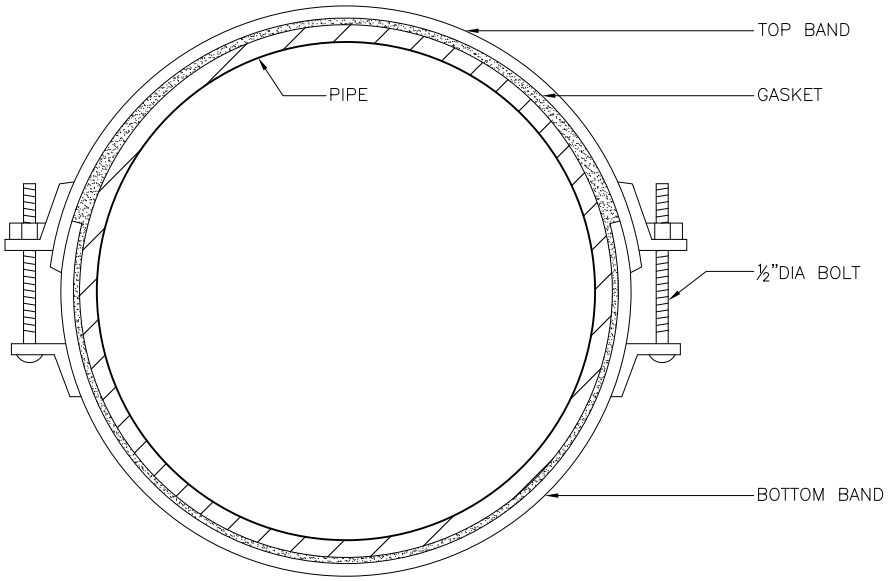
FOR PIPES LESS THAN 48" DIAMETER

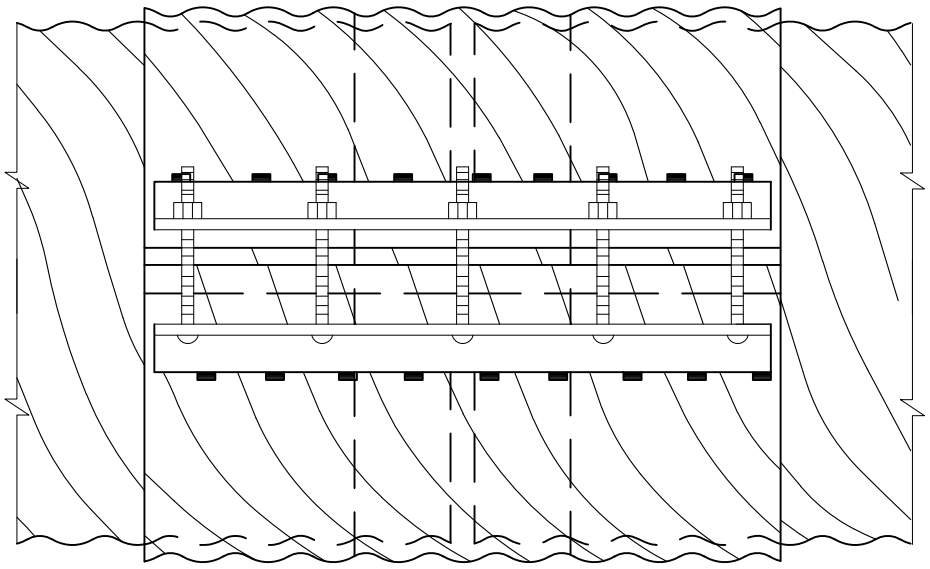
(HELICAL OR ANNULAR)

REF STD SPEC SEC 7-16.2 & 9-05

City of Seattle	NOT TO SCALE	CORRUGATED METAL PIPE COUPLING BANDS

REV DATE: 2003

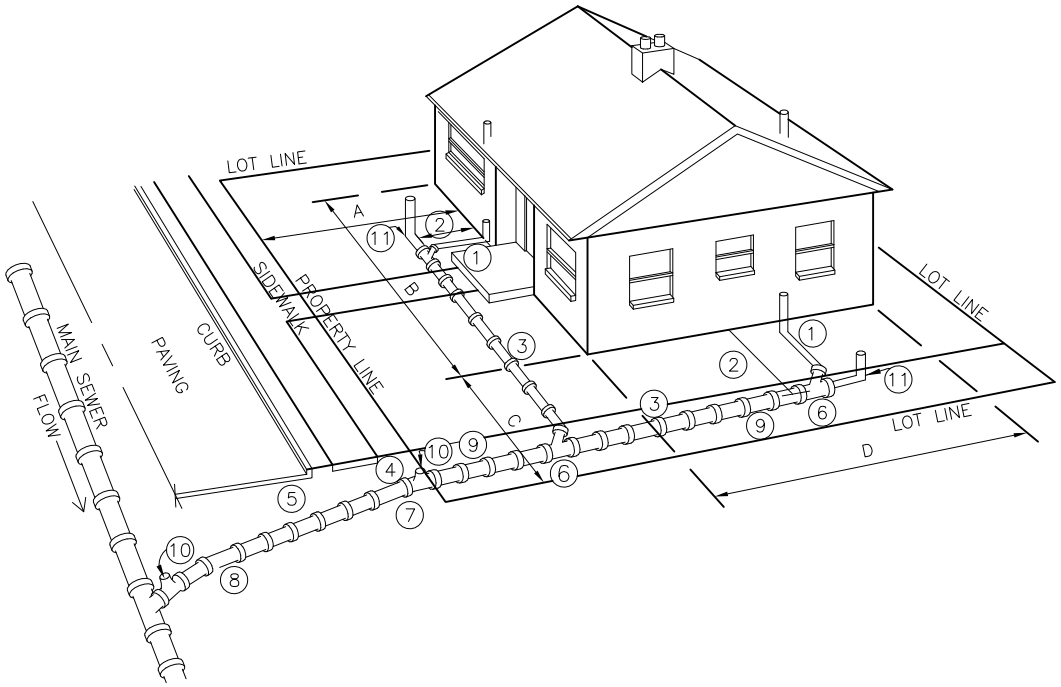




REF STD SPEC SEC 7-16.2 & 9-05

City of Seattle	NOT TO SCALE	CORRUGATED METAL PIPE COUPLING BANDS

REV DATE: AUG 2010



NOTES:

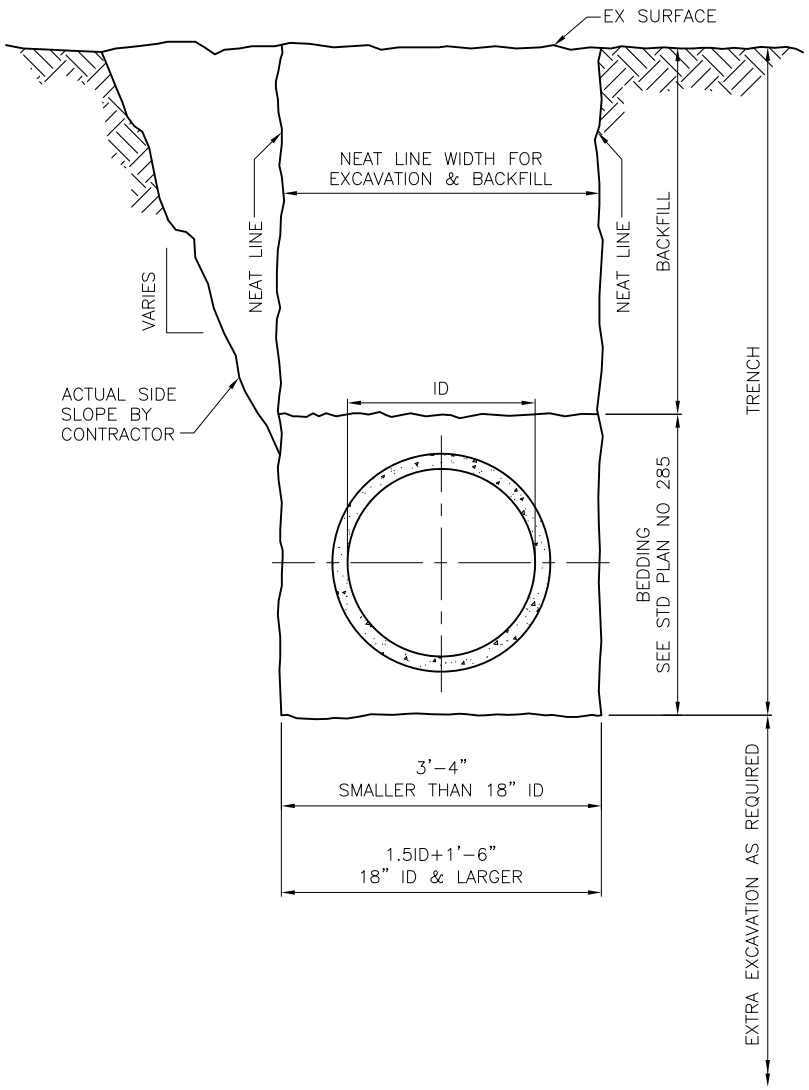
1. ALL SANITARY PLUMBING OUTLETS MUST BE CONNECTED TO THE SANITARY SEWER OR COMBINED SEWER.
2. 2'–6"MIN DISTANCE FROM HOUSE, EXCEPT FOR SOIL PIPE CONNECTION.
3. 1'–6"MIN COVER OF PIPE.
4. 2'–6"MIN COVER AT PROPERTY LINE.
5. 5'–0"MIN COVER AT CURB LINE.
6. LAY PIPE IN STRAIGHT LINE BETWEEN BENDS. MAKE 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 MUST BE DONE BY A REGISTERED SIDE SEWER CONTRACTOR.
B. ALL CONSTRUCTION MUST BE IN ACCORDANCE WITH THE CURRENT SIDE SEWER ORDINANCE.

REF STD SPEC SEC 7-18

City of Seattle	NOT TO SCALE	SIDE SEWER INSTALLATION

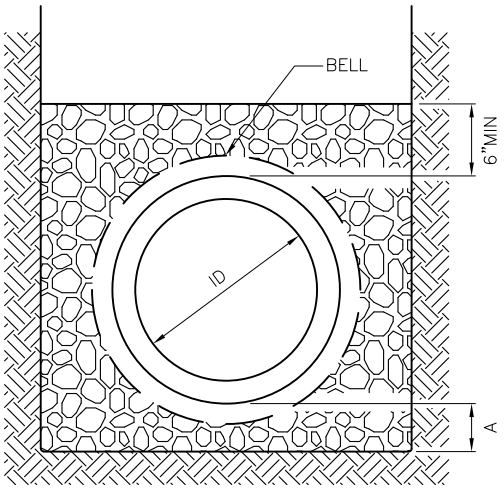
REV DATE: JAN 2013



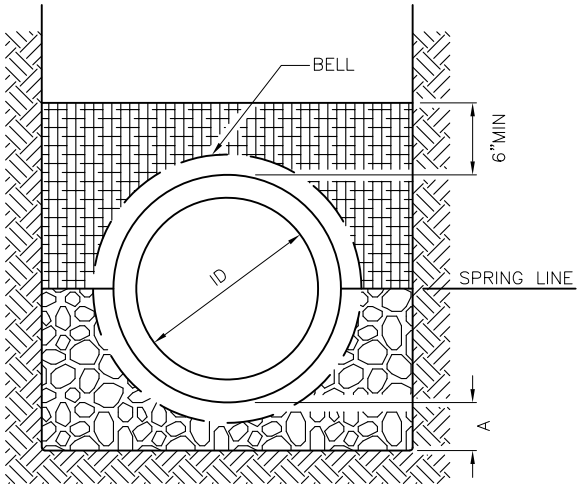
REF STD SPEC SEC 2-07 & 7-17

City of Seattle	NOT TO SCALE	TYPICAL TRENCH DETAIL FOR SEWER & STORM DRAIN

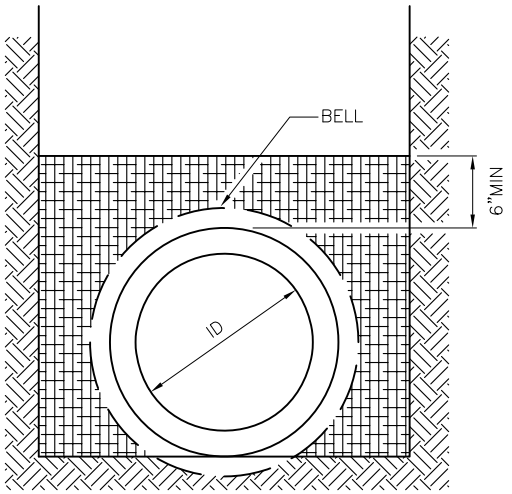
REV DATE: MAY 2014



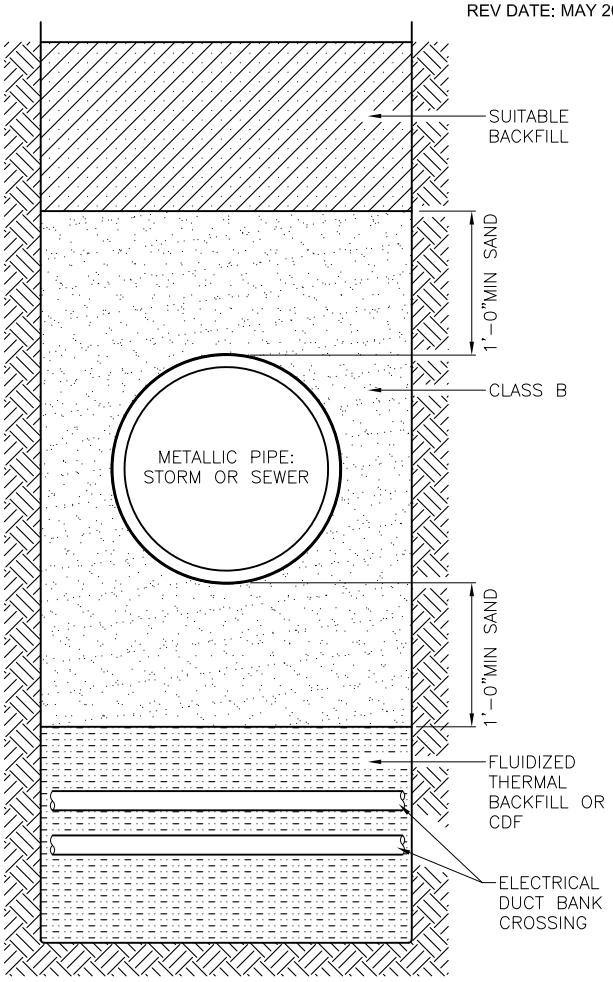
CLASS B BEDDING



CLASS C BEDDING



CLASS D BEDDING



SAND BEDDING AT TRENCH CROSSING OF METAL PIPE

AT METALLIC PIPE CROSSING OF FLUIDIZED THERMAL BACKFILL OR CDF CONDUIT CROSSINGS

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

SELECTED NATIVE MATERIAL PER STD SPEC 2-10.2(1)

SUITABLE BACKFILL

FLUIDIZED THERMAL BACKFILL PER SCL MATERIAL STD 7150.00 OR CDF (SEE CONTRACT DRAWINGS)

MINERAL AGGREGATE PER STD SPEC 9-03.16, TYPE 6 OR TYPE 7

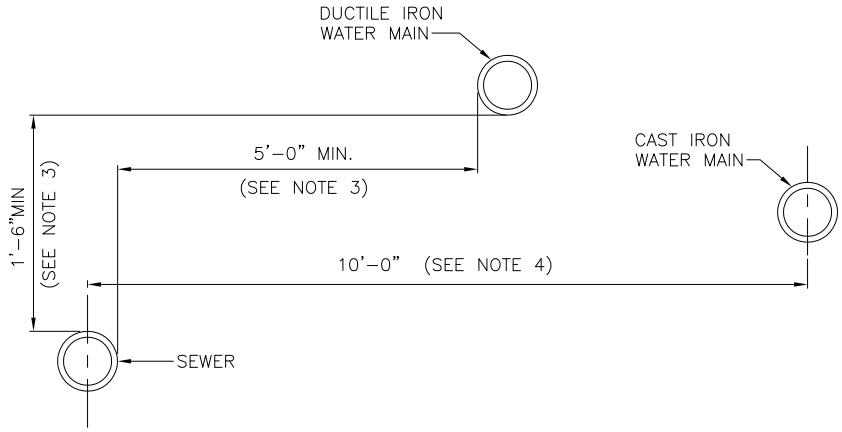
NOTES:

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

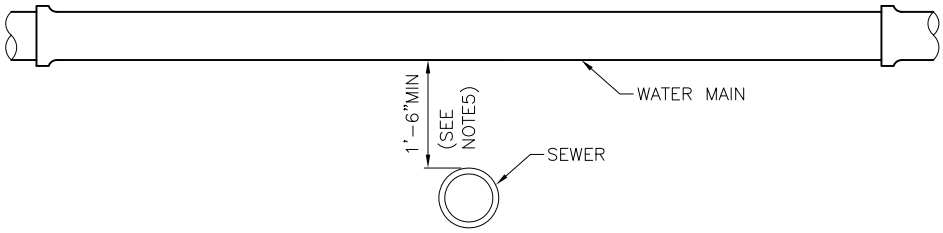
REF STD SPEC SEC 2-10.2, 7-11, 7-17, 9-03.16

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

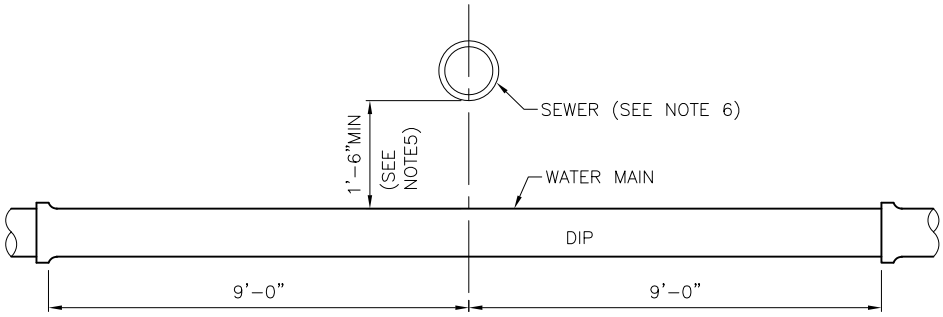
REV DATE: AUG 2010



PARALLEL INSTALLATION



CROSSING WATER OVER SEWER



STANDARD SINGLE 18'–0" NOMINAL LENGTH DUCTILE IRON WATER MAIN SECTION CENTERED AT THE POINT OF CROSSING

CROSSING WATER UNDER SEWER

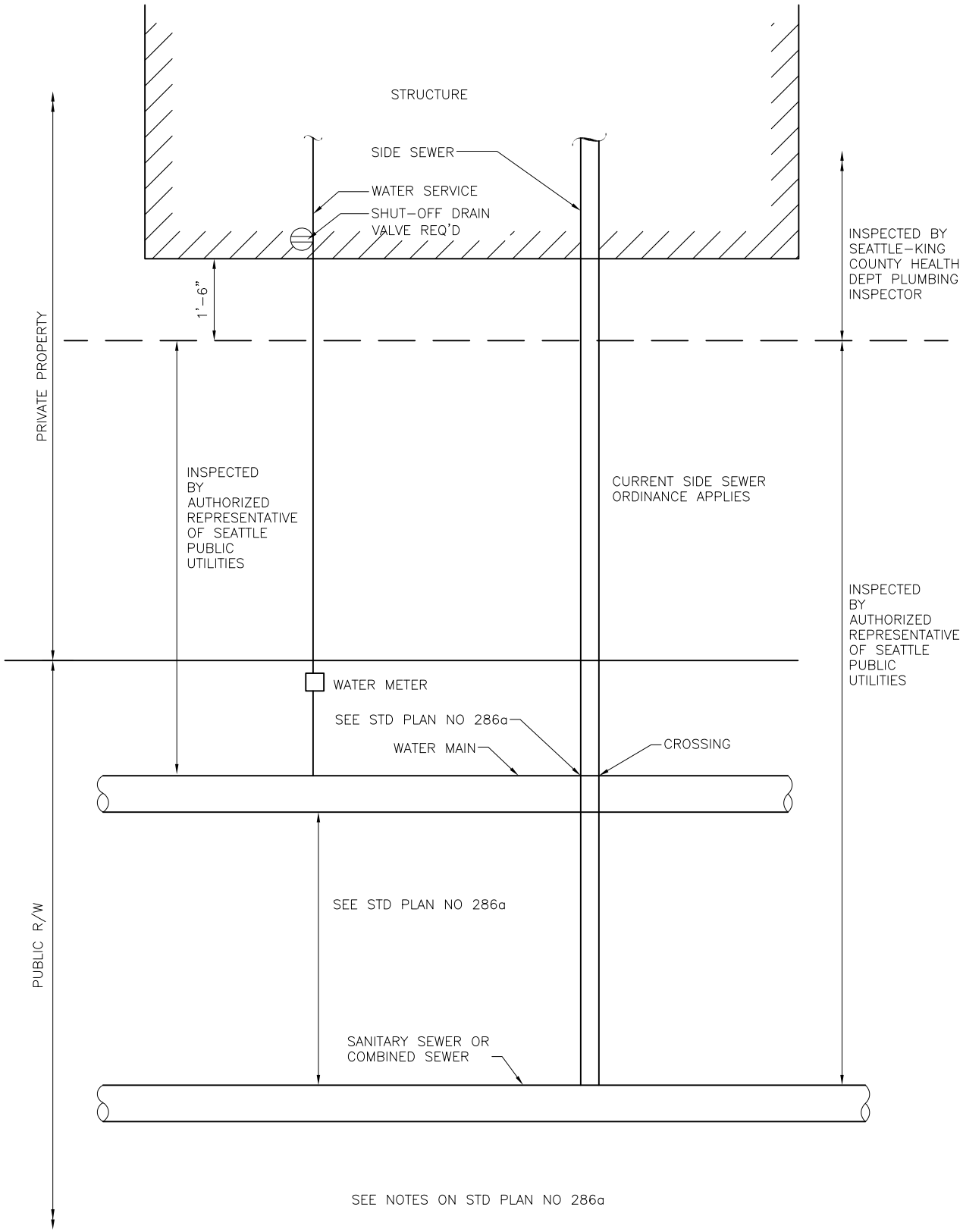
NOTES:

1. EXCEPTIONS TO STD PLAN NO 286 MUST 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 MUST 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 MUST BE A STANDARD SINGLE 18'–0" NOMINAL LENGTH DUCTILE IRON WATER MAIN SECTION CENTERED AT THE POINT OF CROSSING.
6. SEWER MUST 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.

REF STD SPEC SEC 1-07.17 & 7-11

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

REV DATE: AUG 2010

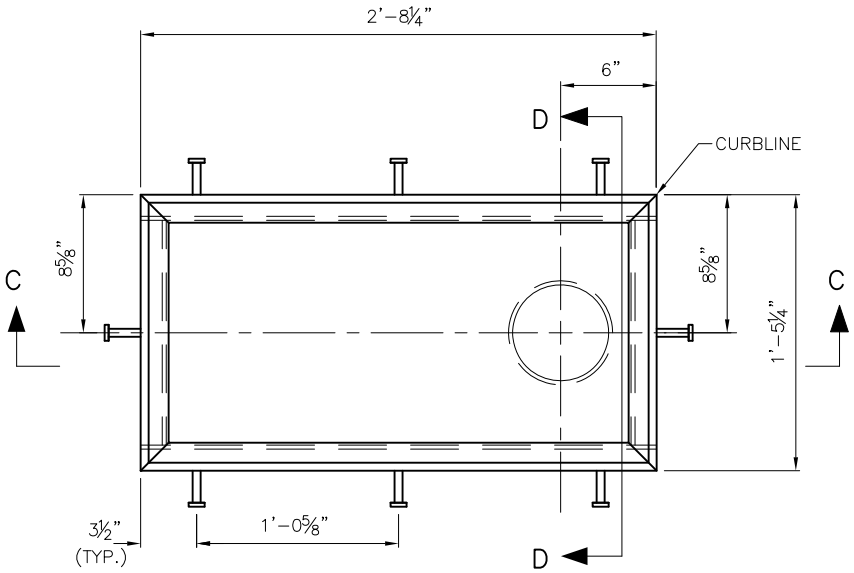


SEE NOTES ON STD PLAN NO 286a

REF STD SPEC SEC 1-07.17 & DIV 7

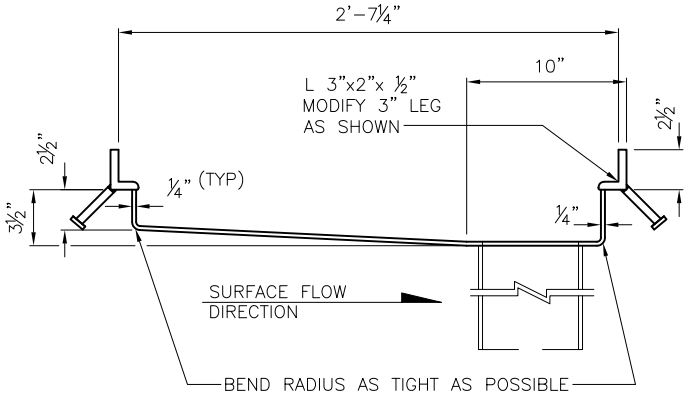
City of Seattle	NOT TO SCALE	SEWER & WATER SPACING & CLEARANCES

REV DATE: 2003

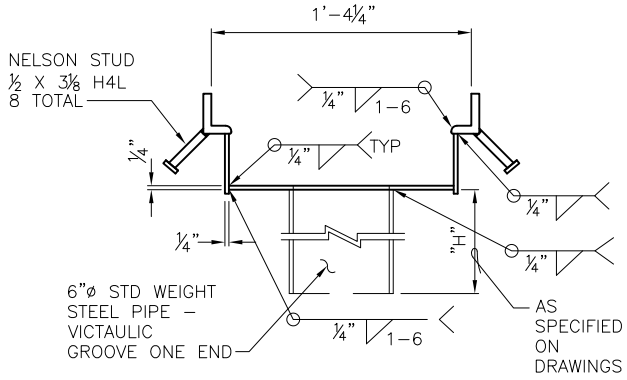


PLAN VIEW – BRIDGE DRAIN

SURFACE FLOW DIRECTION



SECTION C–C



SECTION D–D

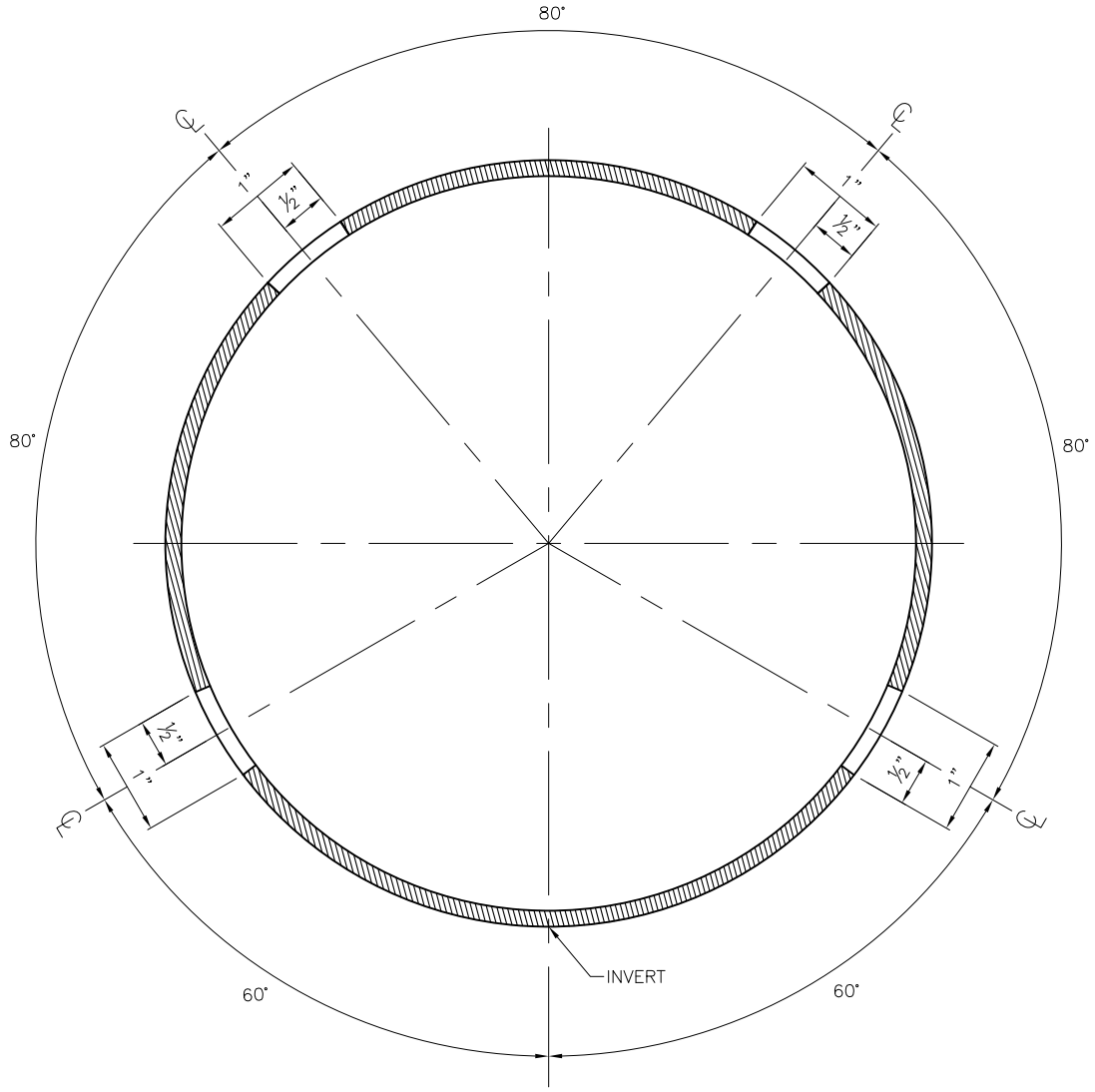
NOTES:

1. ALL ¼" STEEL & L3"x 2"x ½" TO BE A–36.
2. 6"ø 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.

REF STD SPEC SEC 6-01 & 6-02

City of Seattle	NOT TO SCALE	BRIDGE DRAIN

REV DATE: DEC 2010



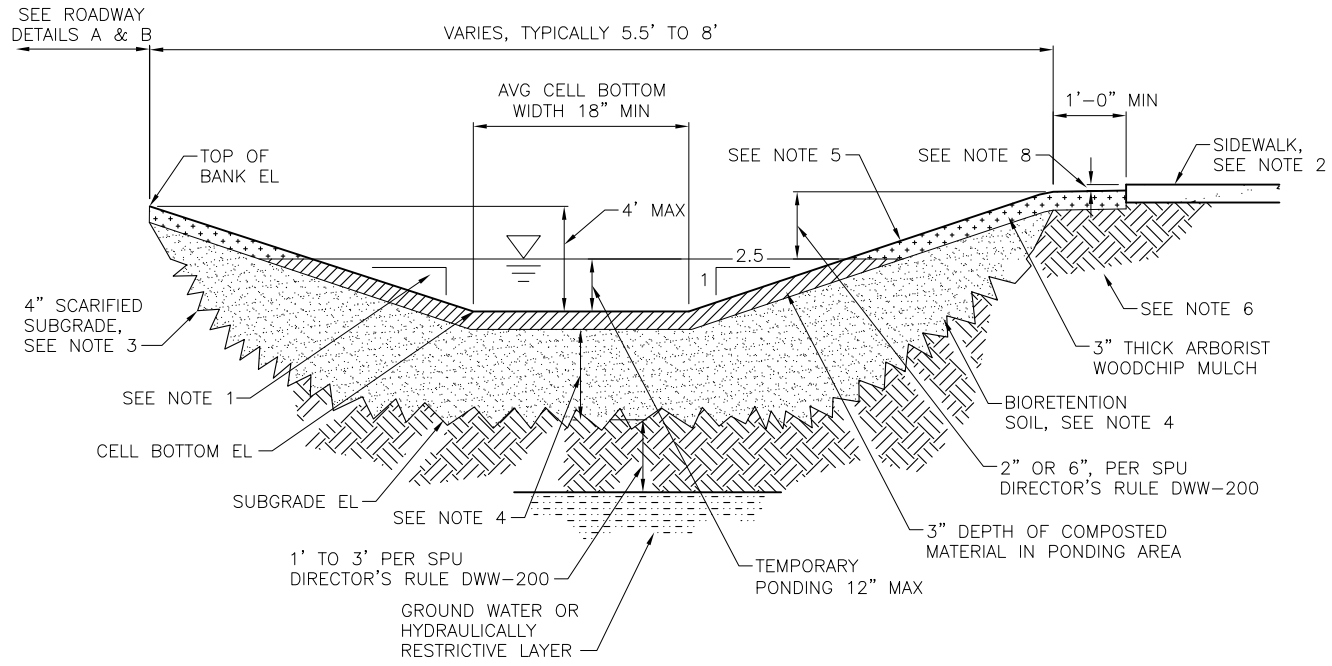
NOTES:

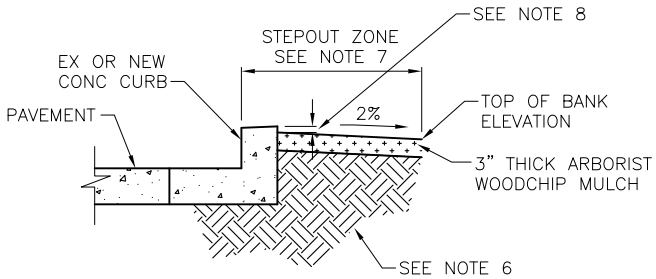
1. ASTM D 2241 SDR 21 CLASS 200 PVC PIPE OR ASTM D 1785 SCH 40.
2. SLOT DIMENSIONS ARE 0.064" WIDE X 1.00" LONG SPACED ALONG PIPE AT 0.3" ON CENTER.

REF STD SPEC SEC 9-05, 3(1)

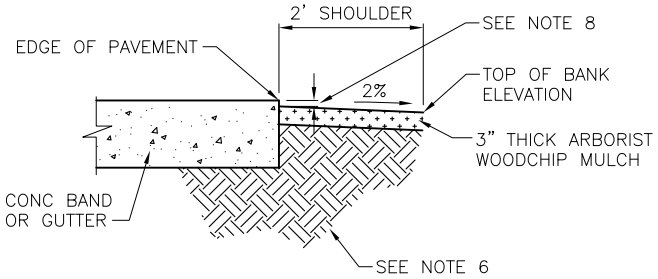
City of Seattle	NOT TO SCALE	PVC SUBSURFACE DRAIN PIPE

REV DATE: DEC 2015





DETAIL A
CURBED ROADWAY
(ADJACENT TO PARKING ZONE)



DETAIL B
CURBLESS ROADWAY

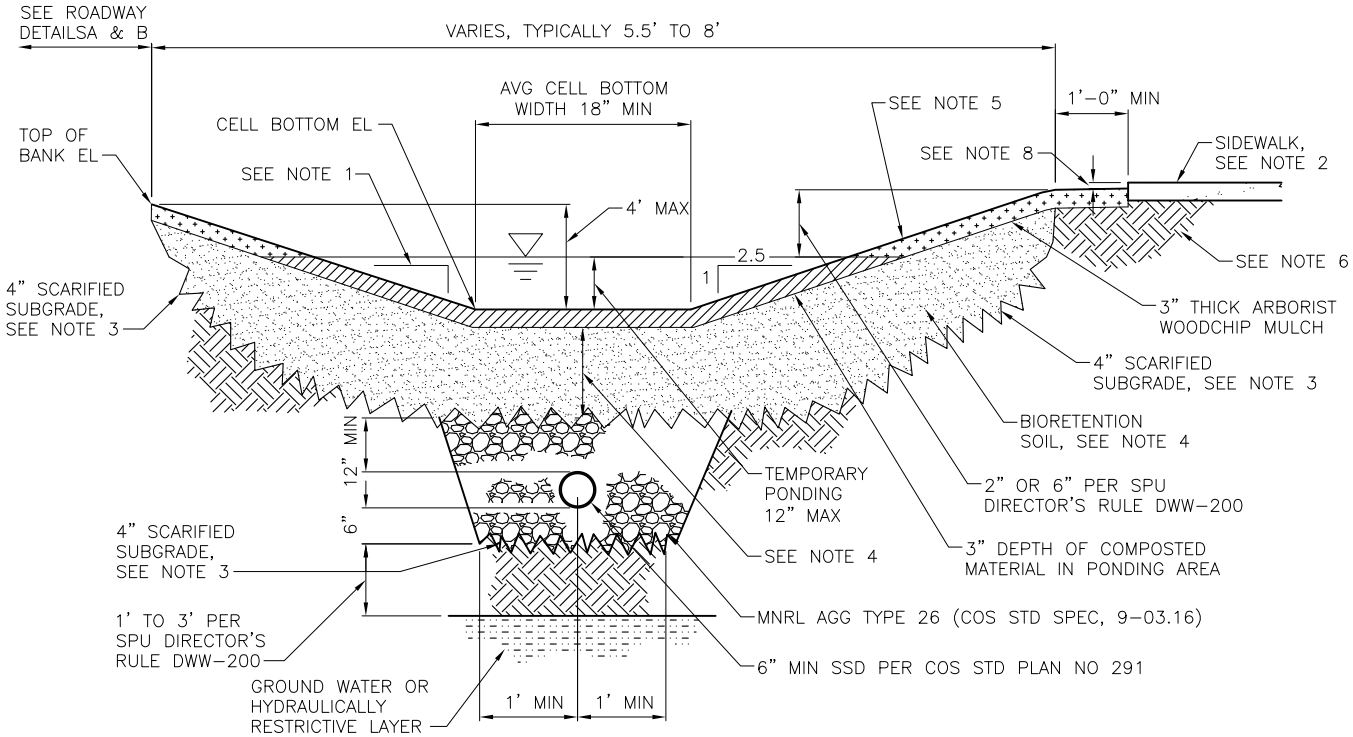
NOTES:

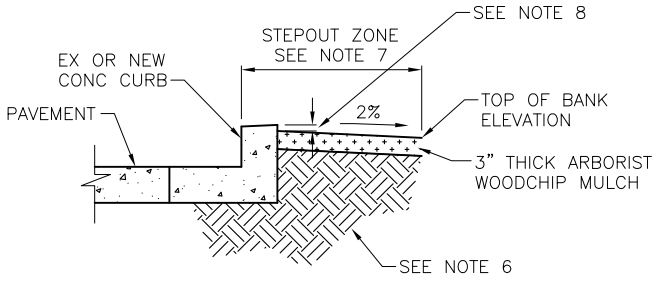
1. TYPICAL MAXIMUM SLOPE ALLOWED IS 2.5H=1V, 3H=1V MAX WHEN WITHIN 50-FEET OF INTERSECTIONS OR CURBLESS ROADWAY.
2. BIORETENTION OVERFLOW ELEVATIONS MUST BE SET BELOW SIDEWALK ELEVATION.
3. SCARIFY SUBGRADE 4" MIN IN THE AREA SUBJECT TO TEMPORARY PONDING BEFORE BIORETENTION SOIL INSTALLATION.
4. PROVIDE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

REF STD SPEC SEC 7-21

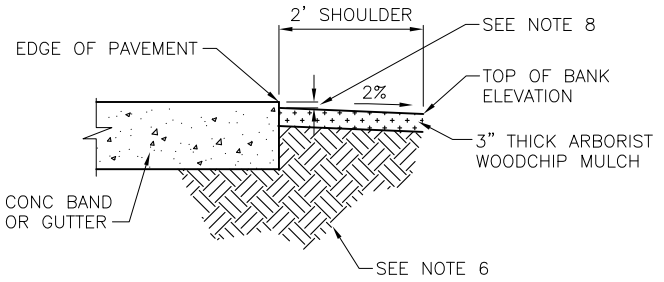
City of Seattle	NOT TO SCALE	INFILTRATING BIORETENTION WITH SLOPED SIDES

REV DATE: DEC 2016





DETAIL A
CURBED ROADWAY
(ADJACENT TO PARKING ZONE)



DETAIL B
CURBLESS ROADWAY

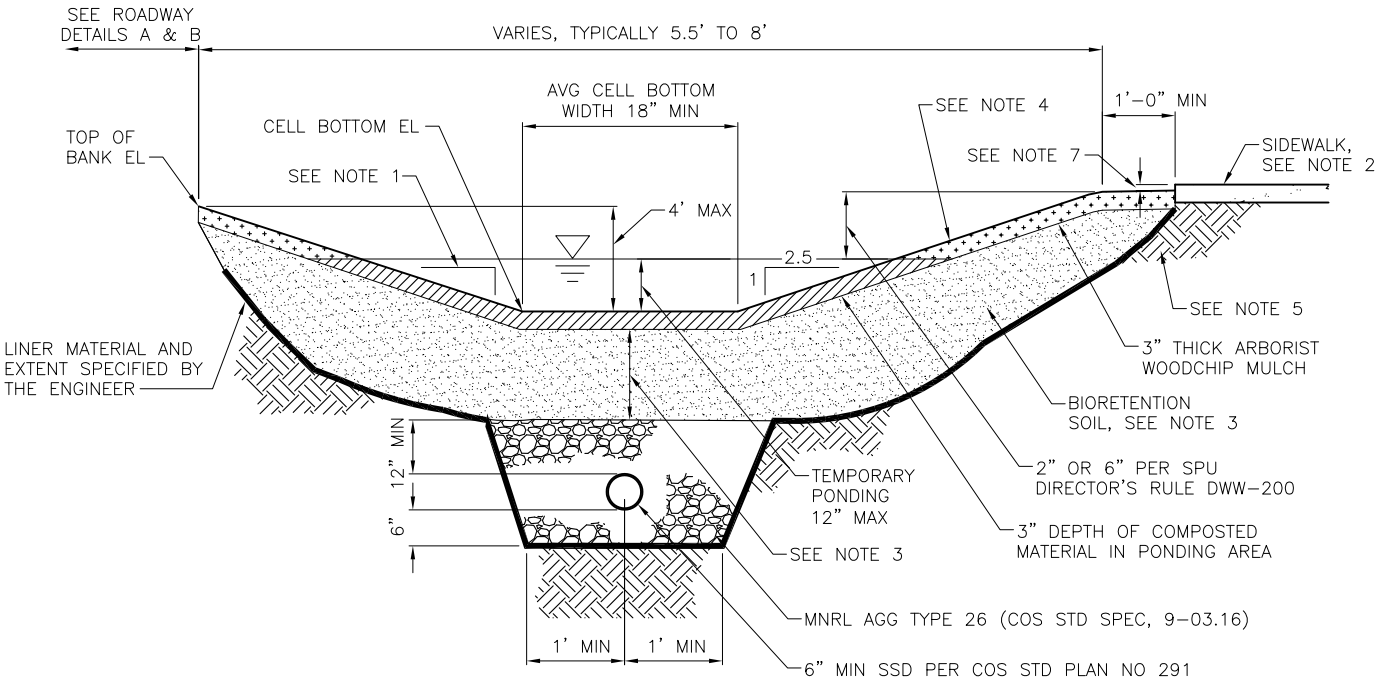
NOTES:

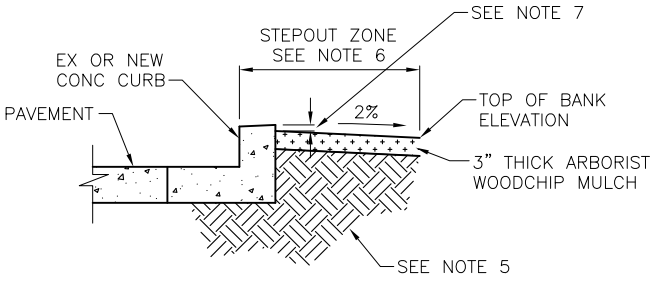
1. TYPICAL MAXIMUM SLOPE ALLOWED IS 2.5H=1V, 3H=1V MAX WHEN WITHIN 50-FEET OF INTERSECTIONS OR CURBLESS ROADWAY.
2. BIORETENTION OVERFLOW ELEVATIONS MUST BE SET BELOW SIDEWALK ELEVATION.
3. SCARIFY SUBGRADE 4" MIN IN THE AREA SUBJECT TO TEMPORARY PONDING BEFORE BIORETENTION SOIL INSTALLATION.
4. PROVIDE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

REF STD SPEC SEC 7-21

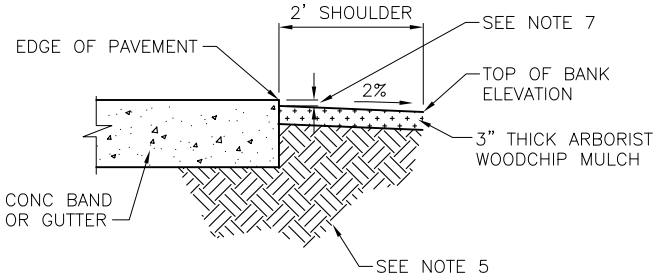
City of Seattle | NOT TO SCALE | INFILTRATING BIORETENTION WITH SLOPED SIDES & UNDER DRAIN

REV DATE: DEC 2016





DETAIL A
CURBED ROADWAY
(ADJACENT TO PARKING ZONE)



DETAIL B
CURBLESS ROADWAY

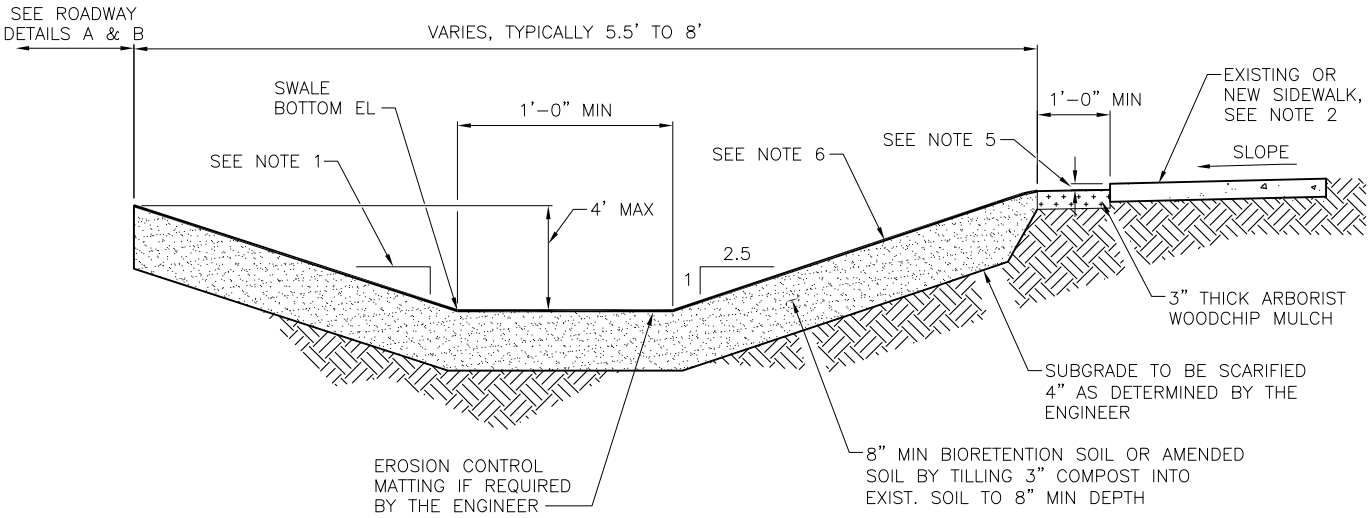
NOTES:

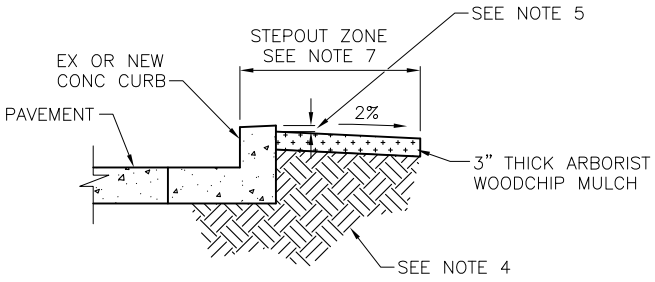
1. TYPICAL MAXIMUM SLOPE ALLOWED IS 2.5H=1V, 3H=1V MAX WHEN WITHIN 50-FEET OF INTERSECTIONS OR CURBLESS ROADWAY.
2. BIORETENTION OVERFLOW ELEVATIONS MUST BE SET BELOW SIDEWALK ELEVATION.
3. PROVIDE 1.5' MIN BIORETENTION SOIL FOR WATER QUALITY TREATMENT PER STORMWATER CODE REQUIREMENT.
4. CELL MUST BE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

REF STD SPEC SEC 7-21

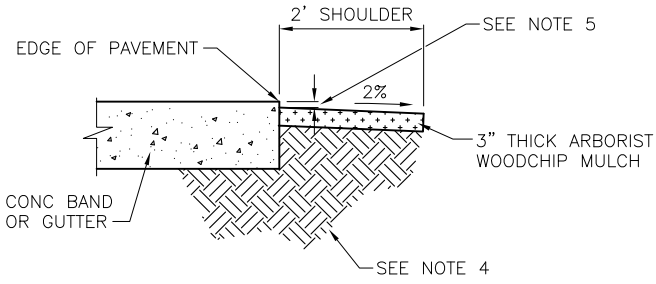
City of Seattle	NOT TO SCALE	NON-INFILTRATING BIORETENTION WITH SLOPED SLIDES & UNDER DRAIN

REV DATE: DEC 2015





DETAIL A
CURBED ROADWAY
(ADJACENT TO PARKING ZONE)



DETAIL B
CURBLESS ROADWAY

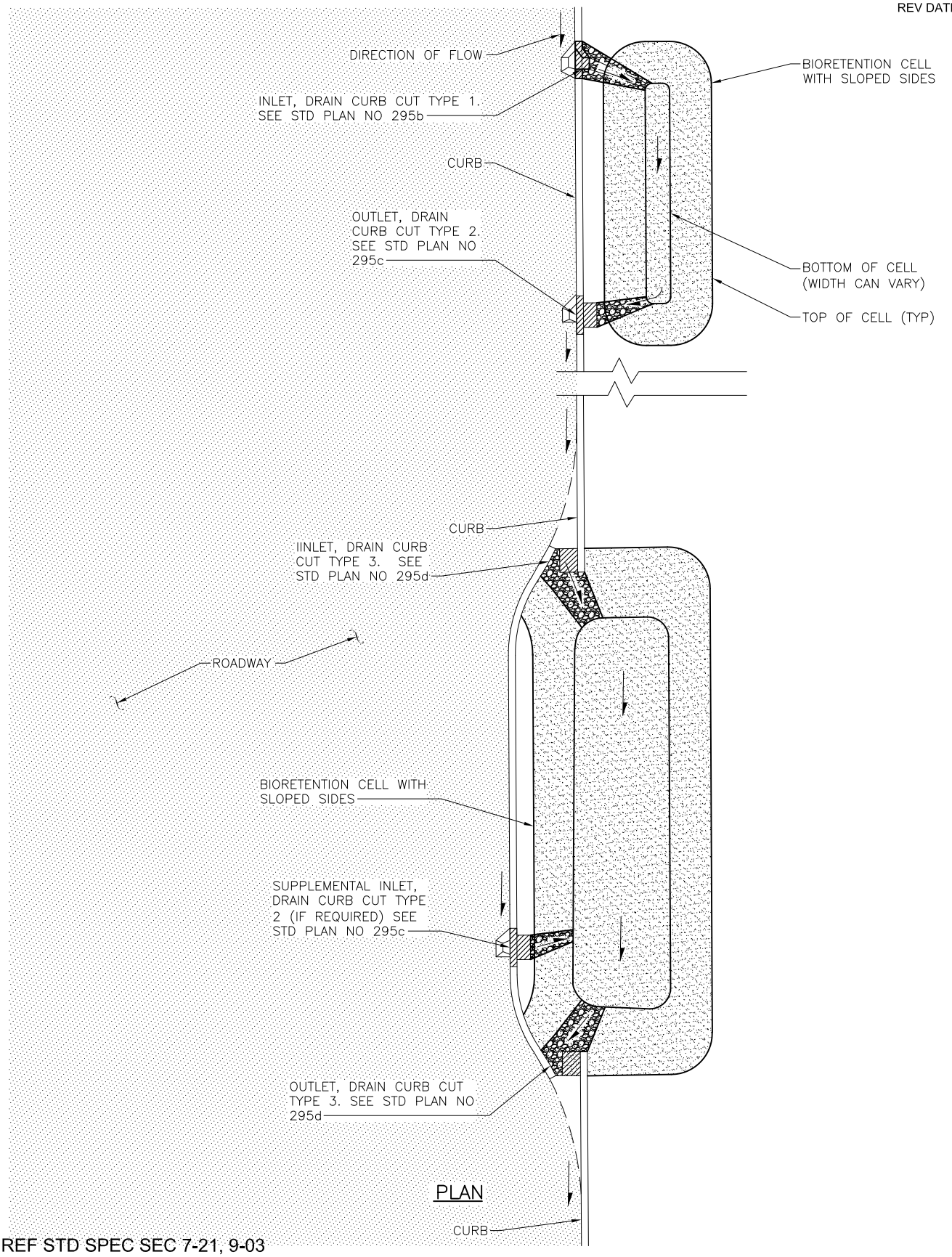
NOTES:

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

REF STD SPEC SEC 7-21

City of Seattle	NOT TO SCALE	VEGETATED CONVEYANCE SWALE (NOT FOR WATER QUALITY TREATMENT)

REV DATE: APR 2016



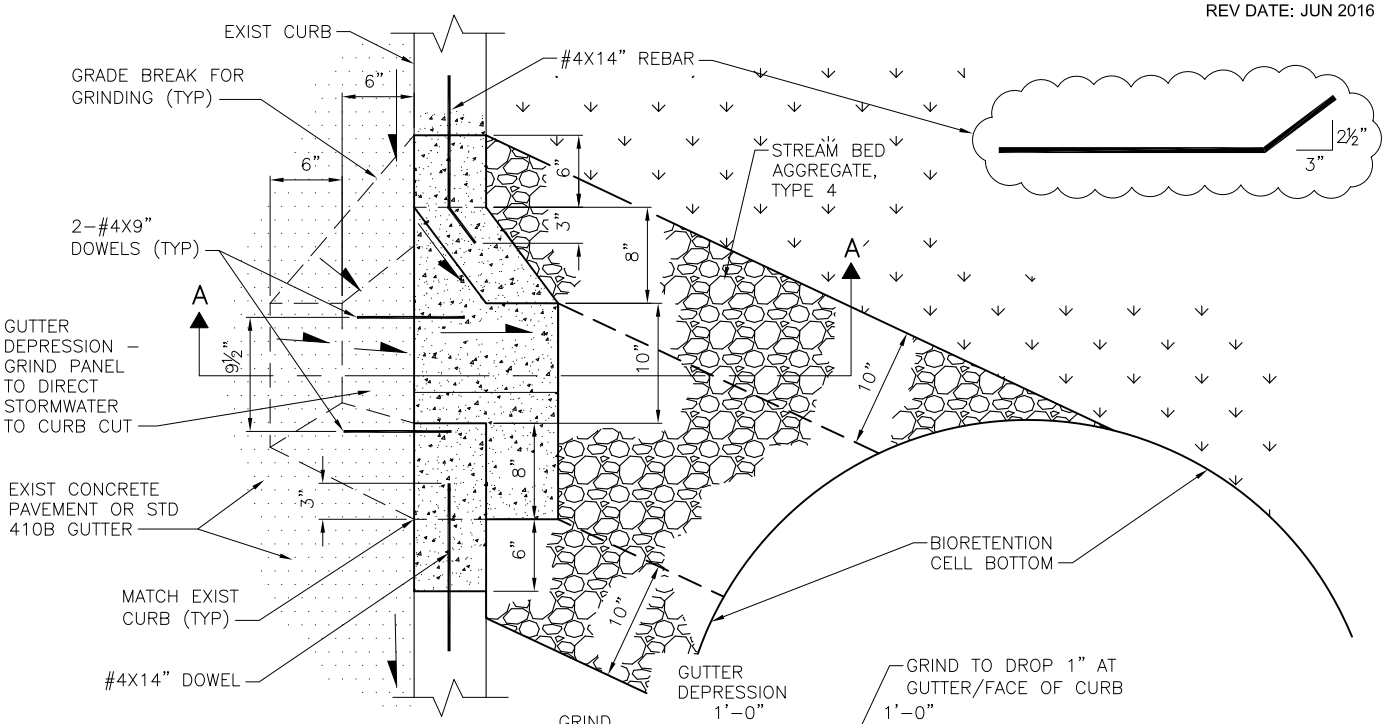
REF STD SPEC SEC 7-21, 9-03

City of Seattle

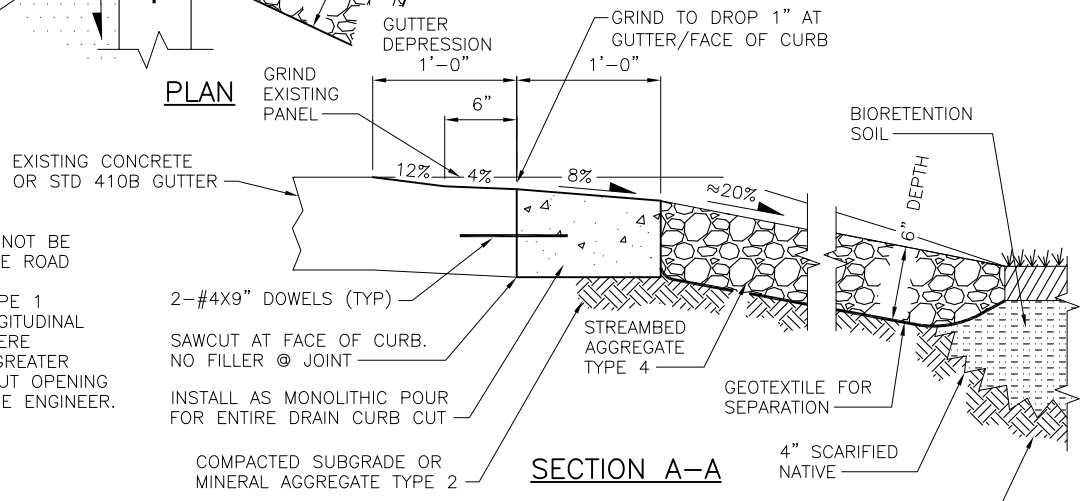
NOT TO SCALE

TYPICAL DRAIN CURB CUT LOCATION FOR BIORETENTION WITH SLOPED SIDES

REV DATE: JUN 2016



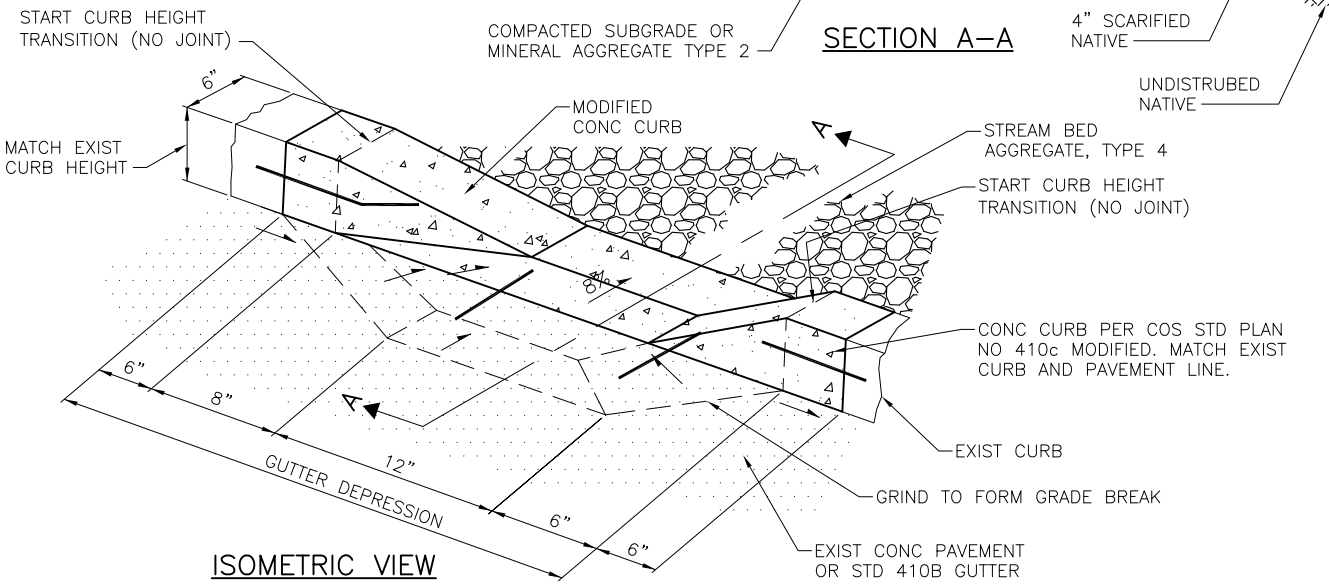
PLAN



SECTION A–A

NOTES:

1. DRAIN CURB CUTS MUST NOT BE LOCATED WITHIN CONCRETE ROAD PANEL JOINT.
2. USE DRAIN CURB CUT TYPE 1 WHERE GUTTER LINE LONGITUDINAL SLOPE IS 0 TO 5%. WHERE LONGITUDINAL SLOPE IS GREATER THAN 5%, DRAIN CURB CUT OPENING WILL BE DESIGNED BY THE ENGINEER.

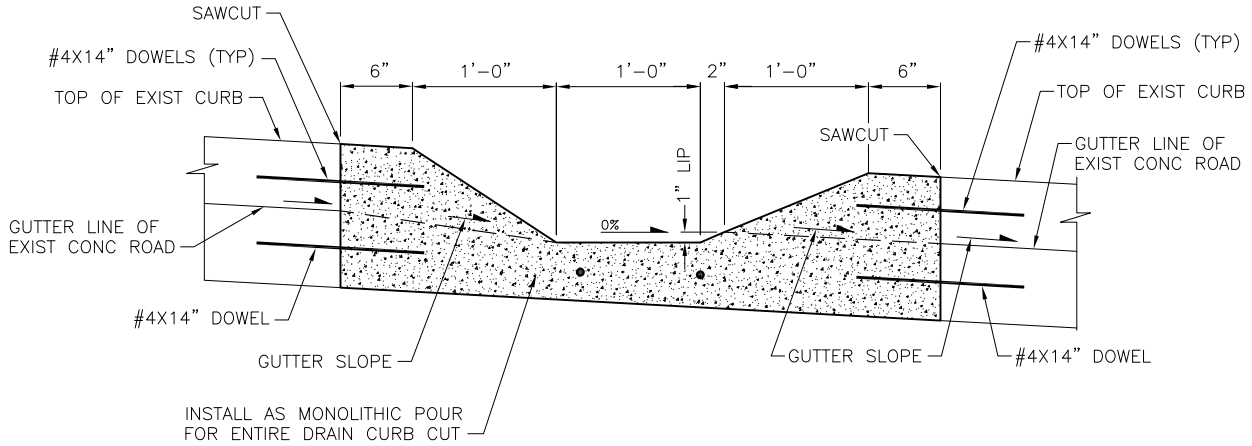


ISOMETRIC VIEW

REF STD SPEC SEC 7-21, 9-03

City of Seattle	NOT TO SCALE	DRAIN CURB CUT TYPE 1

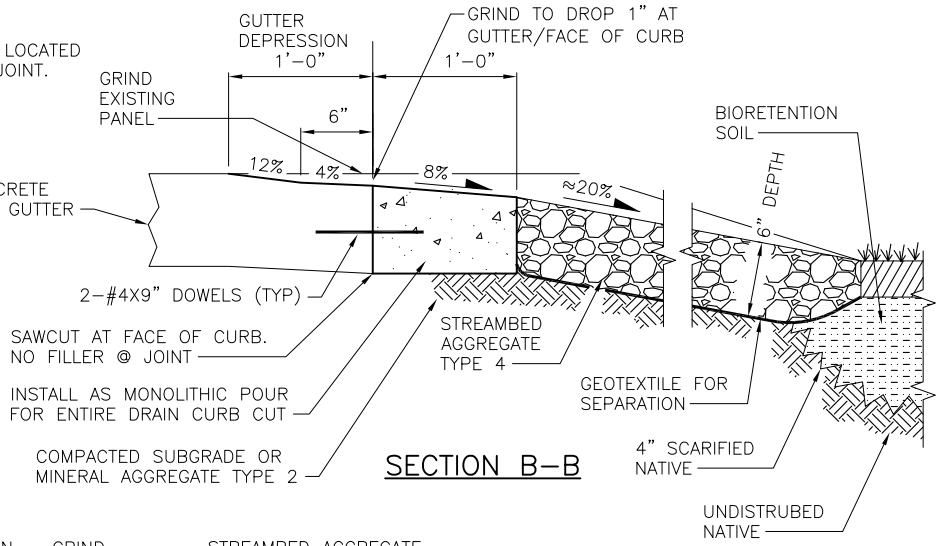
REV DATE: APR 2016



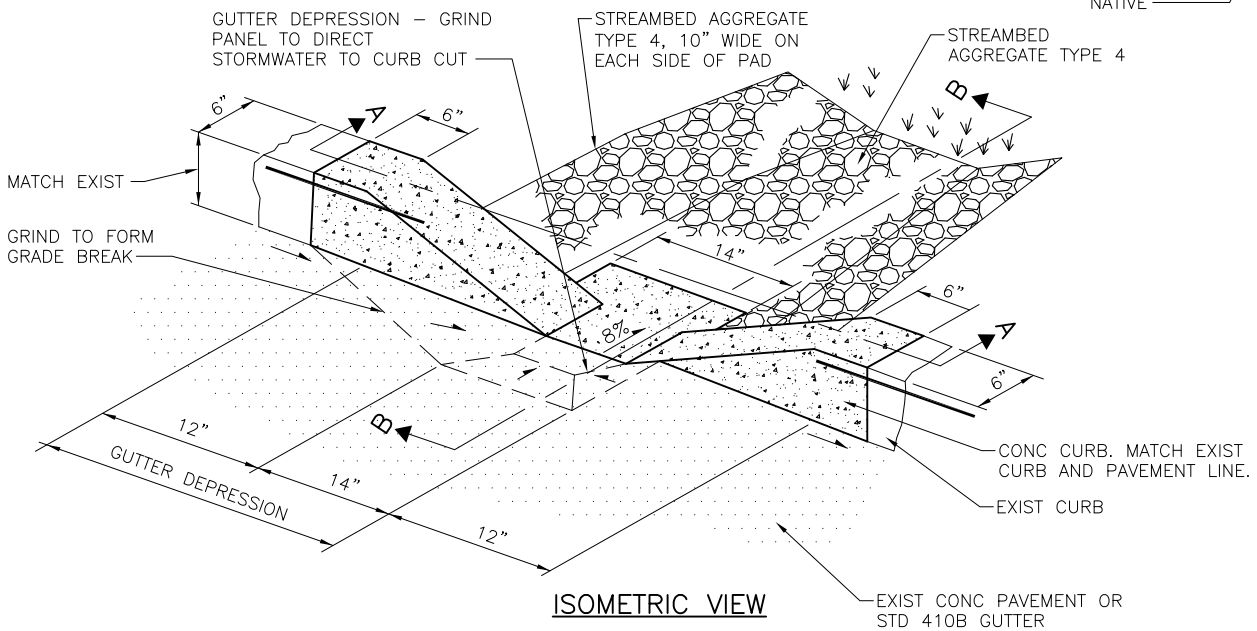
SECTION A–A

NOTES:

1. DRAIN CURB CUT MUST NOT BE LOCATED WITHIN CONCRETE ROAD PANEL JOINT.



SECTION B–B

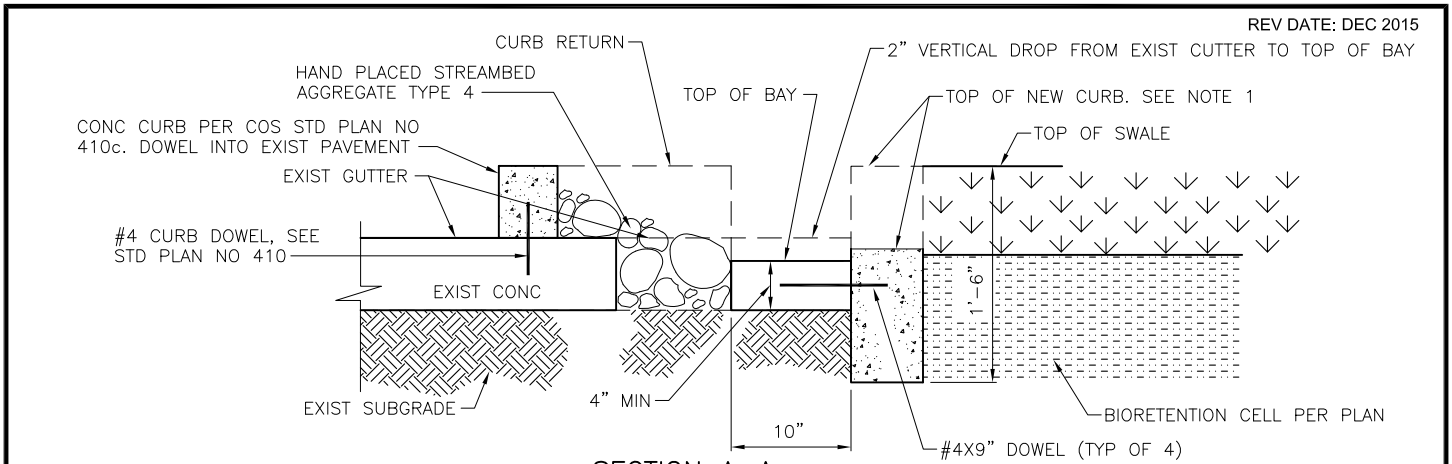


ISOMETRIC VIEW

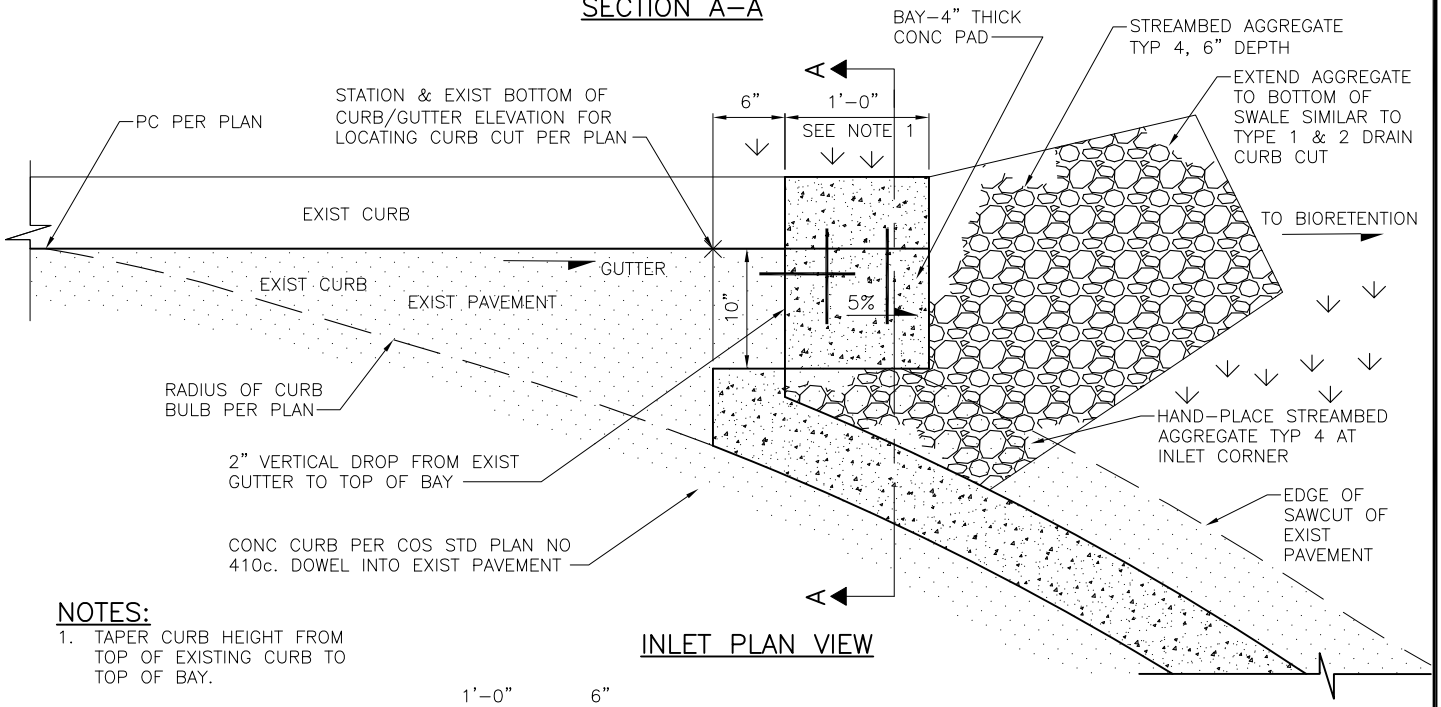
REF STD SPEC SEC 7-21, 9-03

City of Seattle	NOT TO SCALE	DRAIN CURB CUT TYPE 2

REV DATE: DEC 2015



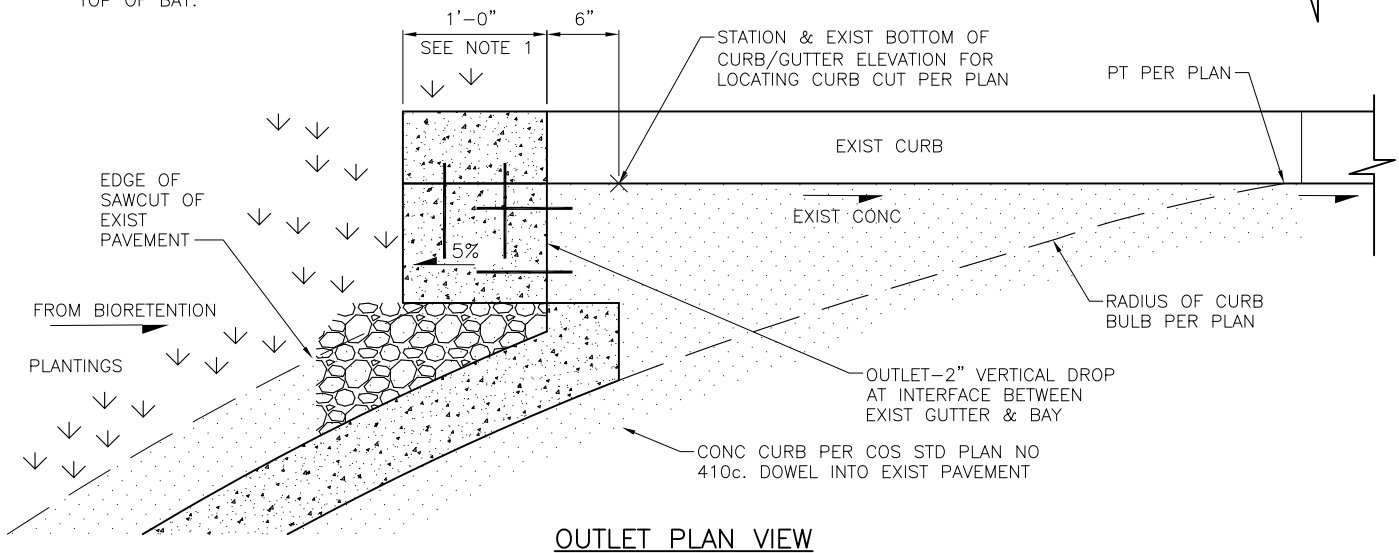
SECTION A–A



INLET PLAN VIEW

NOTES:

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

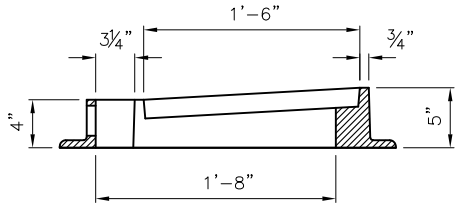


OUTLET PLAN VIEW

REF STD SPEC SEC 7-21, 9-03

City of Seattle	NOT TO SCALE	DRAIN CURB CUT TYPE 3

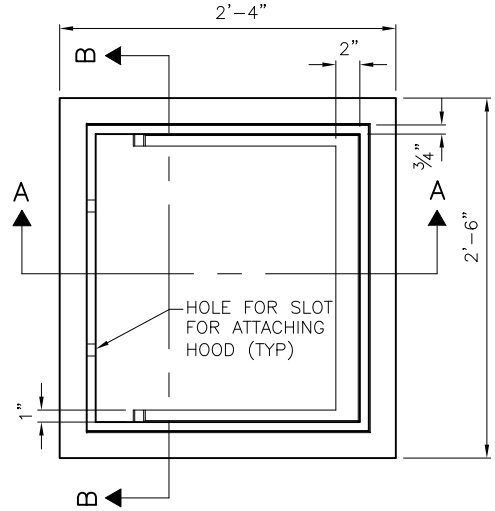
REV DATE: SEP 2015



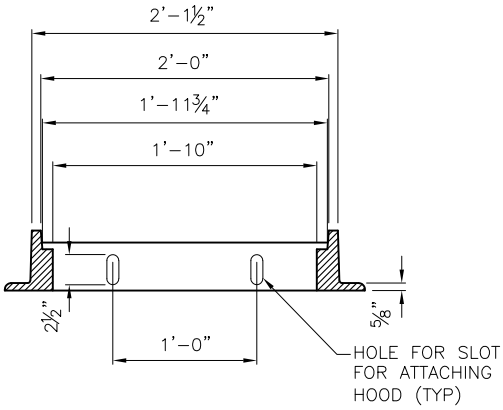
SECTION A–A

NOTES:

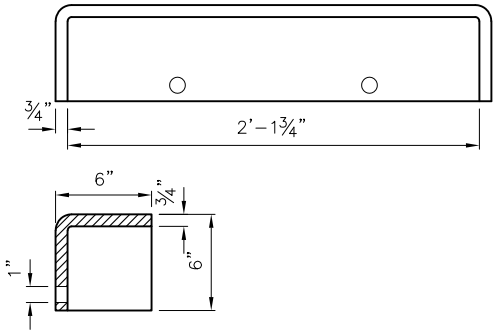
1. ATTACH THE HOOD TO THE FRAME WITH TWO ¾" X 2" HEX HEAD BOLTS, NUTS, AND OVERSIZE WASHERS. THE WASHERS MUST HAVE DIAMETERS ADEQUATE TO ENSURE FULL BEARING ACROSS THE SLOTS.
2. ONLY DUCTILE IRON VANED GRATES MUST BE USED.



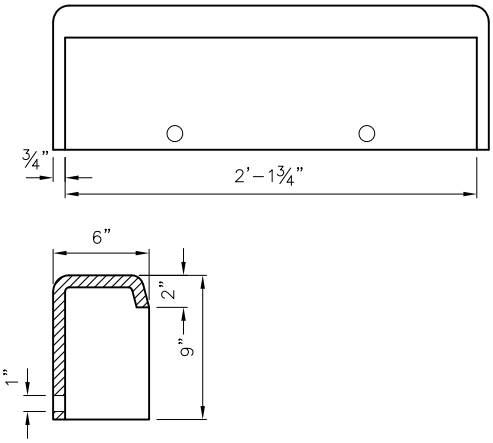
FRAME DETAIL



SECTION B–B



6" HOOD

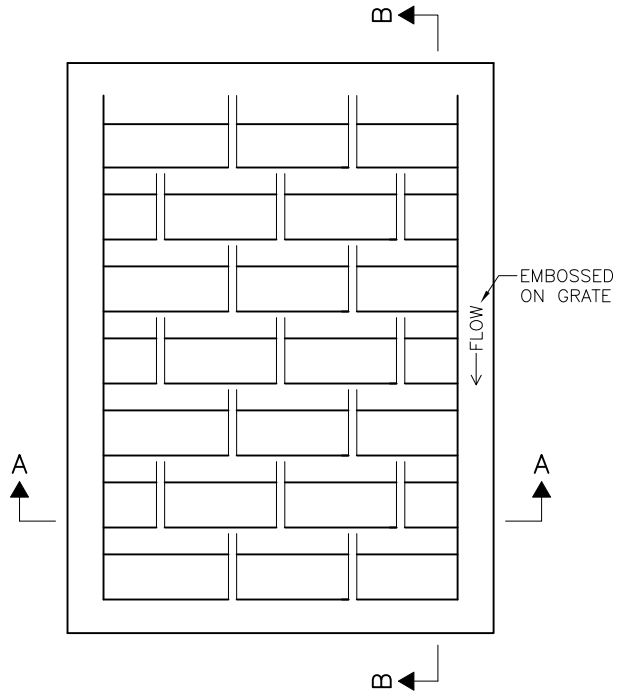


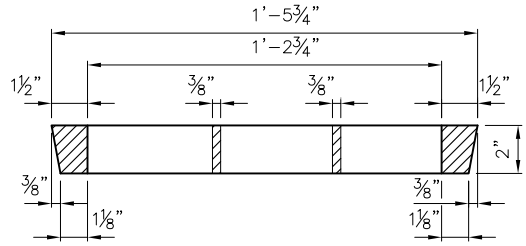
9" HOOD

REF STD SPEC SEC 7-05

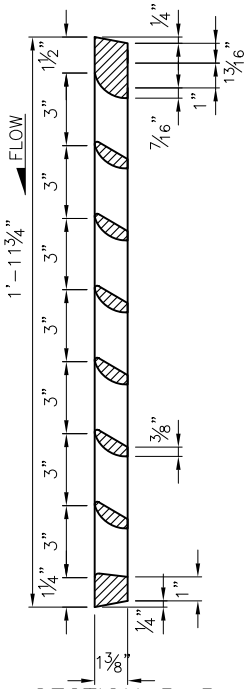
City of Seattle	NOT TO SCALE	CURB INLET FRAME

REV DATE: SEP 2015





SECTION A–A



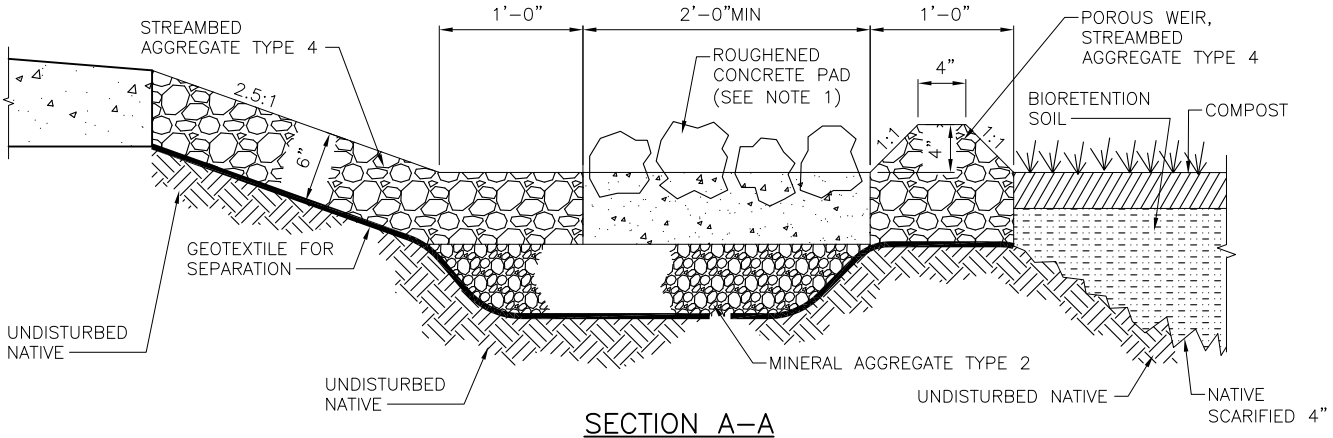
SECTION B–B

GRATE MATERIAL:
DUCTILE IRON

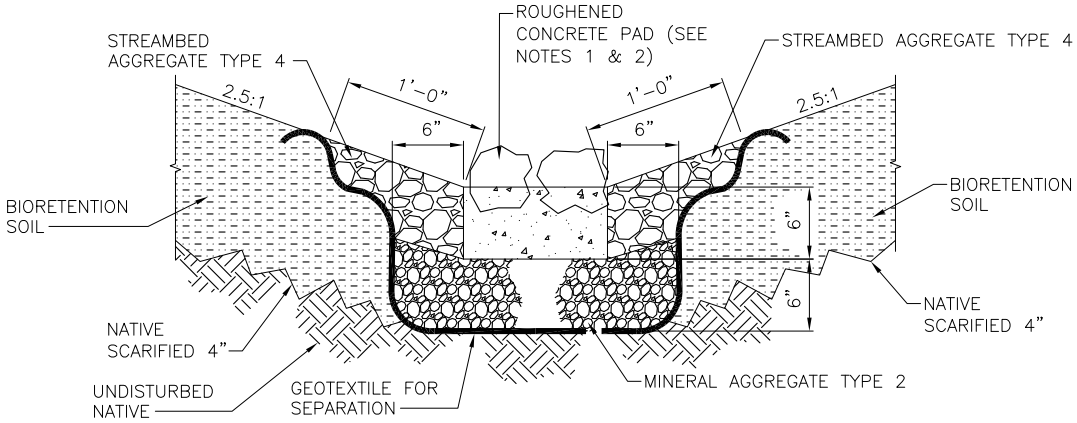
REF STD SPEC SEC

City of Seattle	NOT TO SCALE	CURB INLET VANED GRATE

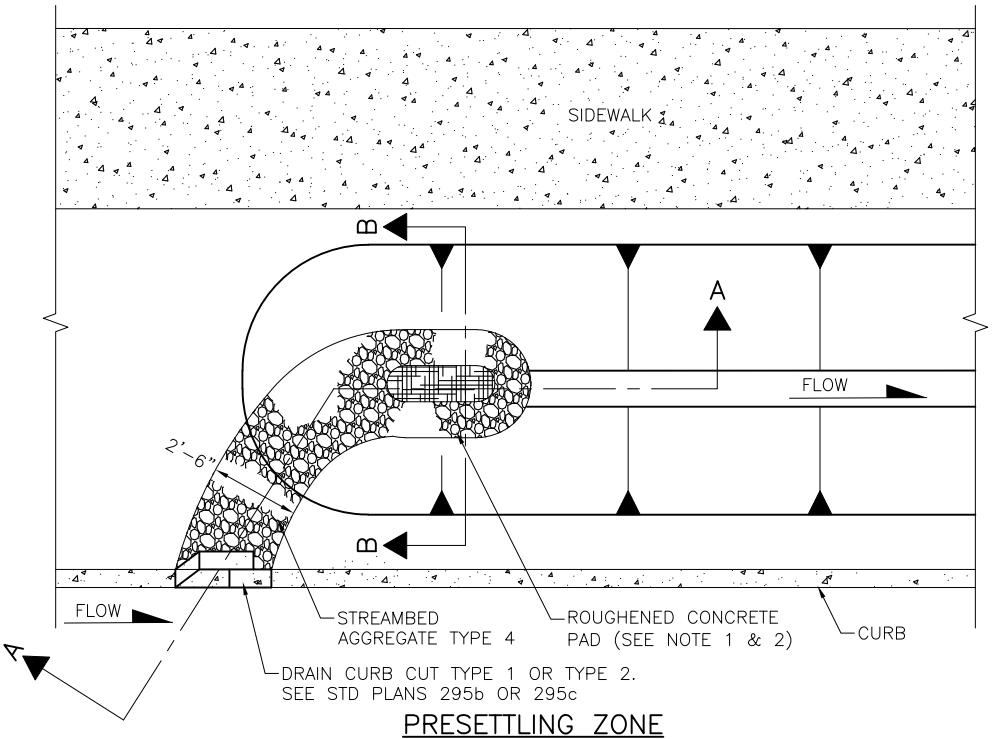
REV DATE: DEC 2015



SECTION A–A



SECTION B–B



PRESETTLING ZONE

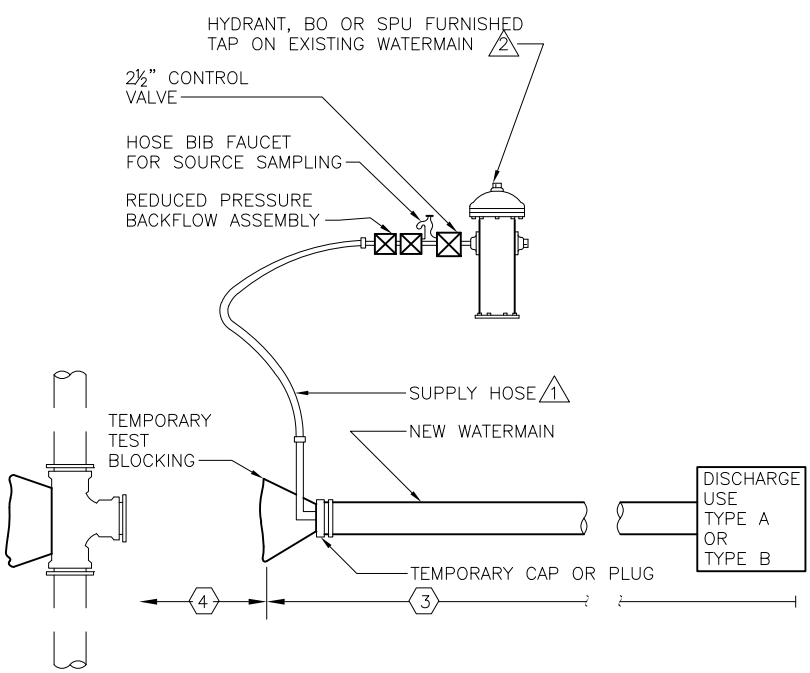
NOTES:

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

REF STD SPEC SEC 7-21, 9-03

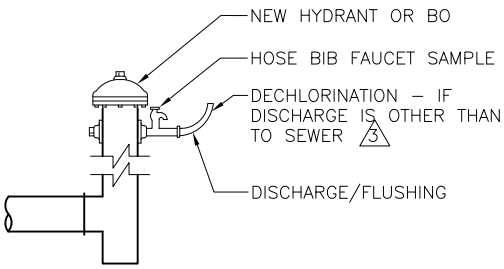
City of Seattle	NOT TO SCALE	PRESETTLING ZONE

REV DATE: AUG 2013

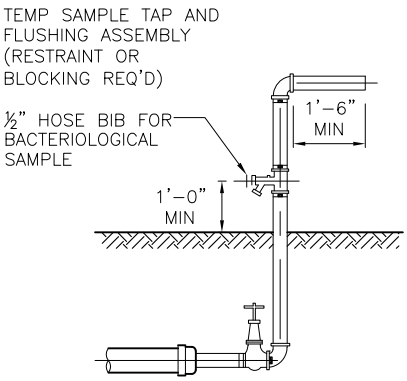


DETAIL 1

TEMPORARY FLUSHING/TESTING CONN



TYPE A



TYPE B

NOTES:

1. ALL FITTINGS MUST BE DUCTILE IRON
2. ALL EXCAVATION MUST 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) MUST 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 MUST BE CAPPED WHEN NOT IN USE. ASSEMBLY MUST BE TESTED WHEN INSTALLED BY A WASHINGTON STATE CERTIFIED BACKFLOW ASSEMBLY TESTER (BAT) AND A CURRENT TEST REPORT MUST BE ON SITE. FOR INSTALLATION PROCEDURES CALL 684–3536.
5. ALL FITTINGS AND MATERIALS FURNISHED BY CONTRACTOR AND TO BE INSTALLED BY SPU MUST BE VERIFIED, INSPECTED AND ON THE JOB SITE PRIOR TO SHUTDOWN OF EXISTING MAIN. FAILURE TO MEET THIS REQUIREMENT COULD RESULT IN DELAYS.

LEGEND

△1 CLEAN & DISINFECTED POTABLE WATER HOSE ONLY. SIZE FLUSHING RISER PER TABLE IN STD SPEC SEC 7–11.3(12)

△2 HYDRANT PERMIT REQUIRED

△3 CHECK WITH SEWER UTILITY BEFORE DISCHARGE TO SEWERS

⟨1⟩ CONTRACTOR TO DETERMINE ALIGNMENT, GRADE AND OUTSIDE DIAMETER 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 MUST 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

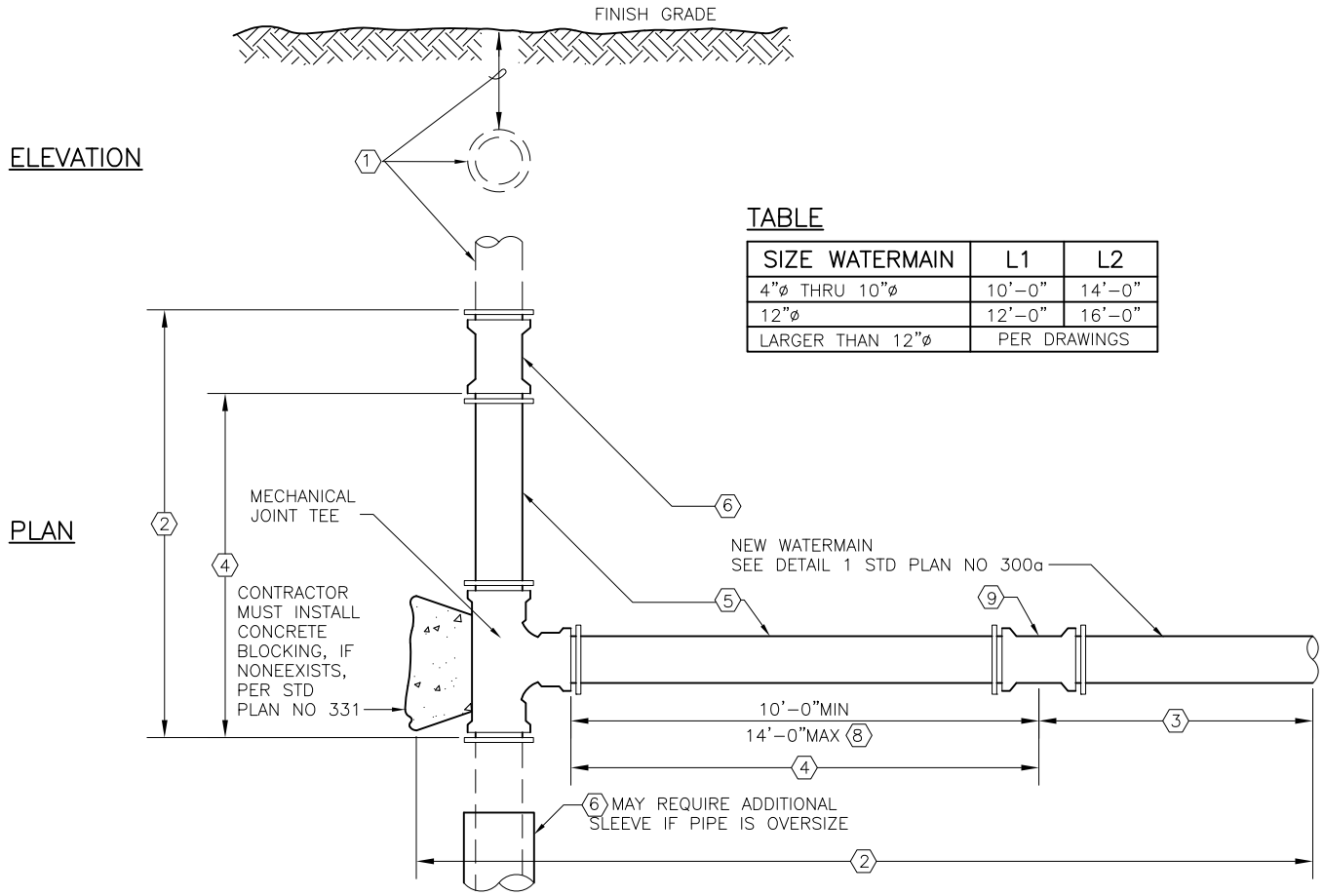
⟨8⟩ APPLIES TO PIPES 4" THROUGH 12". ALL LARGER SIZES TO BE ADDRESSED ON DRAWINGS

⟨9⟩ MECHANICAL JOINT SLEEVE, FURNISHED BY CONTRACTOR AND INSTALLED BY SPU, SPACERS BY SPU WHERE REQUIRED

REF STD SPEC SEC 7-11

City of Seattle	NOT TO SCALE	CONNECTIONS TO EXISTING WATERMAINS

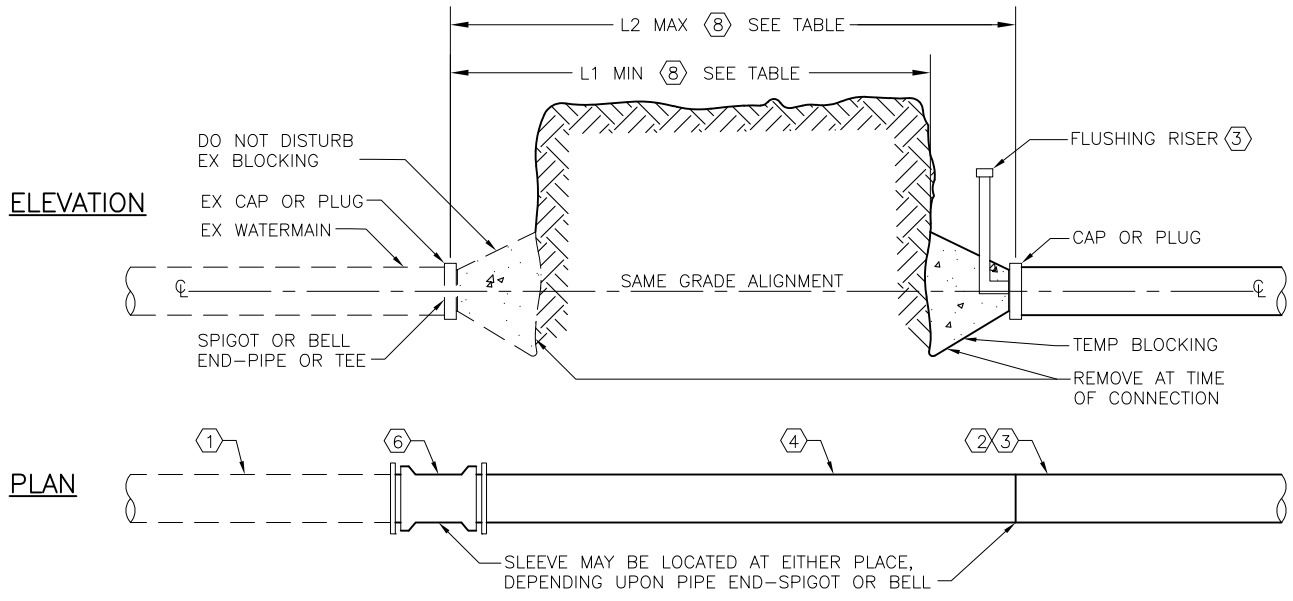
REV DATE: 2003



TABLE

SIZE WATERMAIN	L1	L2
4"ø THRU 10"ø	10'–0"	14'–0"
12"ø	12'–0"	16'–0"
LARGER THAN 12"ø	PER DRAWINGS	

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

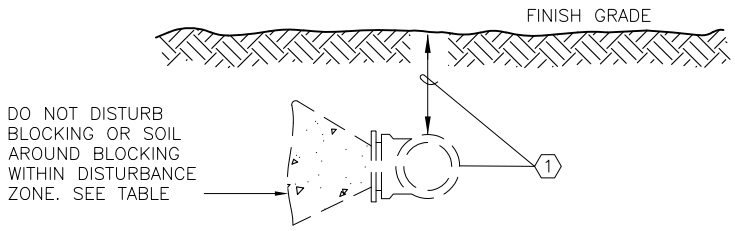


CONNECTIONS TO EXISTING MAIN, STUB OR END OUTLET OF TEE OR CROSS

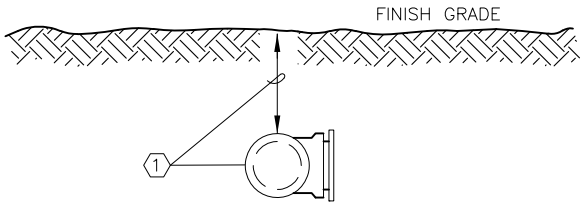
REF STD SPEC SEC 7-11

City of Seattle	NOT TO SCALE	CONNECTIONS TO EXISTING WATERMAINS

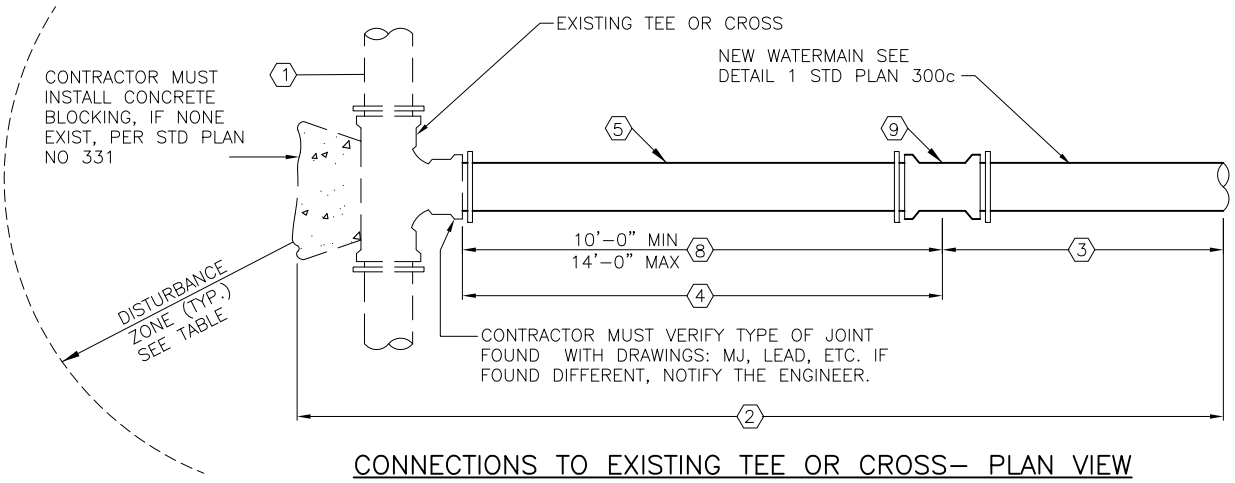
REV DATE: 2003



EXISTING PLUGGED TEE OR CROSS



NEW PLUGGED TEE OR CROSS

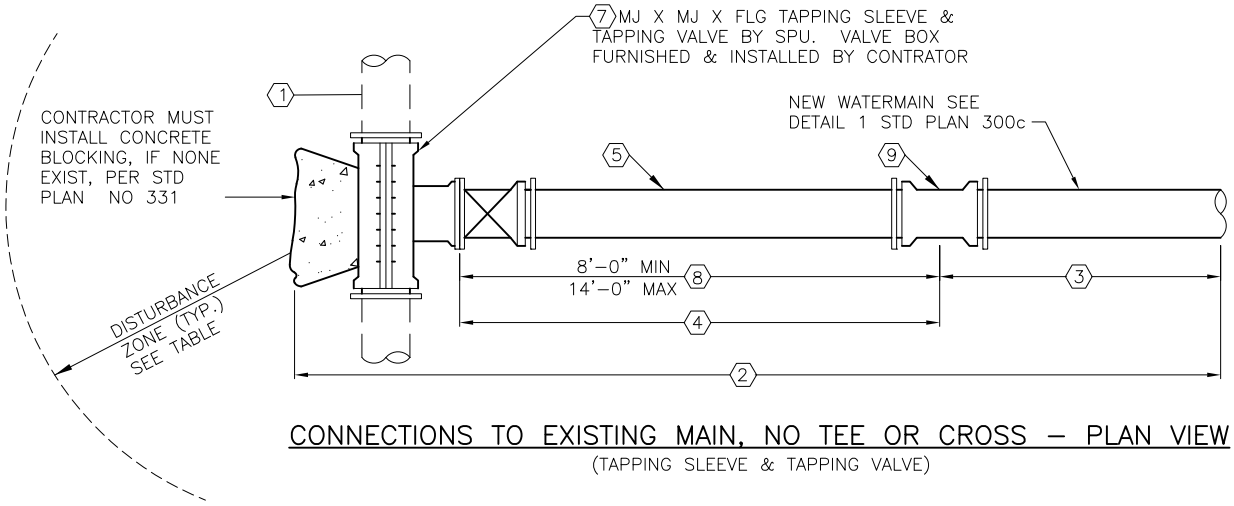


CONNECTIONS TO EXISTING TEE OR CROSS– PLAN VIEW

TABLE

SIZE OF WATERMAIN	DISTURBANCE ZONE
UP TO & INCLUDING 10"ø	10'–0"
OVER 10"ø	12'–0"

* SPU MAY INCREASE DISTURBANCE ZONE. SEE CONTRACT DOCUMENTS

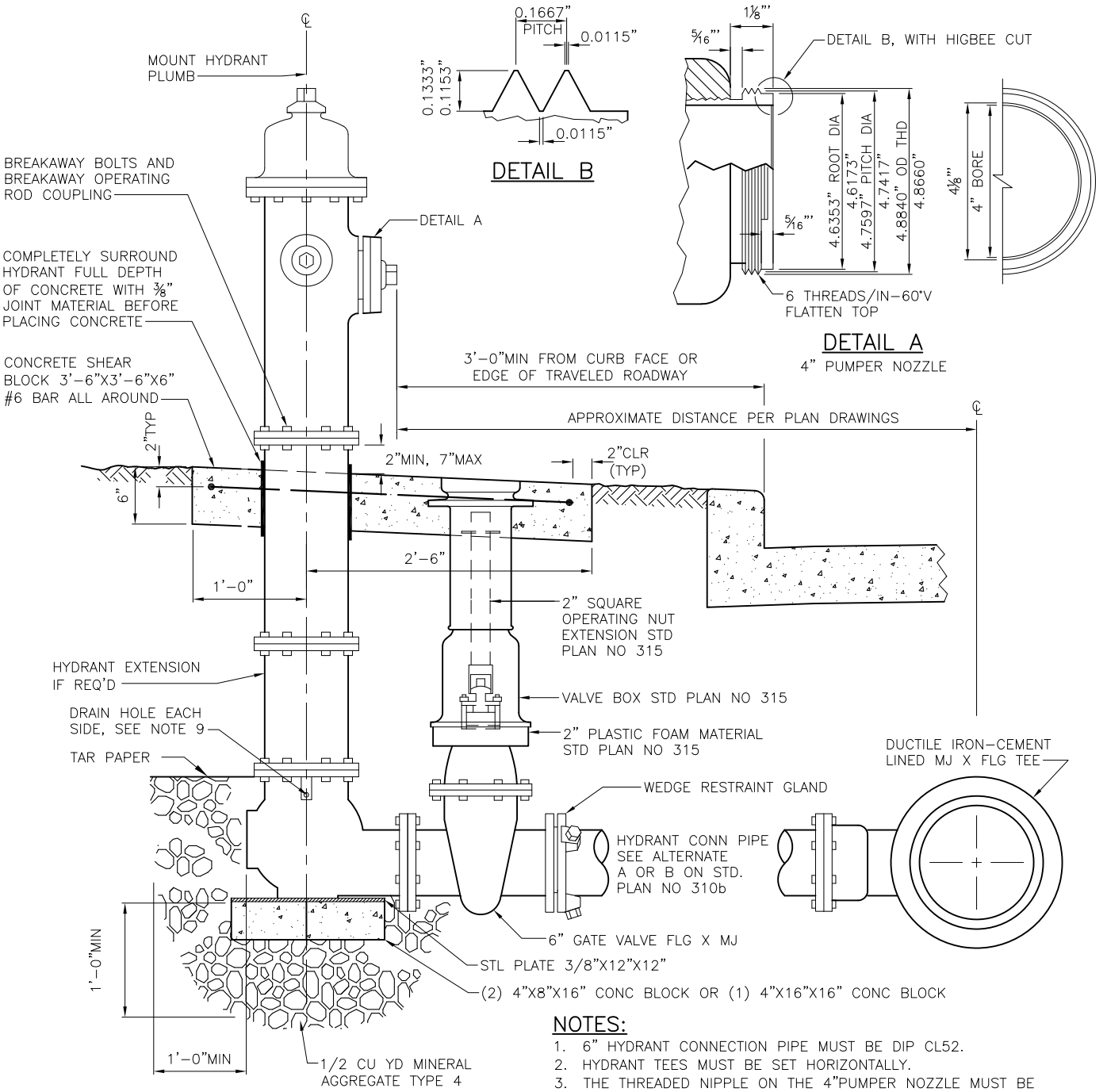


CONNECTIONS TO EXISTING MAIN, NO TEE OR CROSS – PLAN VIEW
(TAPPING SLEEVE & TAPPING VALVE)

REF STD SPEC SEC 7-11

City of Seattle	NOT TO SCALE	CONNECTIONS TO EXISTING WATERMAINS

REV DATE: JUL 2013



HYDRANT DETAIL

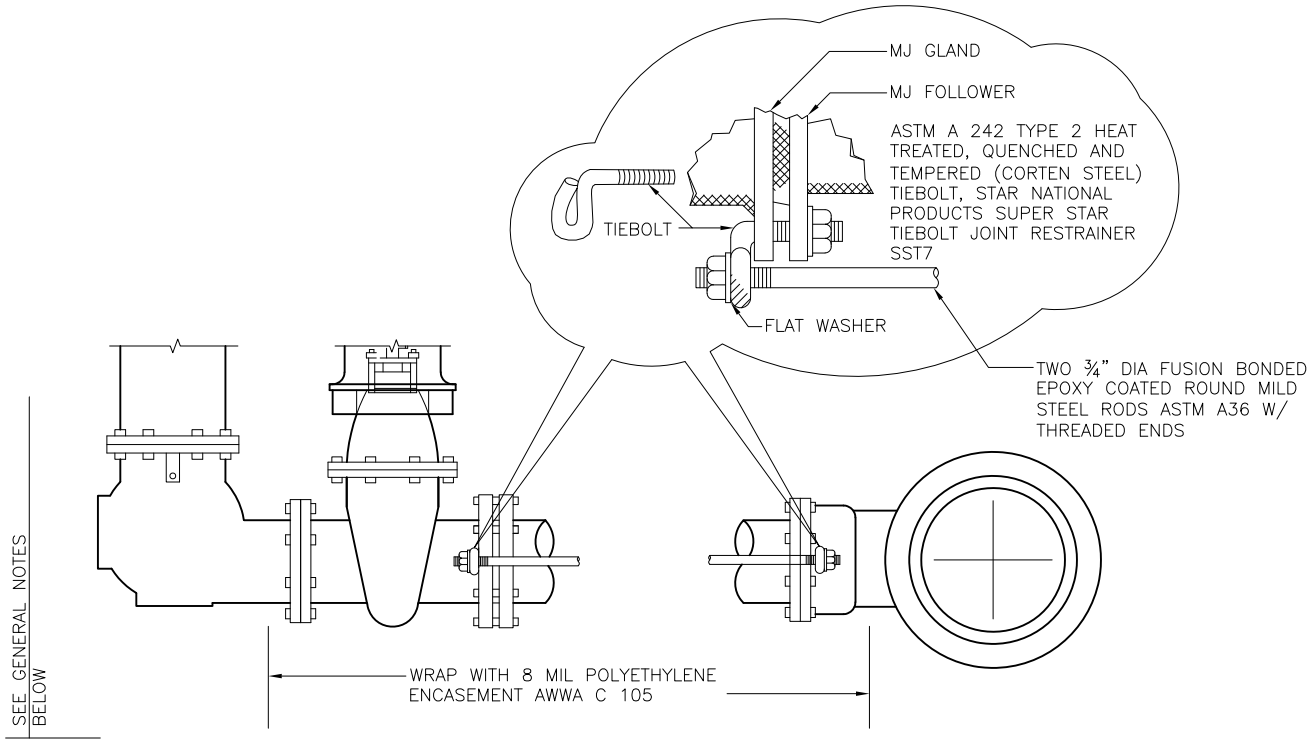
NOTES:

1. 6" HYDRANT CONNECTION PIPE MUST BE DIP CL52.
2. HYDRANT TEES MUST BE SET HORIZONTALLY.
3. THE THREADED NIPPLE ON THE 4"PUMPER NOZZLE MUST BE EQUIPPED WITH THE BLUNT START OR HIGBEE CUT.
4. THE 2½" NIPPLES MUST BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION BULLETIN NO 194 DATED 1974.
5. AFTER INSTALLATION, ALL SHACKLE BOLTS, NUTS, MECHANICAL JOINT GLANDS AND SHACKLE RODS MUST BE CLEANED AND COATED WITH TWO COATS OF ROYSTON R28 MASTIC.
6. AFTER BACKFILLING, THE OUTSIDE OF THE HYDRANT (ABOVE THE GROUND LINE) MUST BE THOROUGHLY CLEANED AND PAINTED WITH TWO COATS OF KELLY–MOORE LUXLITE 43–616 CAT YELLOW.
7. PUMPER PORT MUST FACE CURB.
8. RESTRAINT MUST BE BY WEDGE RESTRAINT SYSTEM SUCH AS MEGALUG OR UNIFLANGE. SEE STD SPEC 9–30.5(5).
9. CONTRACTOR MUST REMOVE TEMPORARY PIPE PLUGS FROM THE DRAIN VALVE OUTLET BEFORE BACKFILLING THE EXCAVATION.

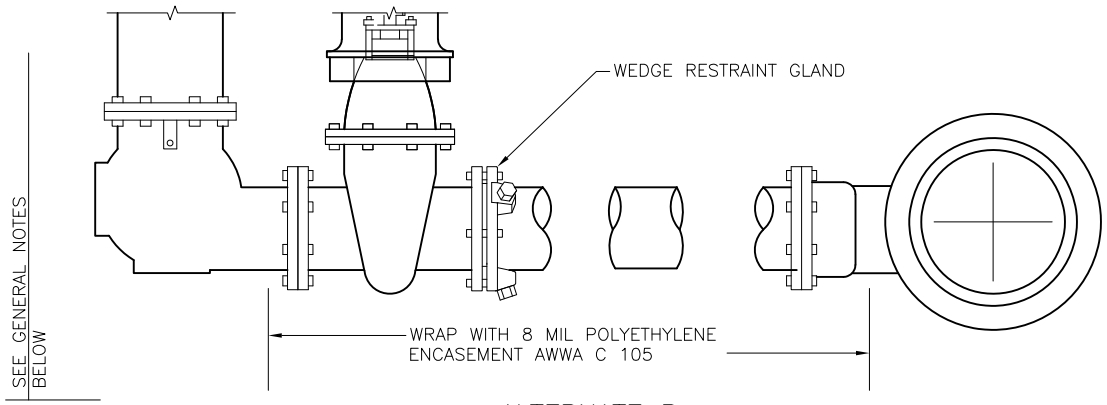
REF STD SPEC SEC 7-14

City of Seattle	NOT TO SCALE	TYPE 310 HYDRANT SETTING DETAIL

REV DATE: APR 2008



ALTERNATE A
TIEBOLT RESTRAINT



ALTERNATE B
MECHANICAL JOINT W/ WEDGE RESTRAINT GLANDS

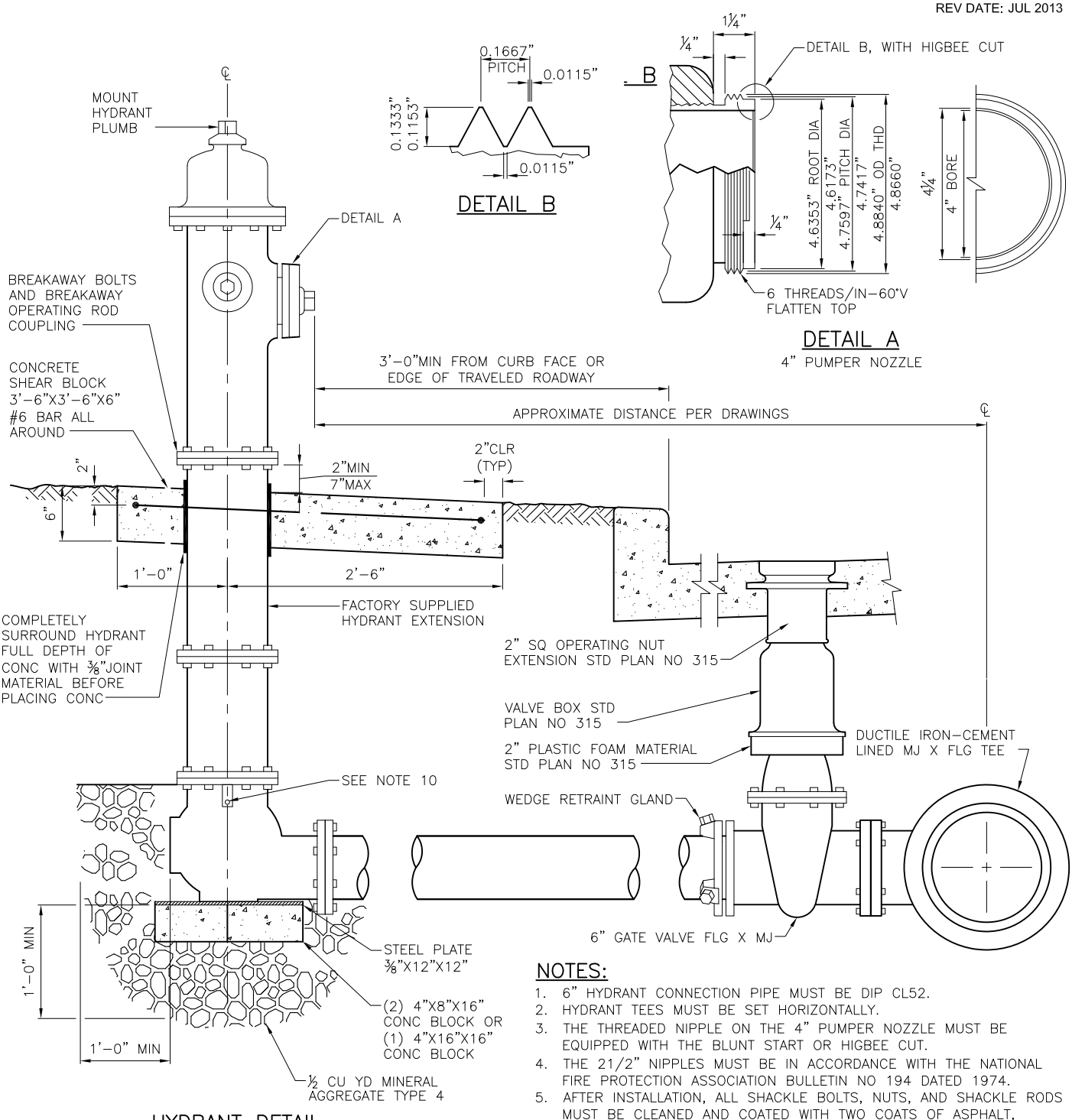
NOTES:

1. WHERE WATERMAINS ARE INSTALLED WITH POLYETHYLENE ENCASEMENT OR TAPE COATINGS, THE HYDRANT BARREL AND VALVE MUST BE SIMILARLY ENCASED, COATED AND/OR JOINTS BONDED. WHERE WATERMAIN IS THERMOPLASTIC COATED, THE HYDRANT BARREL MUST BE TAPE COATED
2. WHERE 6" GATE VALVE IS TO BE LOCATED WITHIN A PARKING–PERMITTED AREA, A SECOND 6" GATE VALVE MUST 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

REV DATE: JUL 2013



HYDRANT DETAIL

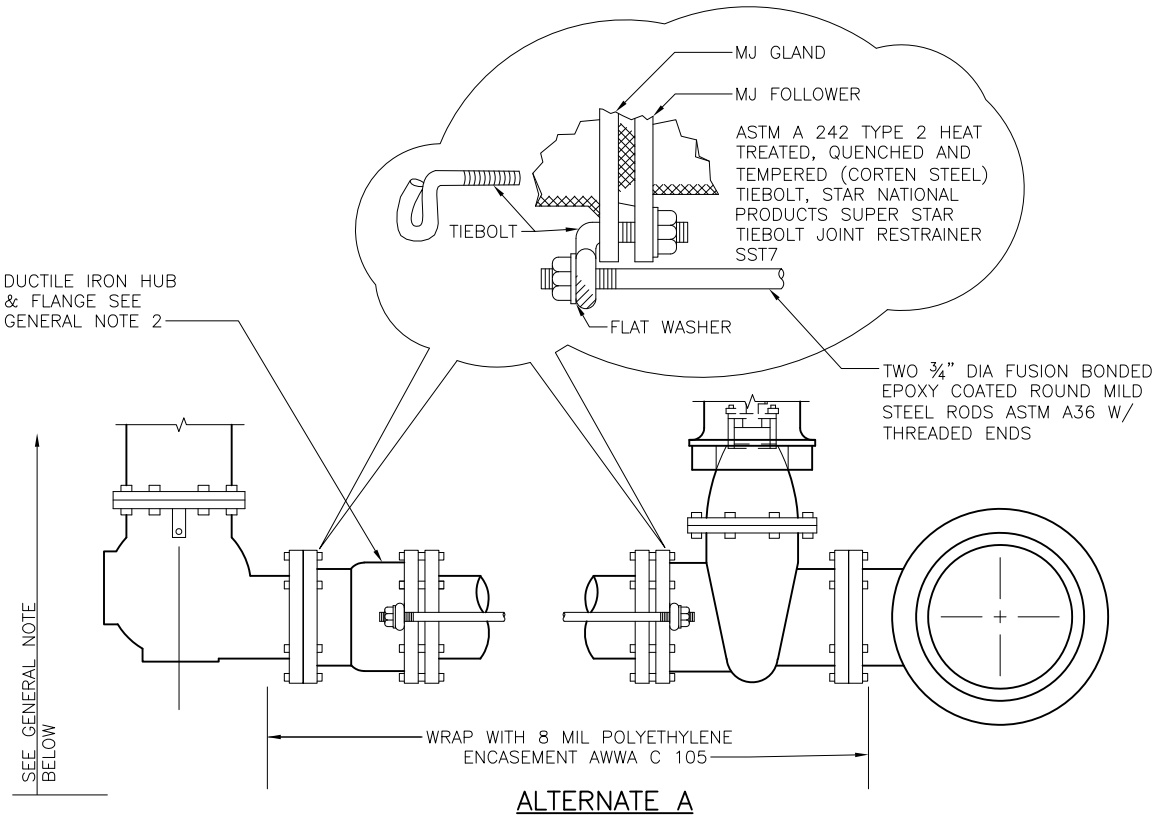
NOTES:

1. 6" HYDRANT CONNECTION PIPE MUST BE DIP CL52.
2. HYDRANT TEES MUST BE SET HORIZONTALLY.
3. THE THREADED NIPPLE ON THE 4" PUMPER NOZZLE MUST BE EQUIPPED WITH THE BLUNT START OR HIGBEE CUT.
4. THE 21/2" NIPPLES MUST BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION BULLETIN NO 194 DATED 1974.
5. AFTER INSTALLATION, ALL SHACKLE BOLTS, NUTS, AND SHACKLE RODS MUST BE CLEANED AND COATED WITH TWO COATS OF ASPHALT, ROYSTON ROSKOTE R28.
6. AFTER BACKFILLING, THE OUTSIDE OF THE HYDRANT (ABOVE THE GROUND LINE) MUST BE THOROUGHLY CLEANED AND PAINTED WITH TWO COATS OF KELLY-MOORE 6130-516 CAT YELLOW.
7. PUMPER PORT MUST FACE CURB.
8. PUMPER PORT TO BE FITTED WITH QUICK CONNECT ADAPTOR PER FIRE MARSHAL.
9. RESTRAINT MUST BE BY WEDGE RESTRAINT SYSTEM USCH AS MEGALUG OR UNIFLANGE. SEE STD SPEC SEC 9-30.5(5).
10. CONTRACTOR MUST REMOVE TEMPORARY PIPE PLUGS FROM THE DRAIN VALVE OUTLET BEFORE BACKFILLING THE EXCAVATION.

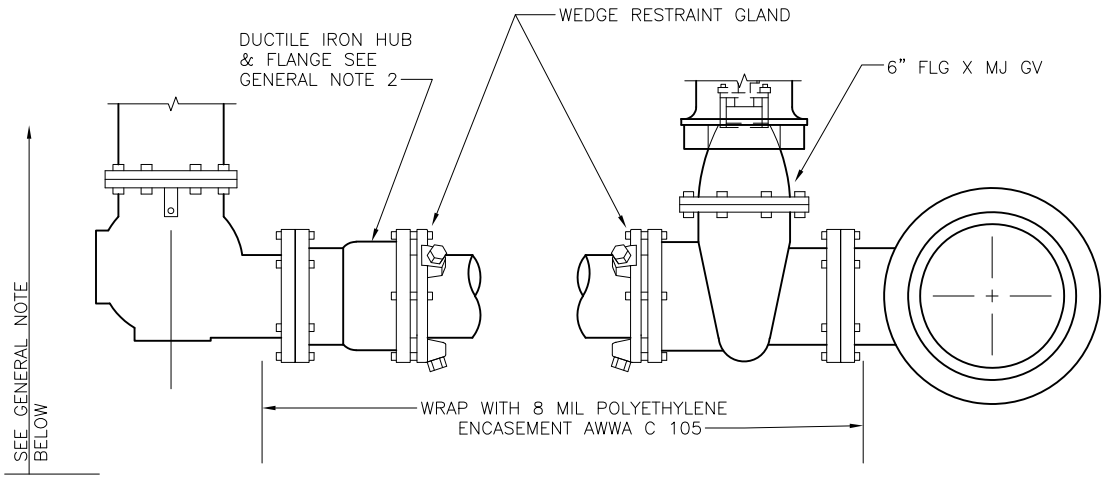
REF STD SPEC SEC 7-14

City of Seattle | NOT TO SCALE | TYPE 311 HYDRANT SETTING DETAIL

REV DATE: APR 2008



ALTERNATE A
TIEBOLT RESTRAINT



ALTERNATE B
MECHANICAL JOINT W/ WEDGE RESTRAINT GLANDS

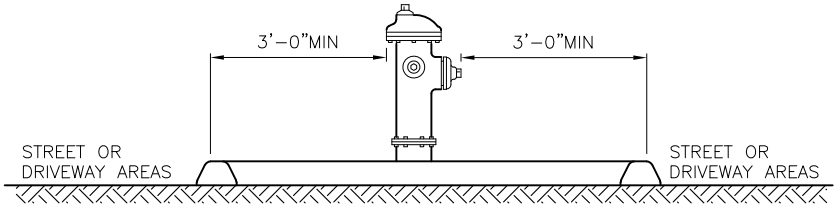
GENERAL NOTES:

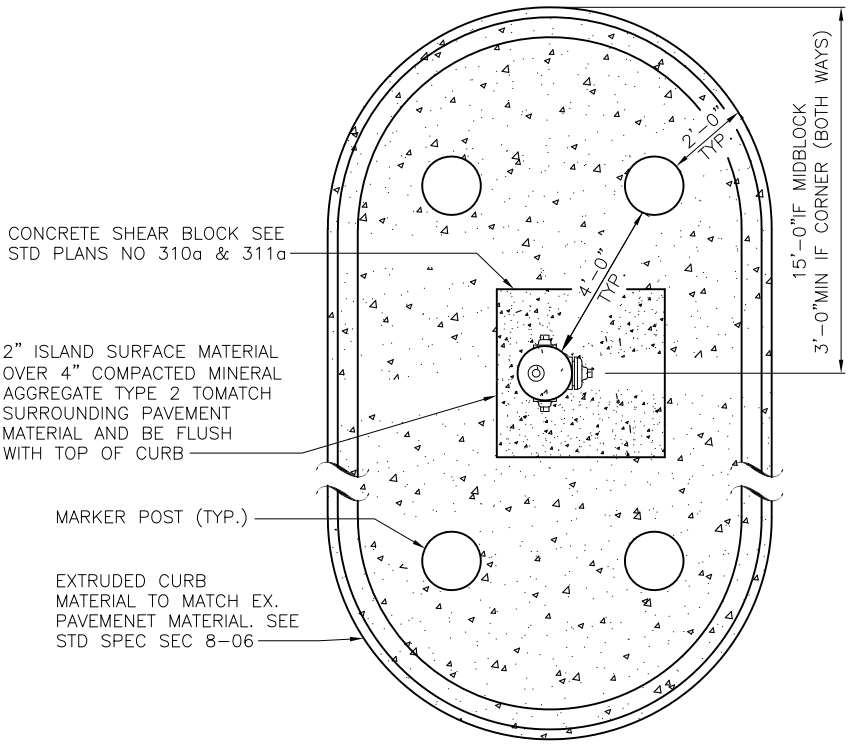
1. WHERE WATERMAINS ARE INSTALLED WITH POLYETHYLENE ENCASEMENT OR TAPE COATINGS, THE HYDRANT BARREL AND VALVE MUST BE SIMILARLY ENCASED, COATED AND/OR JOINTS BONDED. WHERE WATERMAIN IS THERMOPLASTIC COATED, THE HYDRANT BARREL MUST BE TAPE COATED
2. WHERE 6" GATE VALVE IS TO BE LOCATED WITHIN A PARKING–PERMITTED AREA, A SECOND 6"GATE VALVE MUST BE INSTALLED AT THE HYDRANT ASSEMBLY PER STD PLAN NO 310a

REF STD SPEC SEC 7-14

City of Seattle	NOT TO SCALE	TYPE 311 HYDRANT SETTING DETAIL

REV DATE: APR 2008

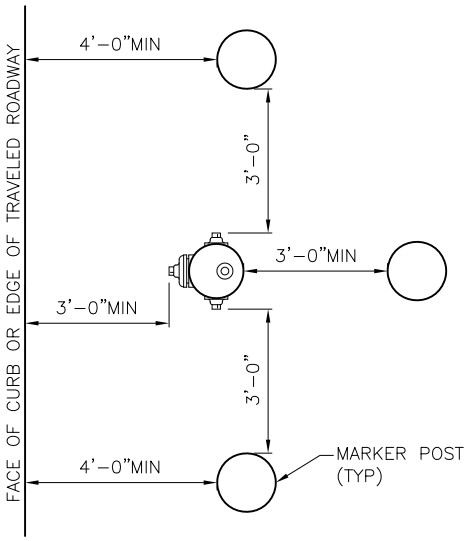




TRAFFIC ISLAND MARKER POST LAYOUT FOR
FIRE HYDRANTS IN PARKING AREAS

NOTES:

1. LAYOUT OF MARKER POST MUST BE VERIFIED FIRST WITH SPU AND SDOT
2. MARKER POST WITH HIGH INTENSITY REFLECTORIZED BANDS PROVIDED BY SPU



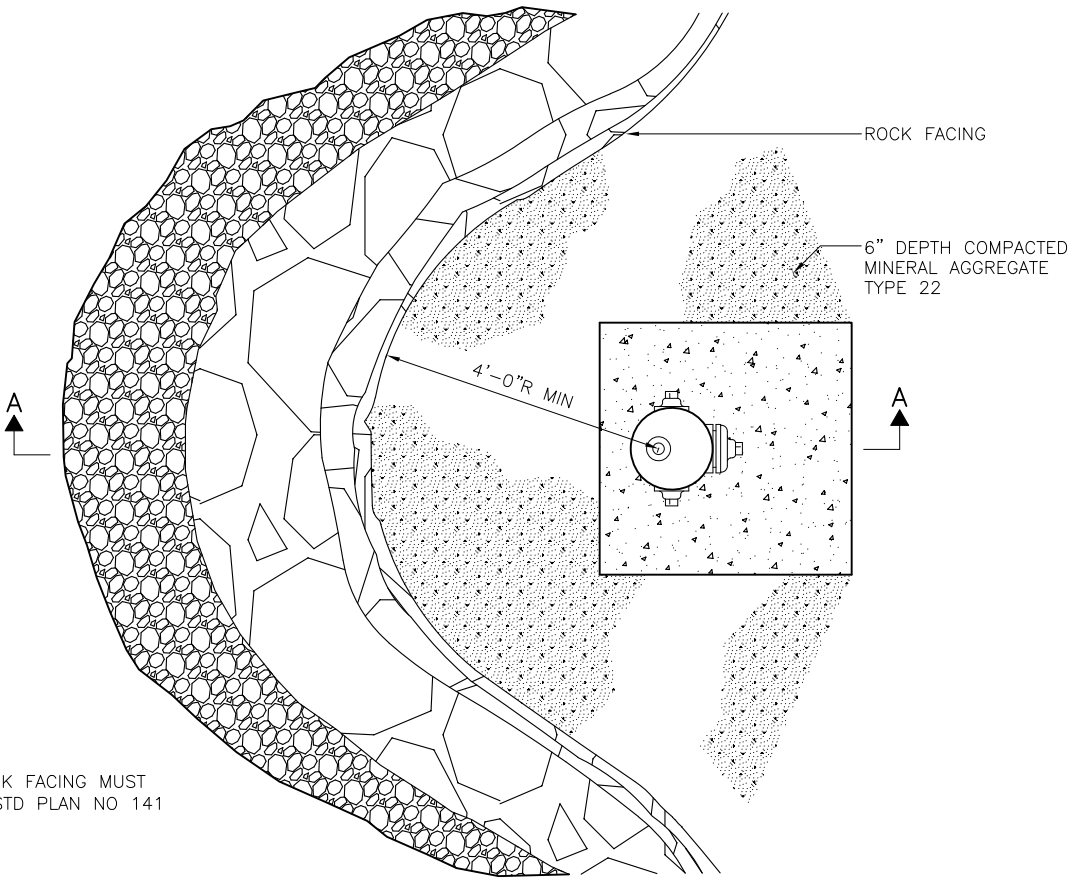
MARKER POST LAYOUT FOR
FIRE HYDRANTS IN PARKING AREAS

REF STD SPEC SEC 7-14

City of Seattle	NOT TO SCALE	FIRE HYDRANT MARKER LAYOUT

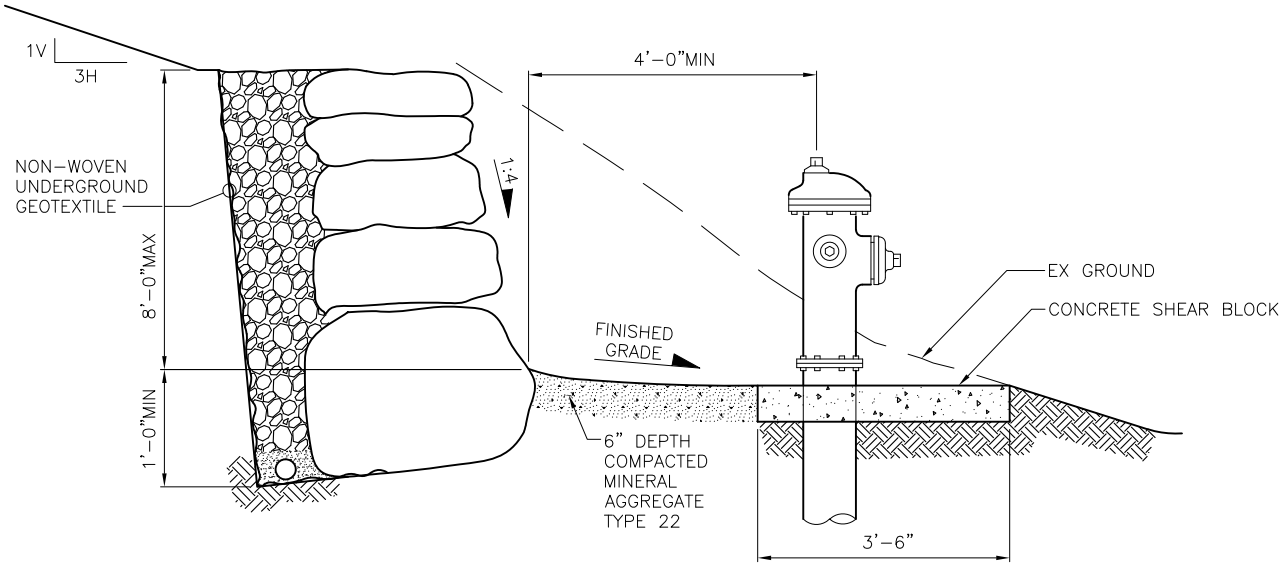
REV DATE: AUG 2013

PLAN



NOTE:

1. ROCK FOR ROCK FACING MUST COMPLY WITH STD PLAN NO 141

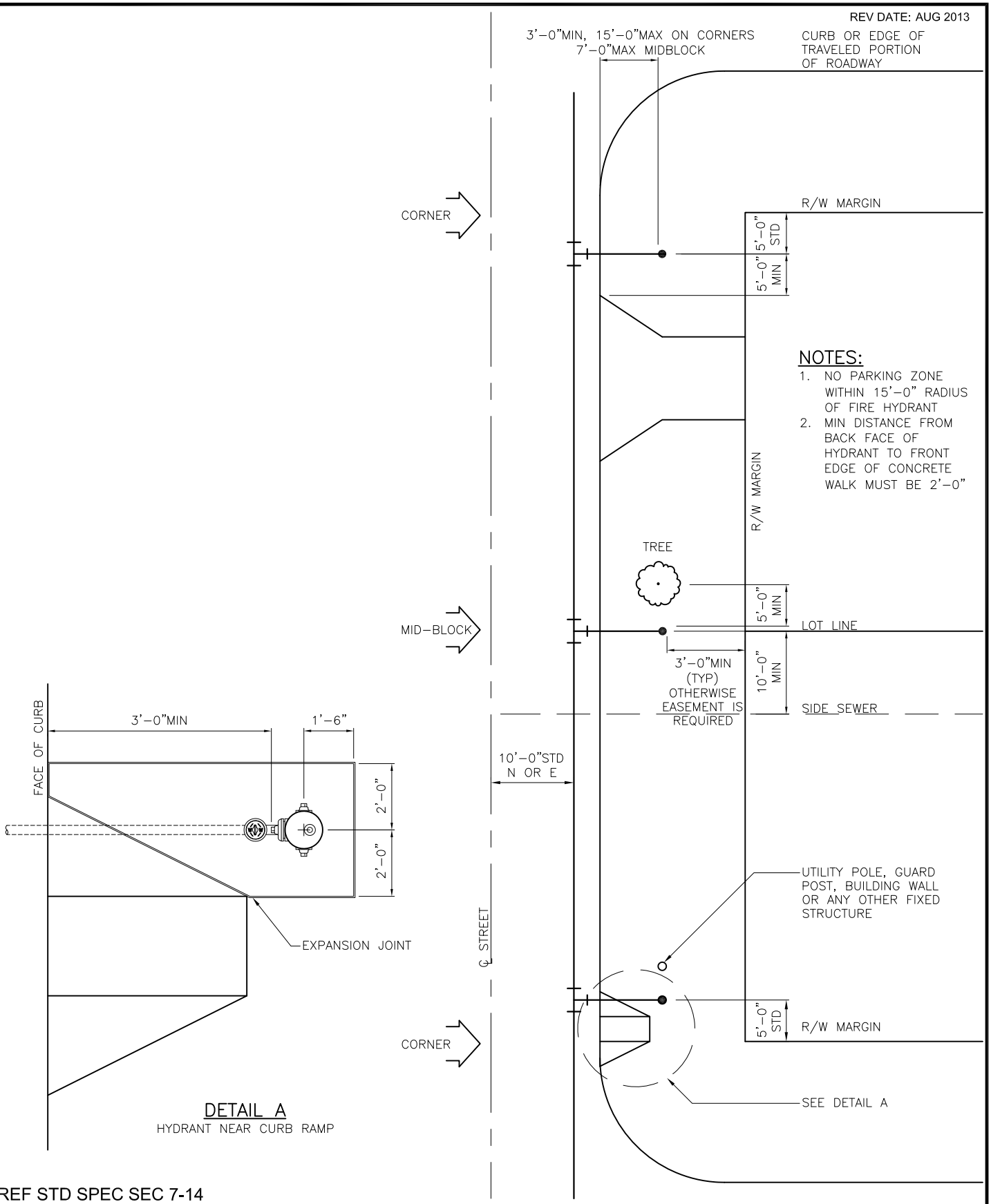


SECTION A–A

REF STD SPEC SEC 2-13

City of Seattle	NOT TO SCALE	WALL REQUIREMENTS FOR HYDRANTS

REV DATE: AUG 2013



REF STD SPEC SEC 7-14

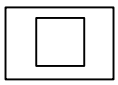
City of Seattle | NOT TO SCALE | FIRE HYDRANT LOCATIONS & CLEARANCES

REV DATE: AUG 2013

NOTES:

1. UNION POINT 2' OUTSIDE VAULT OR 2' FROM PROPERTY LINE.
2. 5' CLEARANCE FROM NEW TREES OR CLEAR OF DRIP LINE FOR EXISTING TREES
3. 5' CLEAR FROM POLES.
4. 2' CLEAR FROM EDGE OF DRIVEWAY OR ADA RAMP.
5. WATER SERVICE NOT TO BE INSTALLED IN DRIVEWAY, BEHIND ADA RAMP, OR STREET CORNER.
6. SIDE SEWER HORIZONTAL CLEARANCE 10' FOR CAST IRON WATER PIPE OR 5' FOR DUCTILE IRON WATER PIPE.
7. SIDE SEWER VERTICAL CLEARANCE 1.5' MIN.
8. VAULT HORIZONTAL CLEARANCE 12" MIN FROM OTHER UTILITIES. UNLESS OTHERWISE NOTED IN STD SPECS.
9. VERTICAL CLEARANCE 12" MIN FOR ALL OTHER UTILITY CROSSINGS UNLESS OTHERWISE NOTED IN STD SPECS.
10. ALLOWABLE LOCATION OF WATER SERVICE VAULT. 2' CLEAR OF CURB AND 2' CLEAR OF PROPERTY LINE.

TYPES OF WATER SERVICES

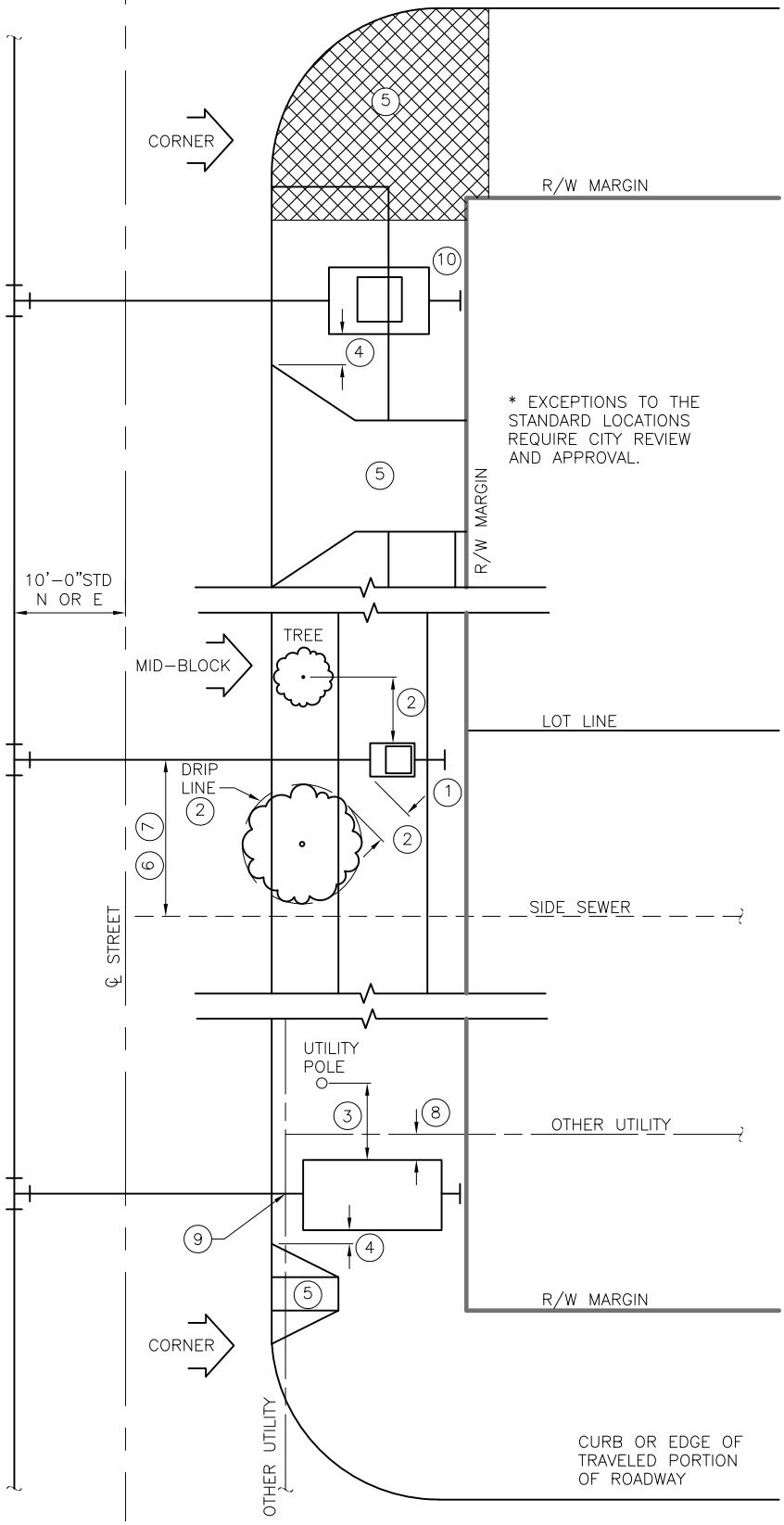


6" & LARGER DOMESTIC SERVICE (DS) 6'X9' VAULT NCVP#

3" & 4" DOMESTIC SERVICE (DS) 5'X7' VAULT NCVP#

4" & LARGER FIRE SERVICES (DC DETECTOR CHECK) 4'X4' AREA (TYP DIRECT BURY) NCVP#

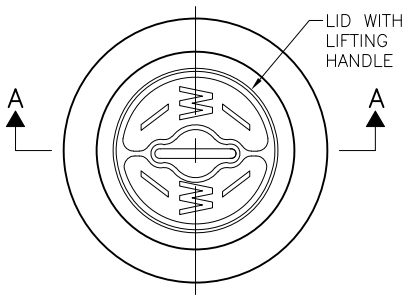
2" & SMALLER WATER SERVICE INSTALLED IN 1.5'X2' METER BOX MB#



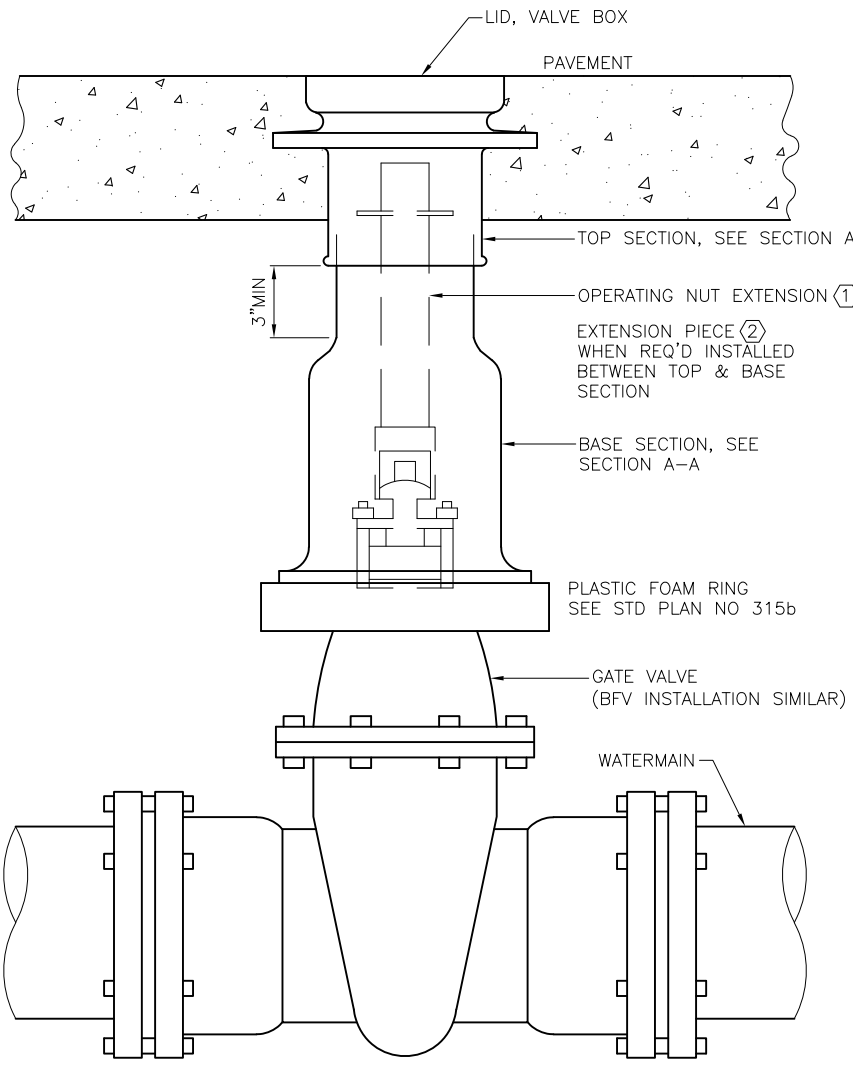
REF STD SPEC SEC 1-07.17(2)

City of Seattle | NOT TO SCALE | WATER SERVICE VAULT LOCATION CLEARANCES

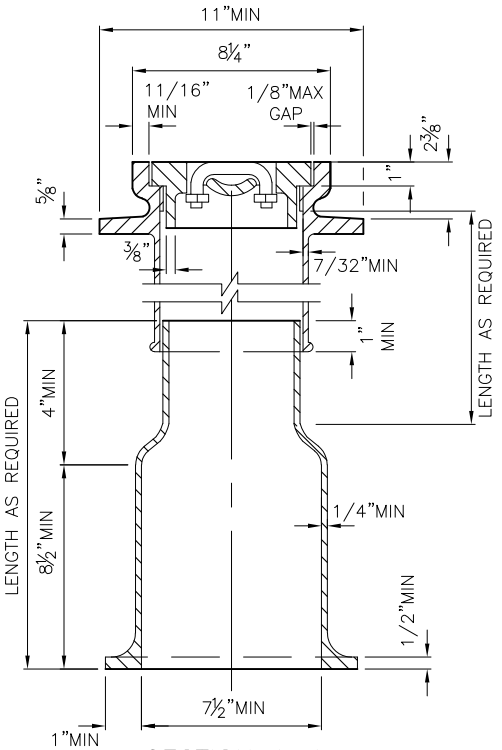
REV DATE: 2003



PLAN



VALVE BOX ASSEMBLY
TYPICAL SETTING DETAIL



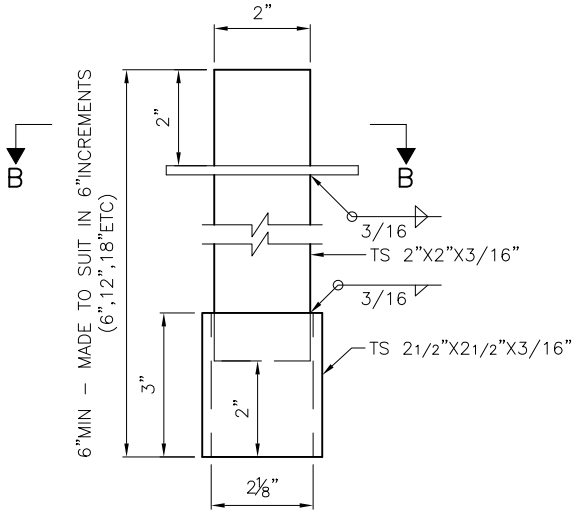
SECTION A–A

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

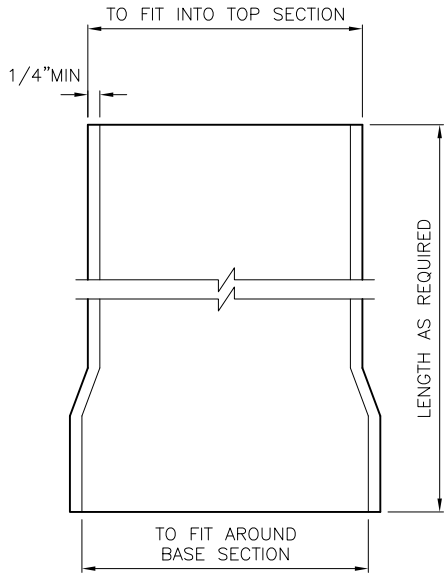
REF STD SPEC SEC 7-12

City of Seattle	NOT TO SCALE	CAST IRON VALVE BOX & OPERATING NUT EXTENSION

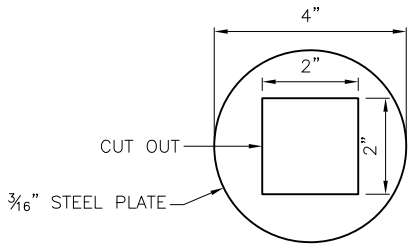
REV DATE: 2003



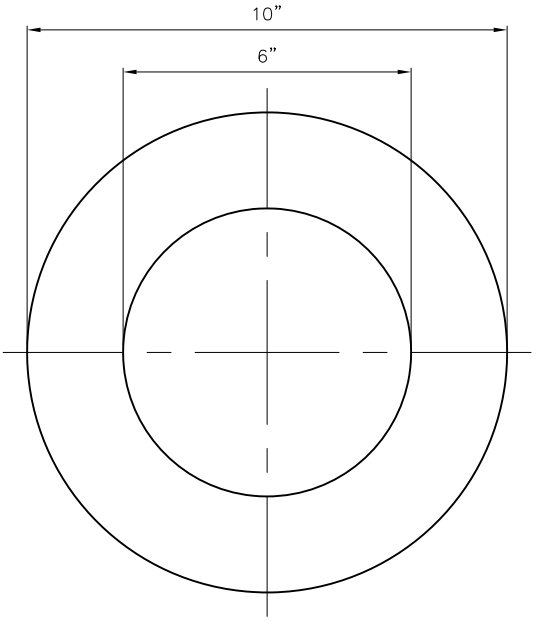
OPERATING NUT EXTENSION DETAIL 1



EXTENSION PIECE 2
WHEN REQUIRED



SECTION B–B



PLASTIC FOAM RING DETAIL

NOTES:

1. FRAME AND COVER MUST BE TESTED FOR ACCURACY OF FIT AND MUST BE MARKED IN SETS FOR DELIVERY
2. CASTINGS AND EXTENSIONS MUST BE HOT–DIPPED IN ASPHALTIC VARNISH ROYSTON ROSKOTE #612XM OR 2 COATS OF MASTIC ROYSTON INSIDE AND OUT.
3. VALVE BOXES MUST 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 MUST BE DUCTILE OR GREY CAST IRON

LEGEND:

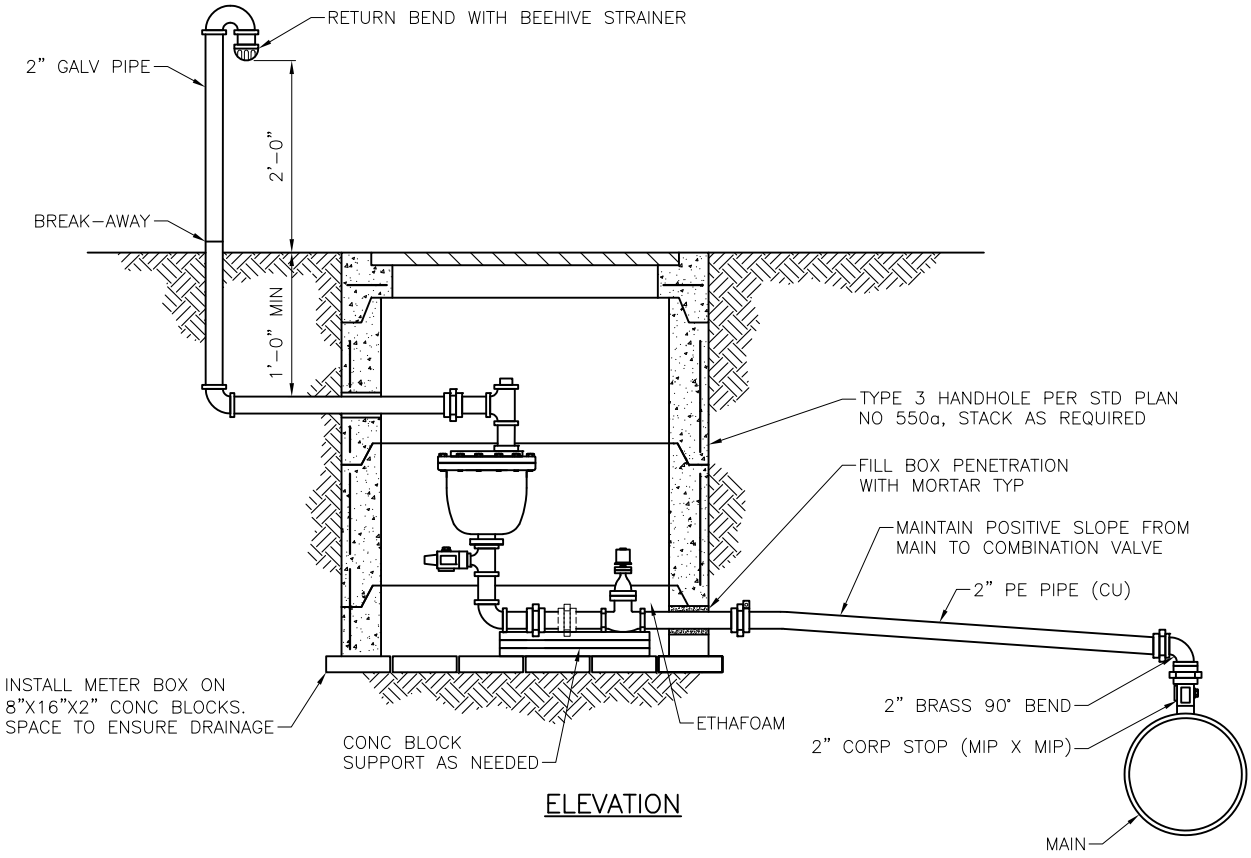
(1.) AN OPERATING NUT EXTENSION MUST BE INSTALLED WHEN THE GROUND SURFACE IS MORE THAN 2'–6" ABOVE THE VALVE OPERATING NUT. THE OPERATING NUT EXTENSION MUST EXTEND INTO THE TOP SECTION OF THE STANDARD VALVE BOX AND MUST CLEAR THE BOTTOM OF THE LID BY 6" MIN

(2.) EXTENSION PIECES (WHEN USED) MUST CONFORM TO MINIMUM THICKNESS REQUIREMENTS AND MUST FIT INTO THE TOP SECTION AND OVER THE BOTTOM SECTION

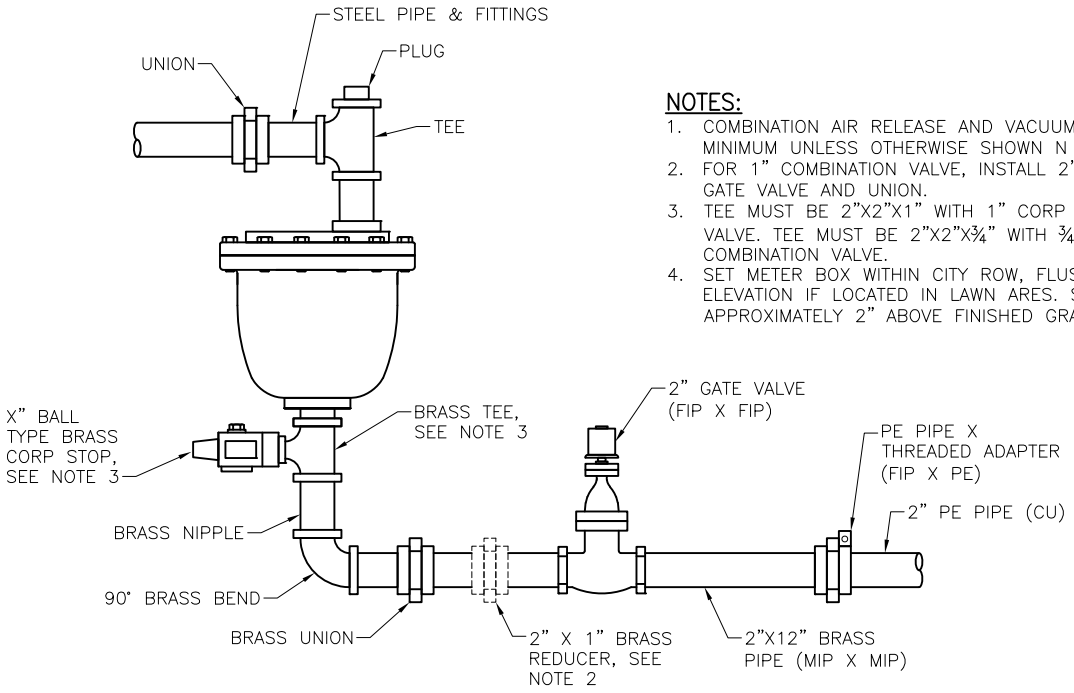
REF STD SPEC SEC 7-12 & 9-30

City of Seattle	NOT TO SCALE	CAST IRON VALVE BOX & OPERATING NUT EXTENSIONS

REV DATE: JAN 2017



ELEVATION



VALVE ASSEMBLY DETAIL

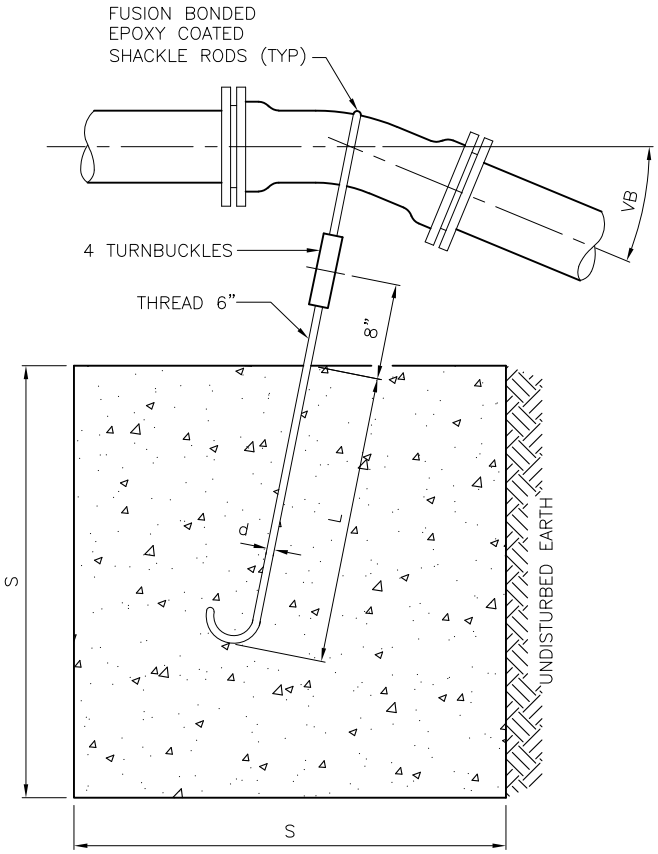
NOTES:

1. COMBINATION AIR RELEASE AND VACUUM VALVE SHALL BE A 2" SIZE MINIMUM UNLESS OTHERWISE SHOWN N THE PLANS.
2. FOR 1" COMBINATION VALVE, INSTALL 2" X 1" REDUCER BETWEEN GATE VALVE AND UNION.
3. TEE MUST BE 2"X2"X1" WITH 1" CORP STOP FOR 2" COMBINATION VALVE. TEE MUST BE 2"X2"X¾" WITH ¾" CORP STOP FOR 1" COMBINATION VALVE.
4. SET METER BOX WITHIN CITY ROW, FLUSH WITH SIDEWALK OR CURB ELEVATION IF LOCATED IN LAWN ARES. SET METER BOX APPROXIMATELY 2" ABOVE FINISHED GRADE IF IN LANDSCAPED AREA.

REF STD SPEC SEC 7-12

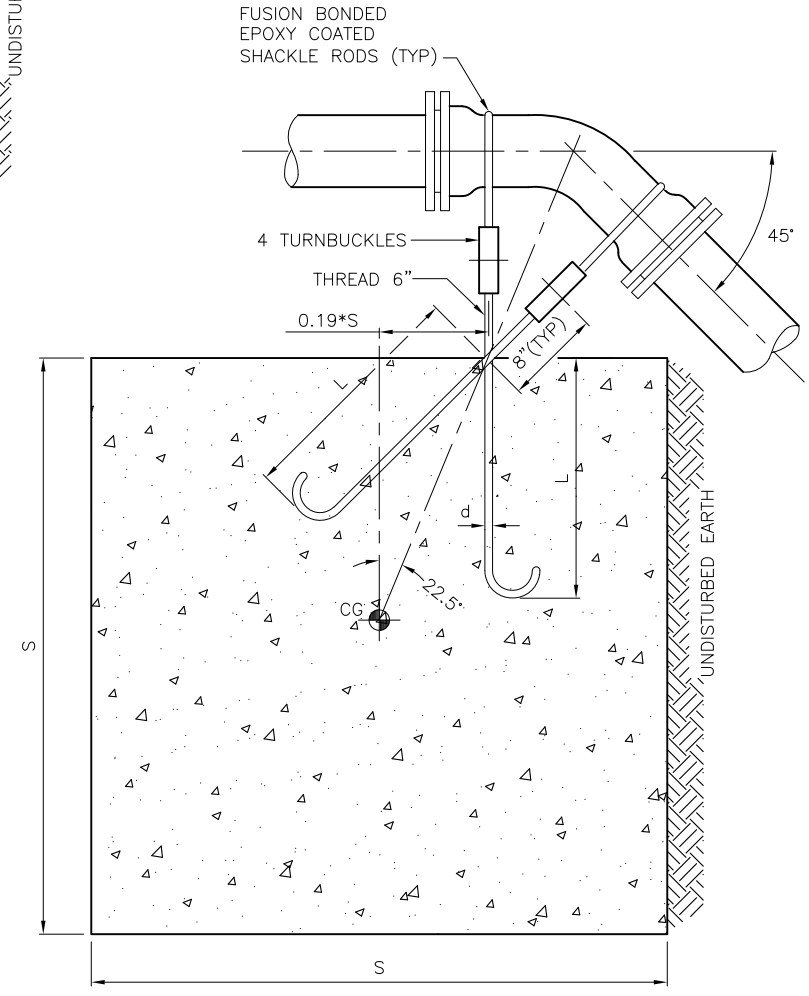
City of Seattle	NOT TO SCALE	AIR RELEASE AIR VACUUM VALVE

REV DATE: 2003



TYPE A

TYPE A BLOCKING FOR 11¼° & 22½° VERTICAL BENDS						
		VB		S	d	L
PIPE SIZE NOM DIA INCHES	TEST PRESSURE PSI	VERTICAL BEND DEGREES	NO OF CU FT OF CONC BLOCKING	SIDE OF CUBE FEET	DIA OF SHACKLE RODS (2) INCHES	DEPTH OF RODS IN CONCRETE INCHES
4"	300	11¼	8	2	¾	18
		22½	12	2¼		24
6"	300	11¼	12	2¼	¾	24
		22½	27	3		
8"	300	11¼	16	2½	¾	24
		22½	43	3½		
12"	300	11¼	64	4	1	24
		22½	125	5	1	36



TYPE B

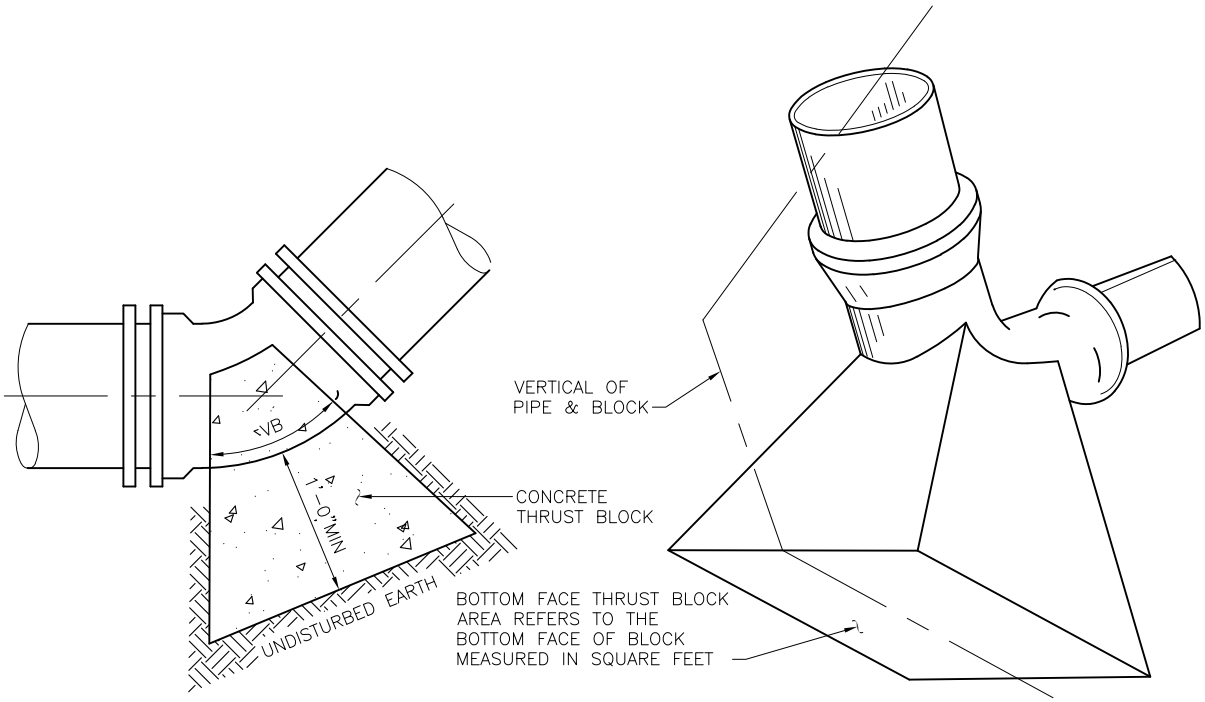
TYPE B BLOCKING FOR 45° VERTICAL BENDS						
		VB		S	d	L
PIPE SIZE NOM DIA INCHES	TEST PRESSURE PSI	VERTICAL BEND DEGREES	NO OF CU FT OF CONC BLOCKING	SIDE OF CUBE FEET	DIA OF SHACKLE RODS (2) INCHES	DEPTH OF RODS IN CONCRETE INCHES
4"	300	45	27	3	¾	20
6"			64	4		
8"			125	5		
12"			216	6	1	30

FOR NOTES SEE STD PLAN NO 330b

REF STD SPEC SEC 7-11

City of Seattle | NOT TO SCALE | WATERMAIN THRUST BLOCKING VERTICAL FITTINGS

REV DATE: 2003



TYPE C

	TYPE "C" BLOCKING FOR 11¼°, 22½°, 45° AND 90° VERTICAL BENDS THRUST BLOCK AREA IN SQUARE FEET									
	SOIL	FIRM SILT OR FIRM SILTY SAND			COMPACT SAND			COMPACT SAND & GRAVEL		
	FITTING	90° BEND	TEE, 45° BEND & DEAD END	11¼° & 22½° BEND	90° BEND	TEE, 45° BEND & DEAD END	11¼° & 22½° BEND	90° BEND	TEE, 45° BEND & DEAD END	11¼° & 22½° BEND
PIPE SIZE	4"	5.8	4.2	1.7	2.9	2.1	1.0	2.2	1.6	1.0
	6'	13.3	9.4	3.8	6.7	4.7	1.9	5.0	3.5	1.4
	8"	23.3	16.7	6.7	11.7	8.4	3.4	8.8	6.3	2.5
	12"	53.0	37.5	15.0	26.5	18.8	7.5	20.0	14.0	5.6
	AREAS CALCULATED ON 300 PSI TEST PRESSURE AND 3'-0" MIN COVER OVER WATERMAIN									

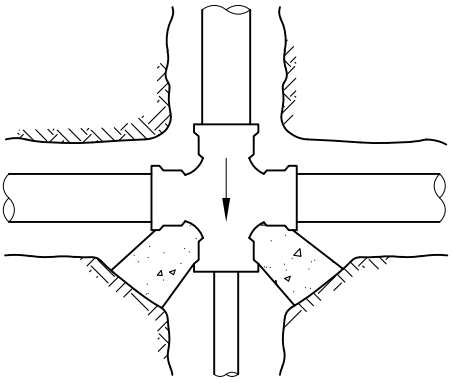
NOTES:

1. LOCATION AND SIZE OF BLOCKING FOR PIPE LARGER THAN 12" DIAMETER AND FOR SOIL TYPES DIFFERENT THAN SHOWN MUST BE DETERMINED BY THE ENGINEER.
2. ALL BLOCKING FOR VERTICAL FITTINGS (POURED IN PLACE) MUST BEAR AGAINST UNDISTURBED NATIVE GROUND.
3. ALL POURED THRUST BLOCKS MUST BE BACKFILLED AFTER MIN. 1 DAY. PRESSURE TESTING MUST OCCUR AFTER CONCRETE HAS REACHED f'c.
4. ALL BLOCKING MUST BE CONCRETE CL 3000.
5. AFTER INSTALLATION, SHACKLE RODS & TURNBUCKLES MUST BE CLEANED AND COATED WITH 2 COATS OF ASPHALTIC VARNISH, ROYSTON ROYKOTE #612M OR APPROVED EQUAL.
6. SHACKLE RODS MUST BE FUSION BONDED EPOXY COATED ROUND MILD STEEL, ASTM A 36, WITH THREADS ON ENDS ONLY.
7. BLOCKING AGAINST FITTINGS MUST BEAR AGAINST THE GREATEST FITTING SURFACE AREA POSSIBLE, BUT MUST NOT COVER OR ENCLOSE BELL ENDS, JOINT BOLTS OR GLANDS. REASONABLE ACCESS TO BOLTS AND GLANDS MUST BE PROVIDED.

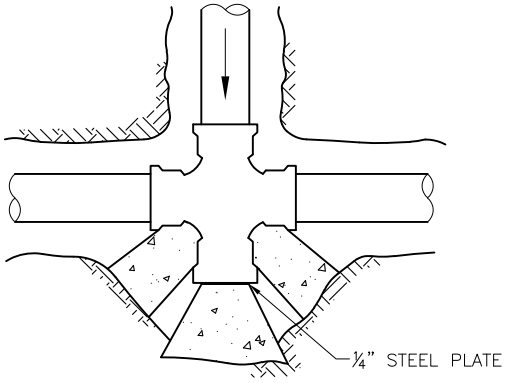
REF STD SPEC SEC 7-11

City of Seattle	NOT TO SCALE	WATERMAIN THRUST BLOCKING VERTICAL FITTINGS

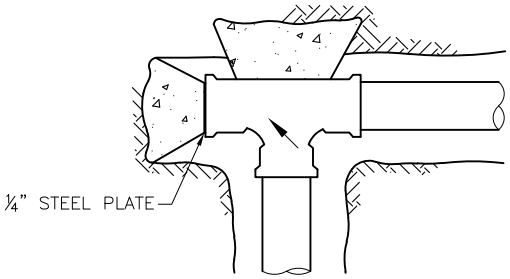
REV DATE: SEPT 2013



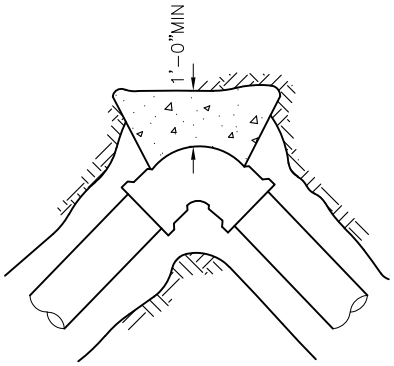
UNBALANCED CROSS



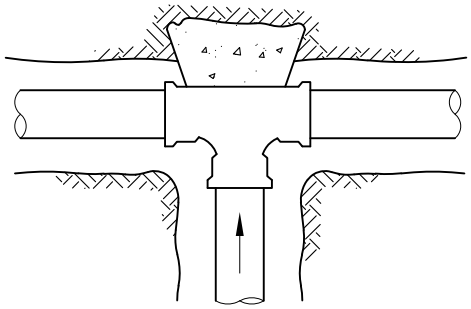
CROSS WITH PLUG



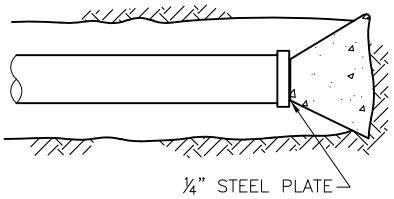
PLUGGED TEE



HORIZONTAL BEND



TEE



PIPE & CAP

THRUST BLOCK AREA IN SQUARE FEET (SEE STD PLAN NO 331B)

SOIL	FIRM SILT OR FIRM SILTY SAND				COMPACT SAND				COMPACT SAND & GRAVEL			
FITTING / PIPE SIZE	90° BEND	TEE	45° BEND CAP OR PLUG	11¼° & 22½° BEND	90° BEND	TEE	45° BEND CAP OR PLUG	11¼° & 22½° BEND	90° BEND	TEE	45° BEND CAP OR PLUG	11¼° & 22½° BEND
4"	7.0	4.2	4.2	1.7	2.9	2.1	2.1	1.0	2.2	1.6	1.6	1.0
6"	13.3	9.4	9.4	3.8	6.7	4.7	4.7	1.9	5.0	3.5	3.5	1.4
8"	23.3	16.7	16.7	6.7	11.7	8.4	8.4	3.4	8.8	6.3	6.3	2.5
12"	53.0	37.5	37.5	15.0	26.5	18.8	18.8	7.5	20.0	14.0	14.0	5.6

AREAS CALCULATED ON 300 PSI TEST PRESSURE AND 3'-0" MIN COVER OVER WATERMAIN

ECOLOGY BLOCKS, PER STD PLAN NO 460, MAY BE USED, AT THE DISCRETION OF THE ENGINEER ONLY, IN LIEU OF POURED-IN-PLACE BLOCKING FOR FITTINGS IN HEAVY OUTLINED PORTION OF TABLE.

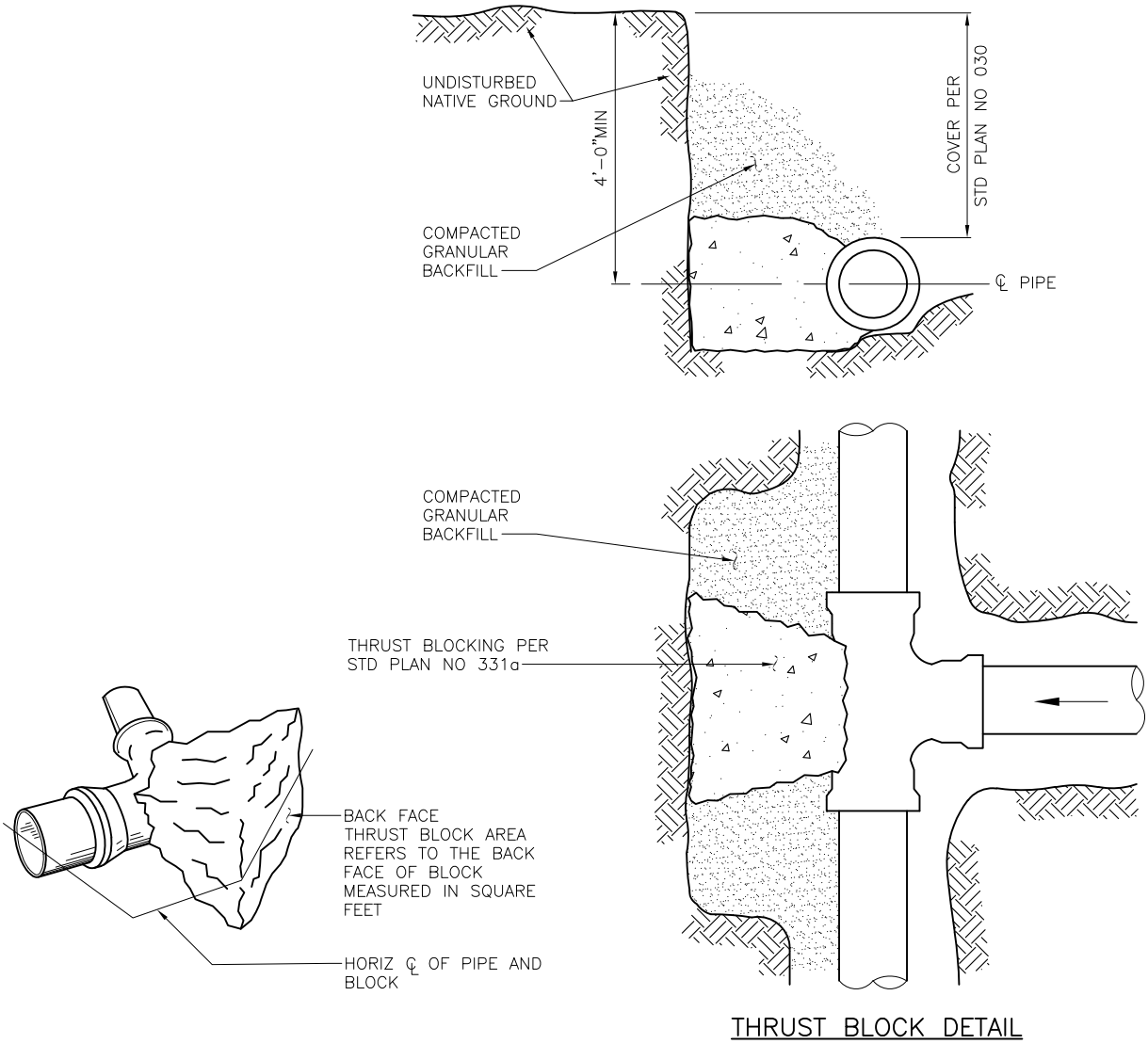
REF STD SPEC SEC 7-11

City of Seattle

NOT TO SCALE

WATERMAIN THRUST BLOCKING HORIZONTAL FITTINGS

REV DATE: 2003



THRUST BLOCK DETAIL

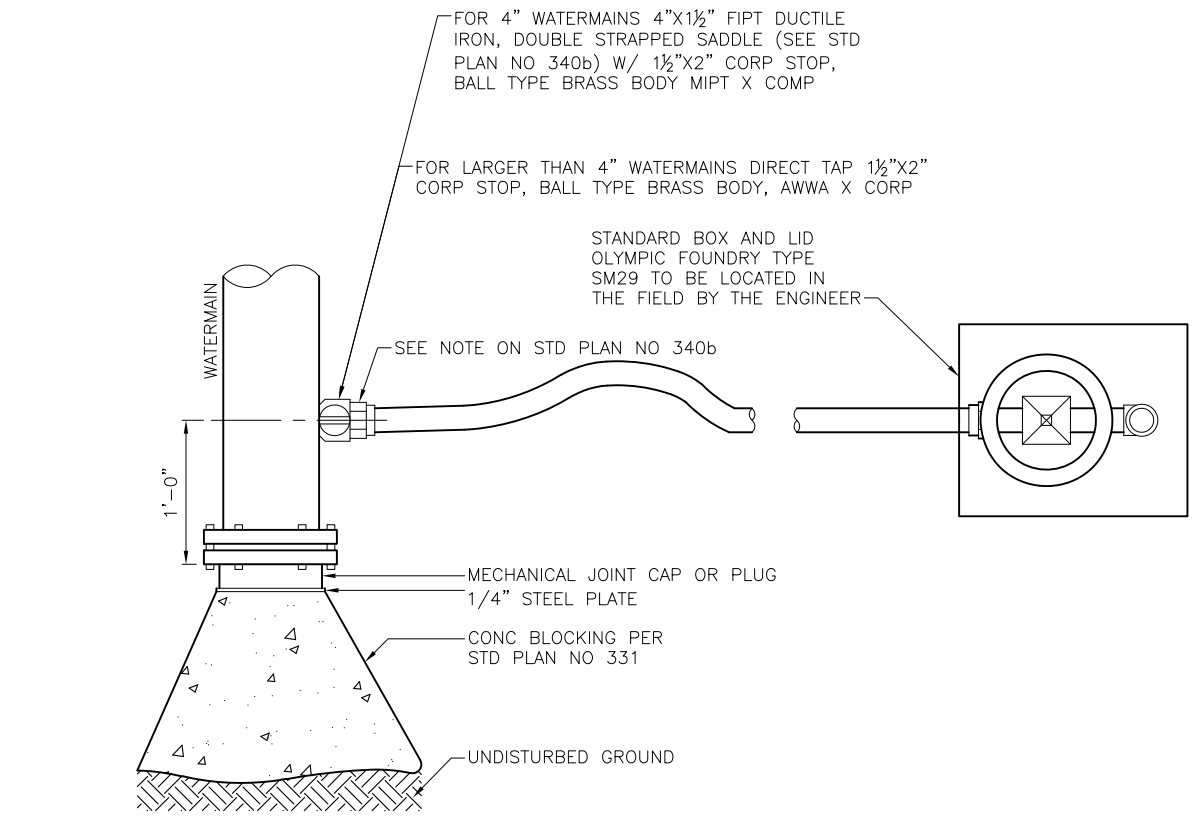
NOTES:

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

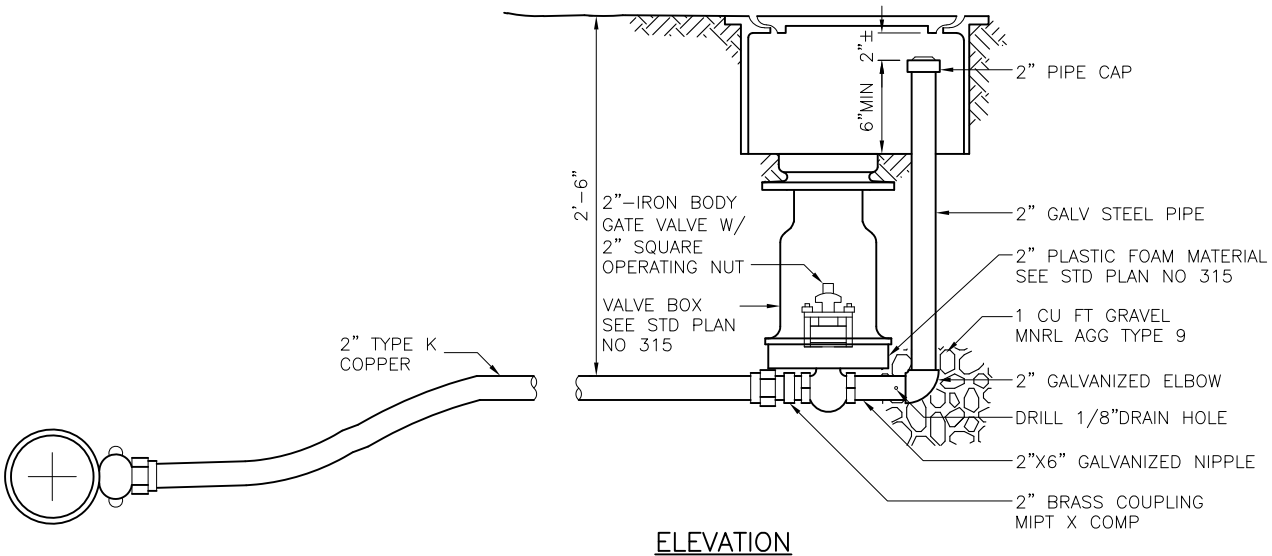
REF STD SPEC SEC 7-11

City of Seattle	NOT TO SCALE	WATERMAIN THRUST BLOCKING HORIZONTAL FITTINGS

REV DATE: 2003



PLAN

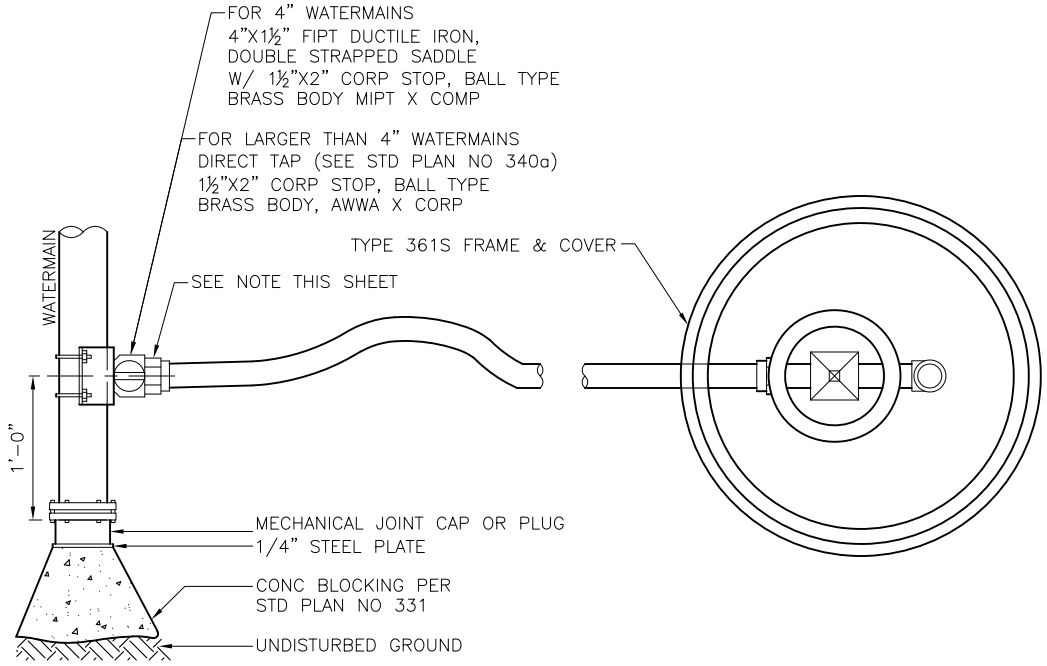


ELEVATION

REF STD SPEC SEC 7-11

City of Seattle	NOT TO SCALE	2" BLOW OFF TYPE A NON TRAFFIC INSTALLATION

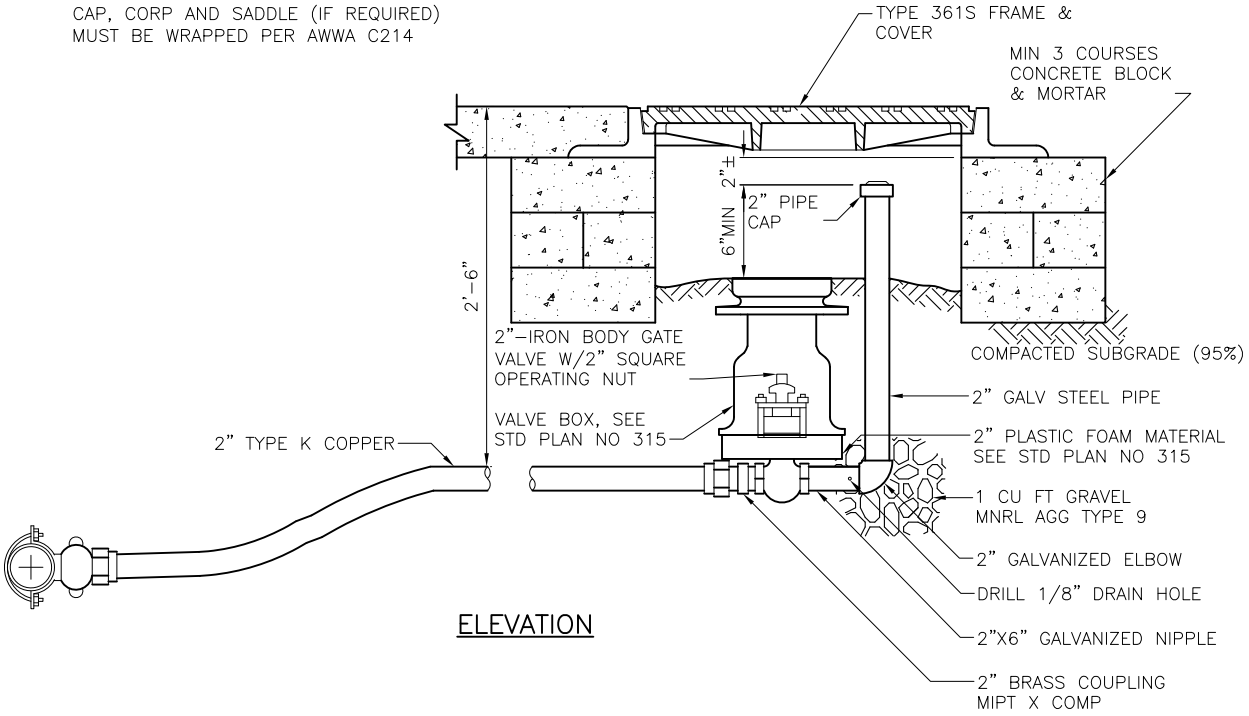
REV DATE: 2003



PLAN

NOTE:

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

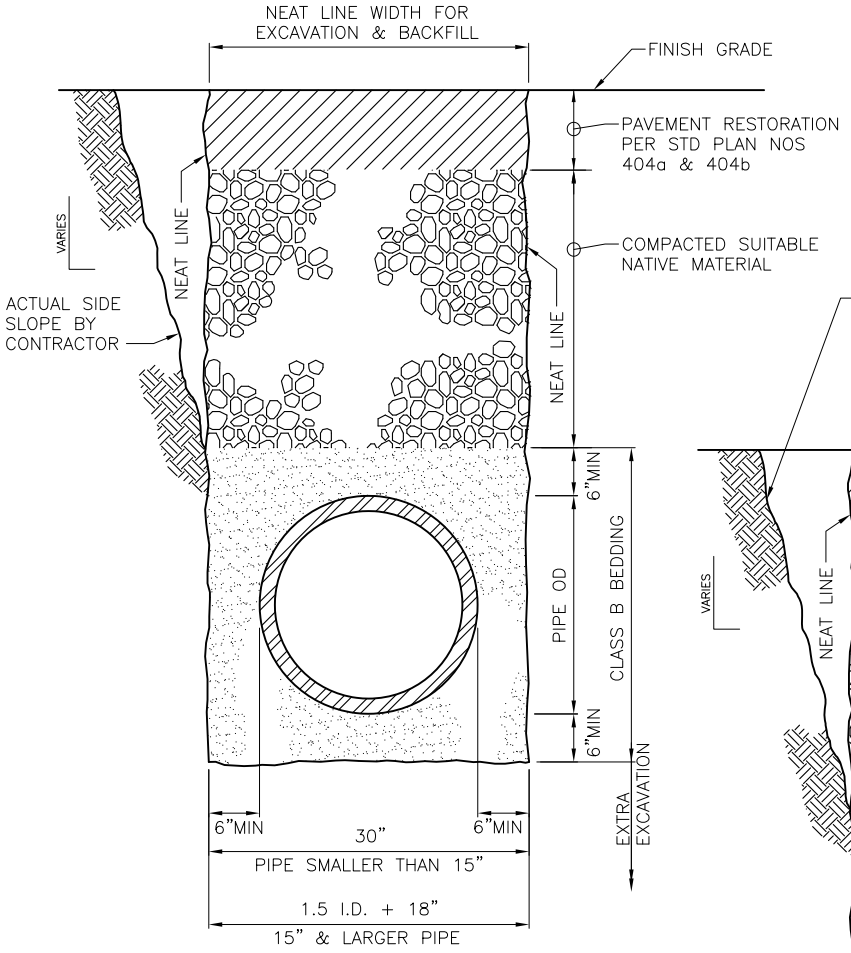


ELEVATION

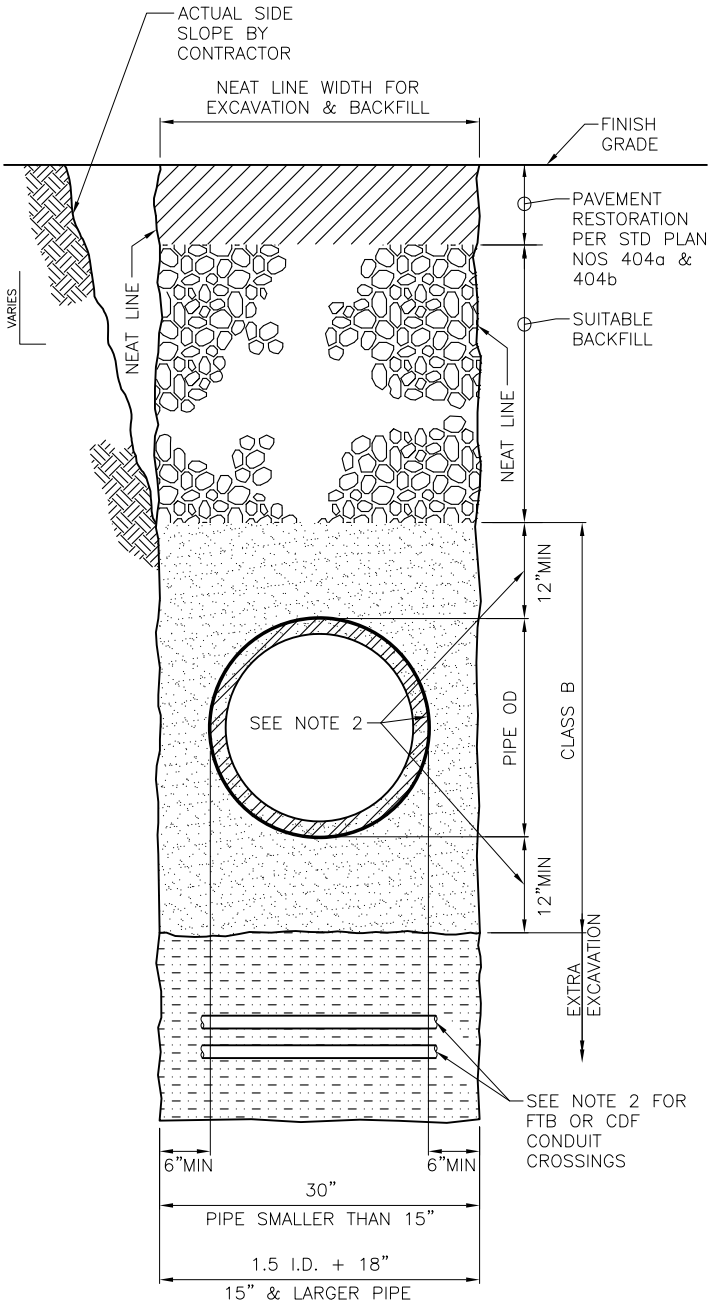
REF STD SPEC SEC 7-11

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

REV DATE: AUG 2015



TYPICAL BEDDING



BEDDING AT TRENCH CROSSING

BEDDING MATERIAL

CLASS B:

- FOR DISTRIBUTION WATERMAIN, MINERAL AGGREGATE PER STD SPEC 9-03.16 TYPE 6 OR TYPE 7
- FOR TRANSMISSION WATERMAIN, MINERAL AGGREGATE PER STD SPEC 9-03.16 TYPE 9
- SPECIAL BEDDING TO BE INDICATED ON DRAWINGS

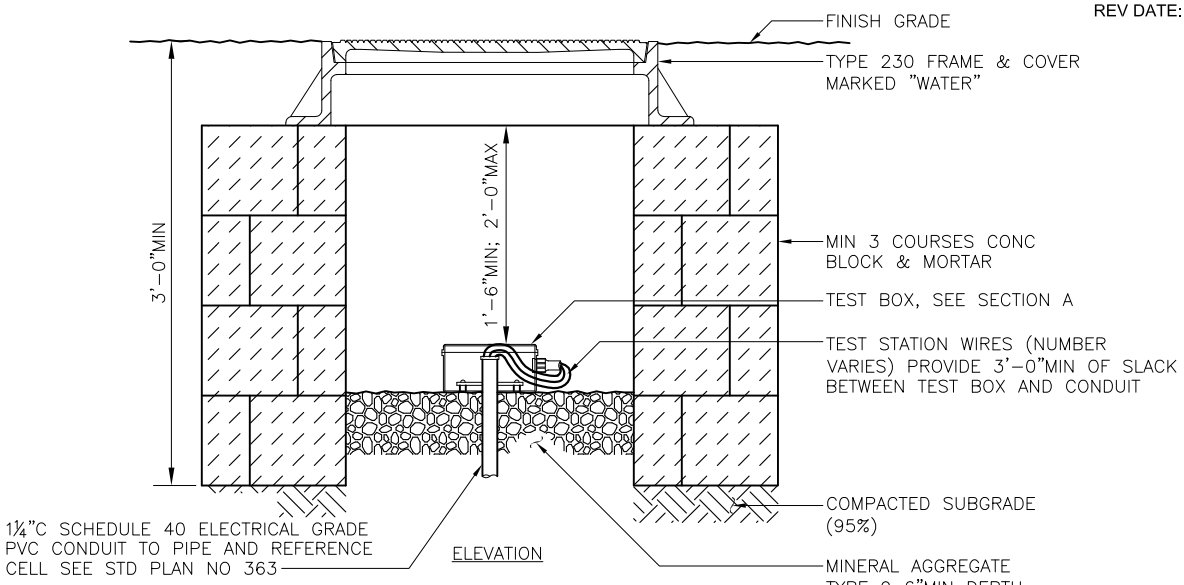
NOTES:

1. EXCAVATE FOR THE BELL TO ENSURE UNIFORM SUPPORT FOR THE PIPE BARREL
2. FOR FLUIDIZED THERMAL BACKFILL (FTB) OR CDF CROSSINGS OF METALLIC PIPE, INCREASE CLASS B SAND DEPTH & COVER TO 12" MIN & ENCASE METALLIC PIPE IN 8 MIL POLYETHYLENE ENCASEMENT FOR FULL TRENCH WIDTH.
3. FLUIDIZED THERMAL BEDDING PER SCL MATERIAL STANDARD 7150.00

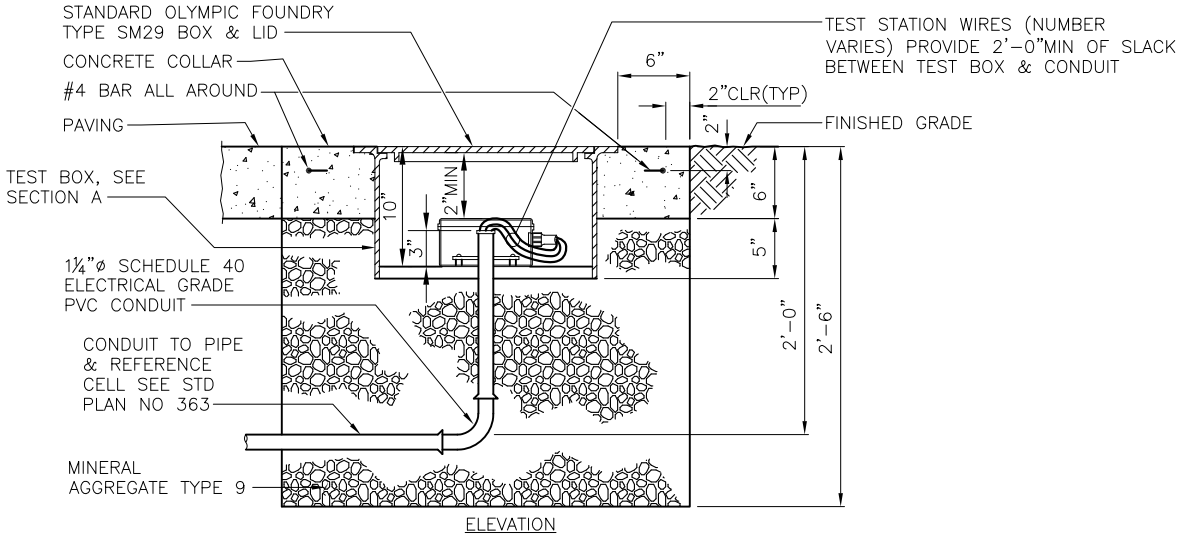
REF STD SPEC SEC 7-11, 7-17, 9-03.16

City of Seattle	NOT TO SCALE	WATERMAIN TRENCH AND BEDDING

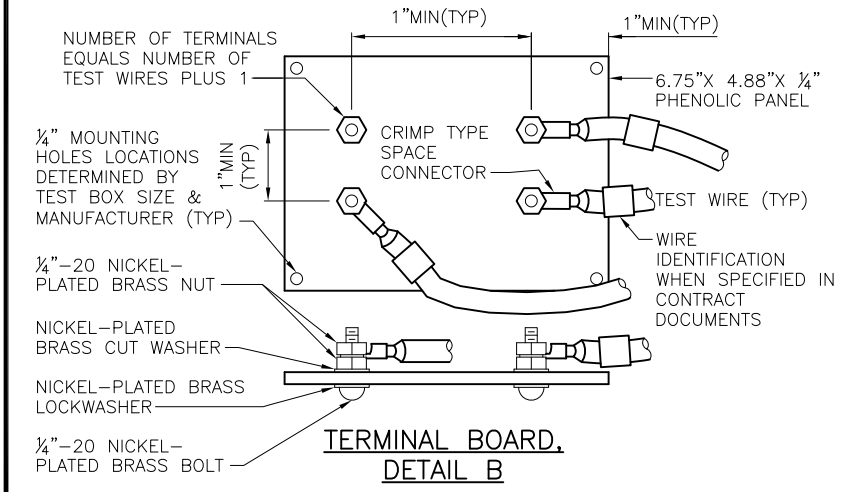
REV DATE: 2003



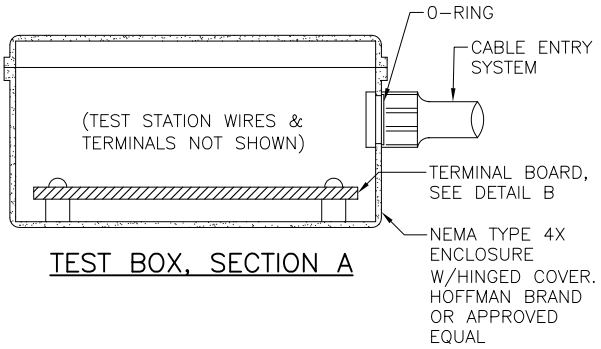
ELECTROLYSIS TEST STATION – TRAFFIC AREA



ELECTROLYSIS TEST STATION – NON-TRAFFIC AREA



TERMINAL BOARD, DETAIL B



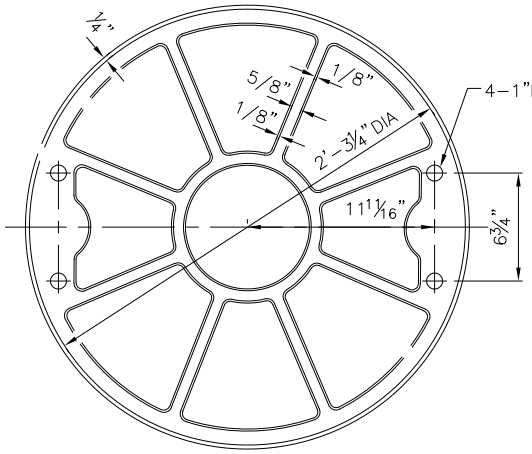
TEST BOX, SECTION A

REF STD SPEC SEC 7-11

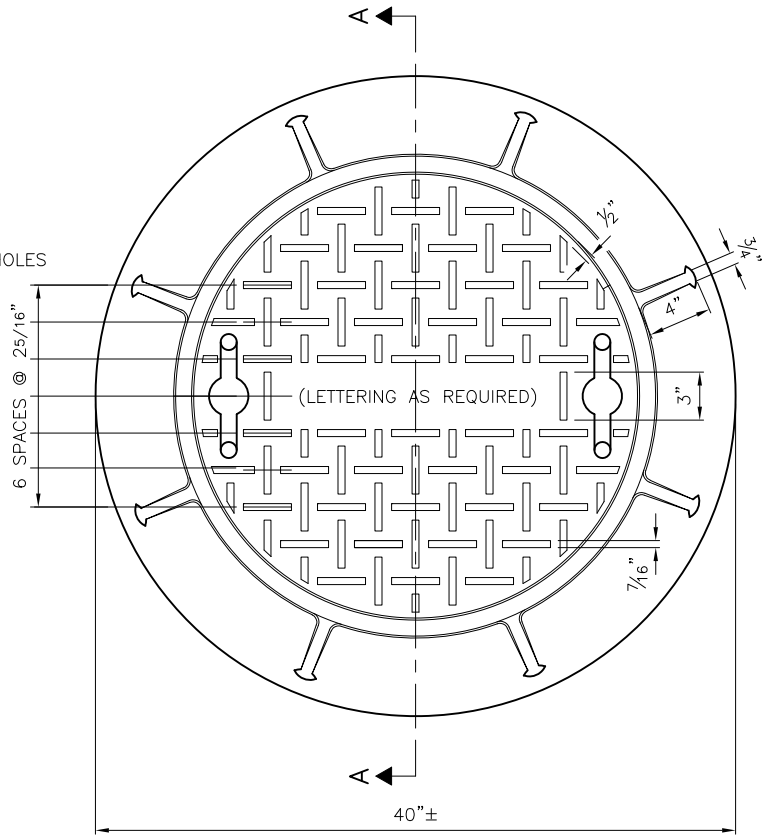
City of Seattle	NOT TO SCALE	WATERMAIN ELECTROLYSIS TEST STATION

REV DATE: 2003

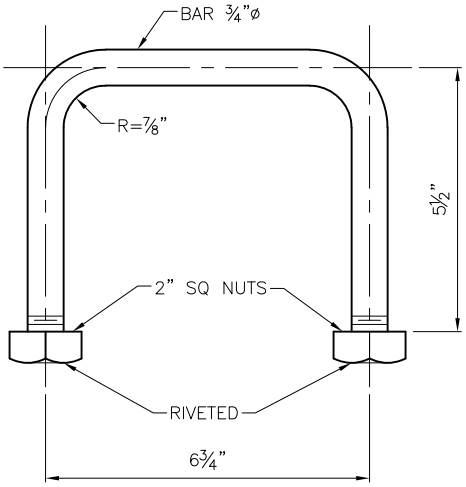
FRAME & COVER MUST BE TESTED FOR ACCURACY OF FIT AND MUST BE MARKED IN SETS FOR DELIVERY



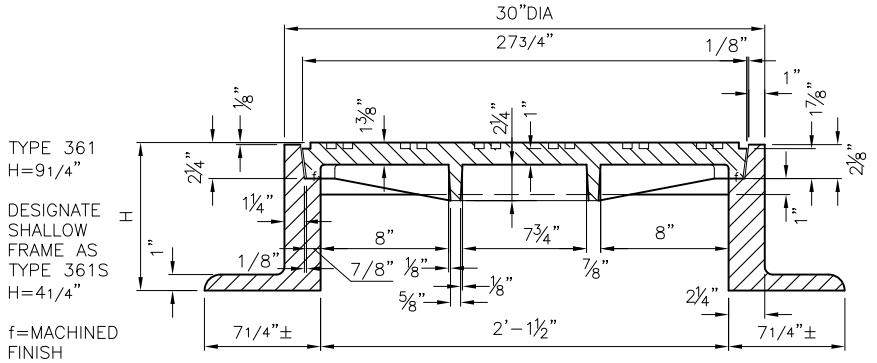
BOTTOM VIEW



TOP VIEW



LIFTING HANDLE
(2 REQUIRED)

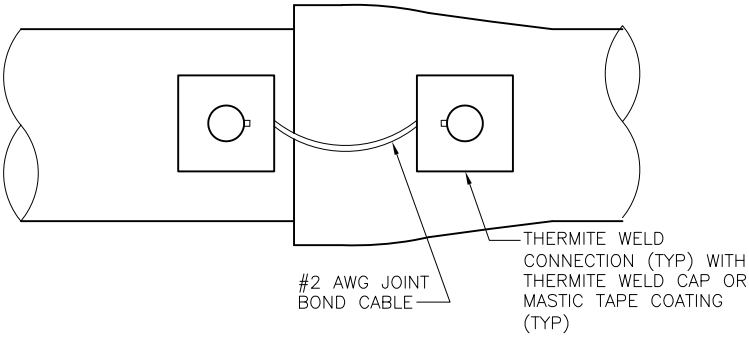


SECTION A–A

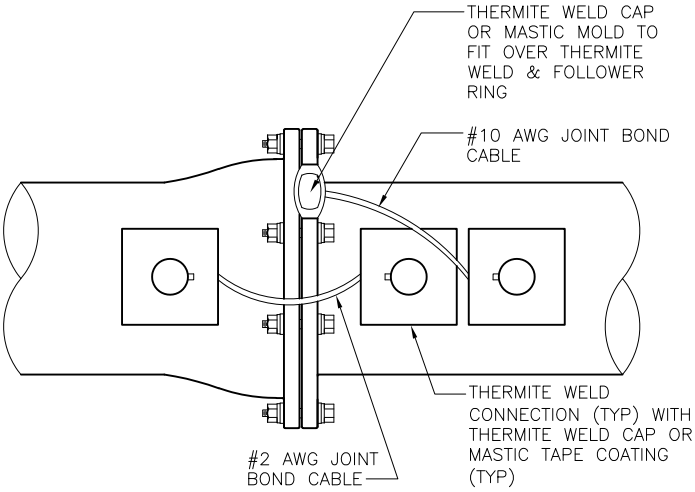
REF STD SPEC SEC 7-12

City of Seattle	NOT TO SCALE	TYPE 361 VALVE CHAMBER FRAME & COVER

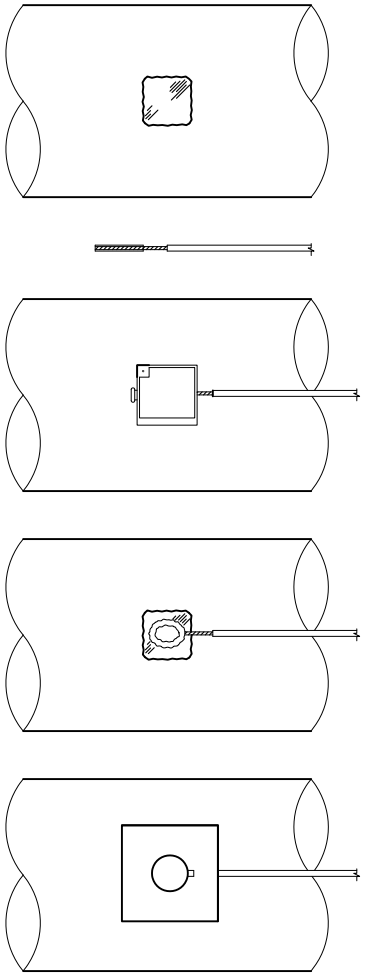
REV DATE: 2003



SLIP JOINT BOND CONNECTION



MECHANICAL JOINT BOND CONNECTION



CONNECTION SEQUENCE:

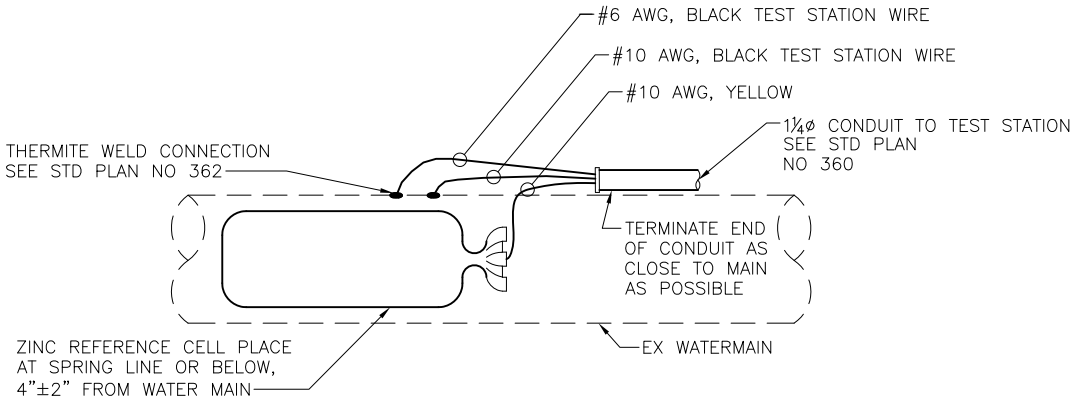
1. REMOVE PIPE COATING TO BRIGHT & CLEAN METAL
2. STRIP INSULATION FROM TEST STION WIRE, INSTALL ADAPTER SLEEVE
3. HOLD MOLD FIRMLY WITH OPENING AWAY FROM OPERATOR AND IGNITE
4. REMOVE SLAG AND ALLOW TO COOL
5. 16 OUNCE HAMMER TEST PER STD. SPEC SEC 7-11.3(15)D1
6. FINAL CONNECTION TO BE MADE WATERTIGHT WITH MASTIC COATING OR PREFORMED THERMITE WELD CAP

THERMITE WELD CONNECTION

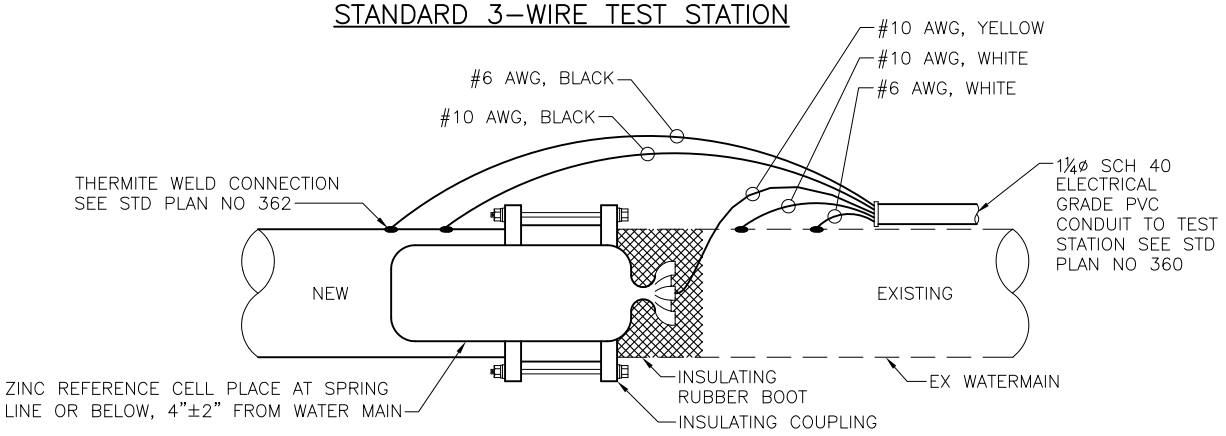
REF STD SPEC SEC 7-11

City of Seattle	NOT TO SCALE	JOINT BONDING FOR DIP WATERMAINS & JOINTS BONDING DETAIL

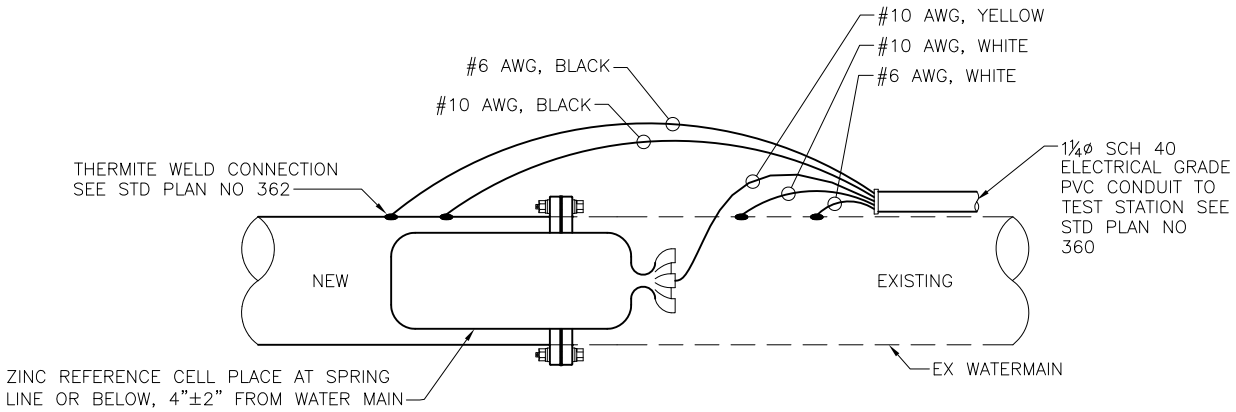
REV DATE: JUN 2013



STANDARD 3–WIRE TEST STATION



INSULATING COUPLING 5–WIRE TEST STATION



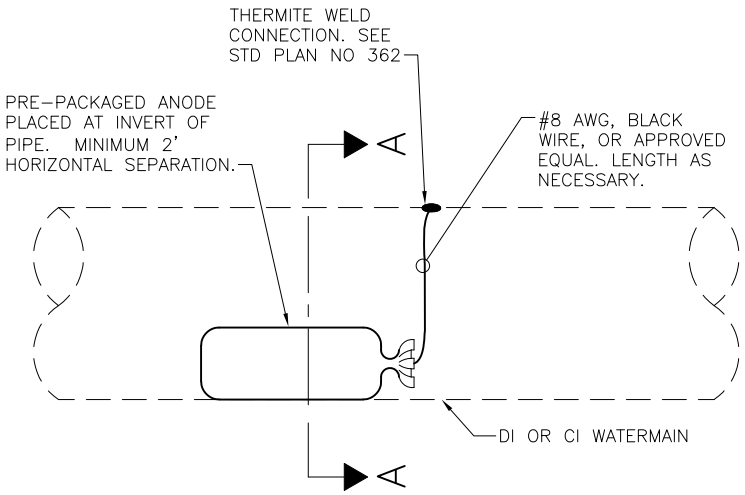
INSULATING FLANGE 5–WIRE TEST STATION

NOTE:
WIRE INSTALLATION PER STD SPEC SEC 9–30.12(3)

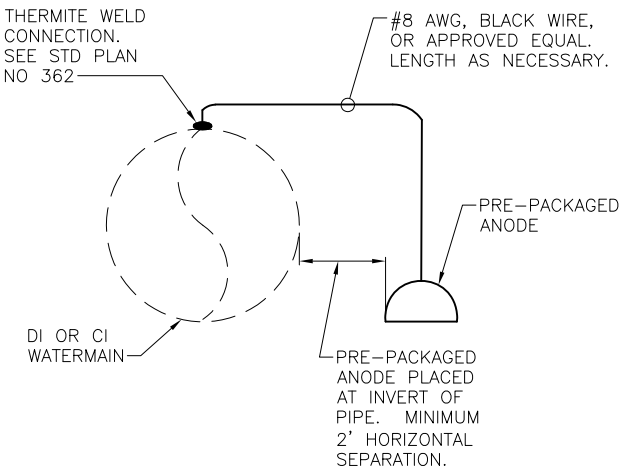
REF STD SPEC SEC 7-11.3(15) & 9-30.12

City of Seattle	NOT TO SCALE	ELECTROLYSIS TEST STATION WIRE INSTALLATION DETAILS

REV DATE: DEC 2016

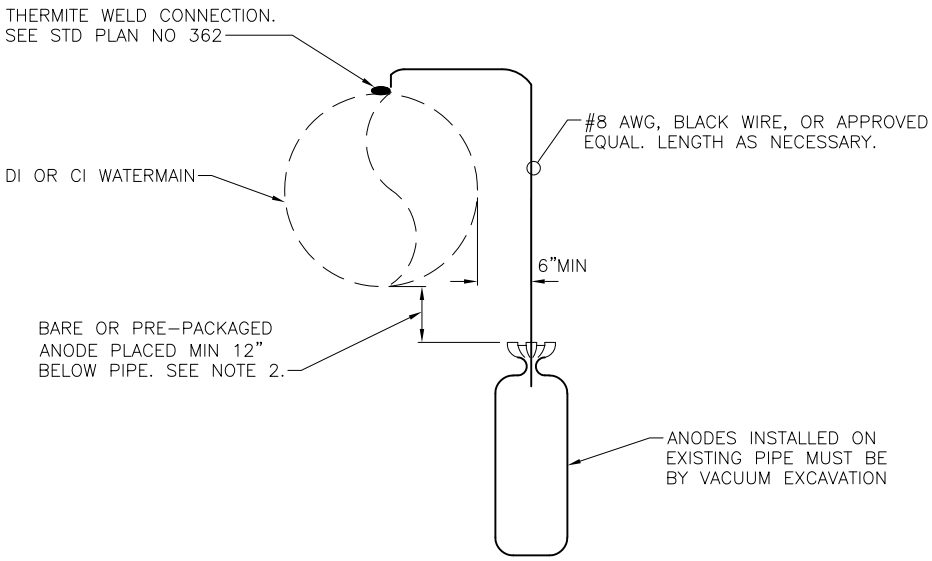


ELEVATION VIEW



SECTION A–A

TYPICAL SINGLE
HORIZONTAL ANODE INSTALLATION



TYPICAL SINGLE
VERTICAL ANODE INSTALLATION

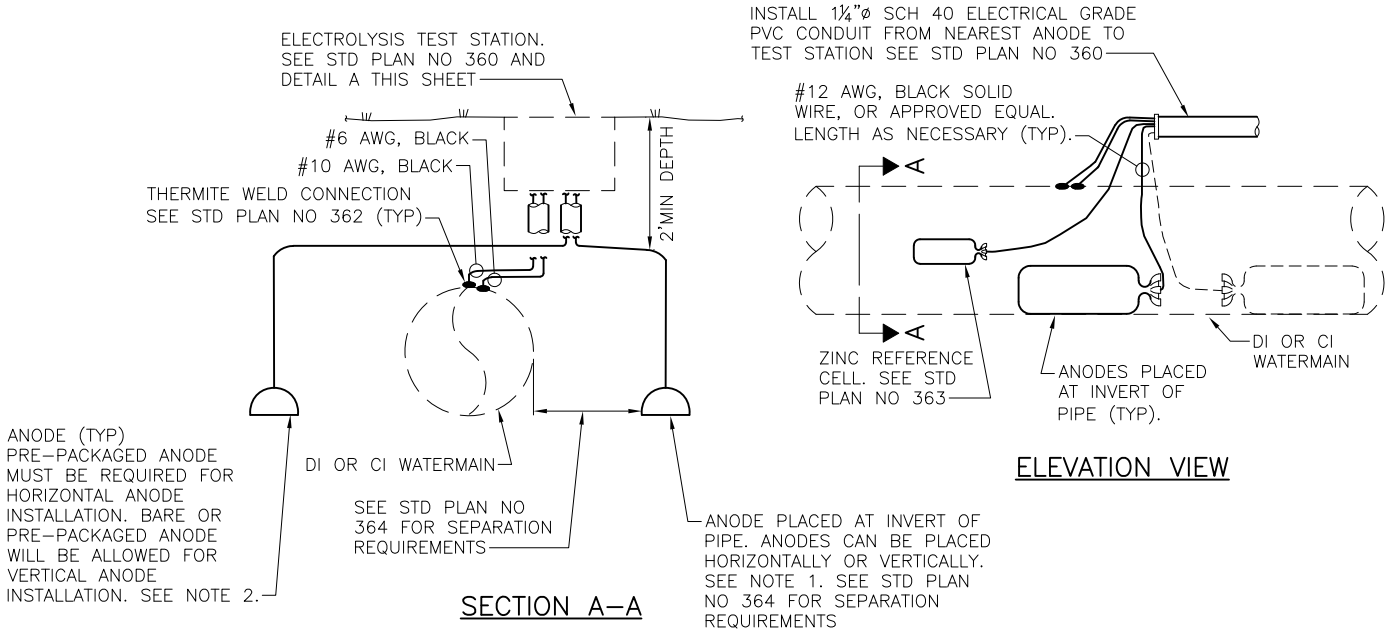
NOTES:

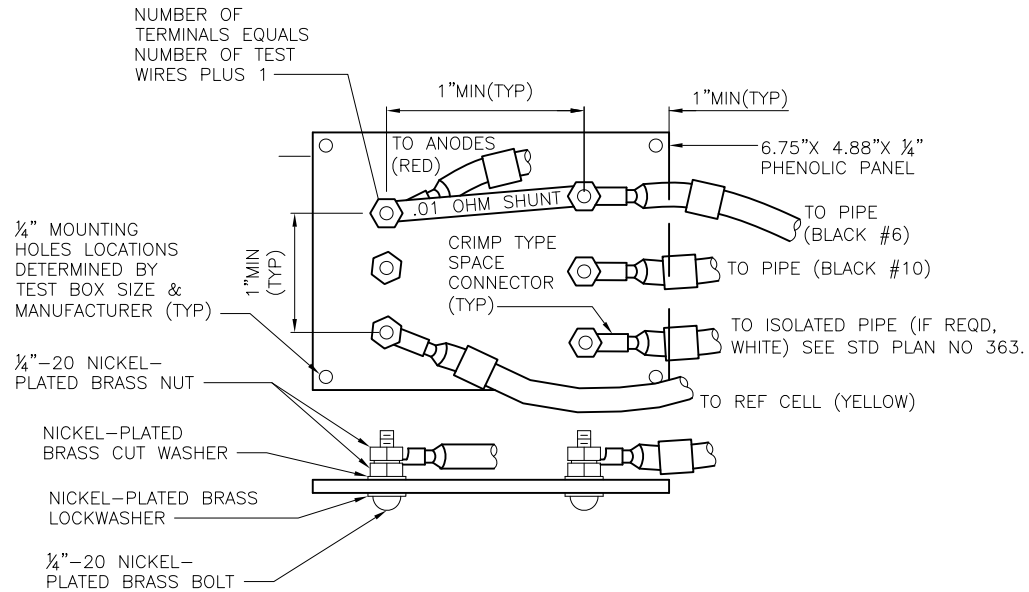
1. SPU CORROSION PROTECTION MAY SPECIFY TYPE AND REQUIRED SPACING OF ANODE(S) LONGITUDINALLY ALONG WATER MAIN TO BE SHOWN IN DESIGN DRAWINGS. MAXIMUM SPACING MUST BE 36' UNLESS OTHERWISE NOTED ON PLANS.
2. FOR VERTICAL ANODE INSTALLATION, IF ANODE IS NOT PRE–PACKAGED, BARE ANODE MUST BE INSTALLED W/MIN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

REF STD SPEC SEC 7-11, 9-30

City of Seattle	NOT TO SCALE	SACRIFICIAL ANODE BONDED TO PIPE INSTALLATION DETAILS

REV DATE: DEC 2016





TERMINAL BOARD, DETAIL A

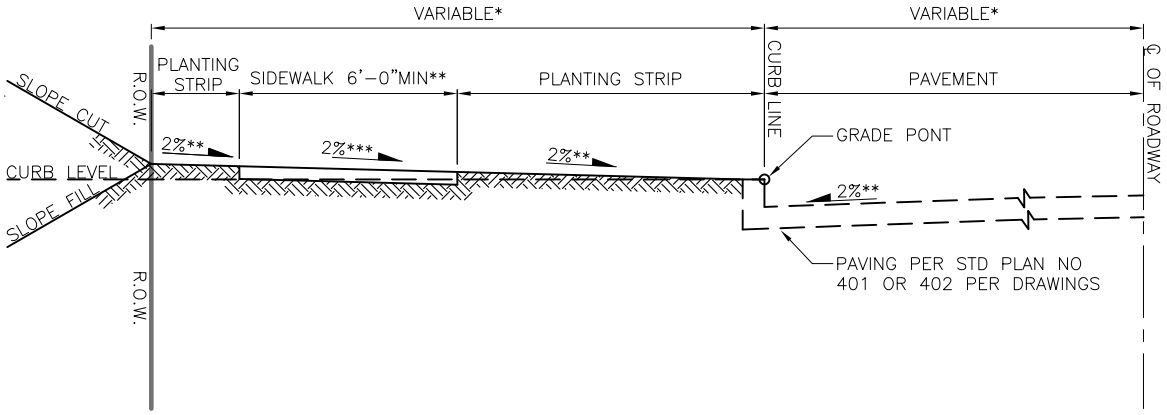
NOTES:

1. REQUIRED SPACING OF ANODE(S) TO BE SHOWN IN DESIGN DRAWINGS.
2. FOR VERTICAL INSTALLATION, IF ANODE IS NOT PRE-PACKAGED, BARE ANODE MUST BE INSTALLED W/ MIN 6" SACRIFICIAL ANODE BACKFILL PER SPEC SECTION 9-30.9(7), AROUND ALL SIDES OF ANODE.
3. ANODE SIZE MUST BE 17LB HIGH POTENTIAL MAGNESIUM ANODE, UNLESS OTHERWISE NOTED ON THE PLANS.
4. PLACE RED "CAUTION" OR "DANGER" TAPE 6" OVER ANODE WIRES AND CONDUIT. TAPE SHALL BE MIN 3" WIDE.
5. BACKFILL OVER ANODE WITH SUITABLE NATIVE MATERIAL OR APPROVED EQUAL.

REF STD SPEC SEC 7-11, 9-30

City of Seattle	NOT TO SCALE	SACRIFICIAL ANODE INSTALLATION DETAILS MULTIPLE ANODES CONNECTED AT TEST STATION

REV DATE: DEC 2010

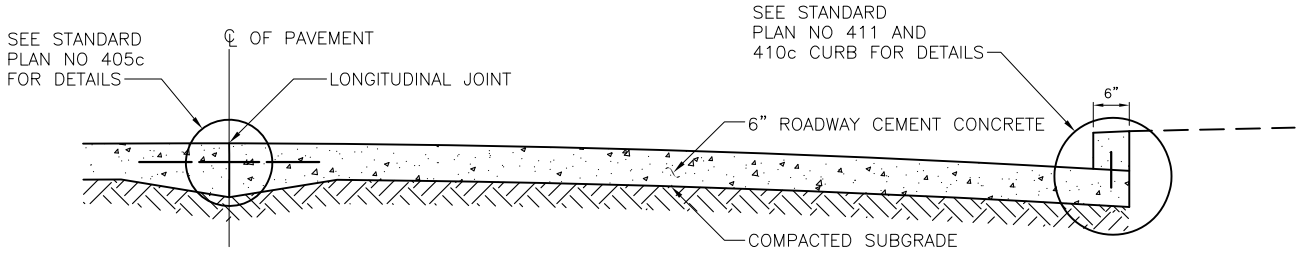


* SEE RIGHT OF WAY IMPROVEMENT MANUAL FOR DIMENSIONS.
** UNLESS OTHERWISE APPROVED BY THE ENGINEER.
*** MAXIMUM 2%, MINIMUM 0.5%; USE 2% UNLESS OTHERWISE SHOWN IN CONTRACT OR APPROVED BY THE ENGINEER.

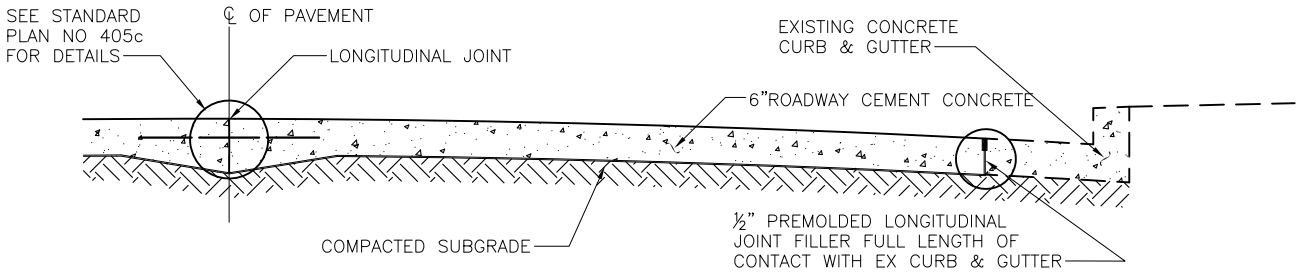
REF STD SPEC SEC 2-04

City of Seattle	NOT TO SCALE	HALF SECTION, GRADING

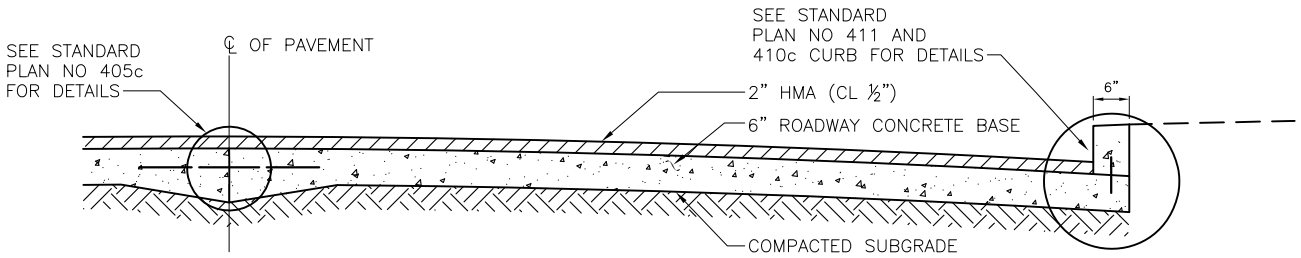
REV DATE: DEC 2013



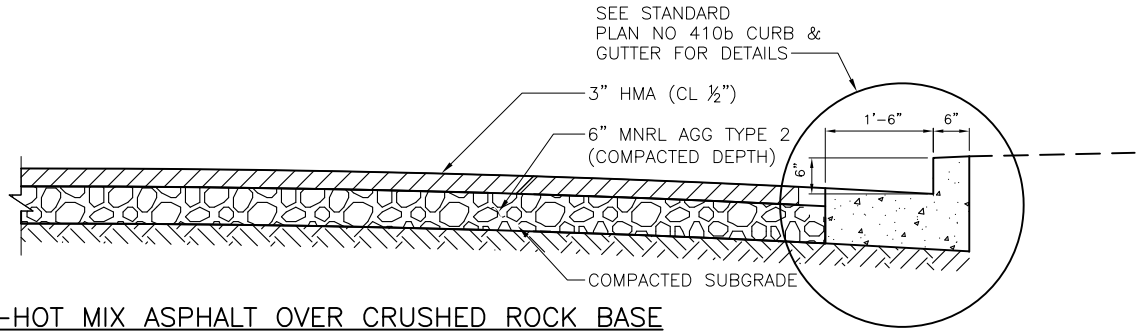
401A–CEMENT CONCRETE PAVEMENT WITH INTEGRAL CURB



401B–CEMENT CONCRETE PAVEMENT WITH EXISTING CURB & GUTTER



401C–HOT MIX ASPHALT ON CEMENT CONCRETE BASE



401D–HOT MIX ASPHALT OVER CRUSHED ROCK BASE

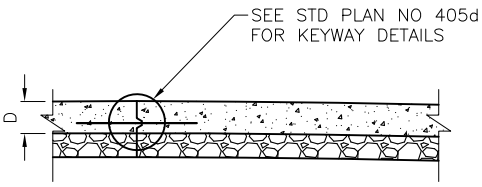
HMA DESIGN CRITERIA:

1. 3 MILLION ESAL'S UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS
2. ASPHALT PG 64–22 UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS
3. WARM MIX ASPHALT MAY BE USED IN PLACE OF HMA WHERE SHOWN ON THE DRAWINGS

REF STD SPEC SEC 4-04, 5-04, 5-05, 8-04

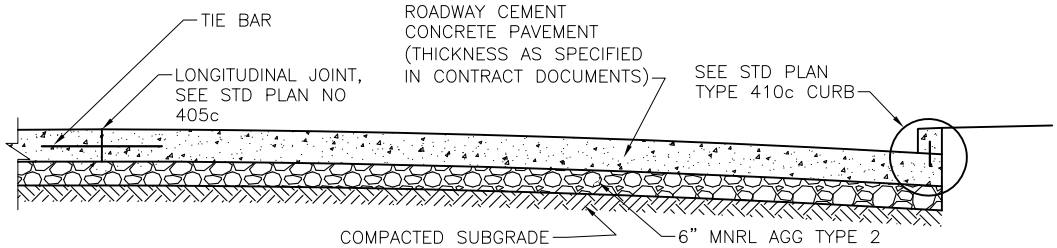
City of Seattle	NOT TO SCALE	RESIDENTIAL PAVEMENT SECTIONS

REV DATE: DEC 2013

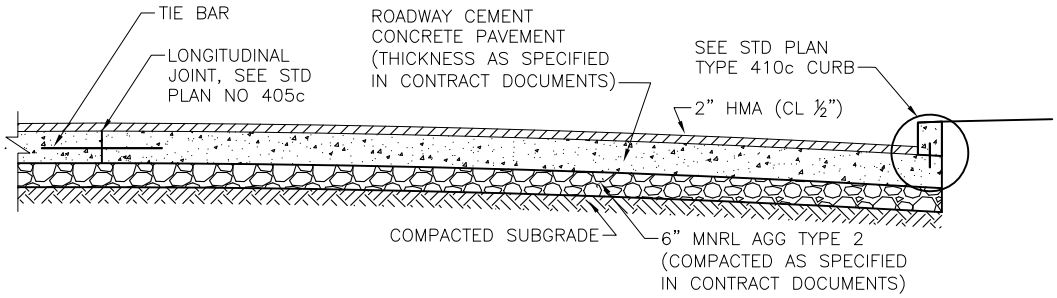


NOTES:
IF CONC THICKNESS IS 9 INCH OR GREATER
OPTIONAL KEYWAY MAY BE USED
SEE STD PLANS NO 405c & 405d FOR DETAILS

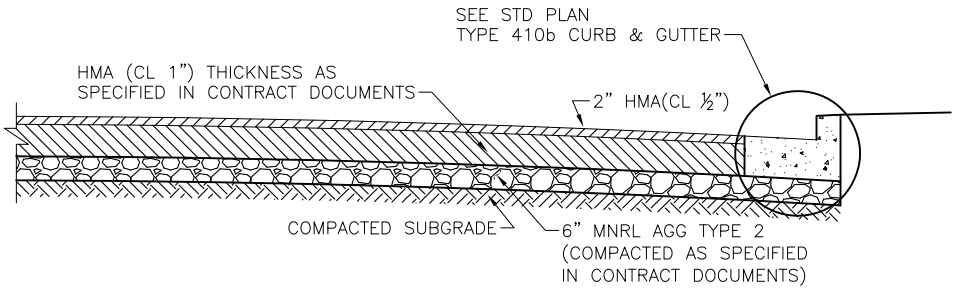
OPTIONAL KEYWAY
FOR LONGITUDINAL JOINT



402A–ROADWAY CONCRETE PAVEMENT ON CRUSHED ROCK



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



402C–HOT MIX ASPHALT ON CRUSHED ROCK BASE

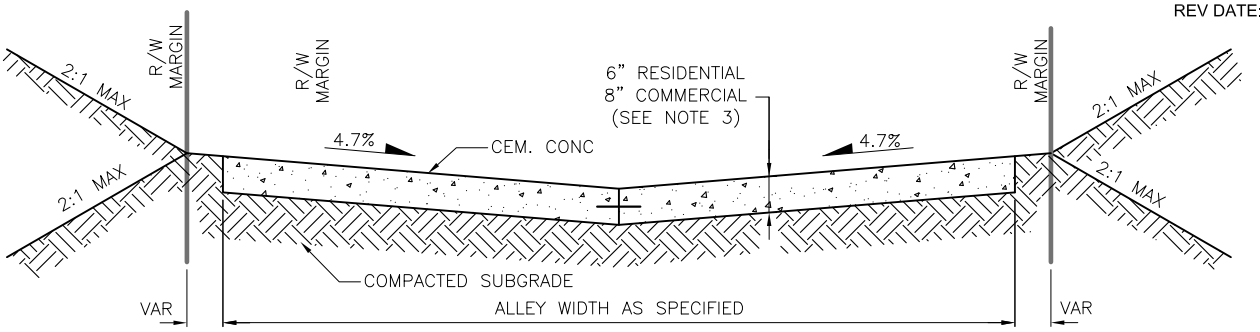
HMA DESIGN CRITERIA:

1. 10 MILLION ESAL'S UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS.
2. ASPHALT PG 64–22 UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS.
3. WARM MIX ASPHALT MAY BE USED IN PLACE OF HMA WHERE SHOWN ON THE DRAWINGS.

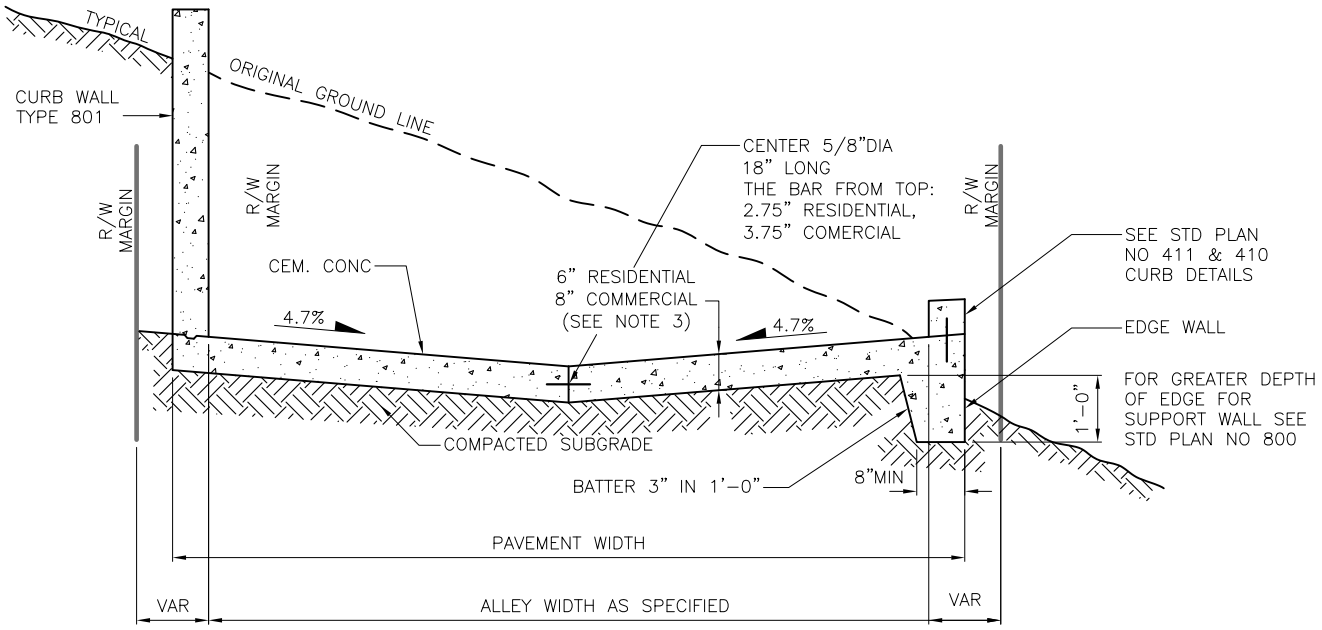
REF STD SPEC SEC 4-04, 5-04, 5-05 & 8-04

City of Seattle	NOT TO SCALE	COMMERCIAL AND ARTERIAL PAVEMENT SECTIONS

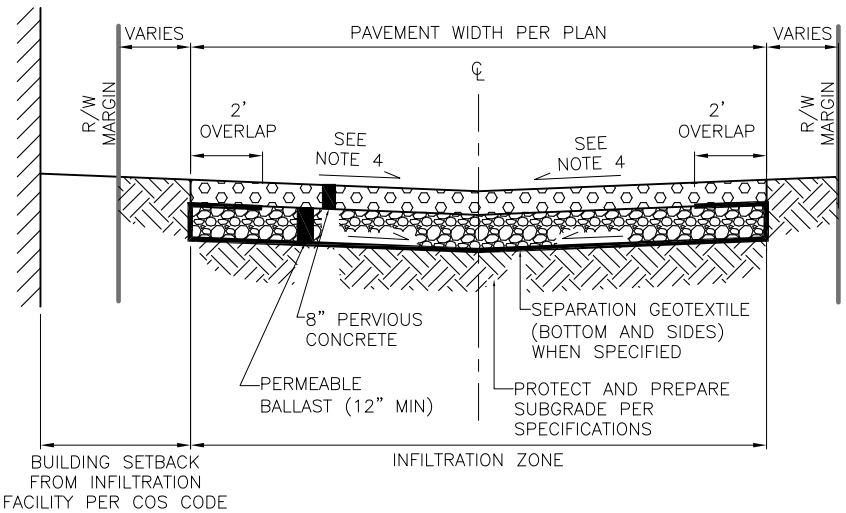
REV DATE: DEC 2016



CONCRETE ALLEY PAVEMENT



CEMENT CONCRETE ALLEY PAVEMENT 403B–FOR SHALLOW EMBANKMENT AREA



PERVIOUS CONCRETE PAVEMENT

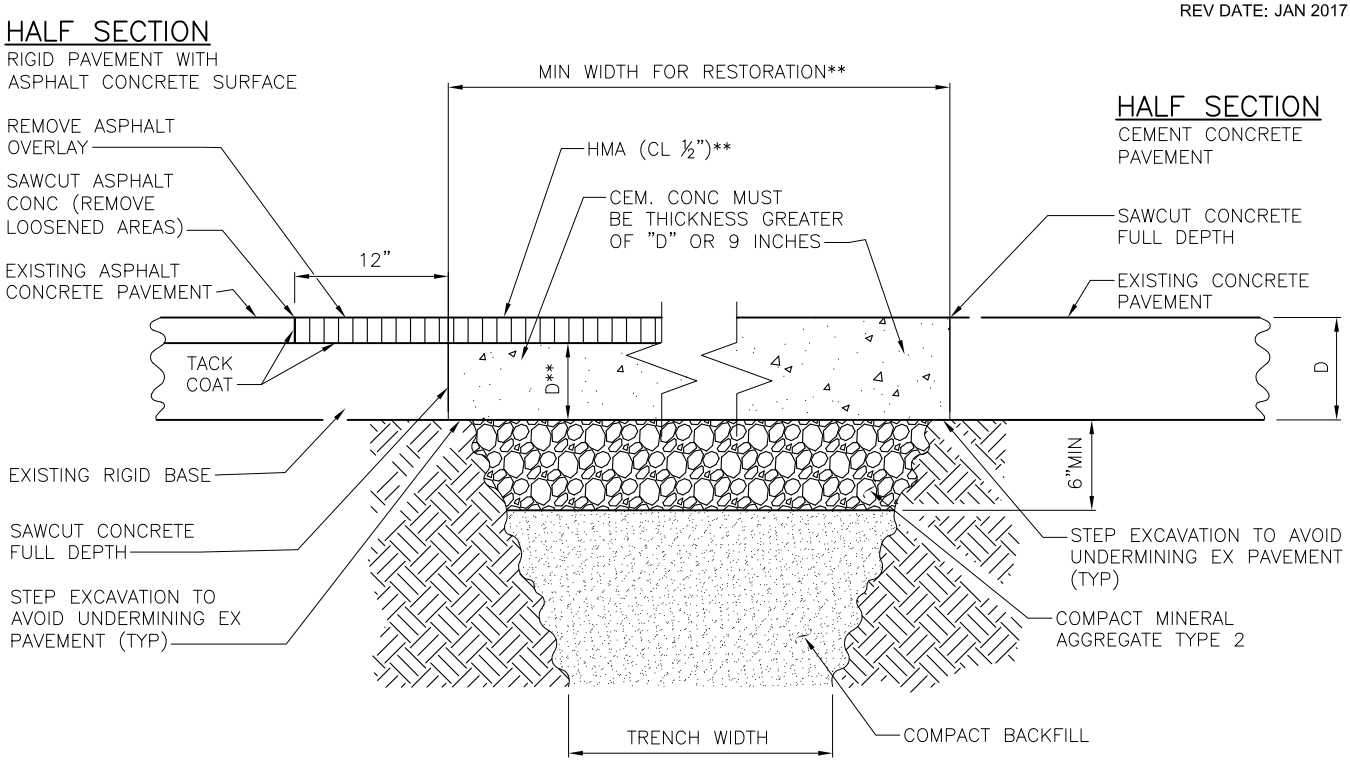
NOTES:

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.
4. MIN CROSS SLOPE IS 1%. MAX CROSS SLOPE IS 2%.
5. PERMEABLE BALLAST MUST BE MINERAL AGGREGATE TYPE 13, COS STD SPEC 9.03–13, UNLESS DETERMINED OTHERWISE BY ENGINEER.
6. FOR PERVIOUS CONCRETE ALLEYS, CONTRACTION JOINTS MUST NOT EXCEED 12 FT. FOR PAVEMENT THICKNESS OF 9 IN. OR LESS. FOR THICKER PAVEMENT, CONTRACTION JOINTS MAY BE 15 FT.

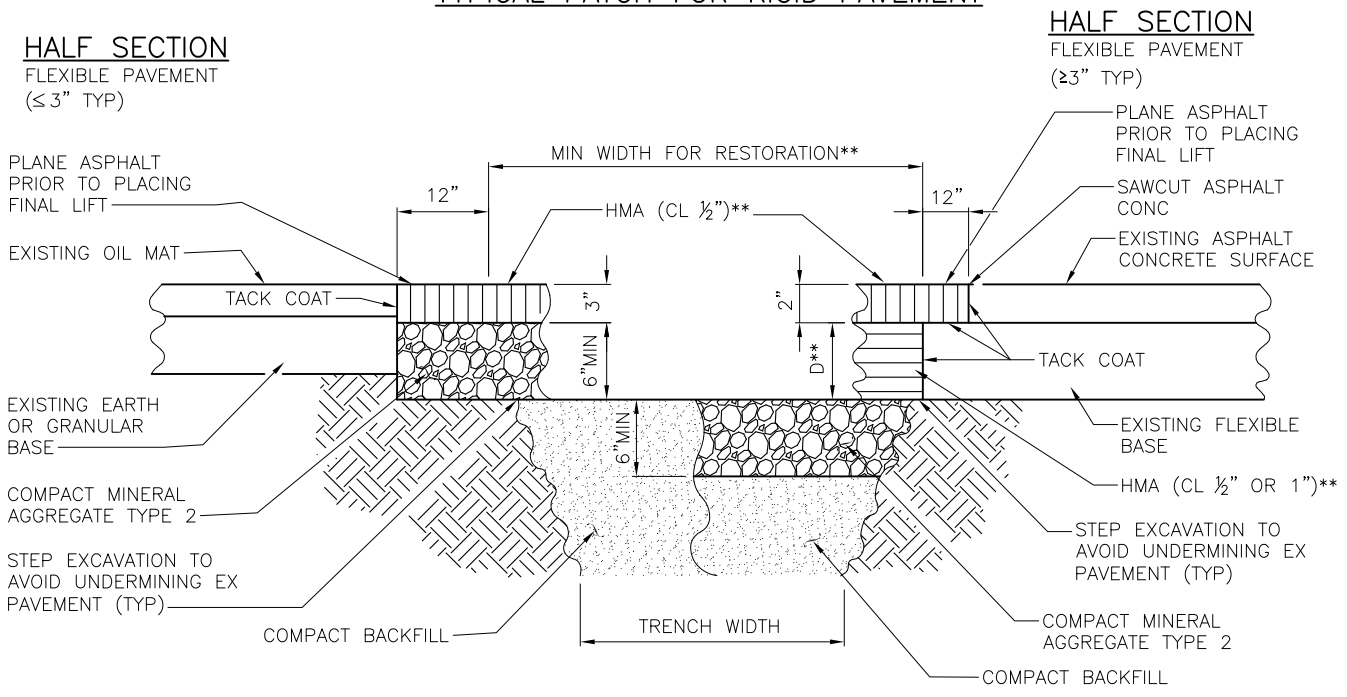
REF STD SPEC SEC 5-06, 8-17, 8-19

City of Seattle	NOT TO SCALE	ROADWAY CEMENT CONCRETE ALLEY PAVEMENTS

REV DATE: JAN 2017



TYPICAL PATCH FOR RIGID PAVEMENT



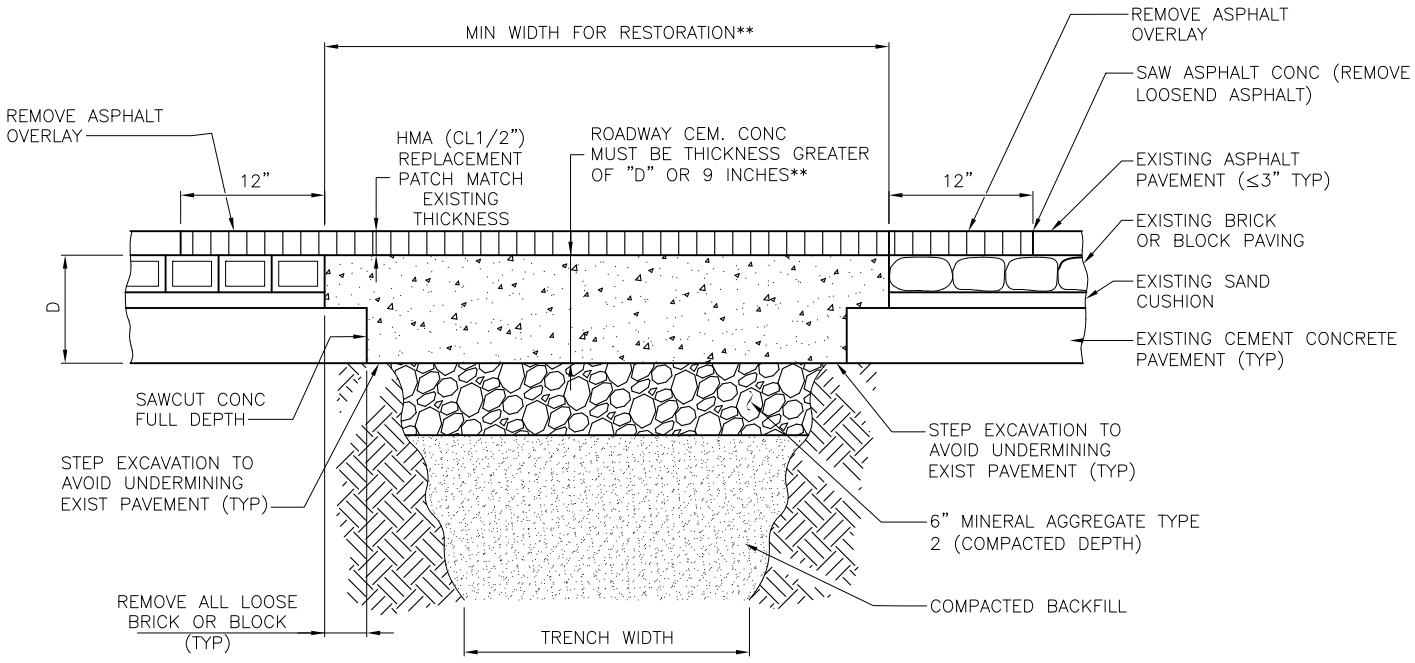
TYPICAL PATCH FOR FLEXIBLE PAVEMENT

- ** DEPTH OF RESTORATION MUST MEET THE REQUIREMENTS OF "RIGHT-OF-WAY OPENING AND RESTORATION RULES".
- WIDTH OF RESTORATION MUST MEET REQUIREMENTS OF STANDARD PLAN 404c.

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

City of Seattle	NOT TO SCALE	PAVEMENT PATCHING

REV DATE: JAN 2017



ASPHALT OVER RIGID BASE OF BRICK OR STONE BLOCK PAVEMENT

HALF SECTION

- ** WIDTH OF RESTORATION MUST MEET REQUIREMENTS OF STANDARD PLAN 404c.
- DEPTH OF RESTORATION MUST MEET THE REQUIREMENTS OF "RIGHT-OF-WAY OPENING AND RESTORATION RULES".

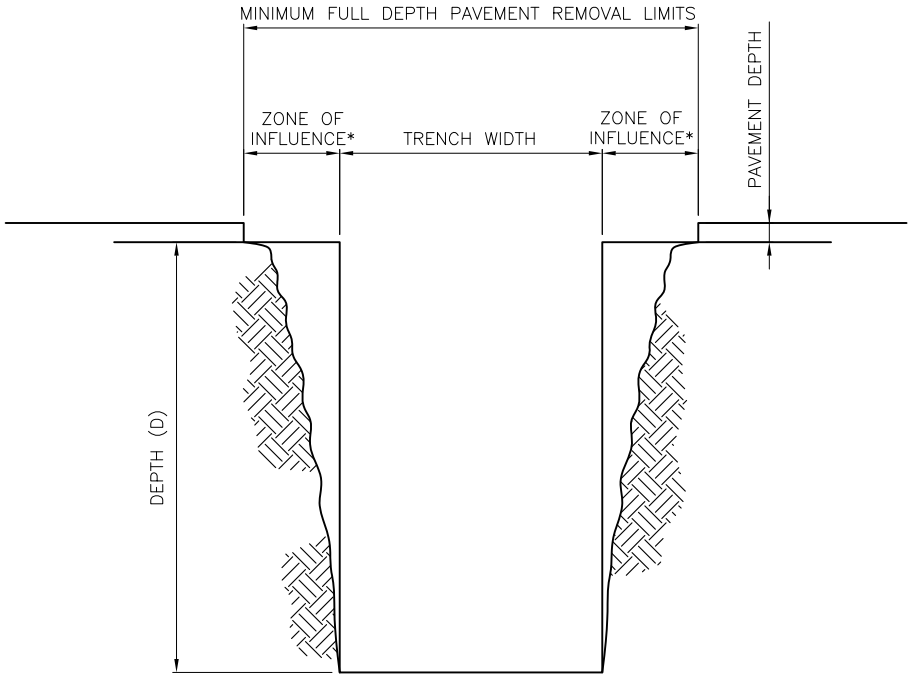
REF STD SPEC SEC 2-02, 5-04 & 5-05

City of Seattle	NOT TO SCALE	PAVEMENT PATCHING

REV DATE: JAN 2017

NOTES:

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

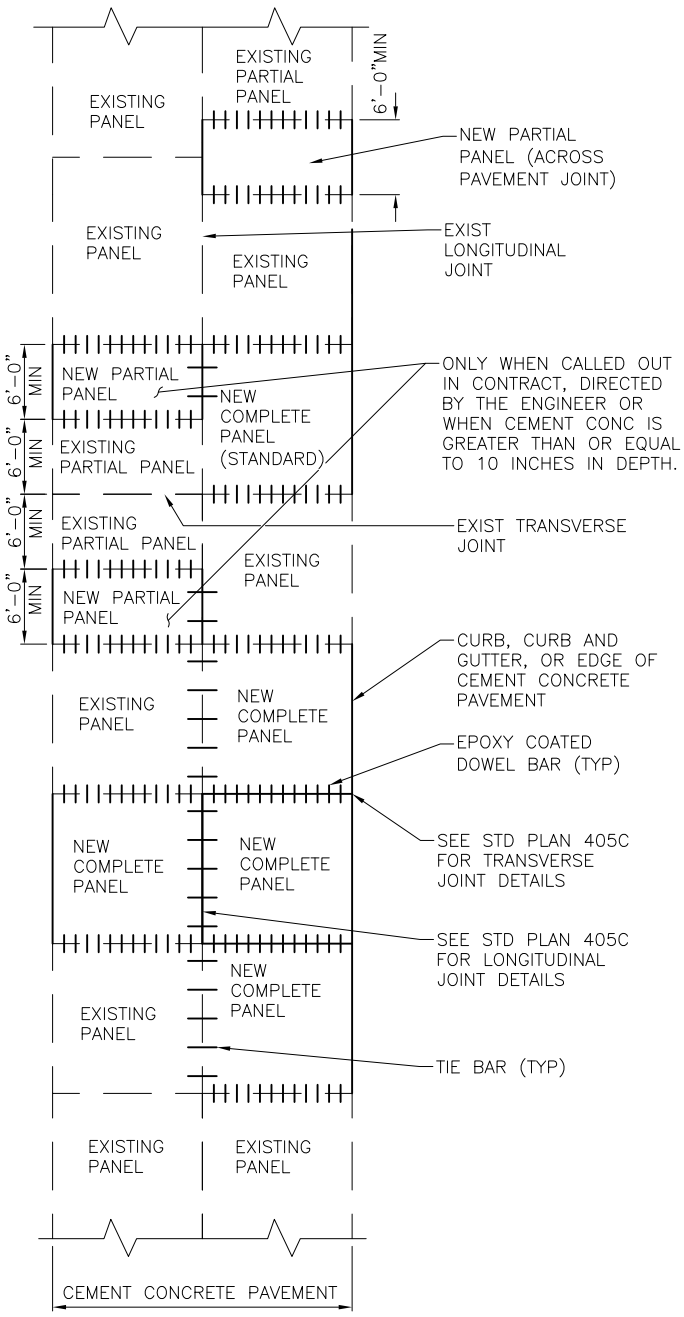


*TYPICALLY D/4

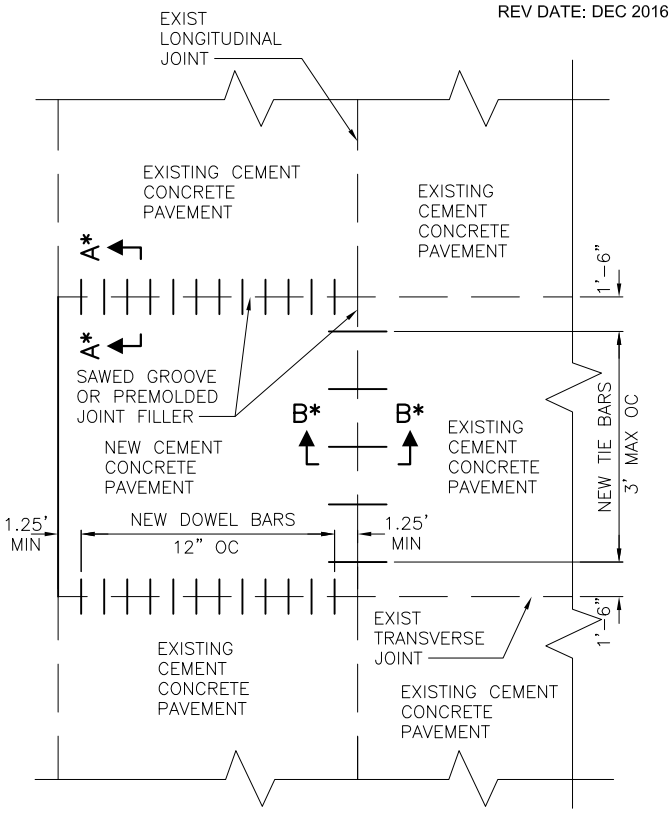
REF STD SPEC SEC 2-02, 2-04

City of Seattle	NOT TO SCALE	PAVEMENT OPENING ZONE OF INFLUENCE

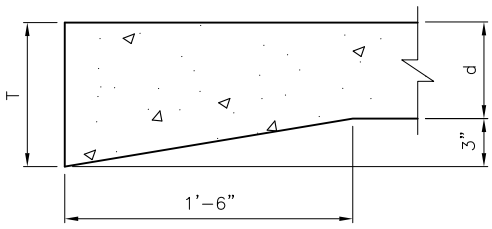
REV DATE: DEC 2016



PLAN VIEW
PANEL REPLACEMENT



PLAN VIEW
COMPLETE PANEL REPLACEMENT



THICKENED EDGE DETAIL
(REQUIRED ONLY AT THROUGH JOINTS WHEN d<9")

NOTES

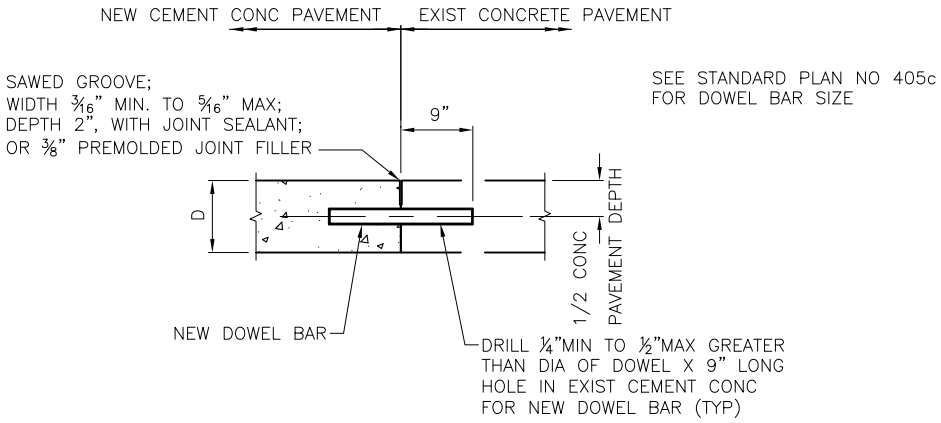
1. INSTALL TIE BARS ALONG LONGITUDINAL JOINT BETWEEN FULL PANEL REPLACEMENT AND EXIST CEMENT CONC PAVEMENT. TIE BARS ARE NOT INSTALLED BETWEEN CEMENT CONC PAVEMENT AND HOT MIX ASPHALT SHOULDERS.
2. TIE BARS AND DOWELS ARE NOT REQUIRED:
   2.1. WHEN INDICATED ON THE DRAWINGS BY "NO TIE BARS" OR "NO DOWEL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

A* SEE SECTION A–A STANDARD PLAN 405b
B* SEE SECTION B–B STANDARD PLAN 405b

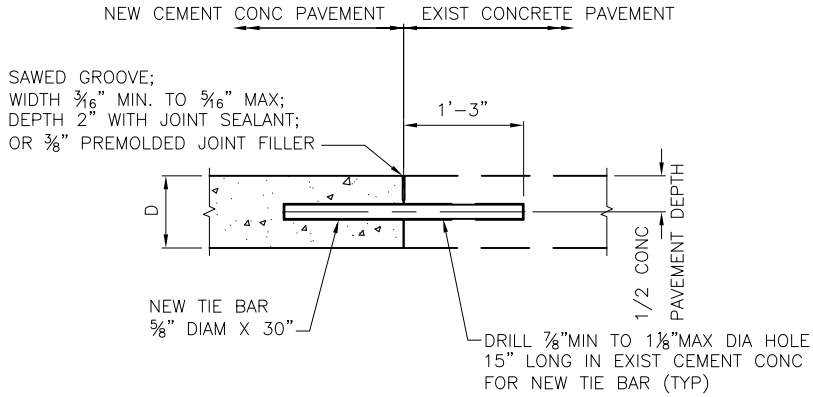
REF STD SPEC SEC 5-05

City of Seattle	NOT TO SCALE	ROADWAY CONCRETE PAVEMENT REPAIR

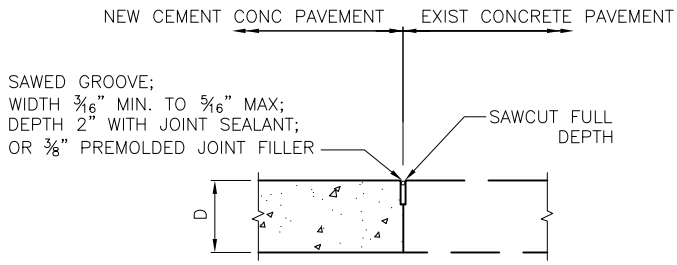
REV DATE: DEC 2013



SECTION A–A
DOWEL BAR DETAIL



SECTION B–B
TIE BAR DETAIL



WITHOUT TIE BAR OR DOWEL

USE ONLY WHEN SHOWN IN
CONTRACT OR APPROVED BY
THE ENGINEER

REF STD SPEC SEC 5-05

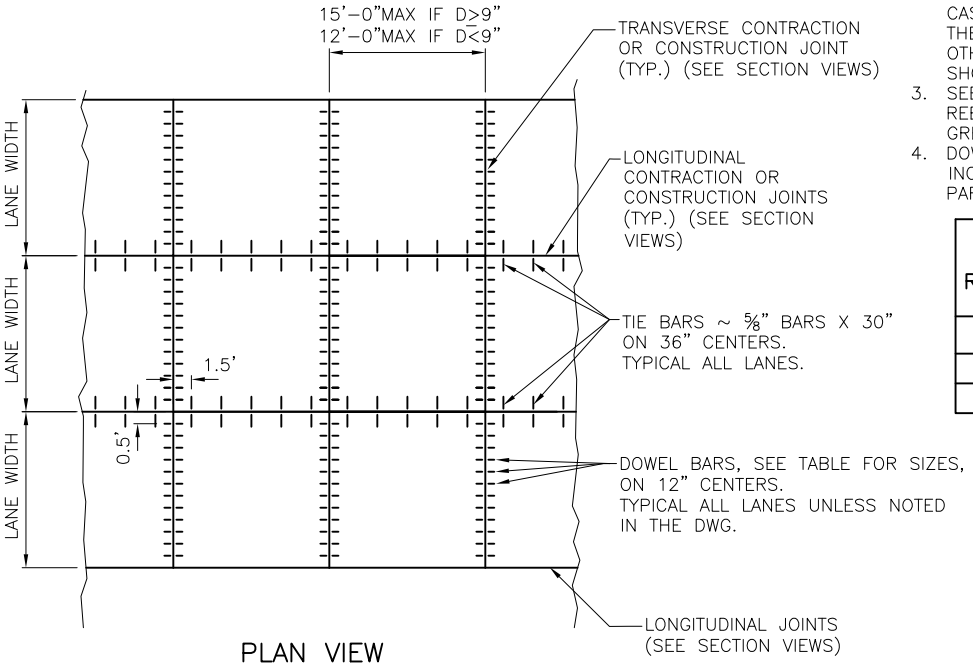
City of Seattle	NOT TO SCALE	PAVEMENT REPAIR DOWEL BAR AND TIE BAR DETAILS

REV DATE: DEC 2013

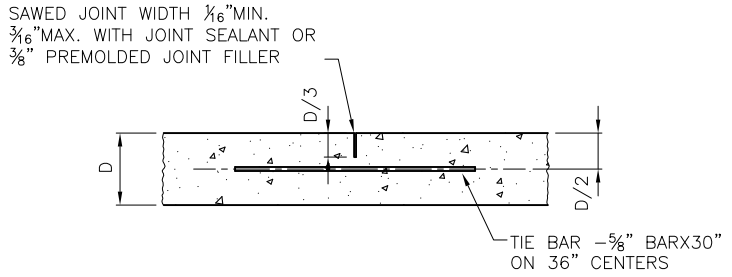
NOTES:

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 MUST NOT BE PLACED WITHIN 15 INCHES OF THE EDGE OF PAVEMENT OR A PARALLEL JOINT.

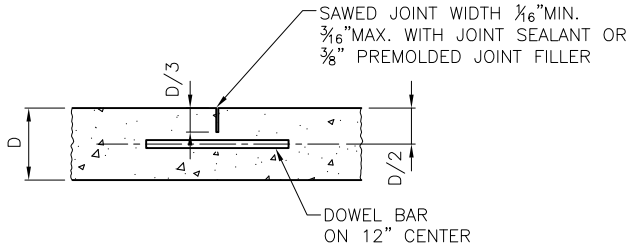
DEPTH (D) OF RDWY CEM. CONC	DOWEL BAR SIZE (DIA ø)
6"≤D <9"	1"X18"
9"≤D <11"	1¼"X18"
11"≤D	1½"X18"



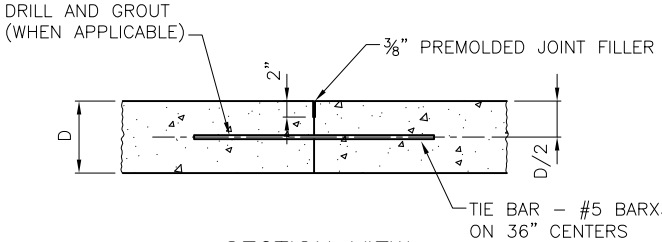
PLAN VIEW
PANEL REPLACEMENT



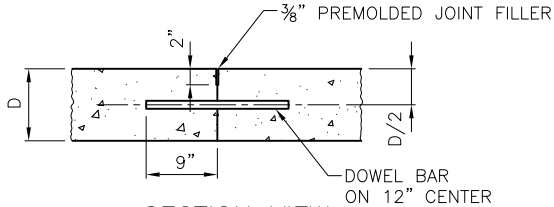
SECTION VIEW
LONGITUDINAL CONTRACTION JOINT



SECTION VIEW
TRANSVERSE CONTRACTION JOINT



SECTION VIEW
LONGITUDINAL CONSTRUCTION JOINT

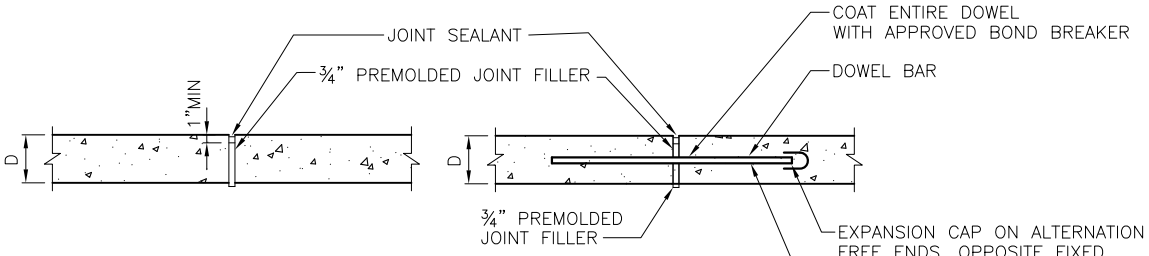


SECTION VIEW
TRANSVERSE CONSTRUCTION JOINT

REF STD SPEC SEC 5-05

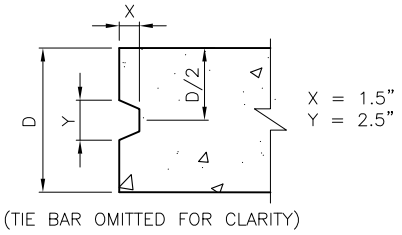
City of Seattle | NOT TO SCALE | ROADWAY CONCRETE PAVEMENT JOINTS

REV DATE: NOV 2013



THROUGH JOINTS

USE ONLY WHEN SHOWN IN CONTRACT OR APPROVED BY THE ENGINEER



(TIE BAR OMITTED FOR CLARITY)

KEYWAY DETAIL
LONGITUDINAL JOINT WITH KEYWAY

(OPTIONAL FOR ≥9 INCHES ONLY)

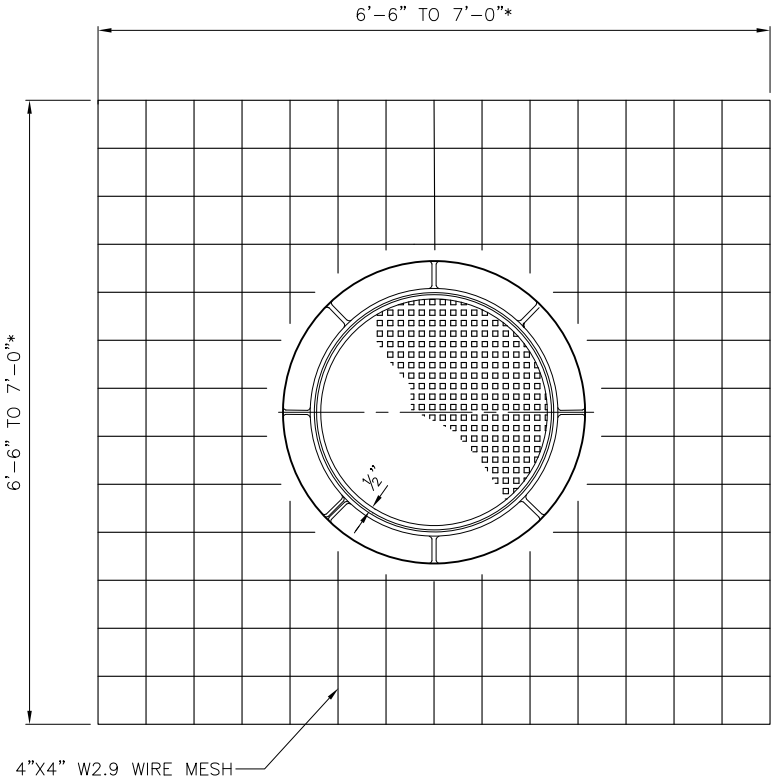
NOTE:

USE OF OPTIONAL KEYWAY MAY BE REVOKED BY THE ENGINEER AT ANYTIME DUE TO QUALITY CONTROL ISSUES WITH MAINTAINING PLACEMENT REQUIREMENTS WITHIN ±⅜ INCH VERTICALLY.

REF STD SPEC SEC 5-05

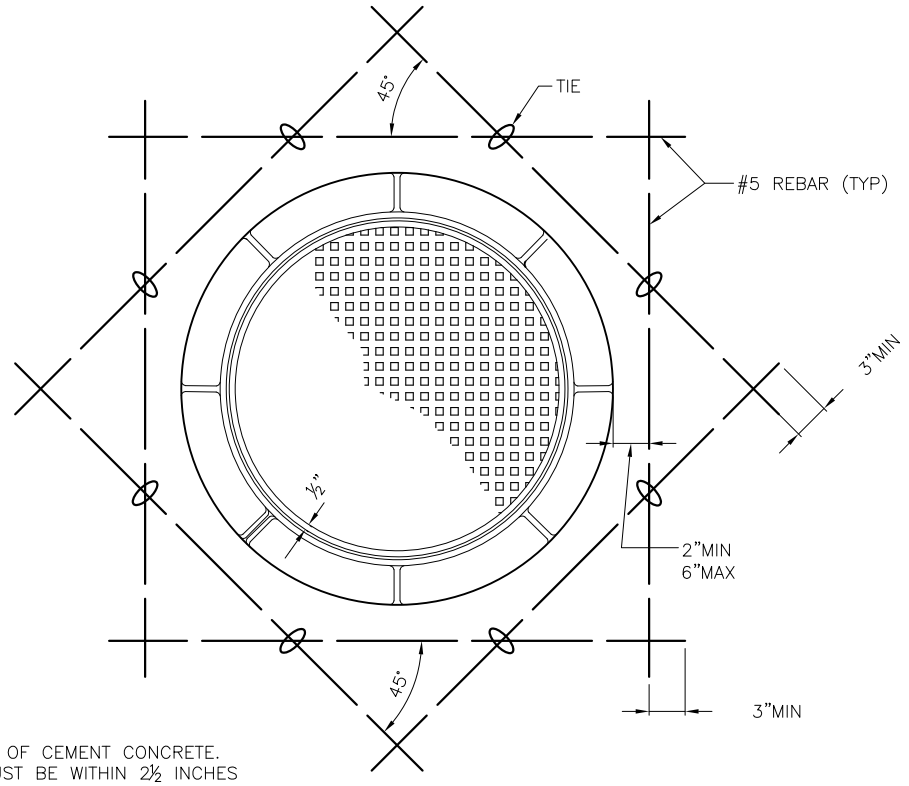
City of Seattle	NOT TO SCALE	THROUGH JOINTS AND OPTIONAL KEYWAYS FOR CEMENT CONCRETE ROADWAY

REV DATE: APR 2016



NOTES:

1. PLACE WIRE MESH AT ½ DEPTH OF CEMENT CONCRETE.
2. *THE DIMENSIONS OF THE MESH MUST BE ADJUSTED WHERE PAVEMENT JOINTS ARE ENCOUNTERED.
3. NO REINFORCING STEEL MUST BE WITHIN 2½ INCHES OF ANY CEMENT CONCRETE SURFACE OR JOINT.



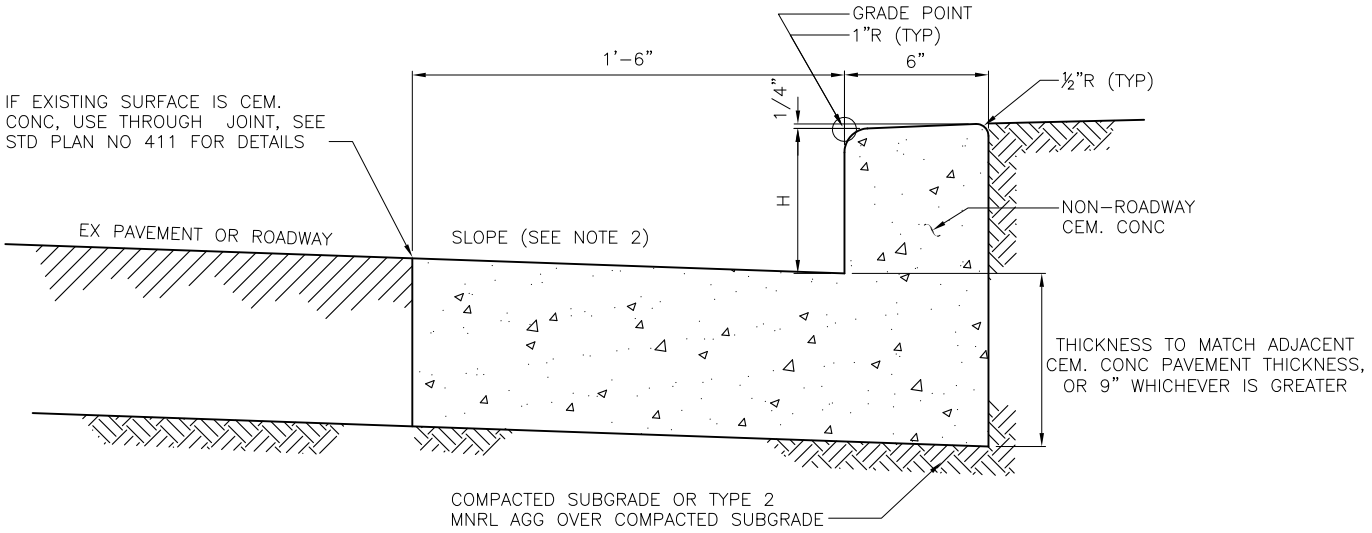
NOTES:

1. PLACE REBAR AT ½ DEPTH OF CEMENT CONCRETE.
2. NO REINFORCING STEEL MUST BE WITHIN 2½ INCHES (3 INCHES DESIRED) OF ANY CEMENT CONCRETE SURFACE OR JOINT.

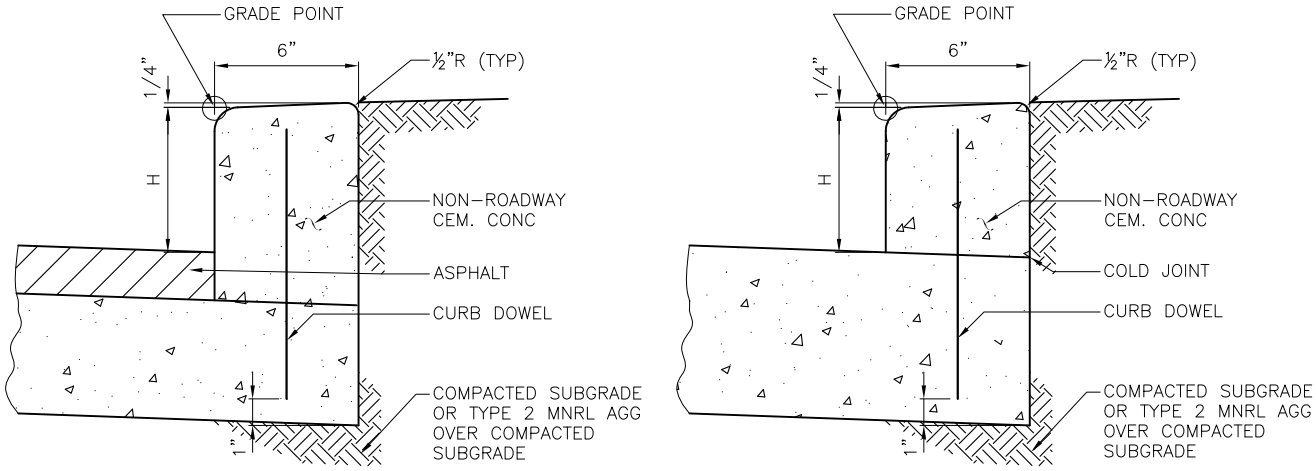
REF STD SPEC SEC 5-05

City of Seattle	NOT TO SCALE	FRAME & COVER CEMENT CONCRETE REINFORCEMENT DETAIL

REV DATE: DEC 2010



410B CURB & GUTTER



410C CURB

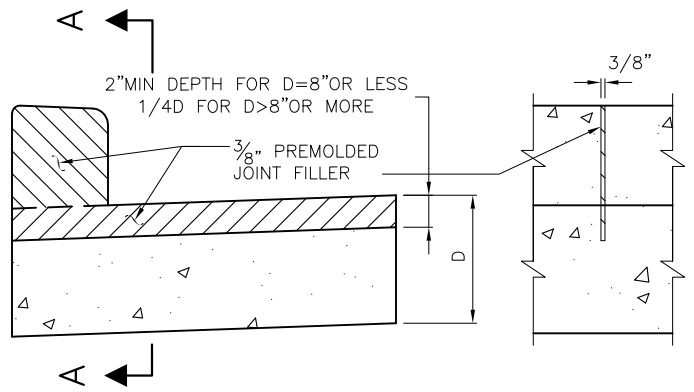
NOTES:

1. "H" MUST BE 6" FROM FINISHED ROADWAY GRADE UNLESS OTHERWISE SHOWN ON DRAWINGS
2. GUTTER MUST 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

City of Seattle	NOT TO SCALE	TYPE 410 CURB

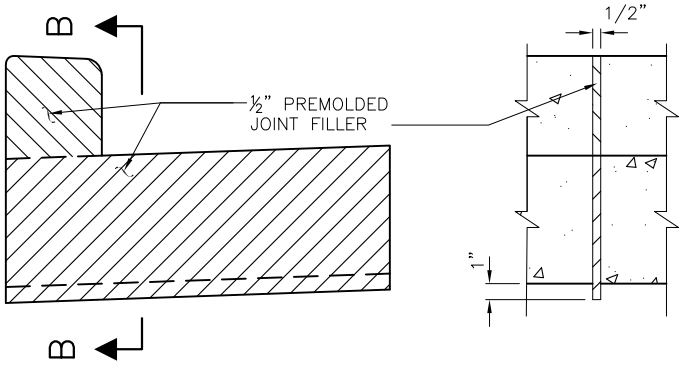
REV DATE: DEC 2013



CONTRACTION JOINT FOR
CURB OR CURB & GUTTER

SECTION A–A

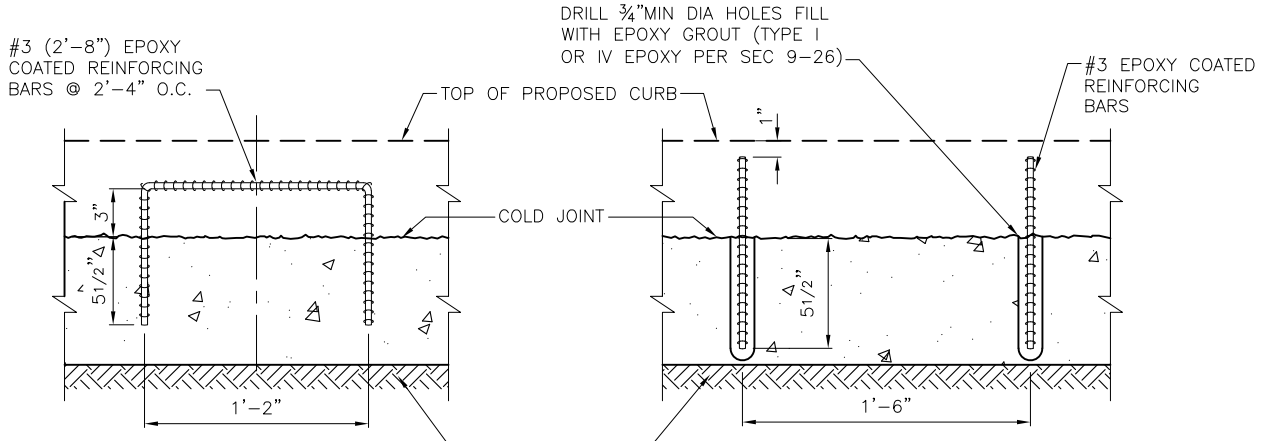
NOTE:
JOINT AND JOINT FILLER FOR
CURB OR FOR CURB & GUTTER,
MATCHING PAVEMENT JOINT



THROUGH JOINT FOR
CURB OR CURB & GUTTER

SECTION B–B

NOTE:
JOINT AND JOINT FILLER FOR
CURB OR FOR CURB & GUTTER,
MATCHING PAVEMENT JOINT



CURB DOWEL ON
NEW PAVEMENT

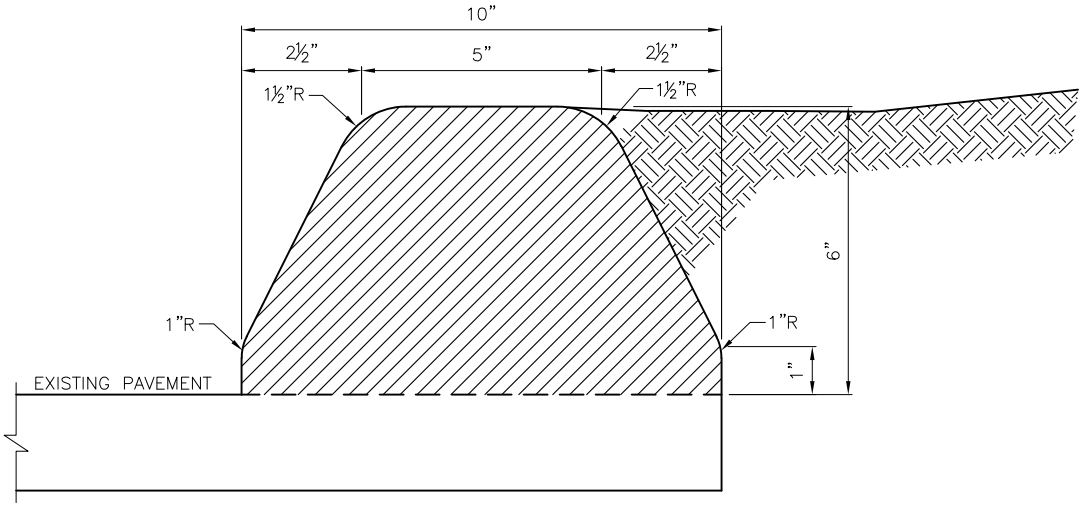
CURB DOWEL PINS ON
EXISTING PAVEMENT

DOWELS FOR DOWELLED CURB CONSTRUCTION

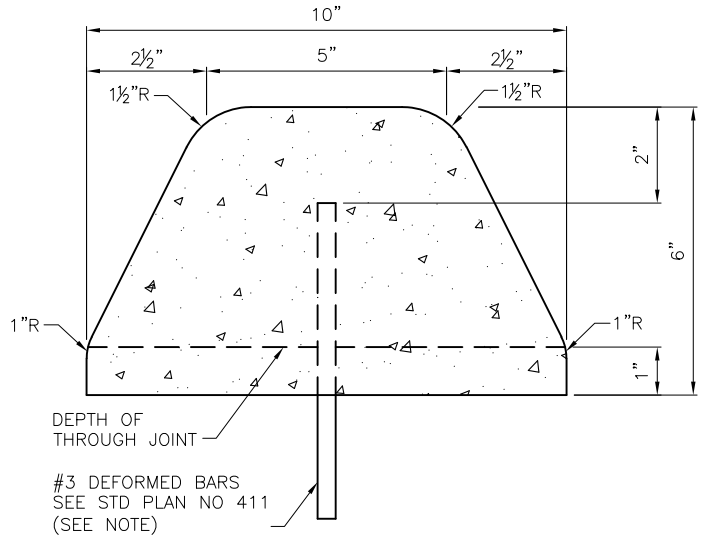
REF STD SPEC SEC 8-04

City of Seattle	NOT TO SCALE	CURB JOINTS & DOWELS

REV DATE: 2003



EXTRUDED ASPHALT CONCRETE CURB



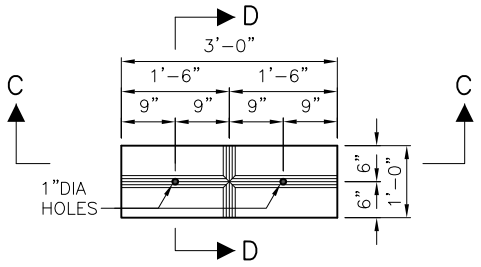
EXTRUDED CEMENT CONCRETE CURB

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

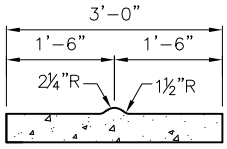
REF STD SPEC SEC 8-06

City of Seattle	NOT TO SCALE	EXTRUDED CURB

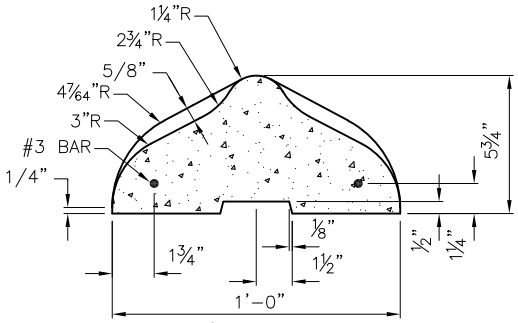
REV DATE: DEC 2013



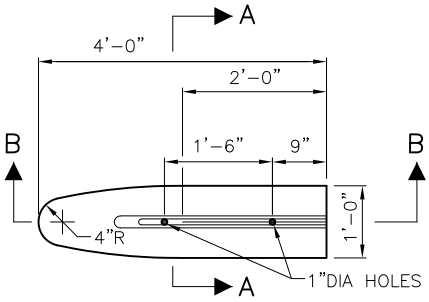
CURB PLAN



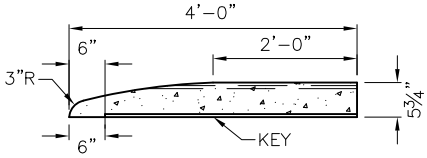
SECTION C–C



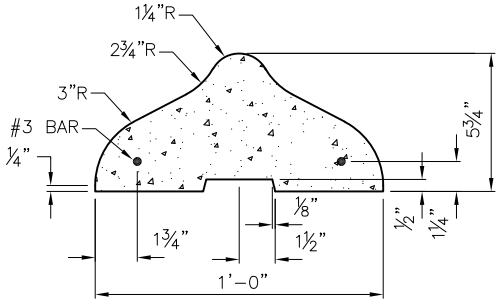
SECTION D–D



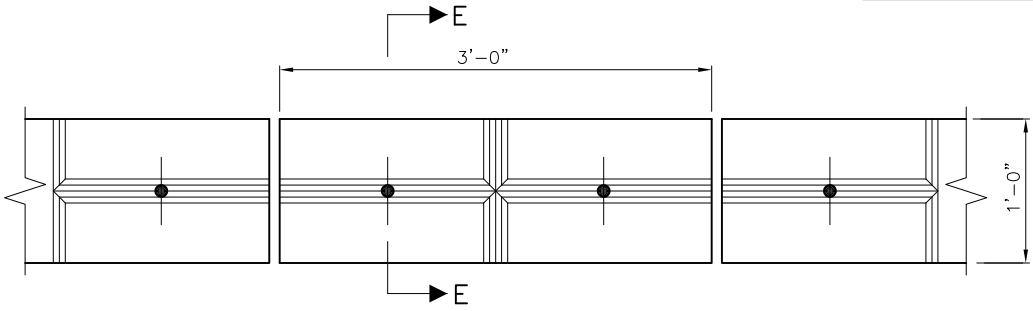
NOSING



SECTION B–B

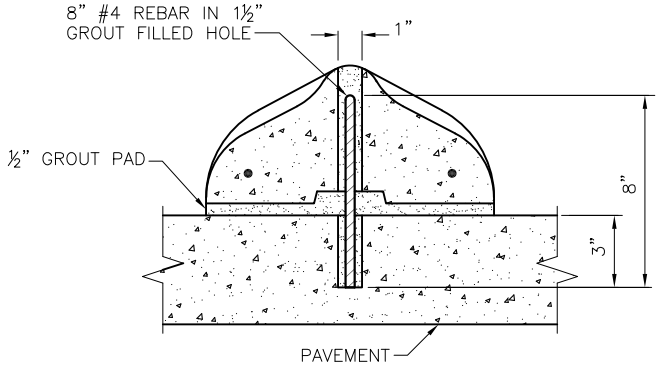


SECTION A–A



INSTALLATION DETAIL FOR STRAIGHT PRECAST TRAFFIC CURB

NOTE:
INSTALL 8" #4 REBAR IN EVERY HOLE AND FILL HOLE WITH GROUT

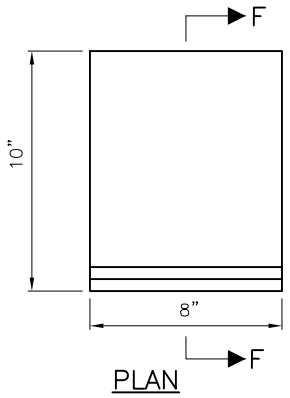


SECTION E–E

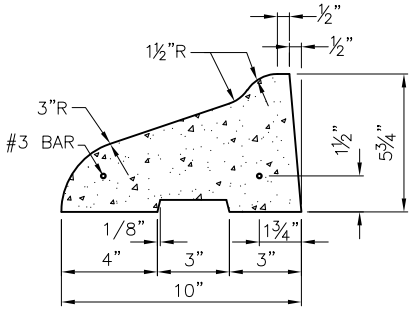
REF STD SPEC SEC 8-07

City of Seattle	NOT TO SCALE	3' PRECAST TRAFFIC CURB (DUAL SLOPED)

REV DATE: 2005

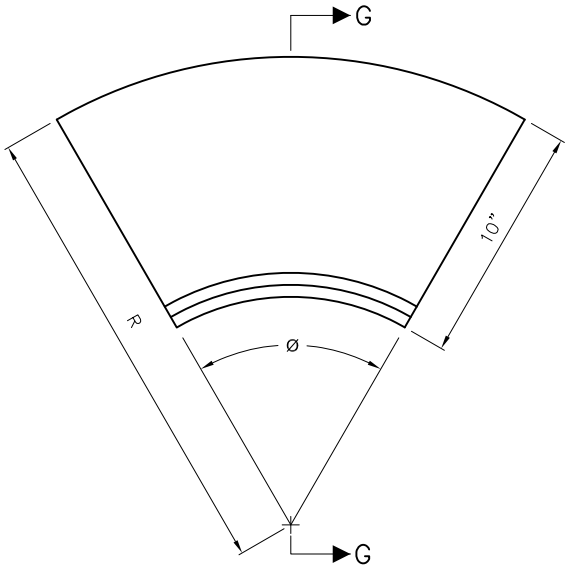


PLAN

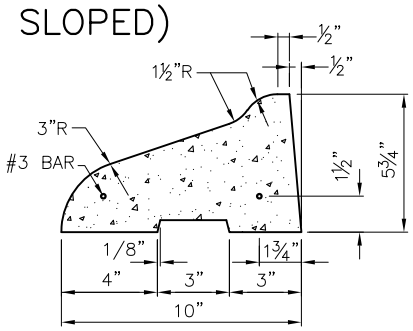


SECTION F–F

8" STRAIGHT BLOCK CURB (SINGLE SLOPED)



RADIAL CURB

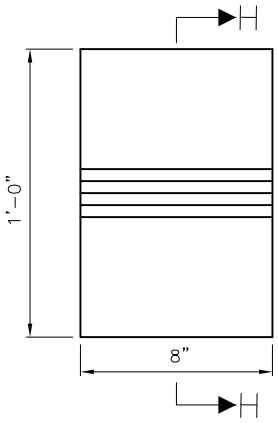


SECTION G–G

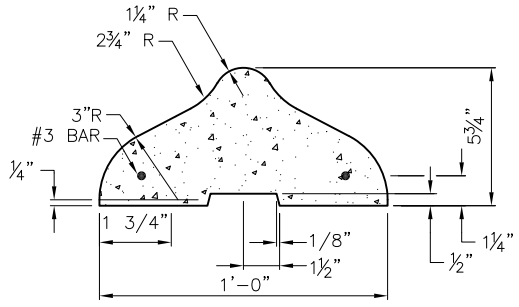
RADIAL CURB

UNIT	RADIUS	CURB RETURN ANGLE(ø)MULTIPLE
R1	1'–3"	45°00'
R2	1'–10"	30°00'
R3	2'–6"	22°30'
R4	5'–0"	11°27.54'
R5	10'–0"	5°43.77'
FOR RADII GREATER THAN 10'–0" USE SEGMENTS OF STRAIGHT BLOCK CURB		

RADIUS CURB TABLE



PLAN



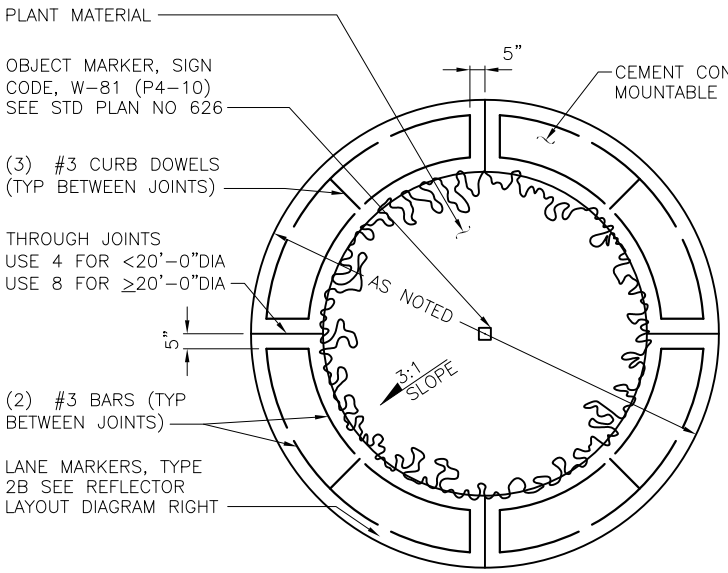
SECTION H–H

8" STRAIGHT BLOCK CURB (DUAL SLOPED)

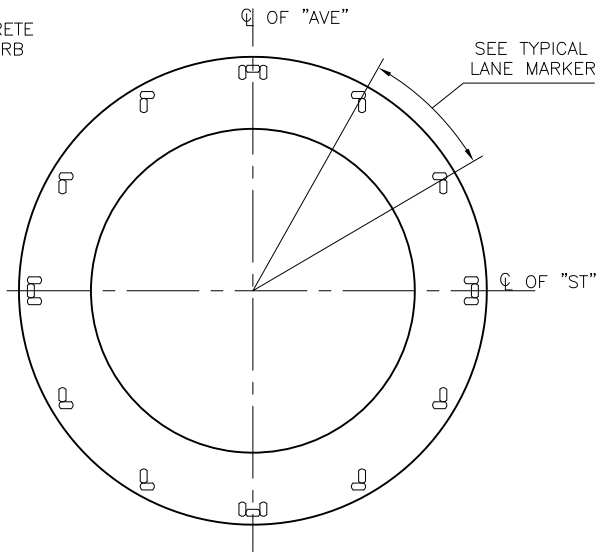
REF STD SPEC SEC 8-07

City of Seattle	NOT TO SCALE	8" BLOCK AND RADIAL TRAFFIC CURB

REV DATE: AUG 2014



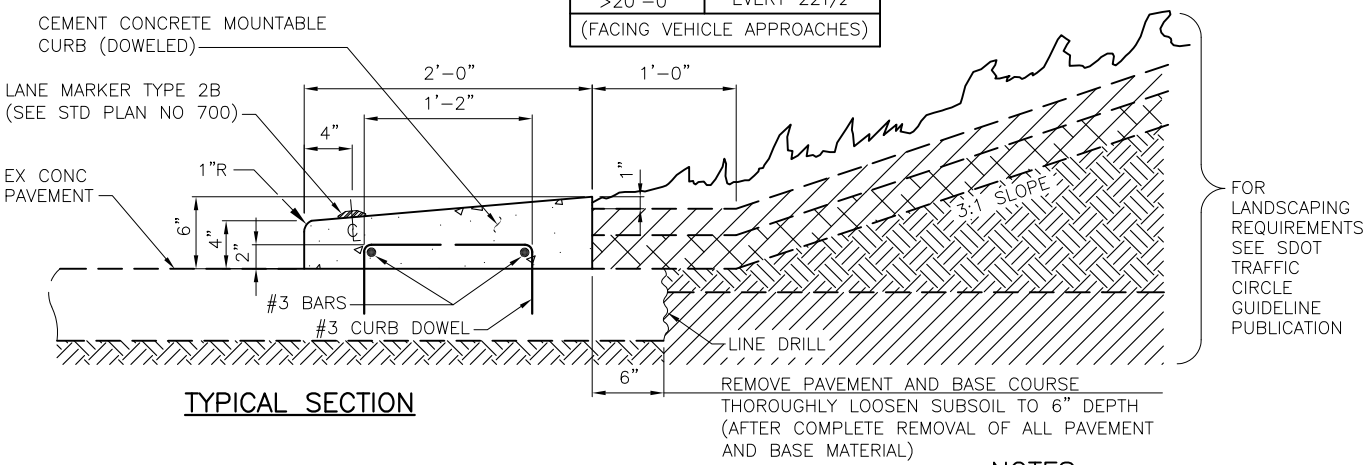
TYPICAL TRAFFIC CIRCLE



TRAFFIC CIRCLE REFLECTOR LAYOUT

SPACING CHART

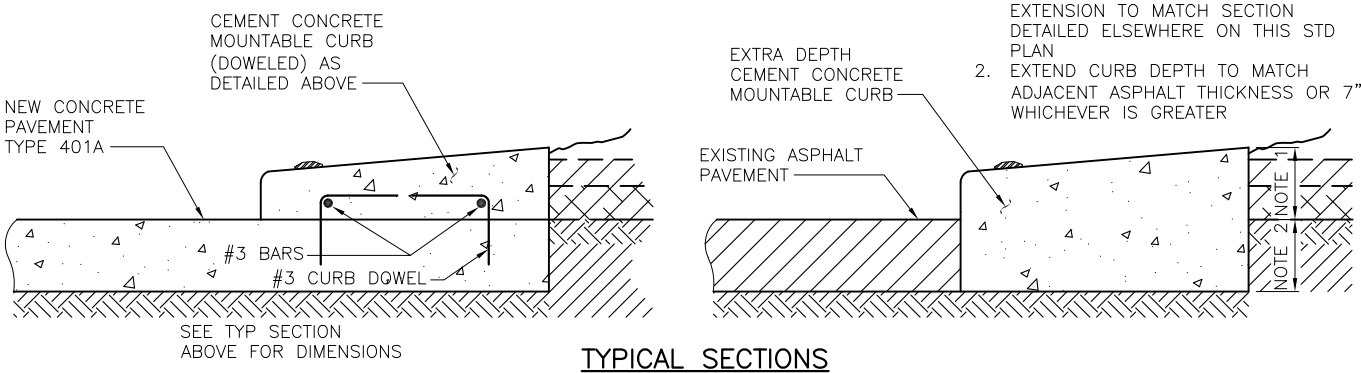
DIAMETER OF CIRCLE	DEGREE OF SPACING
≤12'-0"	EVERY 45°
≤20'-0"	EVERY 30°
>20'-0"	EVERY 22 1/2°
(FACING VEHICLE APPROACHES)	



TYPICAL SECTION

NOTES:

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

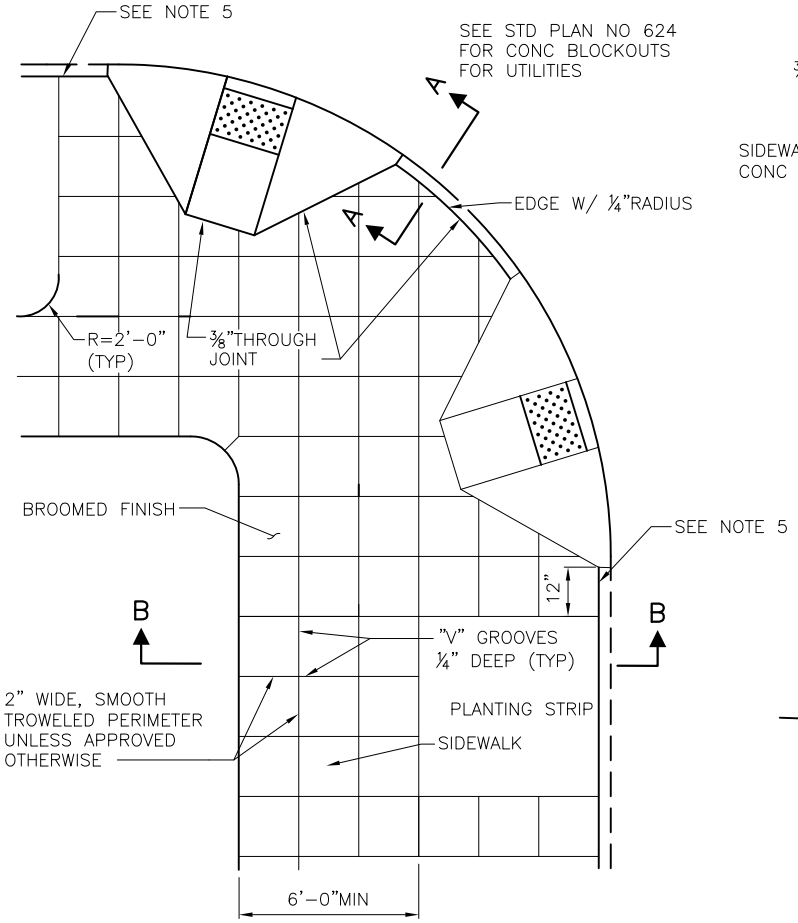


TYPICAL SECTIONS

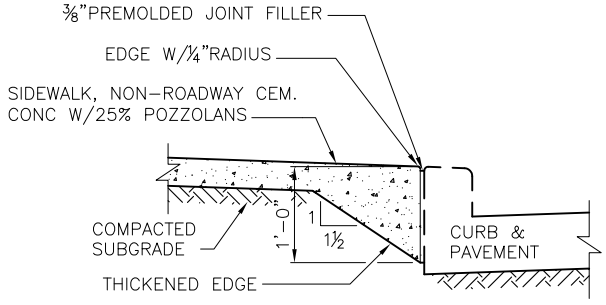
REF STD SPEC SEC 8-02, 8-04, 8-08

City of Seattle	NOT TO SCALE	TRAFFIC CIRCLE DETAILS

REV DATE: DEC 2013

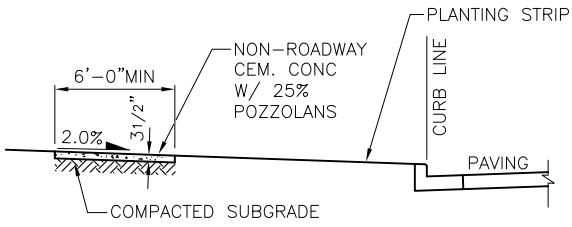


TYPICAL SIDEWALK & CURB RAMP DETAIL



THROUGH JOINT @ SECTION A–A

UNLESS CURB IS MONOLITHIC WITH SIDEWALK



SECTION B–B

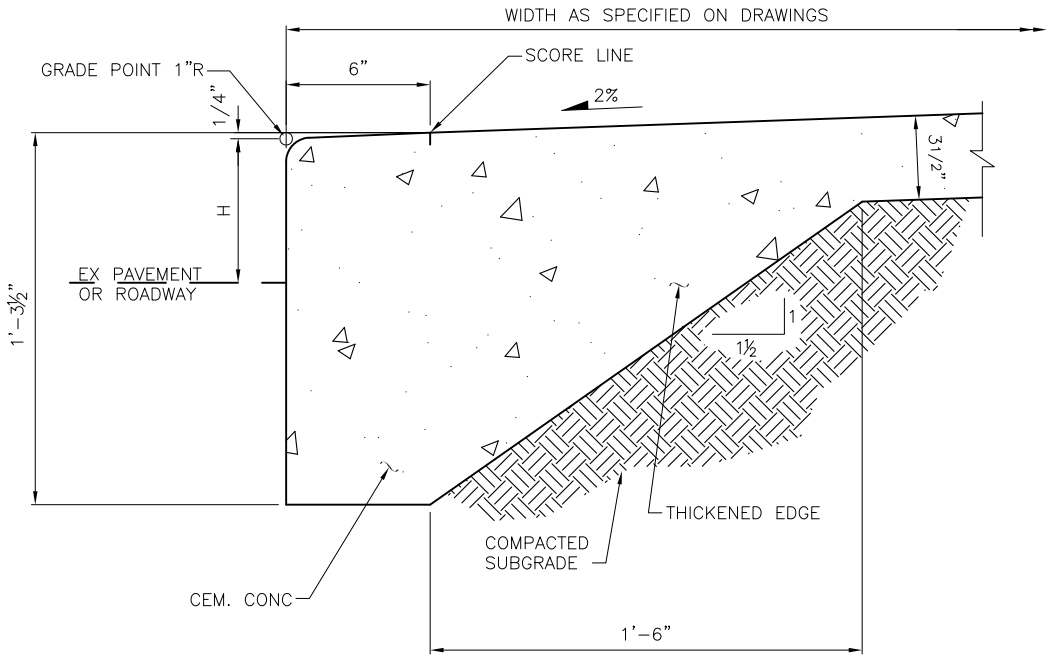
NOTES:

1. ⅜" THROUGH AND CONTRACTION JOINTS SHALL BE LOCATED AS REQUIRED BY SECTION 8-14.3(6).
2. "V" GROOVE SCORING SHALL MATCH PATTERN IN ADJACENT EXISTING SIDEWALK OR SHALL BE A 2' SQUARE SCORING PATTERN UNLESS OTHERWISE OTHERWISE APPROVED BY THE ENGINEER.
3. FOR CURB RAMPS, SEE STANDARD PLAN NO 422.
4. FOR TREE PITS, SEE STANDARD PLAN NO 424.
5. 12" MINIMUM BETWEEN EDGE OF RAMP WING AND PLANTING STRIP IS DESIRABLE.
6. ALL SIDEWALK SHALL BE NON-ROADWAY CEM CONC W/ 25% POZZOLANS.

REF STD SPEC SEC 8-14

City of Seattle	NOT TO SCALE	CONCRETE SIDEWALK DETAILS

REV DATE: AUG 2010



NOTE:
"H" MUST BE 6" FROM FINISHED ROADWAY GRADE UNLESS OTHERWISE SPECIFIED

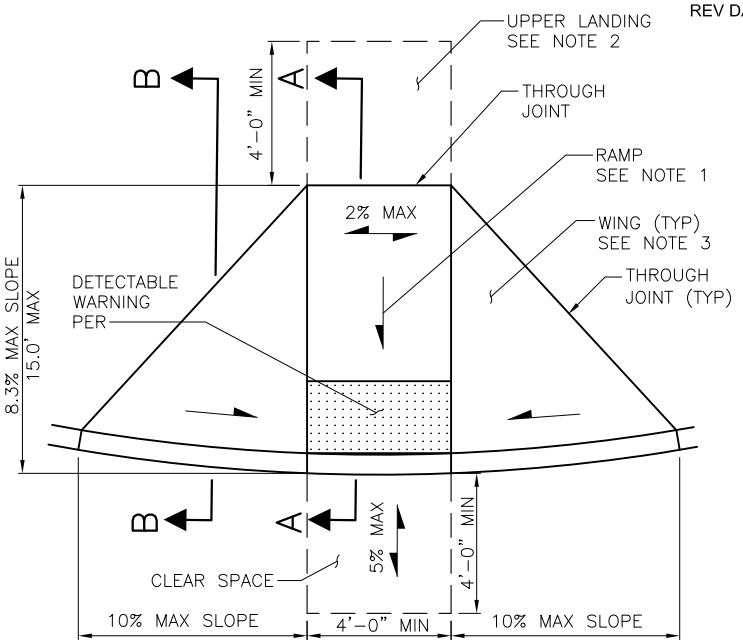
REF STD SPEC SEC 8-14

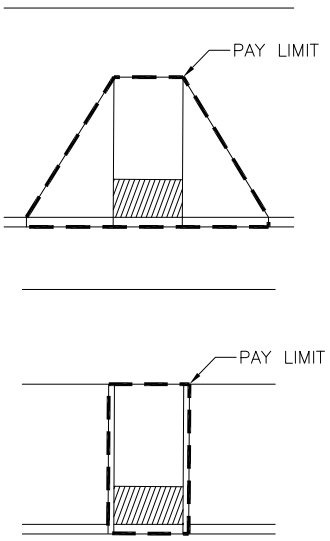
City of Seattle	NOT TO SCALE	SIDEWALK WITH MONOLITHIC CURB

REV DATE: JAN 2017

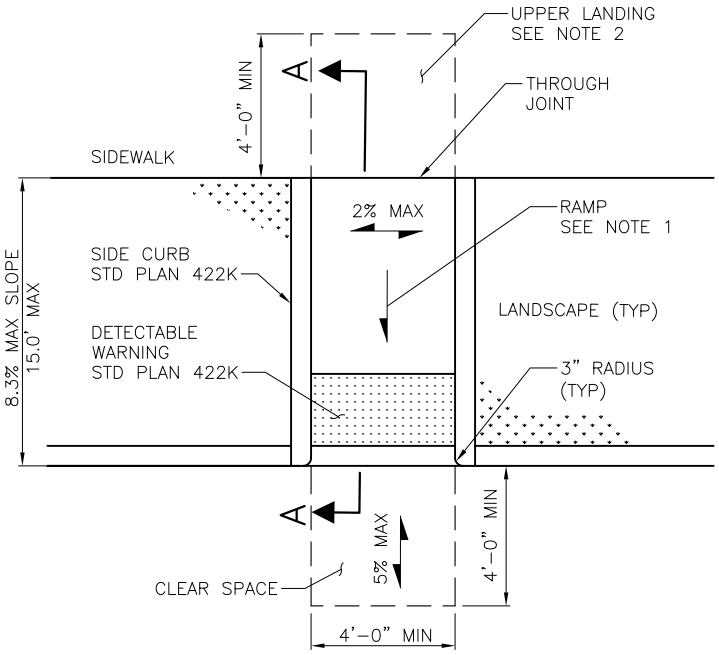
NOTES:

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



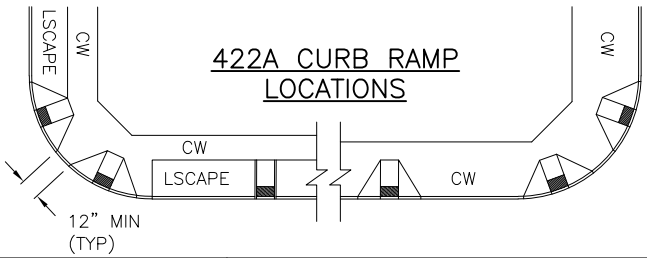


PAY LIMITS



PERPENDICULAR CURB RAMPS
(TYPE 422A)

2% MAX = MAX SLOPE IN EITHER DIRECTION



422A CURB RAMP LOCATIONS

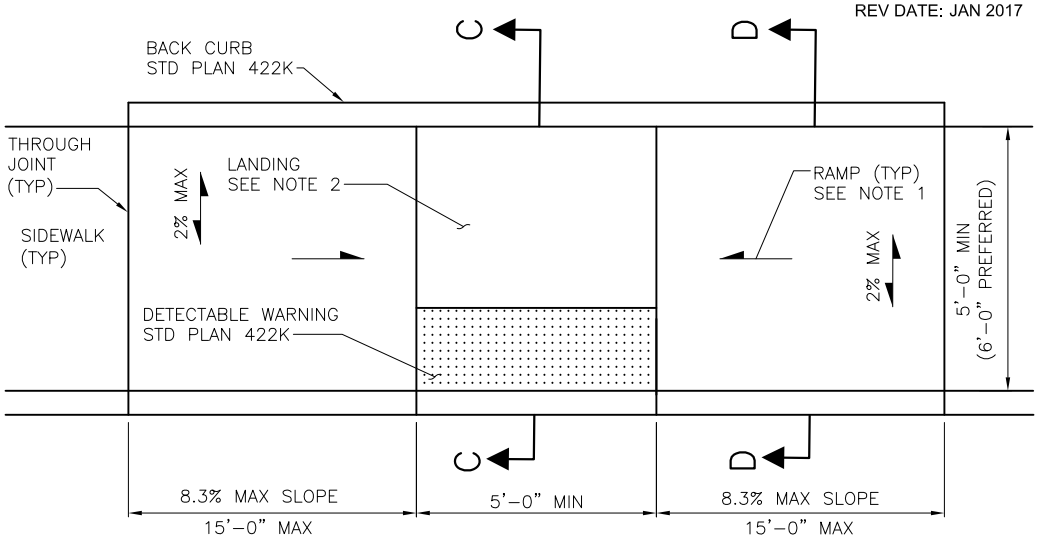
REF STD SPEC SEC 8-14

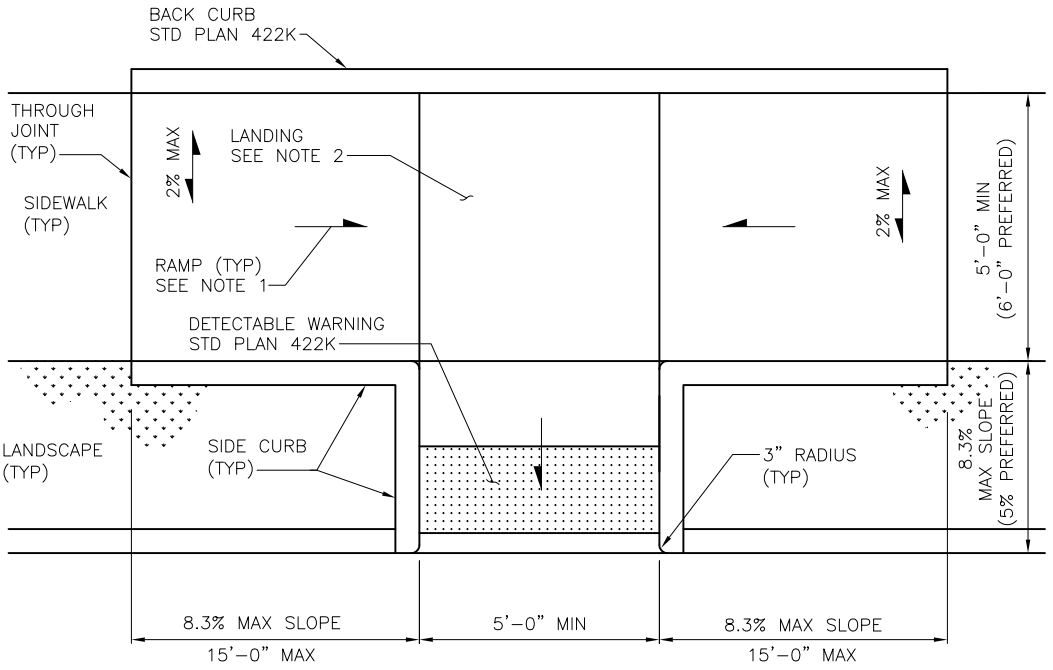
City of Seattle	NOT TO SCALE	CURB RAMP DETAILS

REV DATE: JAN 2017

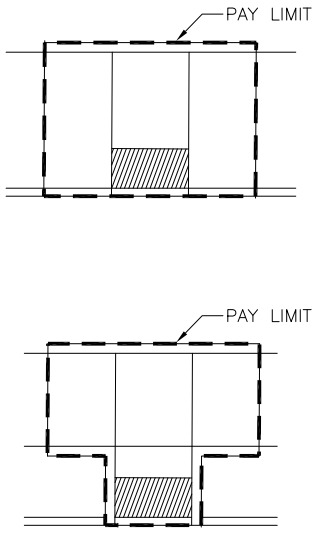
NOTES:

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



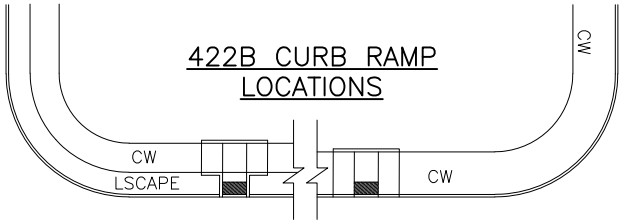


PARALLEL CURB RAMPS
(TYPE 422B)



PAY LIMITS

2% MAX = MAX SLOPE IN EITHER DIRECTION



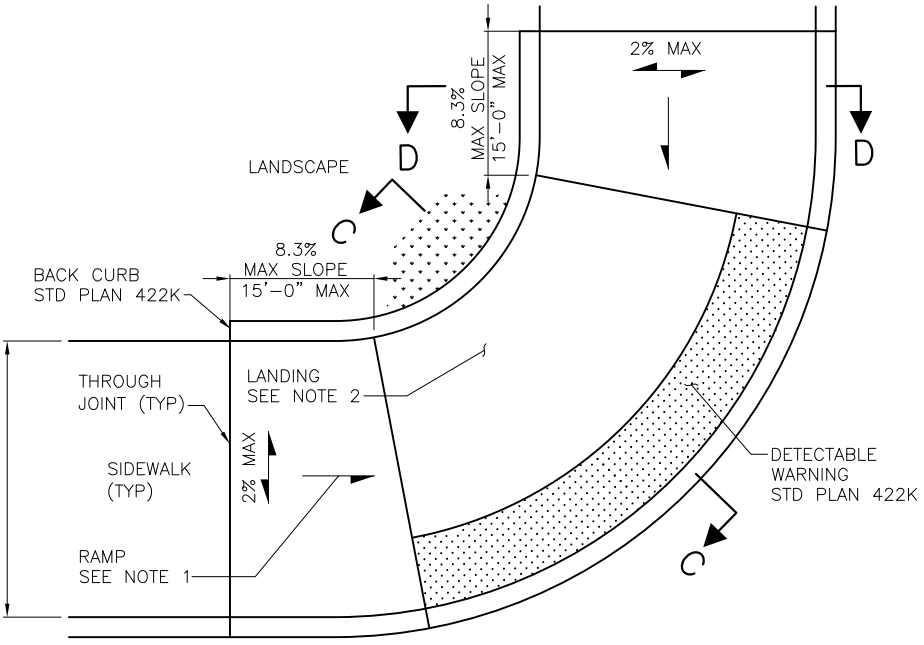
REF STD SPEC SEC 8-14

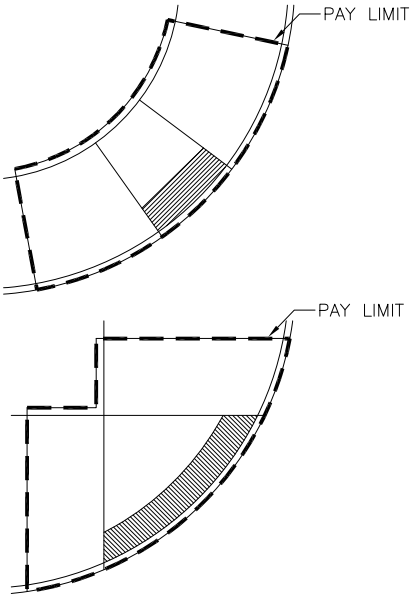
City of Seattle	NOT TO SCALE	CURB RAMP DETAILS

REV DATE: JAN 2017

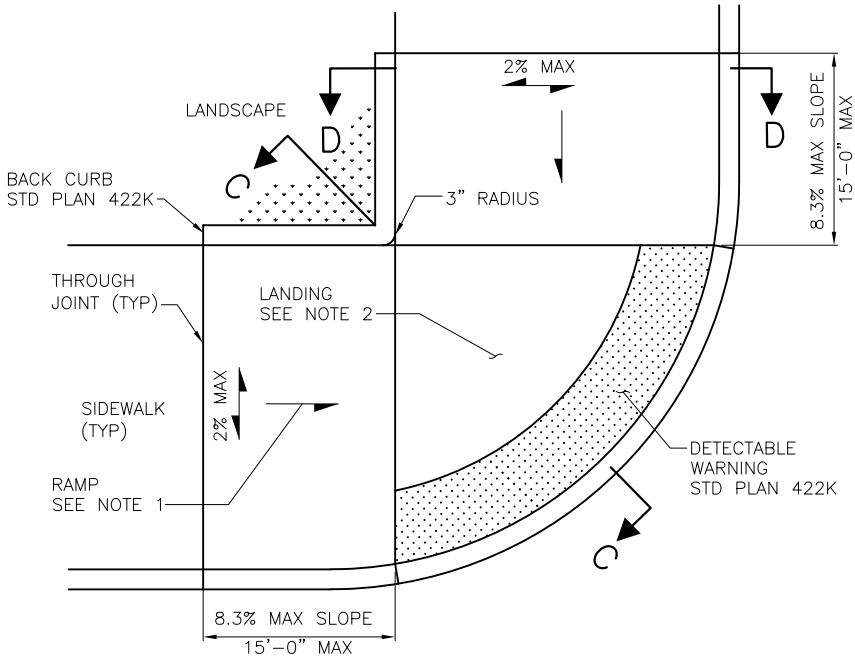
NOTES:

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



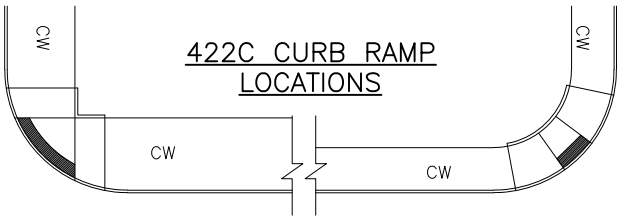


PAY LIMITS



PARALLEL CURB RAMPS (CORNER)
(TYPE 422C)

2% MAX = MAX SLOPE IN EITHER DIRECTION



422C CURB RAMP LOCATIONS

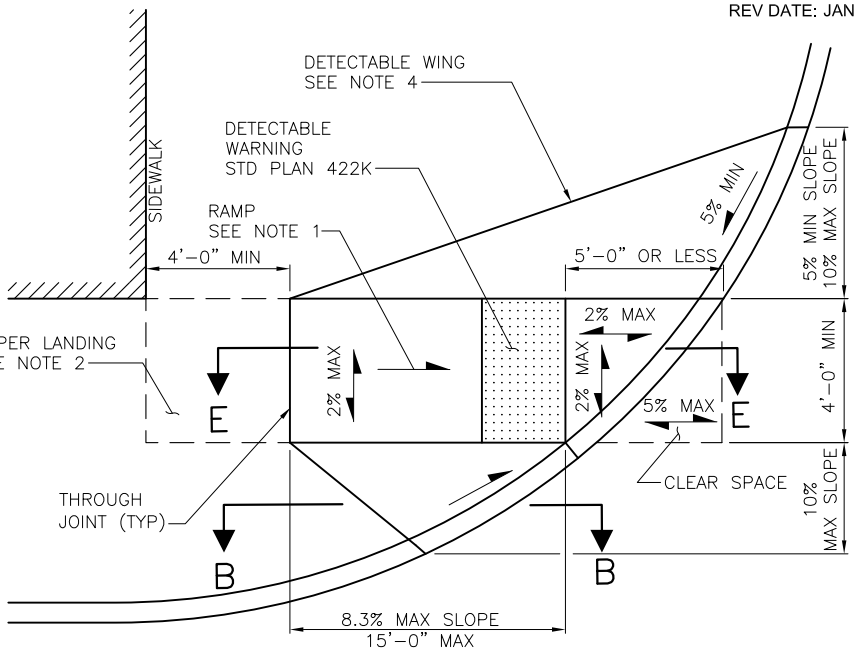
REF STD SPEC SEC 8-14

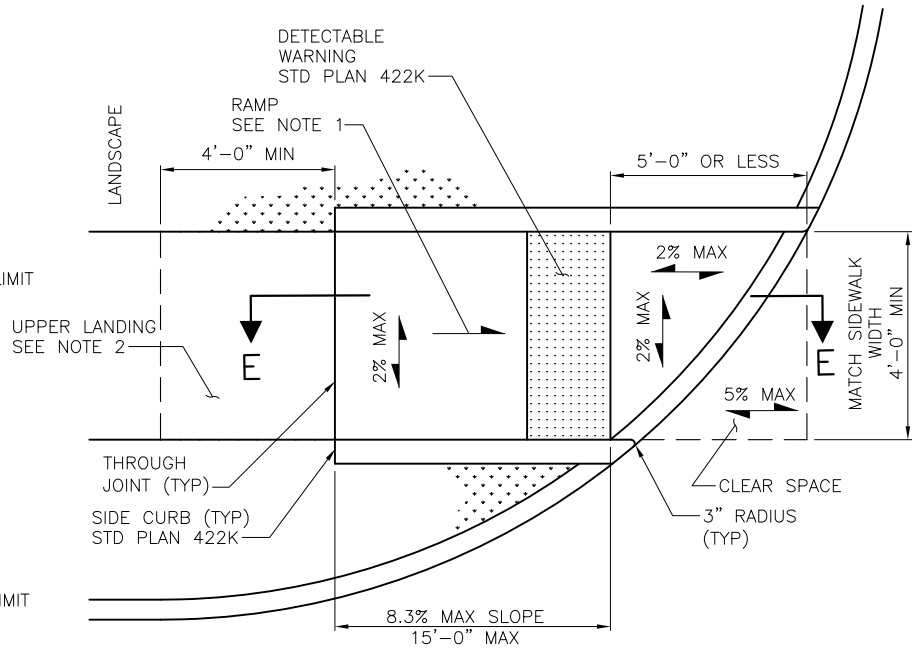
City of Seattle	NOT TO SCALE	CURB RAMP DETAILS

REV DATE: JAN 2017

NOTES:

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

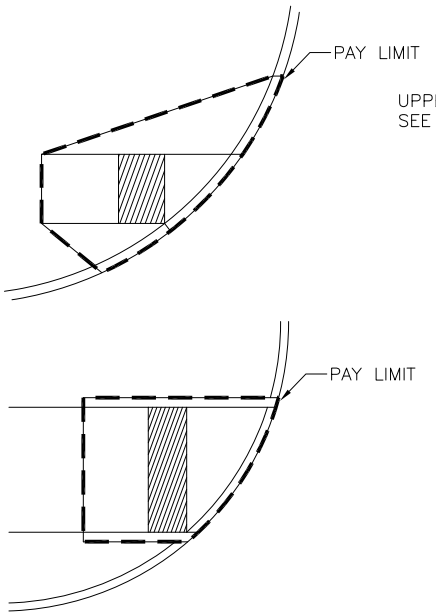




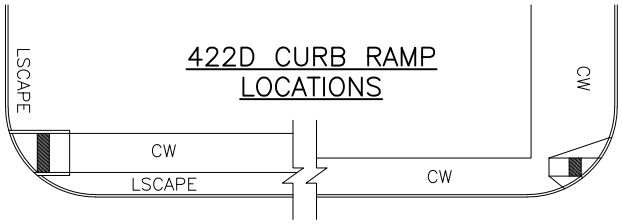
DIRECTIONAL CURB RAMPS

(TYPE 422D)

2% MAX = MAX SLOPE IN EITHER DIRECTION



PAY LIMITS



422D CURB RAMP LOCATIONS

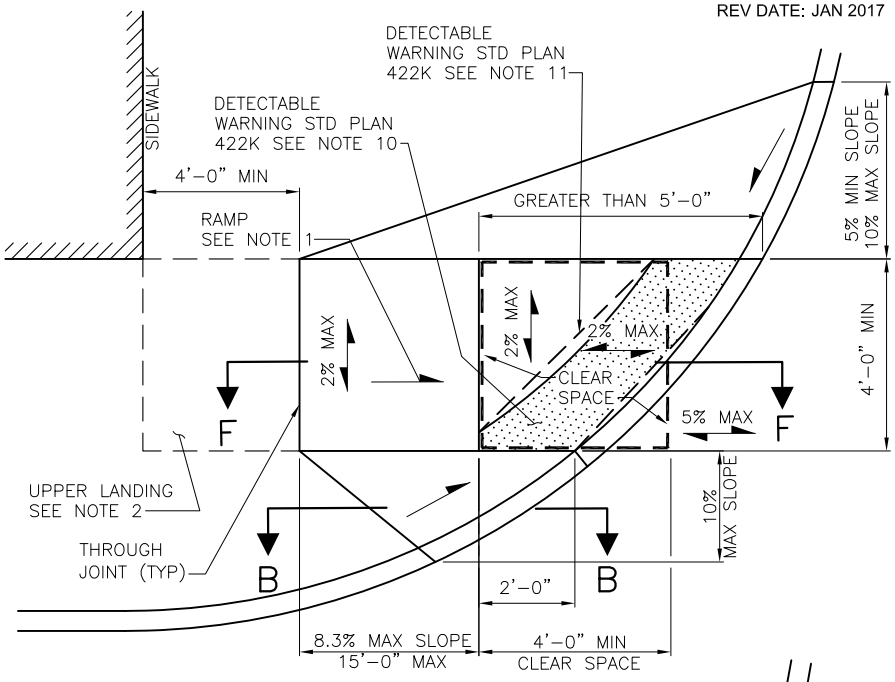
REF STD SPEC SEC 8-14

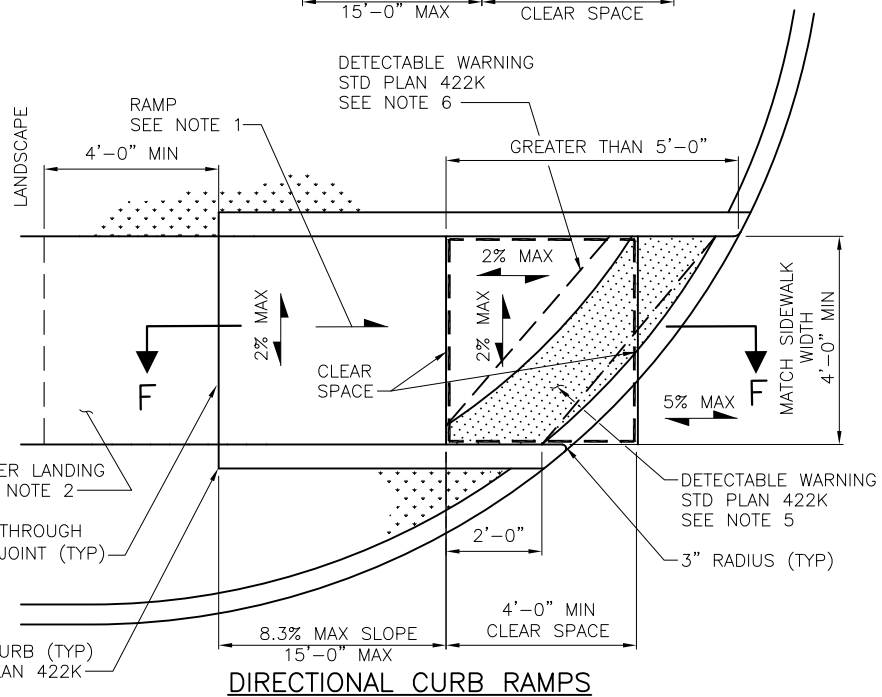
City of Seattle	NOT TO SCALE	CURB RAMP DETAILS

REV DATE: JAN 2017

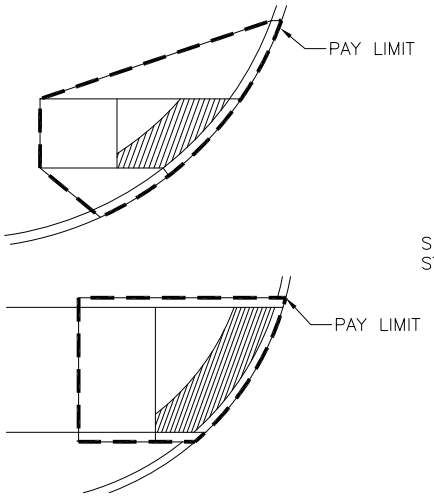
NOTES:

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



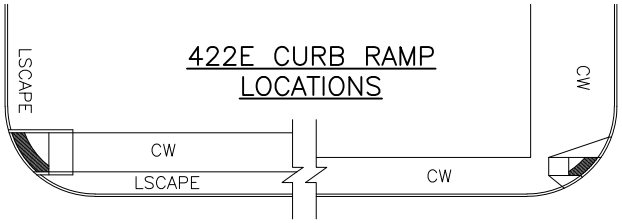


DIRECTIONAL CURB RAMPS
(TYPE 422E)



PAY LIMITS

2% MAX = MAX SLOPE IN EITHER DIRECTION



422E CURB RAMP LOCATIONS

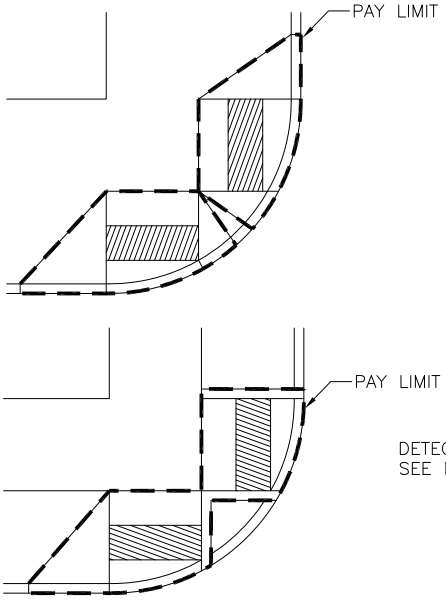
REF STD SPEC SEC 8-14

City of Seattle	NOT TO SCALE	CURB RAMP DETAILS

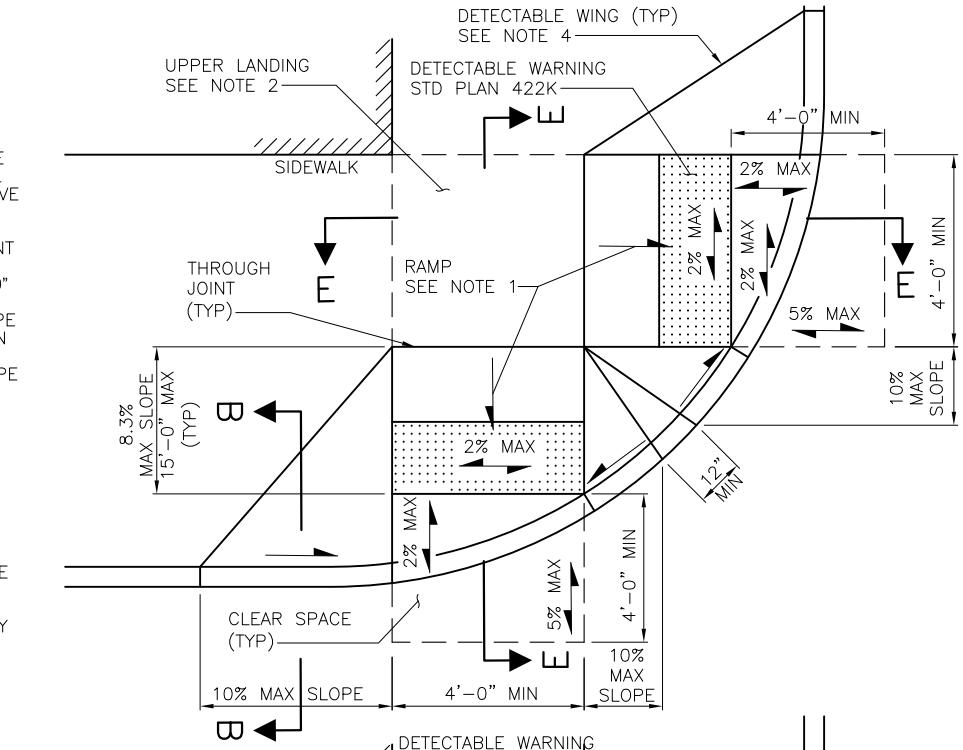
REV DATE: JAN 2017

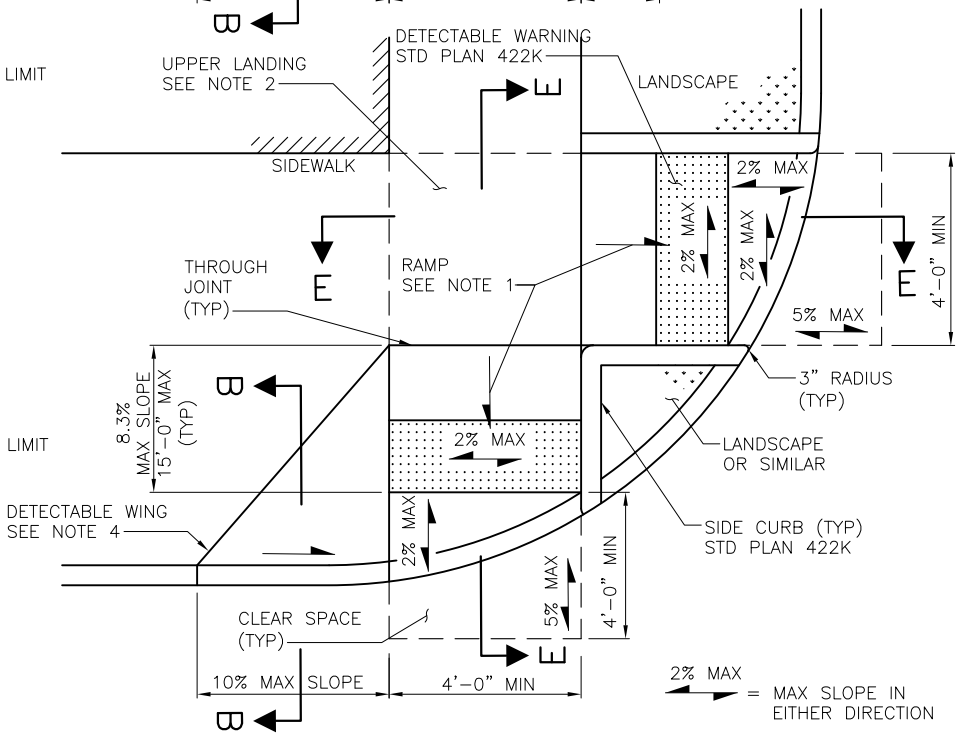
NOTES:

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



PAY LIMITS

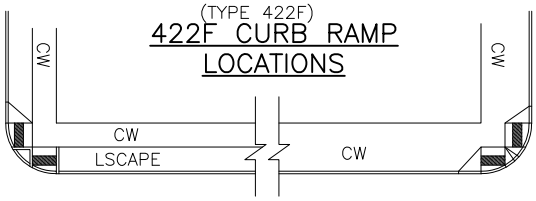




DIRECTIONAL CURB RAMPS W/ SHARED LANDING

(TYPE 422F)

422F CURB RAMP LOCATIONS



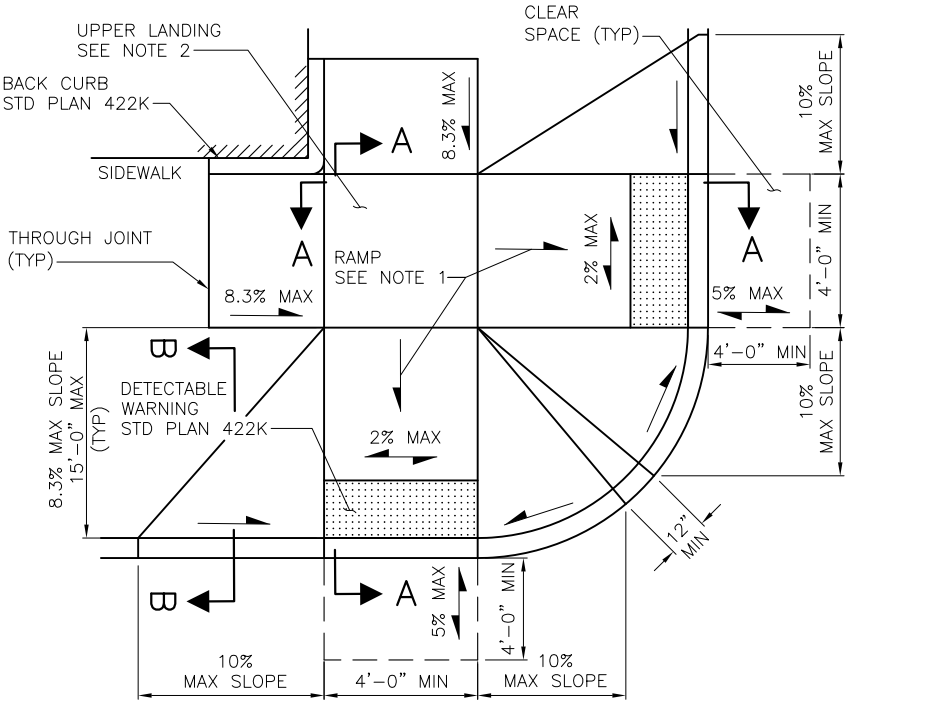
REF STD SPEC SEC 8-14

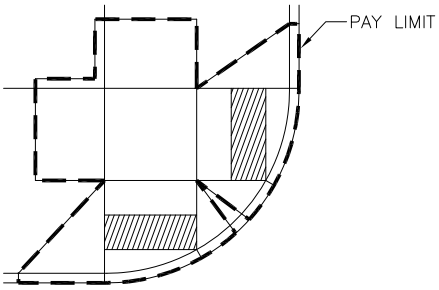
City of Seattle	NOT TO SCALE	CURB RAMP DETAILS

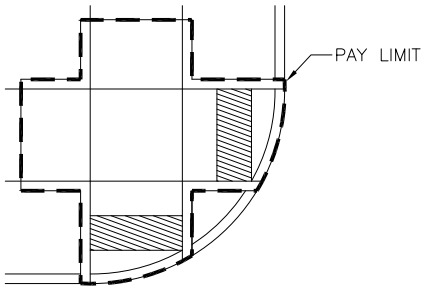
REV DATE: JAN 2017

NOTES:

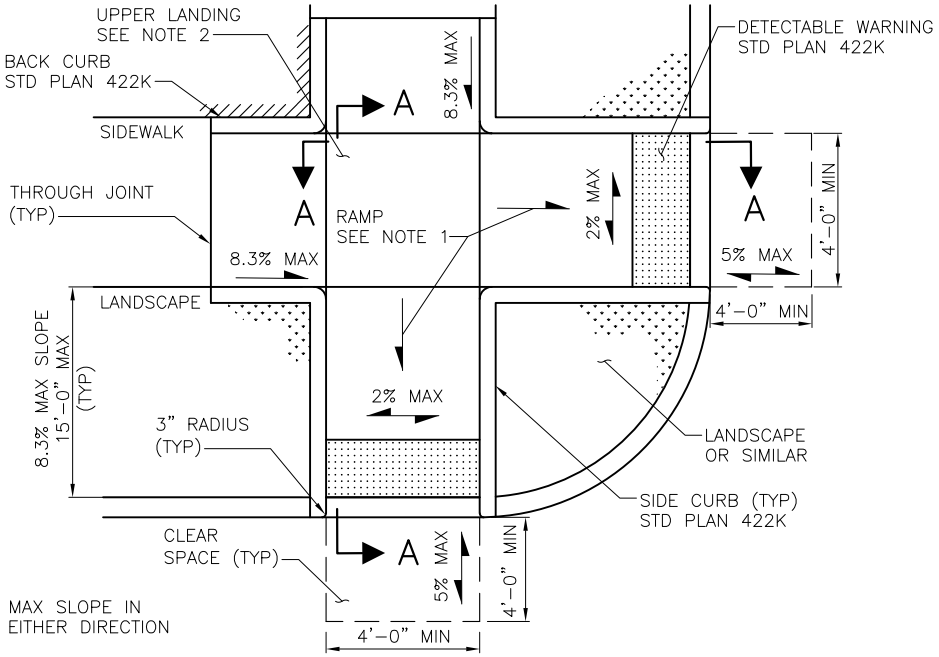
1. RAMP CENTERLINE(S) SHALL BE PARALLEL TO CROSSWALK AND/OR THE SIDEWALK.
2. UPPER LANDING AT THE TOP OF THE CURB RAMP SHALL MATCH THE FULL WIDTH OF THE RAMP AND SHALL HAVE A MINIMUM DEPTH OF 4'–0". IF THE LANDING IS LIMITED AT THE BACK–OF–SIDEWALK BY A PERMANENT VERTICAL BARRIER, THE DEPTH OF THE TURNING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







PAY LIMITS

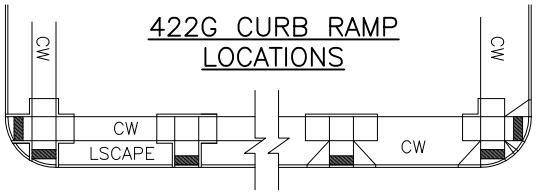


2% MAX = MAX SLOPE IN EITHER DIRECTION

PARALLEL AND PERPENDICULAR COMBINATION CURB RAMPS W/ SHARED LANDING

(TYPE 422G)

422G CURB RAMP LOCATIONS



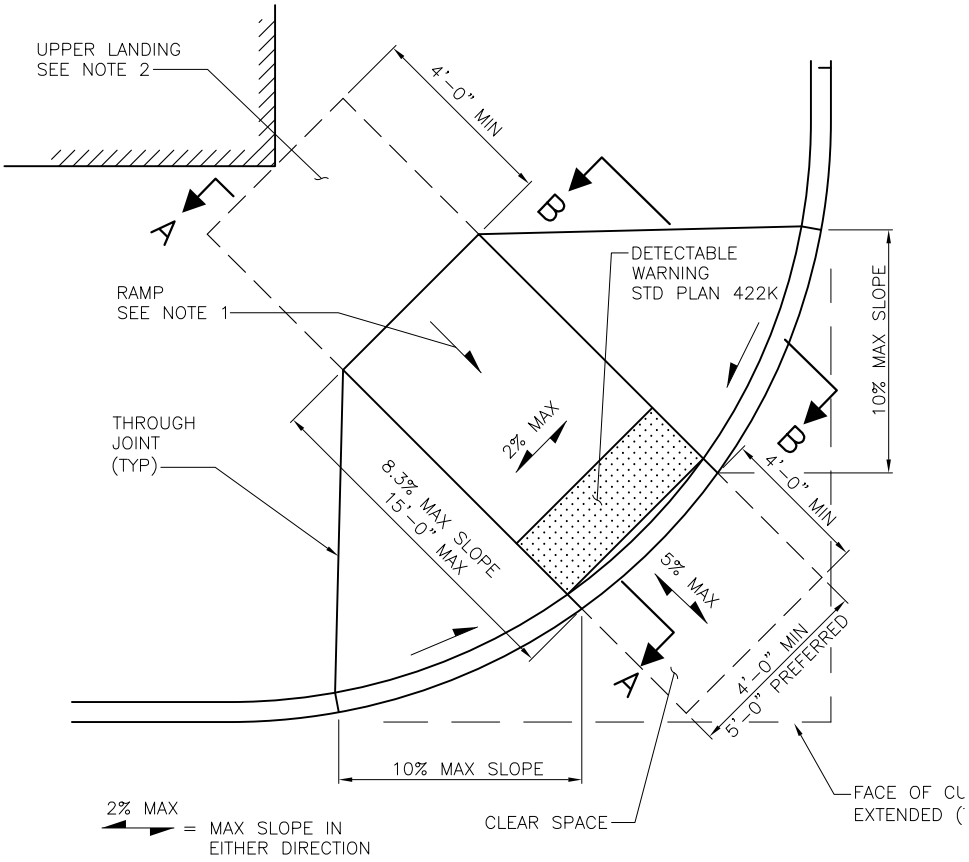
REF STD SPEC SEC 8-14

City of Seattle	NOT TO SCALE	CURB RAMP DETAILS

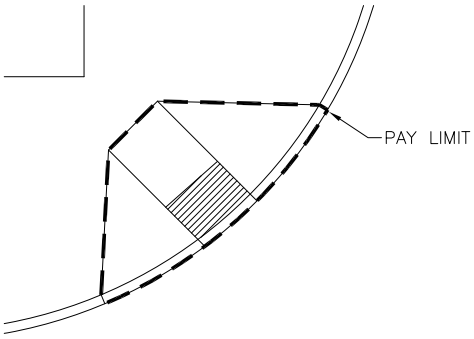
REV DATE: JAN 2017

NOTES:

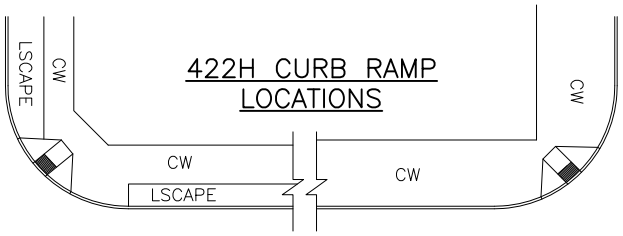
1. SHARED DIAGONAL PERPENDICULAR RAMPS SHALL NOT BE INSTALLED UNLESS ALL OTHER DESIGN OPTIONS ARE UNABLE TO BE CONSTRUCTED DUE TO EXISTING SITE CONSTRAINTS.
2. RAMP CENTERLINE SHALL BE RADIAL/PERPENDICULAR TO THE ALIGNMENT OF THE FACE OF CURB.
3. UPPER LANDING AT THE TOP OF THE CURB RAMP SHALL MATCH THE FULL WIDTH OF THE RAMP AND SHALL HAVE A MINIMUM DEPTH OF 4'–0". IF THE LANDING IS LIMITED AT THE BACK–OF–SIDEWALK BY A PERMANENT VERTICAL BARRIER, THE DEPTH OF THE TURNING SPACE SHALL BE 5'–0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP. SLOPE ON THE LANDING SHALL BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
4. CLEAR SPACE AT THE BOTTOM OF THE RAMP SHALL BE 4–0" MINIMUM IN WIDTH AND SHALL EXTEND A MINIMUM OF 4'–0" BEYOND THE RAMP LOWER GRADE BREAK. THE CLEAR SPACE SHALL FALL WHOLLY WITHIN THE LEGAL CROSSWALK, MARKED OR UNMARKED. THE CLEAR SPACE SHALL FIT BEHIND LINES EXTENDING FROM THE FACE OF CURB RUNNING PARALLEL TO EACH ROADWAY. THERE IS NO ALLOWABLE EXEMPTION FOR MINIMUM CLEAR SPACE REQUIREMENTS AT SHARED DIAGONAL PERPENDICULAR CURB RAMPS.
5. WINGS SHALL HAVE A MAXIMUM SLOPE OF 10%. WINGS SHALL HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB SHALL CONTINUE THROUGH EACH WING.
6. RAMP SURFACE SHALL HAVE A HEAVY BROOM BRUSHED SURFACE PARALLEL TO THE CURB.
7. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.



SHARED DIAGONAL PERPENDICULAR CURB RAMP
(TYPE 422H)



PAY LIMITS



422H CURB RAMP LOCATIONS

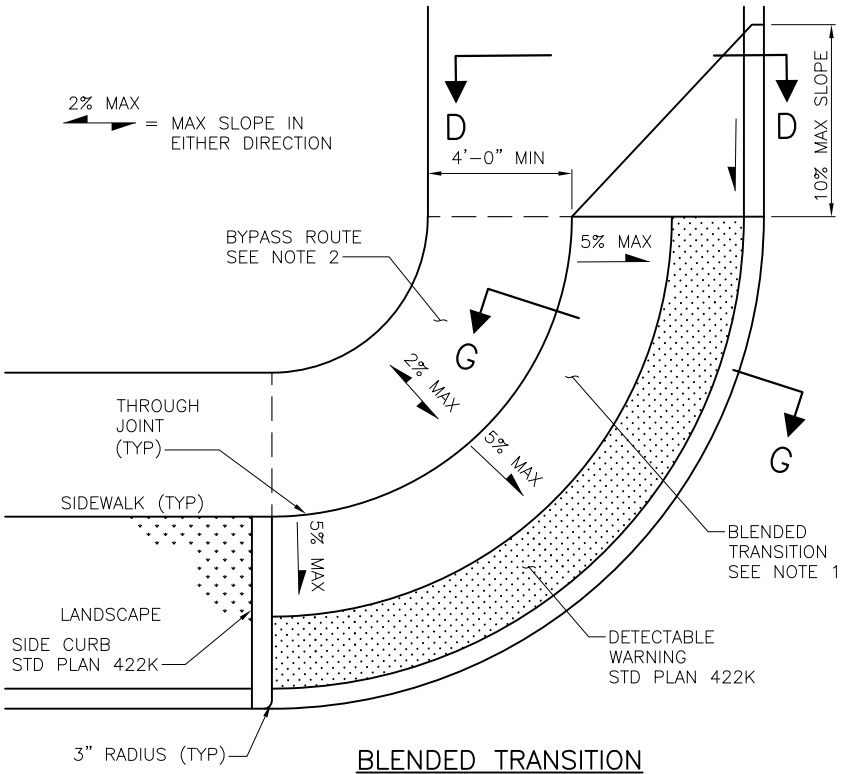
REF STD SPEC SEC 8-14

City of Seattle	NOT TO SCALE	CURB RAMP DETAILS

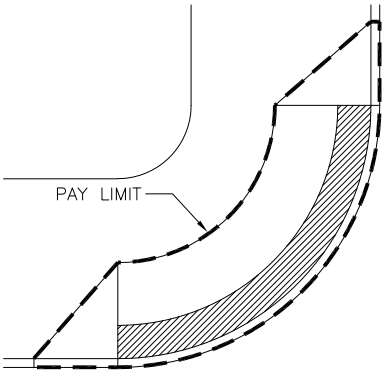
REV DATE: JAN 2017

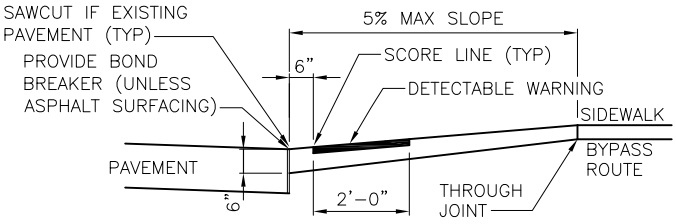
NOTES:

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



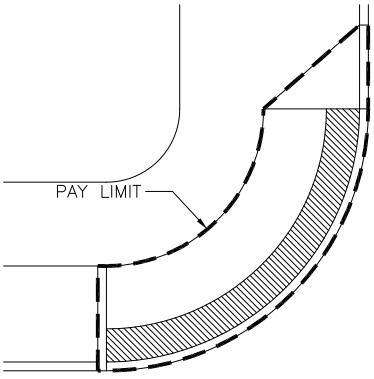
BLENDED TRANSITION
(TYPE 422I)

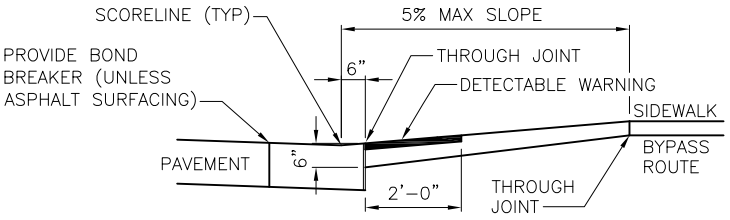




SECTION G–G

CURB MONOLITHIC WITH RAMP. NEW PAVEMENT BLOCKED OUT FULL DEPTH. EXISTING PAVEMENT REMOVED AT FACE OF CURB

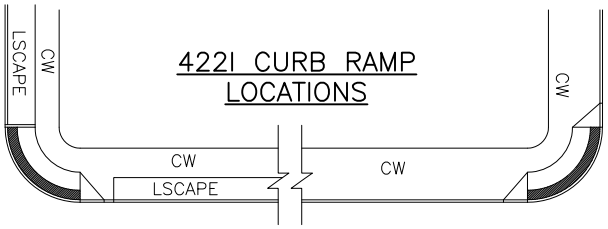




SECTION G–G

DEPRESSED CURB & GUTTER SEPARATE FROM RAMP.

PAY LIMITS



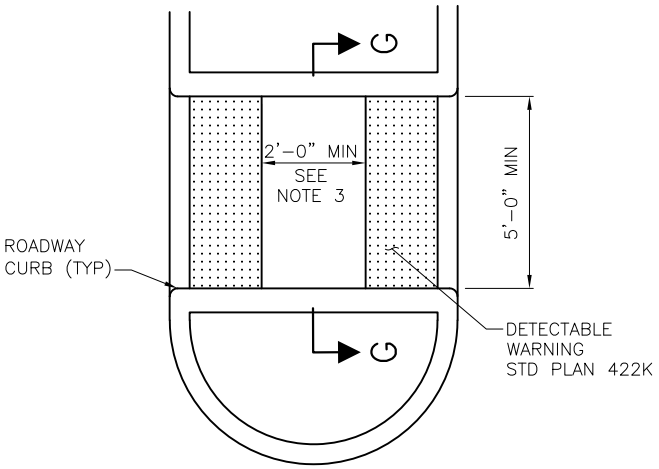
REF STD SPEC SEC 8-14

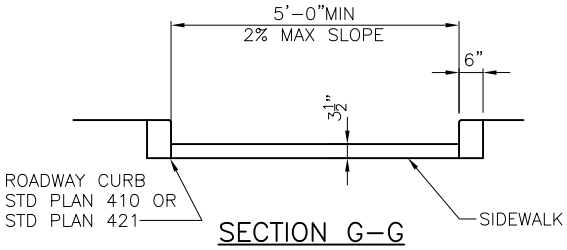
City of Seattle	NOT TO SCALE	CURB RAMP DETAILS

REV DATE: JUL 2016

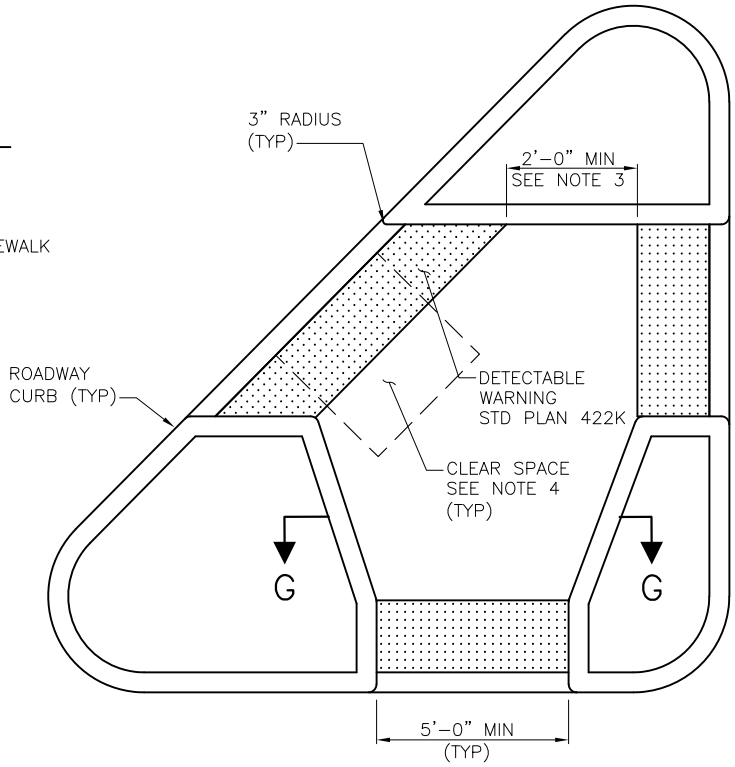
NOTES:

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





SECTION G-G



ISLAND CUT-THROUGHS
(TYPE 422J)

REF STD SPEC SEC 8-14

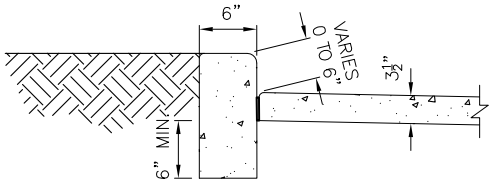
City of Seattle	NOT TO SCALE	CURB RAMP DETAILS

REV DATE: JAN 2017

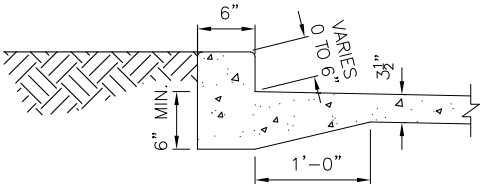
CURB RAMP GENERAL NOTES:

1. TWO CURB RAMPS SHALL BE INSTALLED AT EACH CORNER UNLESS OTHERWISE DIRECTED BY ENGINEER. SHARED DIAGONAL PERPENDICULAR RAMPS SHALL NOT BE INSTALLED UNLESS ALL OTHER DESIGN OPTIONS ARE UNABLE TO BE CONSTRUCTED DUE TO EXISTING SITE CONSTRAINTS.
2. CURB RAMPS SHALL BE AS CLOSELY ALIGNED WITH THE SIDEWALK AND THE PEDESTRIAN STREET CROSSING SERVED AS POSSIBLE.
3. CURB RAMP SHALL BE CONSTRUCTED WITH COMPANION RAMP ON OPPOSITE SIDE OF THE ROADWAY WHERE NO RAMP IS PROVIDED UNLESS OTHERWISE DIRECTED BY ENGINEER.
4. RAMPS SHALL TYPICALLY HAVE A MAXIMUM RUNNING SLOPE OF 8.3% AND A MINIMUM WIDTH OF 4'–0" UNLESS OTHERWISE DIRECTED BY ENGINEER. THE CROSS SLOPE OF RAMPS SHALL BE MAXIMUM OF 2%. CURB RAMPS ARE NOT REQUIRED TO EXCEED A LENGTH OF 15 FEET UNLESS OTHERWISE DIRECTED BY ENGINEER.*
5. GRADE BREAKS AT THE TOP AND THE BOTTOM OF CURB RAMP RUNS MUST BE PERPENDICULAR TO THE PATH OF TRAVEL. CURB RAMP RUNS ARE DEFINED BY RUNNING SLOPES THAT EXCEED 5% BUT ARE NO MORE THAN 8.3%. SURFACES ABUTTING AT CURB RAMP GRADE BREAKS SHALL BE FLUSH.
6. AREAS ADJACENT TO CURB RAMPS OR CURB RAMP LANDINGS USABLE BY PEDESTRIANS SHALL COMPLY WITH STANDARD PLAN SIDEWALK SLOPE LIMITS OR A CURB RAMP WING MUST BE PROVIDED AS SHOWN IN THE APPLICABLE CURB RAMP DETAILS. THE INSTALLATION OF CURBED EDGES ARE NOT REQUIRED BUT MAY BE USED AT THE SIDES OR BACKS OF CURB RAMPS OR CURB RAMP LANDING WHERE THE ADJACENT SURFACE IS LANDSCAPED OR OTHERWISE NOT USABLE BY PEDESTRIANS.
7. THE COUNTER SLOPE OF THE GUTTER OR THE STREET AT THE BOTTOM OF CURB RAMP RUNS SHALL BE 5% MAXIMUM. IF TURNING OR CHANGE OF ORIENTATION IS REQUIRED WITHIN THE PEDESTRIAN CROSSING AT THE BOTTOM OF CURB RAMP RUNS, THE SLOPE SHALL BE 2% MAXIMUM IN ANY DIRECTION FOR A MINIMUM 4'–0" WIDTH x 4'–0" DEPTH MEASURED FROM THE RAMP BOTTOM GRADE BREAK.
8. CURB RAMPS WITH RAMP RUNS THAT TERMINATE AT THE ENTRANCE TO THE PEDESTRIAN STREET CROSSING SHALL HAVE A CLEAR SPACE AT THE BOTTOM OF THE RAMP 4'–0" MINIMUM IN WIDTH AND SHALL EXTEND A MINIMUM 4'–0" BEYOND THE RAMP LOWER GRADE BREAK. THE CLEAR SPACE SHALL FALL WHOLLY WITHIN THE LEGAL CROSSWALK, MARKED OR UNMARKED.
9. DETECTABLE WARNING SHALL BE PROVIDED AT CURB RAMPS AND AT LOCATIONS WHERE THE SIDEWALK AND ROADWAY ARE FLUSH. THE DETECTABLE WARNING SURFACE SHALL HAVE A TRUNCATED DOME PATTERN AS SHOWN, WITH A MINIMUM DEPTH OF 2'–0", AND SHALL BE PLACED AT THE BACK OF CURB BUT NO MORE THAN 8" FROM THE FACE OF CURB FOR MONOLITHIC CURBS OR ATYPICAL CURB WIDTHS. DETECTABLE WARNING SHALL MATCH THE WIDTH OF THE RAMP RUN OR THE OPENING WHERE THE SIDEWALK AND ROADWAY ARE FLUSH. THE TRUNCATED DOMES ON THE DETECTABLE WARNING SURFACE SHOULD ALIGN WITH THE CURB RAMP RUN OR THE DIRECTION OF TRAVEL. DOMES MAY BE ON A RADIAL GRID PATTERN WHERE THE DETECTABLE WARNING SURFACE IS PLACED AT CURB RADII.
10. DETECTABLE WARNING COLOR SHALL BE "FEDERAL SAFETY YELLOW", UNLESS OTHERWISE DIRECTED BY ENGINEER.
11. DETECTABLE WARNING SURFACES SHOULD GENERALLY NOT BE CUT OR ALTERED TO FIT UNLESS THERE IS NO ALTERNATIVE AVAILABLE. IF REQUIRED, CUT OR ALTER THE DETECTABLE WARNING SURFACE PER THE MANUFACTURER'S DIRECTIONS. DETECTABLE WARNING SURFACES PLACED AT CURB RADII SHALL MATCH THE CURB RADII WITHOUT GAPS OR INCONSISTENCIES IN PLACEMENT.
12. AVOID LOCATED HANDHOLES, UTILITY CASTINGS, OR ANY OTHER OBSTRUCTIONS IN THE CURB RAMP RUN(S) OR LANDING(S). IF NECESSARY DUE TO EXISTING CONSTRAINTS, HANDHOLES, UTILITY CASTINGS, OR OTHER OBSTRUCTIONS MAY BE LOCATED WITHIN A RAMP RUN, LANDING, OR TURNING SPACE BUT MUST ADHERE TO SURFACE REQUIREMENTS. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED ¼" OR ½" WITH A 1:2 BEVEL. GAPS BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED ½". SURFACES MUST BE FIRM, STABLE, AND SLIP RESISTANT.
13. HANDHOLES, UTILITY CASTINGS, OR OTHER OBSTRUCTIONS SHALL NOT REDUCE THE REQUIRED DEPTH OF DETECTABLE WARNING.
14. POLES, HYDRANTS AND OTHER ABOVE GROUND OBSTRUCTIONS SHALL HAVE A MINIMUM LATERAL CLEARANCE OF 1'–0" FROM THE UPPER LANDING AND RAMP SURFACE.
15. ALL CHANGES IN LEVEL ACROSS JOINTS SHALL BE FLUSH. ANY DIFFERENCE IN ELEVATION OF 3/16 INCH OR GREATER SHALL BE REPAIRED OR REPLACED.
16. CURB RAMPS SHALL BE DESIGNED AND CONSTRUCTED SO THAT WATER WILL NOT ACCUMULATE ON RAMP SURFACES. GUTTER FLOW LINE SHALL BE SURVEYED BY THE CONTRACTOR PRIOR TO CONSTRUCTION TO ENSURE PONDING OF WATER SHALL NOT OCCUR AT THE BOTTOM OF CURB RAMPS OR AT CURB RAMP LOWER LANDINGS.
17. ALL SLOPE GRADES SHALL BE MEASURED OFF THE HORIZON–LINE. IF EXISTING SITE CONDITIONS CONFLICT WITH OBTAINING GRADES SHOWN, THE DESIGNER / CONTRACTOR SHALL MAKE MINIMUM ADJUSTMENTS TO THE GRADES SHOWN TO MEET EXISTING SITE CONDITIONS; ADJUSTMENTS ARE SUBJECT TO ENGINEER APPROVAL.

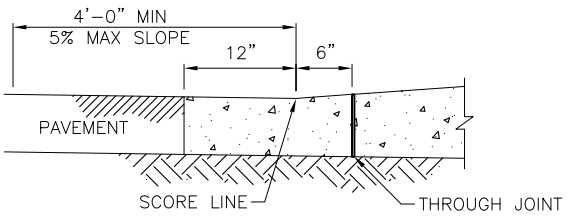
* IT IS GENERALLY PREFERRED THAT CURB RAMPS, CURB RAMP LANDINGS, AND ASSOCIATED FEATURES NOT BE DESIGNED TO THE MINIMUM OR MAXIMUM ALLOWABLE DIMENSION AND/OR SLOPE TO ALLOW FOR A LIMITED MARGIN OF ERROR DURING CONSTRUCTION.



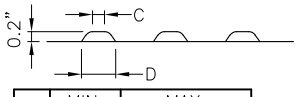
SIDE CURB DETAIL



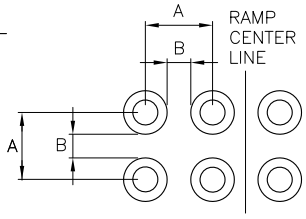
BACK CURB DETAIL



DEPRESSED CURB AND GUTTER DETAIL



	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	50% TO 65% OF D	
D	0.9"	1.4"

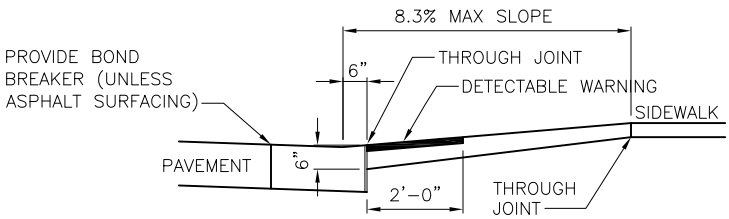


DETECTABLE WARNING TRUNCATED DOMES PATTERN

REF STD SPEC SEC 8-14

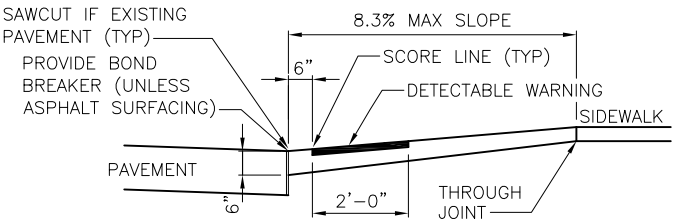
City of Seattle | NOT TO SCALE | CURB RAMP DETAILS

REV DATE: JAN 2017



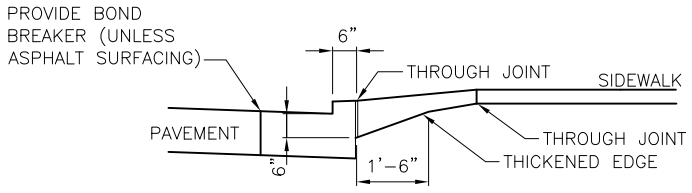
SECTION A–A

DEPRESSED CURB & GUTTER SEPARATE FROM RAMP.

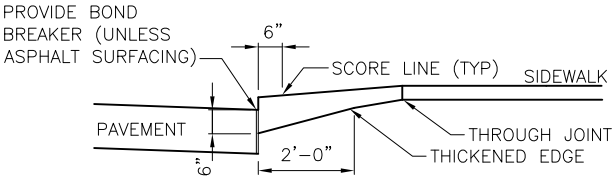


SECTION A–A

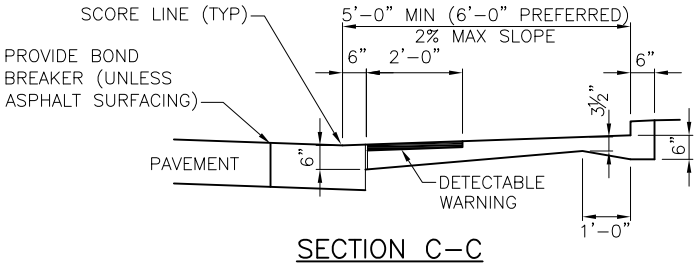
CURB MONOLITHIC WITH RAMP. NEW PAVEMENT BLOCKED OUT FULL DEPTH. EXISTING PAVEMENT REMOVED AT FACE OF CURB



SECTION B–B

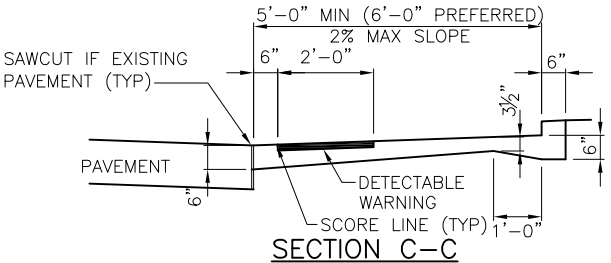


SECTION B–B



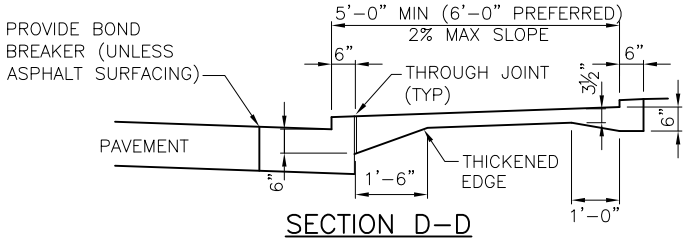
SECTION C–C

DEPRESSED CURB & GUTTER SEPARATE FROM RAMP.

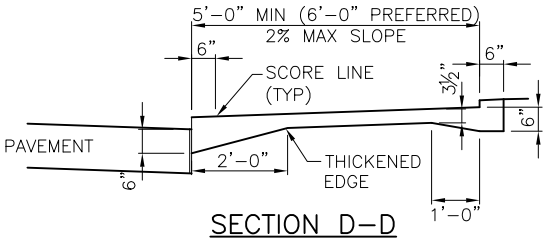


SECTION C–C

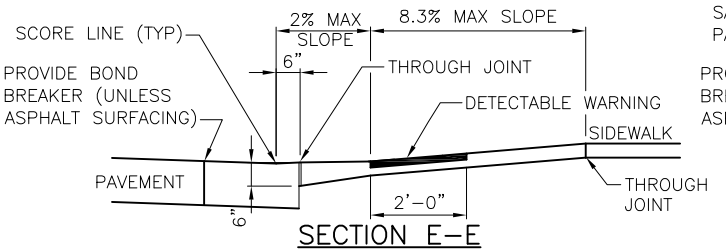
CURB MONOLITHIC WITH RAMP. NEW PAVEMENT BLOCKED OUT FULL DEPTH. EXISTING PAVEMENT REMOVED AT FACE OF CURB



SECTION D–D

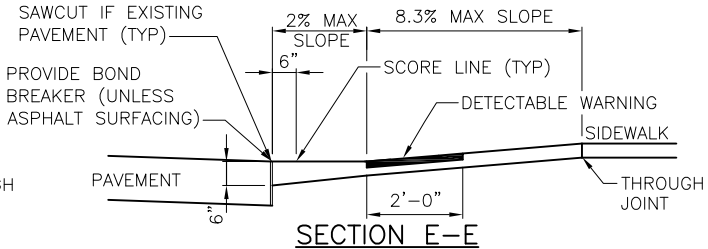


SECTION D–D



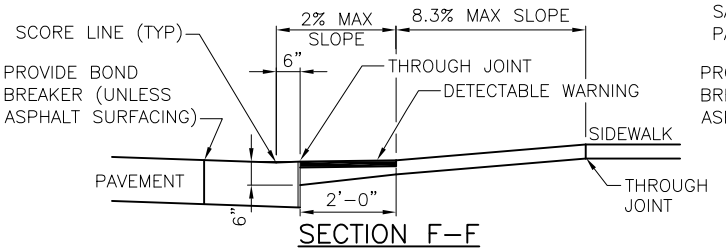
SECTION E–E

DEPRESSED CURB & GUTTER SEPARATE FROM RAMP.



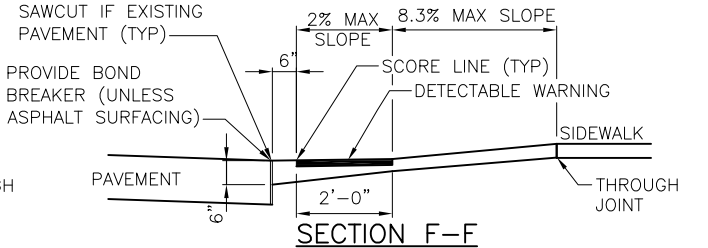
SECTION E–E

CURB MONOLITHIC WITH RAMP. NEW PAVEMENT BLOCKED OUT FULL DEPTH. EXISTING PAVEMENT REMOVED AT FACE OF CURB



SECTION F–F

DEPRESSED CURB & GUTTER SEPARATE FROM RAMP



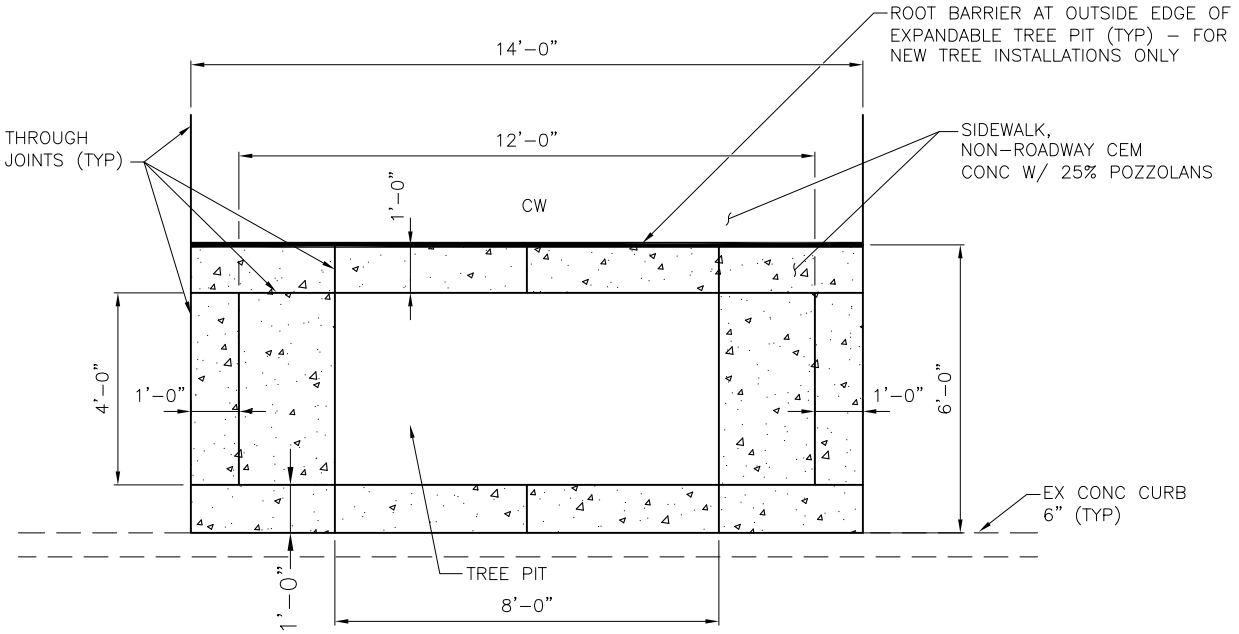
SECTION F–F

CURB MONOLITHIC WITH RAMP. NEW PAVEMENT BLOCKED OUT FULL DEPTH. EXISTING PAVEMENT REMOVED AT FACE OF CURB

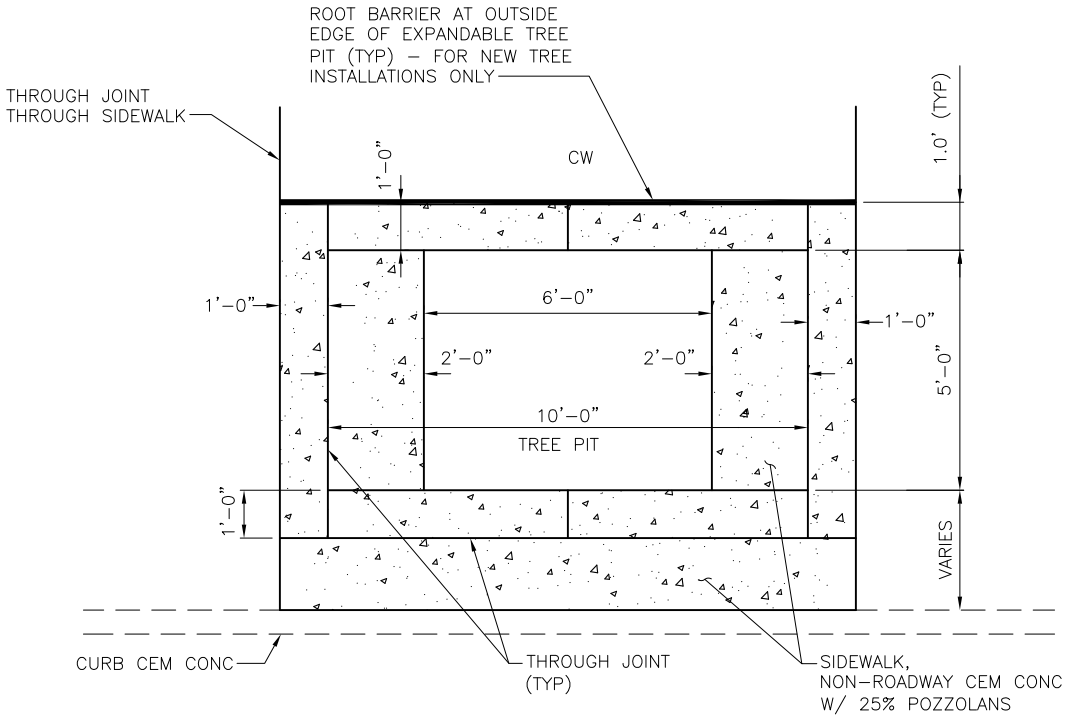
REF STD SPEC SEC 8-14

City of Seattle	NOT TO SCALE	CURB RAMP SECTIONS

REV DATE: JUL 2013



TYPE A



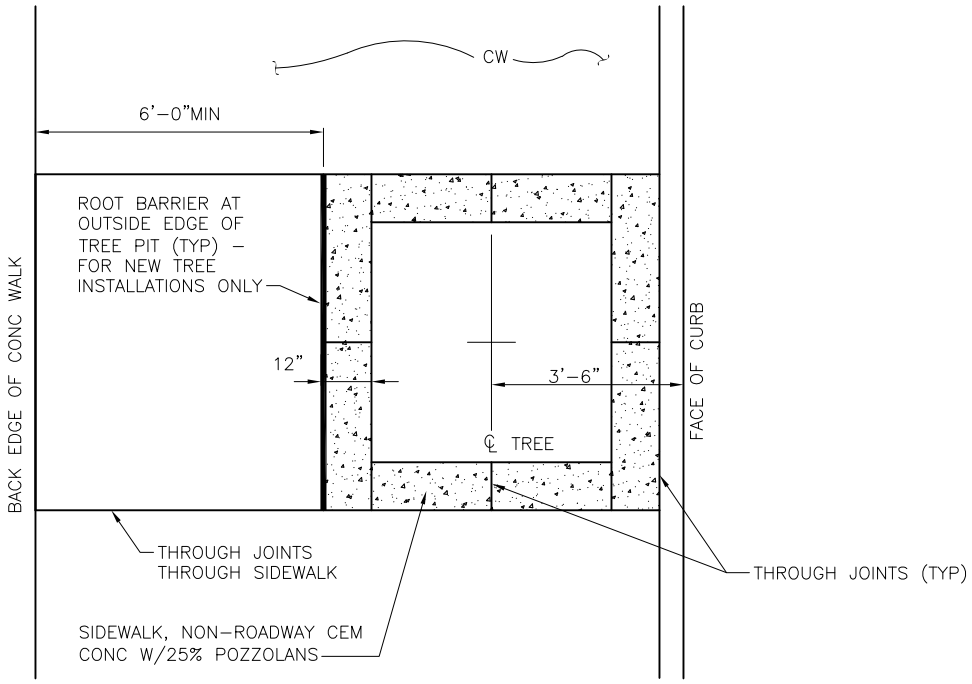
TYPE B

NOTES:
1. SEE STD PLAN 420 FOR CW SCORING DETAILS.
2. INSTALL ROOT BARRIER PER STANDARD PLAN NO 100a.

REF STD SPEC SEC 8-02 & 8-14

City of Seattle	NOT TO SCALE	EXPANDABLE TREE PIT DETAIL

REV DATE: JUL 2013



FOR ADDITIONAL SIDEWALK SCORING REQUIREMENTS
SEE STD PLAN NO 420

TYPE C

TREE PIT DIMENSIONAL REQUIREMENTS:
- 24 SQ FT MIN TREE PIT SIZE
- 3'–0"MIN REQ'D BETWEEN TREE ℄ & FACE OF CURB
- 2'–0"MIN REQ'D BETWEEN TREE ℄ & CONC SIDEWALK
- 6'–0"MIN CONC WALKING SURFACE

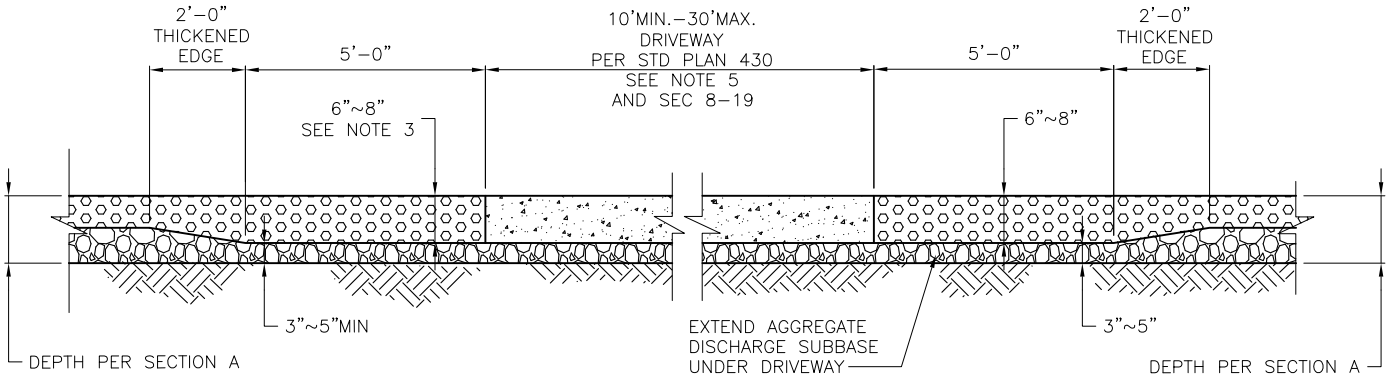
NOTES:

1. INSTALLATIONS REQUIRING LESS THAN STANDARD MIN CLEARANCES MUST BE ALLOWED ONLY WITH APPROVAL BY THE ENGINEER.
2. INSTALL ROOT BARRIER AS NOTED. SEE STANDARD PLAN NO 100a.
3. SEE STD PLAN NO 420 FOR CW SCORING DETAILS.

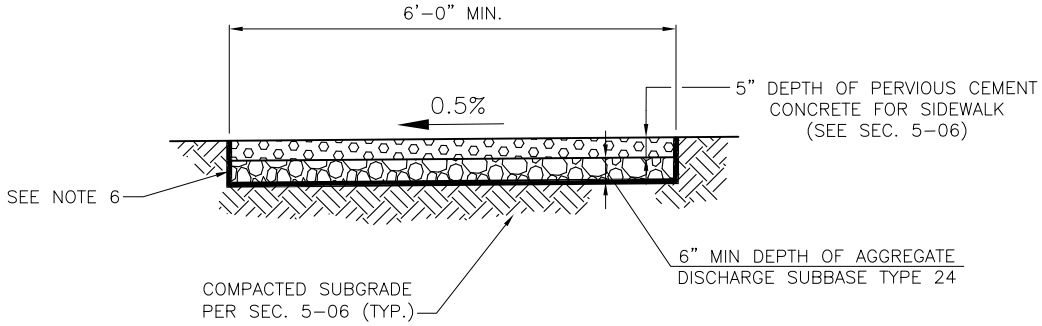
REF STD SPEC SEC 8-02 & 8-14

City of Seattle	NOT TO SCALE	TREE PIT DETAIL

REV DATE: DEC 2016



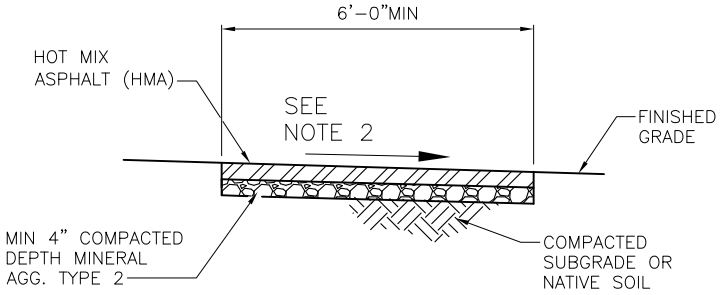
PERVIOUS CONC CEM SIDEWALK DEPTH TRANSITION AT DRIVEWAYS PROFILE VIEW



PERVIOUS CONC 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 MUST BE 8" MIN.
4. 6% MAX. PERVIOUS CEMENT CONCRETE PROFILE GRADE.
5. WHERE PERVIOUS CONCRETE IS SHOWN ON PLANS FOR ALLEY, PERVIOUS CONCRETE MUST BE 8" WITH 3" AGGREGATE DISCHARGE SUBBASE.
6. APPLY SEPARATION GEOTEXTILE SEC. 9-37, ON BOTTOM AND SIDES. 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.)
7. CONTRACTION JOINTS FOR PERVIOUS CONCRETE SIDEWALKS MUST BE PLACED AT A MAXIMUM OF 15 FT ON CENTER SPACING.

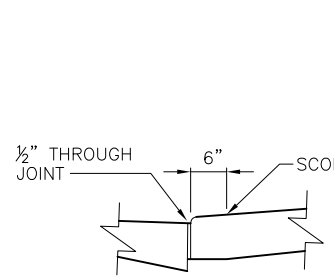


HOT MIX ASPHALT PAVEMENT SIDEWALK SECTION

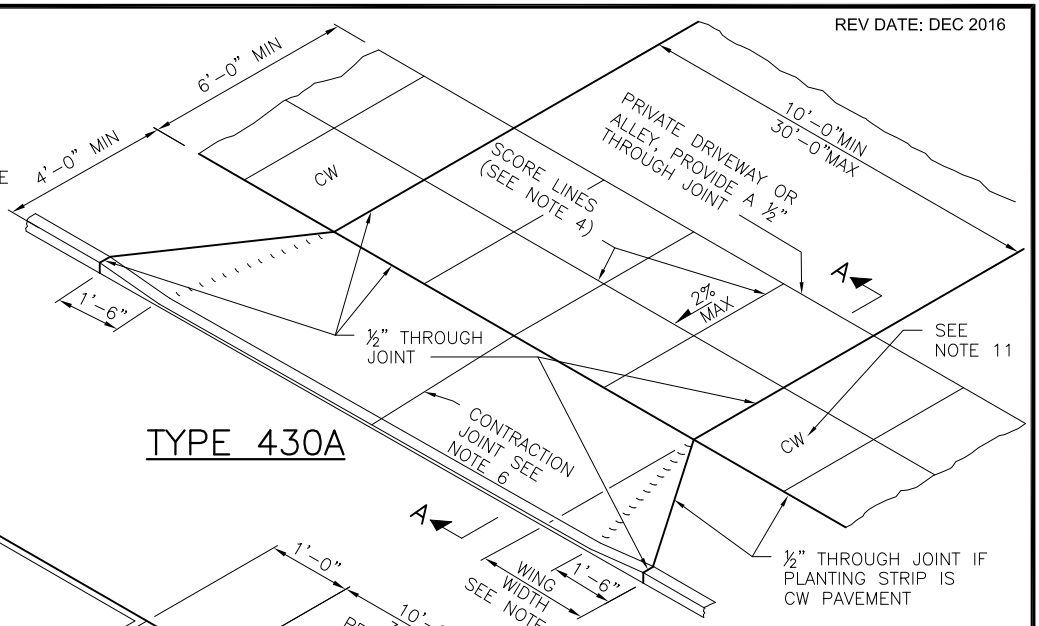
REF STD SPEC SEC 5-04, 5-06

City of Seattle	NOT TO SCALE	ALTERNATIVE WALKWAYS

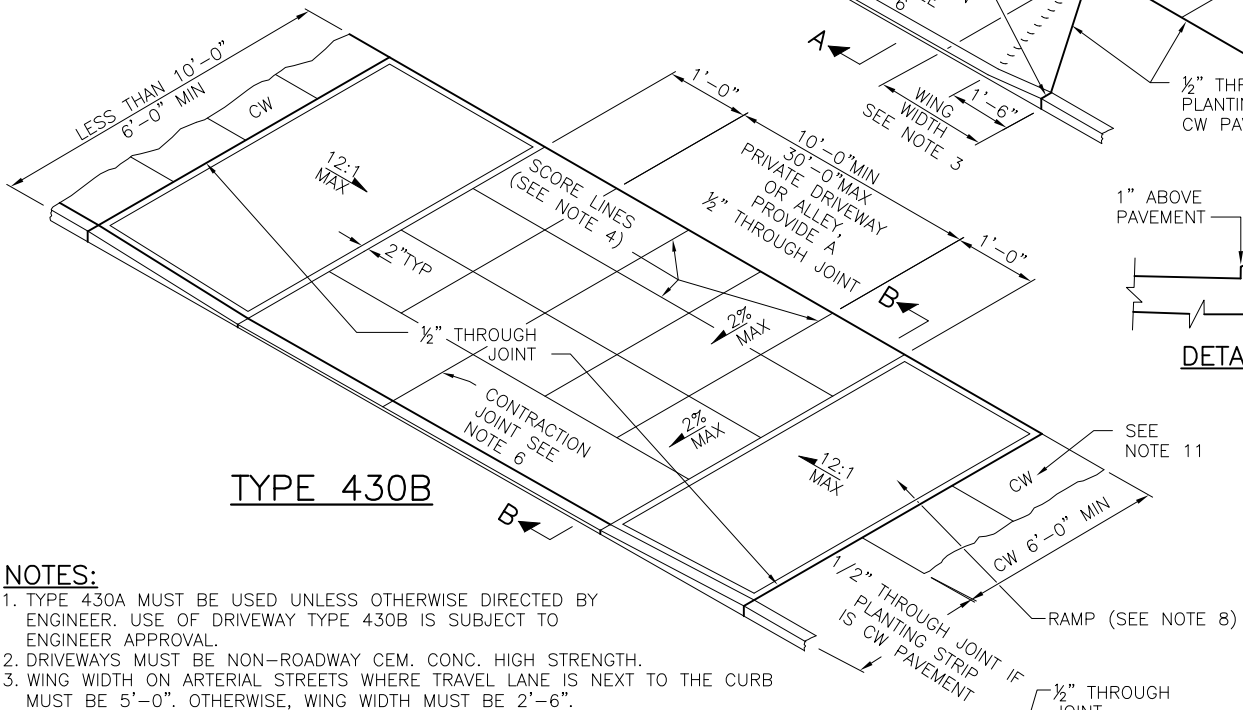
REV DATE: DEC 2016



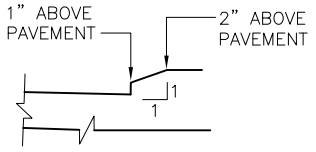
DETAIL B
DRIVEWAY W/ MONOLITHIC CURB & APPROACH



TYPE 430A



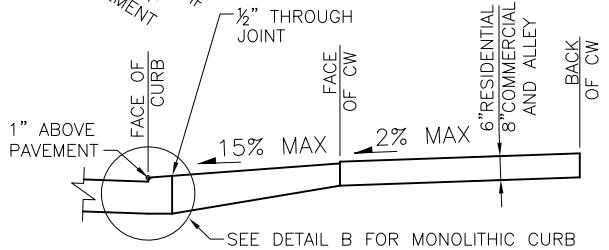
TYPE 430B



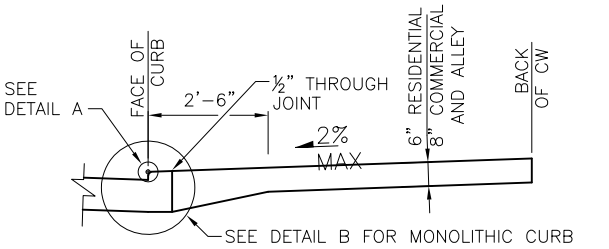
DETAIL A

NOTES:

1. TYPE 430A MUST BE USED UNLESS OTHERWISE DIRECTED BY ENGINEER. USE OF DRIVEWAY TYPE 430B IS SUBJECT TO ENGINEER APPROVAL.
2. DRIVEWAYS MUST BE NON-ROADWAY CEM. CONC. HIGH STRENGTH.
3. WING WIDTH ON ARTERIAL STREETS WHERE TRAVEL LANE IS NEXT TO THE CURB MUST BE 5'-0". OTHERWISE, WING WIDTH MUST BE 2'-6".
4. "V" GROOVE SCORING MUST MATCH PATTERN IN ADJACENT EXISTING SIDEWALK.
5. FOR CONCRETE DRIVEWAY CONSTRUCTED WITH CONCRETE SIDEWALK, SEE STANDARD PLAN NO 431.
6. CONCRETE DRIVEWAYS WITH A WIDTH GREATER THAN 15'-0" MUST HAVE A ⅜" TRANSVERSE CONTRACTION JOINT NEAR THE CENTERLINE OF DRIVEWAY. SEE DETAIL SECTION C-C STANDARD PLAN NO 420.
7. FOR TYPE 430A SLOPE IN THE 6'-0" MINIMUM WIDE AREA CONNECTING TO CW ON EACH SIDE OF THE DRIVEWAY MUST BE MAXIMUM 2% AND MINIMUM 0.5%. FOR TYPE 430B, SLOPE OF THE DRIVEWAY BETWEEN THE TWO RAMP SECTIONS MUST BE MAXIMUM 2% AND MINIMUM 0.5%. DRIVEWAY ON THE PRIVATE SIDE OF THE CW MAY BE SLOPED AS NEEDED TO MATCH EXISTING SITE CONDITIONS.
8. RAMP MUST HAVE A MAXIMUM SLOPE 12H:1V. AND A MINIMUM WIDTH OF 6'-0". THE CROSS SLOPE OF THE RAMP MUST BE MAXIMUM OF 50H:1V. RAMP SURFACE MUST HAVE A HEAVY BROOM BRUSHED SURFACE PERPENDICULAR TO THE CURB.
9. ALL CHANGES IN LEVEL ACROSS JOINTS MUST BE FLUSH WITH A MAXIMUM DIFFERENCE IN ELEVATION OF $\frac{3}{16}$ INCH.
10. ALL SLOPE GRADES MUST BE MEASURED OFF THE HORIZON-LINE. IF EXISTING SITE CONDITIONS CONFLICT WITH OBTAINING GRADES SHOWN, THE CONTRACTOR MUST MAKE MINIMUM ADJUSTMENTS TO THE GRADES TO ACCOMMODATE EXISTING SITE CONDITIONS, ADJUSTMENTS ARE SUBJECT TO ENGINEER APPROVAL.
11. CONCRETE WALKWAY OUTSIDE OF THE DRIVEWAY CROSSING MAY BE PERVIOUS.



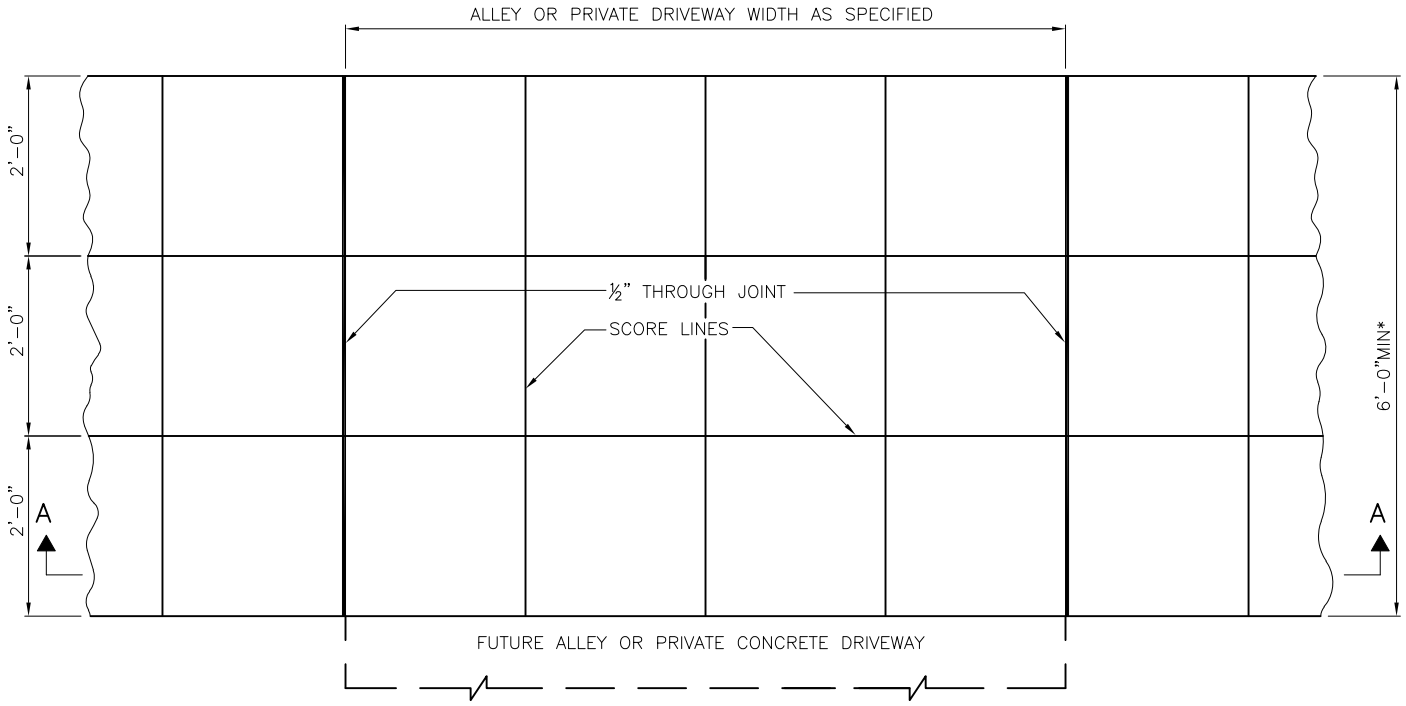
SECTION A-A

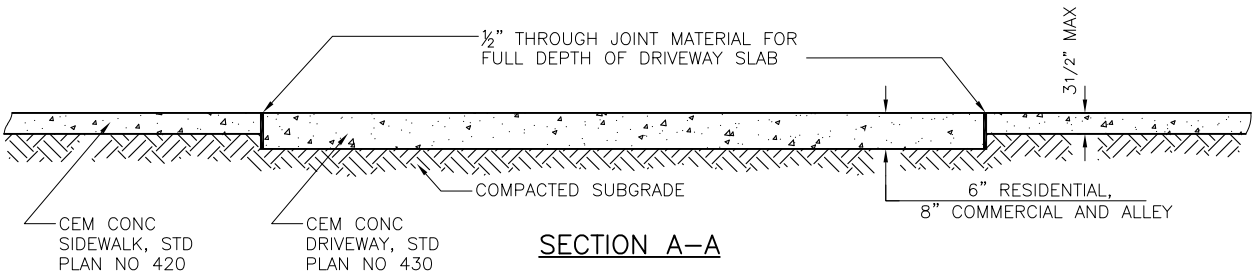


SECTION B-B

City of Seattle	NOT TO SCALE	TYPE 430A & 430B DRIVEWAYS

REV DATE: APR 2011





SECTION A–A

* UNLESS OTHERWISE APPROVED BY SDOT.

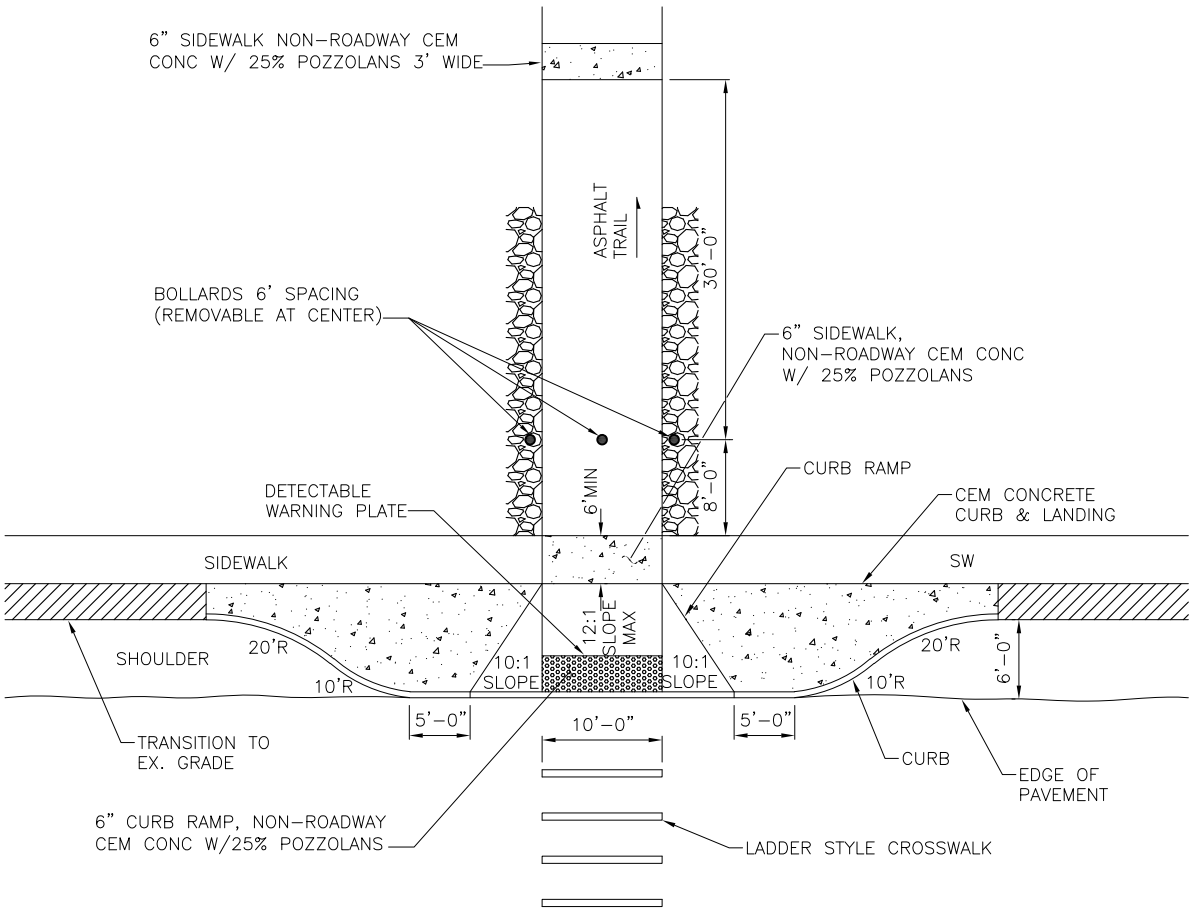
NOTES:

1. DRIVEWAY WIDTH GREATER THAN 15'–0" AND LESS THAN OR EQUAL TO 30' MUST HAVE TRANSVERSE CONSTRUCTION JOINTS AT IT'S CENTER.
2. DRIVEWAY GREATER THAN 30'–0" REQUIRES SDOT APPROVAL AND MUST HAVE TRANSVERSE CONTRACTION JOINTS EVENLY PLACED SO THE DISTANCE BETWEEN CONTRACTION JOINTS, OR BETWEEN THE EDGE THROUGH JOINTS AND CONTRACTION JOINTS IS NOT GREATER THAN 15'–0".
3. PROVIDE SCORE LINES PER STD PLAN NO 420 AND THE DRAWINGS.

REF STD SPEC SEC 8-14 & 8-19

City of Seattle	NOT TO SCALE	CEMENT CONCRETE DRIVEWAY PLACED WITH CEMENT CONCRETE SIDEWALK

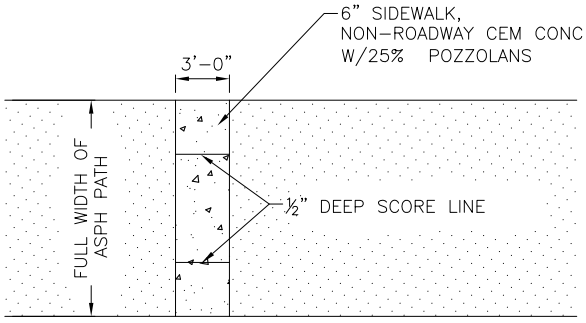
REV DATE: DEC 2010



MULTI PURPOSE TRAIL AT ARTERIAL STREET W/BULB-OUT (TYP)

NOTES:

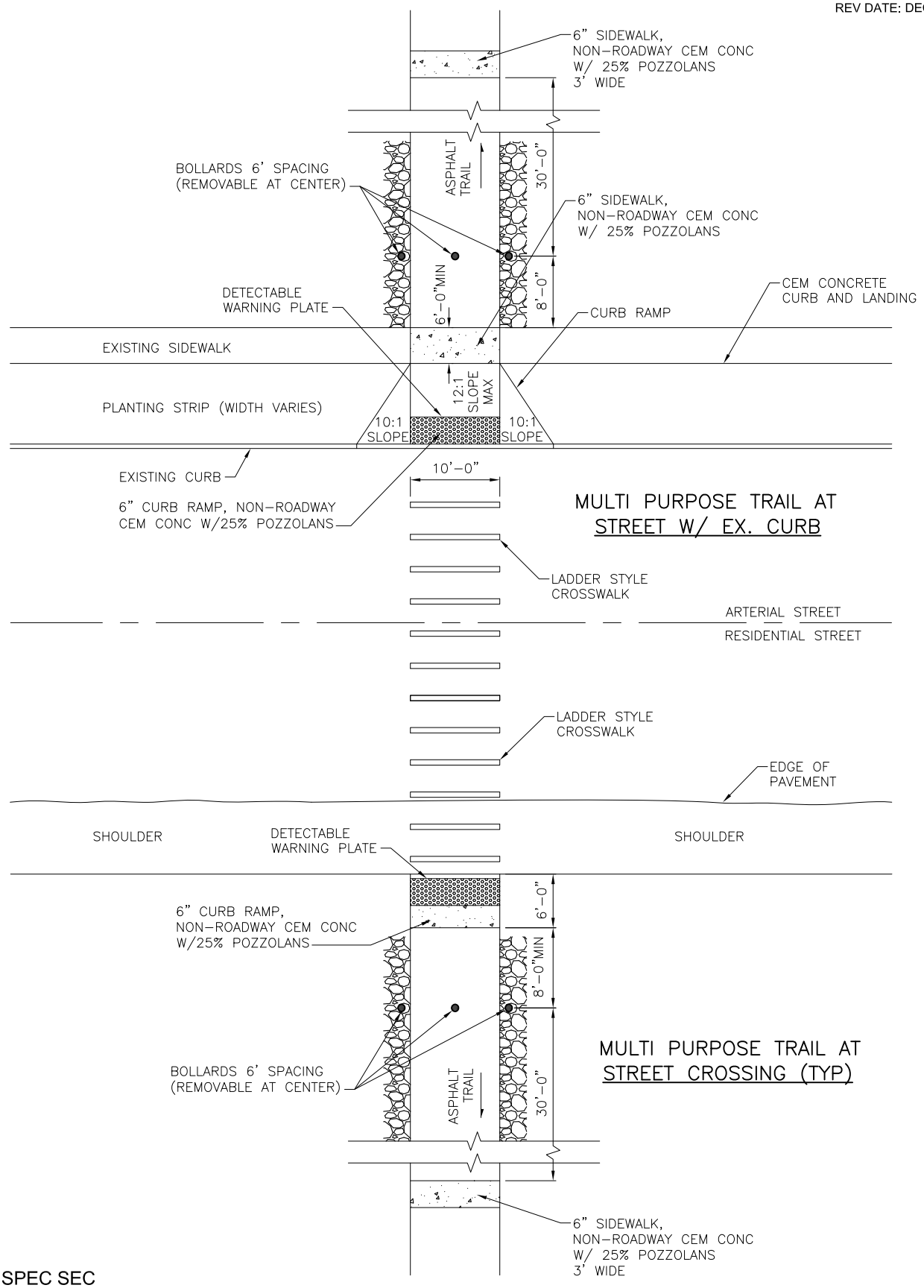
1. FOR CURB RAMP AND DETECTABLE WARNING DETAILS SEE STANDARD PLAN NO 422.
2. FOR CROSSWALK DETAILS SEE STANDARD PLAN NO 712.
3. FOR BOLLARD DETAIL SEE STANDARD PLAN NO 463.
4. ASPHALT TRAIL CROSS SLOPE MINIMUM 1%, MAXIMUM 2%.
5. CEMENT CONCRETE WARNING PAD THICKNESS TO MATCH ASPHALT THICKNESS OR MINIMUM 6" THICK WHICHEVER IS GREATER.
6. CRUSHED ROCK ON EDGE OF TRAIL AS NEEDED TO DISBURSE DRAINAGE FLOW.
7. ALL CHANGES IN LEVEL ACROSS JOINTS MUST BE FLUSH WITH A MAXIMUM DIFFERENCE IN ELEVATION OF $\frac{3}{16}$ INCH.
8. ALL SLOPE GRADES MUST BE MEASURED OFF THE HORIZON-LINE. IF EXISTING SITE CONDITIONS CONFLICT WITH OBTAINING GRADES SHOWN, THE CONTRACTOR MUST MAKE MINIMUM ADJUSTMENTS TO THE GRADES TO ACCOMMODATE EXISTING SITE CONDITIONS, ADJUSTMENTS ARE SUBJECT TO APPROVAL BY THE ENGINEER.
9. ALL CEMENT CONCRETE WARNING PADS MUST BE BRUSHED FINISHED AND "V" GROOVED TO MATCH PATTERN IN ADJACENT OR NEARBY SIDEWALKS.



REF STD SPEC SEC

City of Seattle	NOT TO SCALE	MULTI-PURPOSE TRAIL AT STREET CROSSING

REV DATE: DEC 2010



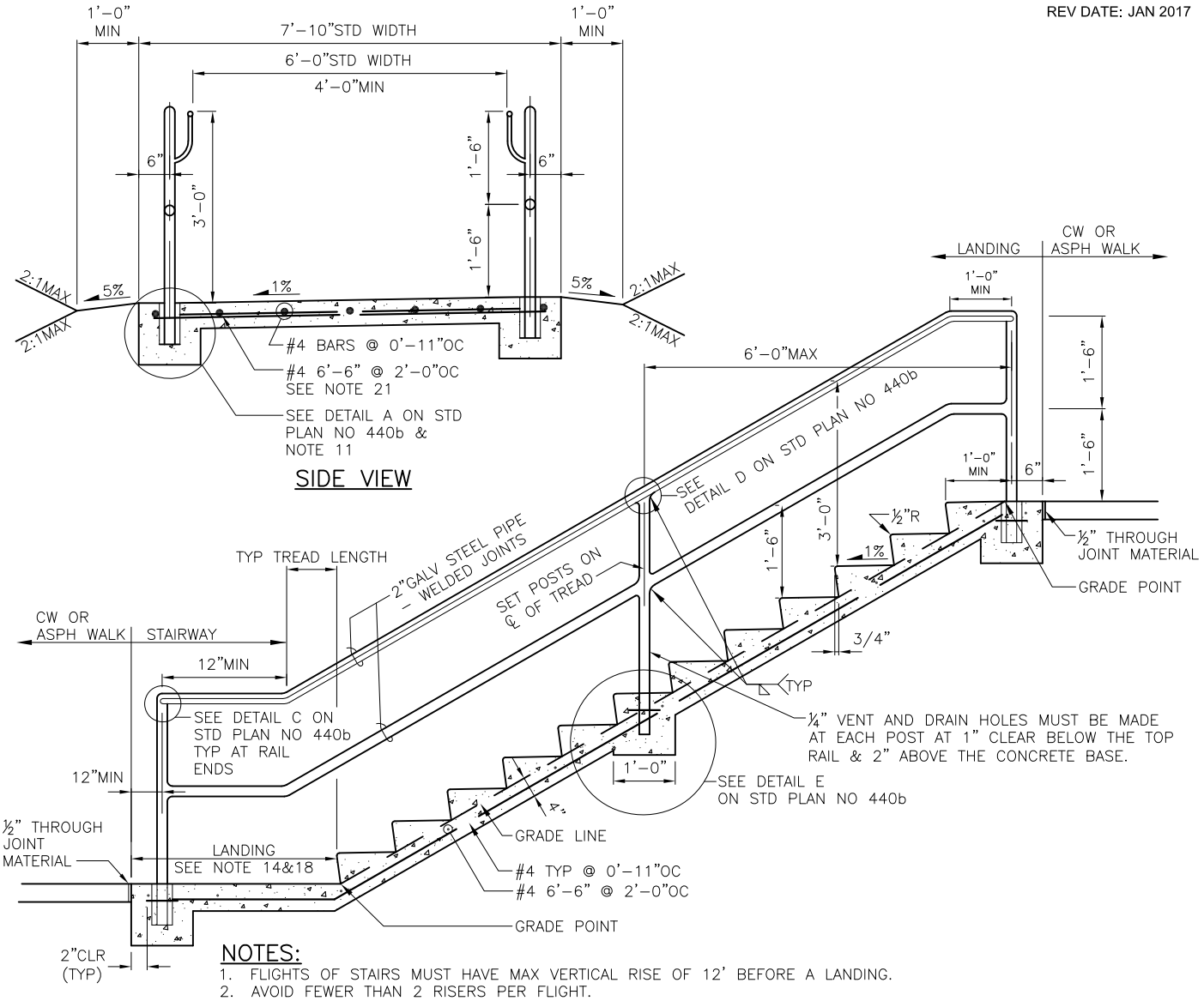
REF STD SPEC SEC

City of Seattle

NOT TO SCALE

MULTI-PURPOSE TRAIL AT STREET CROSSING

REV DATE: JAN 2017



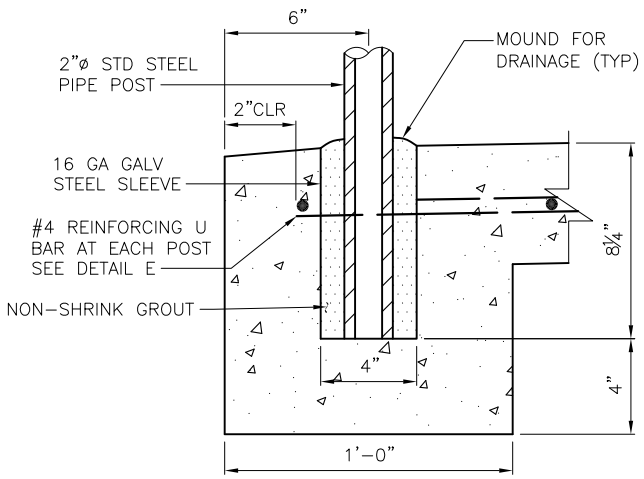
NOTES:

1. FLIGHTS OF STAIRS MUST HAVE MAX VERTICAL RISE OF 12' BEFORE A LANDING.
2. AVOID FEWER THAN 2 RISERS PER FLIGHT.
3. STEPS IN FLIGHT MUST HAVE UNIFORM TREAD RUNS AND UNIFORM RISER HEIGHTS WITH TOLERANCE OF ±3/8".
4. TREADS MUST BE 11"MIN, 12"MAX. RISERS MUST BE 5"MIN, 7"MAX.
5. 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 MUST HAVE HANDRAILS ON BOTH SIDES.
7. HANDRAILS MUST BE CONTINUOUS ACROSS LANDINGS BETWEEN FLIGHTS OF STEPS.
8. ALL STEEL MUST BE HOT DIPPED GALVANIZED.
9. PIPE MATERIAL MUST BE ASTM A53.
10. REINFORCING STEEL MUST BE ASTM A615 GR 60.
11. FOR FORMAL DRAINAGE PICK–UP SEE DETAIL B ON STD PLAN NO 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 CL3000.
14. LANDINGS MUST BE 0.5%MIN FOR A MIN LENGTH OF 4', ADJACENT SIDEWALK MAY BE PART OF LANDING IF SLOPE CRITERIA AND SETBACKS FROM HANDRAILS ARE MET.
15. TREAD SURFACE MUST HAVE GROOVES AT THE NOSE FOR TRACTION.
16. IF LANDING IS ELEVATED, LANDING MUST HAVE VERTICAL RAILING PER RIGHT OF WAY IMPROVEMENT MANUAL.
17. STAIRWAYS DEVIATING FROM STANDARD PLAN TO ACCOMMODATE BICYCLE FEATURES MAY BE USED PER STD PLAN NO 440C OR 440D.
18. DIMENSION FROM THE BOTTOM LANDING RAILING TO THE NOSE OF THE TREAD MUST BE 12"MIN + 1 TREAD LENGTH.
19. BOTTOM HANDRAIL EXTENSION MUST EXTEND ONE TREAD LENGTH MINIMUM PARALLEL TO THE SLOPE OF THE STAIR BEYOND BOTTOM STAIR NOSING.
20. TOP HANDRAIL EXTENSION MUST EXTEND HORIZONTALLY ABOVE LANDING 12" MINIMUM BEYOND TOP STAIR NOSING.
21. REBAR SIZING AND SPACING MAY CHANGE FOR WIDER OR NARROWER STAIRWAYS.

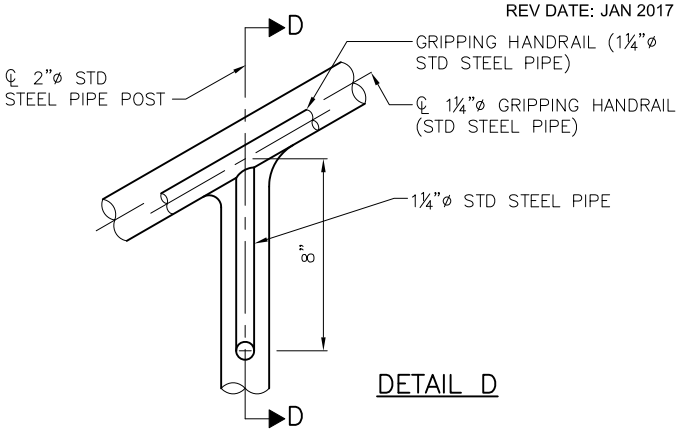
REF STD SPEC SEC 8-18

City of Seattle	NOT TO SCALE	CEMENT CONCRETE STAIRWAY & HANDRAIL

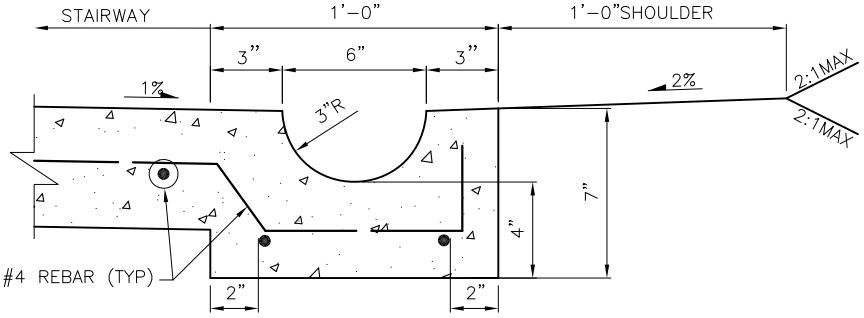
REV DATE: JAN 2017



DETAIL A

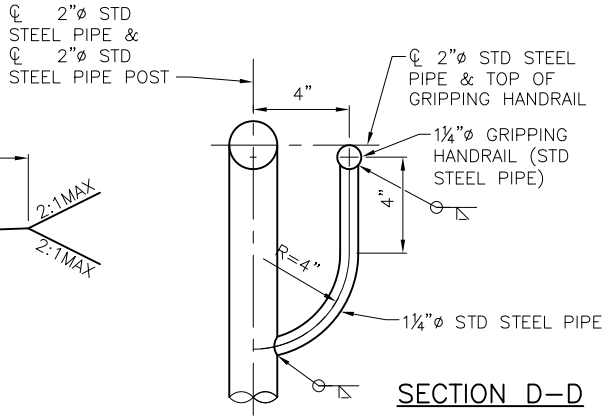


DETAIL D

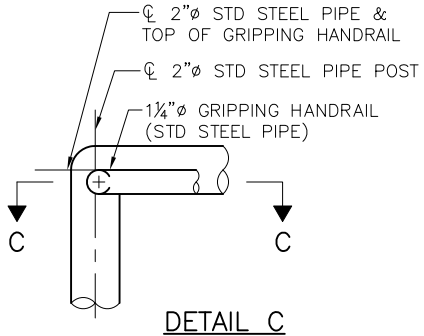


DETAIL B

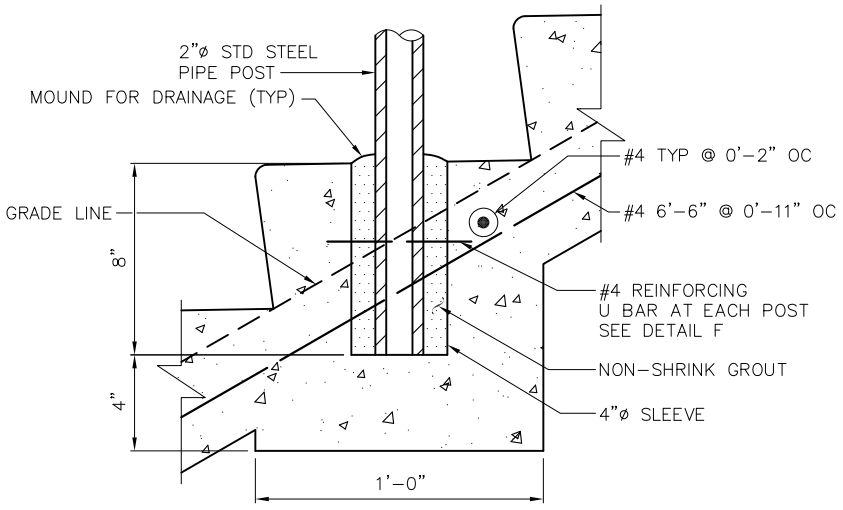
SEE NOTE 11 ON STD PLAN NO 440a



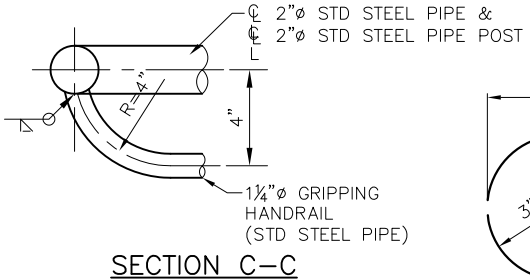
SECTION D-D



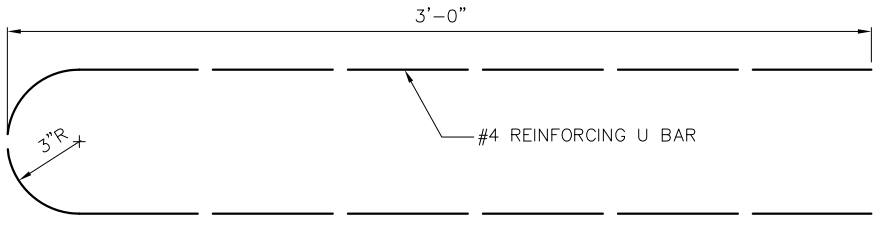
DETAIL C
HAND GRIP TERMINATION



DETAIL E



SECTION C-C

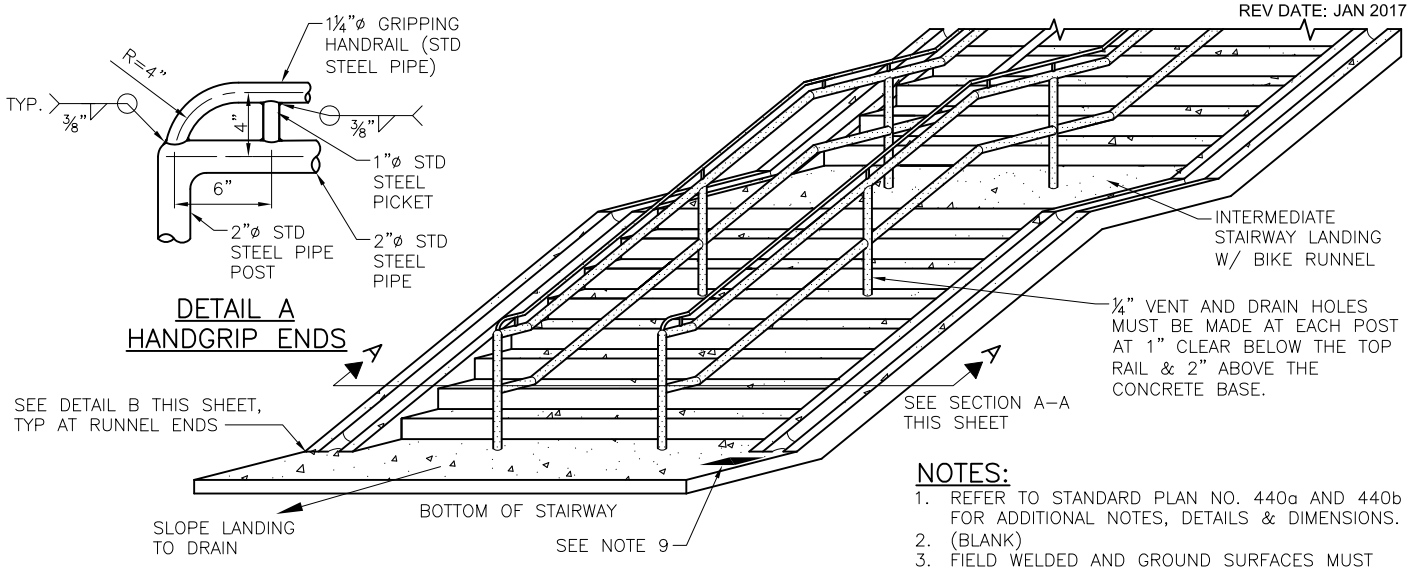


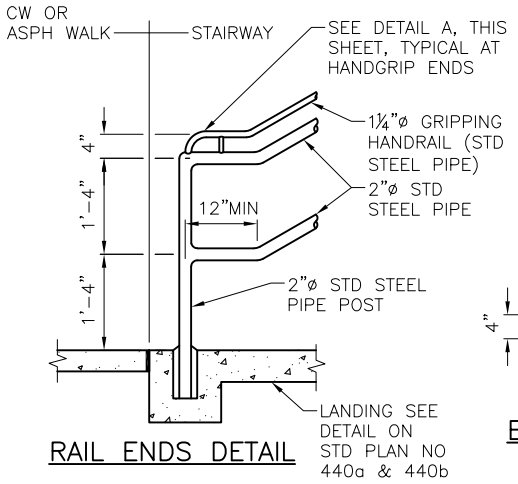
DETAIL F

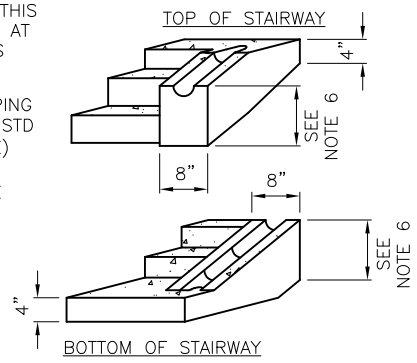
REF STD SPEC SEC 8-18

City of Seattle	NOT TO SCALE	CEMENT CONCRETE STAIRWAY & HANDRAIL

REV DATE: JAN 2017

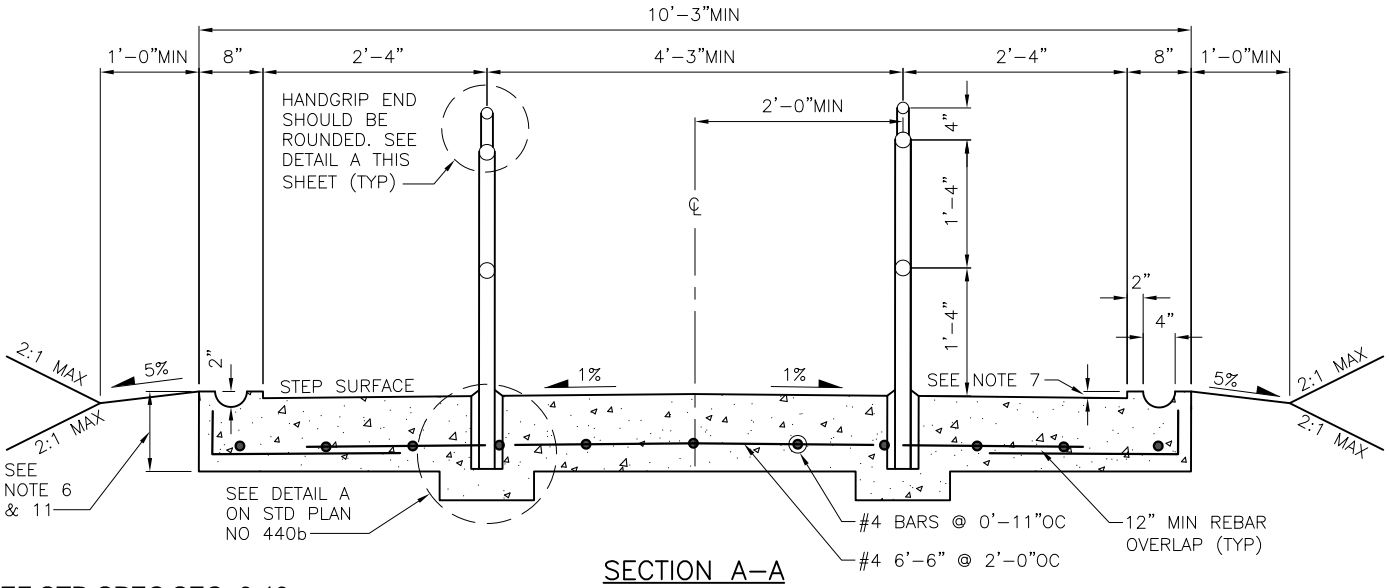






NOTES:

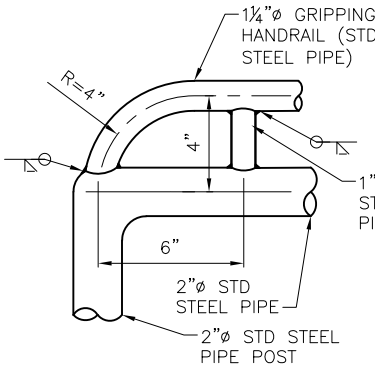
1. REFER TO STANDARD PLAN NO. 440a AND 440b FOR ADDITIONAL NOTES, DETAILS & DIMENSIONS.
2. (BLANK)
3. FIELD WELDED AND GROUND SURFACES MUST BE CLEANED AND COATED WITH ZINC SPRAY TO A MIN. OF 3 MILS, DRY PAINT THICKNESS.
4. DIMENSIONS SHOWN ON ONE SIDE OF THE SECTION VIEW ARE TYPICAL TO THE OTHER SIDE, UNLESS NOTED OTHERWISE.
5. DISTANCE BETWEEN HANDGRIP SUPPORTS MUST NOT EXCEED 6'–0".
6. BIKE RUNNEL SLAB THICKNESS VARIES WITH STEP RISER HEIGHT. MIN. 10.5", MAX. 12.5"
7. RUNNEL LIP HEIGHT 1.5" ABOVE STEP NOSING AND LANDING.
8. INTERMEDIATE STAIR LANDINGS THAT INTERSECT OTHER STAIRS OR WALKS MUST BE AT LEAST 6' LONG TO ALLOW FOR A MIN. 4' OF CLEAR AREA WITHOUT RUNNEL & RAIL.
9. STAMP CONCRETE AT TOP AND BOTTOM OF RUNNEL. SEE CONCRETE STAMP DETAIL STD PLAN NO 440d.
10. LONG STAIRWAYS OR STAIRWAYS WITH SIGHT OBSTRUCTIONS TO CYCLISTS MUST HAVE SIDEWALK BREAKS TO ALLOW ONCOMING CYCLISTS PASSAGE. LOCATIONS OF SIDEWALK BREAKS TO BE DETERMINED BY ENGINEER.
11. ANY CONSTRUCTION OUTSIDE OF RUNNEL MUST ALLOW ENOUGH CLEARANCE FOR BIKE PEDALS AND HANDLEBARS FROM INTERFERING WITH MOVEMENT.



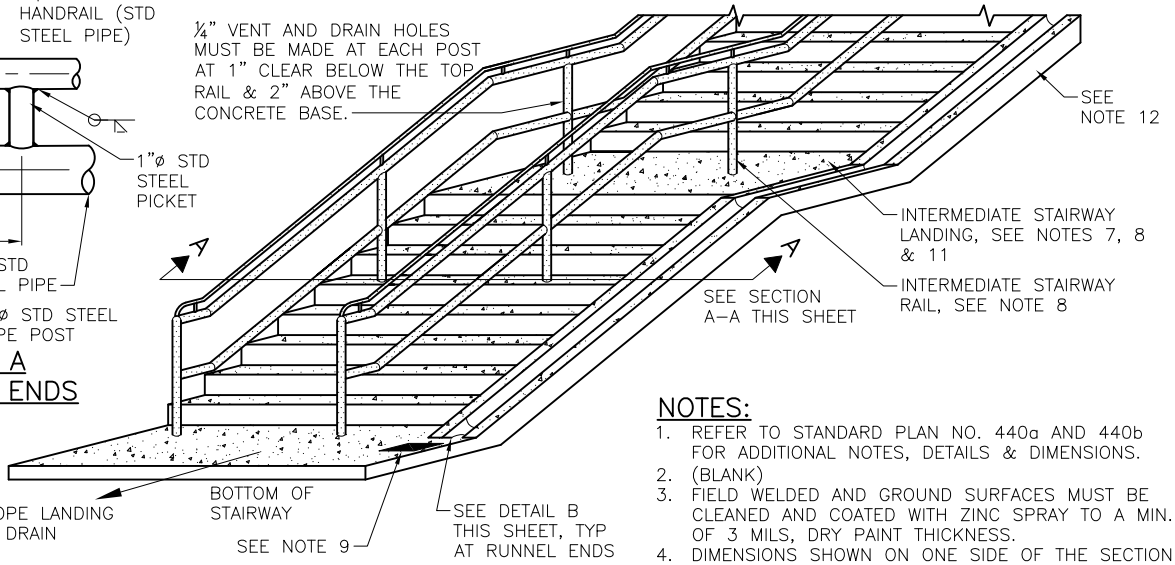
REF STD SPEC SEC 8-18

City of Seattle | NOT TO SCALE | CEMENT CONCRETE STAIRWAY & BIKE RUNNEL

REV DATE: JAN 2017

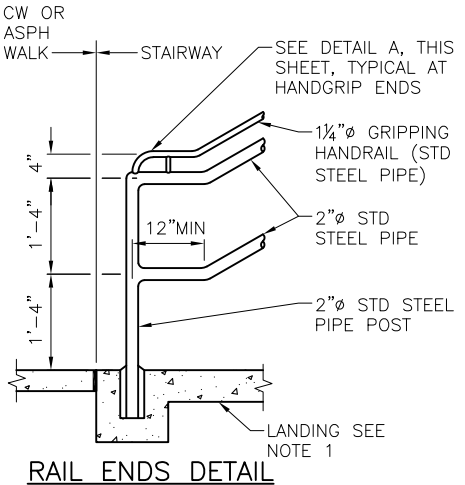


DETAIL A
HANDGRIP ENDS

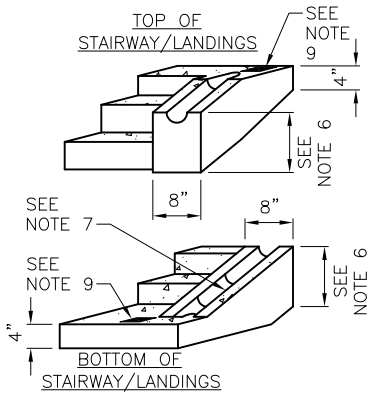


NOTES:

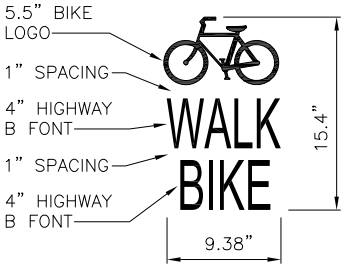
1. REFER TO STANDARD PLAN NO. 440a AND 440b FOR ADDITIONAL NOTES, DETAILS & DIMENSIONS.
2. (BLANK)
3. FIELD WELDED AND GROUND SURFACES MUST BE CLEANED AND COATED WITH ZINC SPRAY TO A MIN. OF 3 MILS, DRY PAINT THICKNESS.
4. DIMENSIONS SHOWN ON ONE SIDE OF THE SECTION VIEW ARE TYPICAL TO THE OTHER SIDE, UNLESS NOTED OTHERWISE.
5. DISTANCE BETWEEN HANDGRIP SUPPORTS MUST NOT EXCEED 6'.
6. BIKE RUNNEL SLAB THICKNESS VARIES WITH STEP RISER HEIGHT. MIN. 10.5", MAX. 12.5"
7. RUNNEL LIP HEIGHT 1.5" ABOVE STEP NOSING AND LANDING.
8. LANDINGS THAT INTERSECT OTHER STAIRS OR WALKS MUST BE AT LEAST 6' LONG TO ALLOW FOR A MIN. 4' OF CLEAR AREA WITHOUT RUNNEL & RAIL.
9. STAMP CONCRETE AT TOP AND BOTTOM OF RUNNEL. SEE CONCRETE STAMP DETAIL.
10. RUNNEL LOCATION MUST BE ON EITHER SIDE OF STAIRWAY AS DETERMINED BY ENGINEER.
11. LONG STAIRWAYS OR STAIRWAYS WITH SIGHT OBSTRUCTIONS TO CYCLISTS MUST HAVE SIDEWALK BREAKS TO ALLOW ONCOMING CYCLISTS PASSAGE. LOCATIONS OF SIDEWALK BREAKS TO BE DETERMINED BY ENGINEER.
12. ANY CONSTRUCTION OUTSIDE OF RUNNEL MUST ALLOW ENOUGH CLEARANCE FOR BIKE PEDALS AND HANDLEBARS FROM INTERFERING WITH MOVEMENT.
13. ¼" VENT AND DRAIN HOLES MUST BE MADE AT EACH POST AT 1" CLEAR BELOW THE TOP RAIL & 2" ABOVE THE CONCRETE BASE.



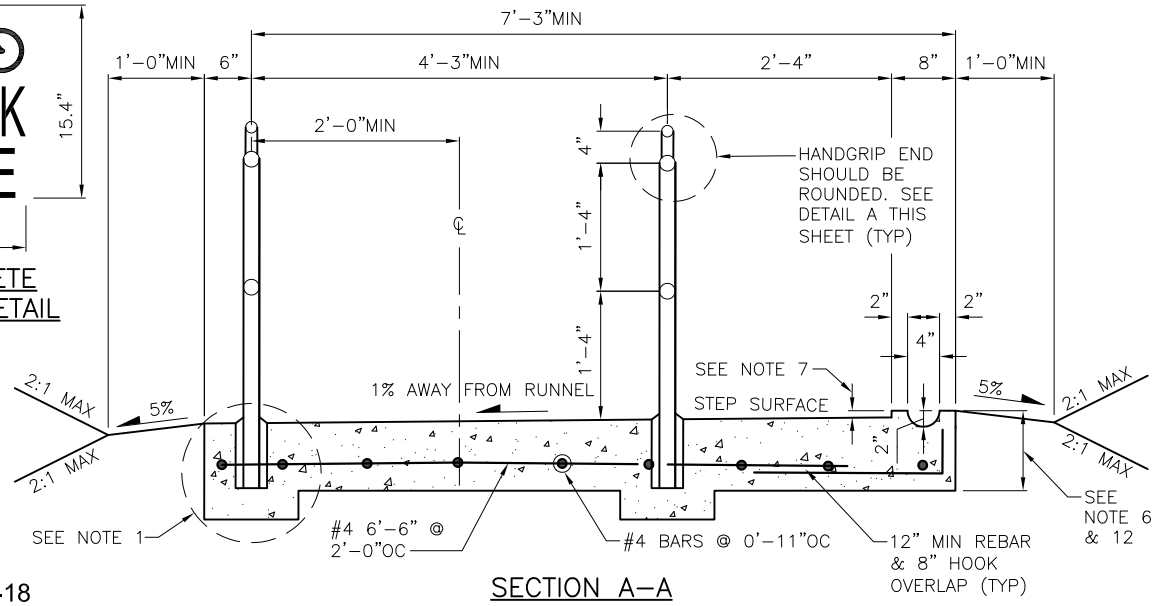
RAIL ENDS DETAIL



DETAIL B
BIKE RUNNEL ENDS



CONCRETE
STAMP DETAIL



SECTION A–A

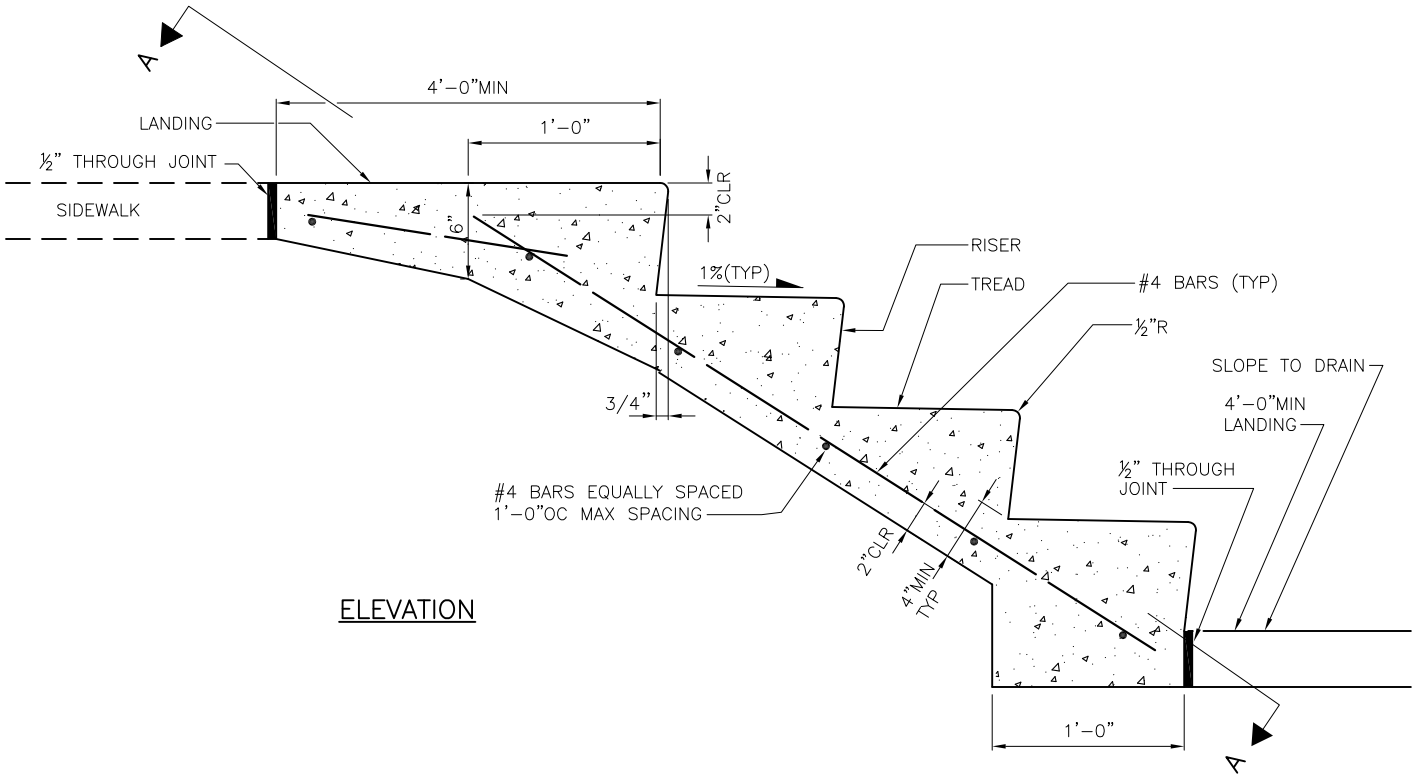
REF STD SPEC SEC 8-18

City of Seattle

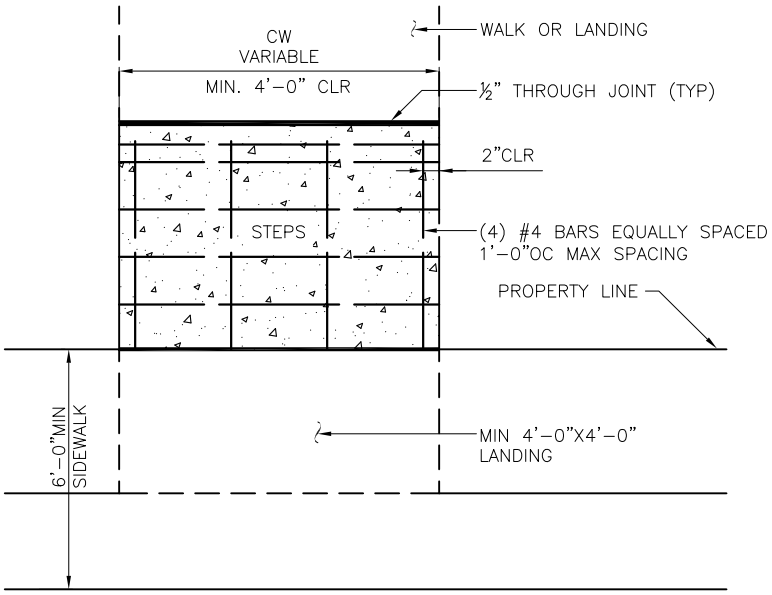
NOT TO SCALE

CEMENT CONCRETE
STAIRWAY & SINGLE BIKE RUNNEL

REV DATE: 2005



ELEVATION



SECTION A–A

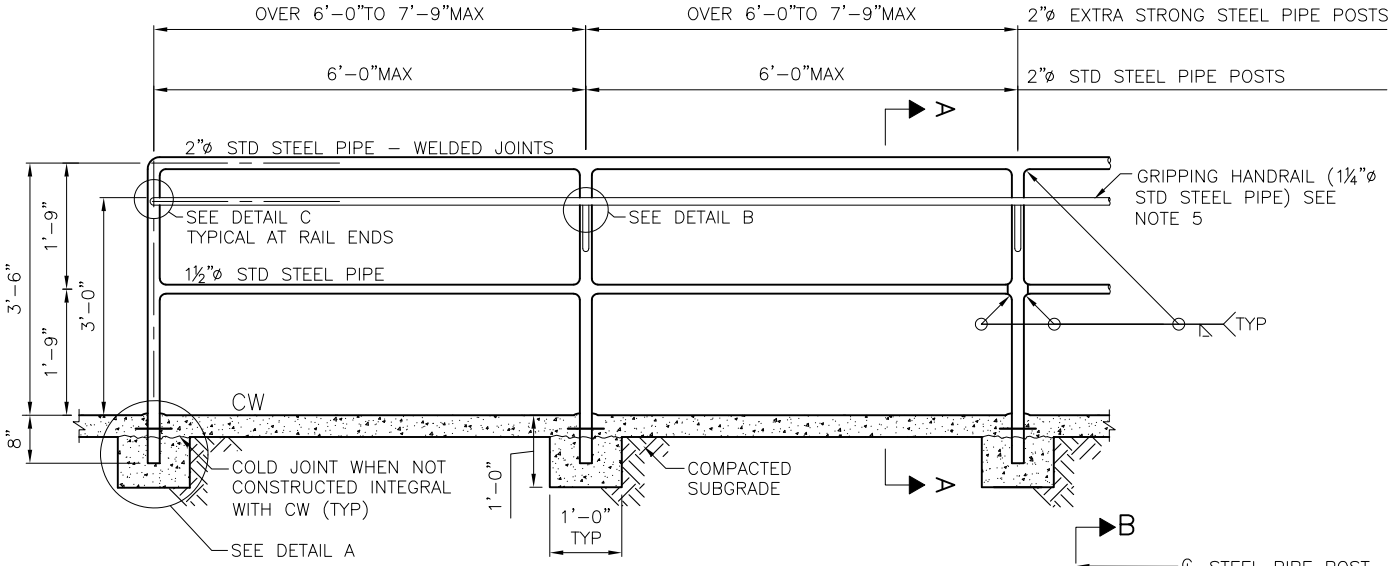
NOTES:

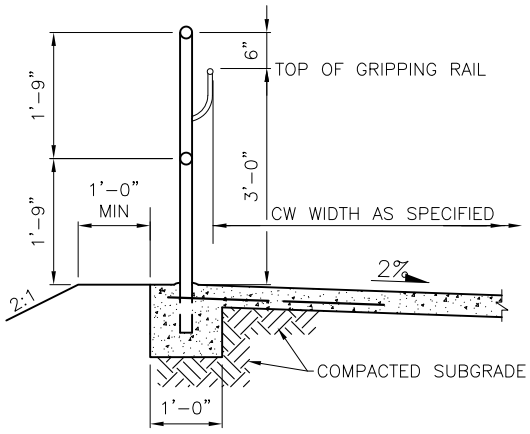
1. CEMENT CONCRETE MUST BE CL 3000 TROWEL FINISH
2. NUMBER OF STEPS MUST SUIT INDIVIDUAL CONDITIONS WITH UNIFORM TREAD AND RISER DIMENSIONS AS FOLLOWS:
   TREADS MUST BE 11"MIN – 1'–0"MAX
   RISERS MUST BE 5"MIN – 7"MAX
3. STEP WIDTH MUST MATCH WIDTH OF EXISTING WALK, BUT MUST BE NO LESS THAN 2'–6"WIDE
4. ALL STAIRWAYS WITH 2 OR MORE STEPS MUST INCLUDE A HANDRAIL ON BOTH SIDES. SEE STD PLAN NO 440
5. REINFORCING STEEL ASTM A 615 GR60
6. TREAD SLOPES OUTWARD @1%

REF STD SPEC SEC 8-18

City of Seattle	NOT TO SCALE	CEMENT CONCRETE STEPS

REV DATE: JAN 2017

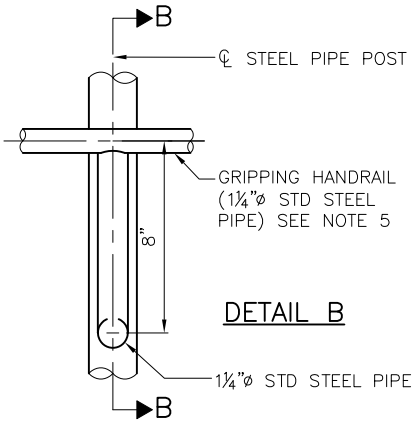




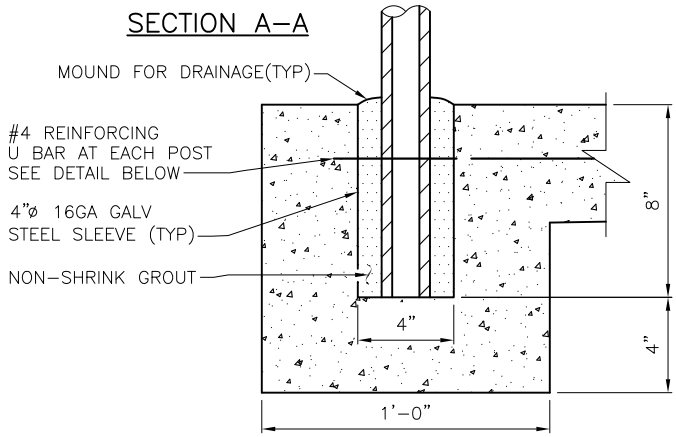
SECTION A-A

NOTES:

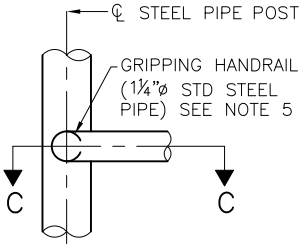
1. RAILING MUST BE HOT DIP GALVANIZED AFTER FABRICATION.
2. ALL POSTS MUST BE PLUMB AND RAILS PARALLEL TO THE GROUND.
3. PIPE MATERIAL MUST CONFORM TO ASTM A 53.
4. REINFORCING STEEL ASTM A 706 GR 60.
5. IF THE CONCRETE WALK SLOPE IS 5% OR GREATER A GRIPPING HANDRAIL IS REQUIRED. GRIPPING HANDRAILS ON RAMPS (SLOPE EXCEEDS 5%) MUST EXTEND HORIZONTALLY A MINIMUM OF 12" BEYOND TOP AND BOTTOM OF RAMP RUNS.
6. PIPE DIAMETERS SHOWN ARE "NOMINAL" DIAMETERS AS GIVEN IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL.



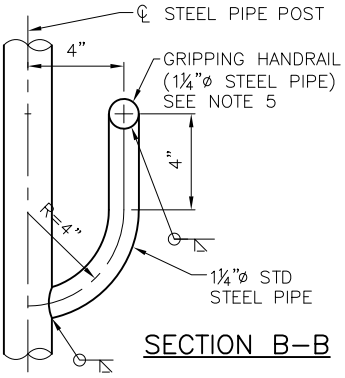
DETAIL B



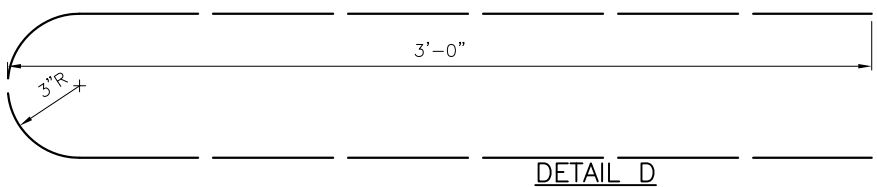
DETAIL A



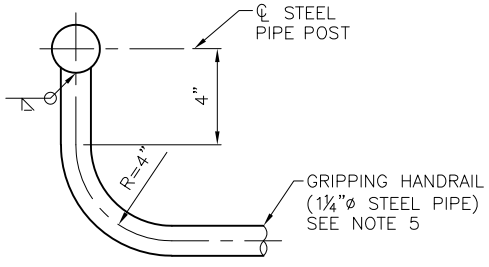
DETAIL C



SECTION B-B



DETAIL D

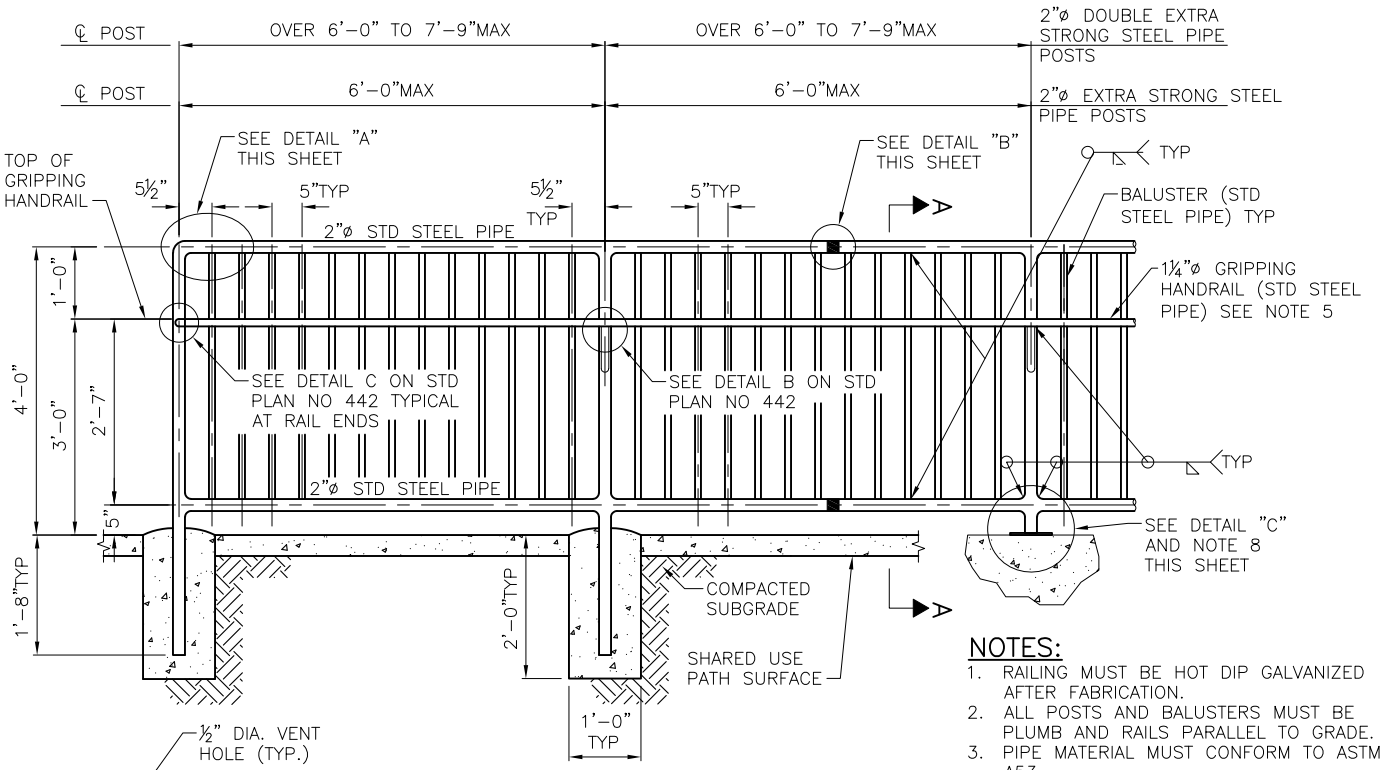


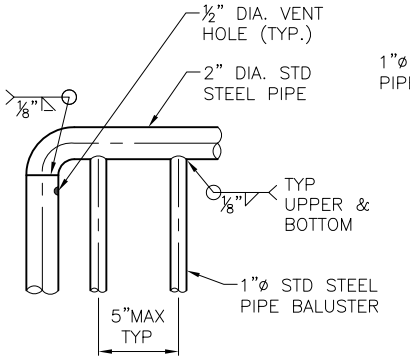
SECTION C-C

REF STD SPEC SEC 8-14 & 8-18

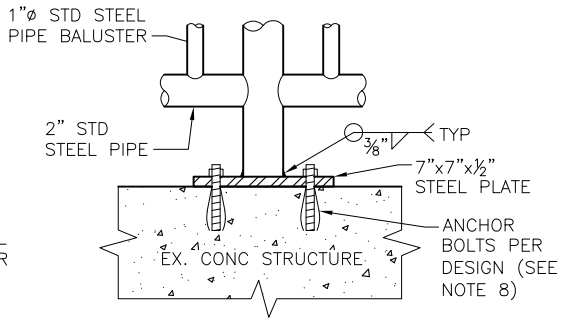
City of Seattle	NOT TO SCALE	STEEL PIPE HANDRAIL

REV DATE: JAN 2017





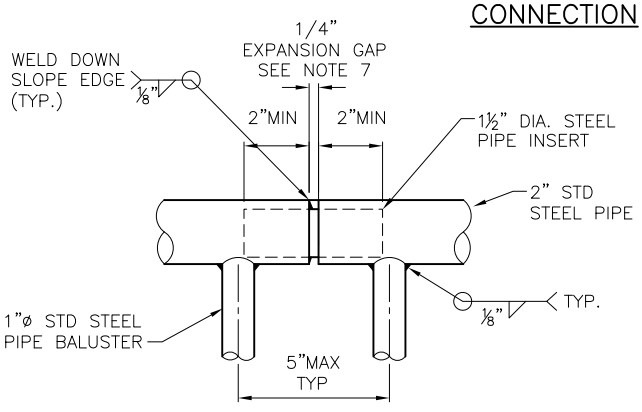
DETAIL A
RAIL ENDS



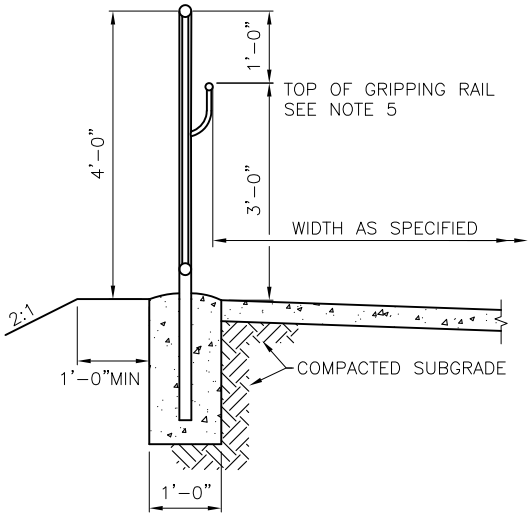
DETAIL C
EXISTING CONC. STRUCTURE CONNECTION

NOTES:

1. RAILING MUST BE HOT DIP GALVANIZED AFTER FABRICATION.
2. ALL POSTS AND BALUSTERS MUST BE PLUMB AND RAILS PARALLEL TO GRADE.
3. PIPE MATERIAL MUST CONFORM TO ASTM A53.
4. REINFORCING STEEL ASTM A706 GR 60.
5. IF THE CONCRETE WALK SLOPE IS 5% OR GREATER A GRIPPING HANDRAIL IS REQUIRED. GRIPPING HANDRAILS ON RAMPS (SLOPE EXCEEDS 5%) MUST EXTEND HORIZONTALLY A MINIMUM OF 12" BEYOND TOP AND BOTTOM OF RAMP RUNS.
6. PIPE DIAMETERS SHOWN ARE "NOMINAL" DIAMETERS AS GIVEN IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL.
7. PLACE EXPANSION GAP AT EVERY OTHER PANEL.
8. THIS DETAIL IS FOR EXISTING CONCRETE STRUCTURE CONNECTION ONLY. ANCHOR BOLTS MUST BE DESIGNED PER AASHTO CODE.



DETAIL B
SLIP JOINT

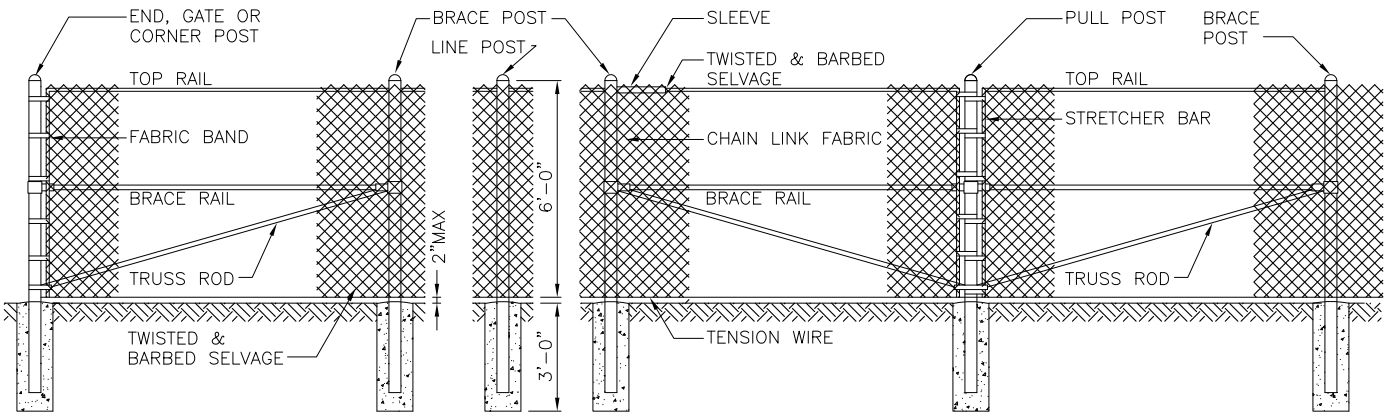


SECTION A–A

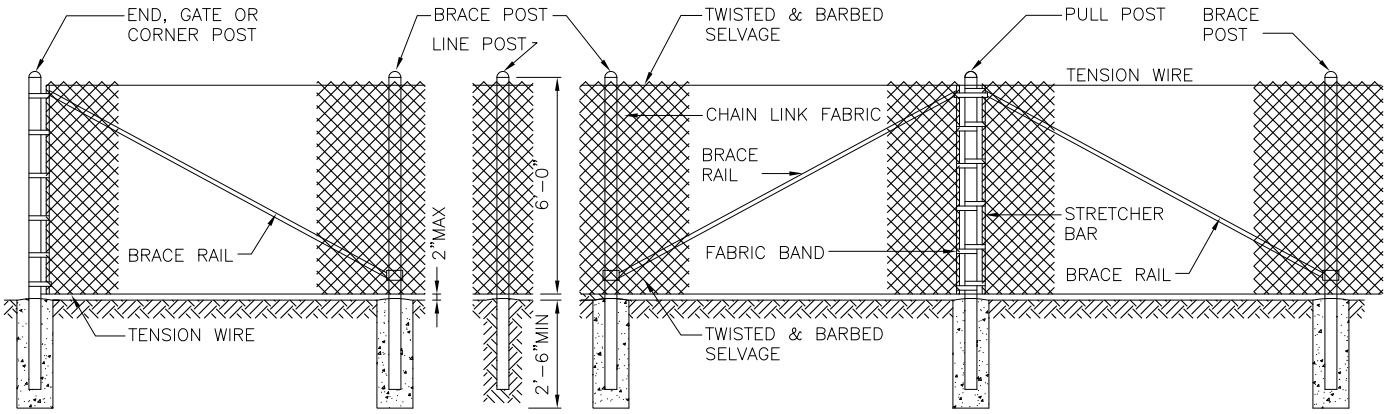
REF STD SPEC SEC 8-18

City of Seattle	NOT TO SCALE	VERTICAL RAILING

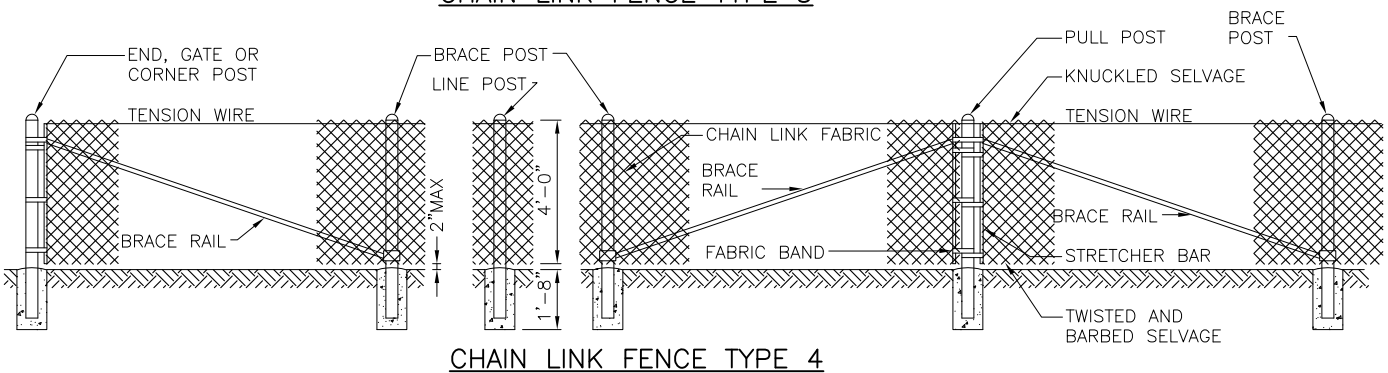
REV DATE: 2003



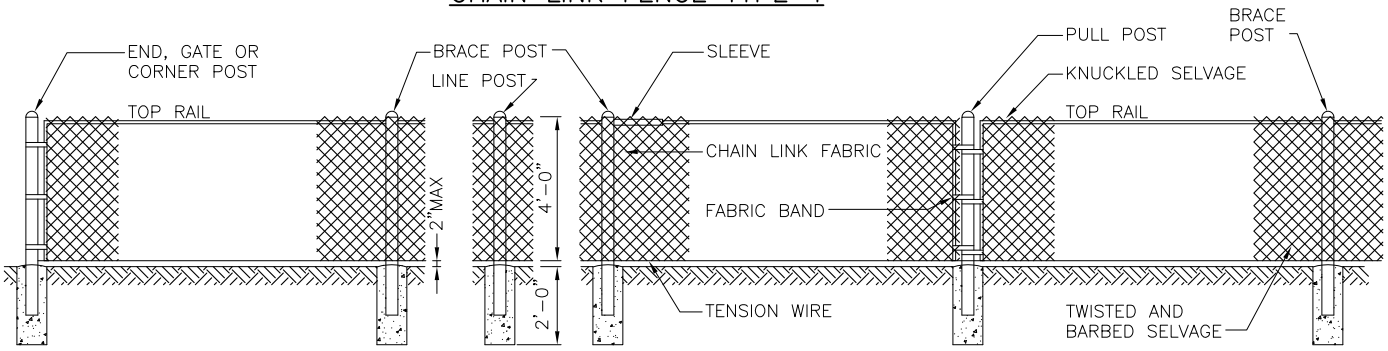
CHAIN LINK FENCE TYPE 1



CHAIN LINK FENCE TYPE 3



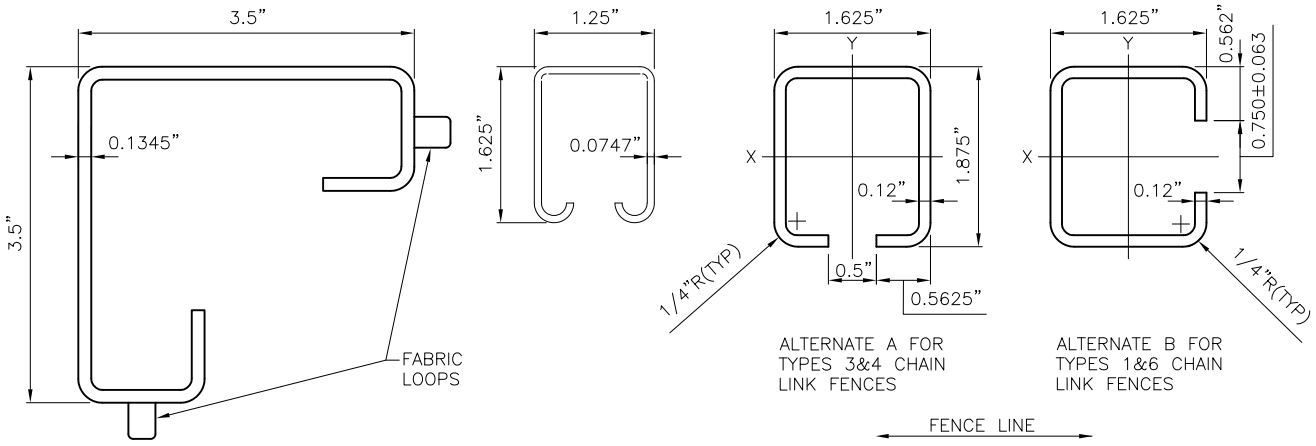
CHAIN LINK FENCE TYPE 4



CHAIN LINK FENCE TYPE 6

REF STD SPEC SEC 8-12

City of Seattle	NOT TO SCALE	CHAIN LINK FENCE



END, CORNER & PULL POST RAIL & BRACE LINE POST

ROLL FORMED SECTIONS

MEMBER

TYPE	BRACE RAIL & TOP RAIL						LINE & BRACE POST					
	ROUND		H–COLUMN		ROLL FORMED		ROUND		H–COLUMN		ROLL FORMED	
	ID PIPE INCHES	WEIGHT PER FT POUNDS	SIZE INCHES	WEIGHT PER FT POUNDS	SIZE INCHES	WEIGHT PER FT POUNDS	ID PIPE INCHES	WEIGHT PER FT POUNDS	SIZE INCHES	WEIGHT PER FT POUNDS	SIZE INCHES	WEIGHT PER FT POUNDS
1	1.25	2.27	1.25X1.62	1.35	1⅝X1¼	1.35	2	3.65	2¼	4.0		
3							1½	2.72	1⅞	2.72	1⅝X1⅞	2.34
4							1½	2.72	1⅞	2.72	1⅝X1⅞	2.34
6			1.25X1.62	1.35			2	3.65	2¼	4.0		

MEMBER

TYPE	END, CORNER & PULL POSTS				GATE POST ROUND		ALL POSTS
	ROUND		H–COLUMN				
	ID PIPE INCHES	WEIGHT PER FT POUNDS	SIZE INCHES	WEIGHT PER FT POUNDS	SIZE INCHES	WEIGHT PER FT POUNDS	LENGTH
1	2½	5.79	3½X3½	5.14	3½	9.1	8'–8"
3	2	3.65					8'–8"
4	2	3.65					5'–6"
6	2½	5.79					5'–6"

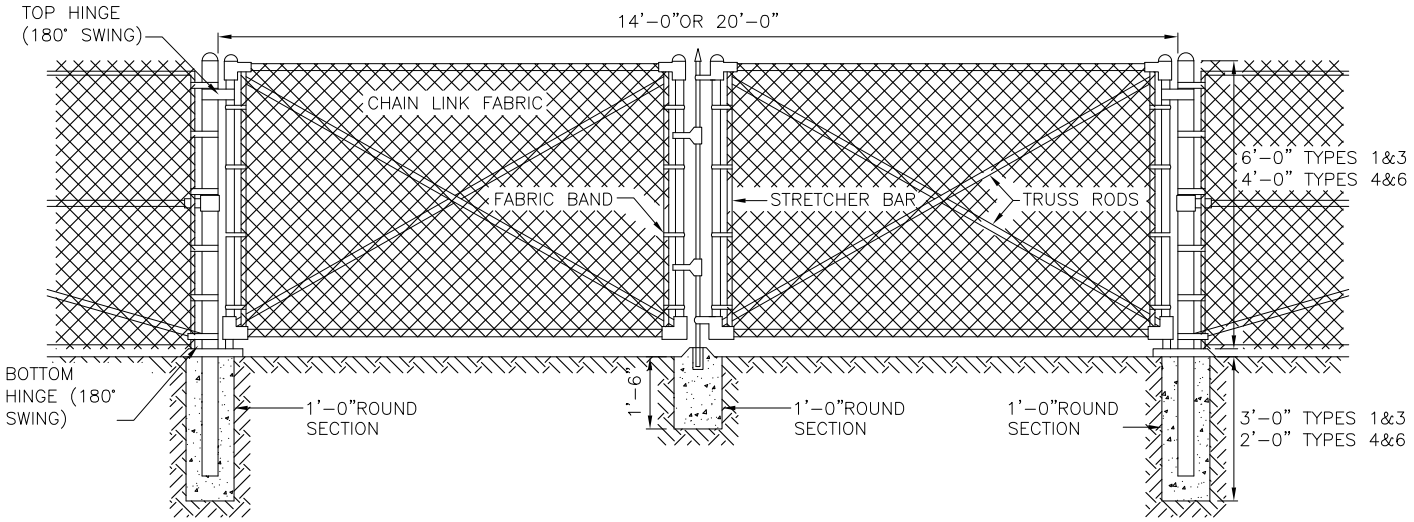
NOTES:

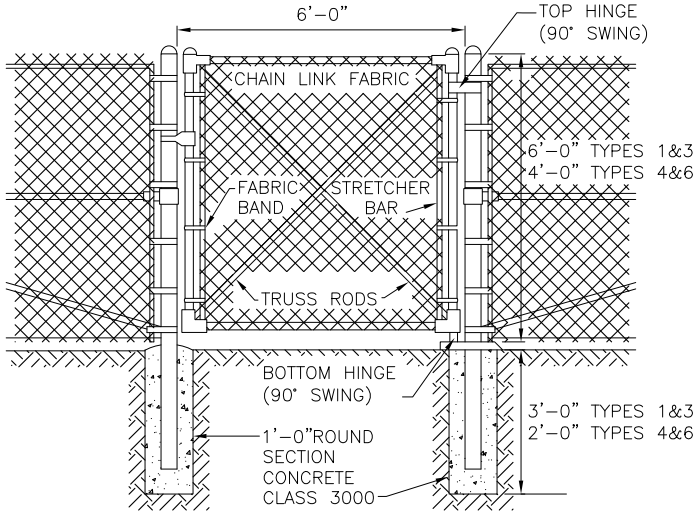
1. ALL CONCRETE POST BASES MUST BE 10" MINIMUM DIAMETER, CL3000
2. POSTS MUST BE SPACED AT 10'–0" MAXIMUM INTERVALS UNLESS OTHERWISE DIRECTED BY THE ENGINEER
3. TOP OR BOTTOM TENSION WIRES MUST BE PLACED WITHIN THE LIMITS OF THE FIRST FULL FABRIC WEAVE
4. THE ILLUSTRATIVE DETAIL SHOWN HEREON MUST NOT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

REF STD SPEC SEC 8-12

City of Seattle | NOT TO SCALE | CHAIN LINK FENCE

REV DATE: 2003





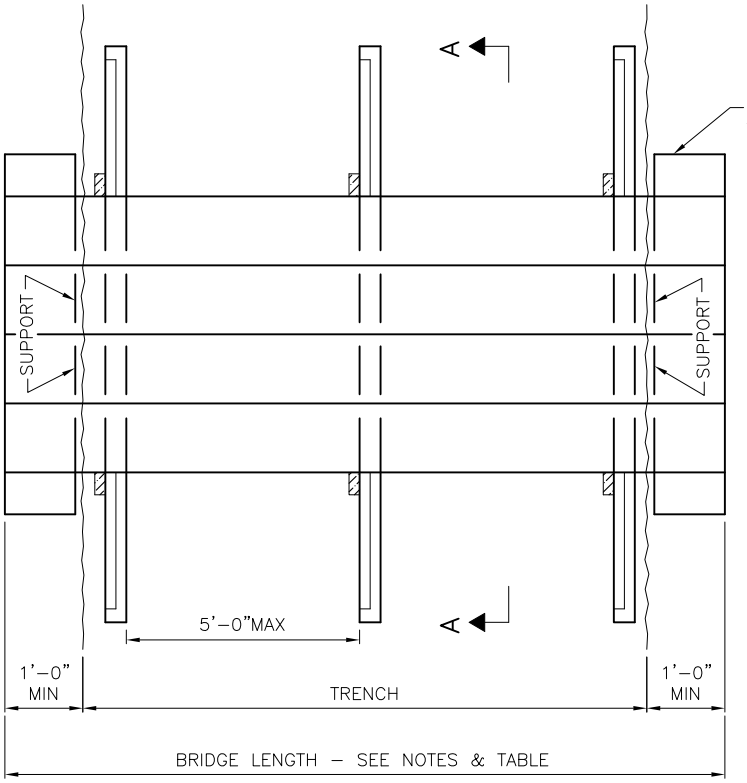
NOTES:

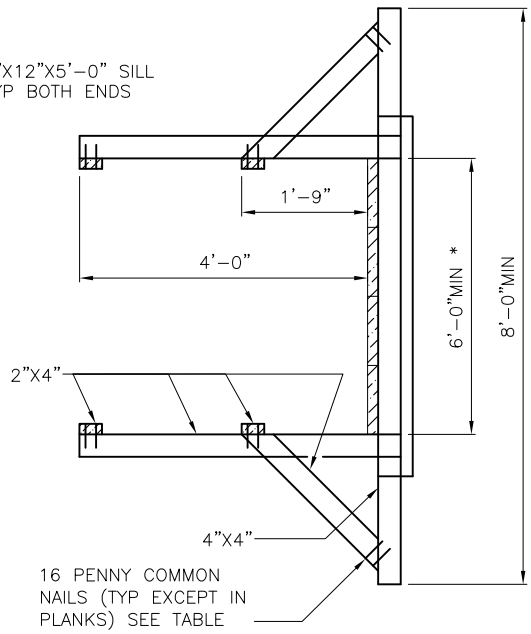
1. FENCE FABRIC MUST BE SECURED TO GATE FRAMES WITH KNUCKLED SELVAGE ALONG TOP EDGE FOR TYPES 4&6 CHAIN LINK FENCE INSTALLATIONS
2. MINIMUM POST LENGTH:
   TYPES 1&3: 8'–8"
   TYPES 4&6: 5'–6"
3. CONCRETE OR GROUT AROUND POST AT GROUND LINE MUST BE MOUNDED FOR DRAINAGE

REF STD SPEC SEC 8-12

City of Seattle	NOT TO SCALE	CHAIN LINK GATES

REV DATE: DEC 2010



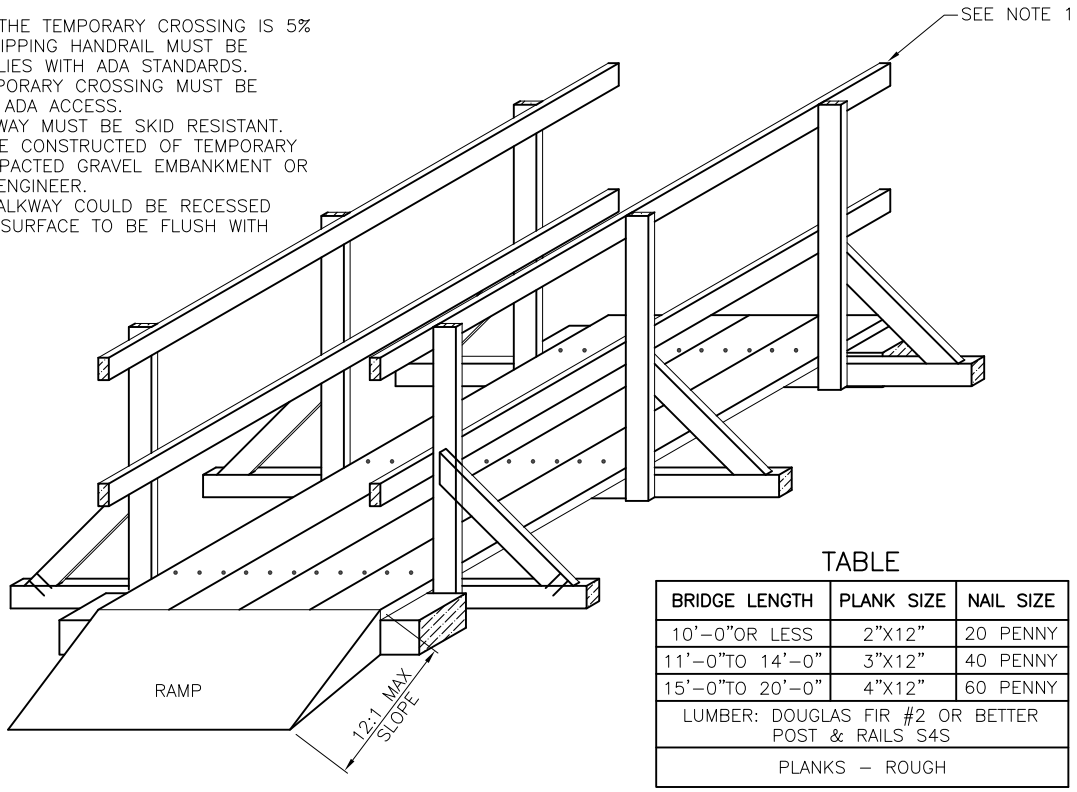


SECTION A-A

* UNLESS APPROVED BY SEATTLE DEPARTMENT OF TRANSPORTATION

NOTES:

1. IF THE SLOPE OF THE TEMPORARY CROSSING IS 5% OR GREATER, A GRIPPING HANDRAIL MUST BE ADDED THAT COMPLIES WITH ADA STANDARDS.
2. ENDS OF THE TEMPORARY CROSSING MUST BE SLOPED TO ALLOW ADA ACCESS.
3. SURFACE OF WALKWAY MUST BE SKID RESISTANT.
4. THE RAMP MUST 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.



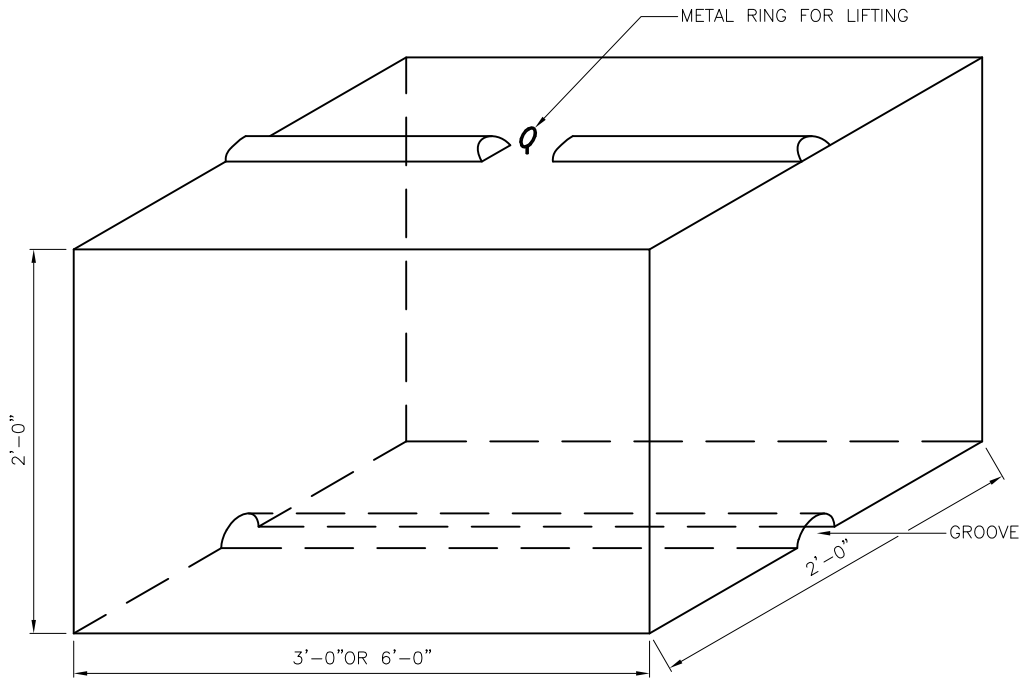
TABLE

BRIDGE LENGTH	PLANK SIZE	NAIL SIZE
10'-0"OR LESS	2"X12"	20 PENNY
11'-0"TO 14'-0"	3"X12"	40 PENNY
15'-0"TO 20'-0"	4"X12"	60 PENNY
LUMBER: DOUGLAS FIR #2 OR BETTER POST & RAILS S4S		
PLANKS - ROUGH		

REF STD SPEC SEC 1-07.23

City of Seattle | NOT TO SCALE | TEMPORARY PEDESTRIAN WALKWAY

REV DATE: 2003

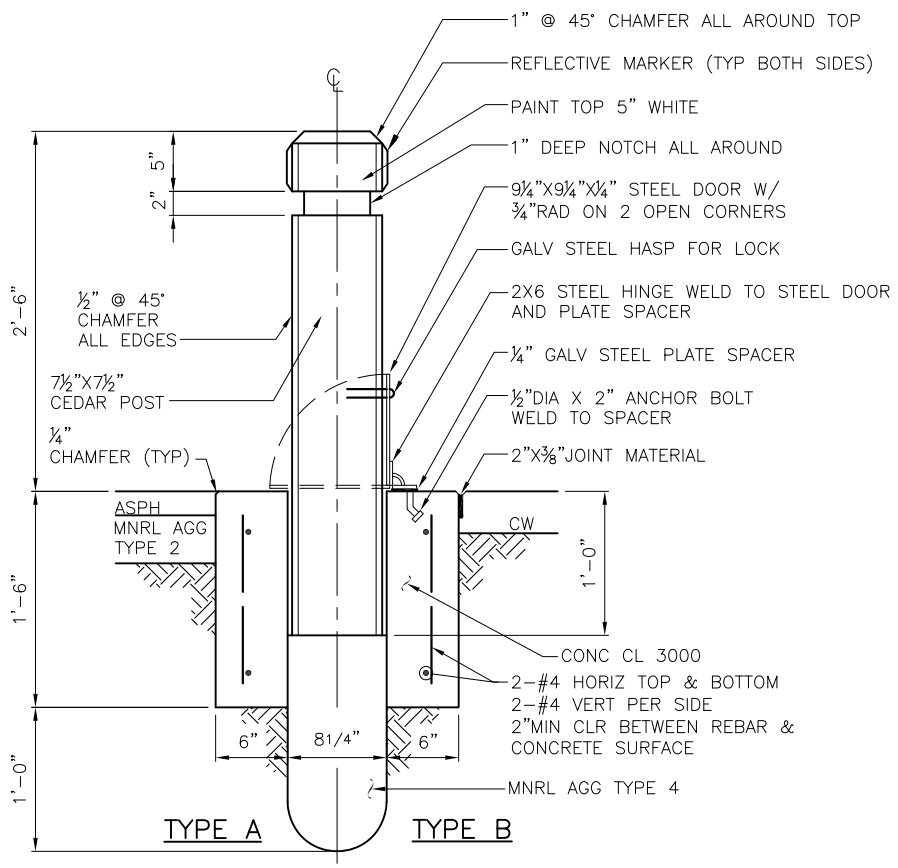


CONCRETE TONGUE & GROOVE BLOCK

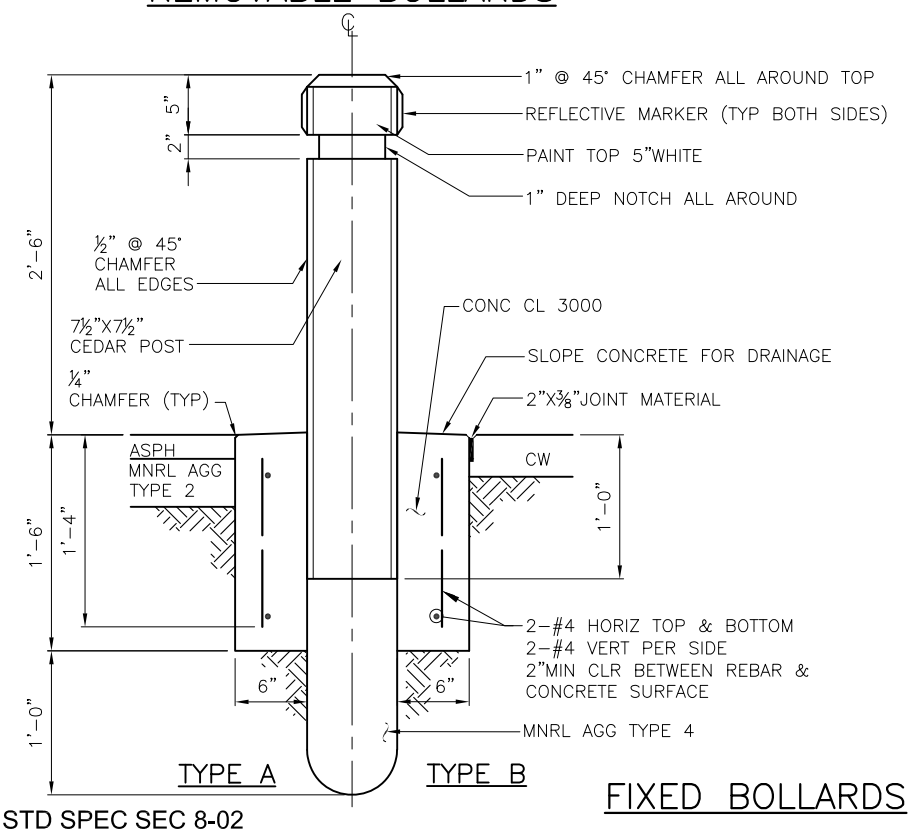
REF STD SPEC SEC

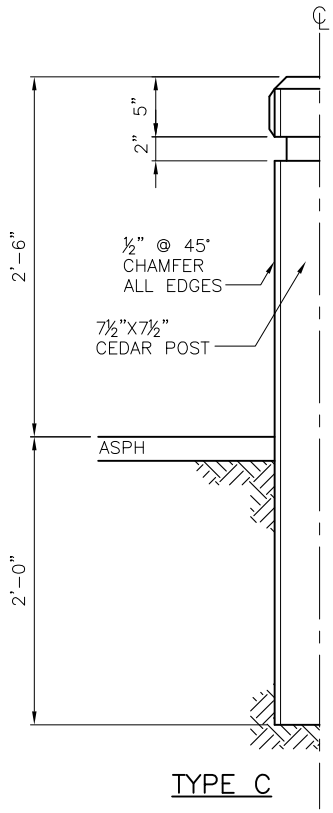
City of Seattle	NOT TO SCALE	ECOLOGY BLOCK, CONCRETE

REV DATE: 2003



REMOVABLE BOLLARDS



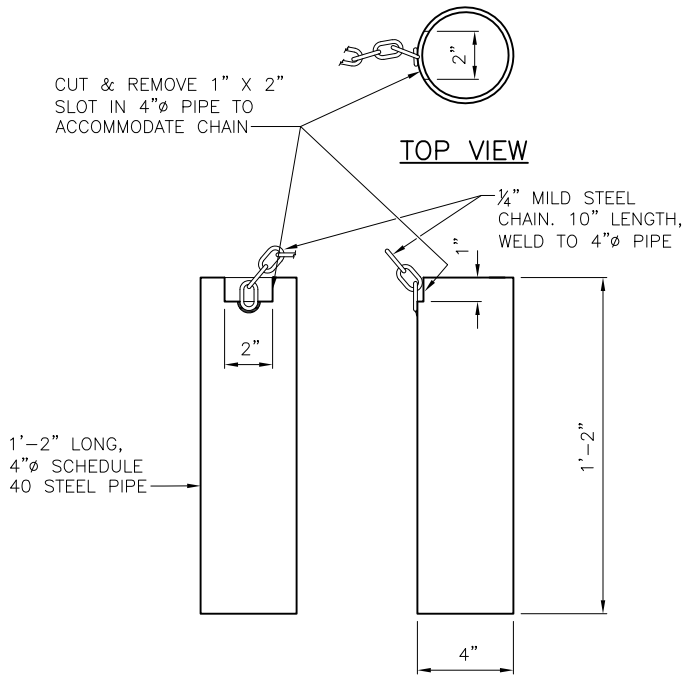


FIXED BOLLARDS

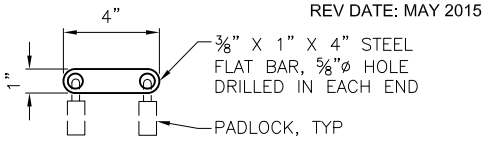
REF STD SPEC SEC 8-02

City of Seattle	NOT TO SCALE	FIXED & REMOVABLE WOOD BOLLARD

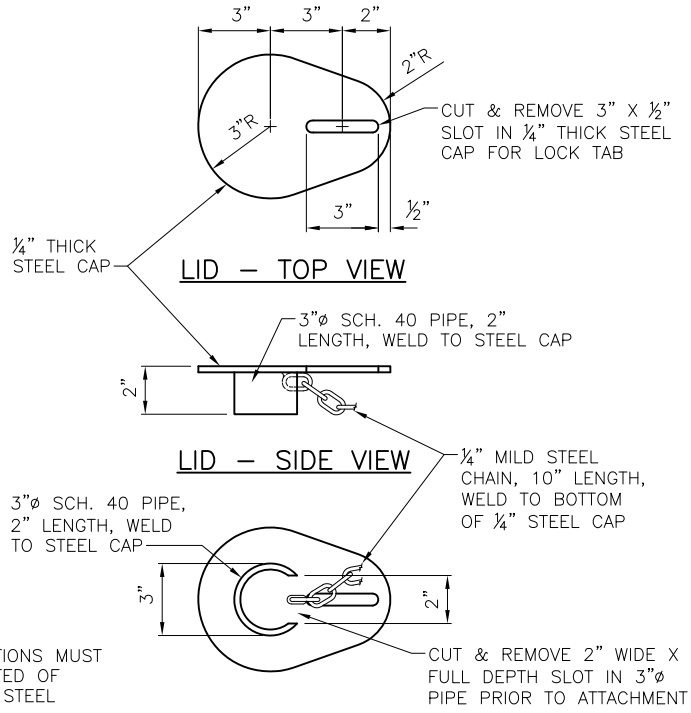
REV DATE: MAY 2015



GALVANIZED PIPE SLEEVE



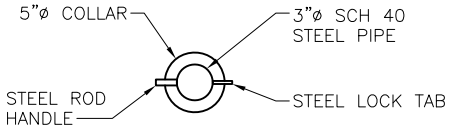
OPTIONAL DOUBLE LOCK BAR



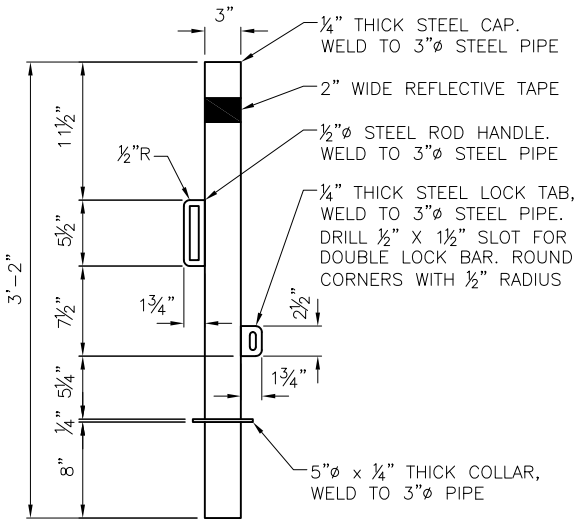
STEEL LID

NOTES:

1. ALL PIPE SECTIONS MUST BE CONSTRUCTED OF SCHEDULE 40 STEEL PIPE AND ALL COMPONENTS MUST BE HOT DIPPED GALVANIZED AFTER FABRICATION.
2. BOLLARD SHALL NOT EXCEED 50 LBS.

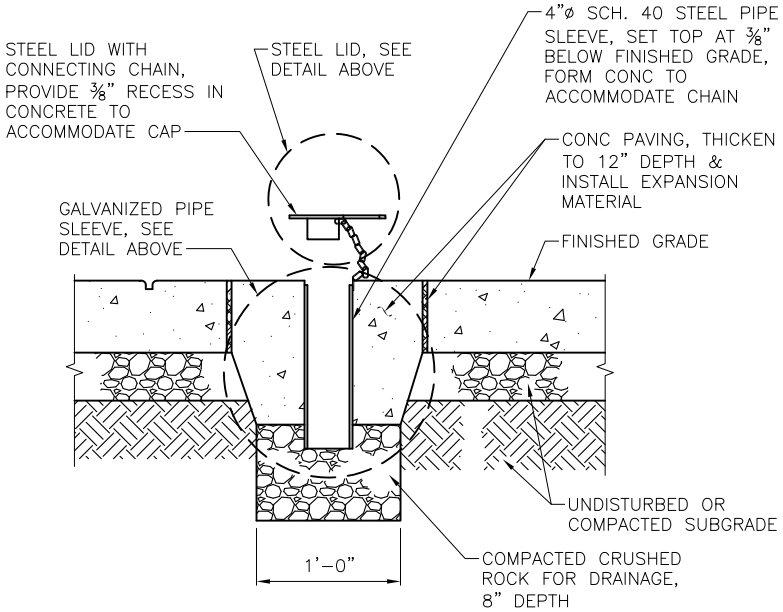


BOLLARD PLAN VIEW



BOLLARD ELEVATION

BOLLARD

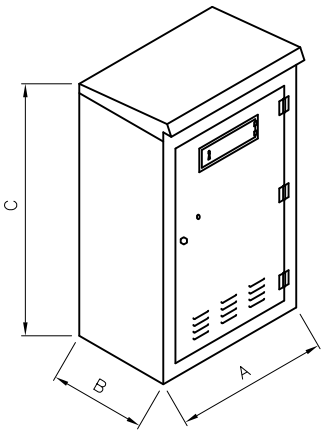


SLEEVE IN CONCRETE SECTION VIEW

REF STD SPEC SEC 8-02

City of Seattle	NOT TO SCALE	REMOVABLE STEEL BOLLARD

REV DATE: JAN 2017

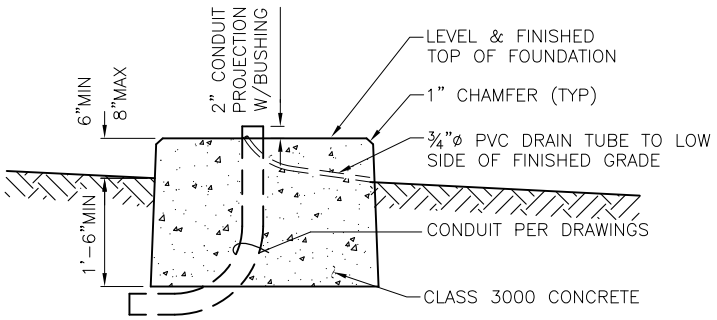


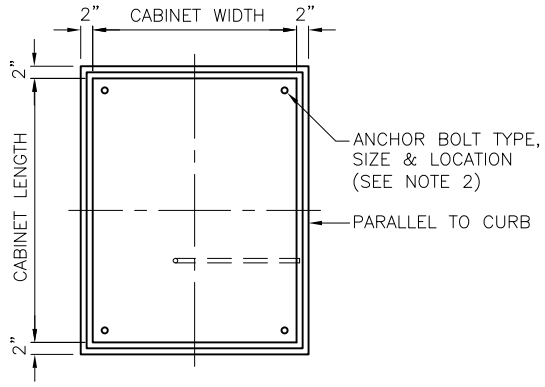
NOTES:

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

DIMENSION	TYPE II	TYPE III	TYPE VI
A	30"	44"	44"
B	17"	25 ½"	25½"
C	38" TO 52"	50" TO 58"	64¾" TO 67½"

SIGNAL CONTROLLER CABINET–TYPES II, III, VI





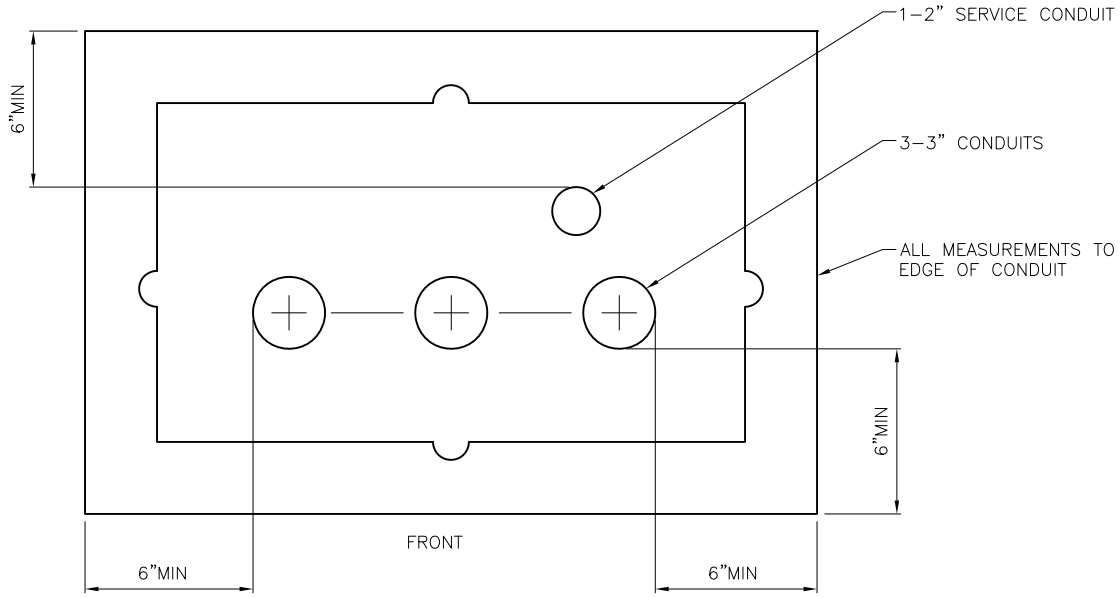
SIGNAL CONTROLLER FOUNDATION

SEE STD PLANS NO 500b & 500c FOR CONDUIT LAYOUT

REF STD SPEC SEC 8-31 & 8-32

City of Seattle	NOT TO SCALE	SIGNAL CONTROLLER CABINET & FOUNDATION

REV DATE: JAN 2017

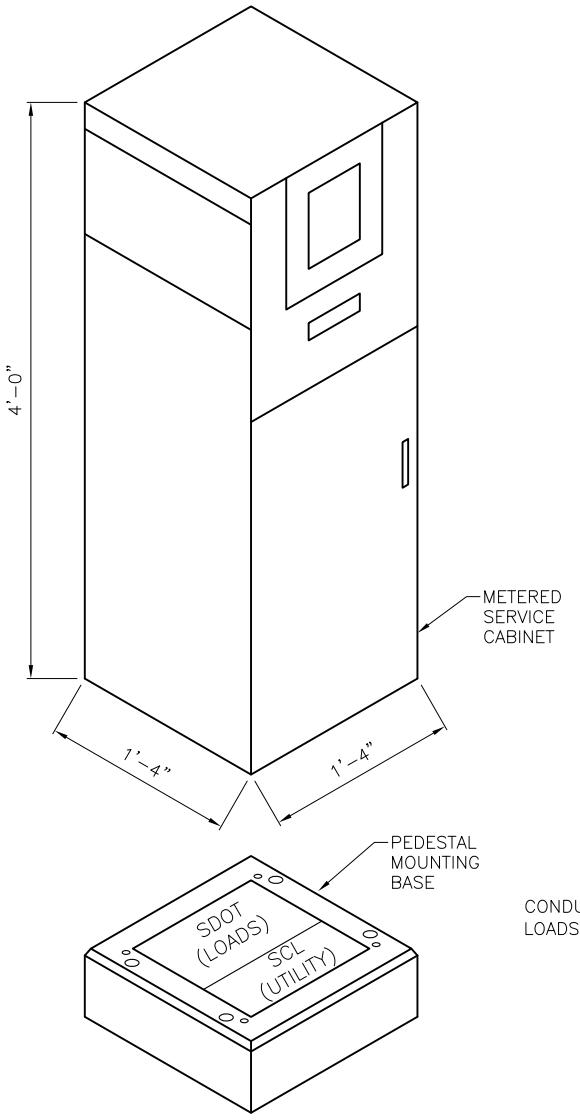


CONDUIT LAYOUT – SIGNAL CONTROLLER FOUNDATION

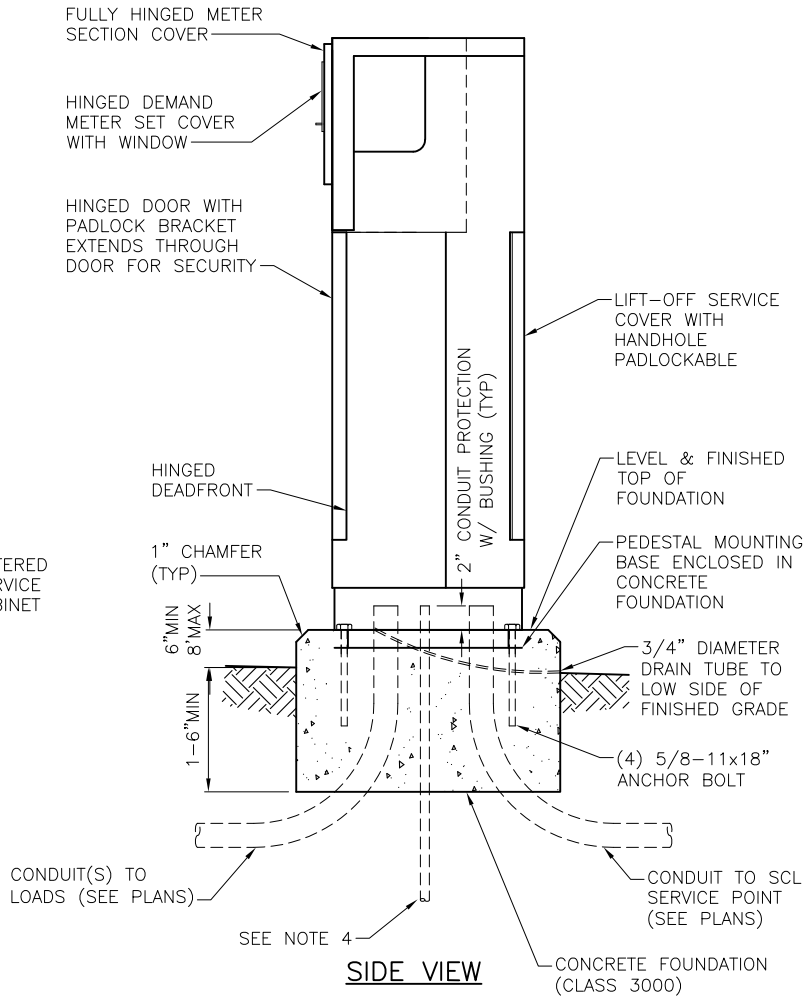
REF STD SPEC SEC 8-31 & 8-32

City of Seattle	NOT TO SCALE	SIGNAL CONTROLLER FOUNDATION CONDUIT LAYOUT

REV DATE: JAN 2017



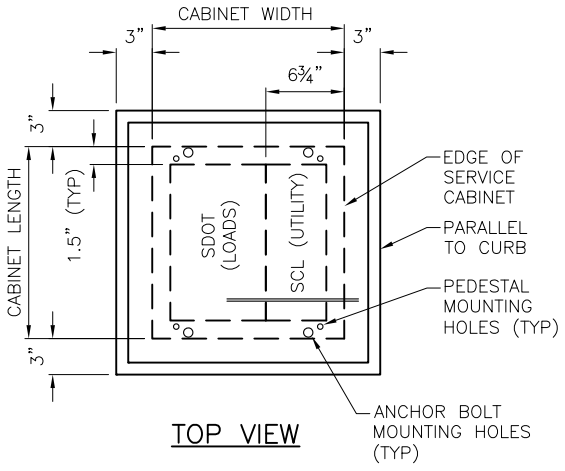
ISOMETRIC VIEW



SIDE VIEW

NOTES:

1. 36" MINIMUM CLEARANCE MUST BE REQUIRED IN FRONT OF BOTH FRONT AND BACK CABINET DOOR.
2. SEAL CABINET TO FOUNDATION WITH GREY OR CLEAR SILICON TO PREVENT MOISTURE FROM ENTERING THE CABINET.
3. EXACT SERVICE CABINET DIMENSIONS, ANCHOR BOLT LOCATIONS AND PEDESTAL MOUNTING HOLES MUST BE PROVIDED BY THE MANUFACTURER.
4. GROUND ROD 3/4"x120" COPPER CLAD WITH GROUND ROD CLAMP. A SECOND GROUND MUST BE INSTALLED A MINIMUM 8' AWAY IN A GROUND ROD HANDHOLE AS PER CITY OF SEATTLE STANDARD PLAN NO 550b. COORDINATE WITH ELECTRICAL INSPECTOR FOR LOCATION. INSTALL #4 AWG COPPER GROUND WIRE BETWEEN CABINET FOUNDATION AND GROUND ROD HANDHOLE

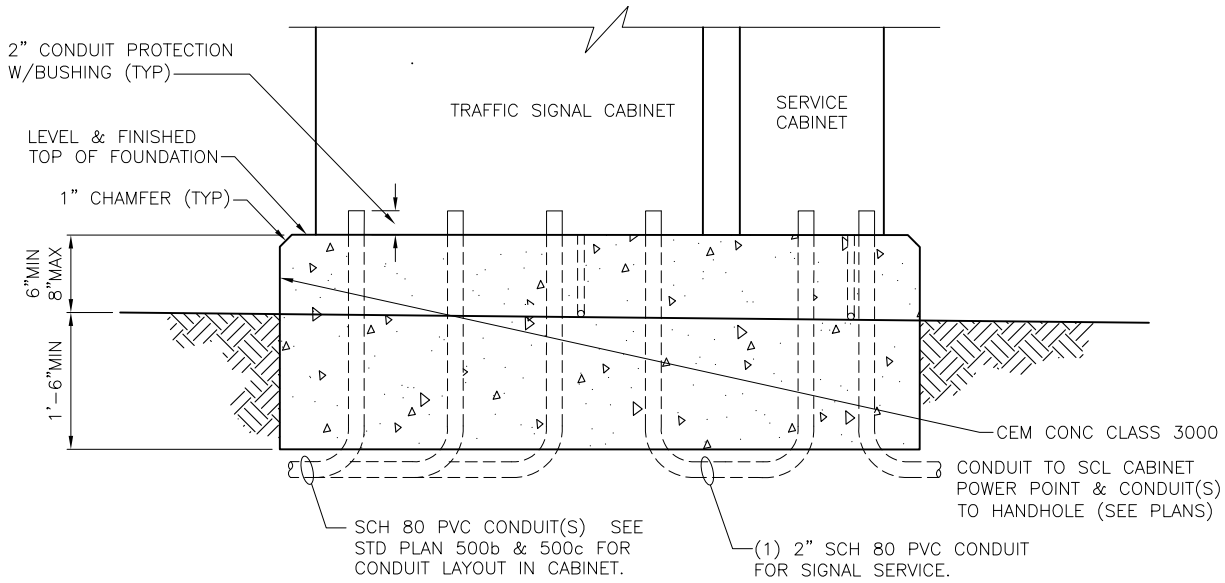


TOP VIEW

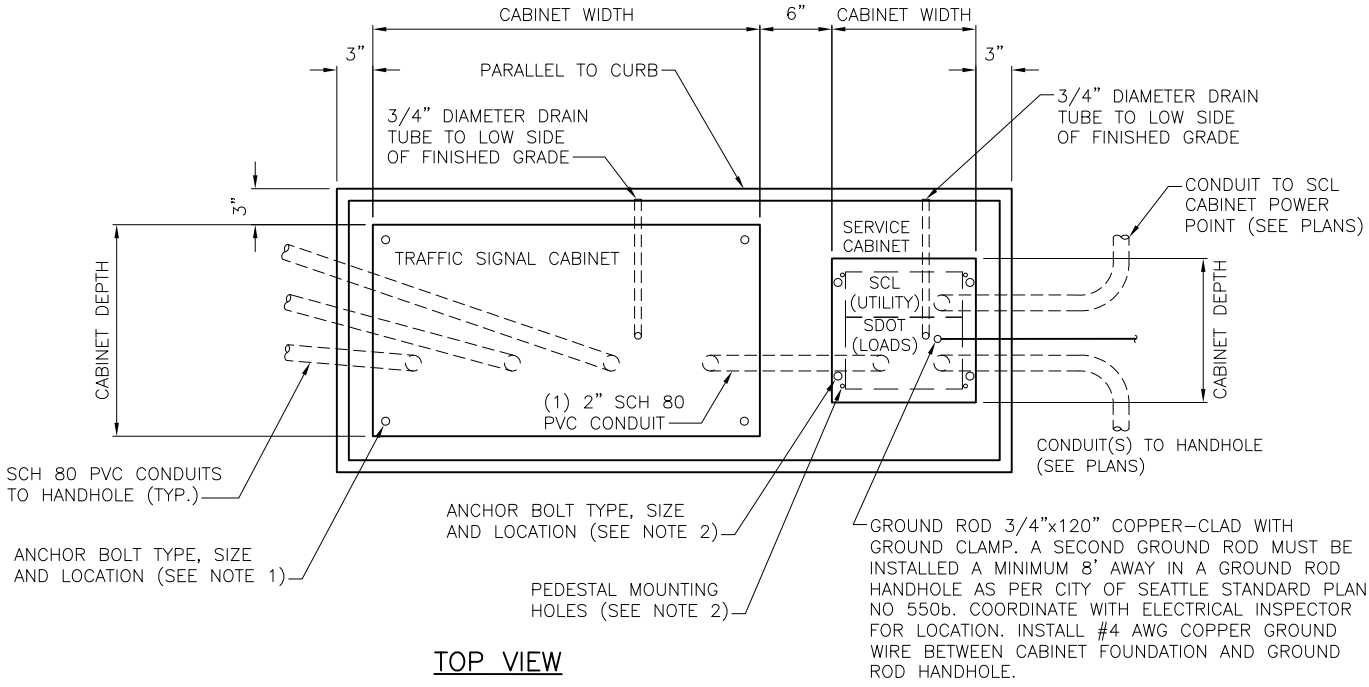
REF STD SPEC SEC 8-31,8-32

City of Seattle	NOT TO SCALE	SERVICE CABINET FOUNDATION DETAIL

REV DATE: JAN 2017



SIDE VIEW



TOP VIEW

JOINT SIGNAL CONTROLLER/SERVICE CABINET FOUNDATION DETAIL

NOT TO SCALE

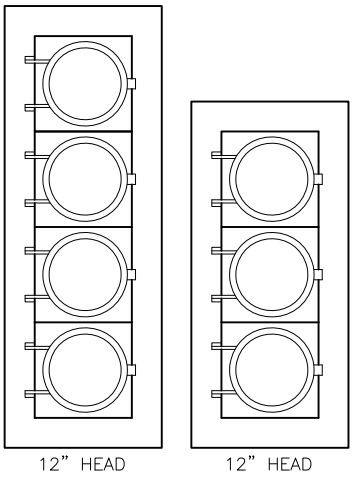
NOTES:

1. FOR SIGNAL CONTROLLER DIMENSIONS AND OTHER REQUIREMENTS, SEE STD PLAN NO. 500a.
2. FOR SERVICE CABINET DIMENSIONS AND OTHER REQUIREMENTS, SEE STD PLAN NO 501a.
3. SEAL CABINETS TO FOUNDATION WITH GREY OR CLEAR SILICON TO PREVENT MOISTURE FROM ENTERING THE CABINET.
4. THE SERVICE CABINET MUST BE PLACED ON THE OPPOSITE SIDE OF THE CONTROLLER CABINET FROM THE UPS.

REF STD SPEC SEC 8-31,8-32

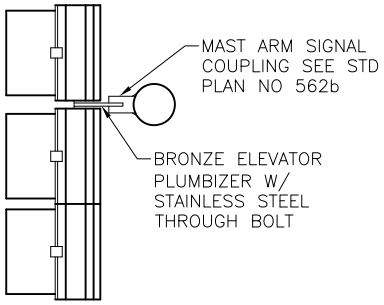
City of Seattle	NOT TO SCALE	JOINT SIGNAL CONTROLLER/ SERVICE CABINET FOUNDATION DETAIL

REV DATE: JUN 2014



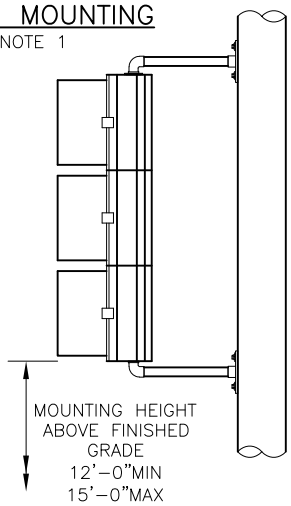
TYPICAL SIGNAL FACES

W/ TUNNEL VISORS &
5" BACKPLATE (LOUVERED)
1" YELLOW, DIAMOND GRADE RETRO REFLECTIVE TAPE



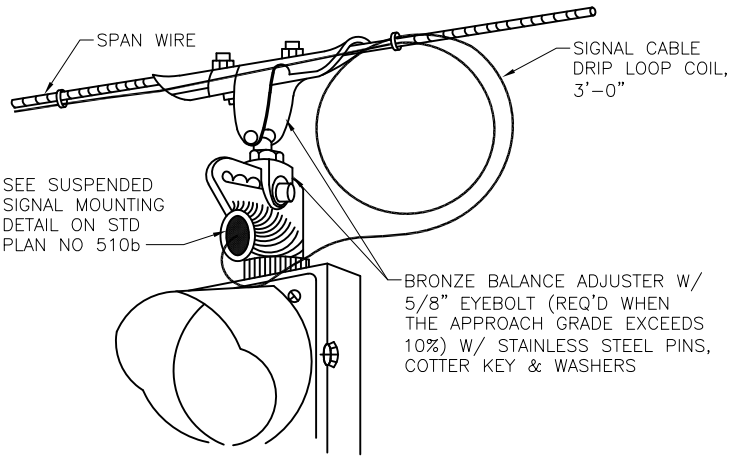
MAST ARM MOUNTING

SEE NOTE 1

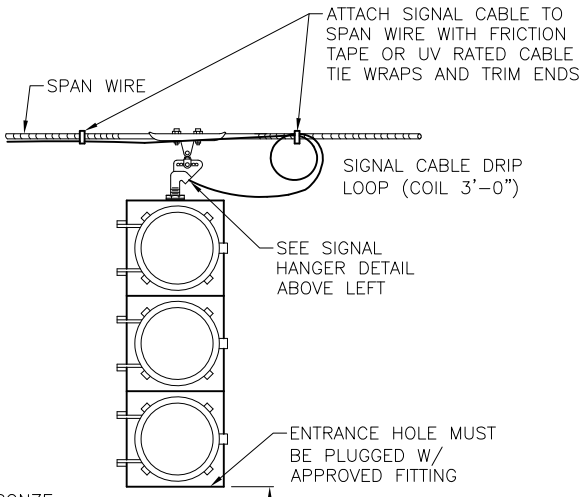


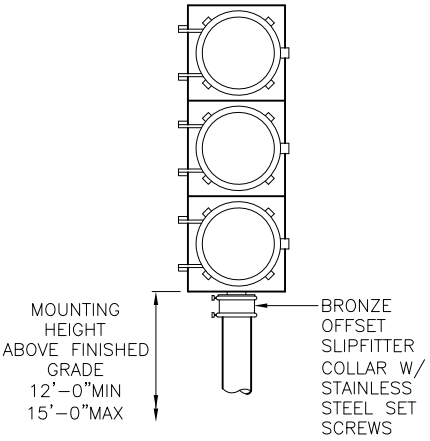
BRACKET MOUNTING

FOR SIGNAL HEAD BRACKET ASSEMBLY
SEE STD PLAN NO 511



SIGNAL HANGER DETAIL





PEDESTAL TOP MOUNTING

FOR PEDESTAL SEE STD PLAN NO 524

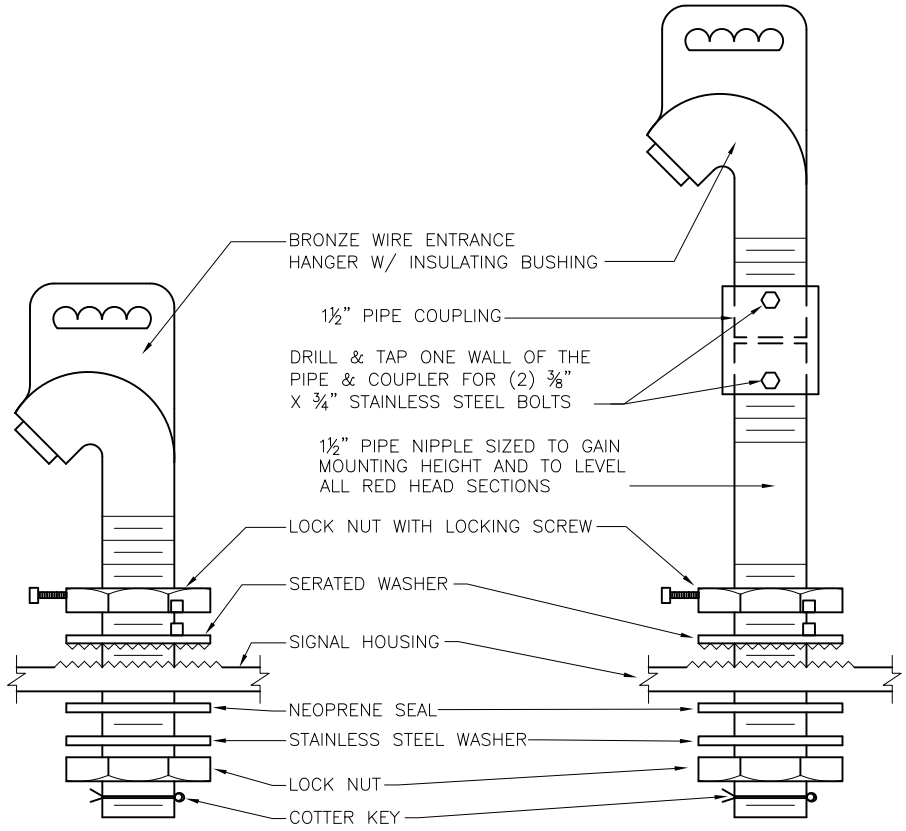
NOTES:

1. VERTICAL CLEARANCE: 17' MIN TO ROADWAY 19'-0" MAX (ON TRUCK ROUTES USE 18' TO 19')
2. BACKPLATES HAVE BEEN OMITTED FROM VARIOUS VIEWS FOR CLARITY

REF STD SPEC SEC 8-31

City of Seattle	NOT TO SCALE	VEHICULAR SIGNAL MOUNTING

REV DATE: 2003

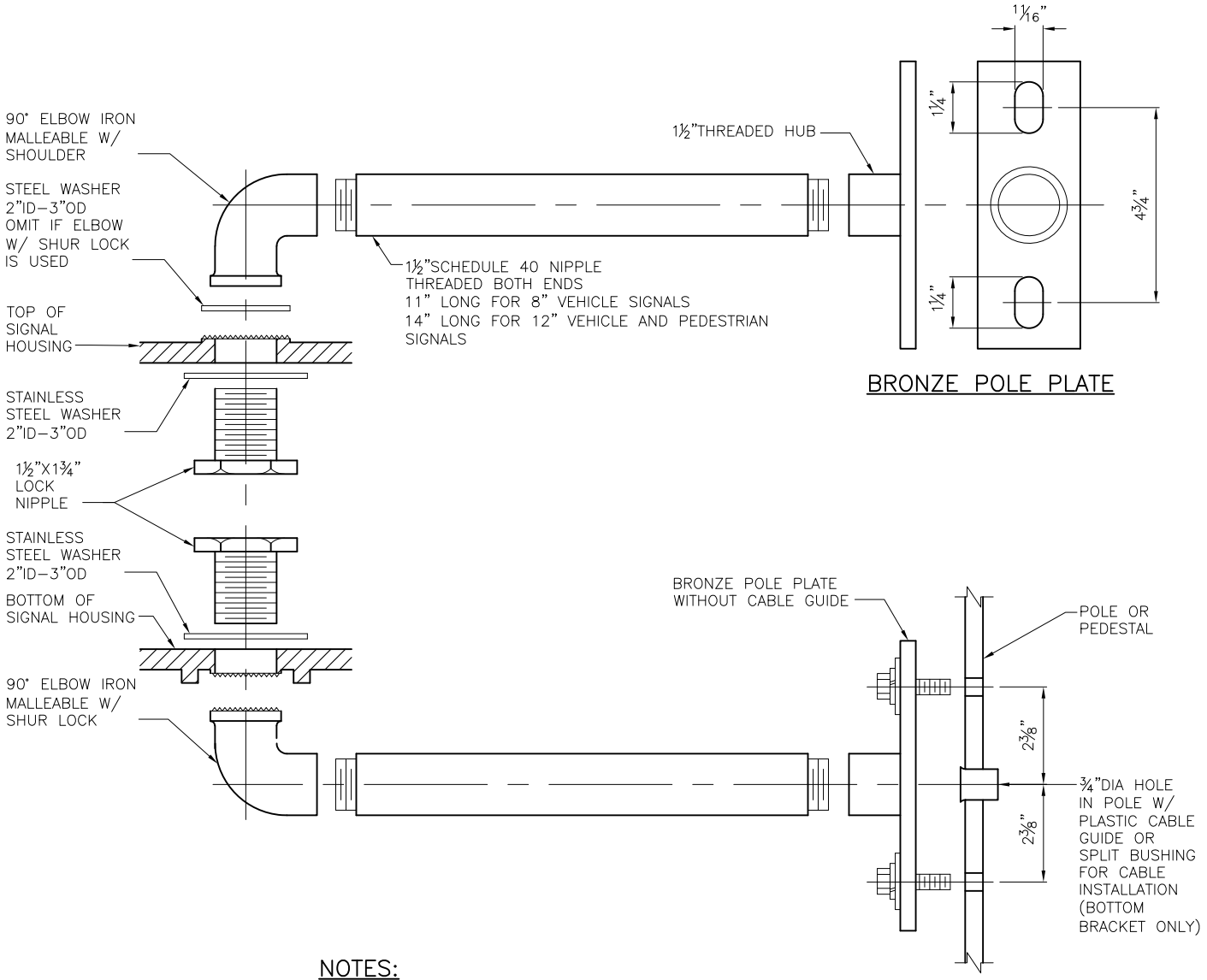


SUSPENDED SIGNAL MOUNTING DETAIL

REF STD SPEC SEC 8-31

City of Seattle	NOT TO SCALE	VEHICULAR SIGNAL MOUNTING

REV DATE: 2003



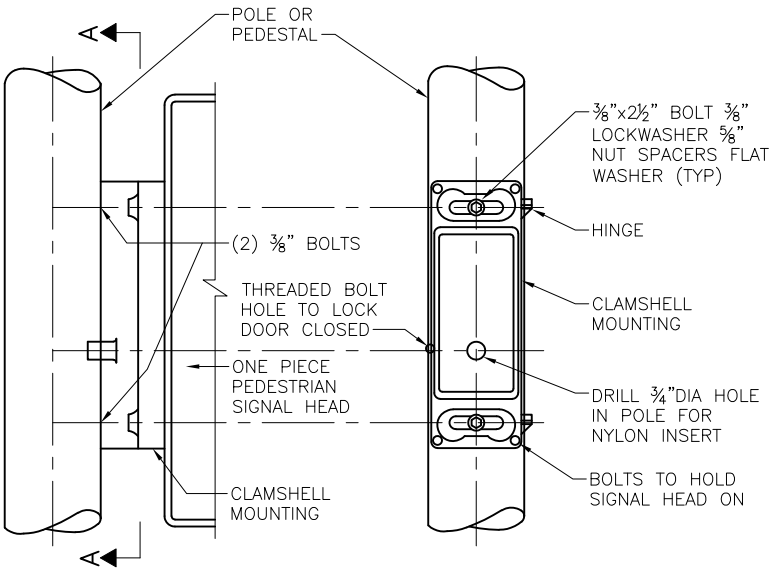
NOTES:

1. ⅜"X1½"BOLT, ⅜"LOCK WASHER, 7/16"X1⅜" WASHER 4 OF EACH REQUIRED PER ASSEMBLY; ALL STAINLESS STEEL.
2. MOUNTING MUST BE AS FOLLOWS:
   - –ON METAL POLES THINNER THAN 7 GAUGE, USE ⅜" STAINLESS STEEL RIVNUTS.
   - –ON METAL POLES 7 GAUGE OR THICKER, DRILL AND TAP FOR ⅜" BOLT (STAINLESS STEEL RIVNUTS OPTIONAL).
   - –ON POLES FILLED OR MADE WITH CONCRETE USE ⅜"X2½" MIN STUD BOLT ANCHORS, SLEEVE TYPE.
   - –ON WOOD POLES USE 1½"X2½"LAG BOLTS.

REF STD SPEC SEC 8-31

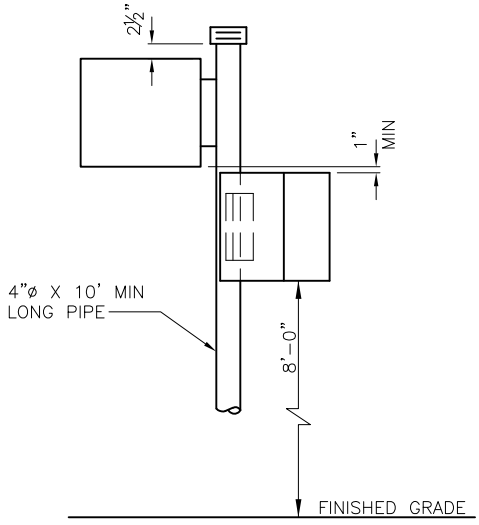
City of Seattle	NOT TO SCALE	SIGNAL HEAD BRACKET ASSEMBLY

REV DATE: JUL 2013

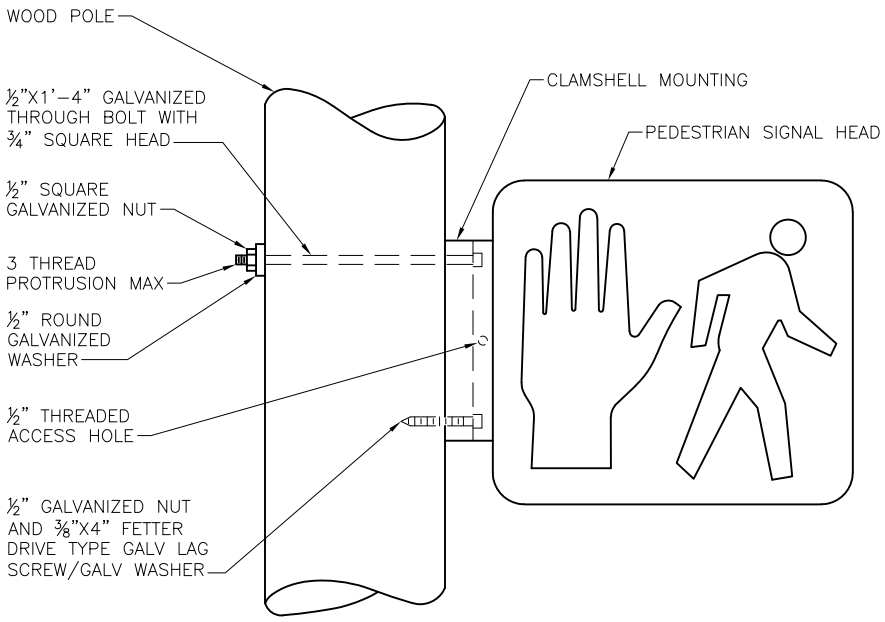


ELEVATION SECTION A–A

METAL POLE MOUNT



PEDESTAL MOUNT



WOOD POLE MOUNT

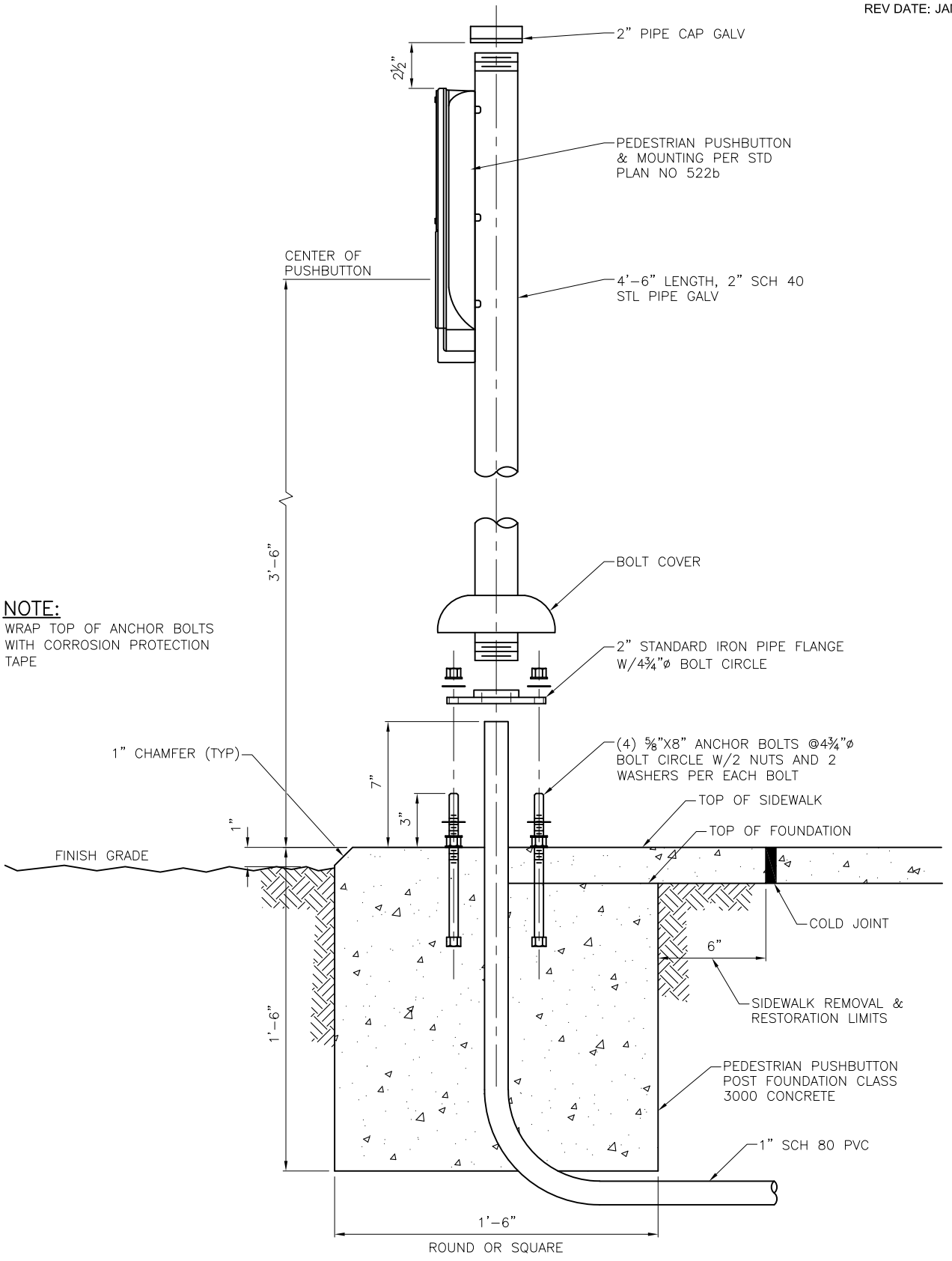
NOTES:

1. BOLT AND WASHERS MUST BE STAINLESS STEEL PER ASTM A 563 DH AND ASTM F 436
2. MOUNTING MUST BE AS FOLLOWS:
   –ON METAL POLES THINNER THAN 7 GAUGE, USE ⅜" STAINLESS STEEL RIVNUTS
   –ON METAL POLES 7 GAUGE OR THICKER, DRILL AND TAP FOR ⅜" BOLT (STAINLESS STEEL RIVNUTS OPTIONAL)
   –ON POLES FILLED WITH OR MADE FROM CONCRETE USE ⅜"X2½" STUD BOLT ANCHORS WITH HEX NUT
3. FOR STREET NAME SIGN PEDESTAL INSTALLATION, SEE STD PLAN NO 623

REF STD SPEC SEC 8-31

City of Seattle	NOT TO SCALE	PEDESTRIAN SIGNAL CLAMSHELL MOUNTING

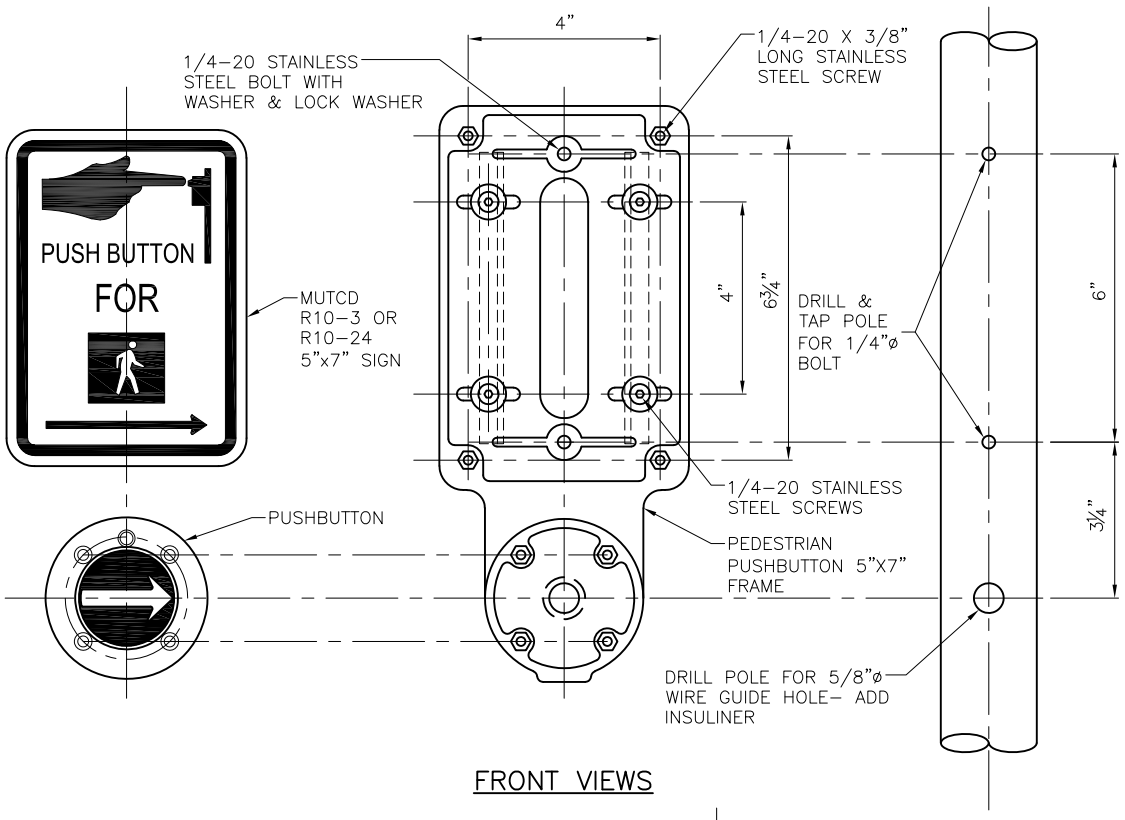
REV DATE: JAN 2017



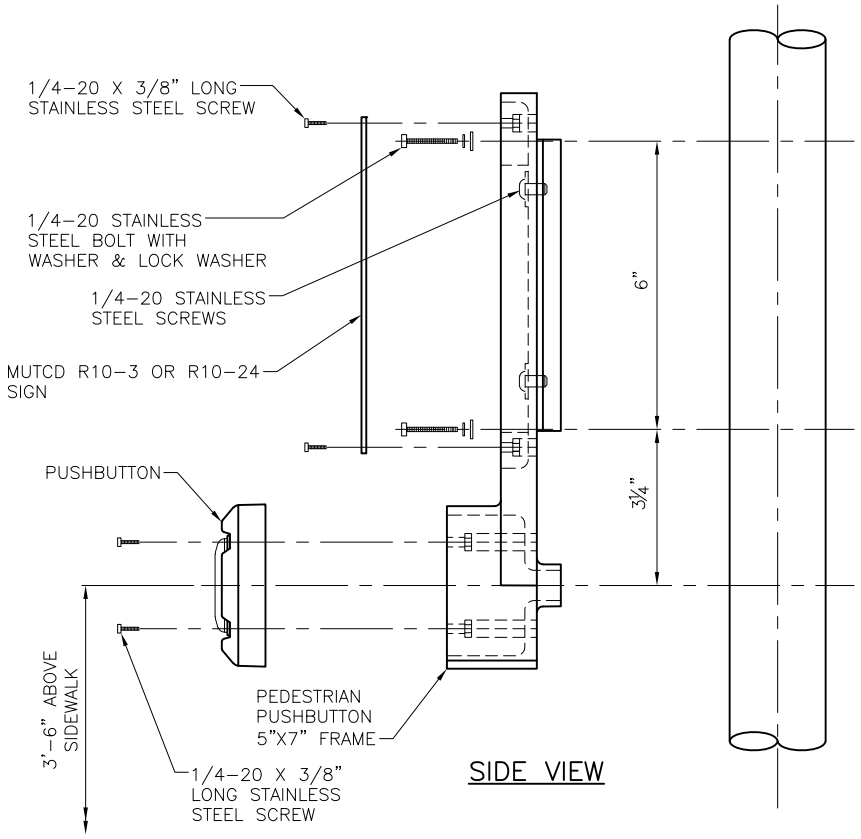
REF STD SPEC SEC 8-31 & 8-32

City of Seattle	NOT TO SCALE	PEDESTRIAN PUSHBUTTON POST & FOUNDATION

REV DATE: JAN 2017



FRONT VIEWS



SIDE VIEW

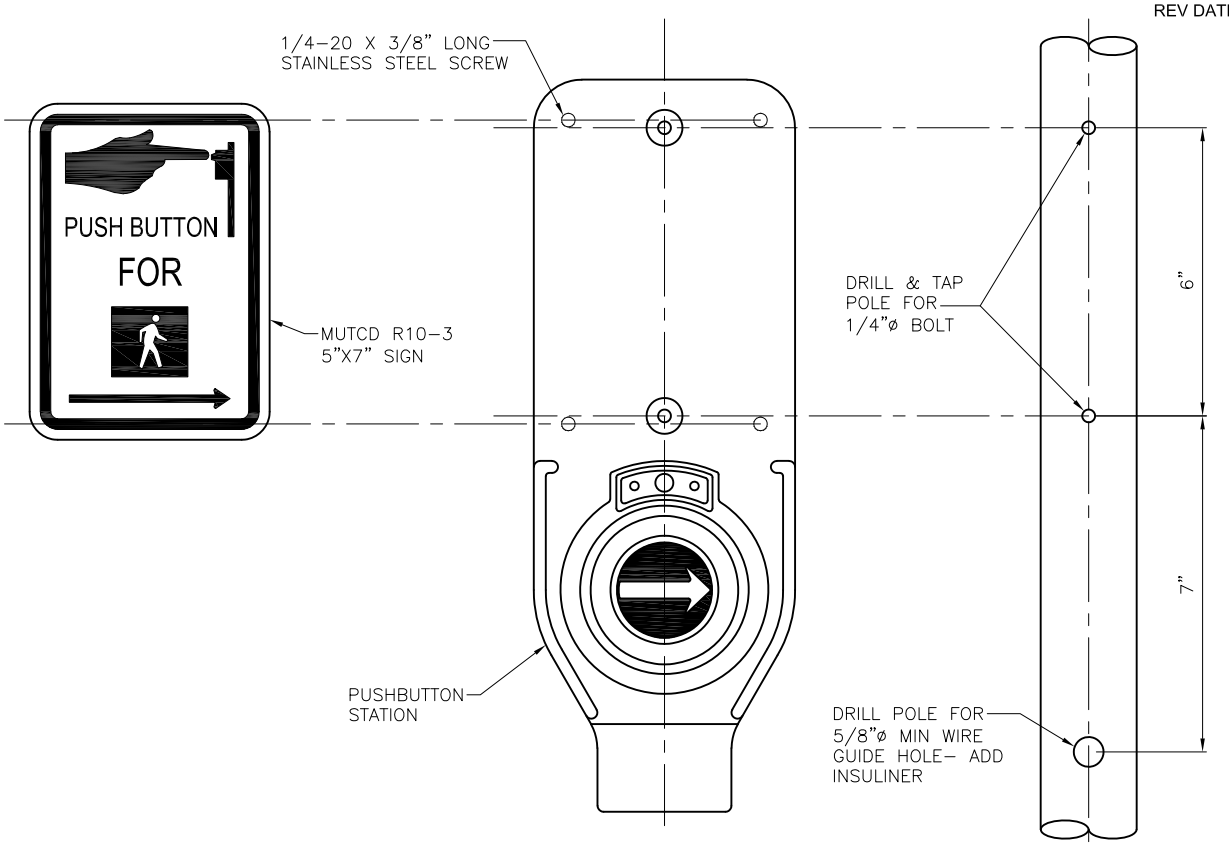
NOTES:

1. PUSHBUTTON MUST HAVE DIRECTIONAL ARROW AS SPECIFIED ON THE PLANS.
2. INSTALLATION OF TWO PEDESTRIAN PUSHBUTTON ASSEMBLIES MUST BE ON A 4"ø OR LARGER POLE.
3. DETAIL SHOWS PUSHBUTTON INSTALLED ON METAL POLE. PUSHBUTTON INSTALLED ON OTHER MATERIALS MUST BE PER MANUFACTURER'S RECOMMENDATION.

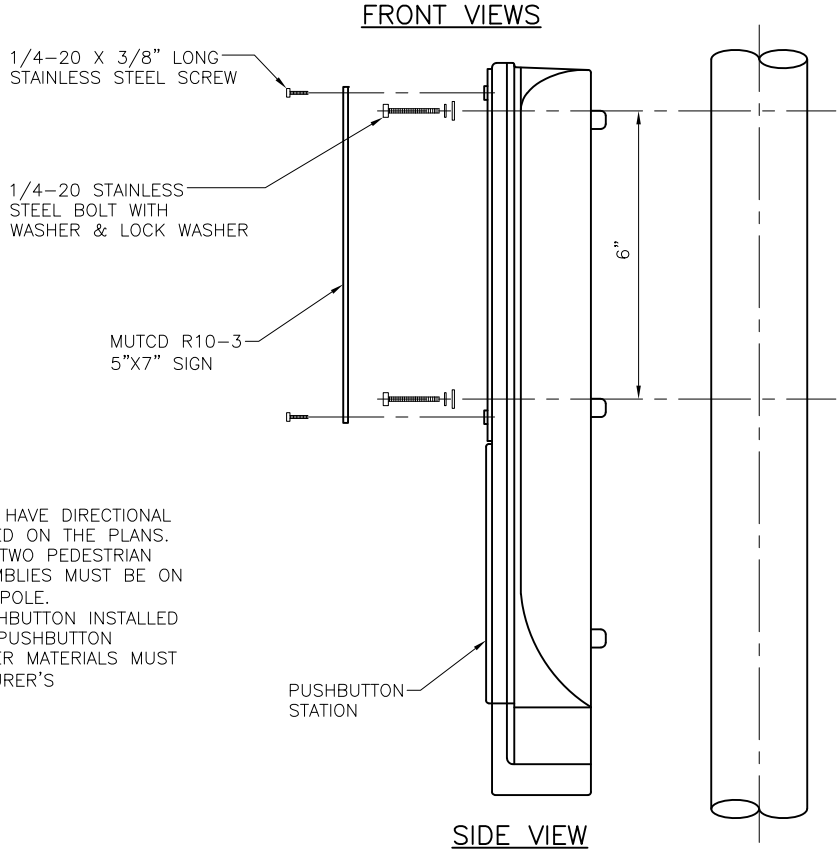
REF STD SPEC SEC 8-31

City of Seattle	NOT TO SCALE	PEDESTRIAN PUSHBUTTON ASSEMBLY

REV DATE: JAN 2017



FRONT VIEWS



SIDE VIEW

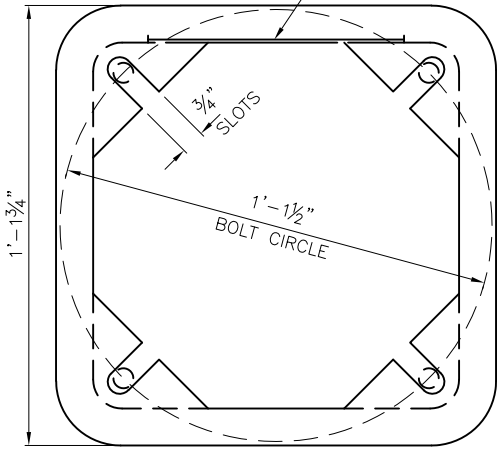
NOTES:

1. PUSHBUTTON MUST HAVE DIRECTIONAL ARROW AS SPECIFIED ON THE PLANS.
2. 2.INSTALLATION OF TWO PEDESTRIAN PUSHBUTTON ASSEMBLIES MUST BE ON A 4"ø OR LARGER POLE.
3. DETAIL SHOWS PUSHBUTTON INSTALLED ON METAL POLE. PUSHBUTTON INSTALLED ON OTHER MATERIALS MUST BE PER MANUFACTURER'S RECOMMENDATION.

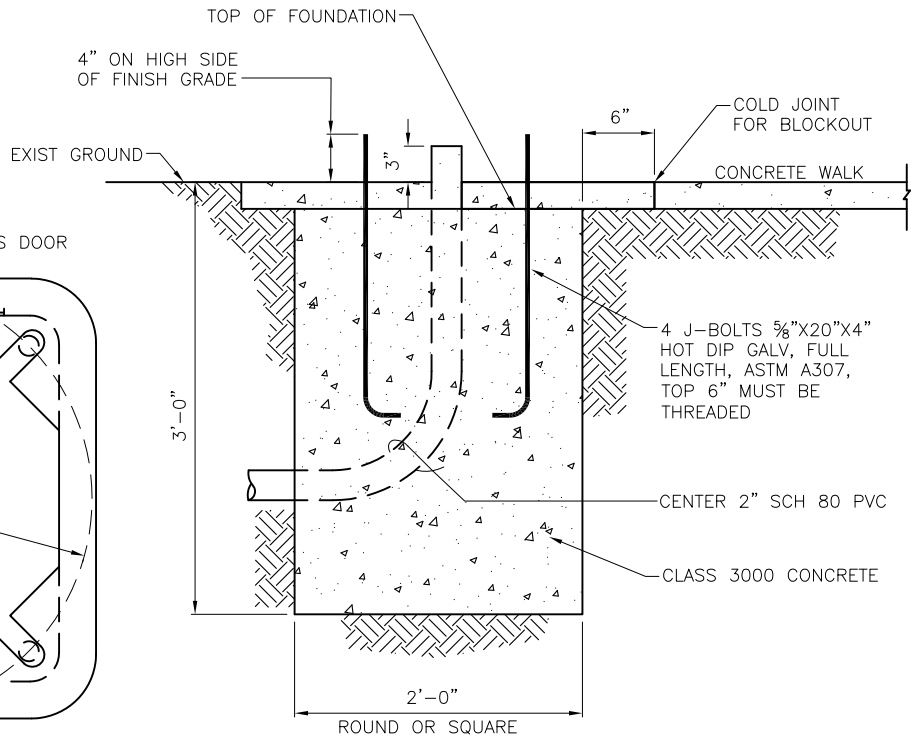
REF STD SPEC SEC 8-31

City of Seattle	NOT TO SCALE	ACCESSIBLE PEDESTRIAN SIGNAL (APS) PED. PUSHBUTTON ASSEM.

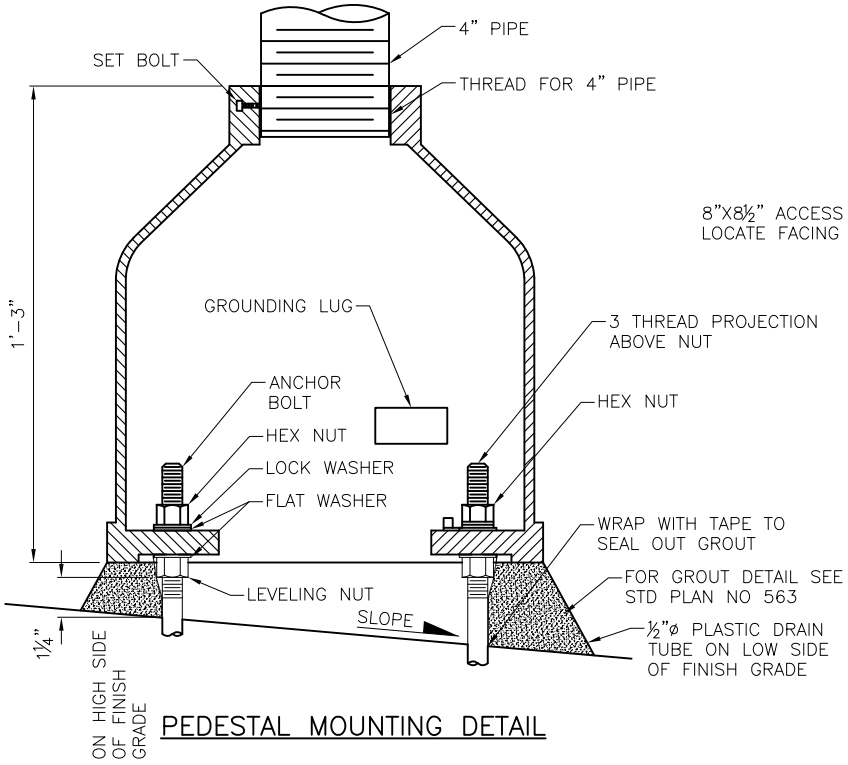
REV DATE: JAN 2017



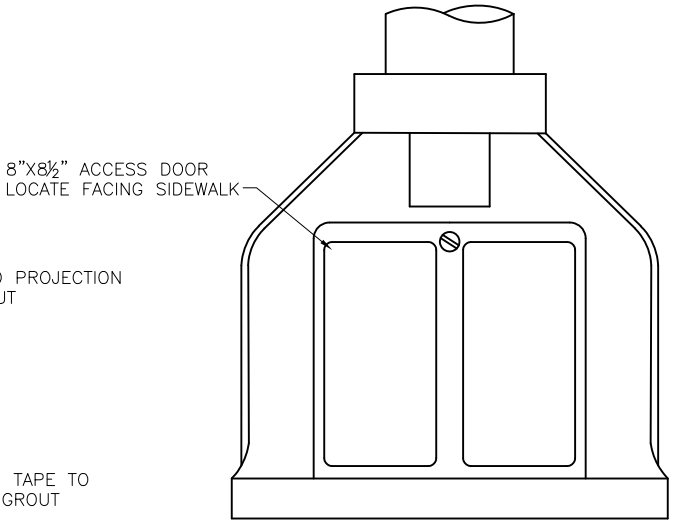
BOTTOM VIEW



PEDESTAL FOUNDATION



PEDESTAL MOUNTING DETAIL

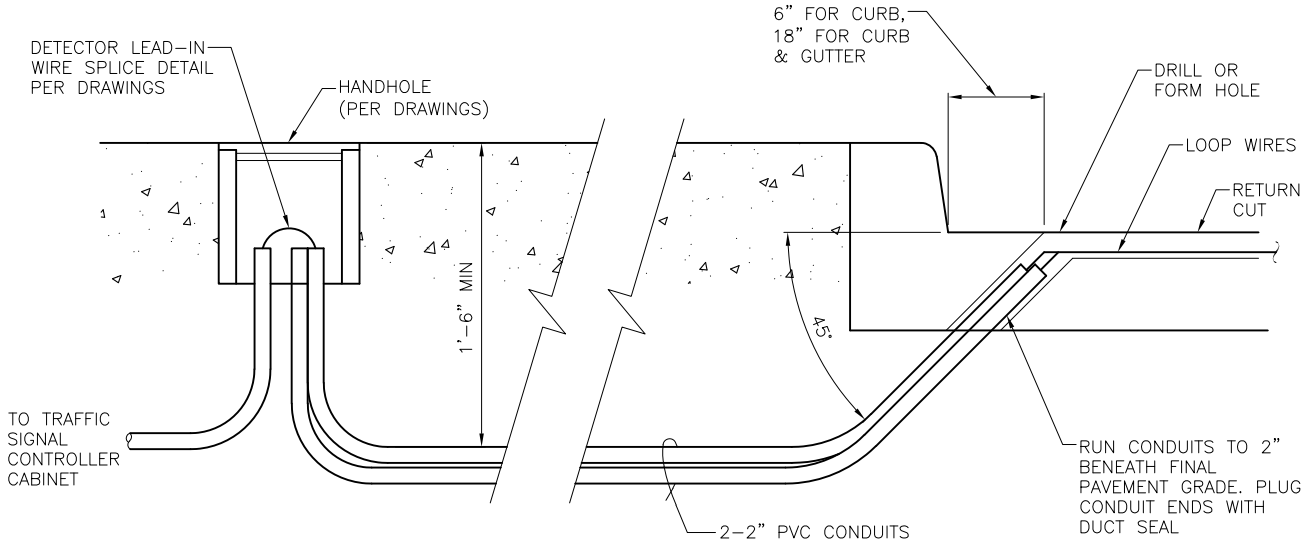


SQUARE BASE PEDESTAL

REF STD SPEC SEC 8-32

City of Seattle	NOT TO SCALE	PEDESTAL & FOUNDATION

REV DATE: MAY 2016



CURB/PAVEMENT ENTRANCE FOR DETECTOR LOOP WIRES

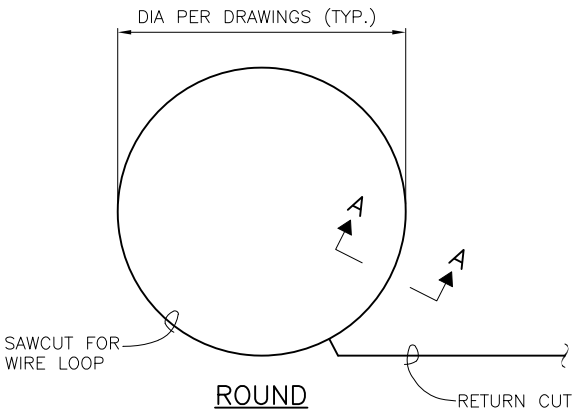
NOTES:

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

REF STD SPEC SEC 8-31

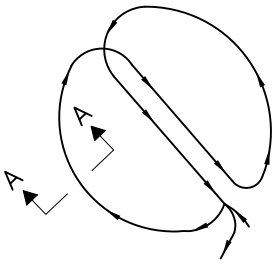
City of Seattle	NOT TO SCALE	DETECTOR LOOP LEAD-IN

REV DATE: AUG 2014

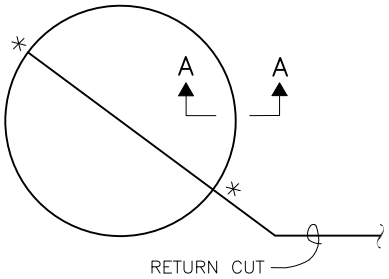


ROUND

DIPOLE LOOP DETECTOR

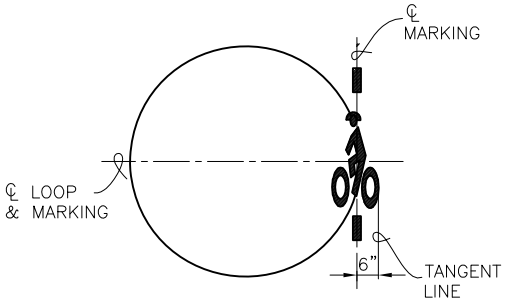


WINDING DETAIL

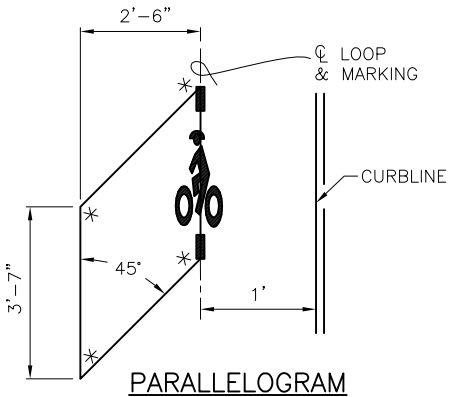


ROUND

QUADRIPOLE LOOP DETECTOR



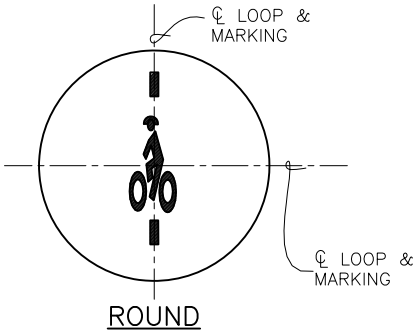
ROUND



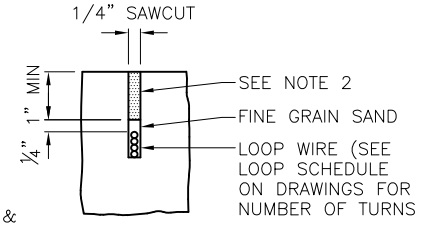
PARALLELOGRAM

BICYCLE DIPOLE

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

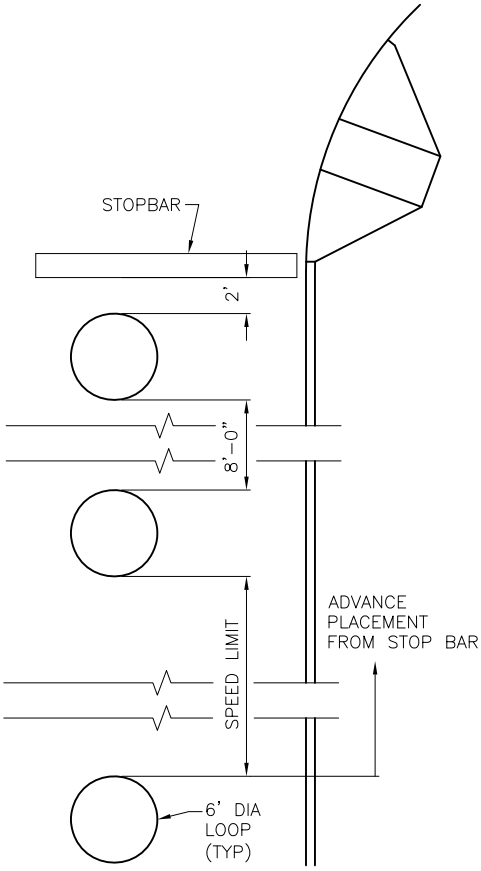


ROUND



SECTION A–A

BICYCLE QUADRIPOLE



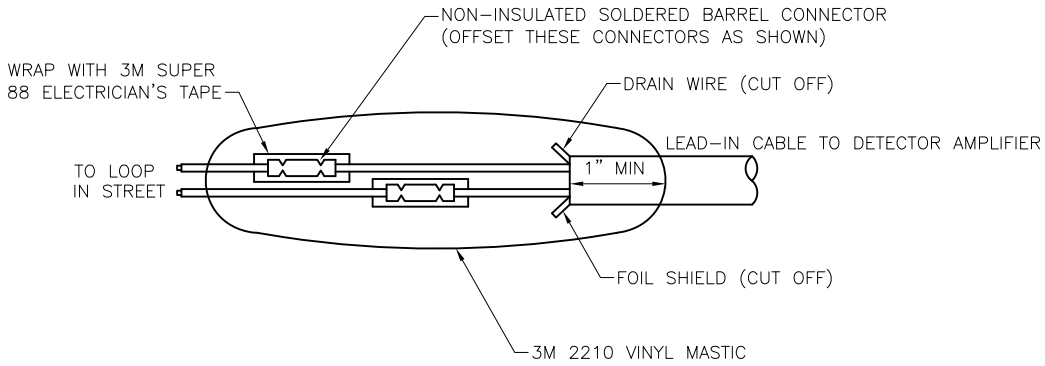
STANDARD LOOP SPACING

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

REF STD SPEC SEC 8-31

City of Seattle	NOT TO SCALE	DETECTOR LOOP DETAILS

REV DATE: JAN 2017



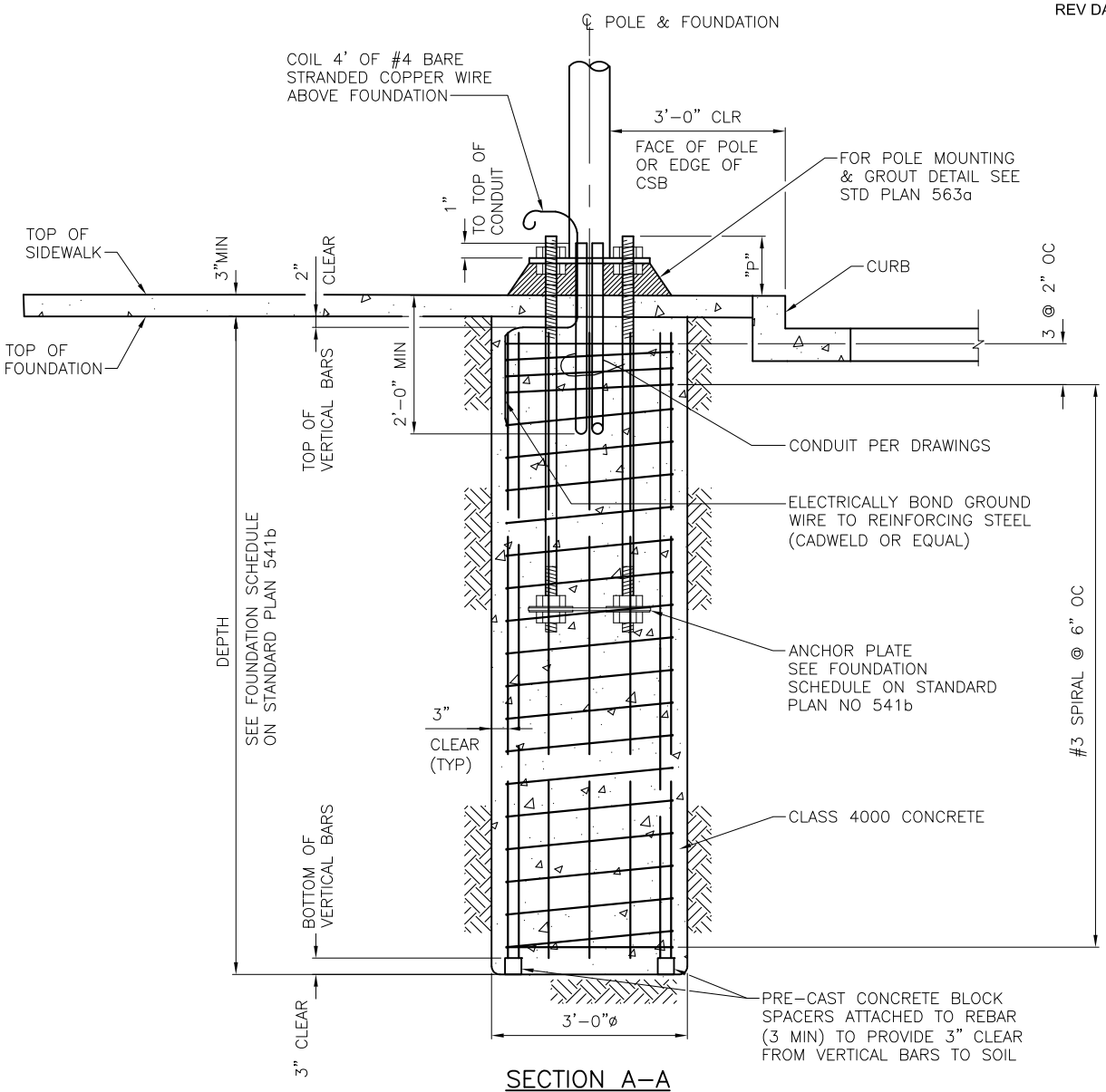
DETECTOR LEAD–IN WIRE SPLICE DETAIL

NOTE:
SOLDER CONNECTION AFTER CRIMPING

REF STD SPEC SEC 8-31

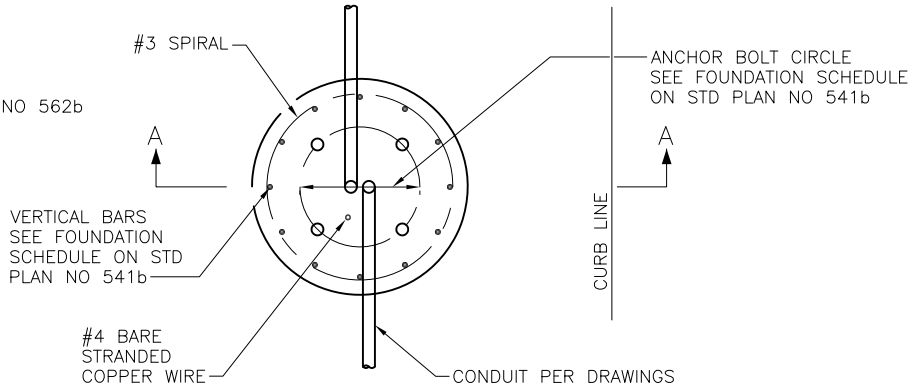
City of Seattle	NOT TO SCALE	DETECTOR LOOP WIRE & SIGNAL CABLE SPLICE

REV DATE: MAY 2016



SECTION A–A

NOTE:
FOR STEEL MAST ARM POLE FOUNDATION SEE STD PLAN NO 562b



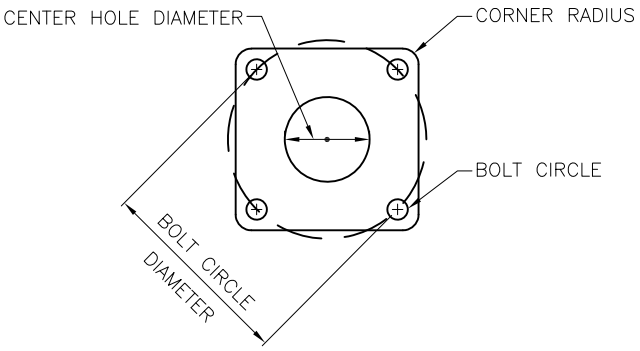
PLAN VIEW
STRAIN POLE FOUNDATION IN SIDEWALK

REF STD SPEC SEC 8-32, 6-02

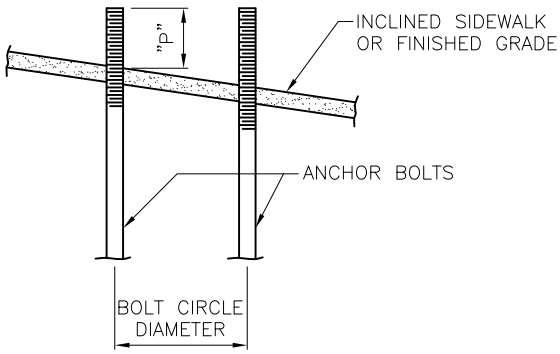
City of Seattle	NOT TO SCALE	STRAIN POLE FOUNDATION DETAIL (TYPE T, V, X & Z)

REV DATE: JAN 2017

FOUNDATION SCHEDULE										
POLE TYPE	PROJECTION	VERTICAL REINFORCING	DEPTH (LATERAL BEARING)		ANCHOR BOLTS (TOTAL 4 PER POLE)	ANCHOR PLATE DIMENSIONS				
	P		100#/SF/FT	150#/SF/FT		SIZE	BOLT CIRCLE DIA	BOLT HOLE	CENTER HOLE	CORNER RADIUS
T	7½"	10 #8	8'–0"	7'–6"	1½" DIA X 60"	⅜" X 16" X 16"	14½"	1⅝"	10"	1⅝"
V	9"	10 #8	9'–6"	8'–6"	1¾" DIA X 72"	⅜" X 16" X 16"	18"	1⅞"	12½"	1⅝"
X	10"	12 #8	12'–6"	10'–6"	2" DIA X 72"	⅜" X 18" X 18"	20"	2⅛"	14"	2"
Z	11½"	12 #8	15'–0"	13'–0"	2½" DIA X 72"	½" X 20" X 20"	22"	2⅝"	15"	2¼"



ANCHOR PLATE



INCLINED CONDITION

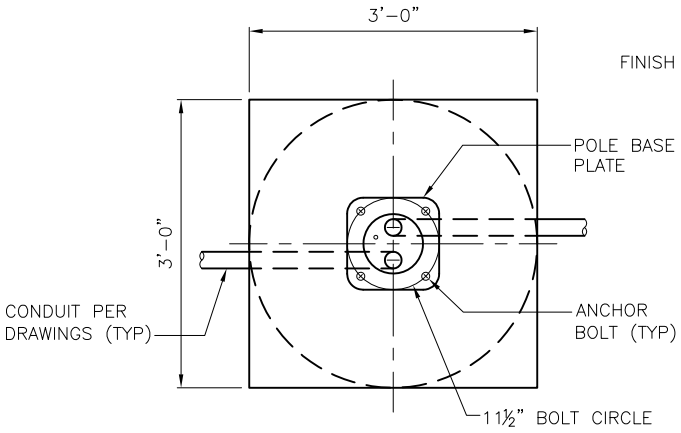
NOTES:

1. CONCRETE STRENGTH MUST BE CLASS 4000, 3/4"MAX SIZE COARSE AGGREGATE.
2. ANCHOR BOLTS FOR TYPE V,X,Z: ASTM F1554–99, GRADE 105, CLASS 2A INCLUDING SUPPLEMENTARY REQUIREMENTS S2, S3 AND S5. ANCHOR BOLTS FOR TYPE T: ASTM F 1554, GRADE 105, FY=55 KSI MIN. NUTS: ASTM A563 HEAVY HEX GRADE DH. HARDENED STEEL WASHERS: ASTM F436.
3. ANCHOR PLATE: ASTM A36. HOT DIP GALVANIZED.
4. ALL REINFORCING BARS MUST BE DEFORMED BILLET STEEL CONFORMING TO ASTM CLASS A706, GRADE 60.
5. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED ASTM A153 INCLUDING NUTS & WASHERS (FULL LENGTH) WITH 18" OF THREADS ON TOP & 12" ON BOTTOM
6. TAPE THE TOP OF ANCHOR BOLTS WITH CORROSION PROTECTION TAPE PER STD SPEC SEC 8–32.3(2)A PRIOR TO POURING CONCRETE.

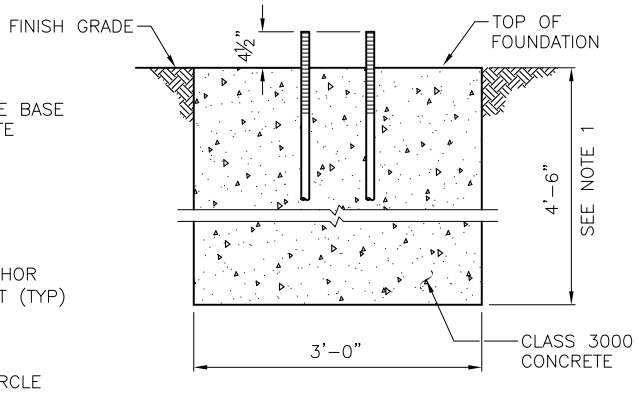
REF STD SPEC SEC 8-32

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

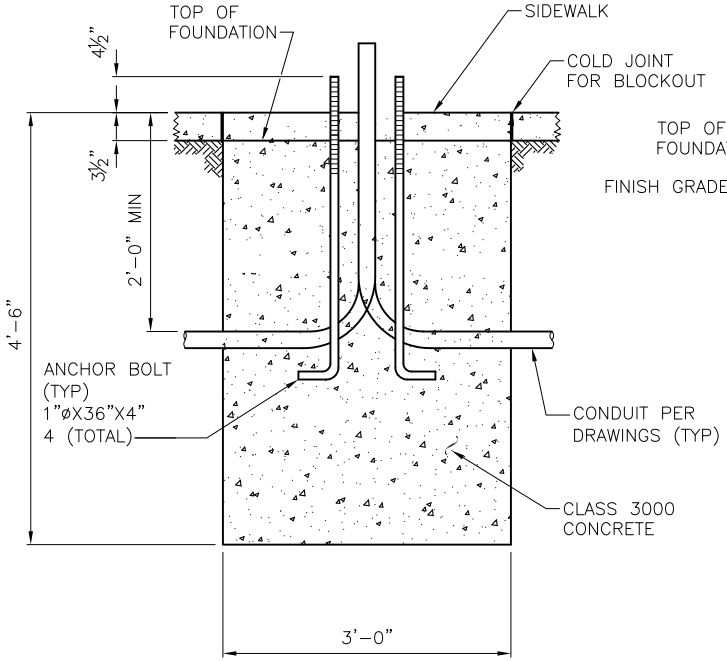
REV DATE: JAN 2017



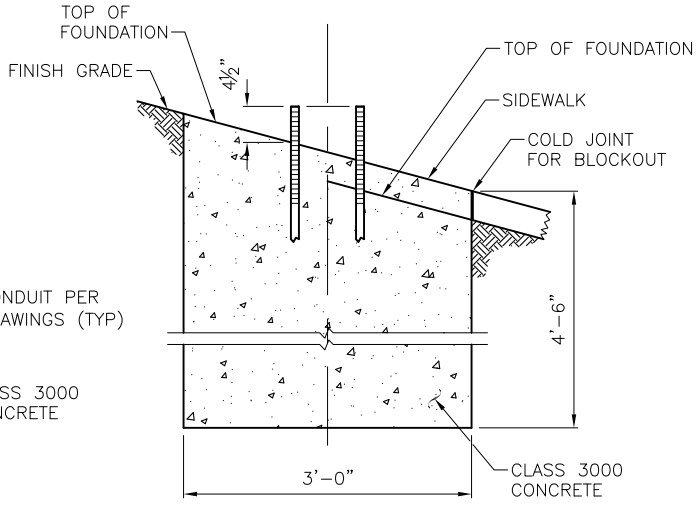
PLAN



IN EARTH



IN SIDEWALK



ON AN INCLINE

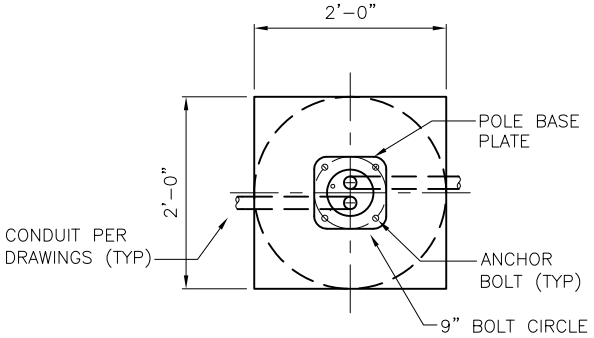
NOTES:

1. BOLT CIRCLE: 11½" TYP
2. SEE SCL CONSTRUCTION STANDARD 1716.34 FOR POLE MOUNTING AND GROUT DETAIL
3. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED ASTM A153 OR F2329, FULL LENGTH AND FABRICATED FROM ASTM F1554 OR A576 WITH 12" THREADS ON TOP

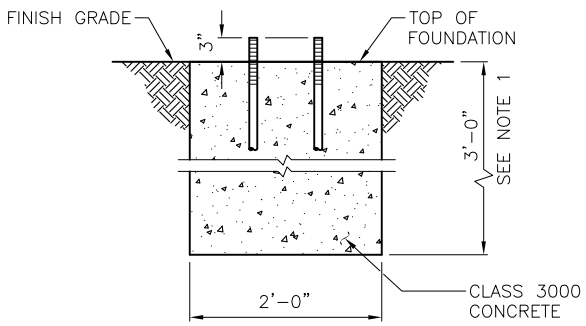
REF STD SPEC SEC 8-32

City of Seattle	NOT TO SCALE	STREET LIGHT POLE FOUNDATIONS

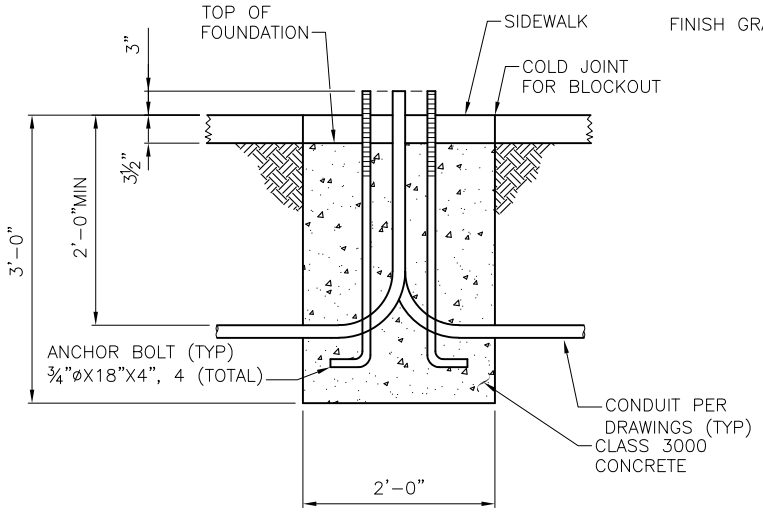
REV DATE: JAN 2017



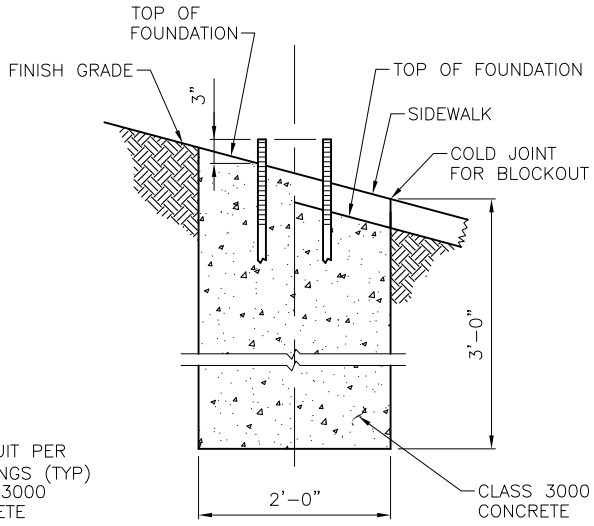
PLAN



IN EARTH



IN SIDEWALK



ON AN INCLINE

NOTES:

1. BOLT CIRCLE: 9" TYP
2. SEE SCL CONSTRUCTION STANDARD 1716.34 FOR POLE MOUNTING AND GROUT DETAIL
3. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED TO ASTM A153 OR F2329, FULL LENGTH AND FABRICATED FROM ASTM F1554 OR A576 WITH 8" OF THREADS ON TOP
4. SEE SCL MATERIAL STANDARD 5756.09 FOR POLES
5. SEE SCL CONSTRUCTION STANDARD 1716.07 FOR STREETLIGHT HANDHOLE AND CONDUIT REQUIREMENTS.

REF STD SPEC SEC 8-32

City of Seattle	NOT TO SCALE	PEDESTRIAN STREET LIGHT POLE FOUNDATIONS

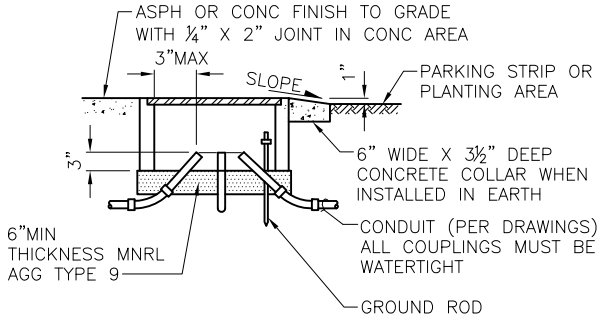
REV DATE: JAN 2017

NOTES:

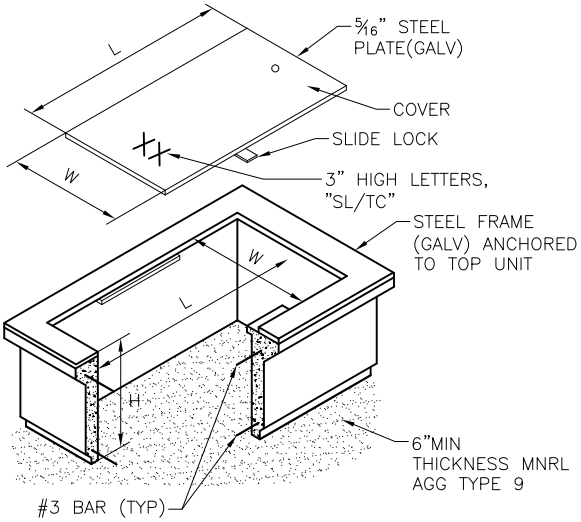
1. THE COVER MUST HAVE 1/16" TO 1/8" CLEARANCE ON EACH EDGE WITHIN THE FRAME AFTER GALVANIZING.
2. THE GROUND ROD MUST EXTEND 4" ABOVE THE BOTTOM OF THE HANDHOLE OR MINERAL AGGREGATE.
3. TYPE 1, 2, 3, 5 & 6 HANDHOLE COVERS MUST HAVE "TC" AND/OR "SL" ON THEM, AS APPROPRIATE.
4. TYPE 4 HANDHOLE MUST BE INSTALLED IN ROADWAYS, PARKING LOTS, ETC.
5. FOR PAVEMENT DEPTH GREATHER THAN 7" USE FRAME EXTENSIONS (SEE STD PLAN NO 231) TO BRING THE COVER UP THE THE LEVEL OF THE FINISHED PAVEMENT WITHOUT EMBEDDING THE BOTTOM FLANGE OF THE CASTING IN THE PAVEMENT.
6. A 4' LENGTH OF #6 THWN OR THHN COPPER WIRE MUST BE SECURED FROM THE HANDHOLE COVER TO THE FRAME. BOND FROM FRAME LID, AND LID TO GROUND ROD.
7. ALL HANDHOLE COVERS AND FRAMES MUST HAVE A NON-SKID SURFACE (SEE STD SPEC SEC 9-34.6)
8. ALL HANDHOLES MUST HAVE A LOAD RATING OF H20.
9. GROUND ROD REQUIRED IN ALL STREETLIGHT HANDHOLES PER SCL CONSTR STD 1710.50
10. SEE SCL CONSTRUCTION STANDARD 1716.07 FOR STREETLIGHT HANDHOLE AND CONDUIT REQUIREMENTS.

HANDHOLE SCHEDULE

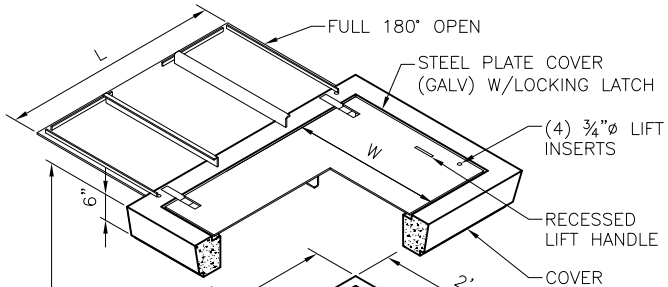
HANDHOLE TYPE	TOP UNIT INSIDE DIMENSION			EXTENSION UNIT(E)	COVER DIMENSIONS	
	L	W	H	H	L	W
1	19"	14"	12"	12"	18"	13"
2	28"	17"	12"	12"	26½"	17"
3	36"	24"	12"	12"	35"	24"
4	24"ø		VAR	NA	NA	NA
5	36"	24"	32"	NA	35"	24"
6	42"	42"	38½"	NA	33½"	33¾"
GRHH	8"ø			NA		

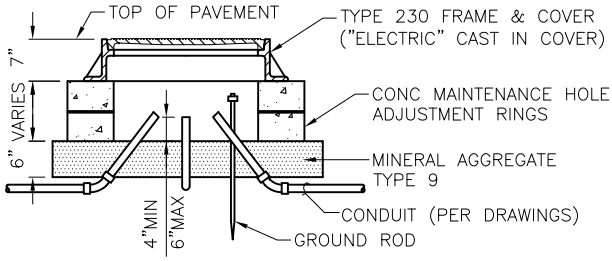


HANDHOLE INSTALLATION DETAIL

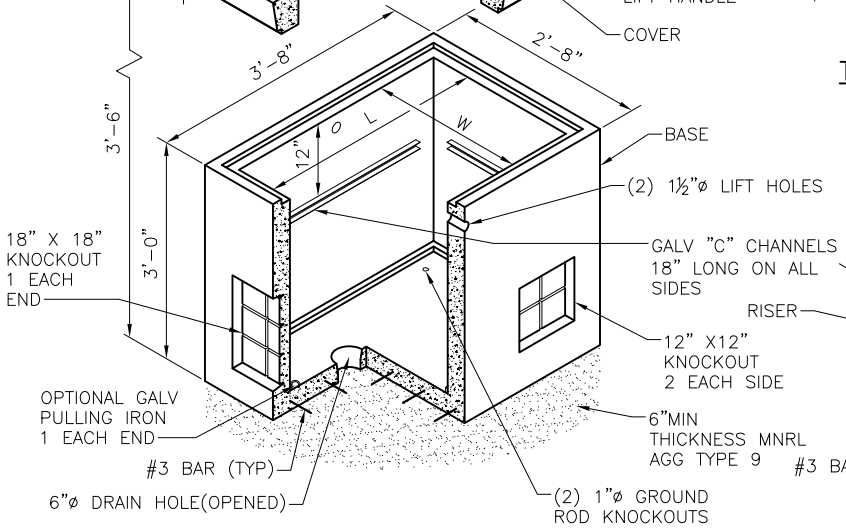


TYPE 1 & 2 HANDHOLE

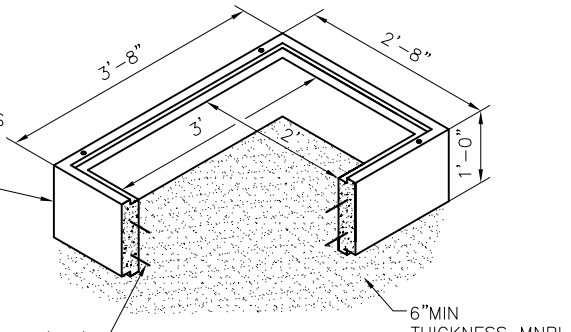




TYPE 4 HANDHOLE
TRAFFIC BEARING



TYPE 5 HANDHOLE

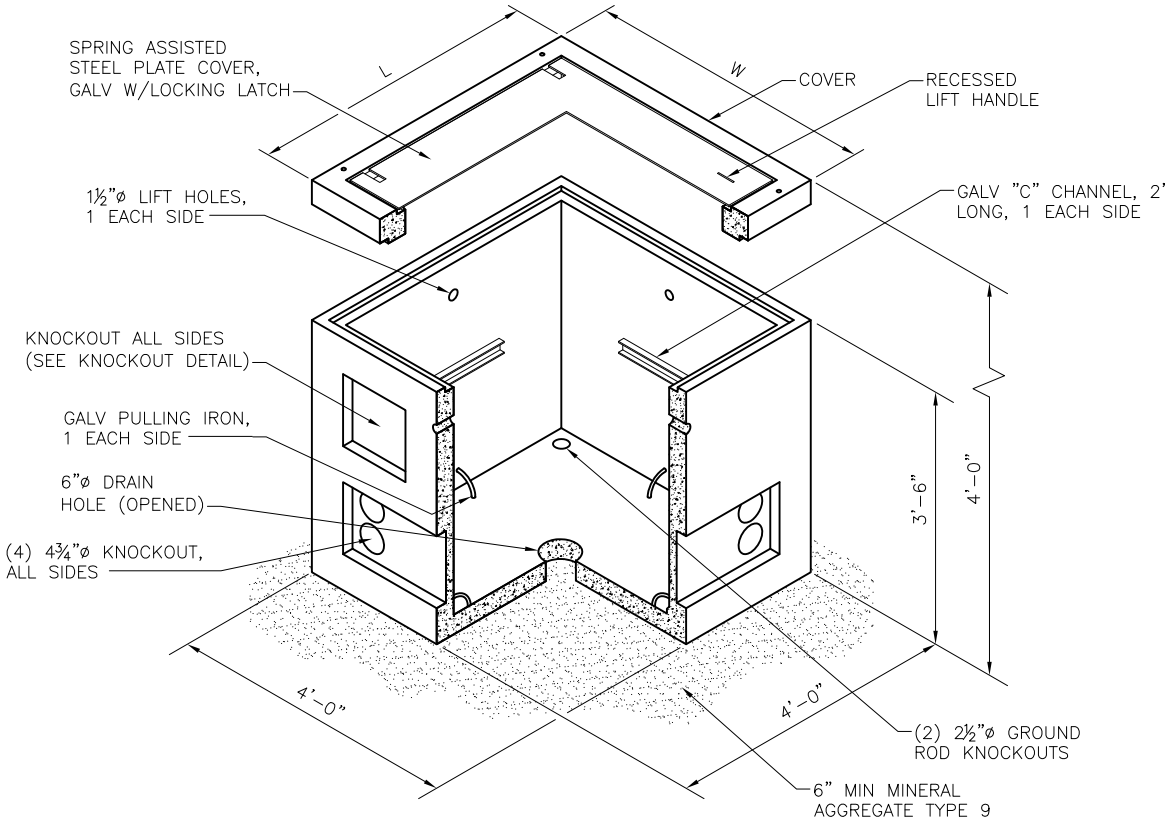


TYPE 3 HANDHOLE
(COVER SAME AS TYPE 5)

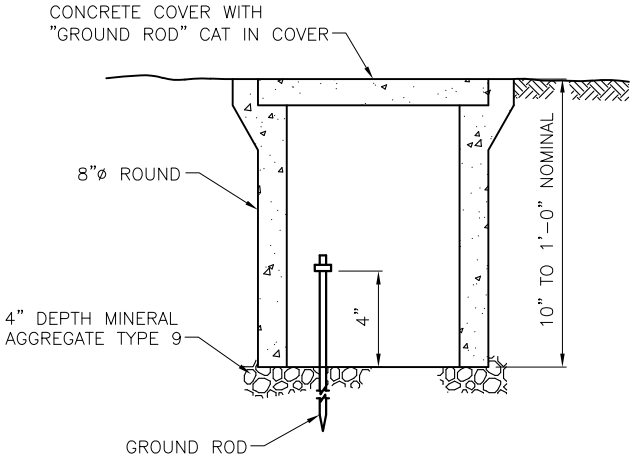
REF STD SPEC SEC 8-33

City of Seattle	NOT TO SCALE	HANDHOLES

REV DATE: DEC 2013



TYPE 6 HANDHOLE



GROUND ROD HANDHOLE (GRHH)

NOTES:

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

REF STD SPEC SEC 8-33

City of Seattle	NOT TO SCALE	HANDHOLES

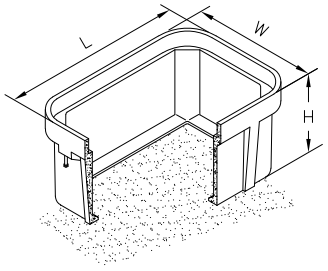
REV DATE: DEC 2016

NOTES:

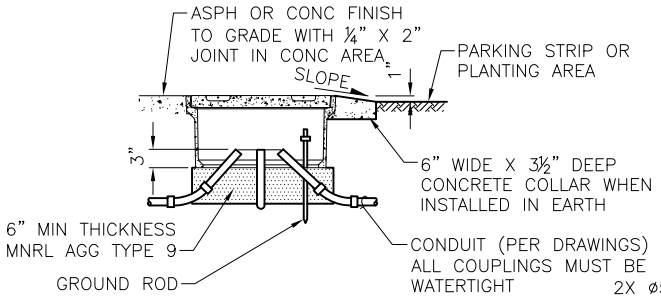
1. ALL NON–DELIBERATE TRAFFIC PULL BOX COVERS MUST COMPLY WITH ALL TEST PROVISIONS OF ANSI/SCTE 77 2010 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY", & MUST MEET THE TIER 15 APPLICATION. MARKING SHOWING THE TIER 15 RATING MUST BE EMBOSSED IN THE TOP SURFACE OF THE COVER.
2. ALL NON–DELIBERATE TRAFFIC PULL BOXES MUST COMPLY WITH ALL TEST PROVISIONS OF ANSI/SCTE 77 2012 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY", & MUST MEET THE TIER 22 APPLICATION. MARKINGS SHOWING THE TIER 22 RATING MUST BE LABELED OR STENCILED ON THE INSIDE & OUTSIDE OF THE BOX.
3. ALL NON–DELIBERATE TRAFFIC PULL BOXES & COVERS MUST BE MADE OF POLYMER CONCRETE WITH FIBERGLASS REINFORCEMENT. THE BOX MUST HAVE CONTINUOUS FIBERGLASS CLOTH REINFORCEMENT ON THE INSIDE & OUTSIDE PERIMETERS. THE COVER MUST HAVE A MINIMUM OF TWO LAYERS OF FIBERGLASS CLOTH REINFORCEMENT.
4. ALL NON–DELIBERATE TRAFFIC PULL BOXES & COVERS MUST BE TESTED & CERTIFIED, MEETING ALL TEST PROVISIONS ON THE ANSI/SCTE 77, TO THE 66WF, MEETING ALL TEST PROVISION OF THE LATEST REVISION OF ANSI/SCTE 77.
5. PULL SLOTS MUST BE RATED FOR MINIMUM PULL OUT OF 3,000 POUNDS.
6. TYPE 4 HANDHOLE MUST BE INSTALLED IN ROADWAYS PARKING LOTS, ETC. ALL COVERS MUST BE COMPLETE WITH A MOLDED LOGO, MANUFACTURES NAME & TIER RATING LOGO (NO GLUE IN LOGO). LOGO MUST READ "TC" AND/OR "SL" UNLESS STATED OTHERWISE BY THE CITY OF SEATTLE.
7. THE GROUND ROD MUST EXTEND 4" ABOVE THE BOTTOM OF THE HANDHOLE OR MINERAL AGGREGATE.
8. FOR PAVEMENT DEPTH GREATHER THAN 7" USE FRAME EXTENSIONS (SEE STD PLAN NO 231) TO BRING THE COVER UP THE THE LEVEL OF THE FINISHED PAVEMENT WITHOUT EMBEDDING THE BOTTOM FLANGE OF THE CASTING IN THE PAVEMENT.
9. A 4' LENGTH OF #6 THWN OR THHN COPPER WIRE MUST 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.
10. ALL HANDHOLE COVERS AND FRAMES MUST HAVE A NON–SKID SURFACE (SCL MATERIAL STANDARD 7203.10)
11. SEE SCL CONSTRUCTION STANDARD 1716.07 FOR STREET HANDHOLE AND CONDUIT REQUIREMENTS.

HANDHOLE SCHEDULE

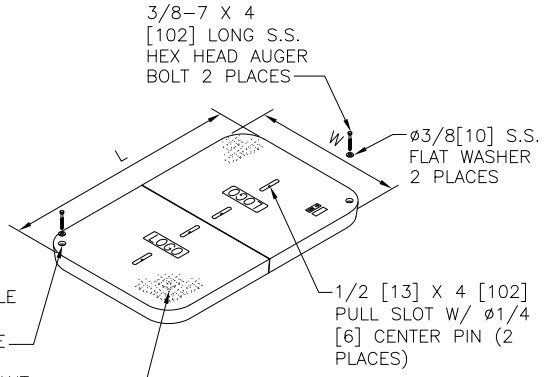
HANDHOLE TYPE	TOP UNIT INSIDE DIMENSION			EXTENSION UNIT(E)	COVER DIMENSIONS	
	L	W	H	H	L	W
1	24"	13"	12"	12"	24"	13"
2	30"	17"	12"	12"	30"	17"
3	36"	24"	18"	12"	36"	24"
4	24"ø		VAR	NA	NA	NA
5	30"	48"	36"	NA	30"	48"
6	48"	48"	48"	NA	48"	48"
GRHH	8"ø			NA		

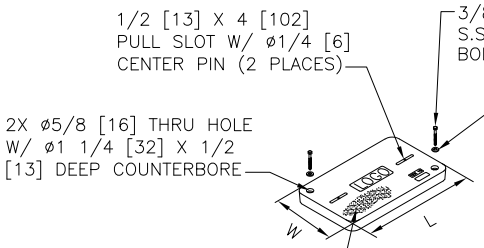


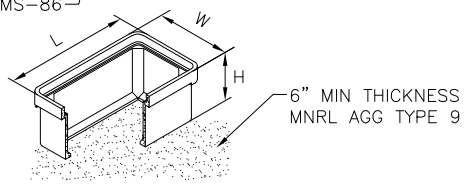
TYPE 3 HANDHOLE
(COVER SAME AS TYPE 5)



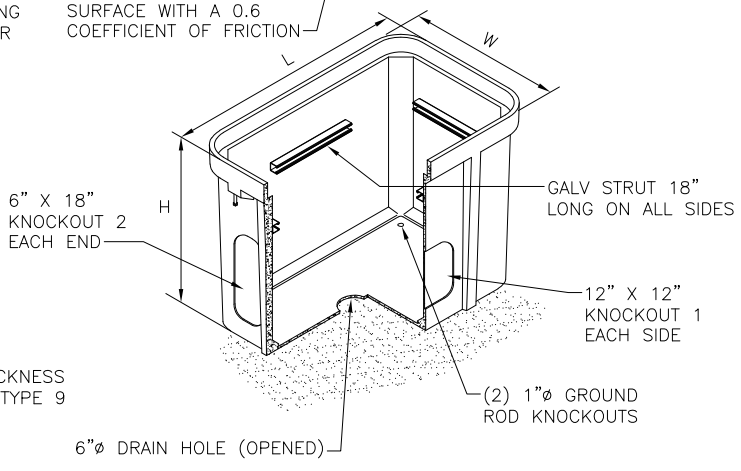
HANDHOLE INSTALLATION DETAIL







TYPE 1 & 2 HANDHOLE

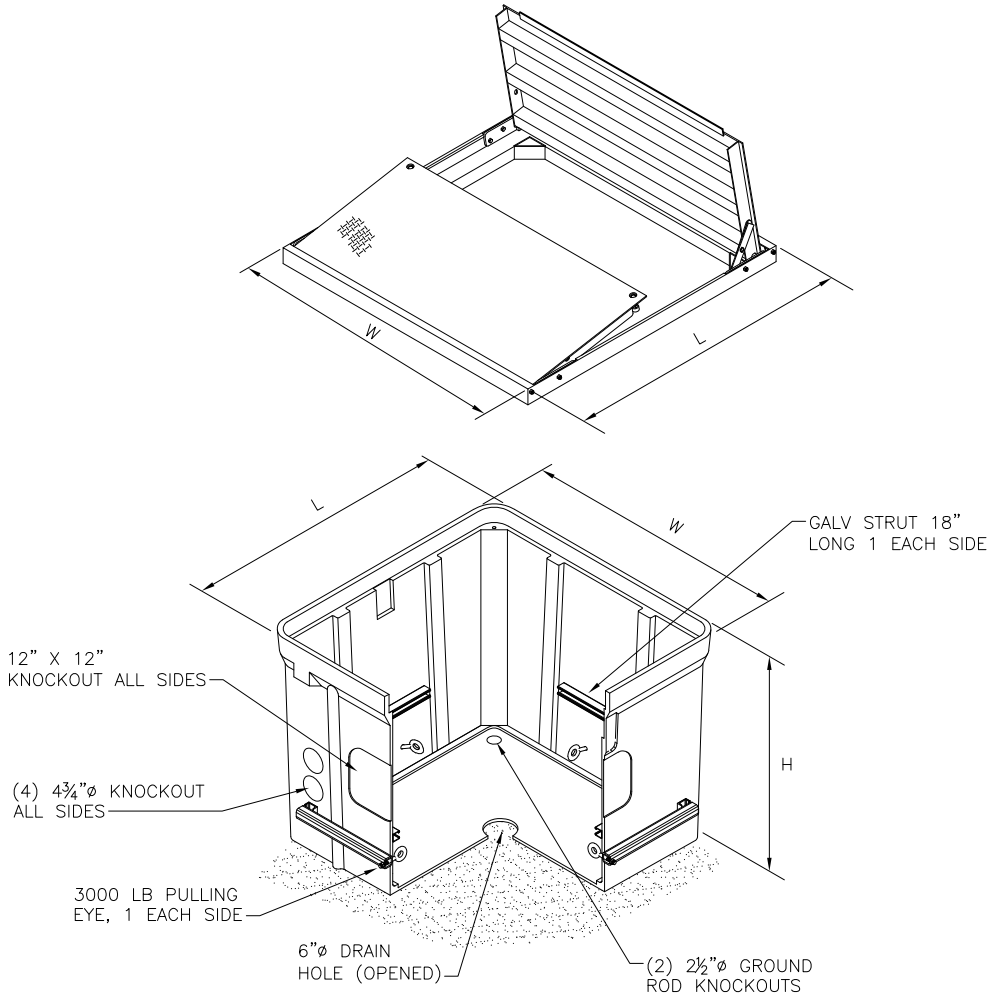


TYPE 5 HANDHOLE

REF STD SPEC SEC 8-33

City of Seattle	NOT TO SCALE	POLYMER CONCRETE HANDHOLES

REV DATE: AUG 2013



TYPE 6 HANDHOLE

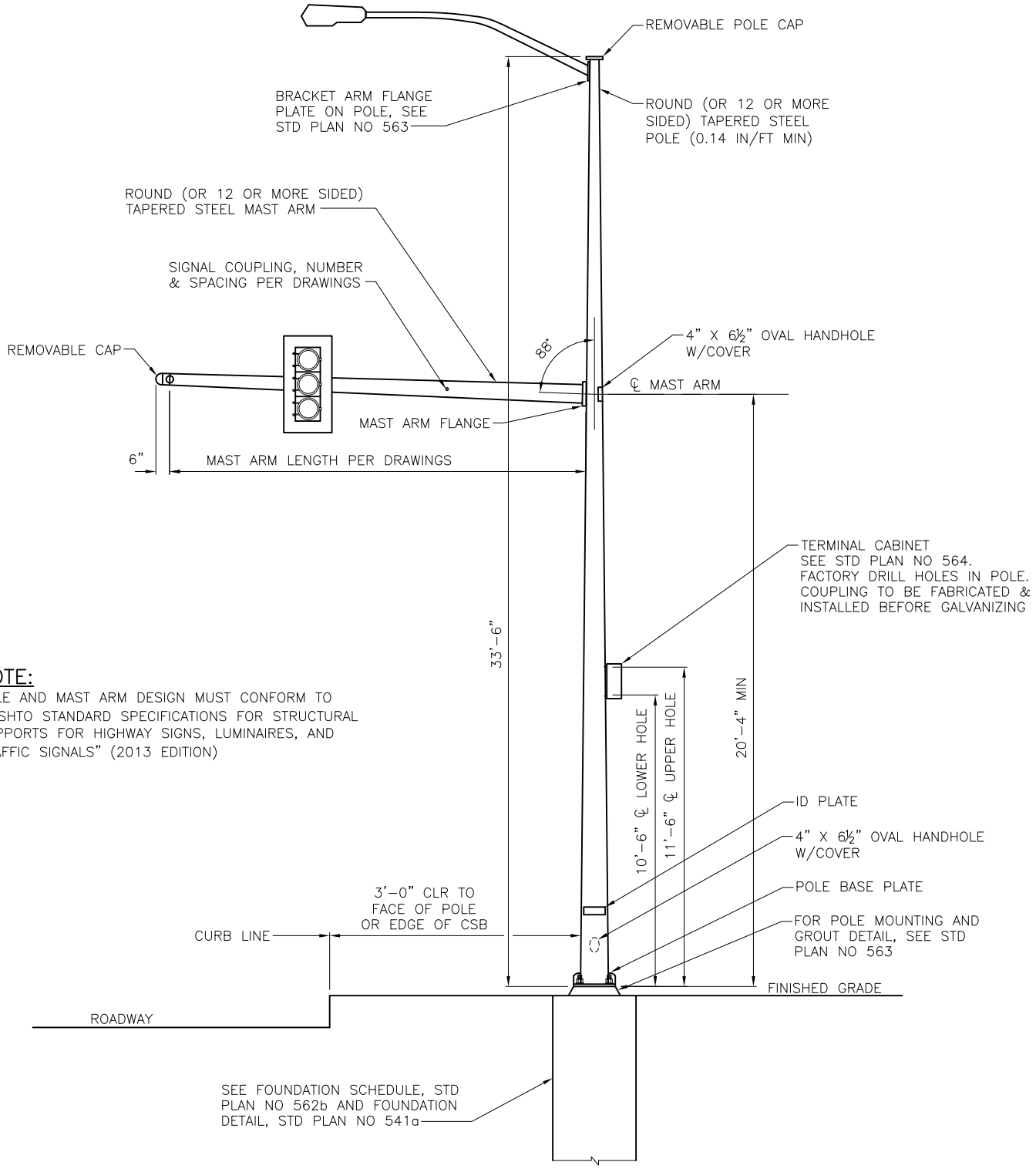
NOTES:

1. FOR DETAILS NOT SHOWN, SEE STD PLAN NO 550b
2. ALL HANDHOLE COVERS AND FRAMES MUST HAVE A NON-SKID SURFACE (SEE STD SPEC SEC 9-34.6)

REF STD SPEC SEC 8-33

City of Seattle	NOT TO SCALE	POLYMER CONCRETE HANDHOLES

REV DATE: JAN 2017



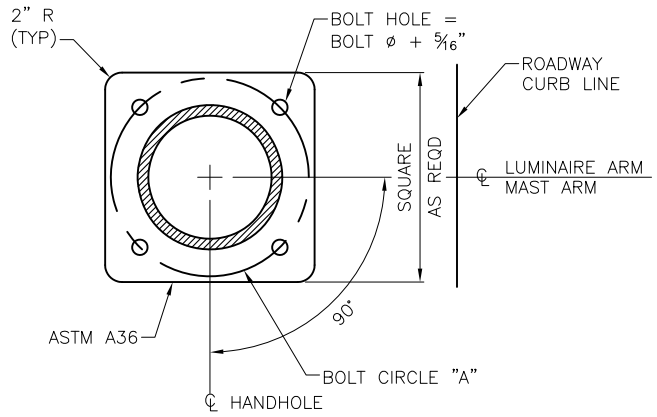
NOTE:

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

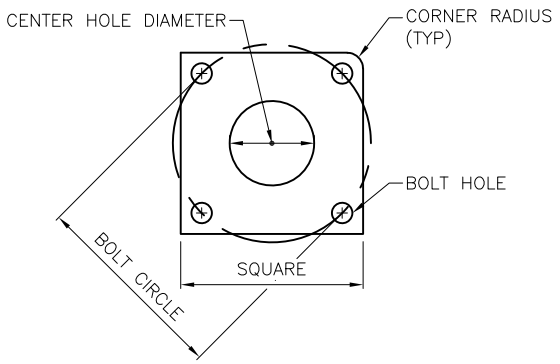
REF STD SPEC SEC 8-32

City of Seattle	NOT TO SCALE	STEEL MAST ARM POLE

REV DATE: SEP 2013

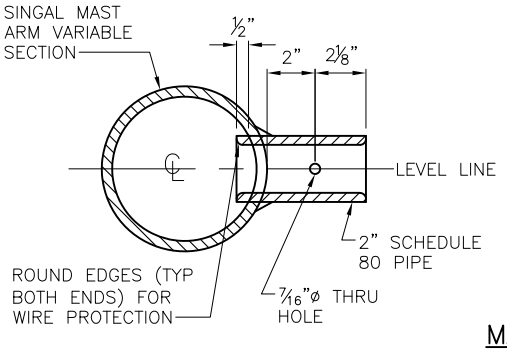


POLE BASE PLATE



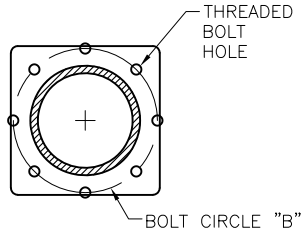
ANCHOR PLATE

PER FOUNDATION SCHEDULE

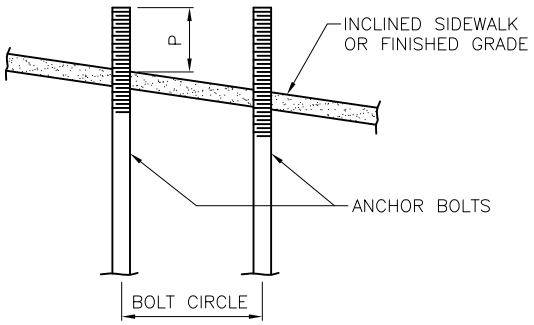


SIGNAL COUPLING

COUPLING TO BE FABRICATED & INSTALLED BEFORE GALVANIZING



MAST ARM FLANGE



INCLINED CONDITION

MAST ARM SCHEDULE			POLE SCHEDULE		
MAST ARM LENGTH	FLANGE PLATE		POLE BASE PLATE		
	BOLT CIRCLE "B"	THREADED BOLT DIA	SQUARE	BOLT CIRCLE "A"	BOLT HOLE
15'–0" TO 30'–0"	11"	1"–8NC	16" X 16"	14½"	1 13/16"
31'–0" TO 40'–0"	12"	1¼"–7NC	18" X 18"	16½"	2 1/16"
41'–0" TO 45'–0"	13⅜"	1¼"–7NC	18" X 18"	18"	2 1/16"
46'–0" TO 60'–0"	14"	1½"–6NC	20" X 20"	20"	2 5/16"

POLE FOUNDATION NOTES

1. CONCRETE STRENGTH MUST BE CLASS 4000 AIR ENTRAINED.
2. ANCHOR BOLTS MUST HAVE Fy = 55 KSI MIN, NUTS: ASTM A563 HEAVY HEX GRADE DH. HARDENED STEEL WASHERS: ASTM F436.
3. BOTTOM ANCHOR PLATE: ASTM A36. HOT DIP GALVANIZED.
4. ALL REINFORCING BARS MUST BE DEFORMED BILLET STEEL CONFORMING TO ASTM CLASS A706, GRADE 60.
5. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED ASTM A153 INCLUDING NUTS & WASHERS (FULL LENGTH) WITH A MINIMUM OF 18" OF THREADS ON TOP & 12" ON BOTTOM.
6. TAPE THE TOP OF ANCHOR BOLTS WITH CORROSION PROTECTION TAPE PER STD SPEC SEC 8–32.3(2)A PRIOR TO POURING CONCRETE.
7. SEE STD PLAN NO 541a FOR FOUNDATION DETAILS.

FOUNDATION SCHEDULE											
MAST ARM LENGTH	FOUNDATION DEPTH (LATERAL BEARING)		ANCHOR BOLTS (FY=55 KSI MIN.)			VERTICAL REINFORCING	ANCHOR PLATE DIMENSIONS				
	150#/SF/FT	100#/SF/FT	PROJECTION	BOLT CIRCLE DIA	SIZE (J HOOK)		SIZE	BOLT CIRCLE DIA	BOLT HOLE	CENTER HOLE	CORNER RADIUS
15'–0" TO 30'–0"	7'–6"	8'–0"	7½"	14½"	1½" X 60"	10 #8	⅜" X 16" X 16"	14½"	1⅝"	10"	1⅝"
31'–0" TO 40'–0"	8'–6"	9'–6"	9"	16½"	1¾" X 72"	10 #8	⅜" X 16" X 16"	16½"	1⅞"	12½"	1⅝"
41'–0" TO 45'–0"	8'–6"	9'–6"	9"	18"	1¾" X 72"	10 #8	⅜" X 16" X 16"	18"	1⅞"	12½"	1⅝"
46'–0" TO 60'–0"	10'–6"	12'–6"	10"	20"	2" X 72"	12 #8	⅜" X 18" X 18"	20"	2⅛"	14"	2"

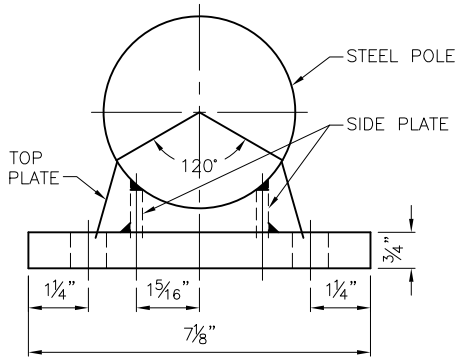
REF STD SPEC SEC 8-32

City of Seattle

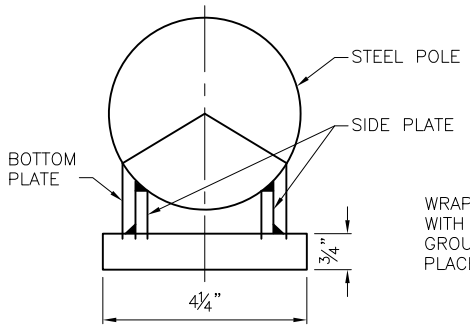
NOT TO SCALE

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

REV DATE: AUG 2010

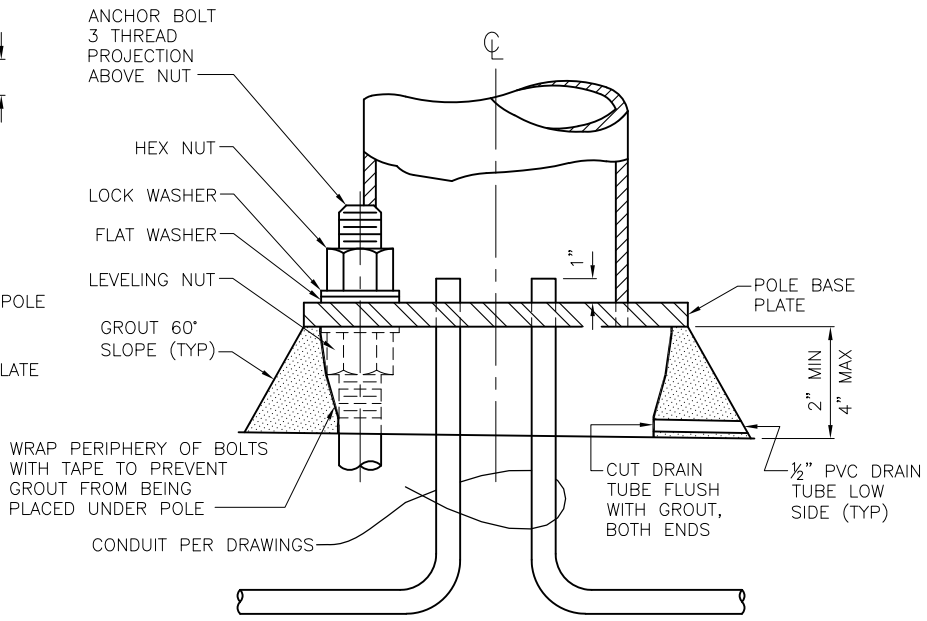


SECTION A–A

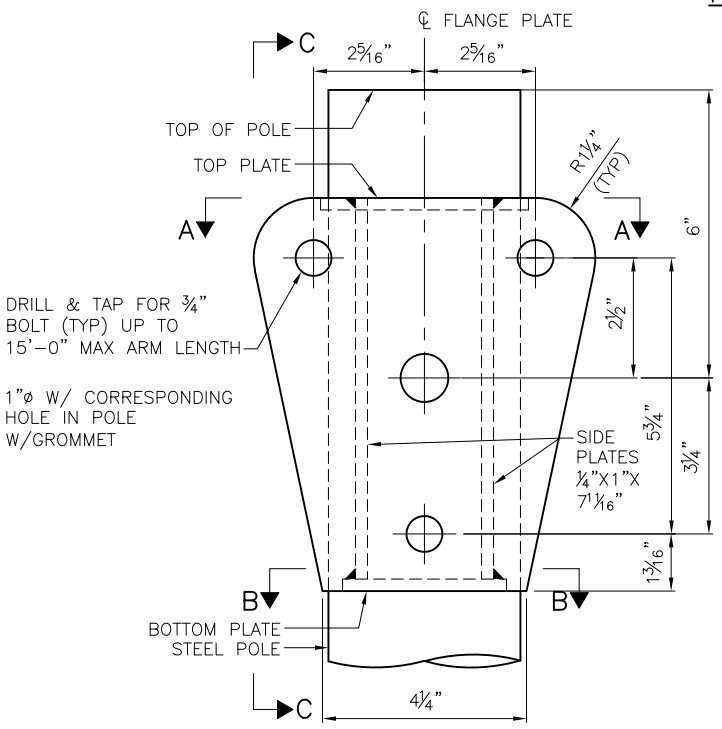


SECTION B–B

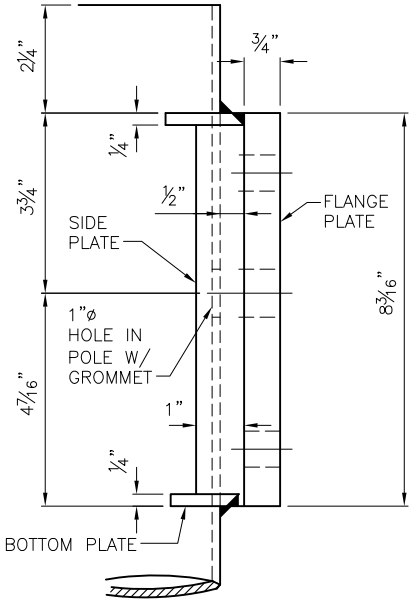
NOTE:
GROUT MUST BE PREMIXED, NON–SHRINK AND NON–METALLIC



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



BRACKET ARM FLANGE PLATE ON POLE

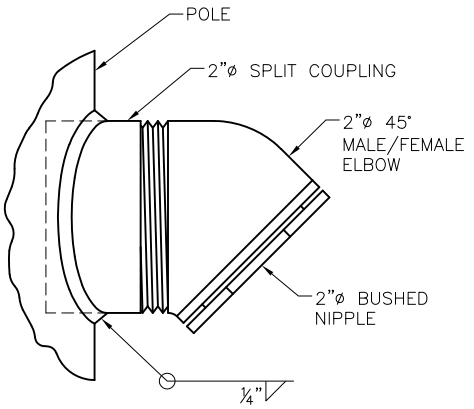


SECTION C–C
STRUCTURAL CARBON STEEL PLATES MUST BE ASTM A36

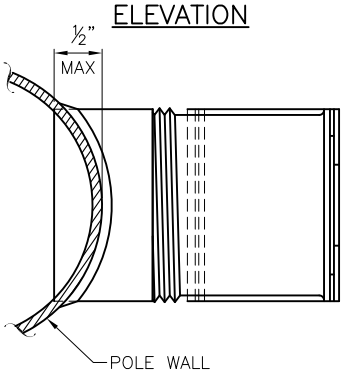
REF STD SPEC SEC 8-32

City of Seattle	NOT TO SCALE	MISCELLANEOUS STEEL POLE DETAILS

REV DATE: AUG 2010

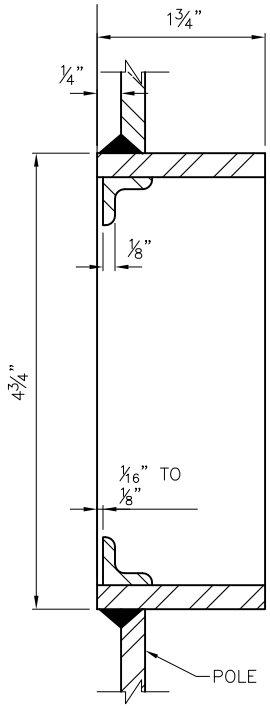


ELEVATION

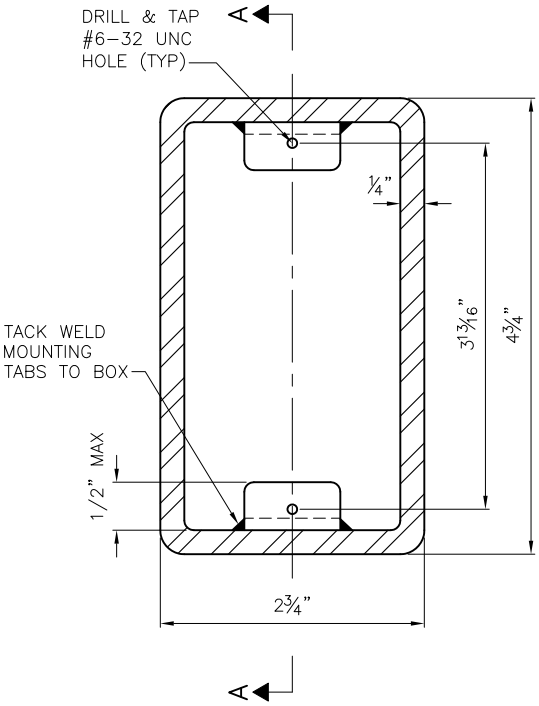


PLAN

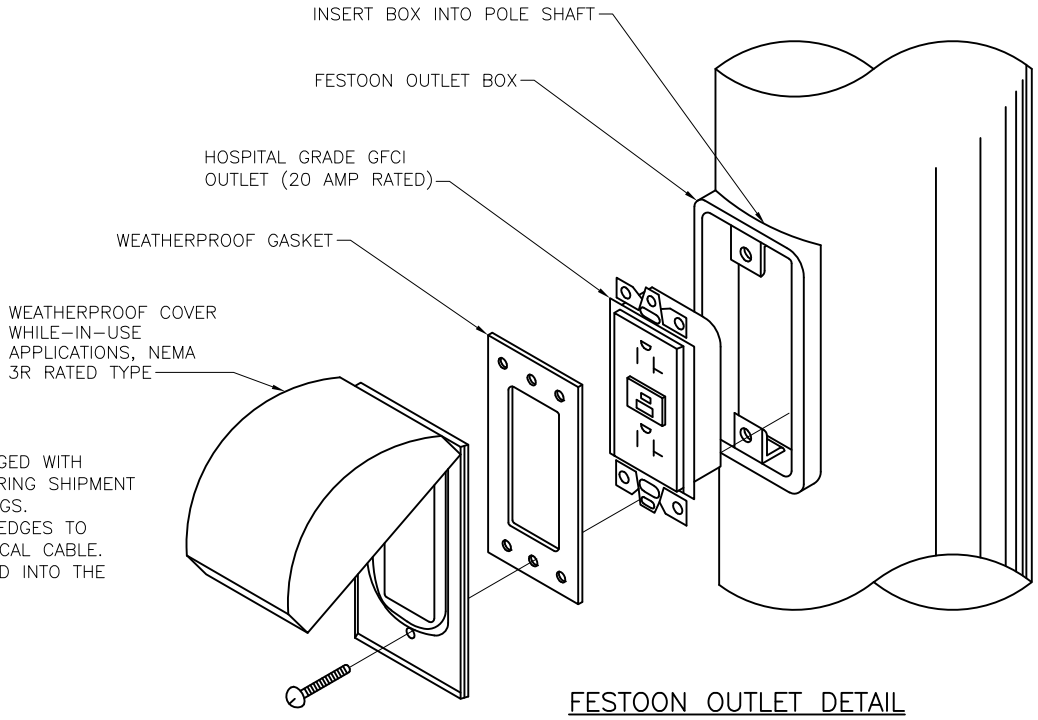
CABLE OUTLET DETAIL



SECTION A–A



FESTOON OUTLET BOX



FESTOON OUTLET DETAIL
(METAL POLES)

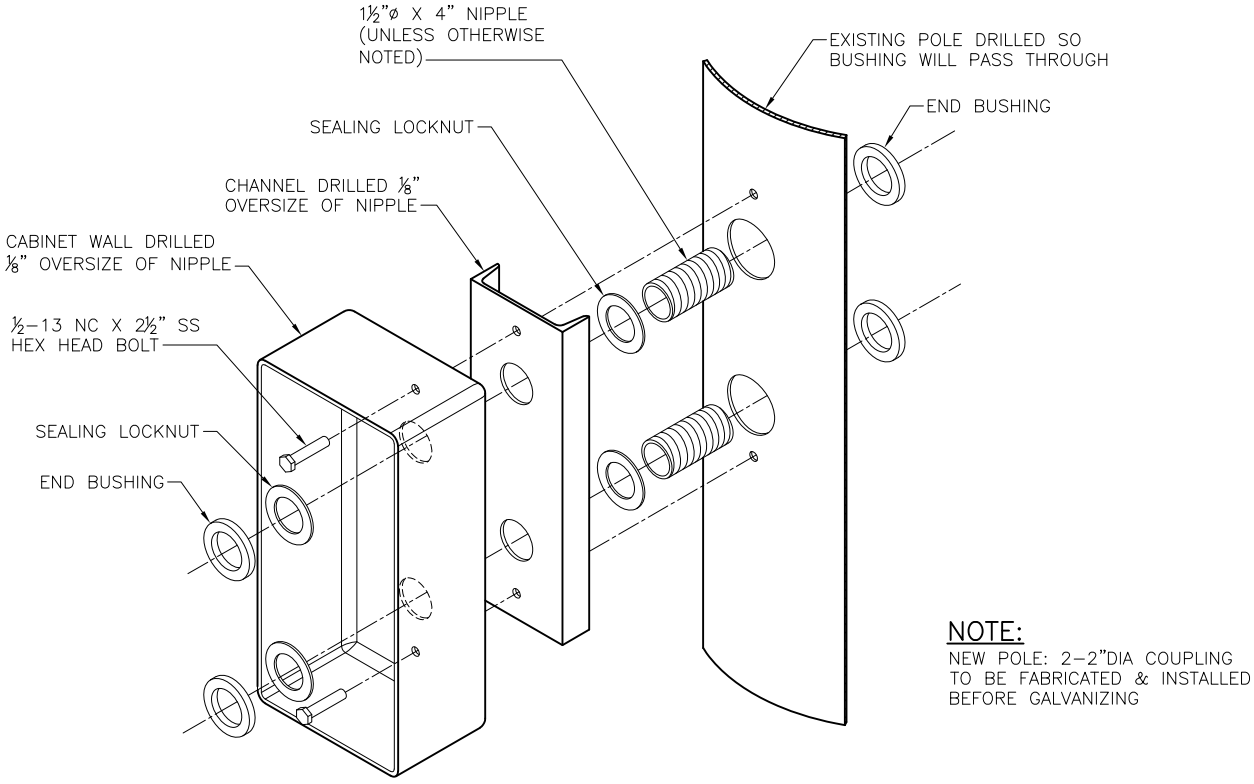
NOTES:

1. ALL OUTLETS MUST 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 MUST EXTEND INTO THE POLE ½" MAX AS SHOWN.

REF STD SPEC SEC 8-30 & 8-32

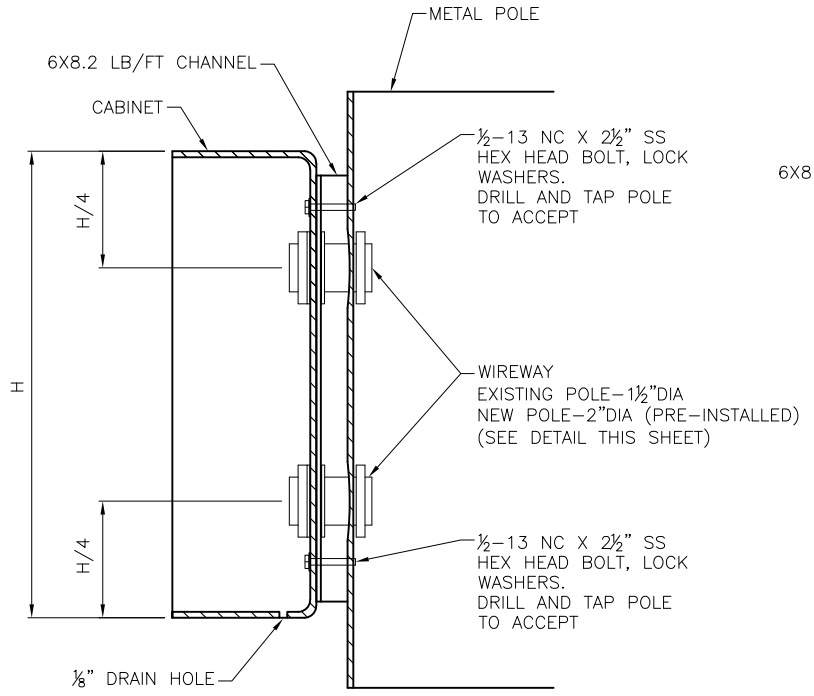
City of Seattle	NOT TO SCALE	MISCELLANEOUS STEEL POLE DETAILS

REV DATE: FEB 2016

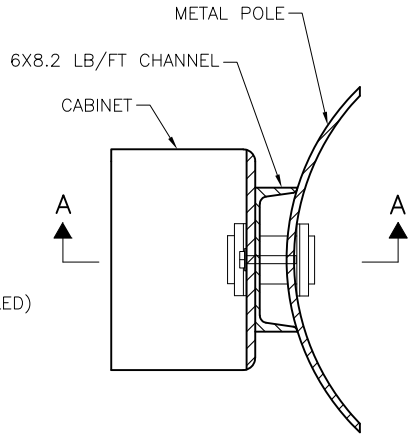


NOTE:
NEW POLE: 2–2"DIA COUPLING
TO BE FABRICATED & INSTALLED
BEFORE GALVANIZING

WIREWAY ISOMETRIC DETAIL



SECTION A–A

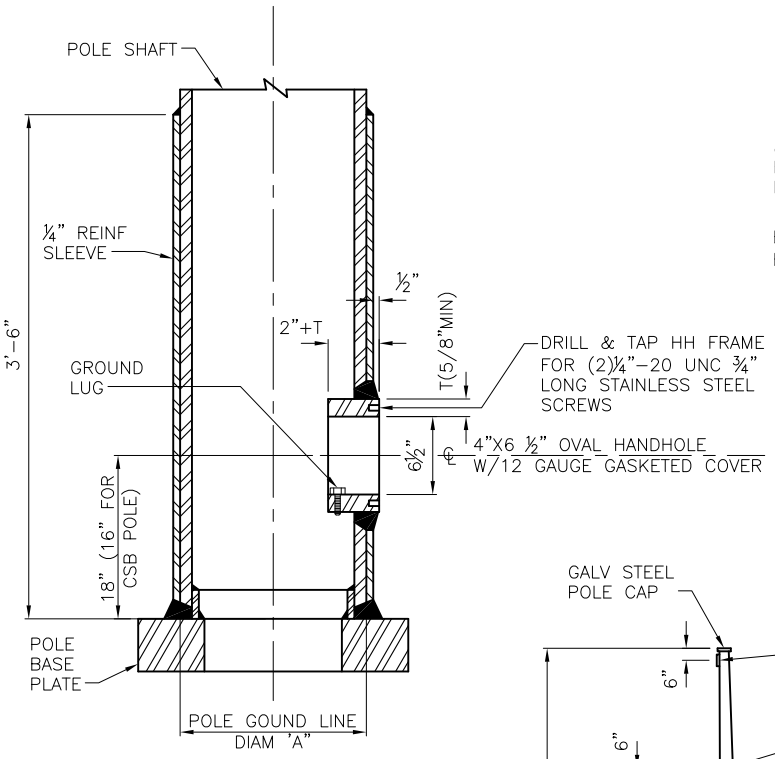


PLAN

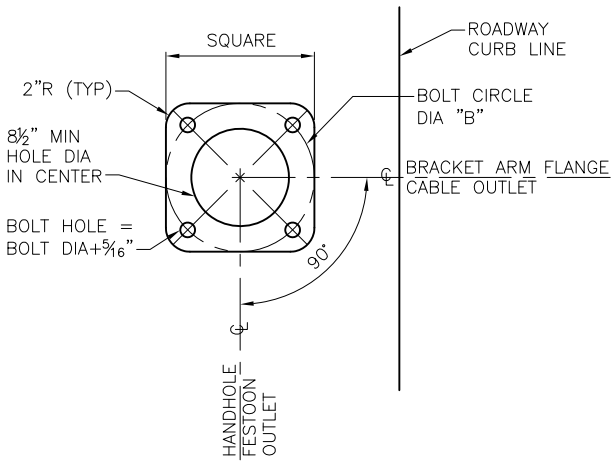
REF STD SPEC SEC 8-32

City of Seattle	NOT TO SCALE	TERMINAL CABINET POLE MOUNTING

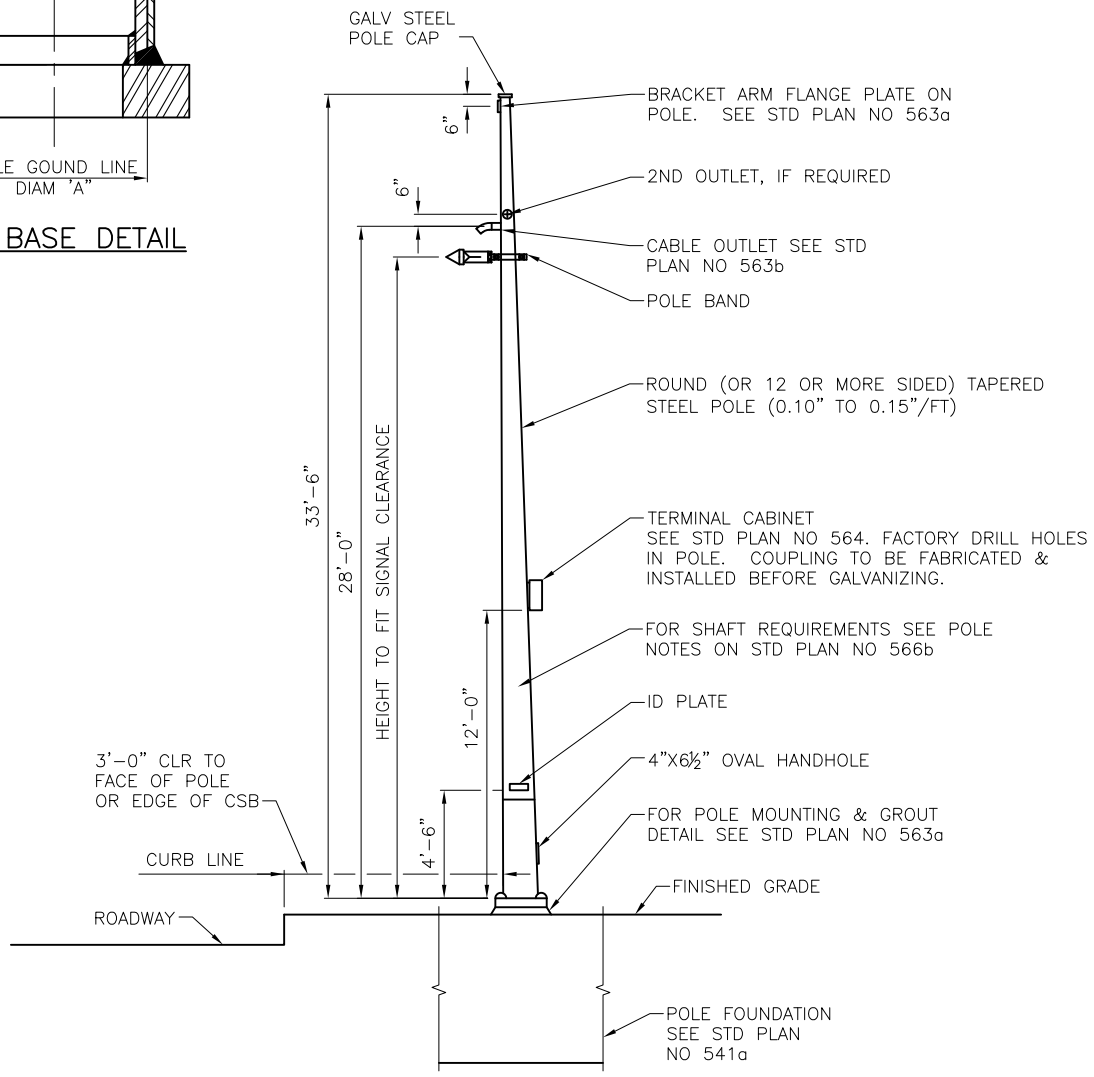
REV DATE: JUL 2016



POLE BASE DETAIL



POLE BASE PLATE



STRAIN POLE

REF STD SPEC SEC 8-32

City of Seattle	NOT TO SCALE	STRAIN POLE DETAILS (TYPE V, X & Z POLES)

REV DATE: JAN 2017

POLE TYPE	DEAD LOAD MOMENT KIP–FT (AT GROUND LINE)	POLE SCHEDULE						
		GROUND LINE DIA "A"		POLE BASE PLATE SIZE		BOLT CIRCLE DIA "B"	BOLT HOLE	ANCHOR BOLTS
		STD	CSB	STD	CSB			
V	51	12"	12"	1¾"X18"X18"	1¾"X23"X23"	18"	2 1/16"	1¾"DIA X 72"
X	93	14"	12½"	2"X20"X20"	2"X23"X23"	20"	2 5/16"	2"DIA X 72"
Z	164	15"	--	2½"X23"X23"	--	22"	2 13/16"	2½"DIA X 72"

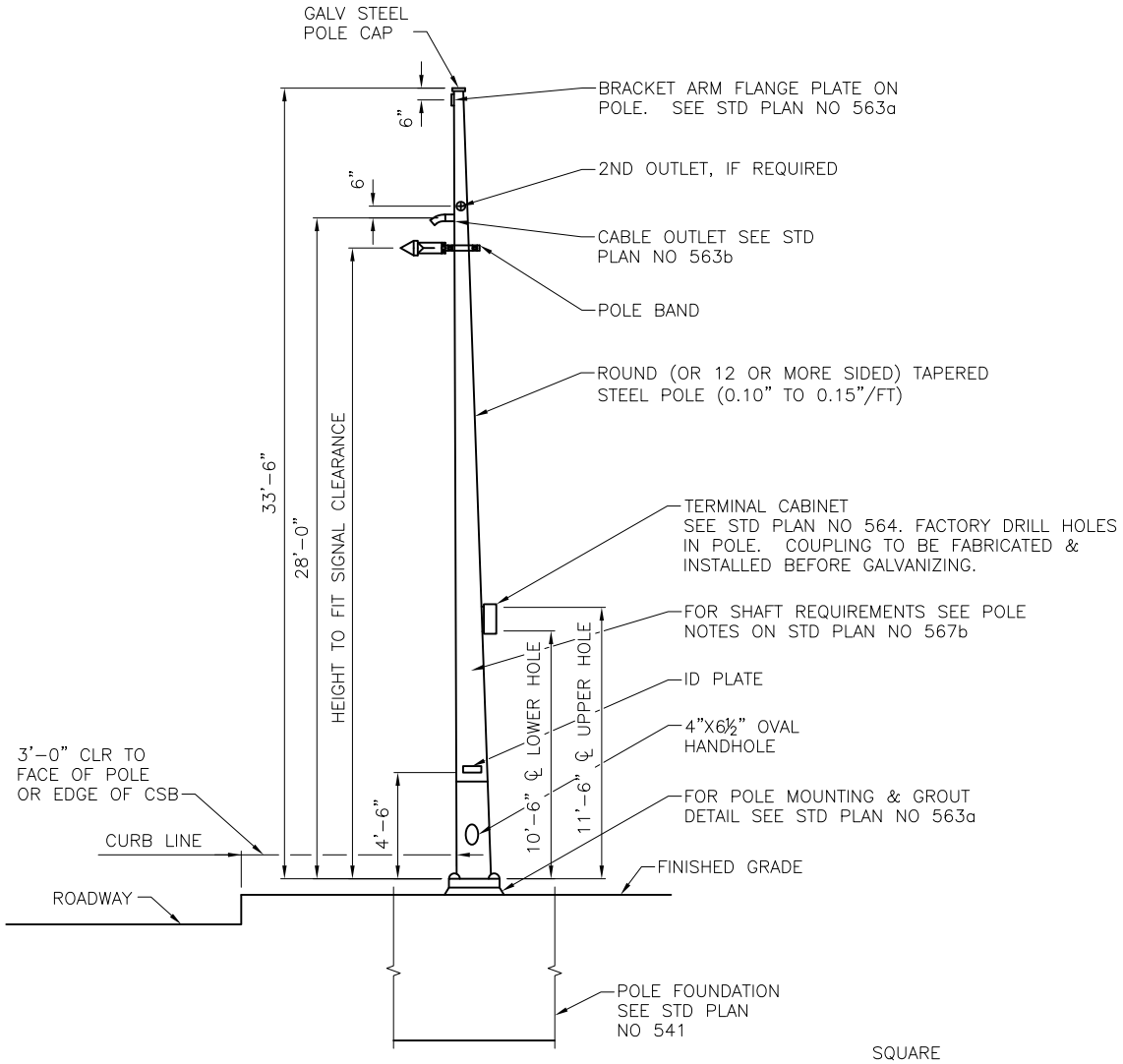
NOTES:

1. THE YIELD MOMENT MUST BE 2X THE DEAD LOAD MOMENT. THE ULTIMATE PLASTIC MOMENT MUST BE 2.5X THE DEAD LOAD MOMENT.
2. POLE SHAFT AND REINFORCING SLEEVE: ASTM A572 GRADE 50, 60 OR 65 (Fy=50, 60 OR 65 KSI RESPECTIVELY) OR ASTM A595 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≥0.65 POLE SHAFT Fy THE BASE PLATE THICKNESS MAY BE REDUCED BY ¼" IF ASTM A572 GRADE 42 STEEL IS USED.
4. REINFORCING SLEEVE MUST BE FABRICATED FROM THE SAME MATERIAL AND YIELD STRENGTH AS THE POLE SHAFT.
5. POLE SHAFTS MUST HAVE NO MORE THAN TWO LONGITUDINAL WELDS IN EACH PLY.
6. MINIMUM SHAFT WALL THICKNESS OF EACH PLY MUST BE 0.239" (3 GAUGE). POLE MUST HAVE A MAXIMUM OF TWO PLYS NOT INCLUDING THE ¼" REINFORCING SLEEVE.
7. MAXIMUM SILICON CONTENT IN STEEL MUST BE 0.04%. SEE STD SPEC SECTION 9–33.1(3) FOR GENERAL GALVANIZING REQUIREMENTS.
8. POLE DIAMETER FOR 12 OR MORE SIDED POLES MUST BE MEASURED FROM THE POINT TO POINT DIMENSION.
9. POLES MUST MEET DEFLECTION CRITERIA STATED IN STD SPEC SECTION 9–33.2(2) WITH THE DEAD LOAD APPLIED AT 25' ABOVE GROUND LINE.
10. POLE STRENGTH MUST MEET REQUIREMENTS OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (2013 EDITION).

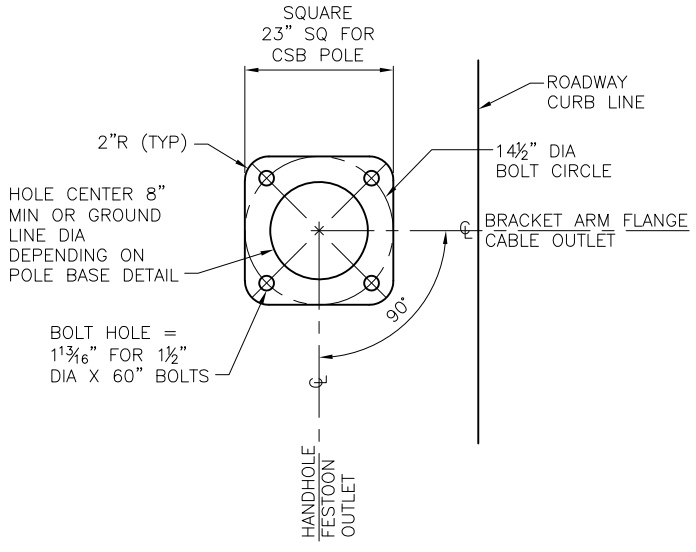
REF STD SPEC SEC 8-32, 9-33

City of Seattle | NOT TO SCALE | STRAIN POLE DETAILS (TYPE V, X, Z POLES)

REV DATE: JAN 2017



STRAIN POLE



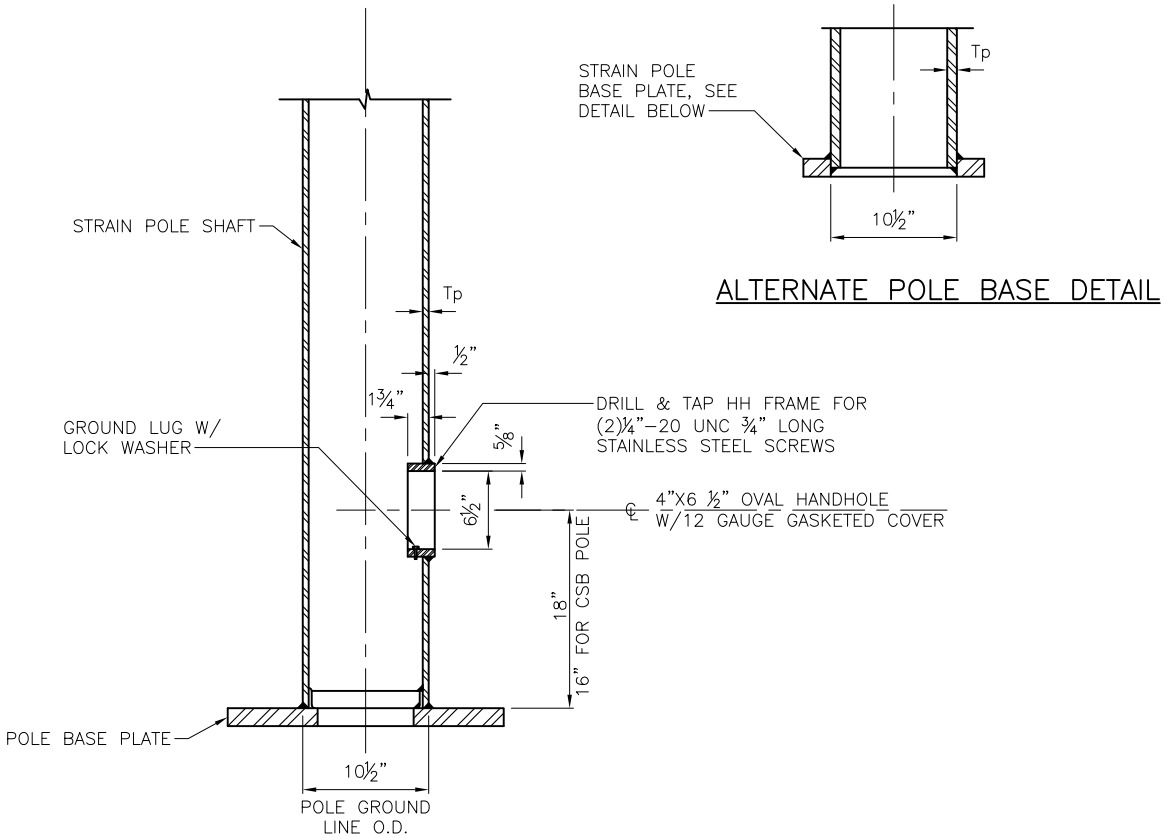
POLE BASE PLATE

REF STD SPEC SEC 8-32

City of Seattle	NOT TO SCALE	TYPE T STRAIN POLE DETAILS TRAFFIC SIGNAL ONLY

NOTES:

1. THE DEAD LOAD MOMENT AT THE GROUNDLINE MUST BE 40 KIP–FT. THE YIELD MOMENT MUST BE 2X DEAD LOAD MOMENT.
2. POLE STRENGTH MUST MEET REQUIREMENTS OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (2013 EDITION).
3. POLE SHAFT: ASTM A572 GRADE 50, 60 OR 65 (Fy=50, 60 OR 65 KSI RESPECTIVELY), OR ASTM A595 GRADE A OR B (Fy=55 OR 60 KSI RESPECTIVELY)
4. BASE PLATE AND HANDHOLE REINFORCING RIM: ASTM A36 OR ASTM A572 GRADE 42. BASE PLATE Fy≥0.65 POLE SHAFT Fy THE BASE PLATE THICKNESS MAY BE REDUCED BY ¼" IF ASTM A572 GRADE 42 STEEL IS USED.
5. POLE SHAFTS MUST HAVE NO MORE THAN TWO LONGITUDINAL WELDS IN EACH PLY.
6. MINIMUM SHAFT WALL THICKNESS OF EACH PLY MUST BE 0.239" (3 GAUGE). POLE MUST HAVE A MAXIMUM OF TWO PLYS.
7. MAXIMUM SILICON CONTENT IN STEEL MUST BE 0.04%. SEE STD SPEC SECTION 9–33.1(3) FOR GENERAL GALVANIZING REQUIREMENTS.
8. POLE DIAMETER FOR 12 OR MORE SIDED POLES MUST BE MEASURED FROM THE POINT TO POINT DIMENSION.
9. POLES MUST MEET DEFLECTION CRITERIA STATED IN STD SPEC SECTION 9–33.2(2) WITH THE DEAD LOAD APPLIED AT 27' ABOVE GROUND LINE.
10. THE POLES MUST BE COMPACT AND MUST MEET THE REQUIREMENTS IN AASHTO SECTION 4, TABLE 1.4 1B(1).



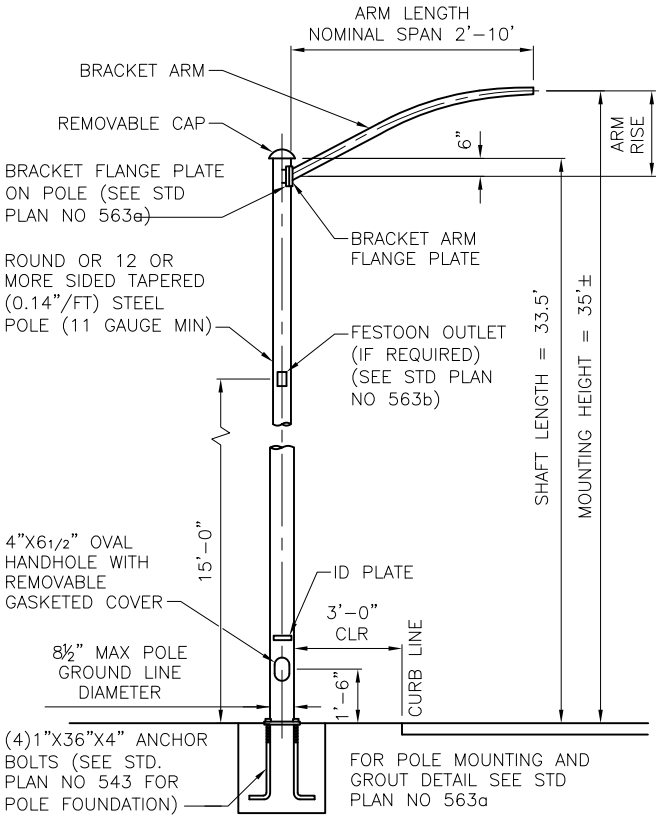
POLE BASE DETAIL

ALTERNATE POLE BASE DETAIL

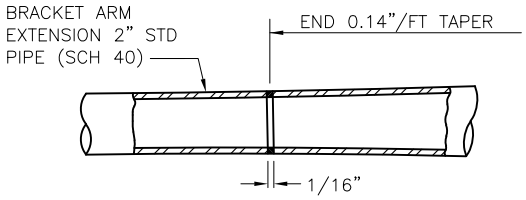
REF STD SPEC SEC 8-32, 9-33

City of Seattle	NOT TO SCALE	TYPE T STRAIN POLE DETAILS TRAFFIC SIGNAL ONLY

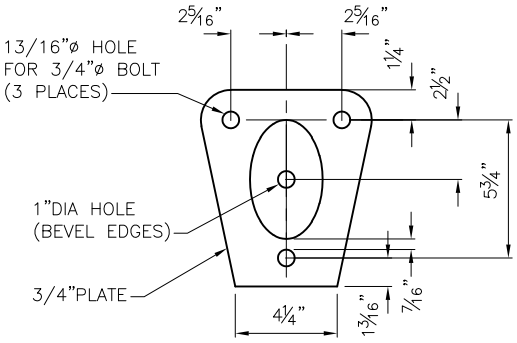
REV DATE: AUG 2014



STEEL STREET LIGHT POLE

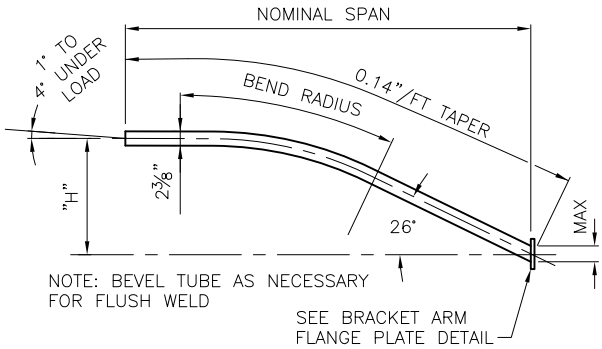


BRACKET ARM EXTENSION IF REQUIRED

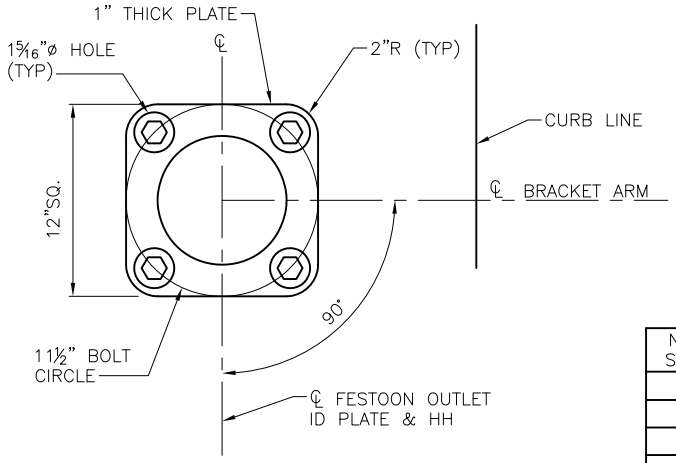


NOTE:
FLANGE DIMENSIONS AND HOLE LOCATIONS MUST MATCH THOSE ON FLANGE PLATE ON POLE (SEE STD PLAN NO 563a)

BRACKET ARM FLANGE PLATE



2' THRU 10' BRACKET ARMS



POLE BASE PLATE

NOM SPAN	H*	BEND RADIUS	TUBE REQUIREMENT
2'	5¼"	–	2" STD PIPE
4'	12"	6'	11 GAUGE
6'	18"	9'	11 GAUGE
8'	24"	13'	11 GAUGE
10'	30"	15'	11 GAUGE

MATERIAL SPECIFICATION
PLATE AND SHAPES: ASTM A36
POLE SHAFTS: ASTM A570 GR 40 MIN.
ANCHOR BOLTS: ASTM A307
BRACKET ARM FLANGE PLATE BOLT: ASTM A325

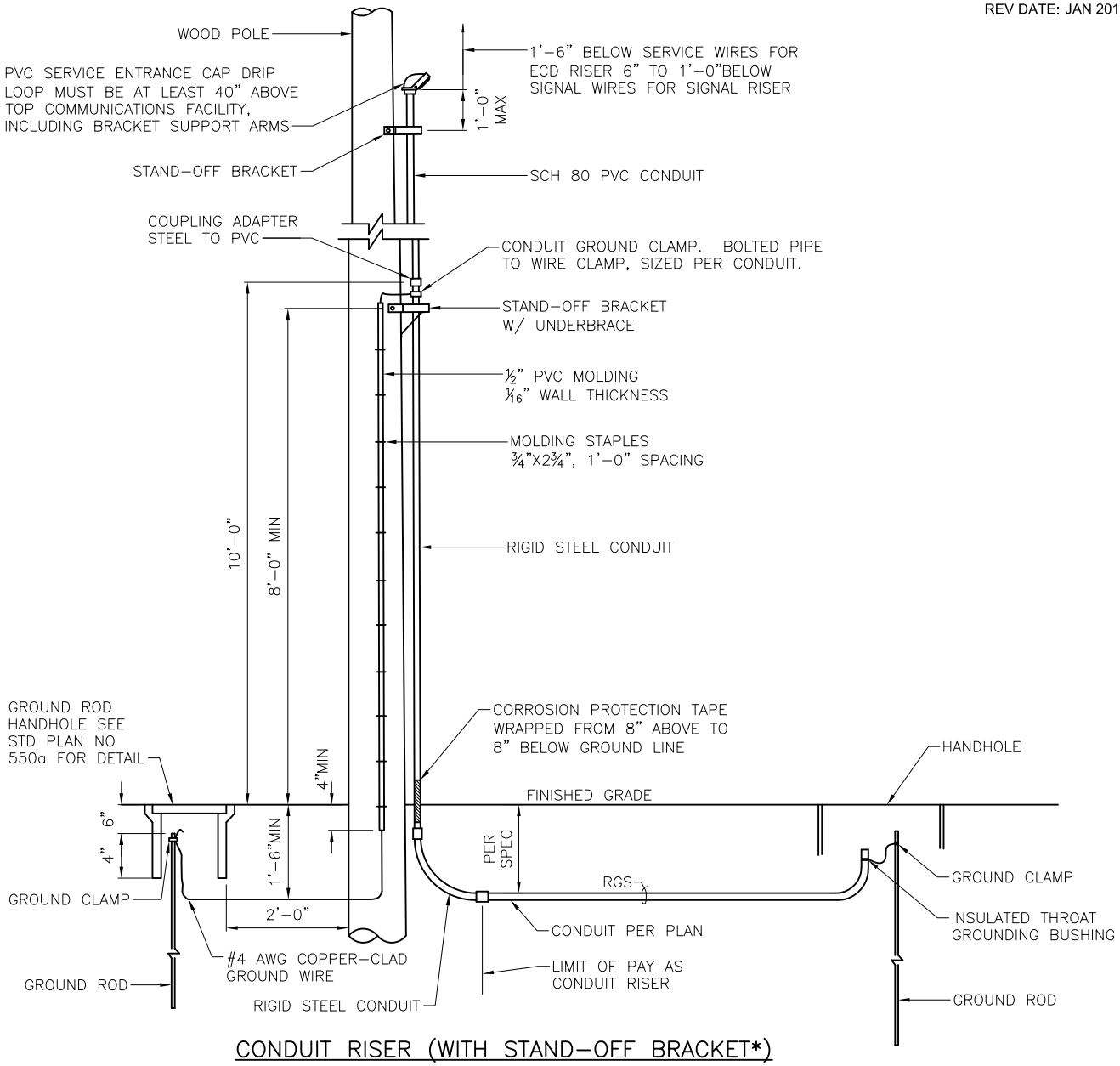
NOTE:
1. ALL OTHER ARM LENGTHS REQUIRE SCL REVIEW AND APPROVAL

* THESE DIMENSIONS ARE ONLY ILLUSTRATIVE OF THE GENERAL OUTLINE AND MATERIALS USED IN THE CONSTRUCTION OF THESE ARMS AND ARE NOT INTENDED TO EXCLUDE MANUFACTURER'S STANDARD PRODUCTS.

REF STD SPEC SEC 8-32

City of Seattle	NOT TO SCALE	STEEL STREET LIGHT POLE WITH BRACKET ARM

REV DATE: JAN 2017



CONDUIT RISER (WITH STAND-OFF BRACKET*)

*WHEN THERE WILL BE ONLY ONE CONDUIT (1½" OR SMALLER) ON THE POLE, ONE HOLE MALLEABLE IRON CLAMPS WITH 4" LAG SCREWS MUST BE USED TO SECURE THE CONDUIT TO THE POLE IN LIEU OF THE STAND-OFF BRACKETS

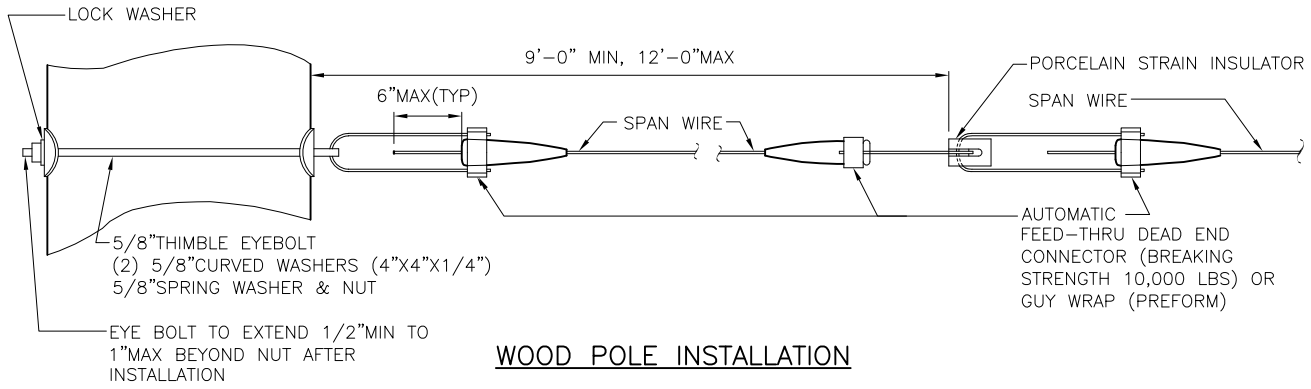
NOTES:

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

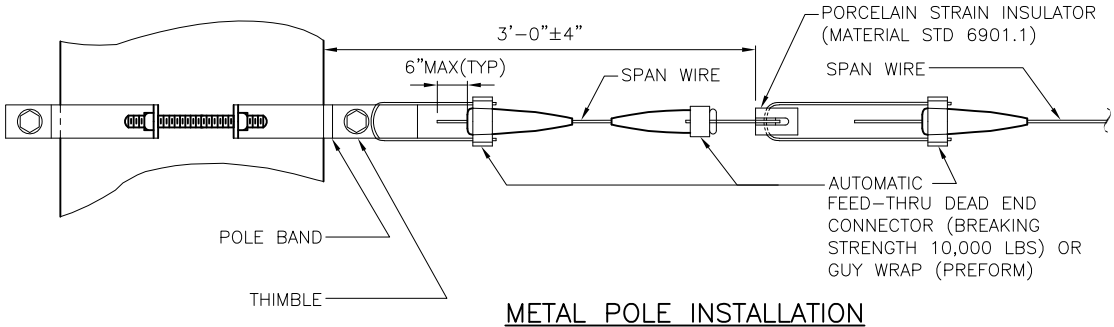
REF STD SPEC SEC 8-33, SCL CONSTRUCTION GUIDELINES U 7-10

City of Seattle	NOT TO SCALE	TRAFFIC CONDUIT RISER

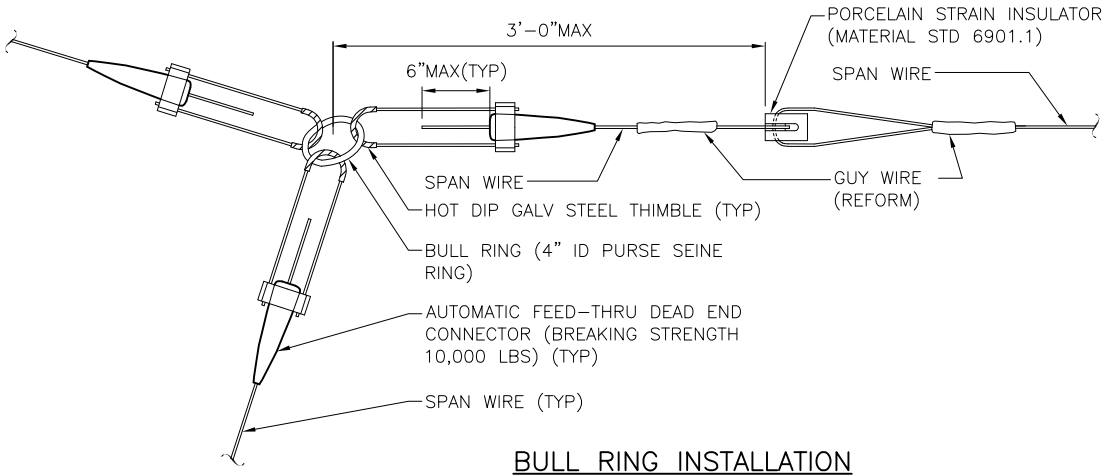
REV DATE: DEC 2013



WOOD POLE INSTALLATION



METAL POLE INSTALLATION



BULL RING INSTALLATION

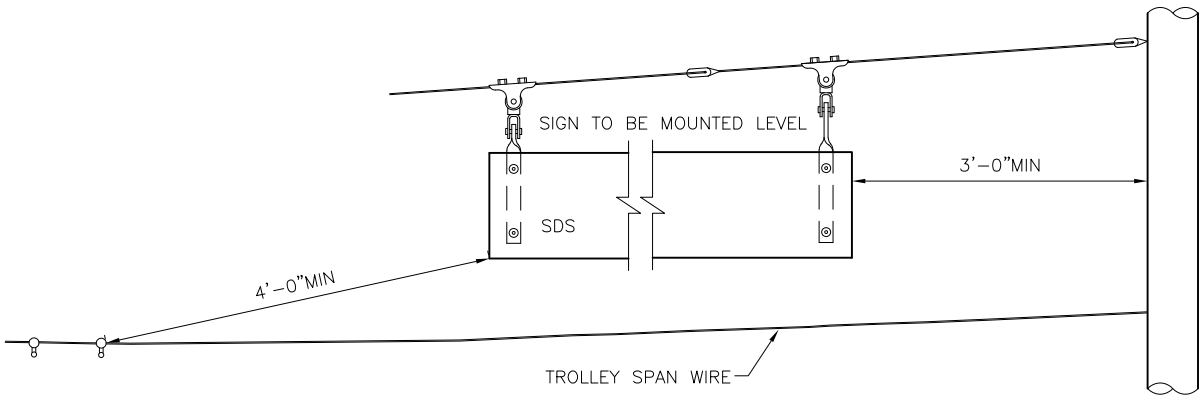
NOTES:

1. ALL STEEL HARDWARE TO BE HOT DIP GALVANIZED OR STAINLESS STEEL UNLESS OTHERWISE STIPULATED IN THE DRAWINGS.
2. SPAN WIRE MUST BE ALUMINUM COATED STEEL.
3. SPREAD THIMBLE TO FIT THE BAIL OF THE AUTOMATIC DEAD END.

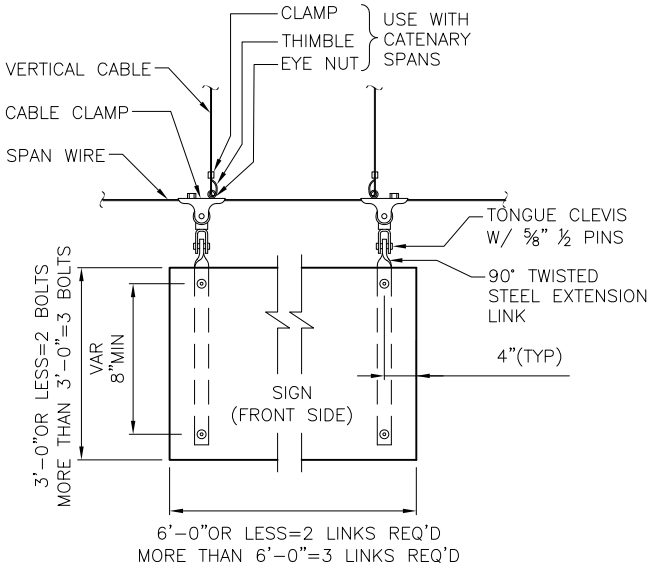
REF STD SPEC SEC 8-21 & SCL MATERIAL STANDARD 6901.1

City of Seattle	NOT TO SCALE	SPAN WIRE INSTALLATION

REV DATE: FEB 2014



STREET DESIGNATION SIGN



SPAN WIRE MOUNTED SIGN

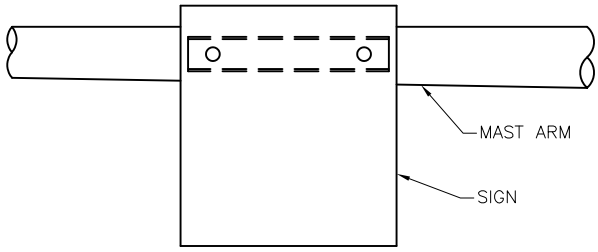
NOTES:

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

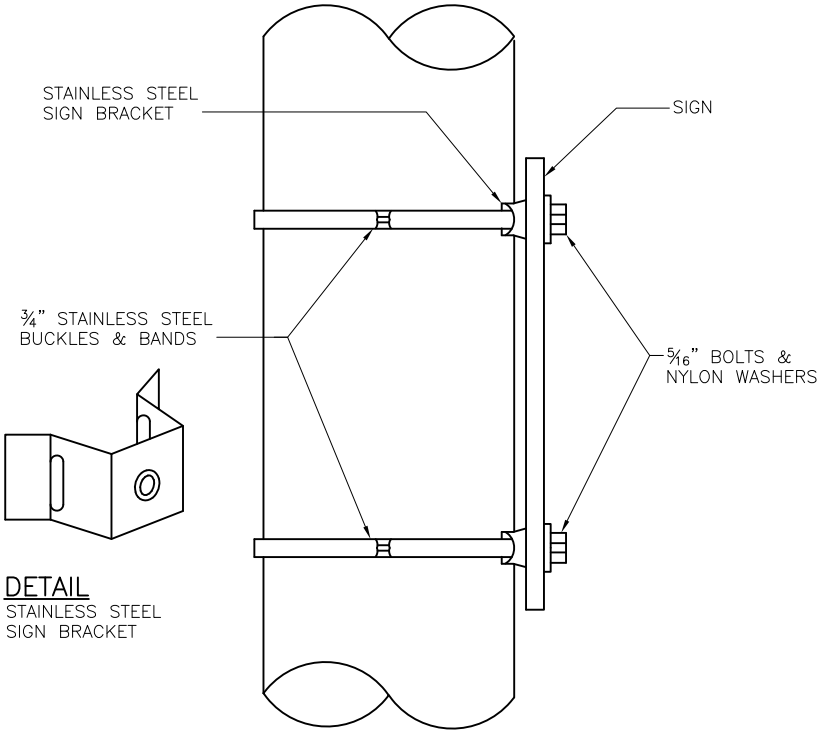
REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	OVERHEAD SIGNS SPANWIRE MOUNTED

REV DATE: AUG 2010



SIGN MOUNTING ON MAST ARM



TEMPORARY SIGN MOUNTING ON METAL POLE

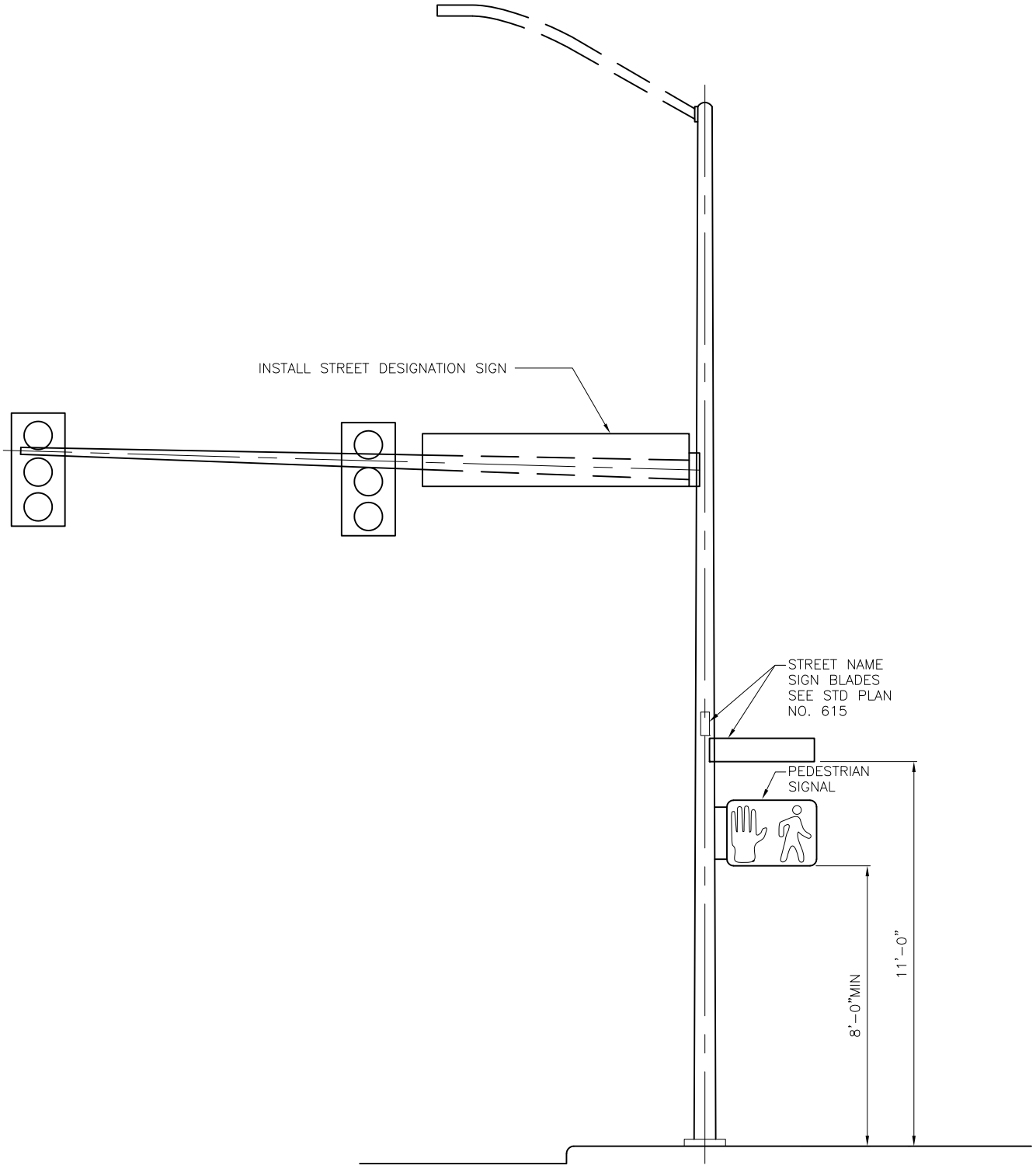
NOTES:

1. EXCEPT AS NOTED OTHERWISE, ALL HARDWARE MUST BE STAINLESS STEEL.
2. MOUNTING OF TRAFFIC SIGNS MUST BE AS FOLLOWS: ON METAL POLE 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.

REF STD SPEC SEC 8-21

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

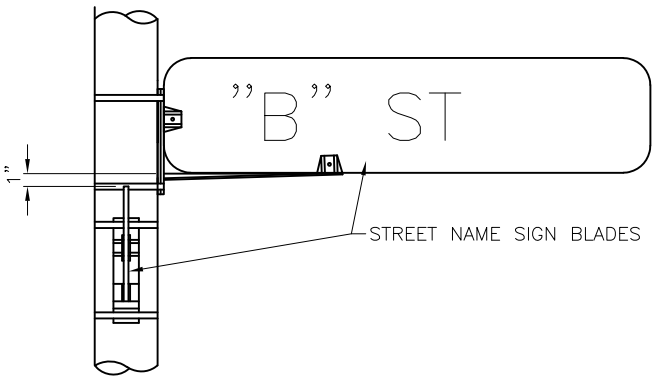
REV DATE: SEP 2016

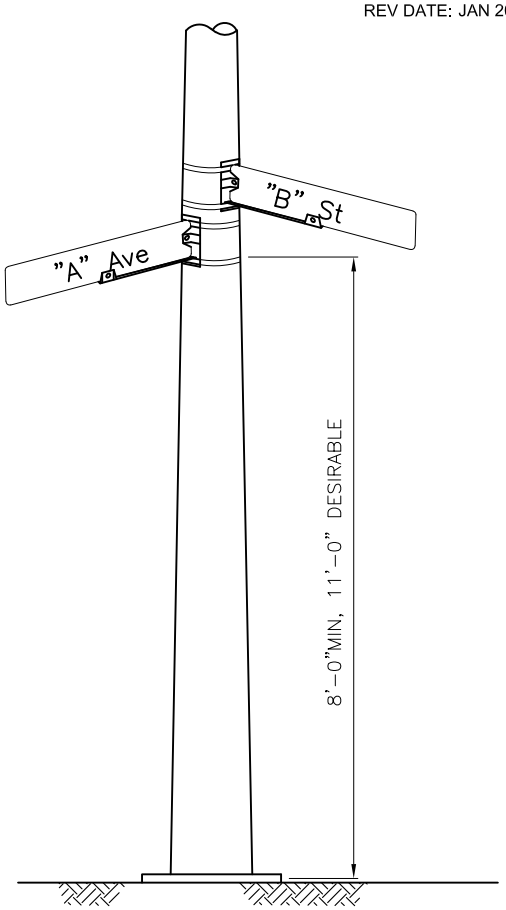


REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	STANDARD SIGN INSTALLATION STEEL POLES

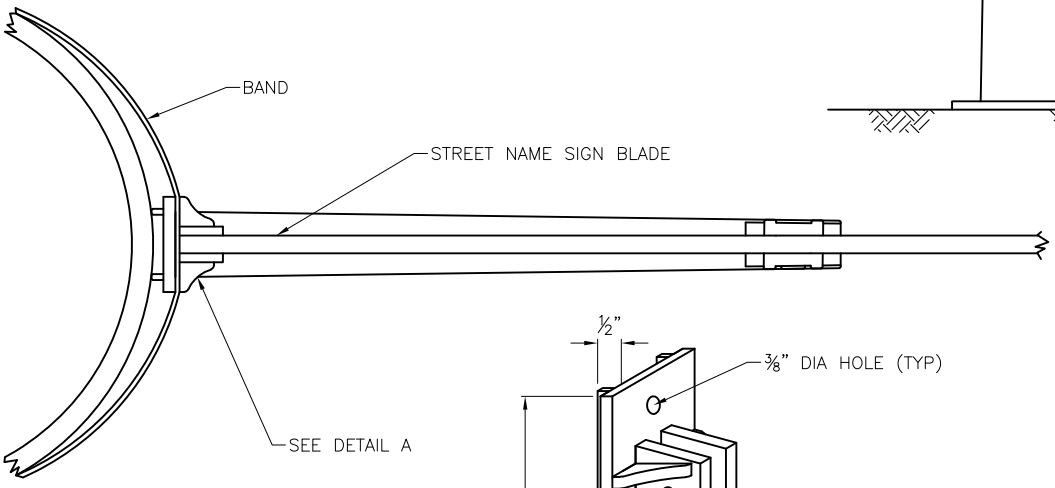
REV DATE: JAN 2017

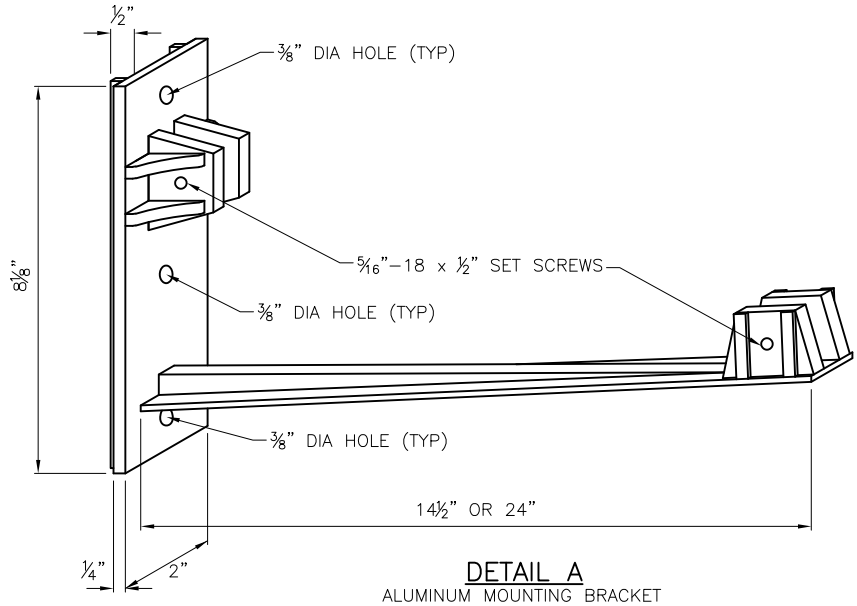




NOTES:

1. STAGGER SNS BLADES WITH THE "AVENUE" DESIGNATION BLADE BELOW THE "STREET" DESIGNATION BLADE
2. SNS SHALL BE INSTALLED PARALLEL TO CORRESPONDING STREET
3. ALL NUTS, BOLTS & WASHERS TO BE STAINLESS STEEL EXCEPT ALUMINUM RIV NUTS ON ALUMINUM POLES.



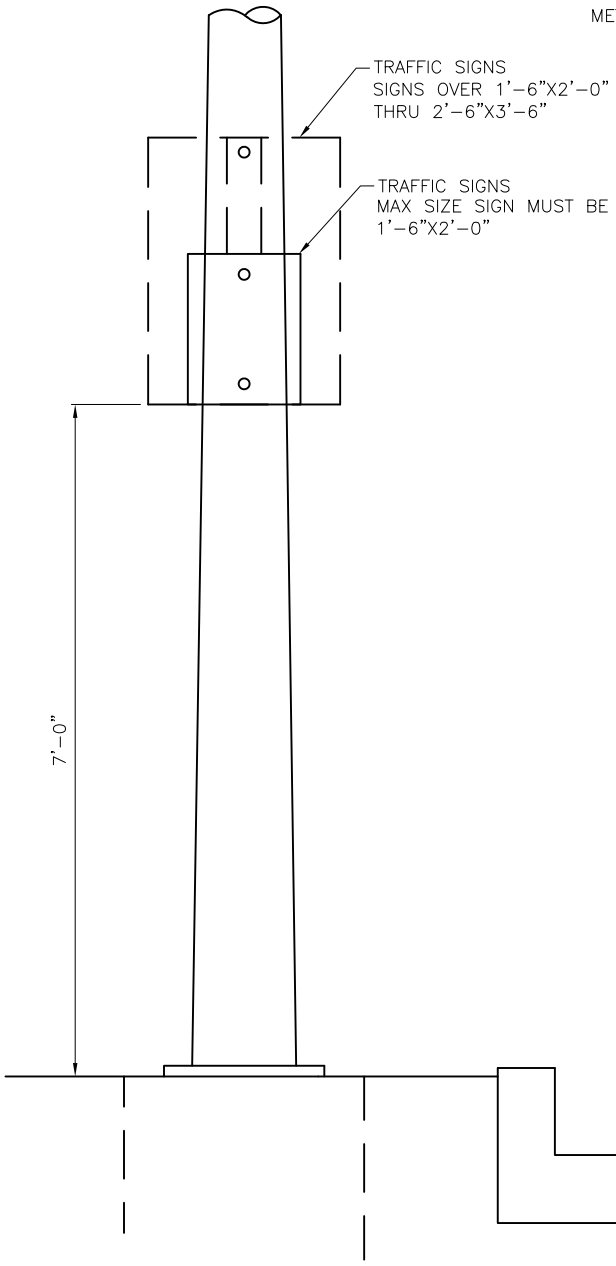


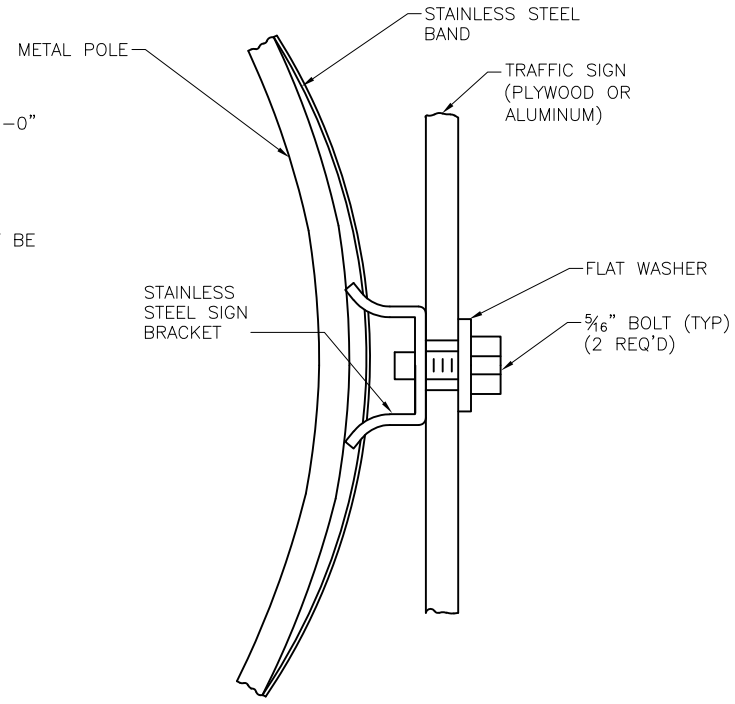
DETAIL A
ALUMINUM MOUNTING BRACKET

REF STD SPEC SEC 8-21

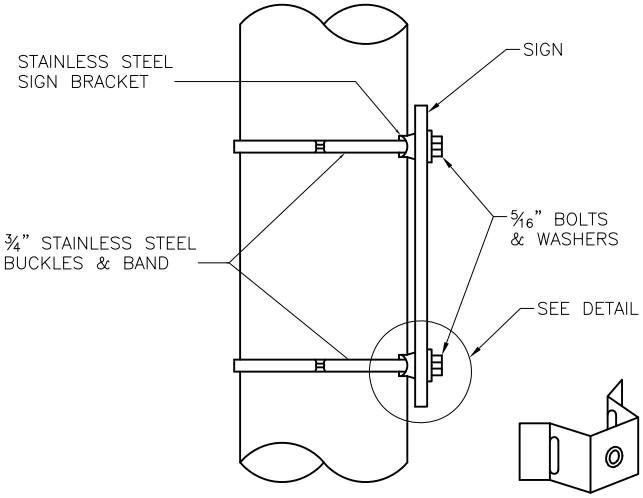
City of Seattle	NOT TO SCALE	STREET NAME SIGN BRACKET FOR STEEL POLES

REV DATE: AUG 2010





TOP VIEW



SIDE VIEW

DETAIL
STAINLESS STEEL
SIGN BRACKET

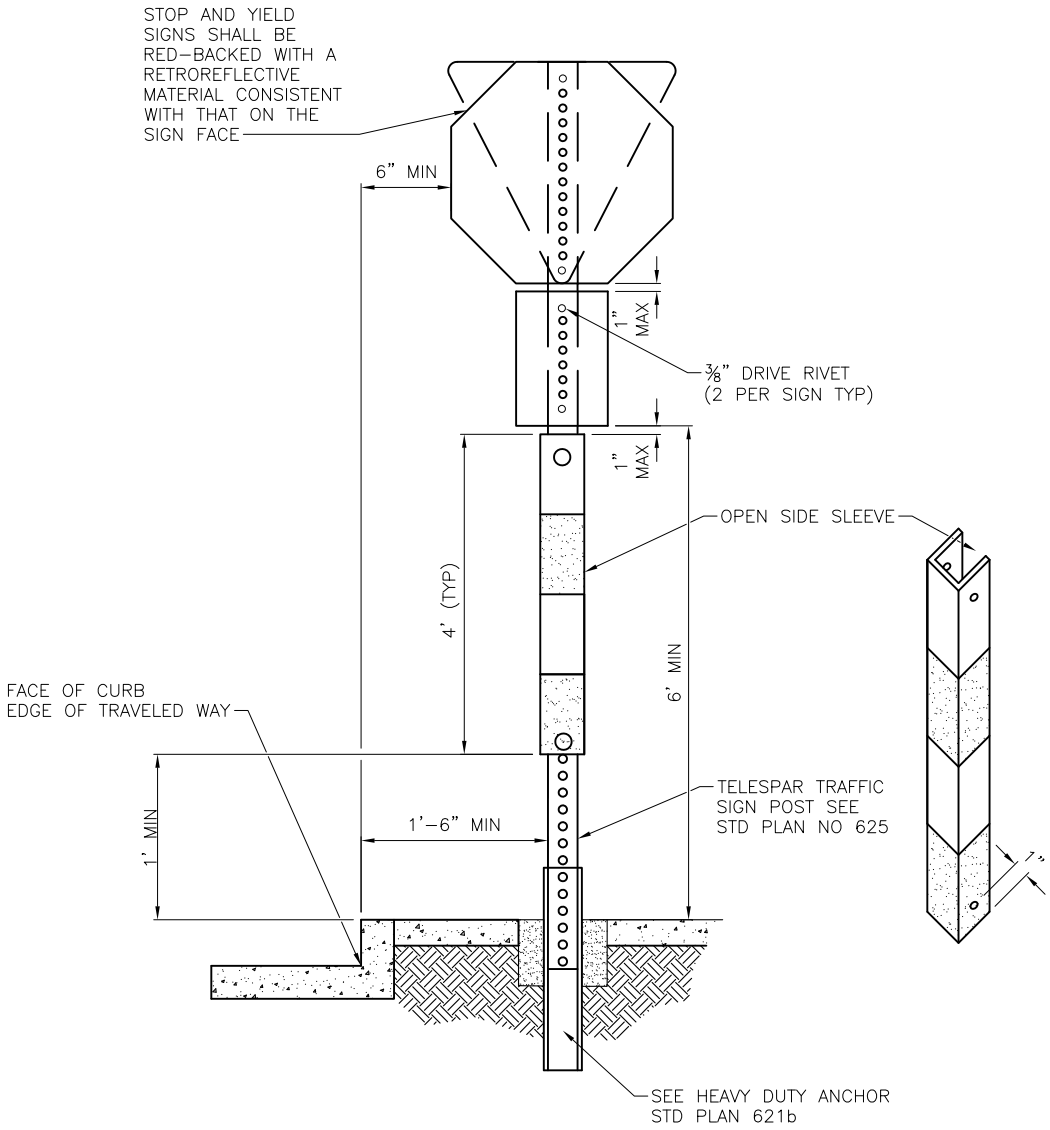
NOTES:

1. ON POLES FILLED WITH OR MADE FROM CONCRETE USE 5/16"X2½"MIN STUD BOLT ANCHORS WITH HEX NUT
2. FOR SIGNS OVER 2'-6"X3'-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

REV DATE: JAN 2017



POST ANCHOR INSTALLATIONS

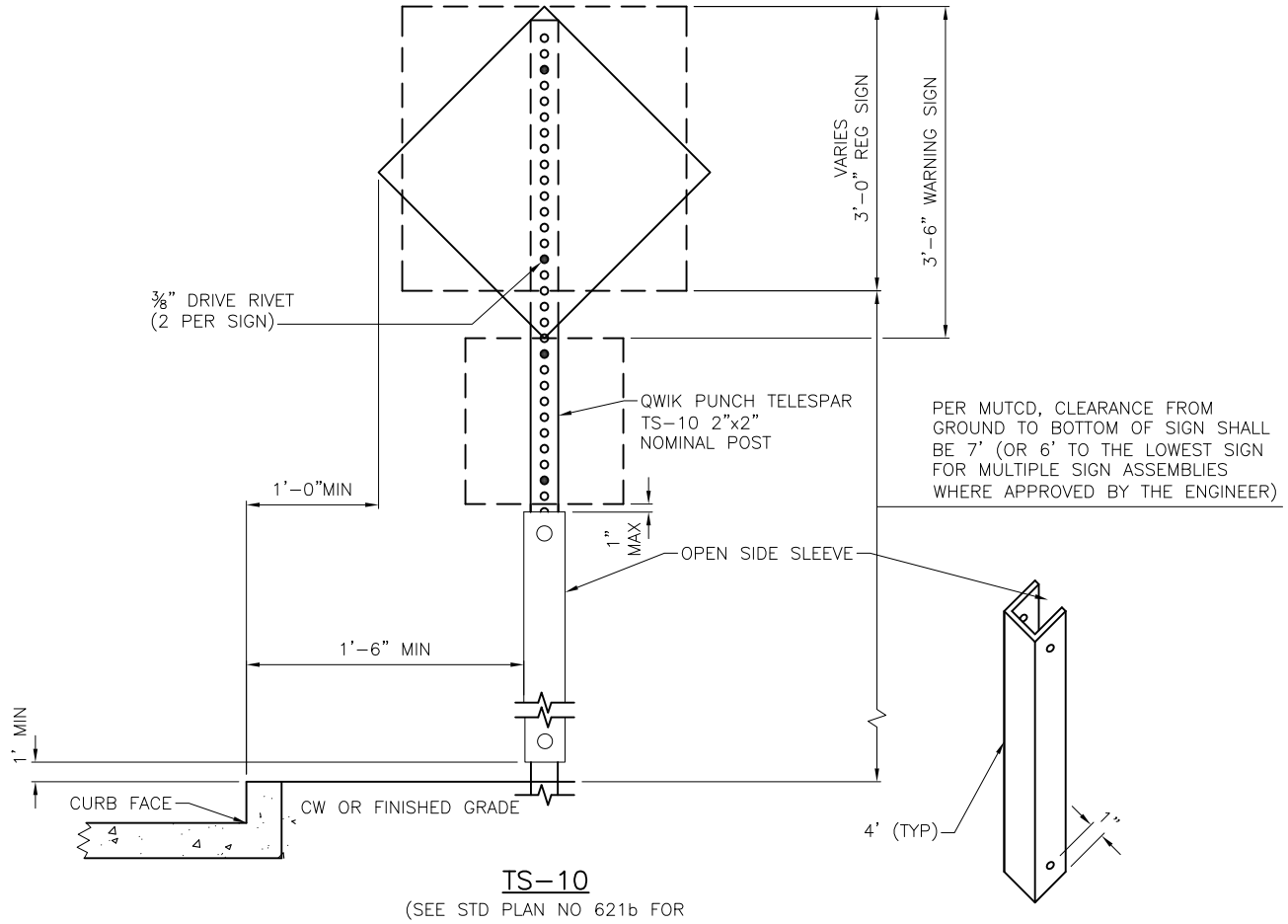
NOTE:

1. CONTACT SEATTLE DEPARTMENT OF TRANSPORTATION (684–5087) FOR DETAILS REGARDING SIGN MESSAGE AND FOUNDATION.
2. STEEL SELF–TAPPING #10 X ½" WITH HEX WASHER HEAD ZINC PLATED
3. RED AND WHITE SLEEVE
4. SEE STANDARD 621a FOR OTHER WARNING & REGULATORY SIGN POST

REF STD SPEC SEC 8-21

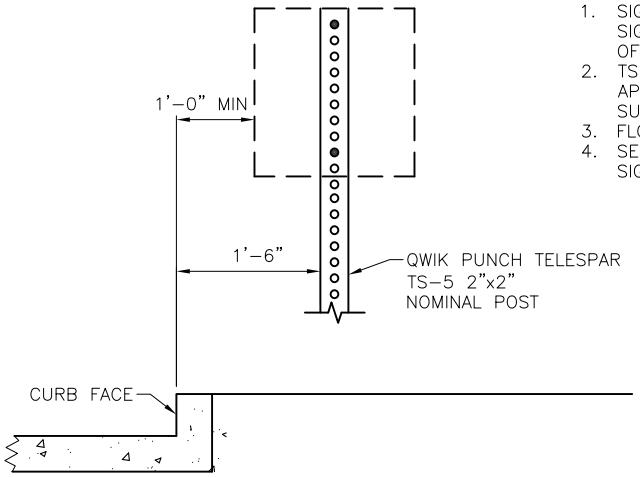
City of Seattle	NOT TO SCALE	STOP AND YIELD SIGN POST AND ANCHOR INSTALLATION

REV DATE: JAN 2017



TS-10

(SEE STD PLAN NO 621b FOR POST ANCHOR DETAILS)



TS-5

(SEE STD PLAN NO 621b FOR POST ANCHOR DETAILS)

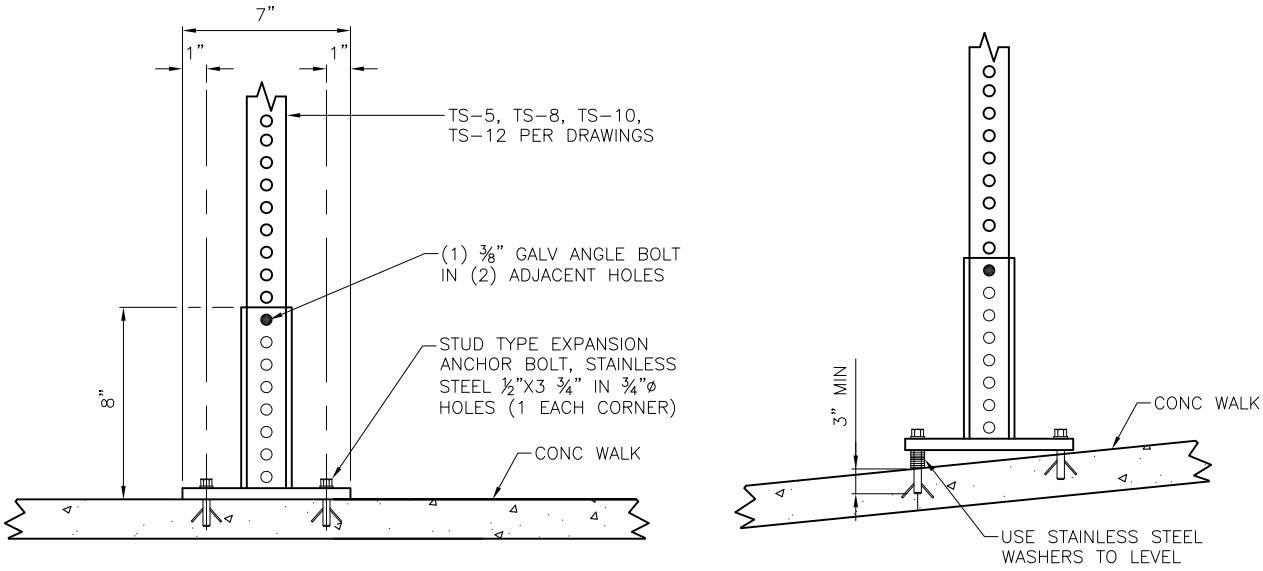
NOTES:

1. SIGN SHALL BE ATTACHED WITH TOP EDGE OF SIGN FLUSH WITH TOP OF SQUARE SECTION OF POST.
2. TS-5 ASSEMBLIES SHALL BE USED ONLY WITH APPROVAL OF ENGINEER, IN AREAS NOT SUBJECT TO PEDESTRIAN TRAVEL.
3. FLOURECENT YELLOW GREEN OR FHWA YELLOW
4. SEE STANDARD PLAN 620 FOR STOP & YIELD SIGN POST

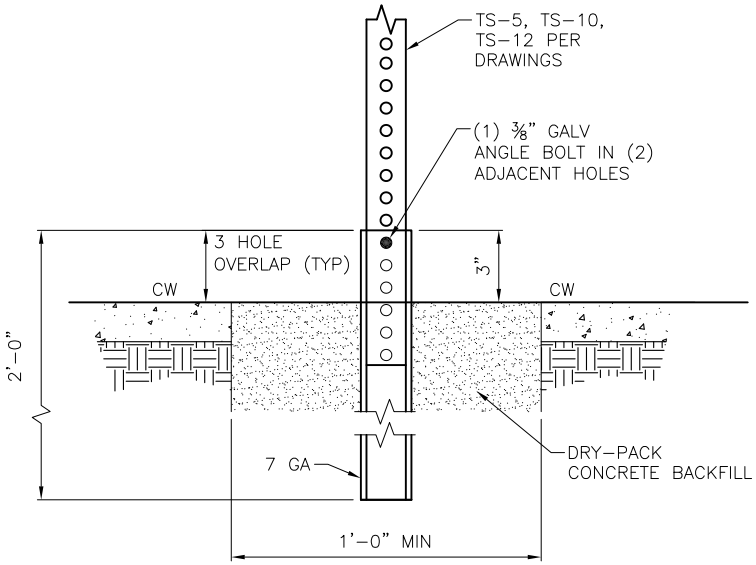
REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	WARNING AND REGULATORY SIGN POST

REV DATE: JAN 2017



SURFACE MOUNT



HEAVY DUTY ANCHOR

NOTES:

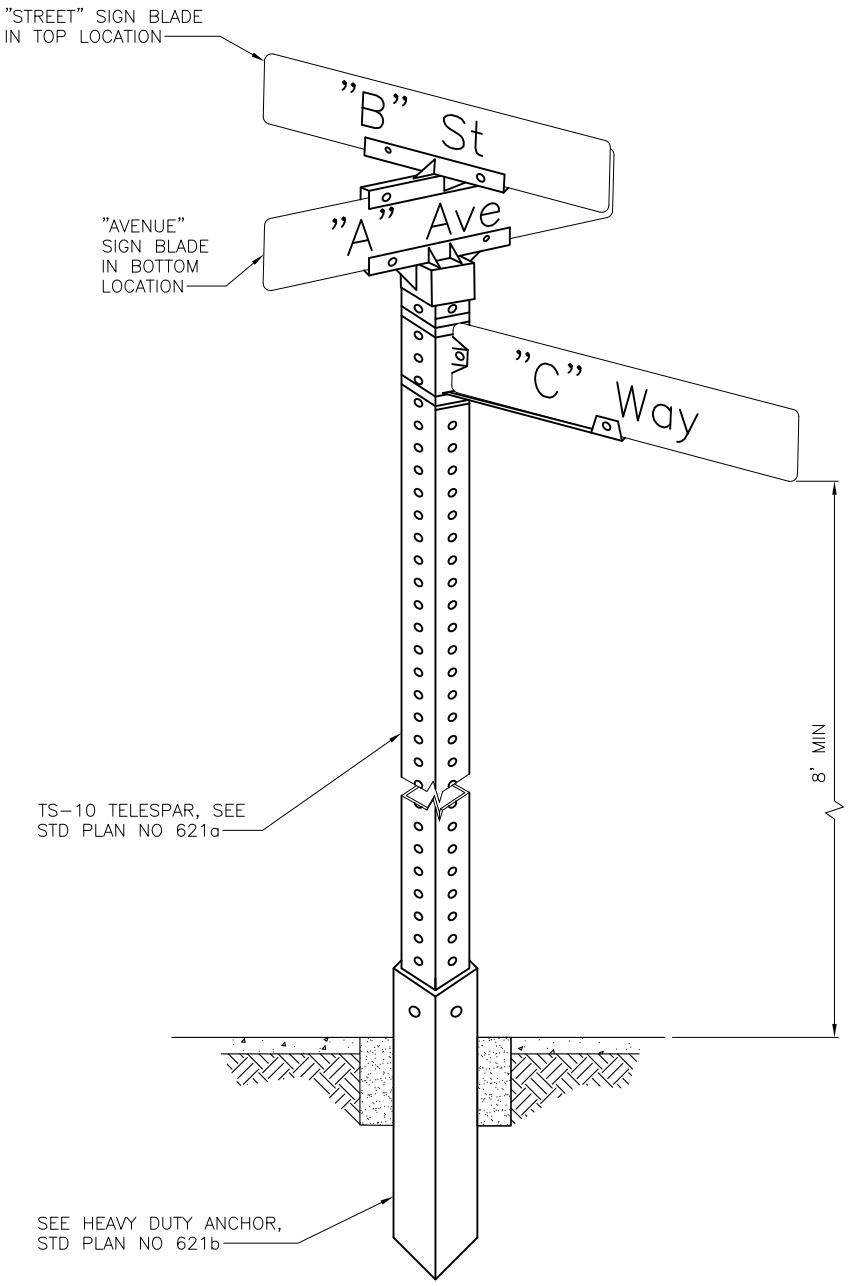
1. FOR UNLEVEL SIDEWALKS INSERT WASHERS AS SPACERS BETWEEN PLATE AND SIDEWALK. IF BOLT CANNOT PENETRATE SIDEWALK AT LEAST 3", CONTACT THE ENGINEER.
2. USE CONCRETE FOOTINGS FOR ALL SIGNS LARGER THAN 96 SQUARE INCHES.

REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	WARNING AND REGULATORY SIGN POST ANCHOR INSTALLATIONS

REV DATE: JAN 2017

STANDARD



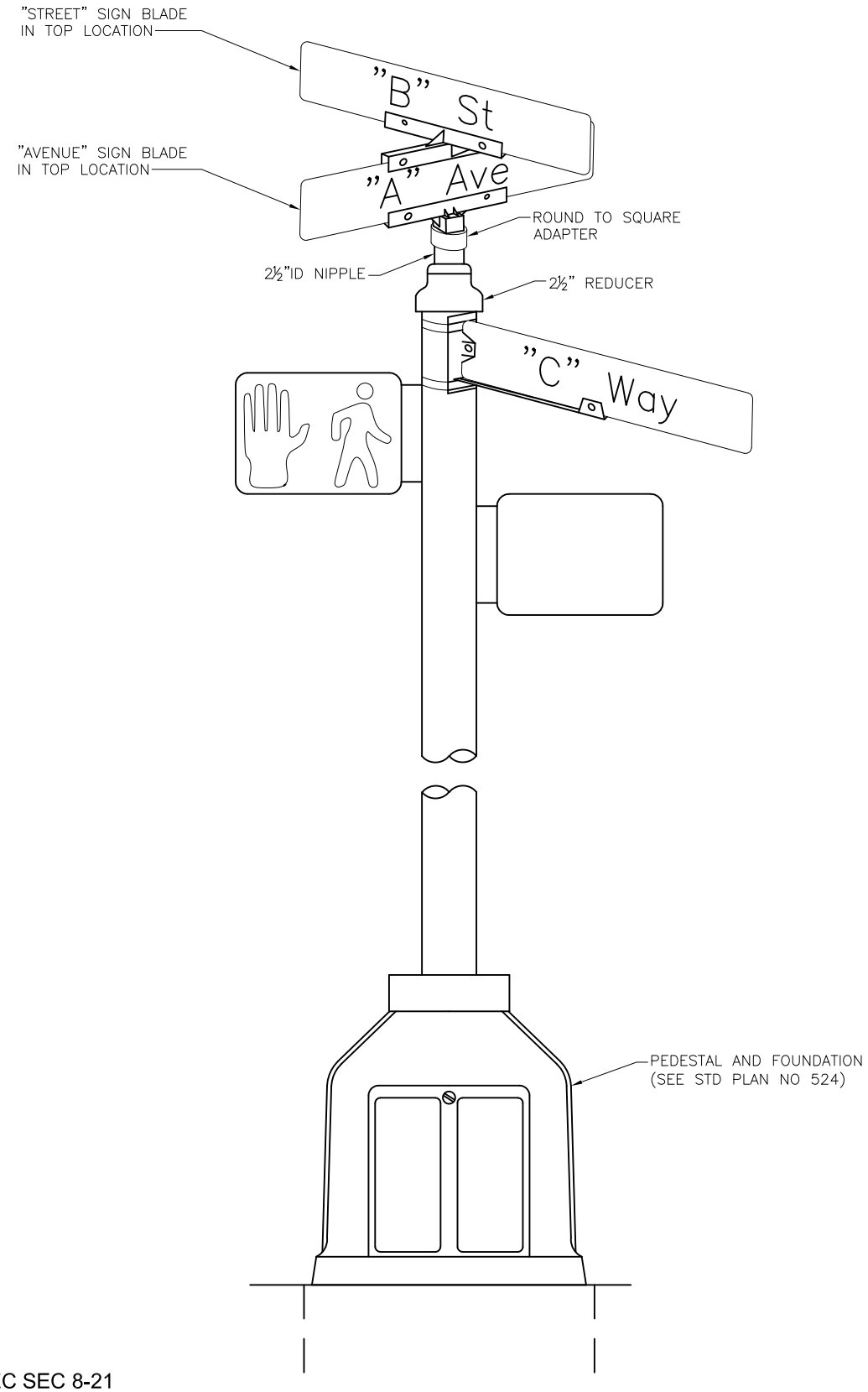
NOTES:

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

REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	STREET NAME SIGN INSTALLATION

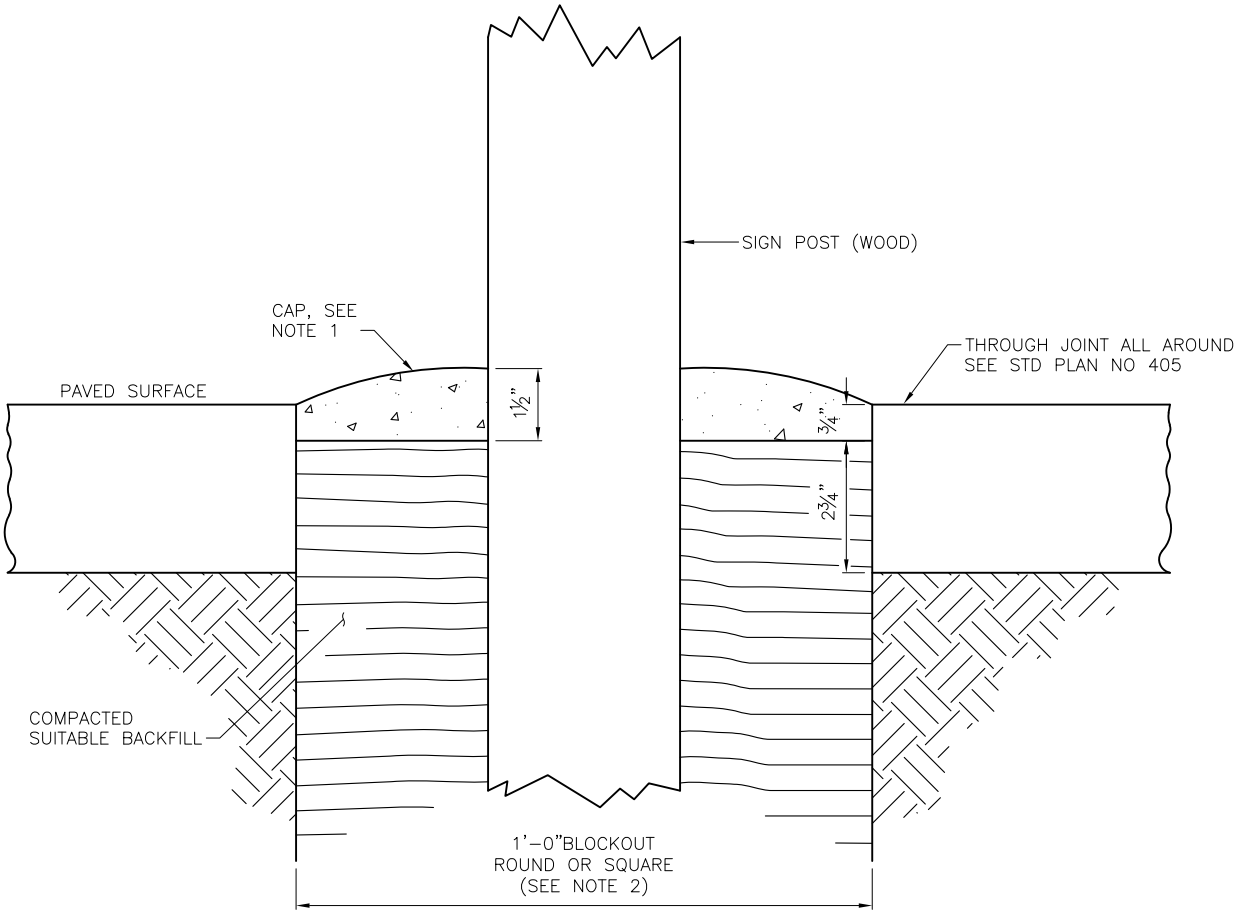
REV DATE: JAN 2017



REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	STREET NAME SIGN PEDESTAL INSTALLATION

REV DATE: 2003



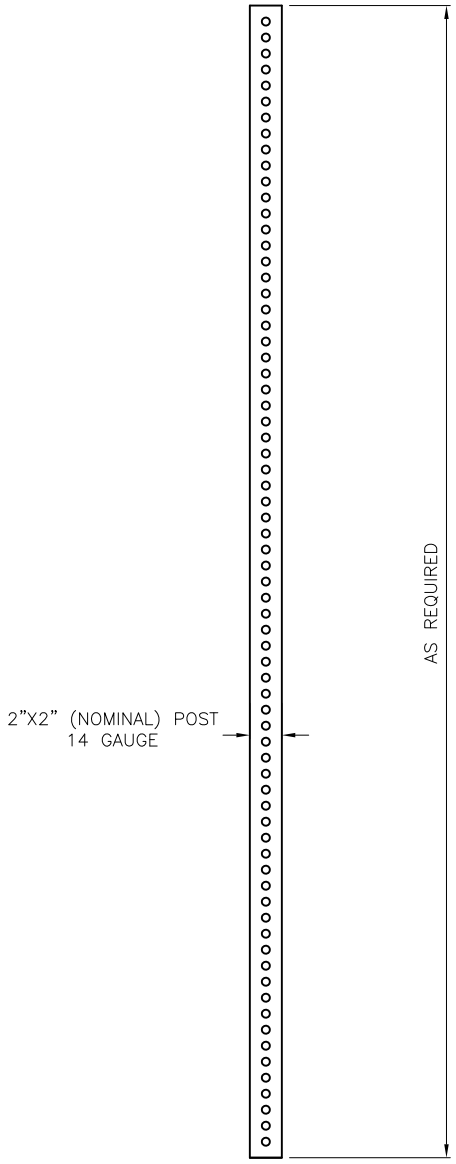
NOTES:

1. CAP MUST BE MADE OF THE SAME MATERIAL AS THE SURROUNDING PAVED SURFACE AND MUST BE MOUNDED FOR DRAINAGE AWAY FROM POST.
2. BLOCKOUTS MUST 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 MUST NOT EXCEED 1'–0" NOMINAL DIAMETER.

REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	POST CAP

REV DATE: JAN 2017



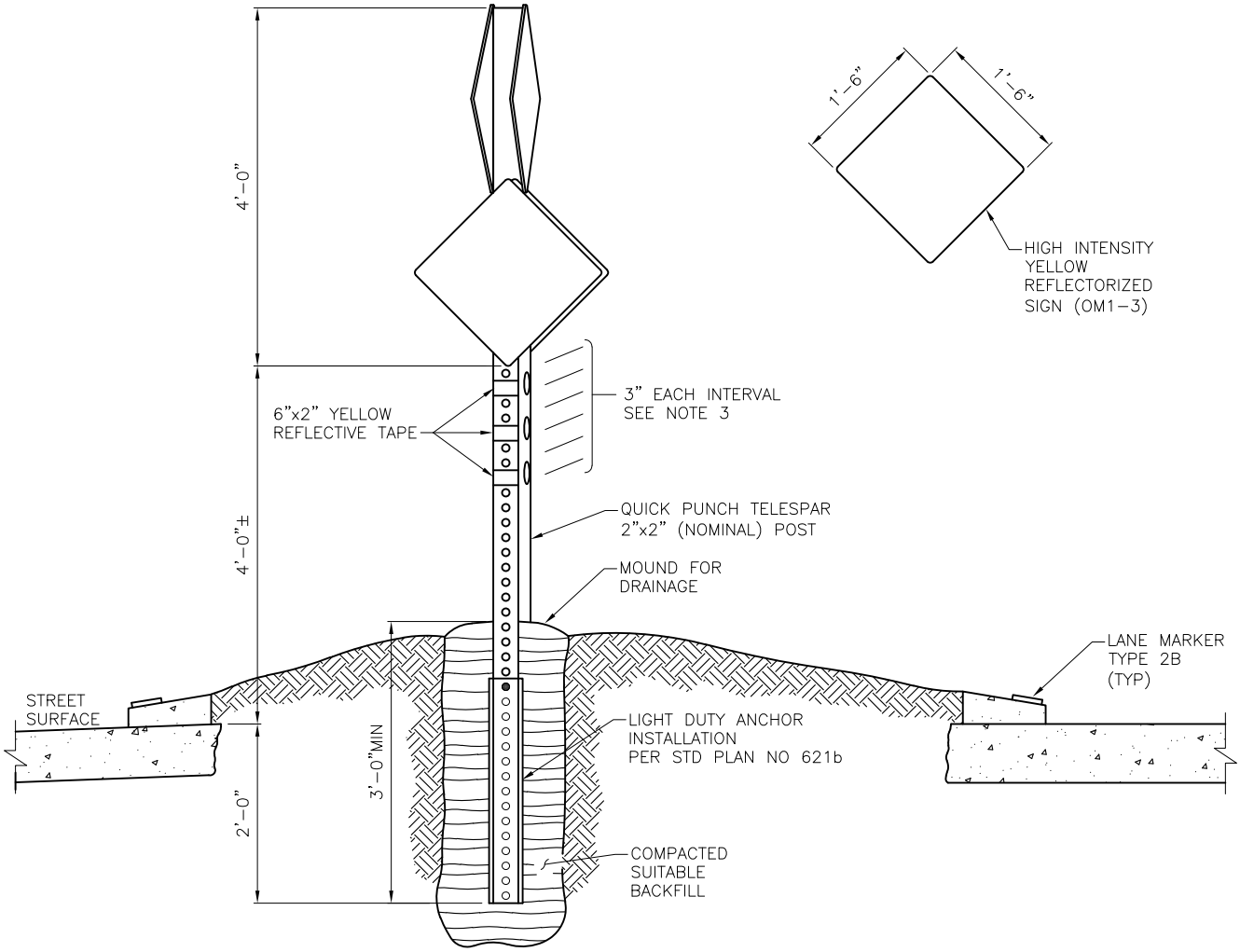
QWIK PUNCH TELESPAR STANDARD SIGN POST
(TS–5, TS–10, TS–12)

NOTES:
1. SEE STD PLANS NO 620 & 621

REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	TRAFFIC SIGN POSTS

REV DATE: 2005



(TS-10)

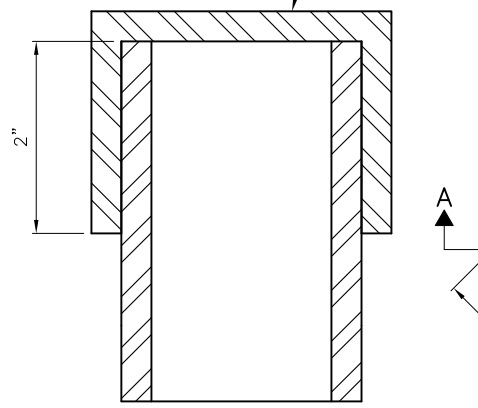
NOTES:

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 MUST 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 REFLECTORIZED STRIPS COMPLETELY AROUND POST

REF STD SPEC SEC 8-21

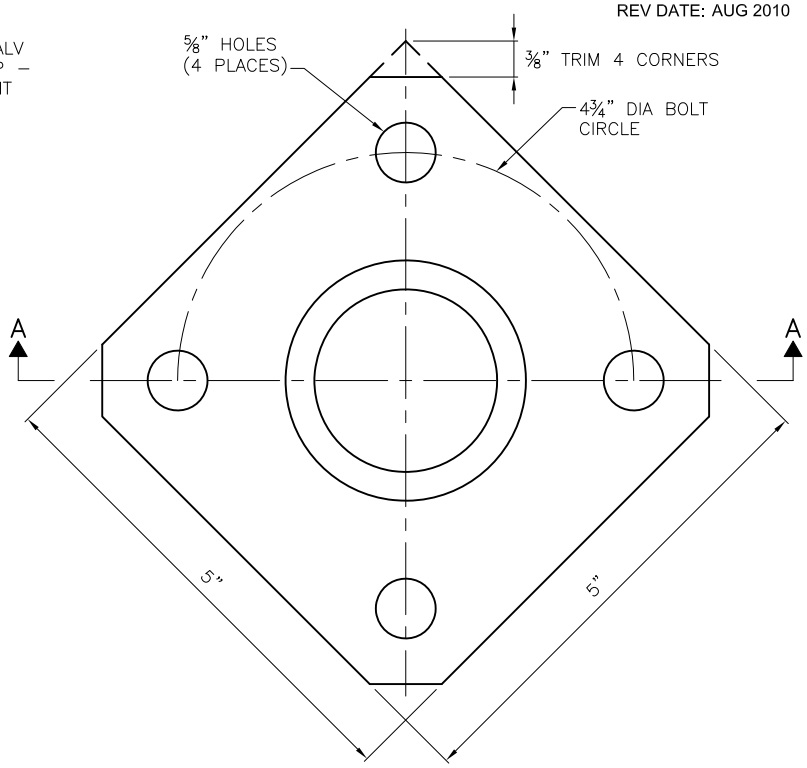
City of Seattle	NOT TO SCALE	OBJECT MARKER INSTALLATION IN TRAFFIC CIRCLE

REV DATE: AUG 2010



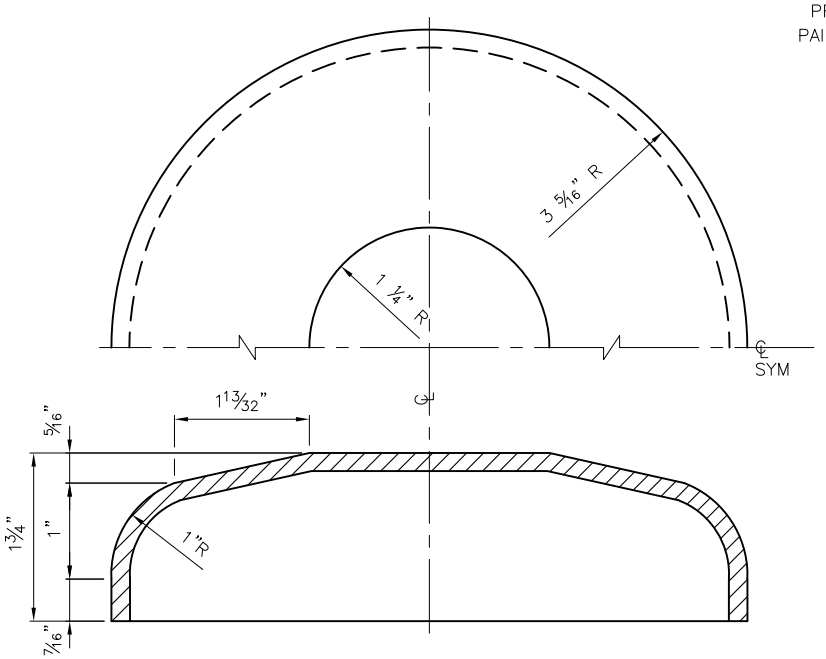
METER POST CAP

(TO BE USED W/ SIGN INSTALLATION)



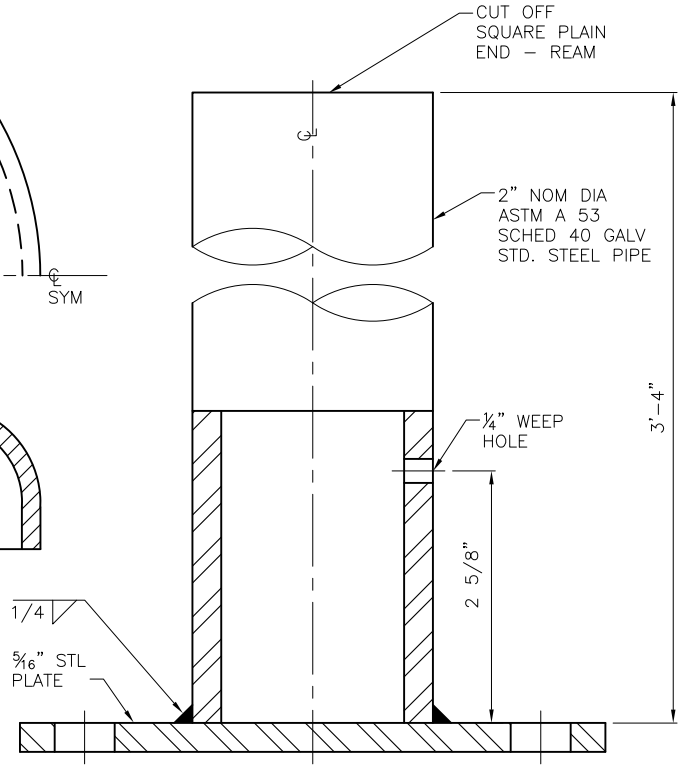
METER POST

PRIME WITH EPOXY ZINC PHOSPHATE PRIMER.
PAINT WITH TWO (2) COATS OF POLY URETHANE PAINT, ALUMINUM COLOR



METER POST BASE CANOPY

MATERIAL: 0.062' 2–5–0 ALUM

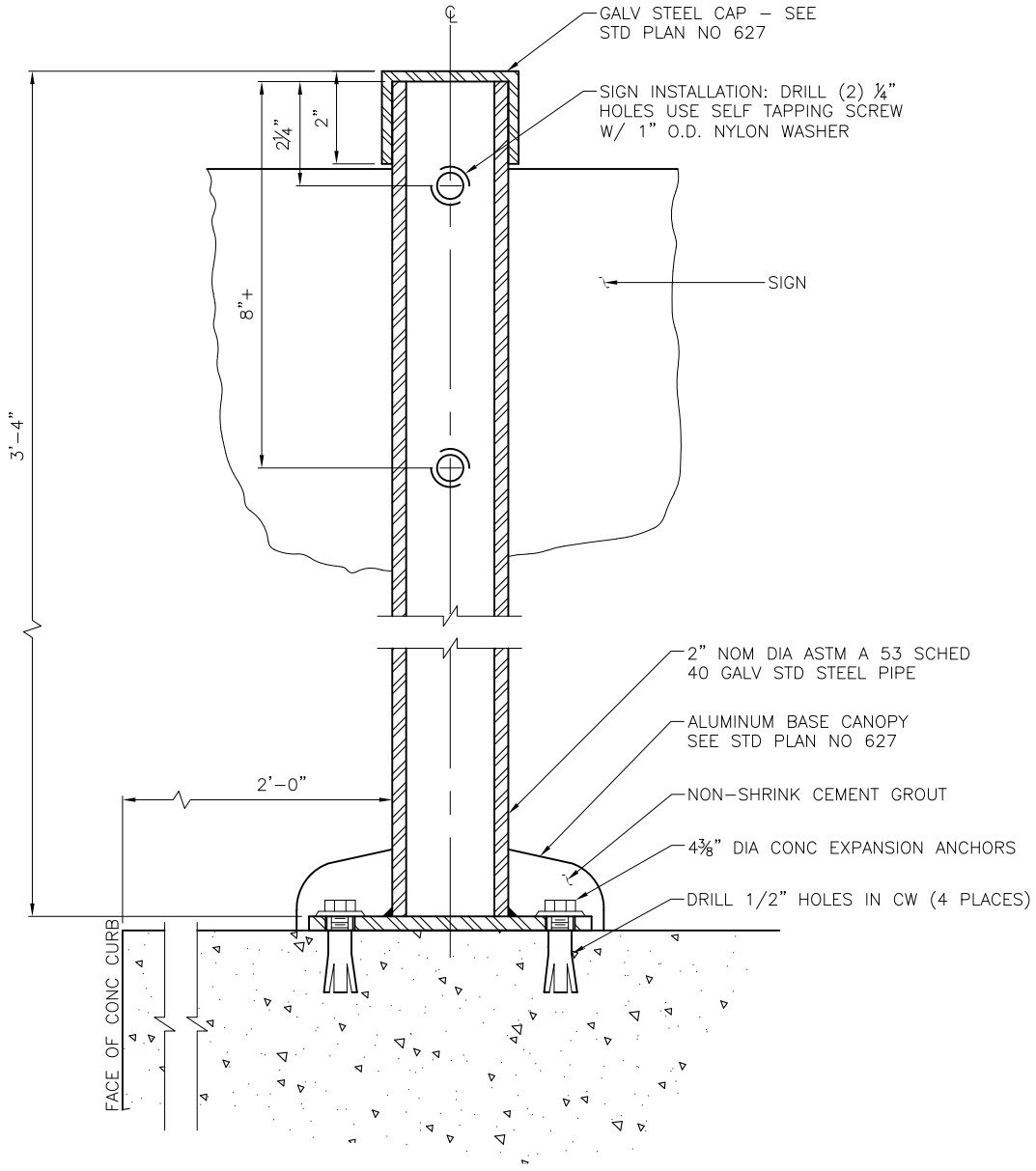


SECTION A–A

REF STD SPEC SEC 8-21

City of Seattle | NOT TO SCALE | PARKING METER POST & ACCESSORIES

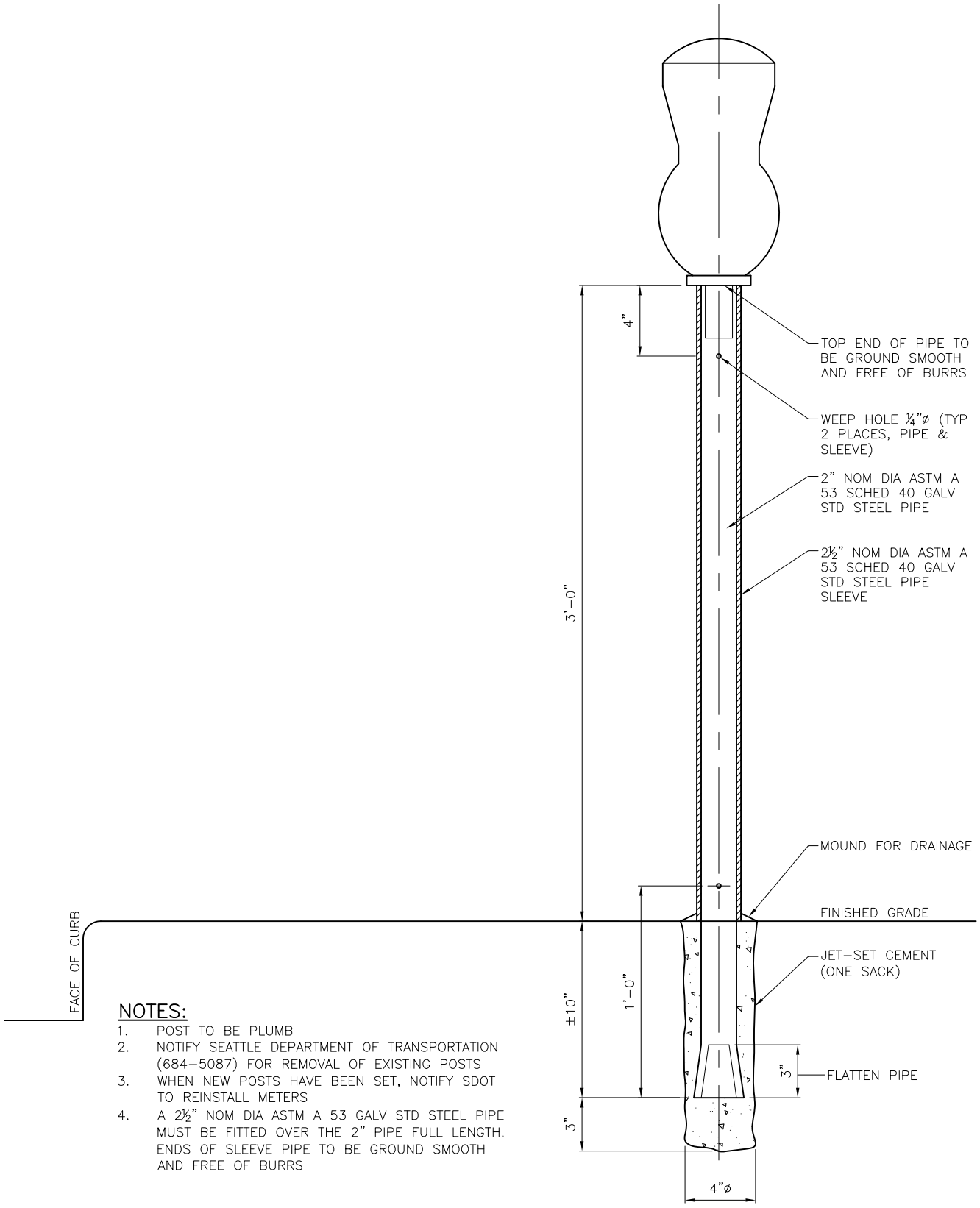
REV DATE: AUG 2013



REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	SURFACE MOUNT METER POST INSTALLATION DETAIL

REV DATE: 2003



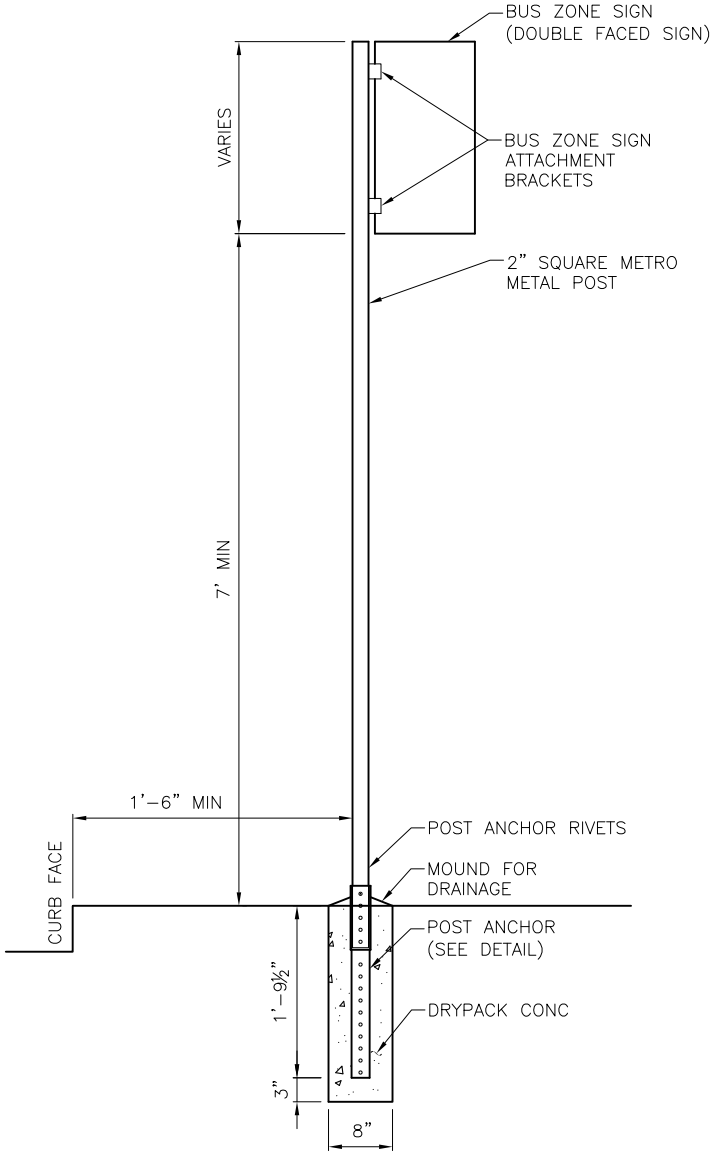
NOTES:

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 SDOT TO REINSTALL METERS
4. A 2½" NOM DIA ASTM A 53 GALV STD STEEL PIPE MUST BE FITTED OVER THE 2" PIPE FULL LENGTH. ENDS OF SLEEVE PIPE TO BE GROUND SMOOTH AND FREE OF BURRS

REF STD SPEC SEC 8-21

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

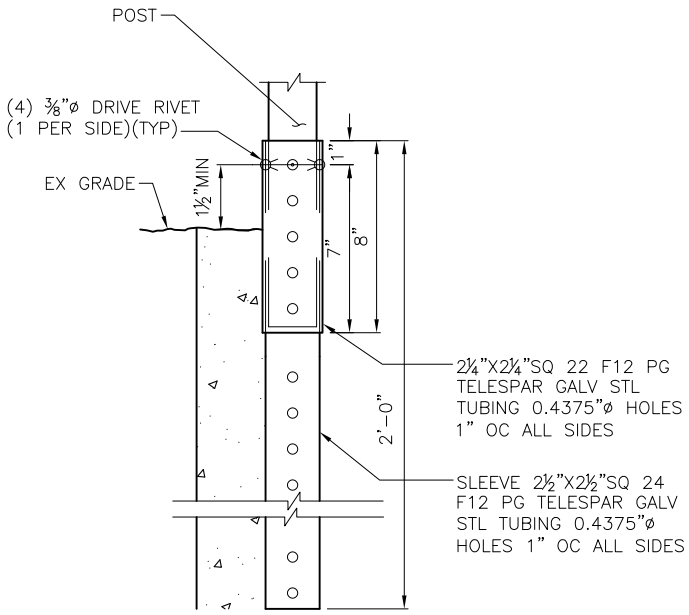
REV DATE: JAN 2017



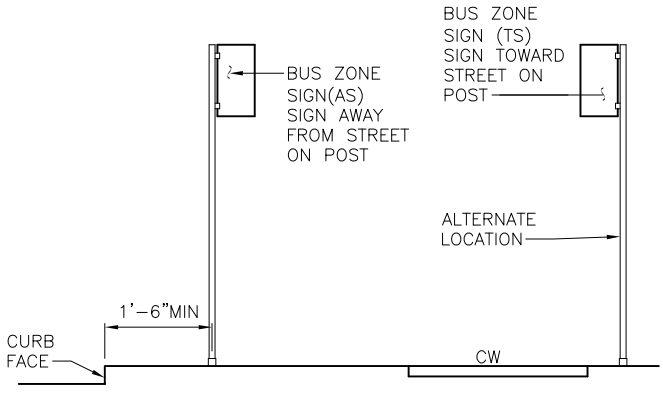
DIRECT BURIAL INSTALLATION

NOTES:

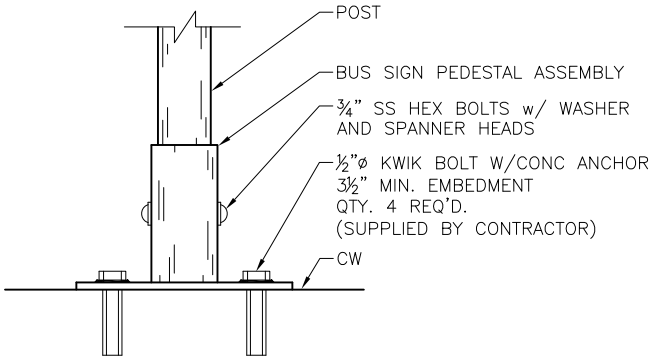
1. POST ANCHOR RIVETS SHALL BE 1½" ABOVE GROUND LEVEL
2. ATTACHMENT BRACKETS SHALL FACE AWAY FROM STREET AS WHEN POST IS LOCATED 3'-0" FROM EDGE OF CURB. ATTACHMENT BRACKETS SHALL FACE TOWARDS STREET (TS) WHEN POST IS LOCATED AT BACK SIDE OF SIDEWALK
3. FOR POST RELOCATIONS, OLD CONCRETE SHALL BE REMOVED FROM POST
4. ALL SIGNS, STRUCTURES AND HARDWARE PROVIDED BY METRO 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 3½" EMBEDMENT THROUGH THE GROUT INTO THE EXISTING CONCRETE.



POST ANCHOR DETAIL



SIGN LOCATION DETAIL

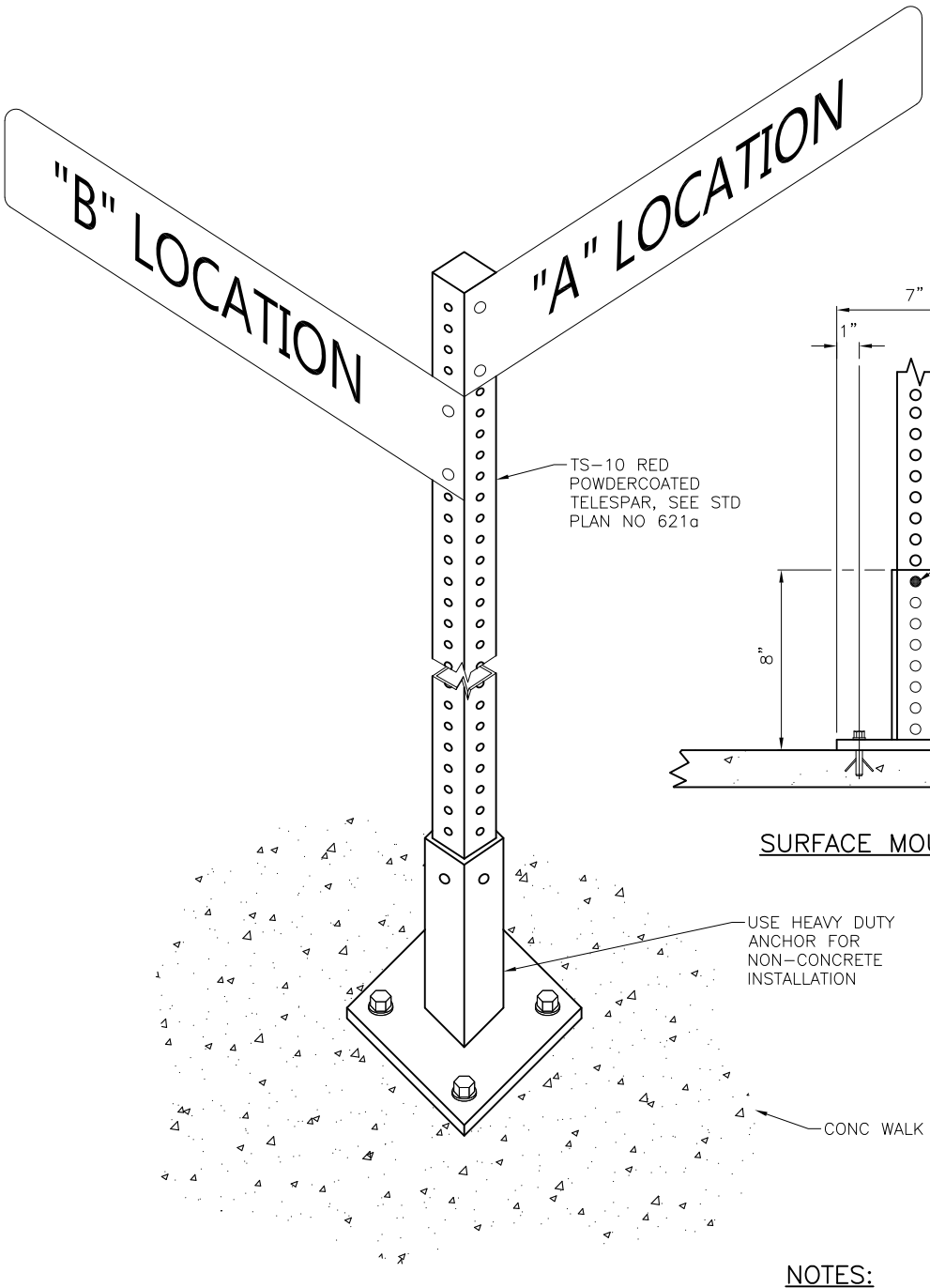


SURFACE MOUNT INSTALLATION

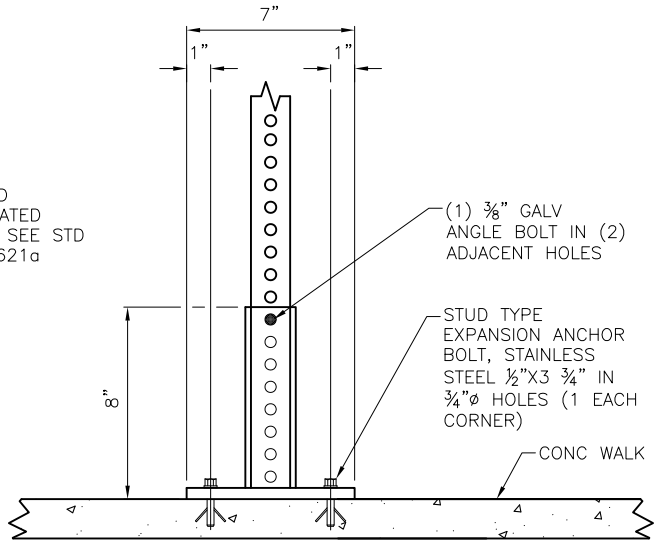
REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	METRO BUS ZONE SIGN INSTALLATION

REV DATE: JAN 2017



SURFACE MOUNT



SURFACE MOUNT DETAIL

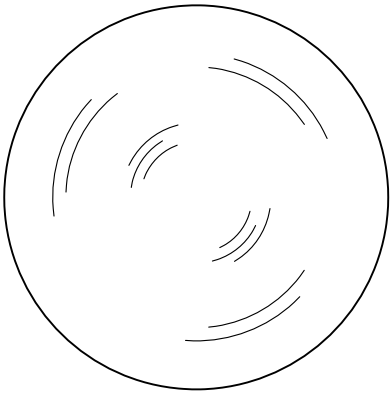
NOTES:

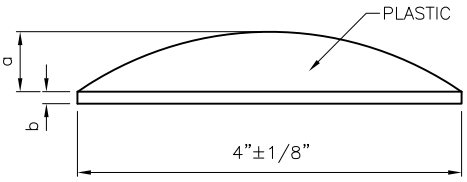
1. WAYFINDING BLADE SHALL BE INSTALLED POINTING IN THE DIRECTION OF THE LOCATION ON BLADE.
2. CITY OF SEATTLE SHALL FABRICATE WAYFINDING BLADES AND SUPPLY MOUNTING HARDWARE AT PROJECT OR CONTRACTOR EXPENSE.
3. MAINTAIN 8 FEET MINIMUM OF VERTICAL CLEARANCE FROM CONCRETE WALK TO THE BOTTOM OF PEDESTRIAN WAYFINDING BLADES.

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	PEDESTRIAN WAY FINDING SIGN

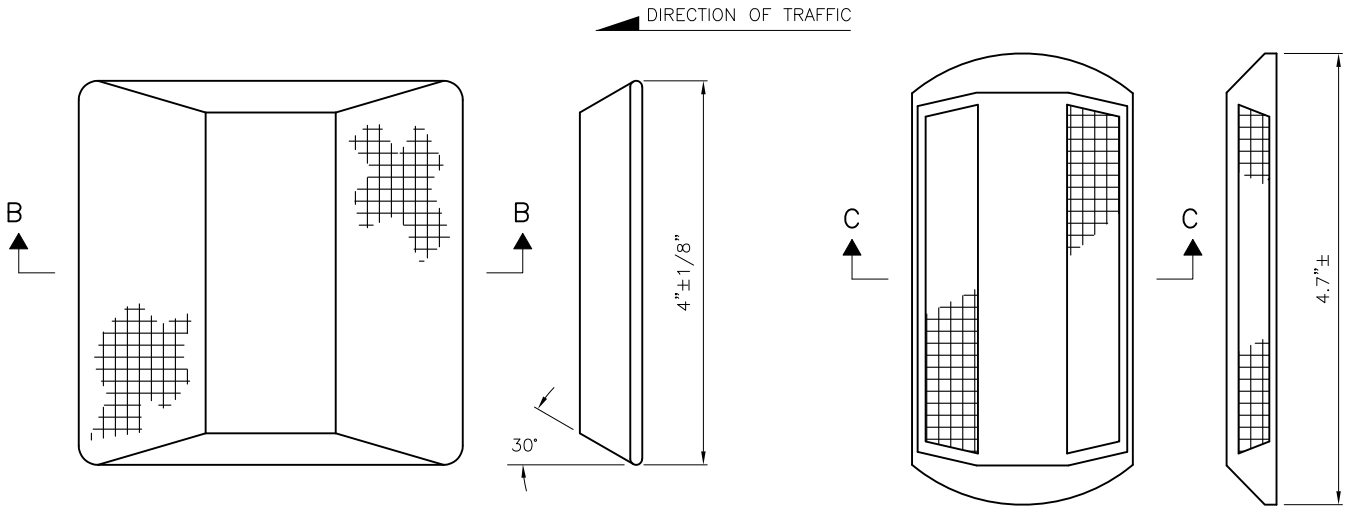
REV DATE: AUG 2013

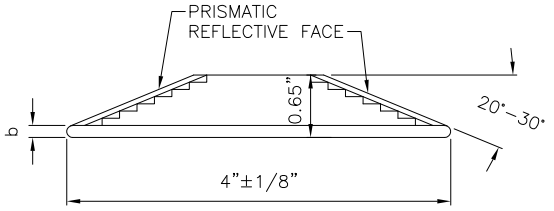




LANE MARKER–TYPE 1

a=5/8"±1/8"
b=1/8"±1/16"

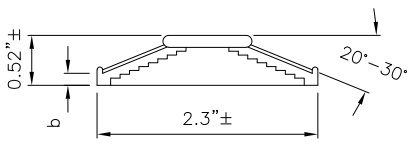




SECTION B–B

LANE MARKER–TYPE 2A

4"PRISMATIC REFLECTIVE MARKER



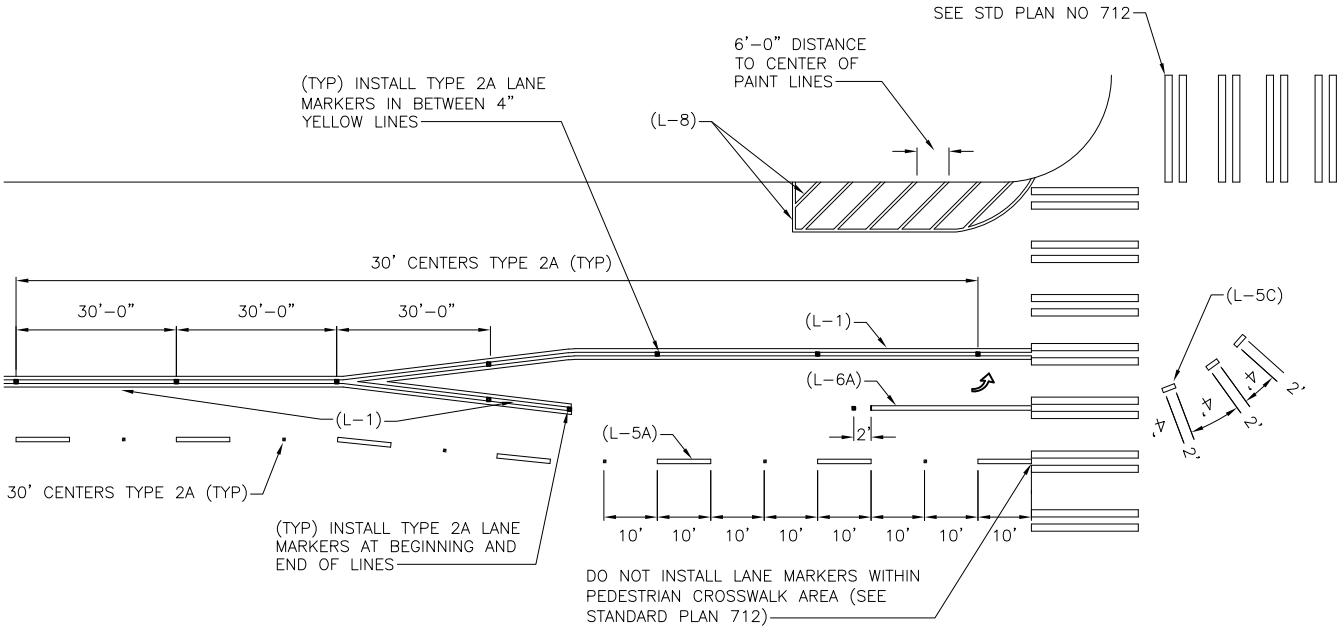
SECTION C–C

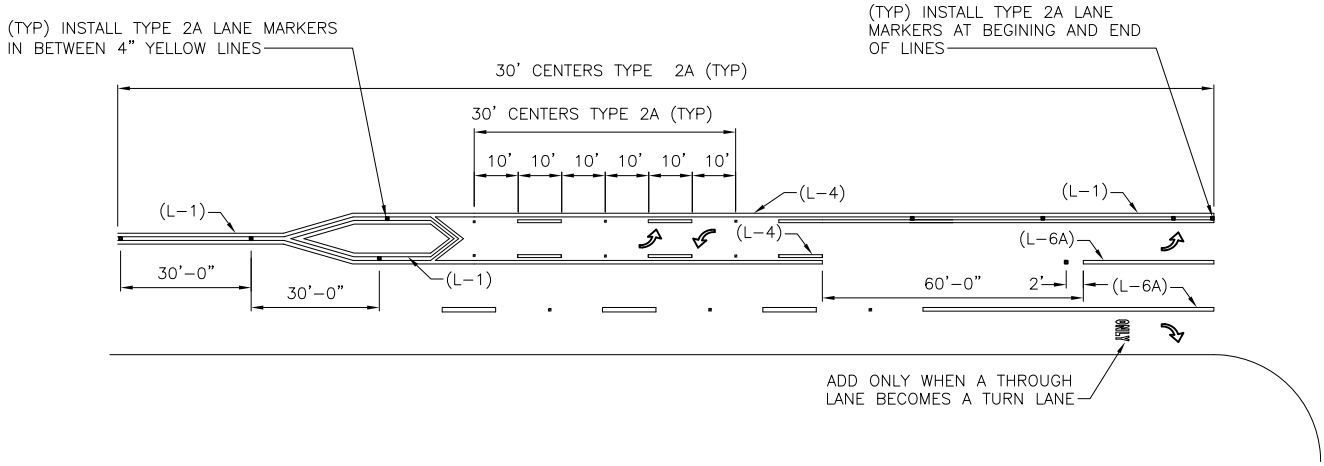
LANE MARKER–TYPE 2B

REF STD SPEC SEC 8-08 & 9-21

City of Seattle	NOT TO SCALE	TRAFFIC BUTTONS & LANE MARKERS

REV DATE: JAN 2017





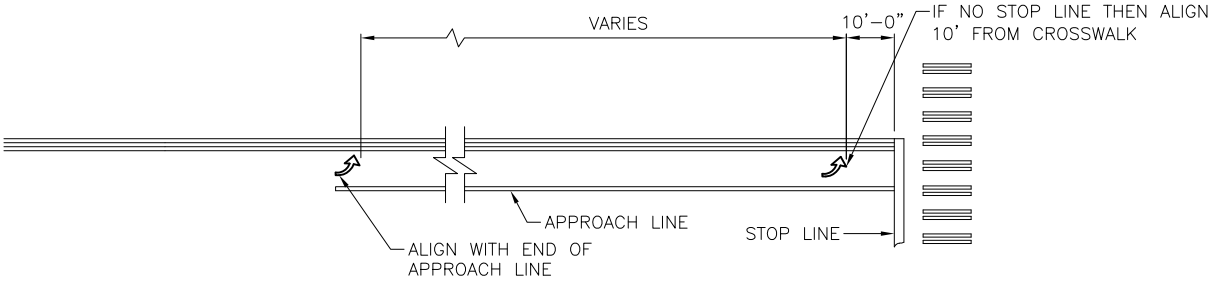
TYPICAL TYPE 2A LANE MARKER INSTALLATION DETAILS

LANE MARKERS SHALL BE INSTALLED TO CONFORM WITH TYPE OF PAVEMENT MARKING (DESIGNATED AS L-1, L-3, L-4, L-5A) AND ARE TO BE ARRANGED AND SPACED AS SHOWN ON THIS DRAWING. COLOR OF LANE MARKERS IS TO MATCH COLOR OR PAVEMENT MARKINGS. EXISTING CHANNELIZATION IN CONFLICT WITH NEW OR REVISED CHANNELIZATION SHALL BE REMOVED (SEE STD SPEC SEC 2-02.3(3)J)

REF STD SPEC SEC 8-22

City of Seattle	NOT TO SCALE	TYPICAL LEFT TURN CHANNELIZATION AND LEGEND PLACEMENT

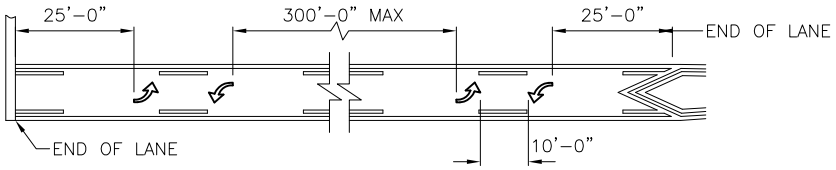
JAN 2017



TYPICAL LEFT TURN CHANNELIZATION

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

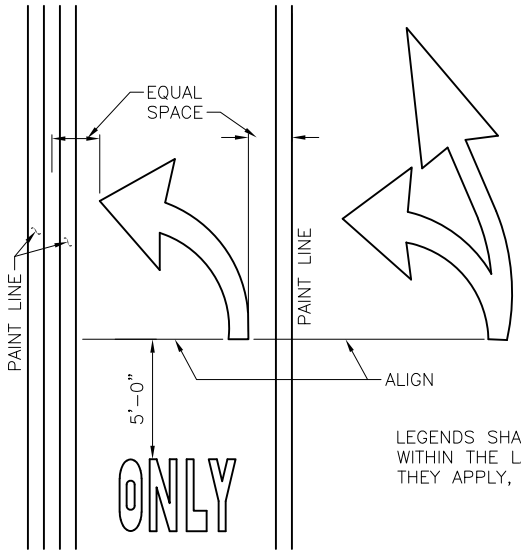
APPROACH LINE LENGTH	LEGEND SETS
LESS THAN 50 FEET	1 SET AT X–WALK END OF POCKET
50 FEET–120 FEET	2 SETS
125 FEET–300 FEET	3 SETS (SECOND LEGEND LOCATED MIDWAY BETWEEN FIRST AND LAST LEGENDS)
OVER 300 FEET	ADDITIONAL SETS SPACED AT APPROX 100 FT INTERVALS BETWEEN FIRST AND LAST SETS



TYPICAL TWO WAY LEFT TURN LANES

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

LANE LENGTH	LEGEND SETS
LESS THAN 50 FEET	1 SET (CENTERED BETWEEEN BOTH ENDS OF LANE)
0 FEET–300 FEET	2 SETS
OVER 300 FEET	3 SETS (SECOND LEGEND LOCATED MIDWAY BETWEEN FIRST AND LAST LEGENDS) ADDITIONAL SETS SPACED AT APPROX 300 FT INTERVALS



LEGENDS SHALL BE CENTERED WITHIN THE LANE TO WHICH THEY APPLY, AS SHOWN

LEGEND COMBINATIONS

OBLIQUE LEFT & 90° LEFT LEGENDS AND OBLIQUE RIGHT & 90° RIGHT LEGENDS MAY BE COMBINED AS SHOWN

REF STD SPEC SEC 8-22

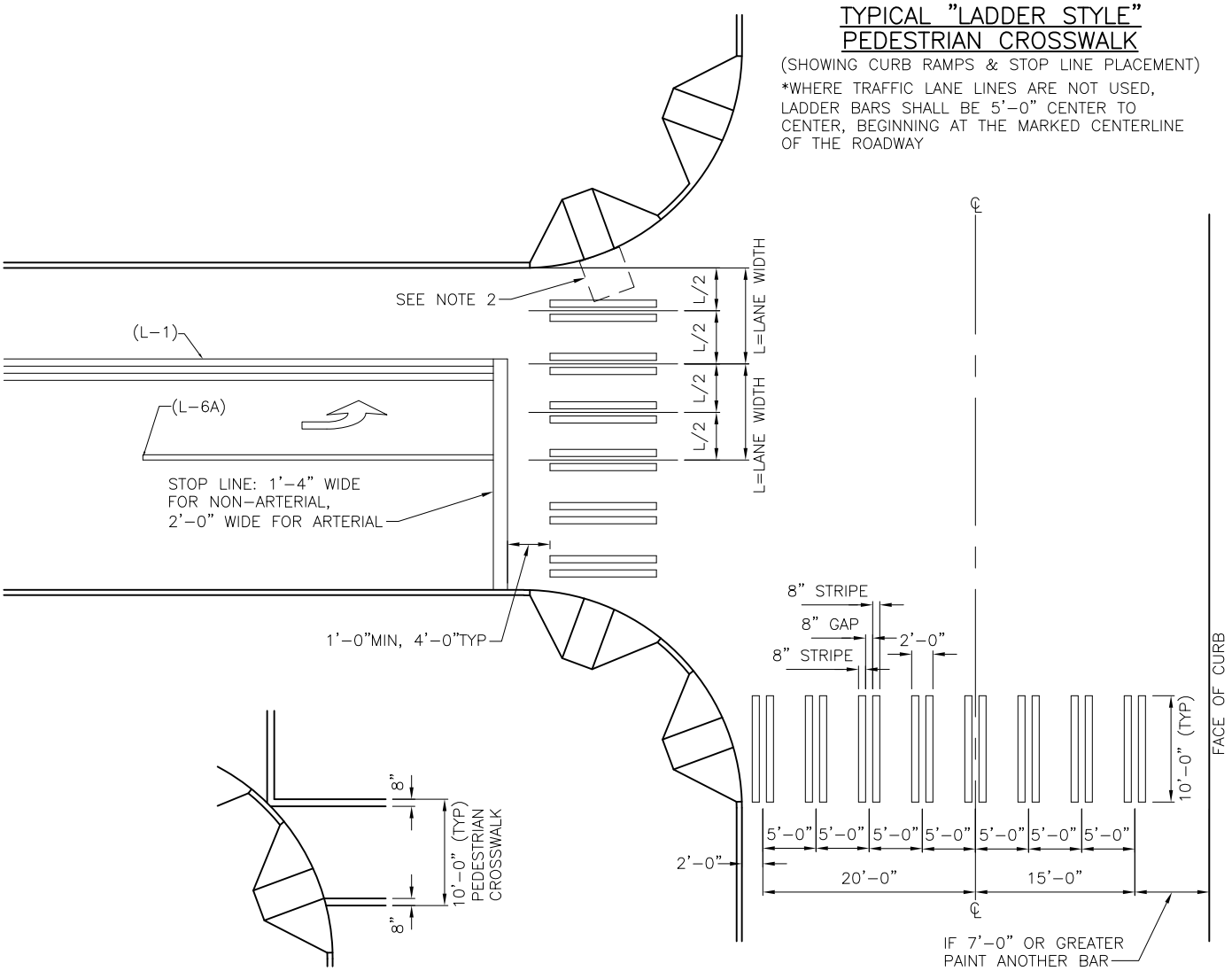
City of Seattle	NOT TO SCALE	TYPICAL LEFT TURN CHANNELIZATION AND LEGEND PLACEMENT

REV DATE: JAN 2017

TYPICAL "LADDER STYLE" PEDESTRIAN CROSSWALK

(SHOWING CURB RAMPS & STOP LINE PLACEMENT)

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



TYPICAL TRANSVERSE LINE CROSSWALK

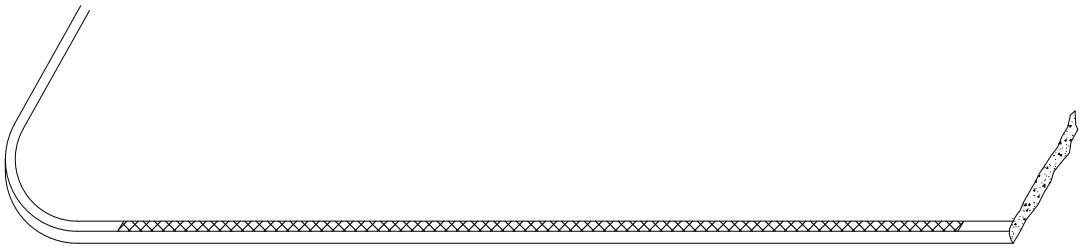
NOTES:

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 1'–0" FROM THE EDGE OF CROSSWALK, STOP LINE MAY BE PLACED UP TO 1'–0" FROM THE CROSSWALK.
4. EXACT LOCATION OF CROSSWALK AND STOP LINES SHALL BE APPROVED BY 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 MUST BE REMOVED.

REF STD SPEC SEC 8-22

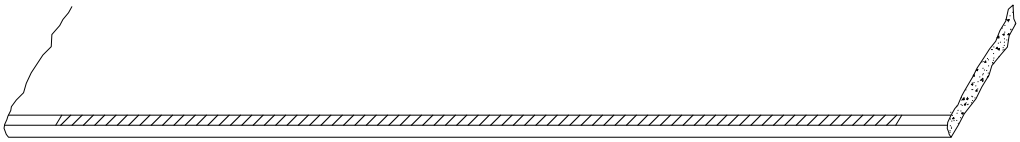
City of Seattle	NOT TO SCALE	TYPICAL CROSSWALK & STOP LINE INSTALLATION DETAILS

REV DATE: 2003

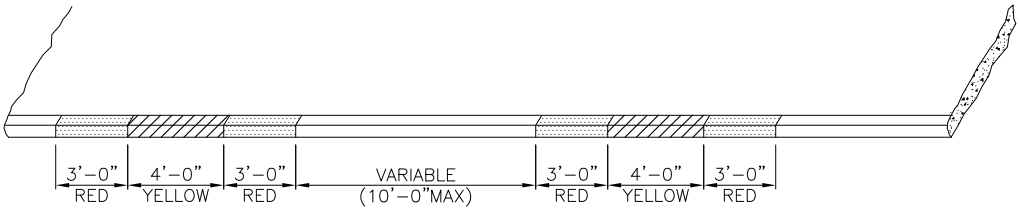


L–10
PASSENGER LOAD ZONE, ETC
(WHITE)

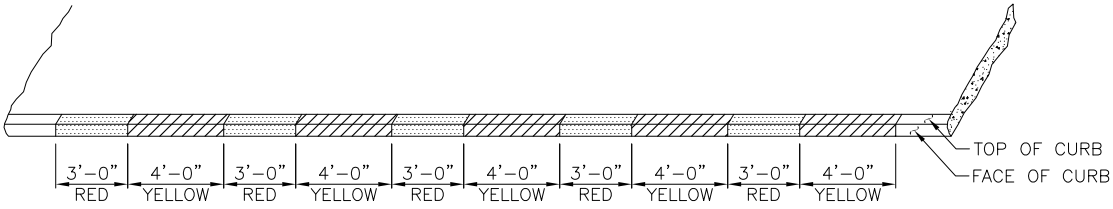
L–11
TOW–AWAY ZONE
(RED)



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



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



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

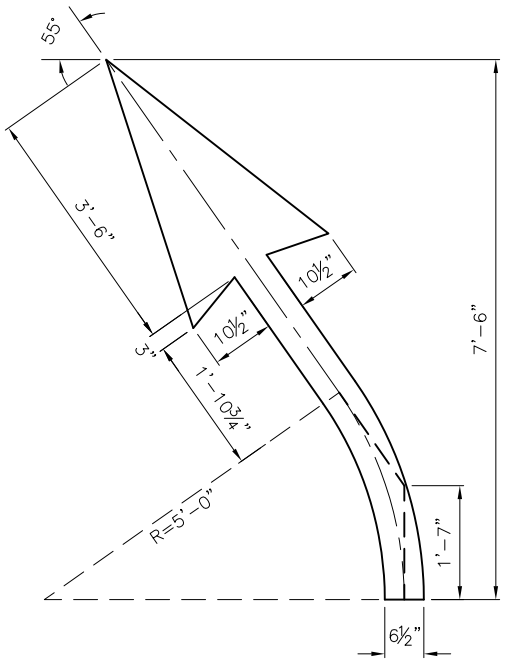
NOTES:

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

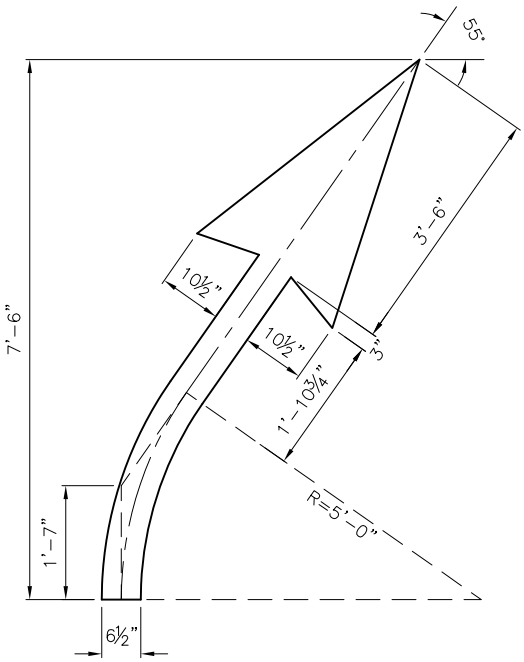
REF STD SPEC SEC 8-22

City of Seattle	NOT TO SCALE	CURB SPACE MARKING DETAILS

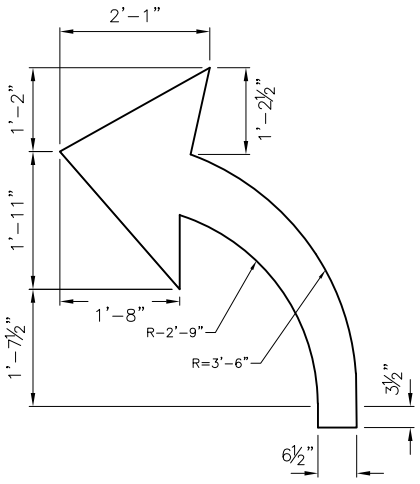
REV DATE: JAN 2017



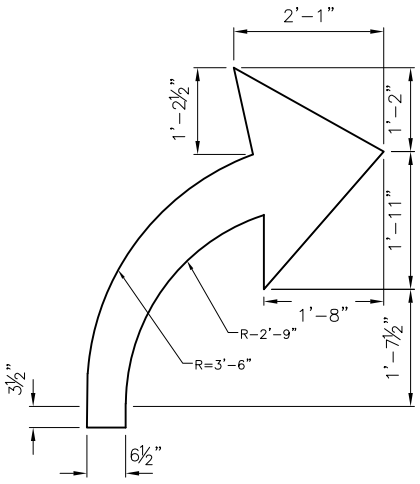
L-18
OBLIQUE LEFT ARROW



L-19
OBLIQUE RIGHT ARROW



L-20
LEFT ARROW

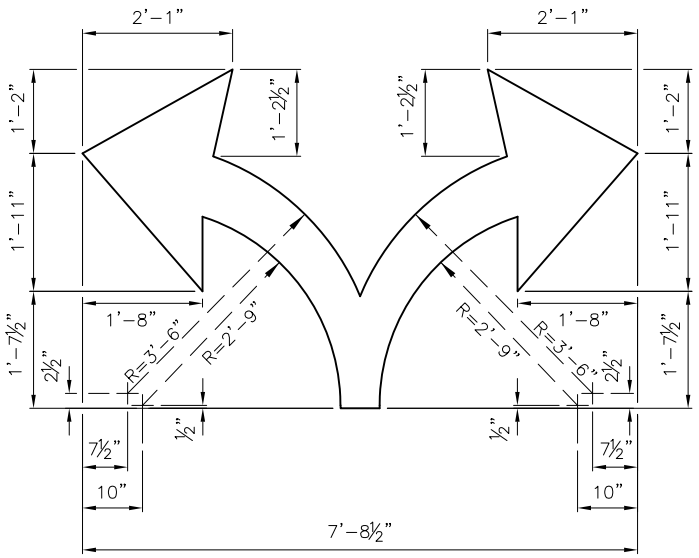


L-21
RIGHT ARROW

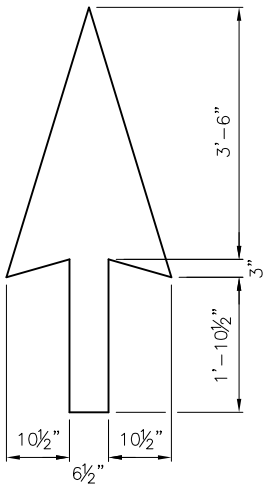
REF STD SPEC SEC 8-22

City of Seattle | NOT TO SCALE | PAVEMENT MARKINGS LEGENDS/SYMBOLS

REV DATE: JAN 2017

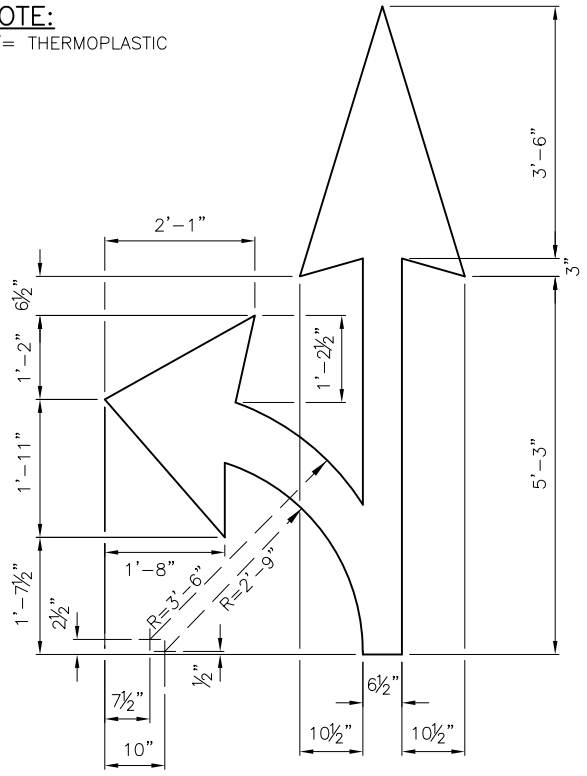


L–17, L–17T
LEFT & RIGHT ARROWS

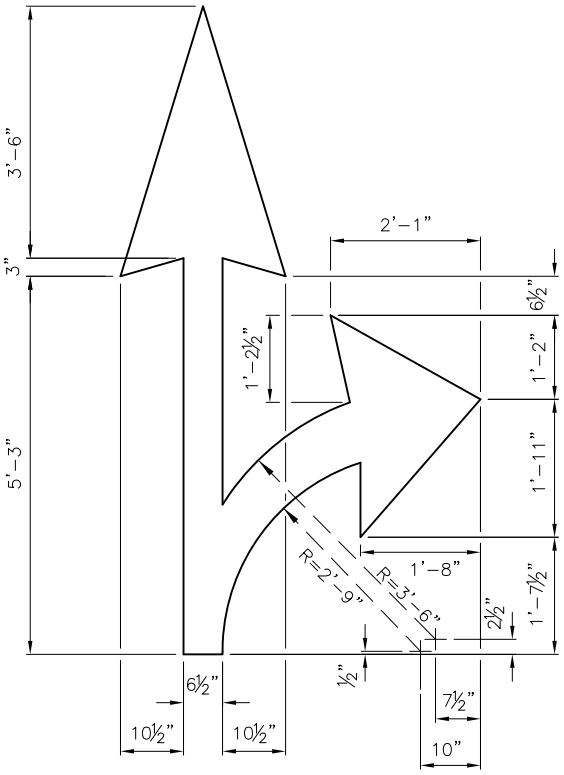


L–22, L–22T
THROUGH ARROW

NOTE:
"T"= THERMOPLASTIC



L–23
LEFT & THROUGH ARROWS

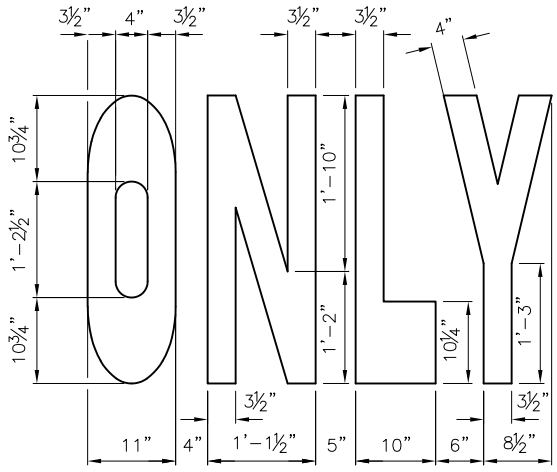


L–24
RIGHT & THROUGH ARROWS

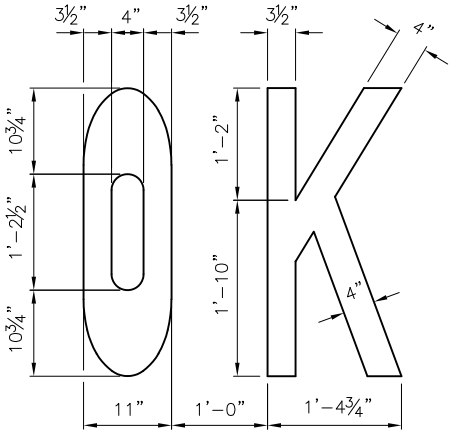
REF STD SPEC SEC 8-22

City of Seattle | NOT TO SCALE | PAVEMENT MARKINGS LEGENDS/SYMBOLS

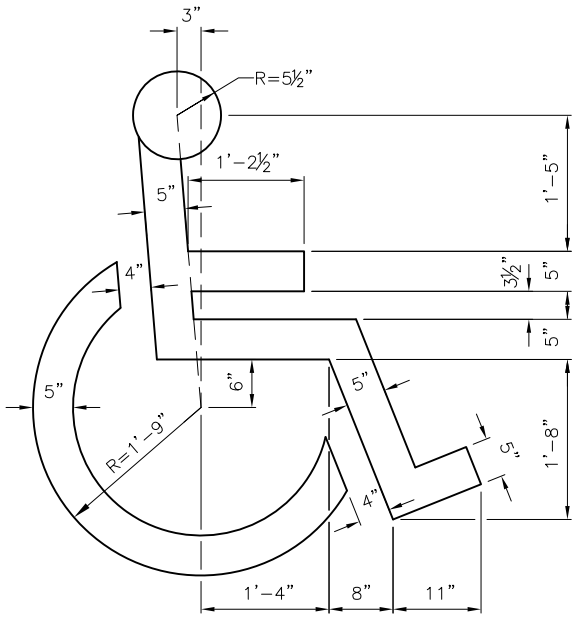
REV DATE: JAN 2017



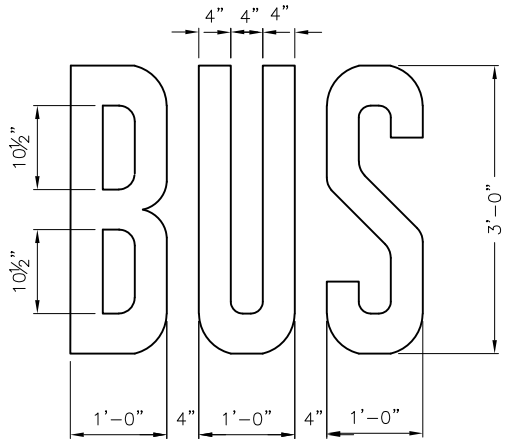
L–25, L–25T
"ONLY" LEGEND



L–26, L–26T
"OK" LEGEND



L–29, L–29T
DISABLED PERSON SYMBOL



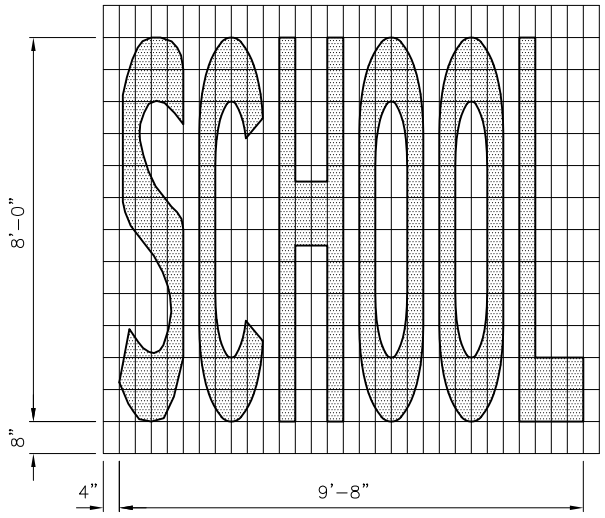
L–30, L–30T
"BUS" LEGEND

NOTE:
"T"= THERMOPLASTIC

REF STD SPEC SEC 8-22

City of Seattle	NOT TO SCALE	PAVEMENT MARKINGS LEGENDS/SYMBOLS

REV DATE: JAN 2017



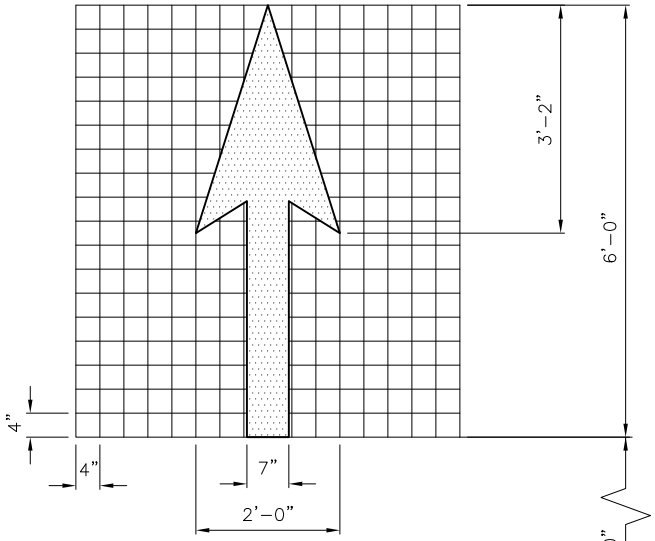
L–35, L–35T
"SCHOOL" LEGEND

REF STD SPEC SEC 8-22

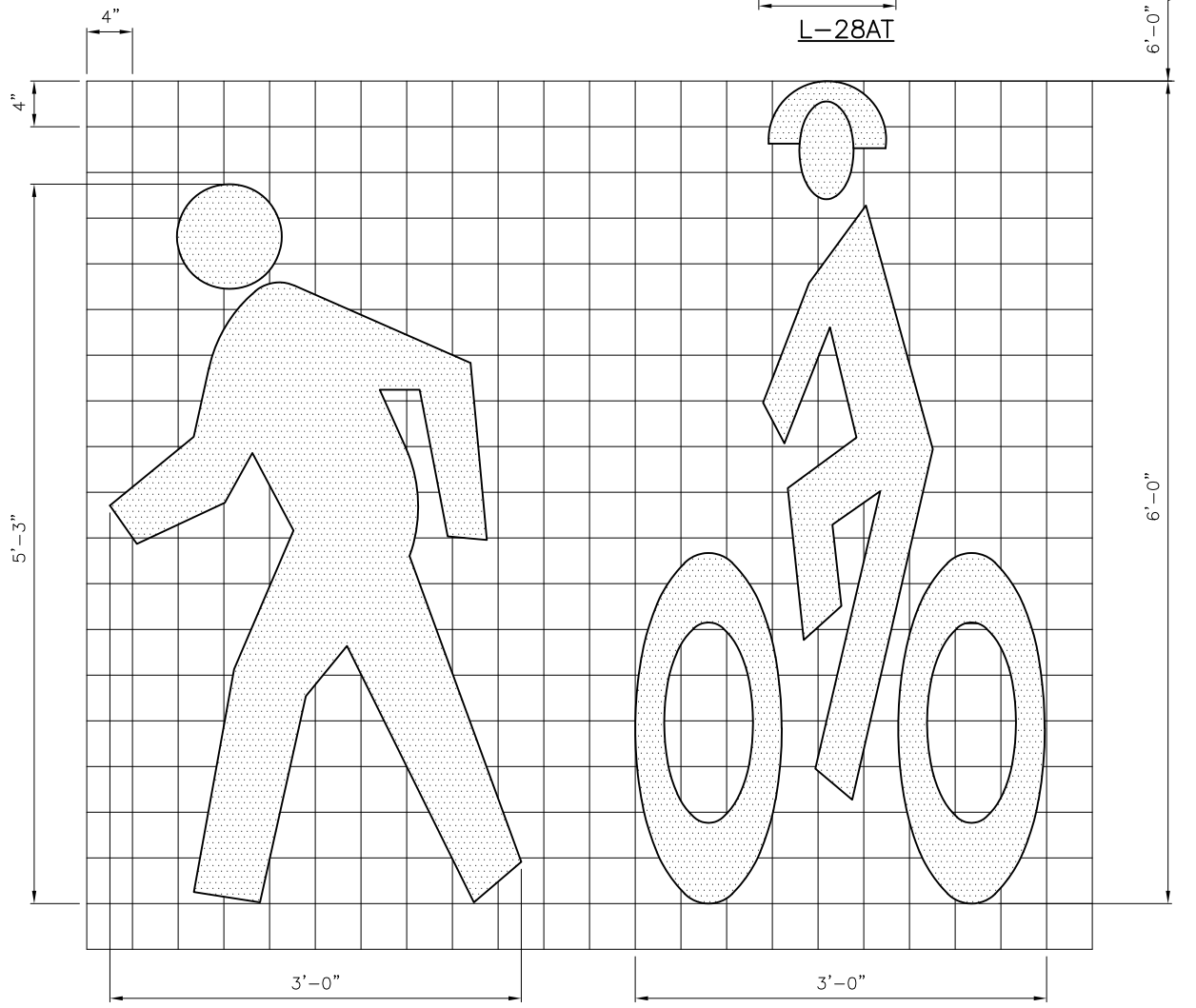
City of Seattle	NOT TO SCALE	PAVEMENT MARKINGS LEGENDS/SYMBOLS

REV DATE: OCT 2014

NOTES:
1. "T" = THERMOPLASTIC
2. L–28AT INCLUDES BICYCLE SYMBOL AND ARROW



L–28AT



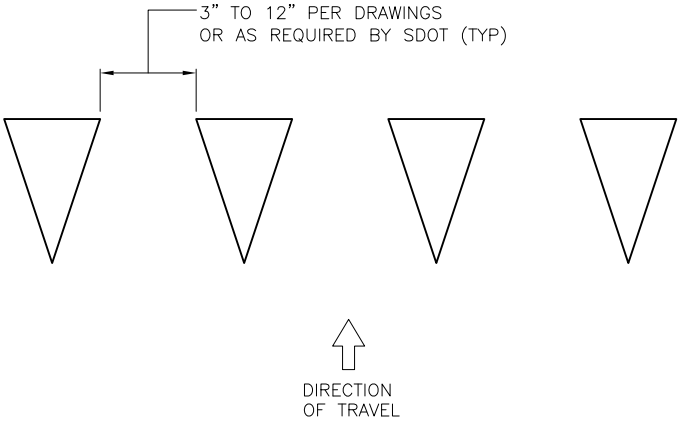
L–27T
PEDESTRIAN STYLE

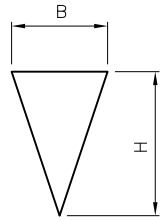
L–28T
BICYCLIST SYMBOL
(INCLUDES L–28A, LT–28AT)
(SEE NOTE 2)

REF STD SPEC SEC 8-22

City of Seattle | NOT TO SCALE | BICYCLIST & PEDESTRIAN SYMBOLS

REV DATE: 2005





(1.5 x B)=H

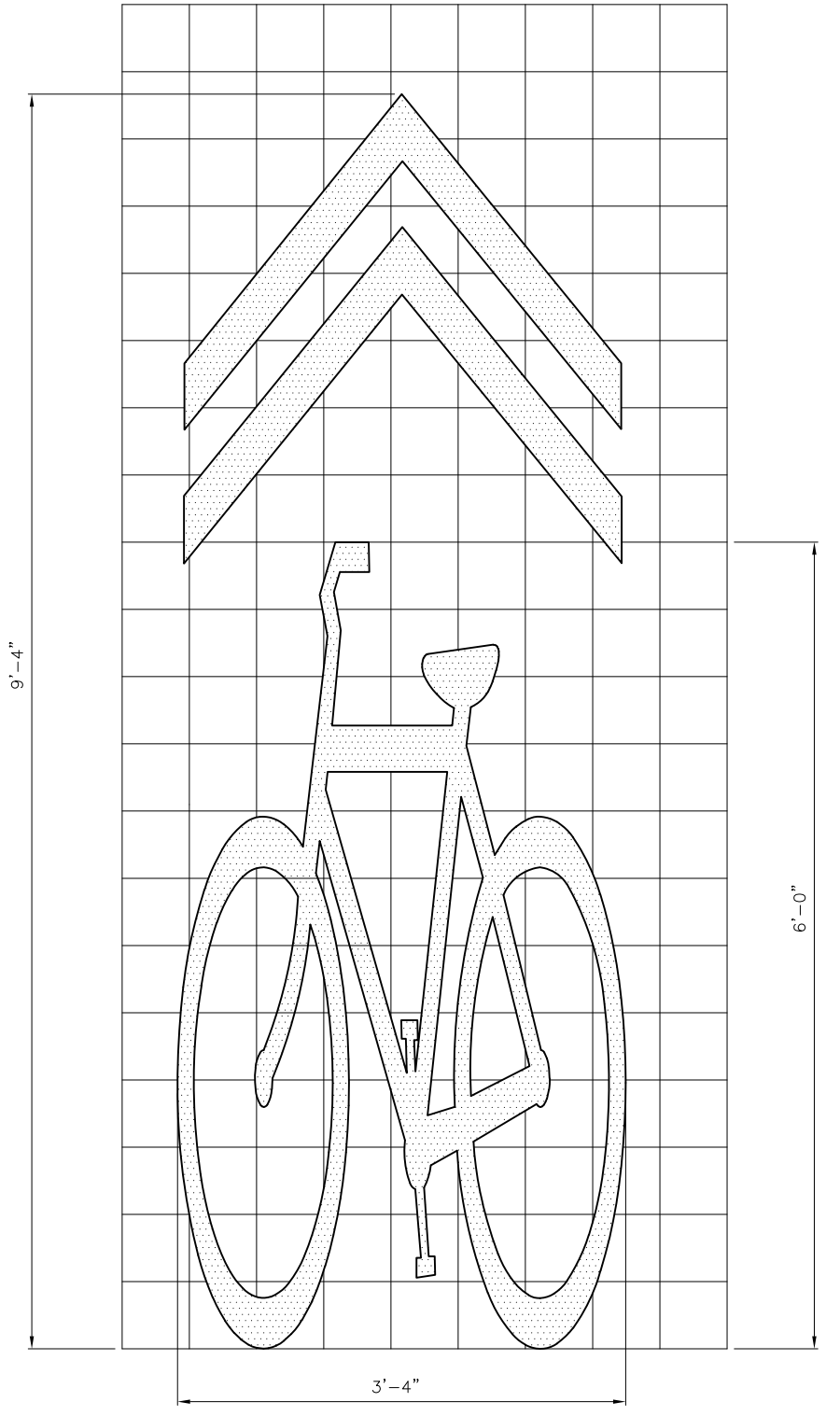
B = BASE WIDTH (12" OR 24" TYPICALLY)
H = HEIGHT (18" OR 36" TYPICALLY)

L–9A, L–9AT
YIELD LINE

REF STD SPEC SEC 8-22

City of Seattle	NOT TO SCALE	PAVEMENT MARKINGS LEGENDS/SYMBOLS

REV DATE: DEC 2013



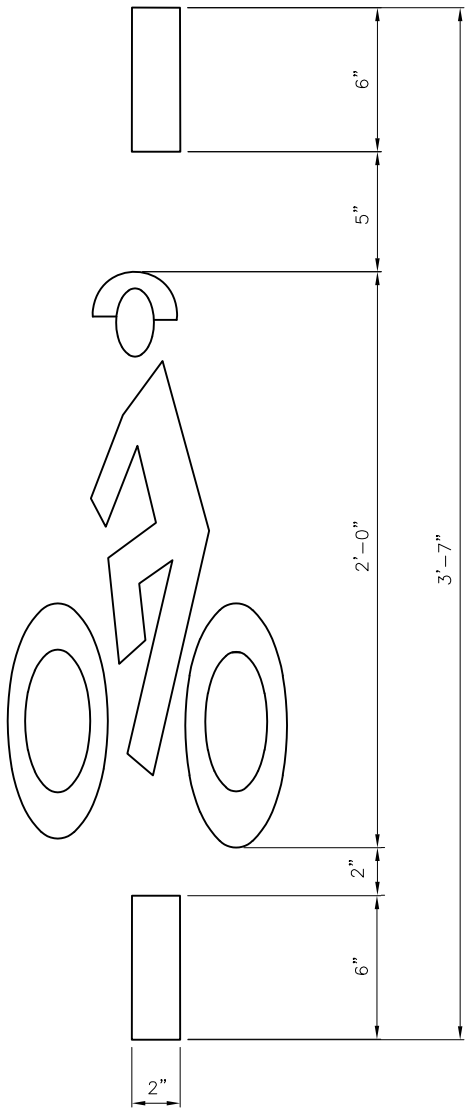
L-28BT
SHARROW

NOTES:
ALL ROUNDED CORNERS MUST HAVE A 1" RADIUS

REF STD SPEC SEC 8-22

City of Seattle	NOT TO SCALE	SHARROW SYMBOL

REV DATE: MAR 2013



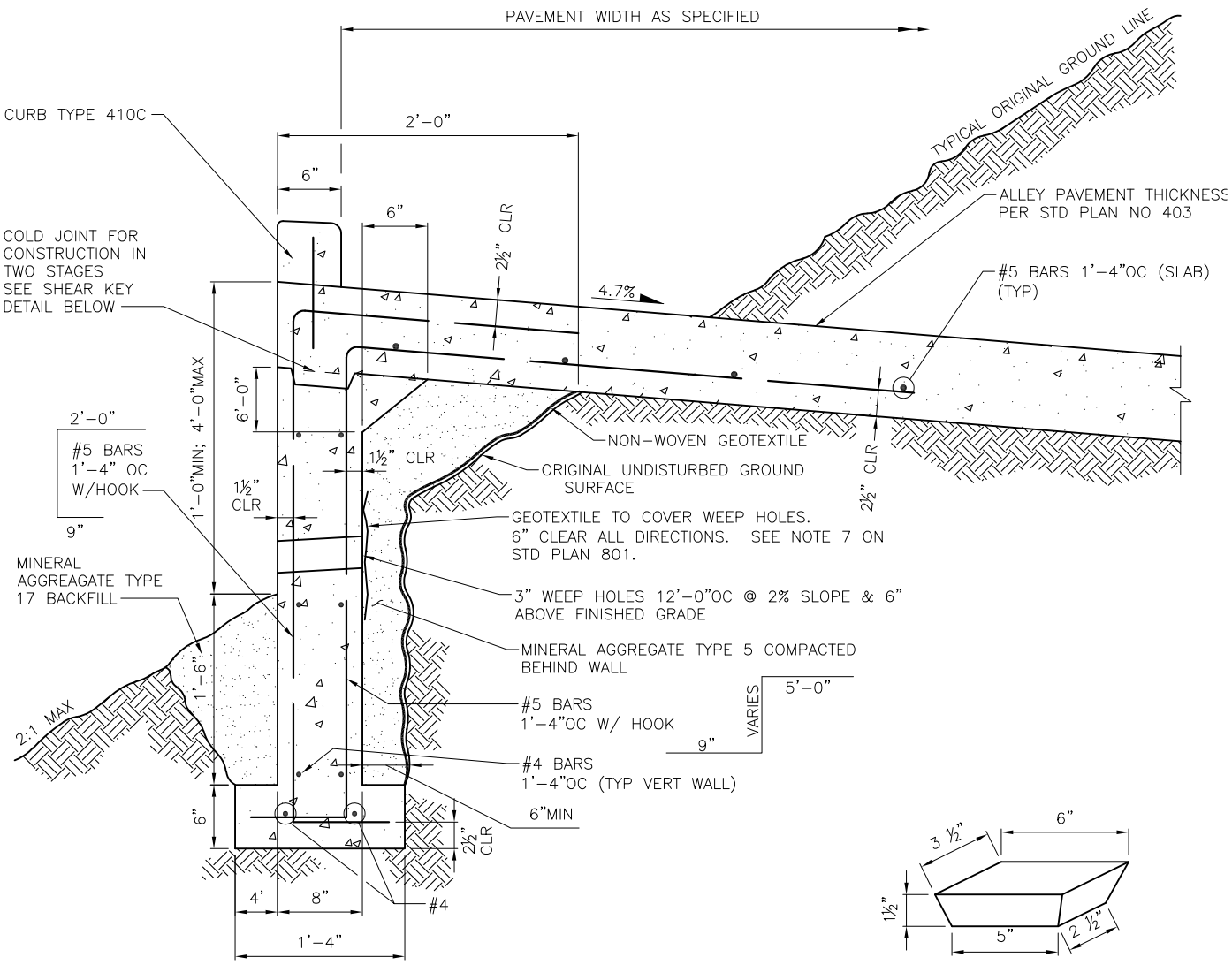
L-36T
BICYCLE DETECTOR LOOP SYMBOL

NOTES:
SEE STD PLAN NO 530b FOR PLACEMENT

REF STD SPEC SEC 8-22

City of Seattle	NOT TO SCALE	BICYCLE DETECTOR PAVEMENT MARKING

REV DATE: FEB 2014



BEVELED BLOCK FOR FORMING SHEAR KEY IN WALL SECTION TO BE MADE FROM STANDARD 2"X4"X6" WOOD OR OTHER SUITABLE MATERIAL (SEE NOTE 3)

SHEAR KEY

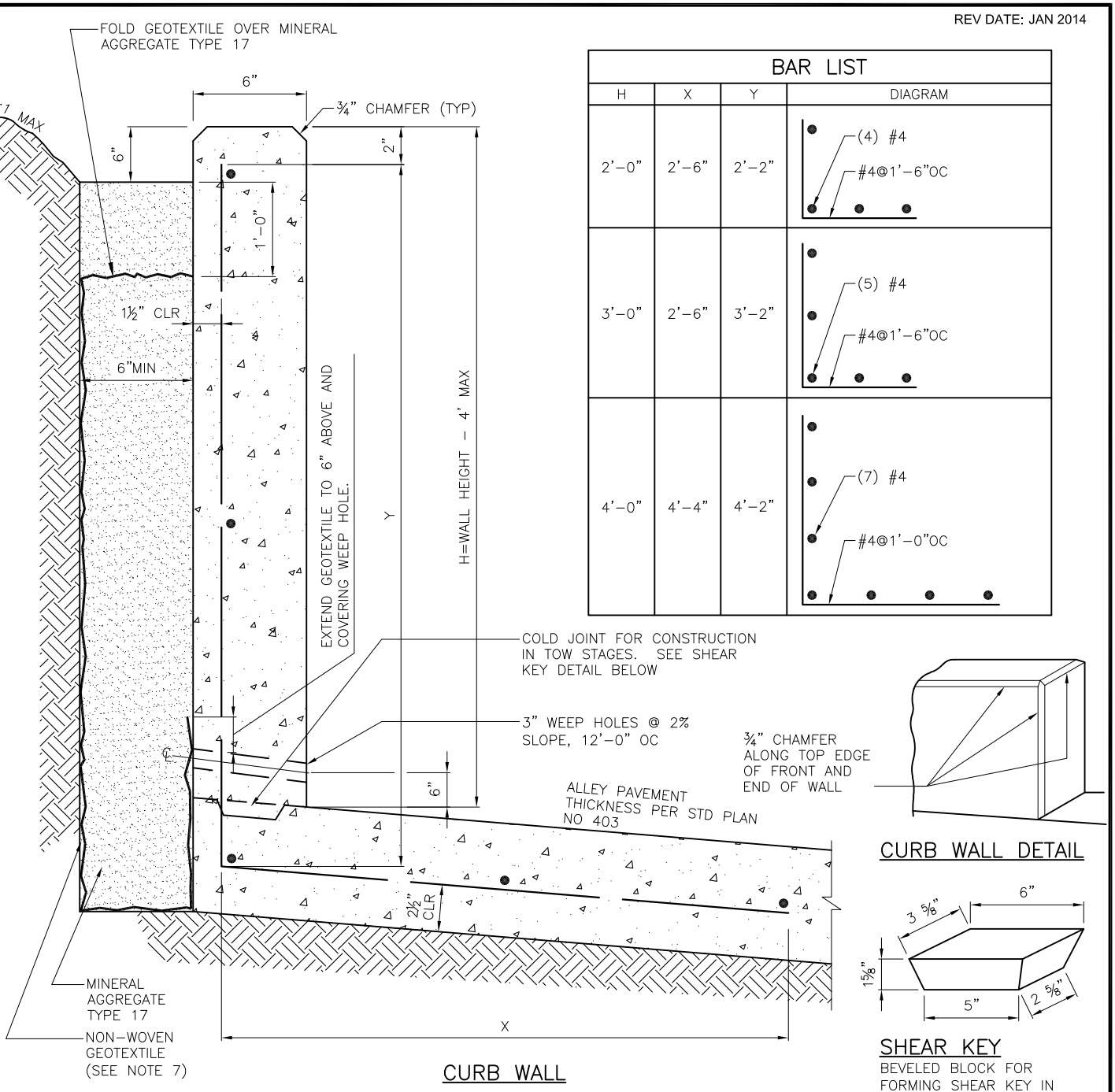
NOTES:

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 MUST BE 2½"
3. WHEN CONSTRUCTION OF ALLEY PAVEMENT IS NOT PLACED INTEGRAL WITH SUPPORT WALL, SHEAR KEYS MUST BE INSTALLED 1'-6"ON CENTERS
4. CONCRETE FOR SUPPORT WALL MUST BE CLASS 4000
5. REINFORCING STEEL ASTM A706 (AASHTO M 31 GRADE 60)
6. VEHICULAR & PEDESTRIAN RAILING PER RIGHT OF WAY IMPROVEMENT MANUAL

REF STD SPEC SEC 8-17, 8-19

City of Seattle	NOT TO SCALE	SUPPORT WALL

REV DATE: JAN 2014



CURB WALL

BAR LIST			
H	X	Y	DIAGRAM
2'-0"	2'-6"	2'-2"	(4) #4, #4@1'-6"OC
3'-0"	2'-6"	3'-2"	(5) #4, #4@1'-6"OC
4'-0"	4'-4"	4'-2"	(7) #4, #4@1'-0"OC

CURB WALL DETAIL

SHEAR KEY

BEVELED BLOCK FOR FORMING SHEAR KEY IN WALL SECTION TO BE MADE FROM STANDARD 2"X4"X6" WOOD OR OTHER SUITABLE MATERIAL (SEE NOTE 4)

NOTES:

1. MATCH WALL THROUGH JOINTS WITH PAVEMENT THROUGH JOINTS. DISCONTINUE HORIZONTAL REINFORCEMENT AT JOINTS AND MAINTAIN 1½' 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 ALLEY PAVEMENT, SHEAR KEY INDENTATIONS SPACED 1'-6"OC MUST BE INSTALLED IN THE PAVEMENT SLAB
5. REINF STEEL ASTM A706 (AASHTO M 31 GRADE 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 8-17

City of Seattle	NOT TO SCALE	CURB WALL