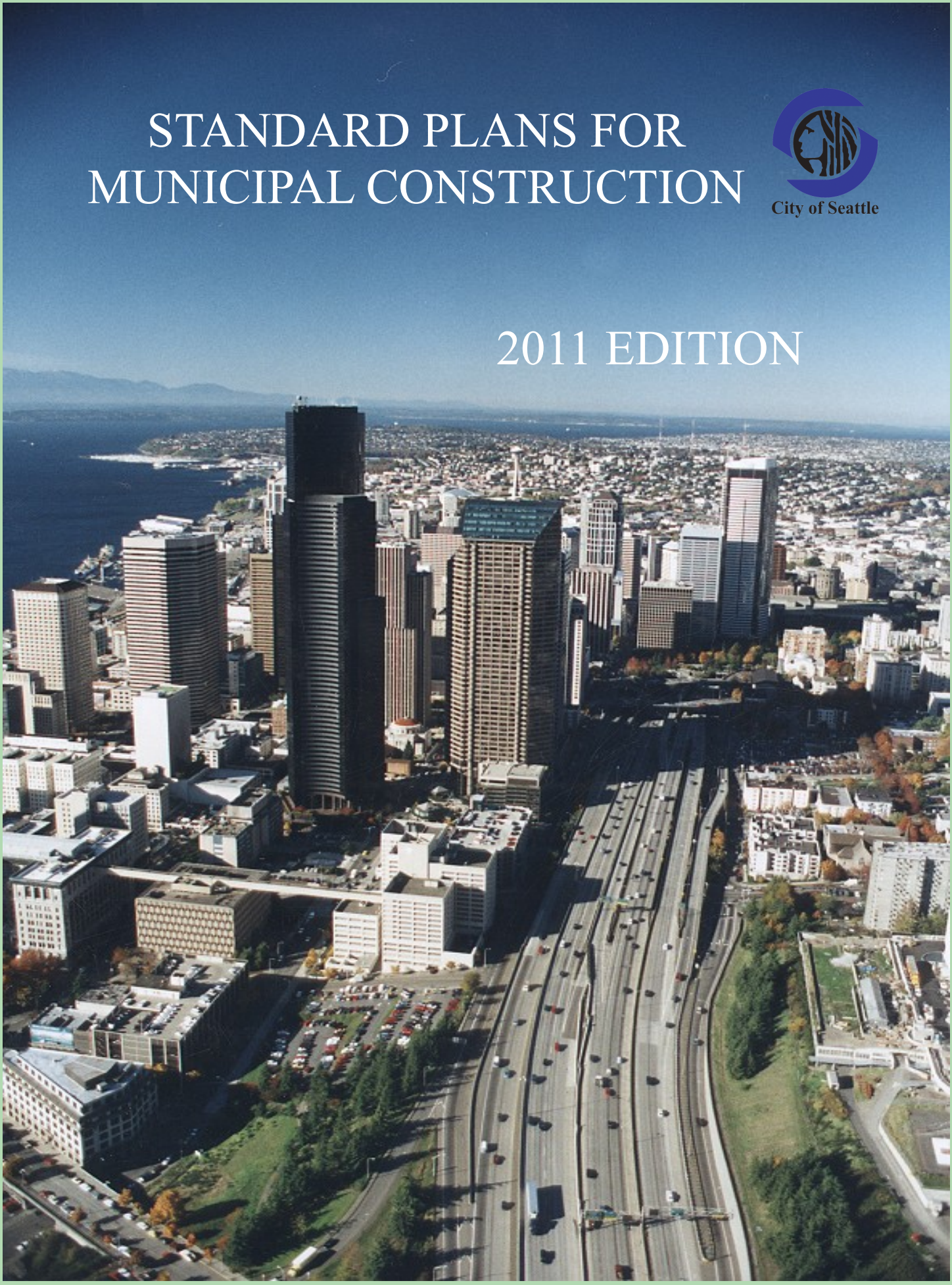
STANDARD PLANS FOR MUNICIPAL CONSTRUCTION

City of Seattle

2011 EDITION



CITY OF SEATTLE

2011 edition

STANDARD PLANS

FOR

MUNICIPAL CONSTRUCTION

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PREFACE

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

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

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

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

http://www.seattle.gov/util/Engineering/Standard_Plans_&_Specs

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

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

Department of Financial and Administrative Services: Maura Donoghue, Thuy Hong and Nancy Locke

Seattle Public Utilities: Dennis Hess, Jason Miller, Jeff Fowler, Liz Anderson and Steve Read

Seattle Department of Transportation: Mike Moderie, Greg Izzo and Doug Stanley

Seattle Parks and Recreation: Rebecca Rufin

Seattle City Light: Mike Nordin

Seattle Center: Bonnie Pendergrass

Seattle Law Department: Bill McGillin

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

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

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

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2011 Edition City of Seattle Standard Plans for Municipal Construction

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

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2011 Edition City of Seattle Standard Plans for Municipal Construction

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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)

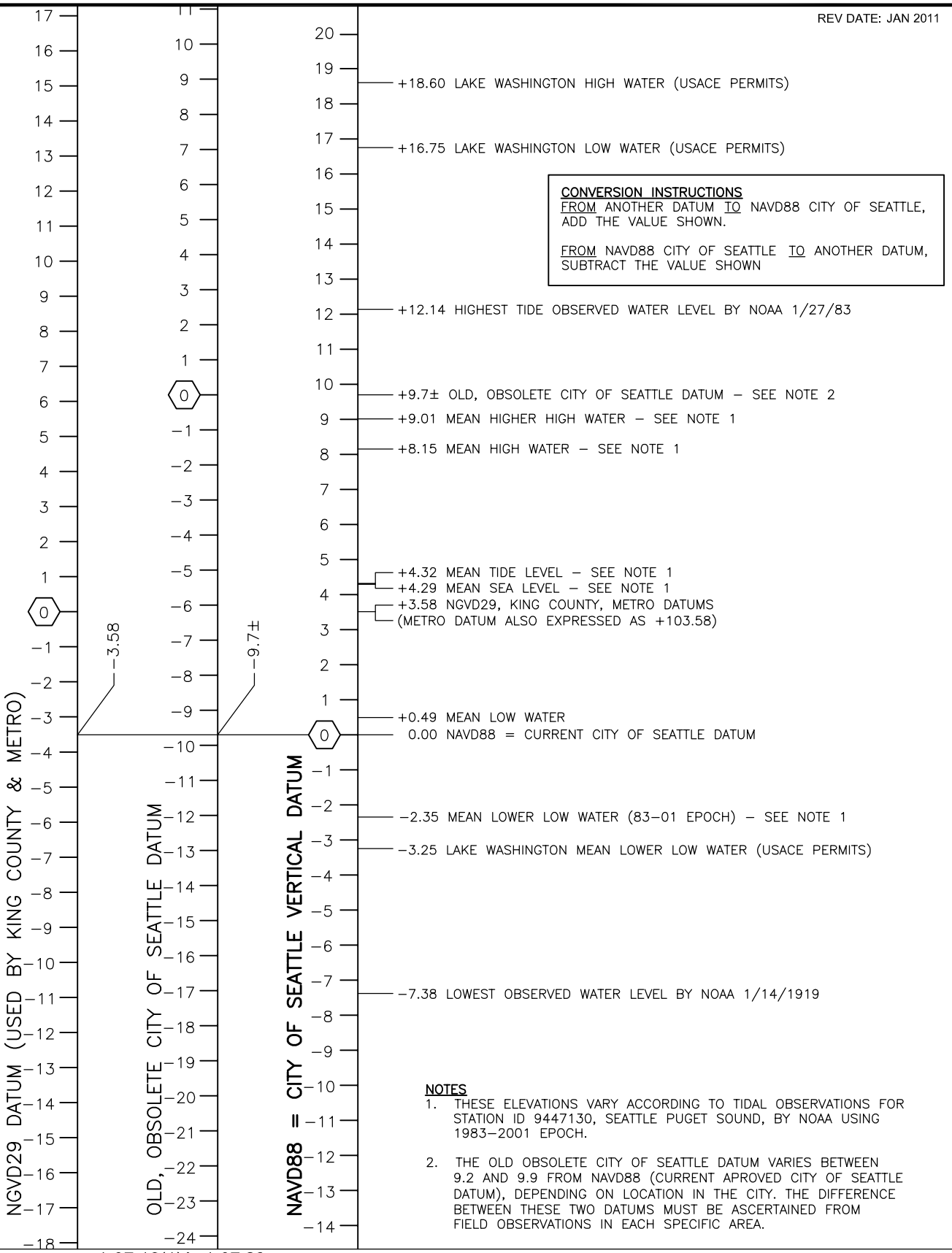
NOTES

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: JAN 2011



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: DEC 2010

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.
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
COND	Condition

REF STD SPEC SEC 1-01.2

City of Seattle | NOT TO SCALE | ABBREVIATIONS

REV DATE: DEC 2010

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
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
FLG	Flange
FLR	Floor
FLT	Flat Bar
FM	Force Main
FO or FOC	Fiber Optics
FS	Far Side
FT	Feet
FTG	Footing
G	Gas
G REG	Gas Regulator
GA	Gauge
GAL	Gallon
GALV	Galvanize/Galvanized
GAS V	Gas Valve

REF STD SPEC SEC 1-01.2

City of Seattle | NOT TO SCALE | ABBREVIATIONS

REV DATE: DEC 2010

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
GSP	Galvanized Steel Pipe
GV	Gate Valve
GVC	Gate Valve Chamber
GVL	Gravel
HB	Horizontal Bend
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
ISO	Isolation Coupling
JB	Junction Box
JT	Joint
KV	Kilovolt
LAL	Limited Access Line
LBS	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
LUM	Luminaire
MA	Mast Arm
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	Monument Line

REF STD SPEC SEC 1-01.2

City of Seattle | NOT TO SCALE | ABBREVIATIONS

REV DATE: DEC 2010

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
PDP	Perforated Drain Pipe
PE	Plain End
PED	Pedestrian
PG	Performance Grade
PH	Phase
PI	Point of Intersection
PL	Plate, Place, Polyethylene
$\mathbb{P}_L$	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
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

REF STD SPEC SEC 1-01.2

City of Seattle | NOT TO SCALE | ABBREVIATIONS

REV DATE: DEC 2010

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
THH	Telephone Handhole
TJO	Transfer of Jurisdiction Ordinance
TMH	Telephone Manhole
TMT	Treatment
TN	Ton
TR	Traffic
TRCB	Traffic Signal Cable
TRCD	Traffic Signal Conduit
TRSCC	Traffic Signal Controller Cabinet
TVCB	Television Cable
TVHH	Television Handhole
TYP	Typical

REF STD SPEC SEC 1-01.2

City of Seattle | NOT TO SCALE | ABBREVIATIONS

REV DATE: DEC 2010

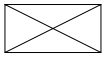
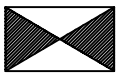
TRSCC	Traffic Signal Controller Cabinet
TVCB	Television Cable
TVHH	Television Handhole
TYP	Typical
UG	Underground
UIC	Underground Interconnect
UNC	Unified National Course
UP	Utility Pole
V	Valve, Variable
V/C	Vertical Curve
VAR	Variable/Varies
VB	Vertical Bend
VBOX	Valve Box
VCH or VC	Valve Chamber
VCP	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
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: MAR 2010

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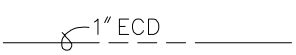
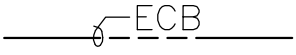
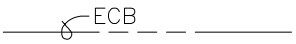
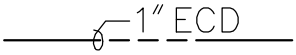
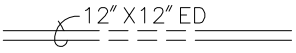
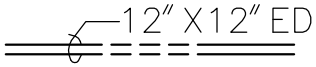
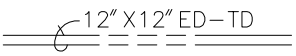
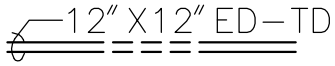
Electrical Conduit		
Electrical Cable (direct burial)		
Electrical Duct		
Combined Electrical & Telephone Duct		
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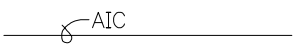
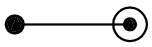
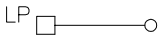
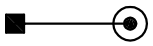
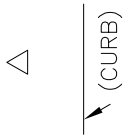
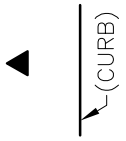
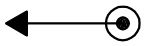
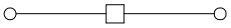
Aerial Interconnect Cable		
Transmission Pole (steel w/ conc base)		
City Wood Pole		
City Wood Pole w/ HPS		

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS ELECTRICAL

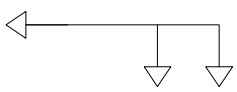
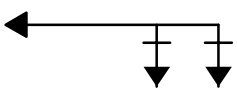
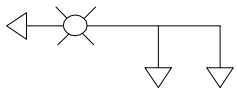
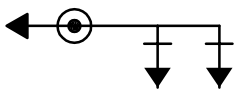
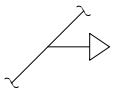
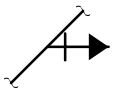
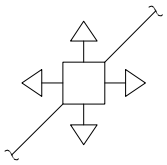
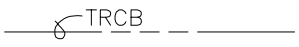
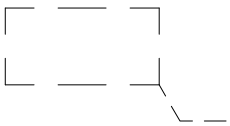
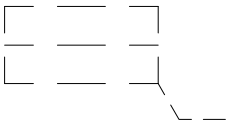
REV DATE: MAR 2010

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: MAR 2010

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)		
Pressure Detector		

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS ELECTRICAL

REV DATE: MAR 2010

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

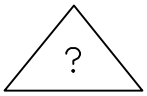
REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS ELECTRICAL

SIGNALIZATION

Vehicle & Pedestrian Signal Head
(?=Identification Number)

Illuminated Traffic Sign
(?=Identificaiton Number)



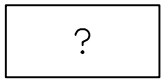
Cable Runs
(?=Run Number per Wiring Schedule)

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

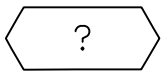
Construction Item
(?=Identification Number per Signalization Plan)

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

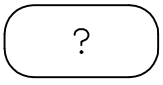
CHANNELIZATION & SIGNAGE



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



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

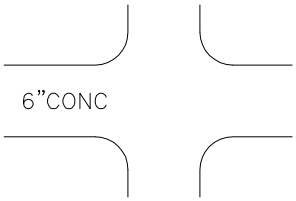
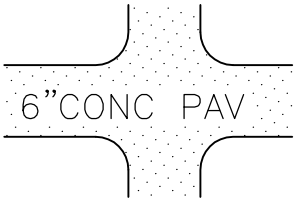
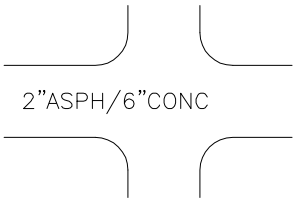
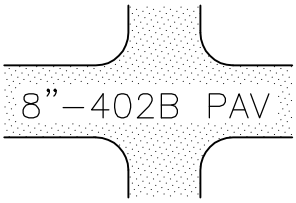
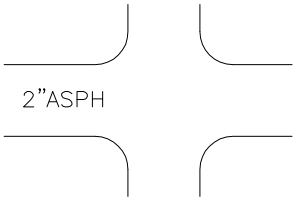
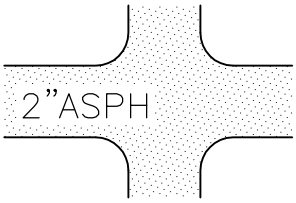
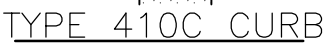
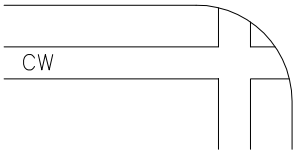
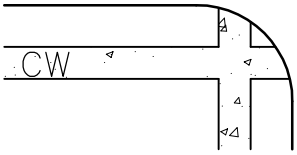
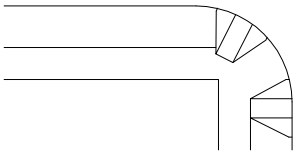
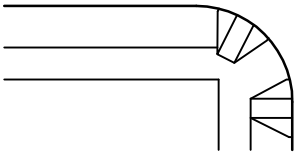
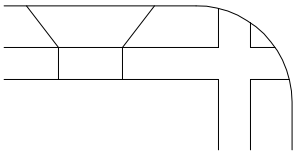
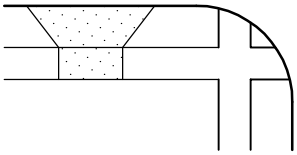
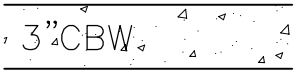
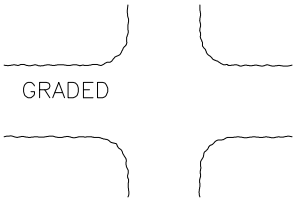
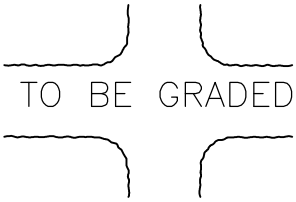


Relocate Signage
(?=Signage Identified on Plan)

REF STD SPEC SEC

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

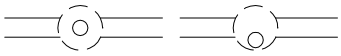
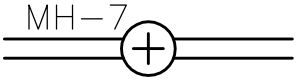
REV DATE: MAR 2010

ITEM	EXISTING	PROPOSED
Cement Concrete Pavement		
Asphalt Concrete Pavement		
Asphalt Concrete Surfacing		
Curb		
Cement Concrete Walk		
Curb Ramp		
Conc Dwy		
Cement Concrete Bike Way		
Asphalt Concrete Bike Way		
Grading		

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS PAVING

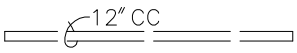
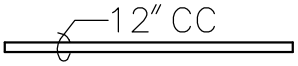
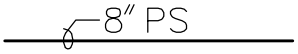
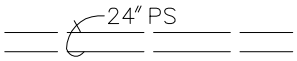
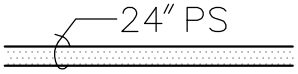
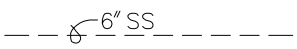
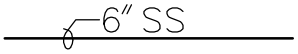
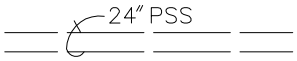
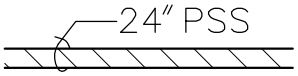
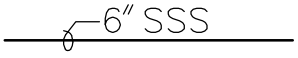
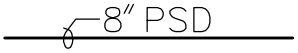
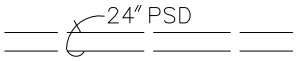
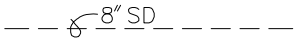
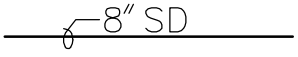
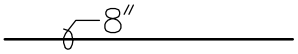
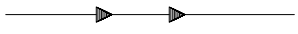
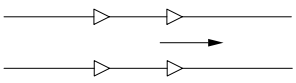
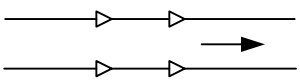
REV DATE: MAR 2010

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 277		
Sand Box		
Clean Out		

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS SEWER & DRAINAGE

REV DATE: MAR 2010

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

REF STD SPEC SEC

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

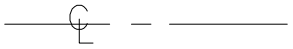
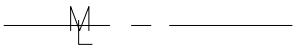
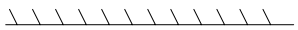
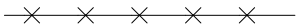
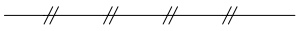
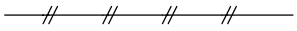
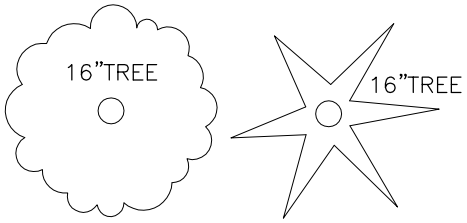
REV DATE: MAR 2010

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)		
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

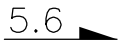
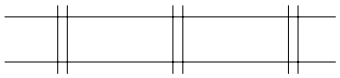
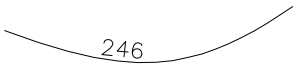
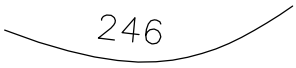
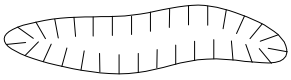
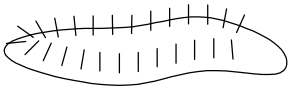
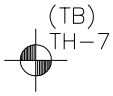
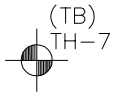
REV DATE: MAR 2010

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		
Tree		PER DRAWINGS

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS TOPOGRAPHIC & MISC

REV DATE: MAR 2010

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

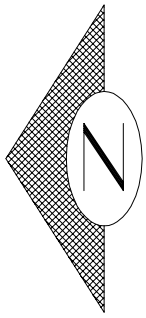
REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS TOPOGRAPHIC & MISC

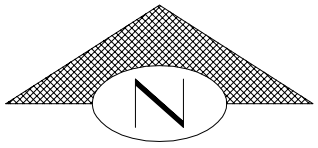
REV DATE: MAR 2010

ITEM	EXISTING	PROPOSED
Monitor Well	MW ○	
Street Name Sign	⊏	
US Mail Box	US	
Private Mail Box	▭	
Bollard	○	●
Post	□	
Parking Meter	▭	
Rectangular Casting	□	
Circular Casting	○	
Column	○	
Jersey Barrier	▭	▭
Tree Pit	□	□

North Arrow horizontal



North Arrow vertical



REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS TOPOGRAPHIC & MISC

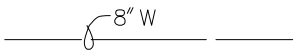
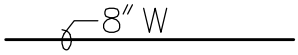
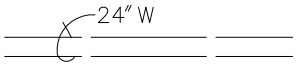
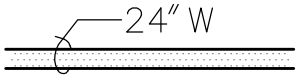
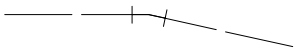
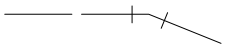
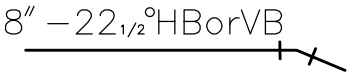
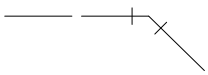
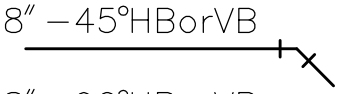
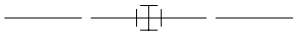
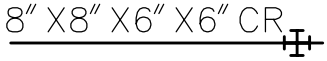
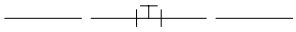
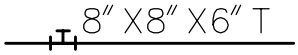
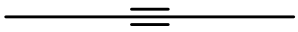
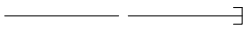
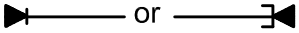
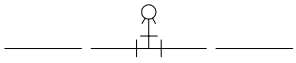
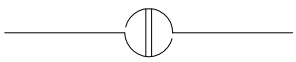
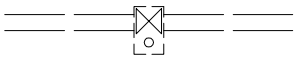
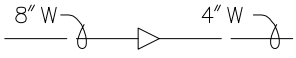
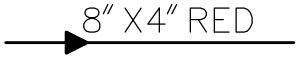
REV DATE: MAR 2010

ITEM	EXISTING	PROPOSED
Telephone Cable (direct burial)	TCB	
Telephone Conduit	3″ TCD	
Telephone Duct	12″ X12″ TD	
Telephone Enclosure	TEB	
Telephone Maintenance Hole	TMH	
Telephone Pole		
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	STEAM VAULT	
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

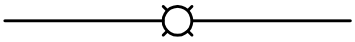
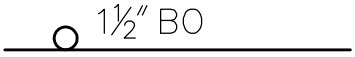
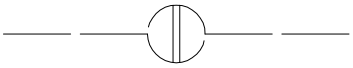
REV DATE: MAR 2010

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

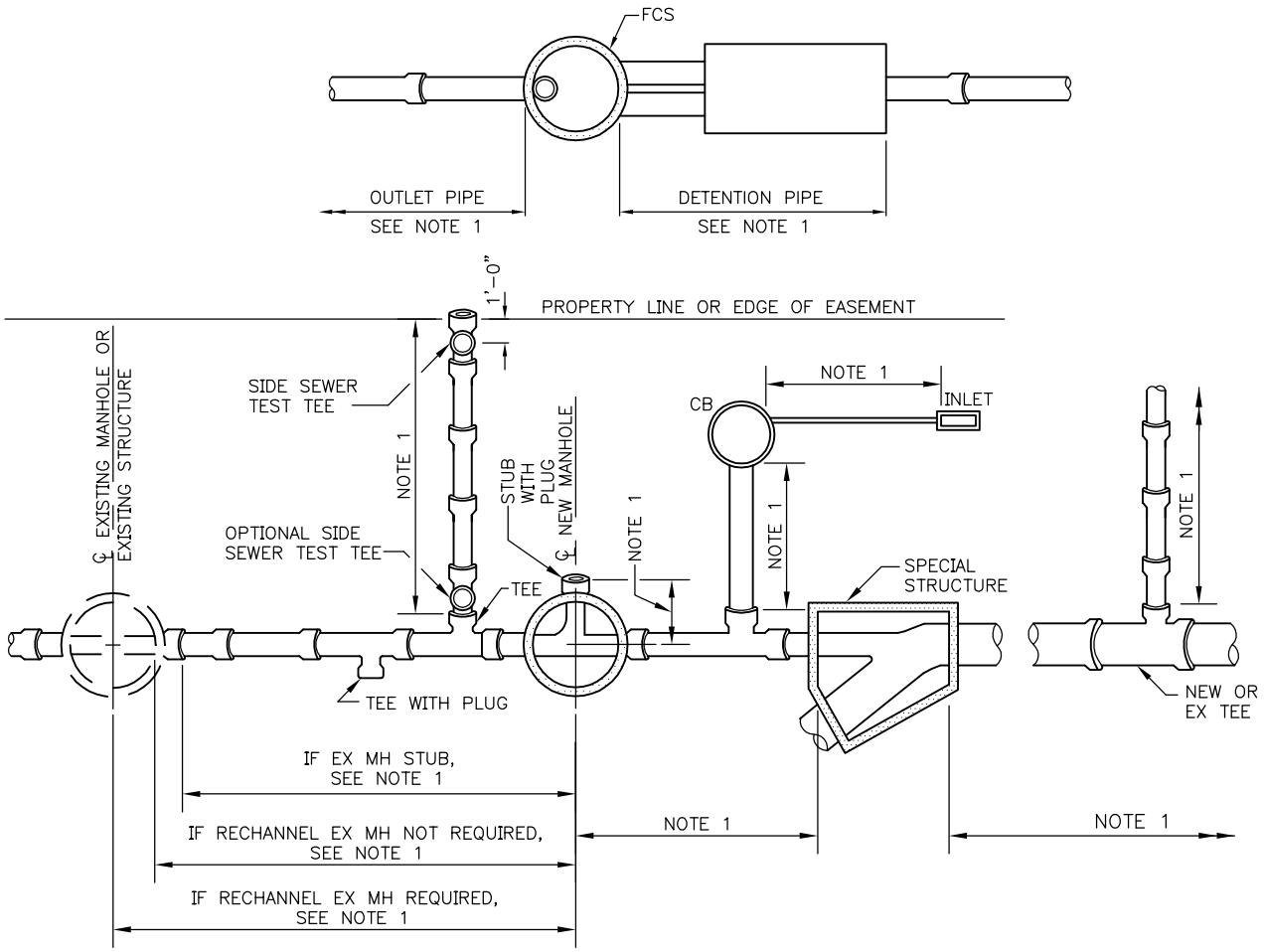
REV DATE: MAR 2010

ITEM	EXISTING	PROPOSED
Air Valve		
Blowoff		
Butterfly Valve w/ Valve Box		
Butterfly Valve w/ Valve Box		
Water Chamber		
Sprinkler Head		
Irrigation Valve		

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STANDARD SYMBOLS WATER

REV DATE: 2003



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

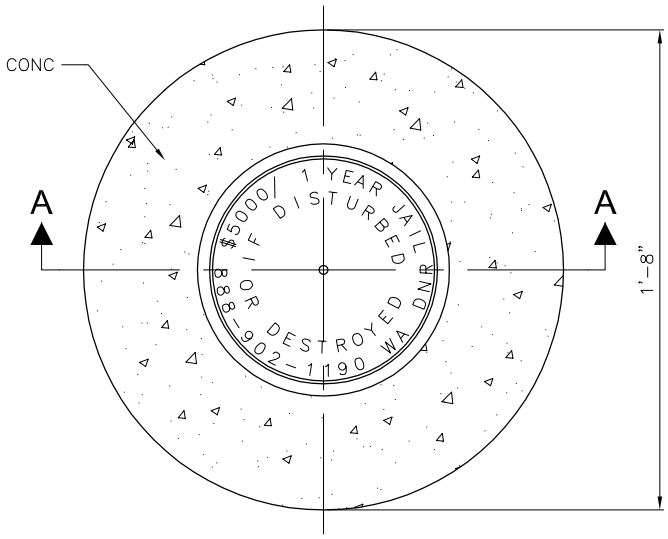
City of Seattle	NOT TO SCALE	SEWER/DRAINAGE MEASUREMENT DIAGRAM

REV DATE: OCT 2009

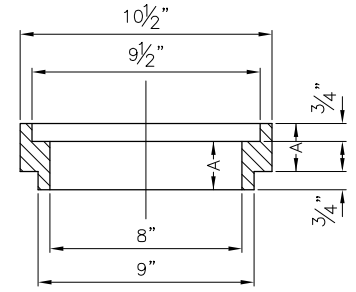
NOTES:

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

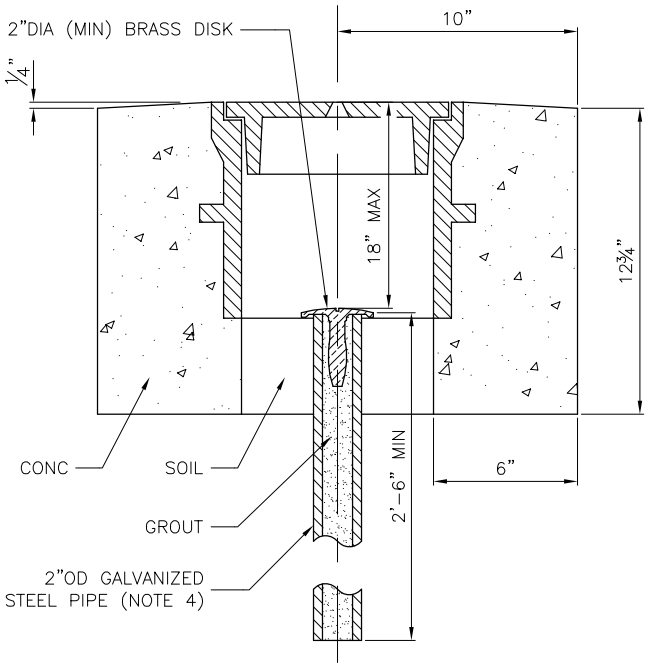
RISER RING DIMENSIONS			
A (SIZE)	1½"	2"	3"



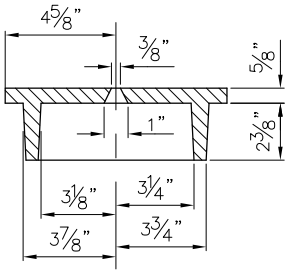
PLAN



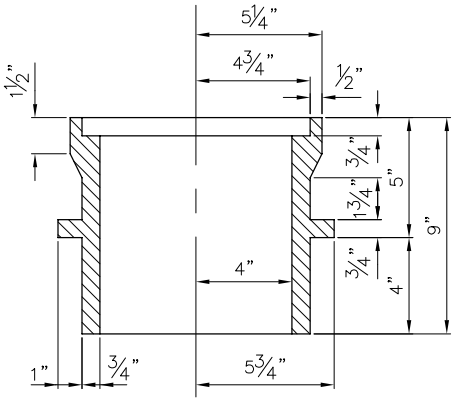
RISER RING SECTION



SECTION A–A



COVER SECTION

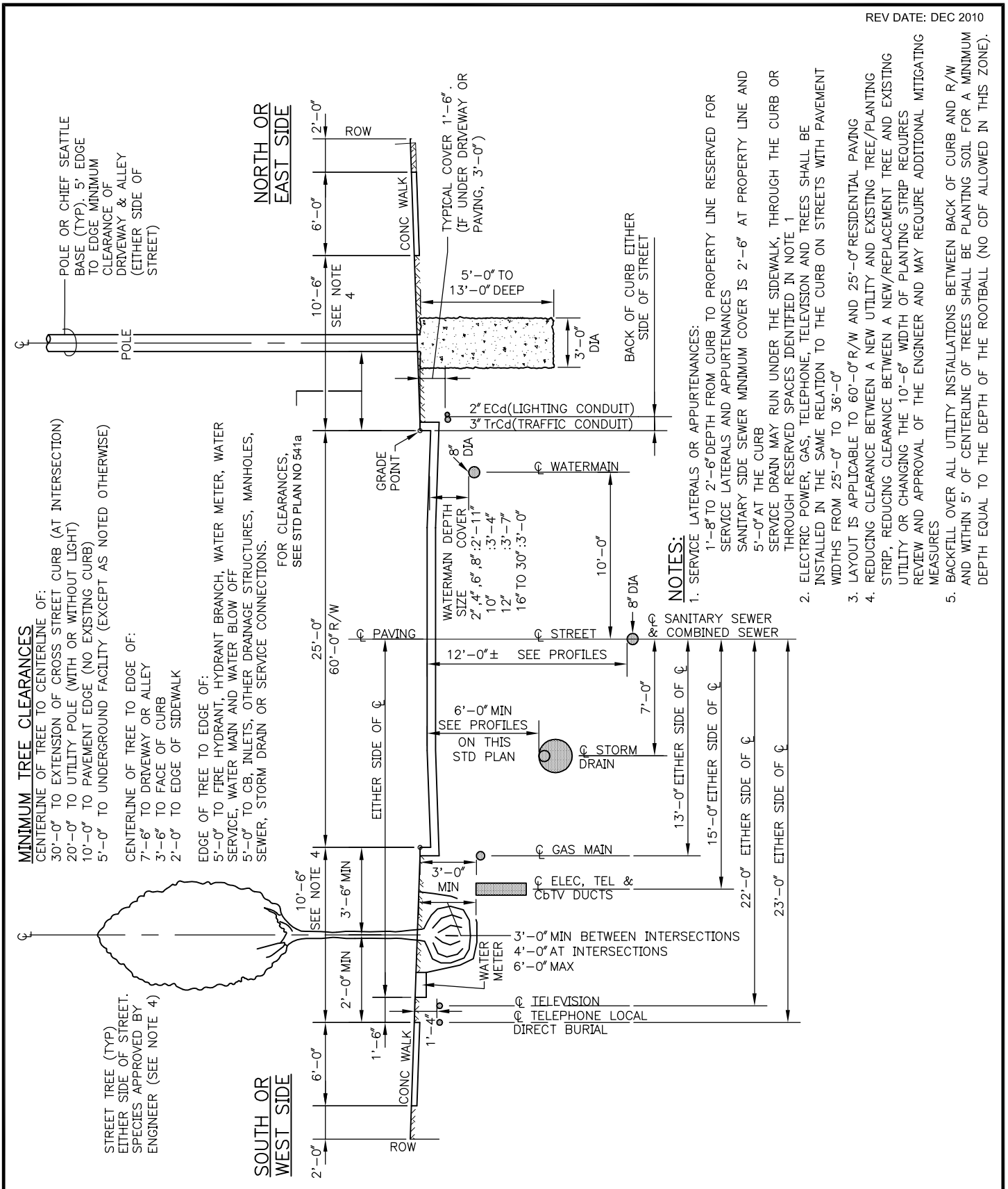


CASE SECTION

REF STD SPEC SEC 8-13

City of Seattle	NOT TO SCALE	MONUMENT FRAME & COVER

REV DATE: DEC 2010



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 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).

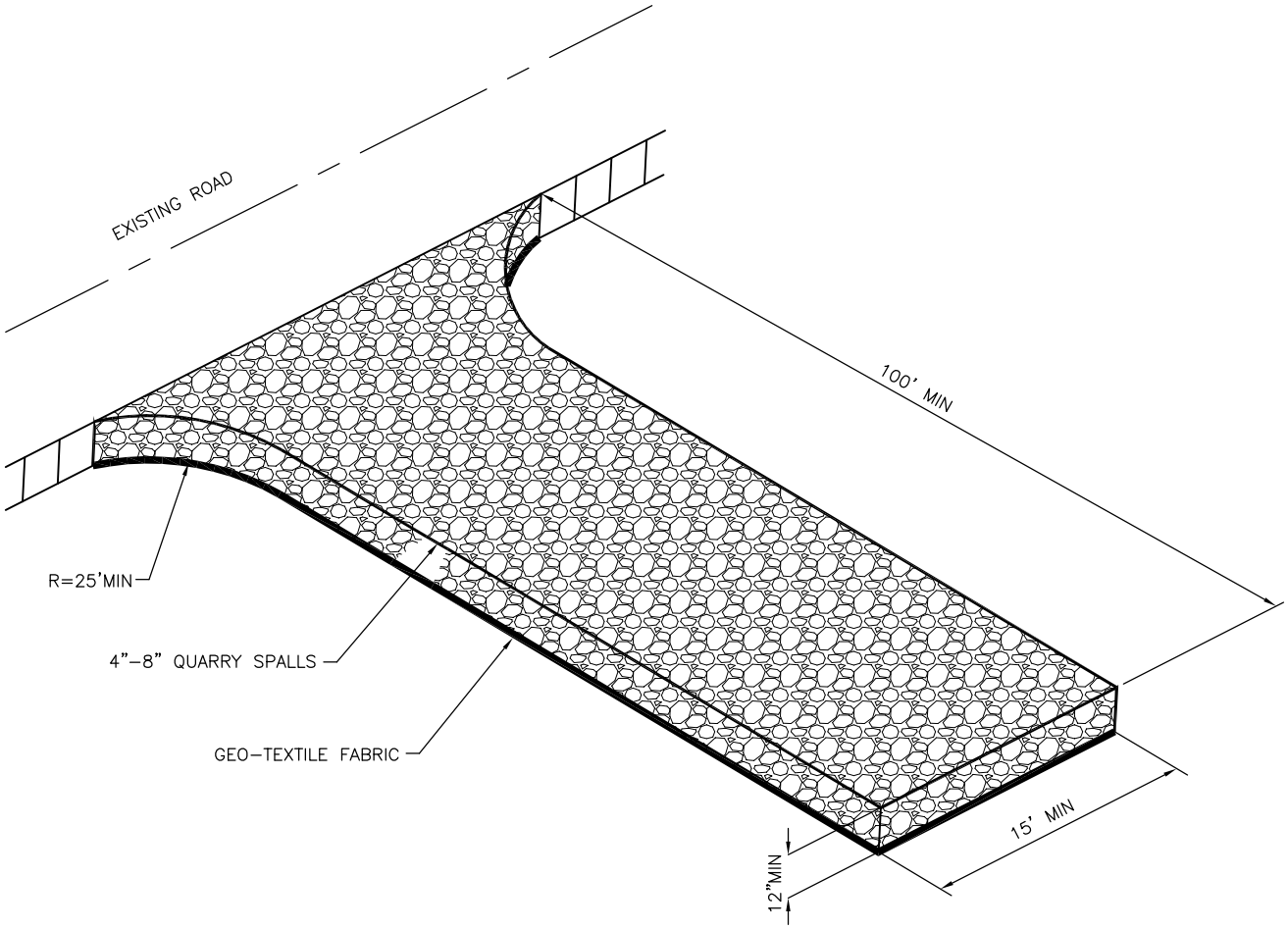
REF STD SPEC SEC 1-07.16, 1-07.17 & 1-07.28

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.

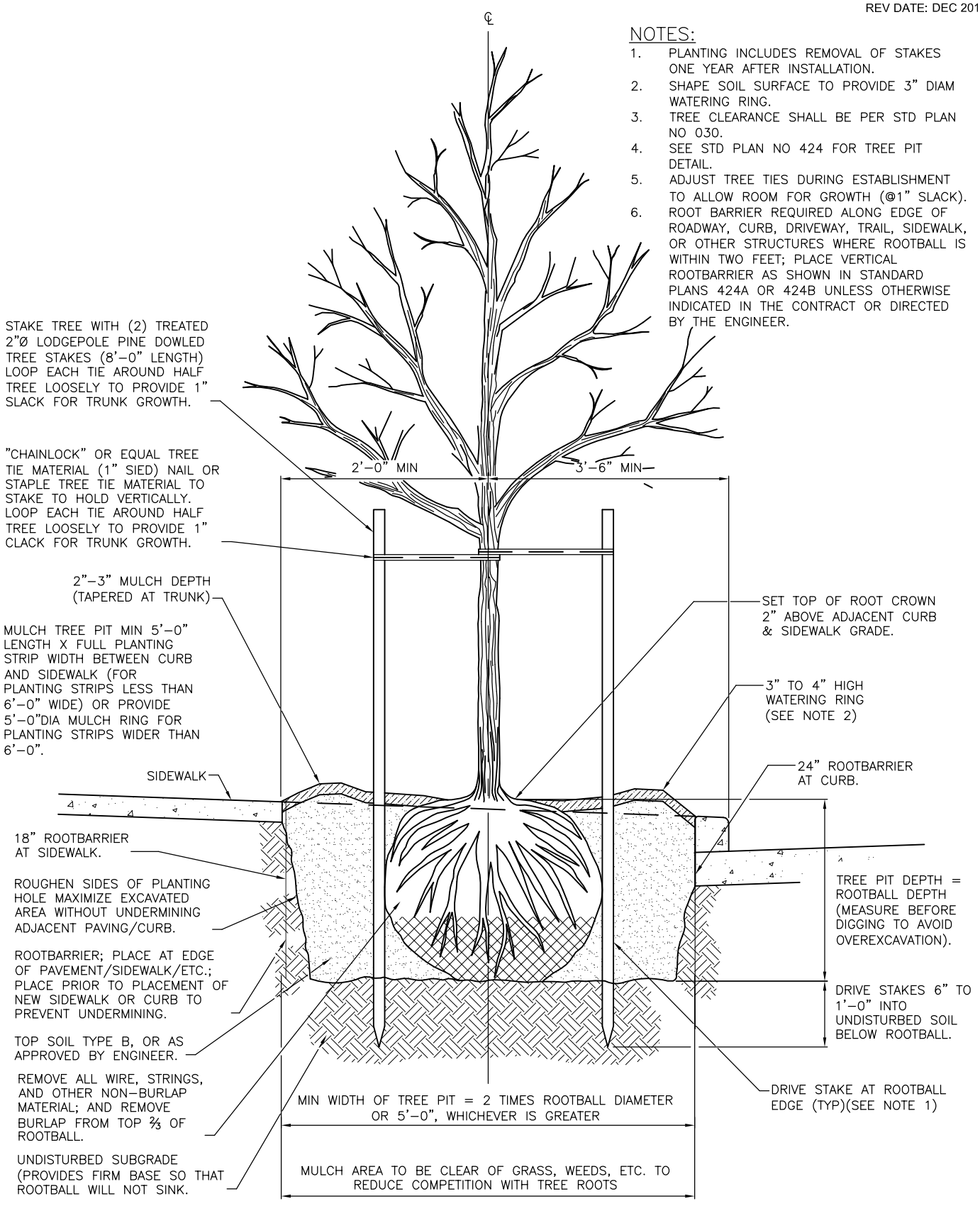
REF STD SPEC SEC 8-01

City of Seattle	NOT TO SCALE	STABILIZED CONSTRUCTION ENTRANCE

REV DATE: DEC 2010

NOTES:

1. PLANTING INCLUDES REMOVAL OF STAKES ONE YEAR AFTER INSTALLATION.
2. SHAPE SOIL SURFACE TO PROVIDE 3" DIAM WATERING RING.
3. TREE CLEARANCE SHALL BE PER STD PLAN NO 030.
4. SEE STD PLAN NO 424 FOR TREE PIT DETAIL.
5. ADJUST TREE TIES DURING ESTABLISHMENT TO ALLOW ROOM FOR GROWTH (@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 424A OR 424B UNLESS OTHERWISE INDICATED IN THE CONTRACT OR DIRECTED BY THE ENGINEER.



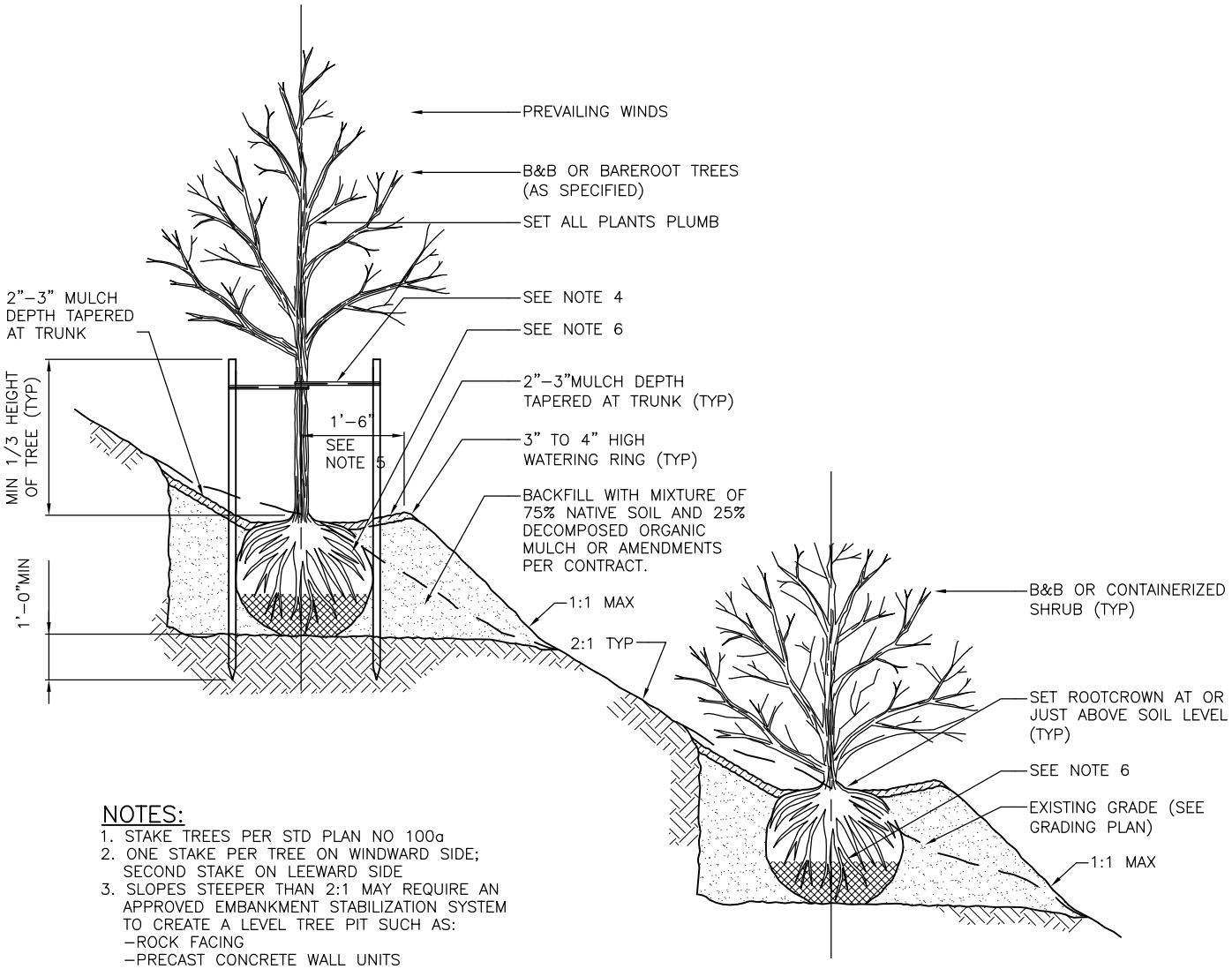
REF STD SPEC SEC 8-02

City of Seattle

NOT TO SCALE

DECIDUOUS TREE PLANTING IN PLANTING STRIP

REV DATE: DEC 2010



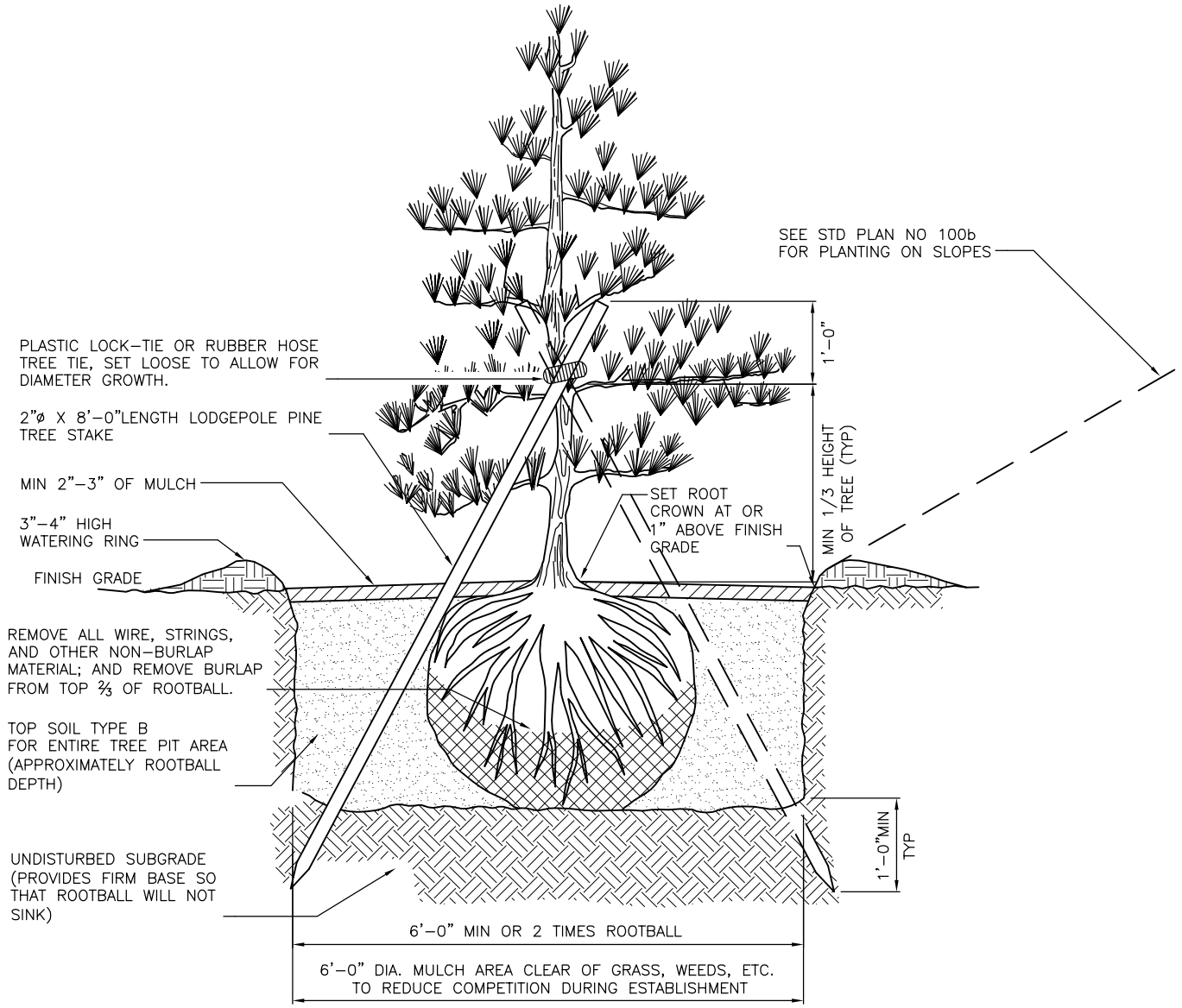
NOTES:

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 ALL 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

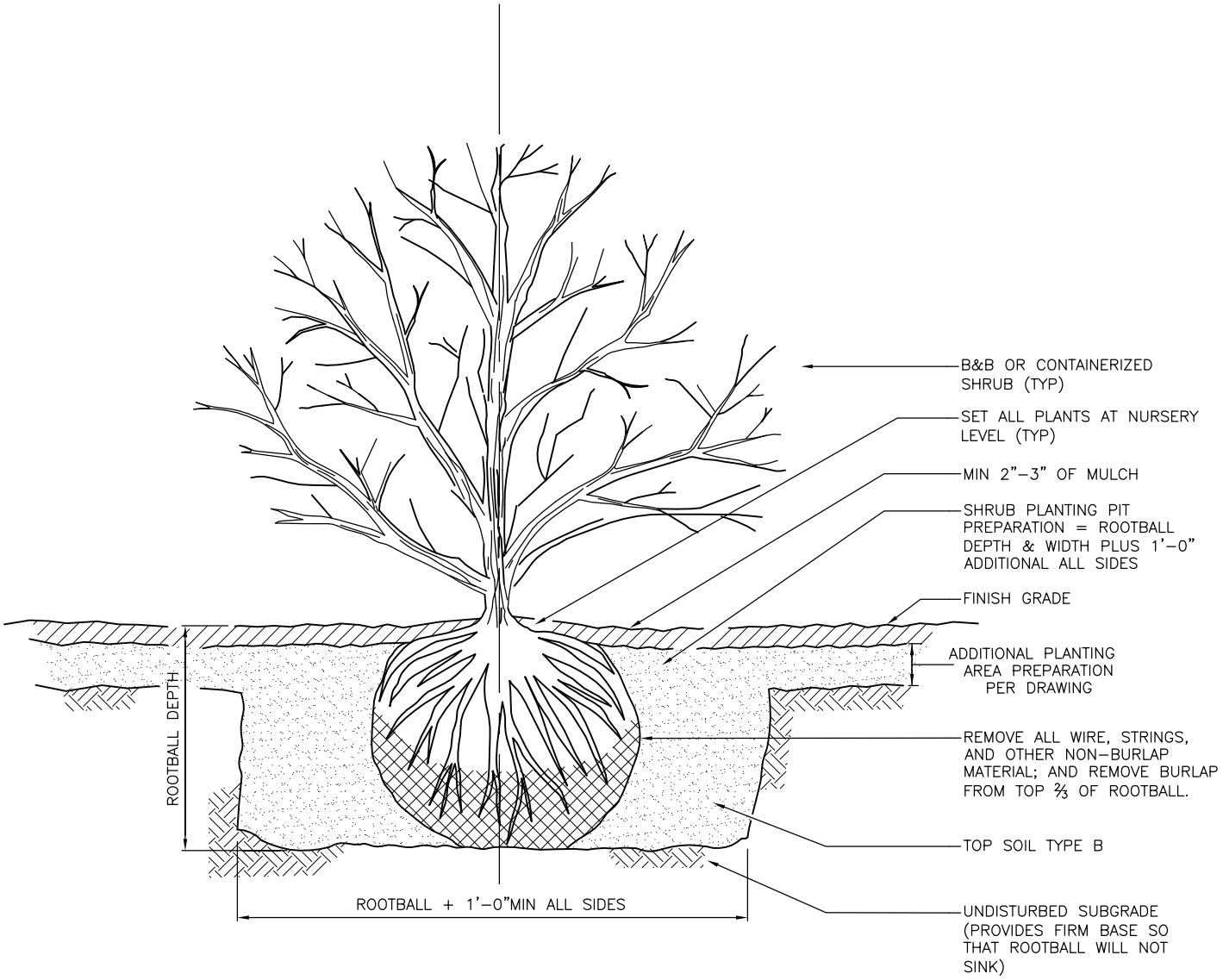
REV DATE: DEC 2010



REF STD SPEC SEC 8-02

City of Seattle	NOT TO SCALE	CONIFEROUS TREE PLANTING

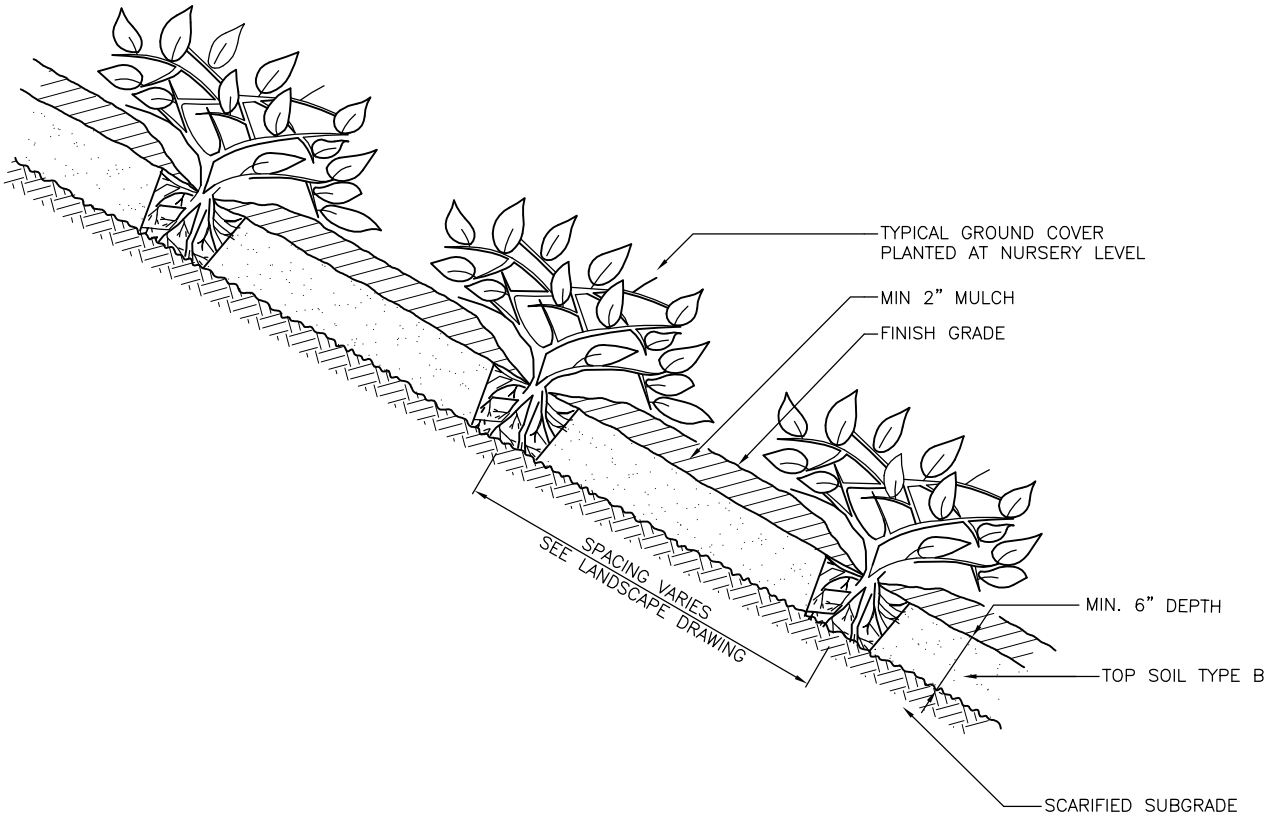
REV DATE: DEC 2010



REF STD SPEC SEC 8-02

City of Seattle	NOT TO SCALE	SHRUB PLANTING

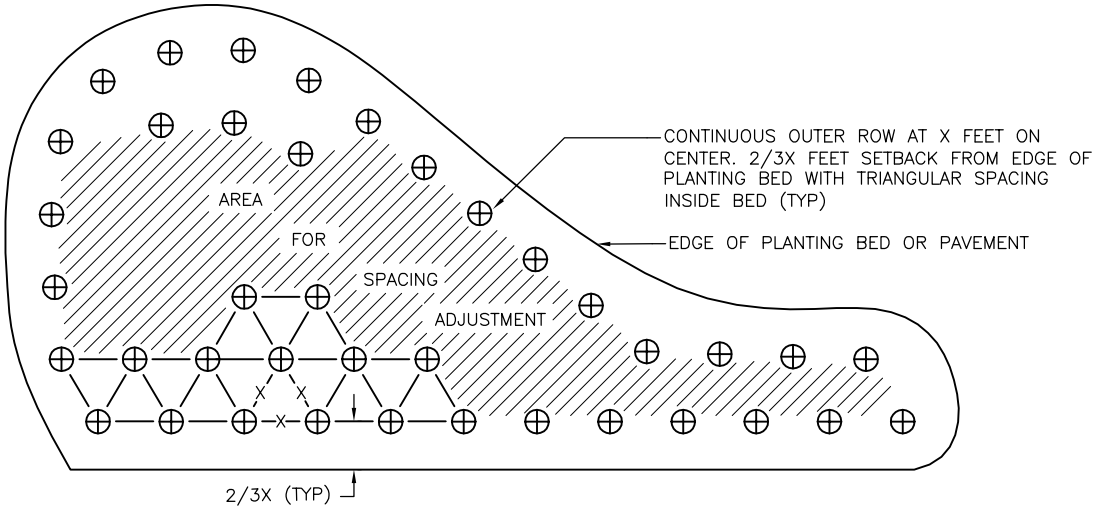
REV DATE: 2003



REF STD SPEC SEC 8-02

City of Seattle	NOT TO SCALE	GROUND COVER PLANTING

REV DATE: 2003



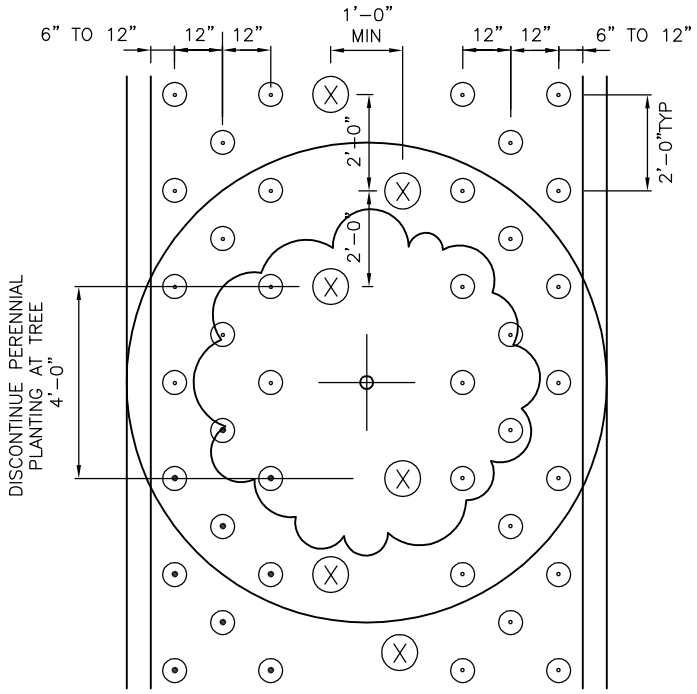
X =RECOMMENDED SPACING (SEE LANDSCAPE DETAIL ON DRAWING)

⊕ =ACTUAL PLANT LOCATIONS

REF STD SPEC SEC 9-14

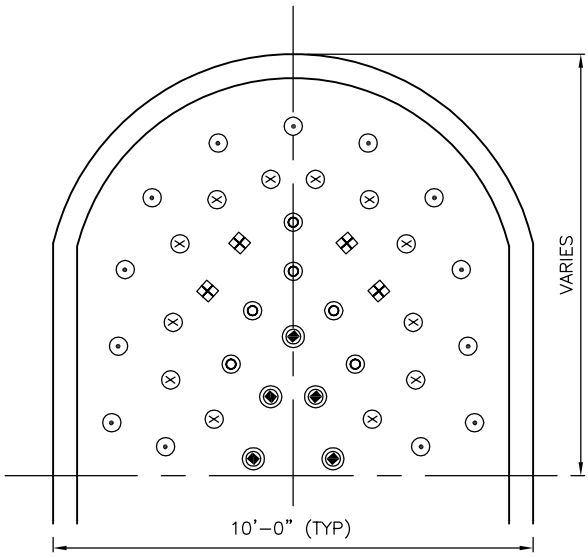
City of Seattle	NOT TO SCALE	PLANTING PATTERN

REV DATE: 2008



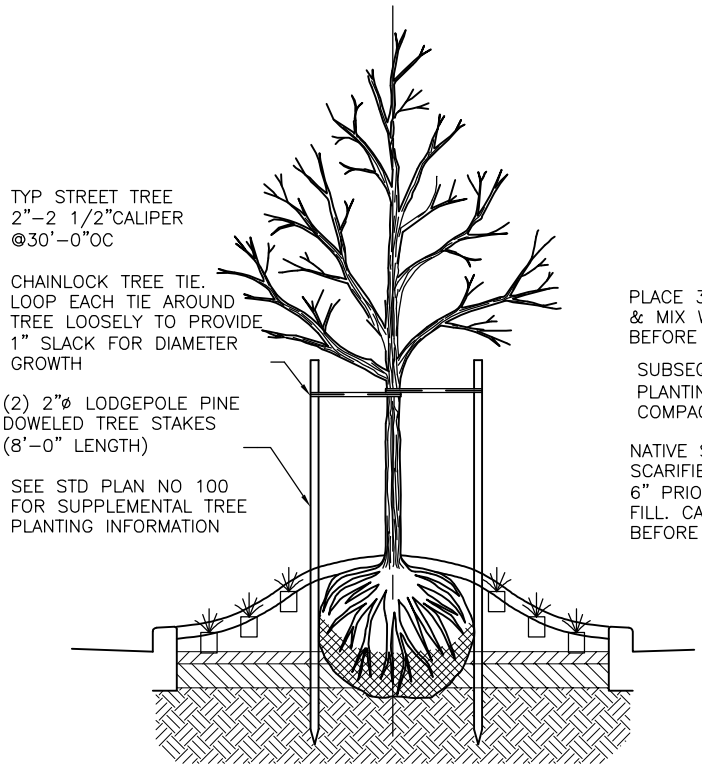
	QUANT PER 10'-0"LF MEDIAN
⊙ GROUNDCOVER	30
⊗ SHRUB	5

DETAIL AT TREE PLAN

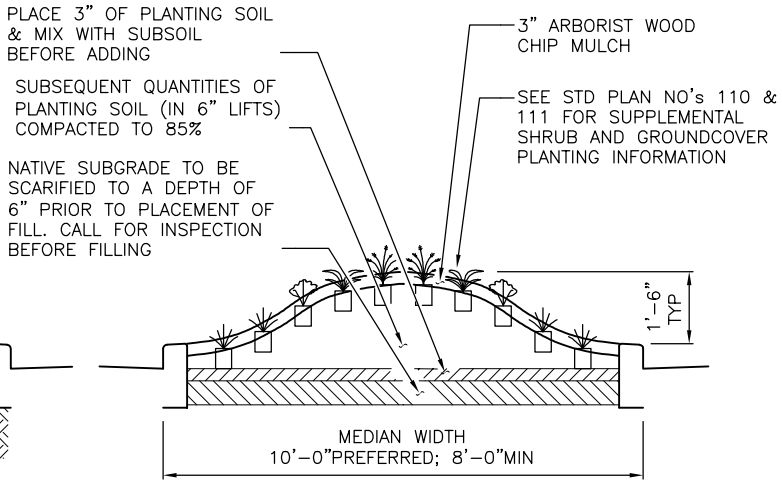


	QUANT PER END CAP
◈ PERENNIAL TYPE 1	4
◎ PERENNIAL TYPE 2	6
◉ PERENNIAL TYPE 3	5
⊙ EVERGREEN GROUNDCOVER TYPE 1	13
⊗ EVERGREEN GROUNDCOVER TYPE 2	12

END CAP DETAIL



ELEVATION

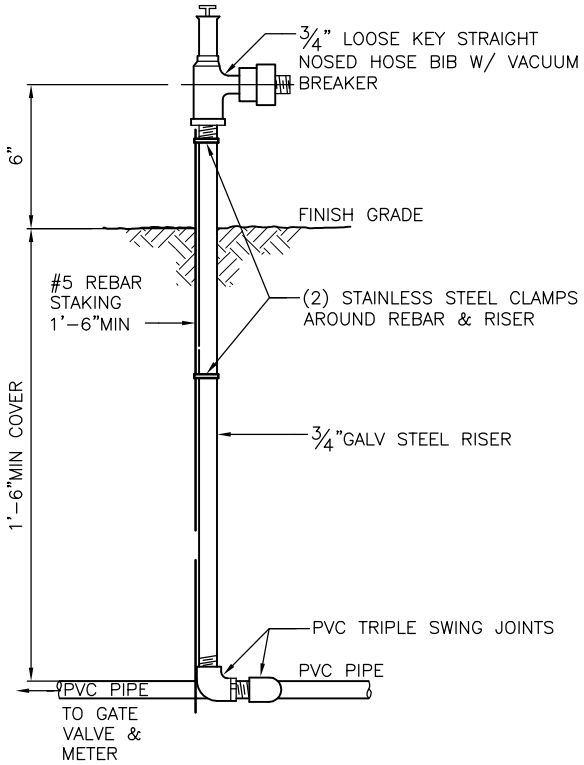


SOIL PREPARATION DETAIL

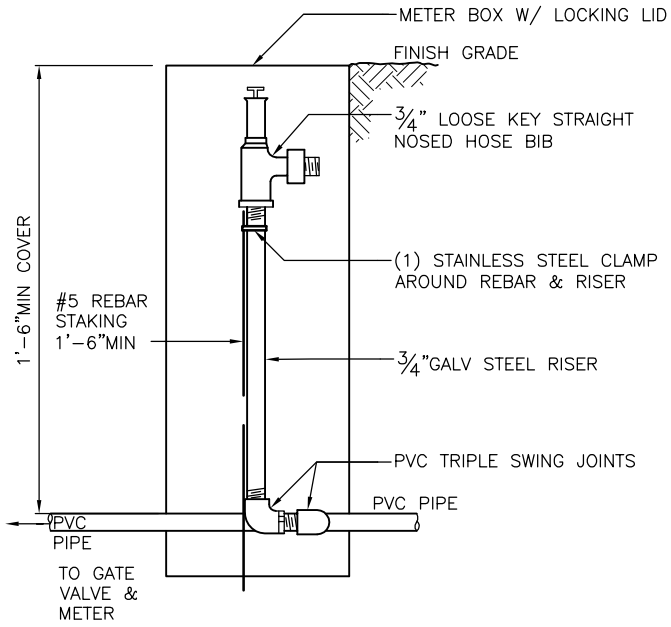
REF STD SPEC SEC 8-02

City of Seattle | NOT TO SCALE | MEDIAN PLANTING

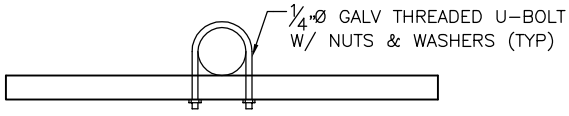
REV DATE: 2003



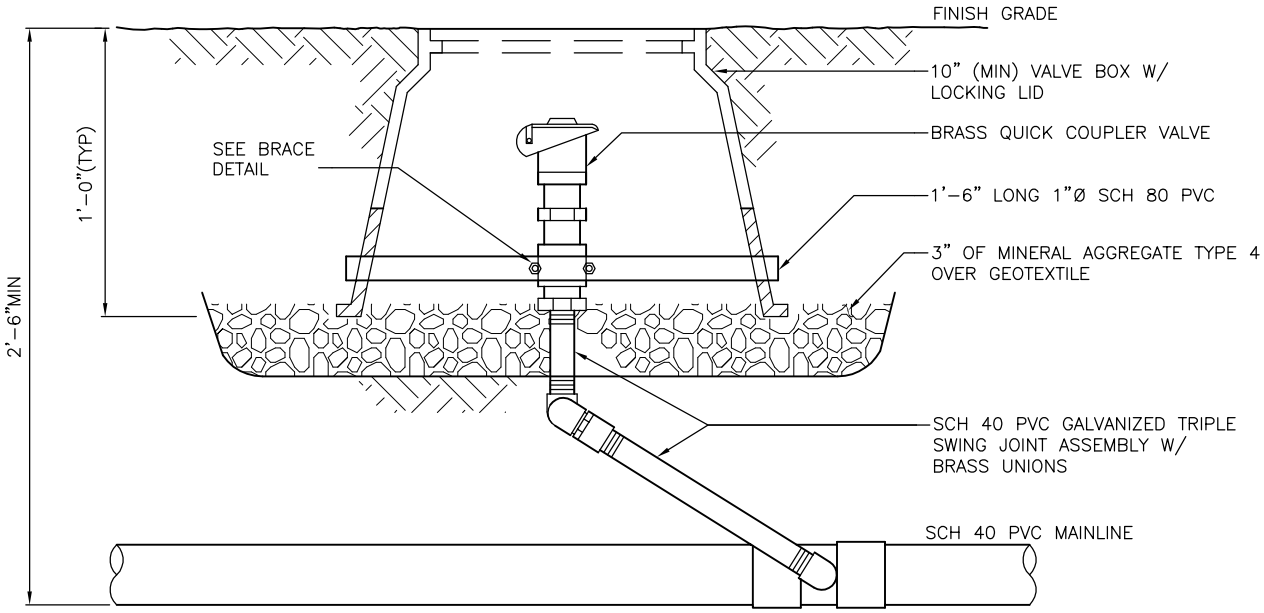
ABOVE GROUND HOSE BIB



BELOW GROUND HOSE BIB



BRACE DETAIL – PLAN VIEW



ELEVATION VIEW

QUICK COUPLER VALVE
TURF OR BED AREAS

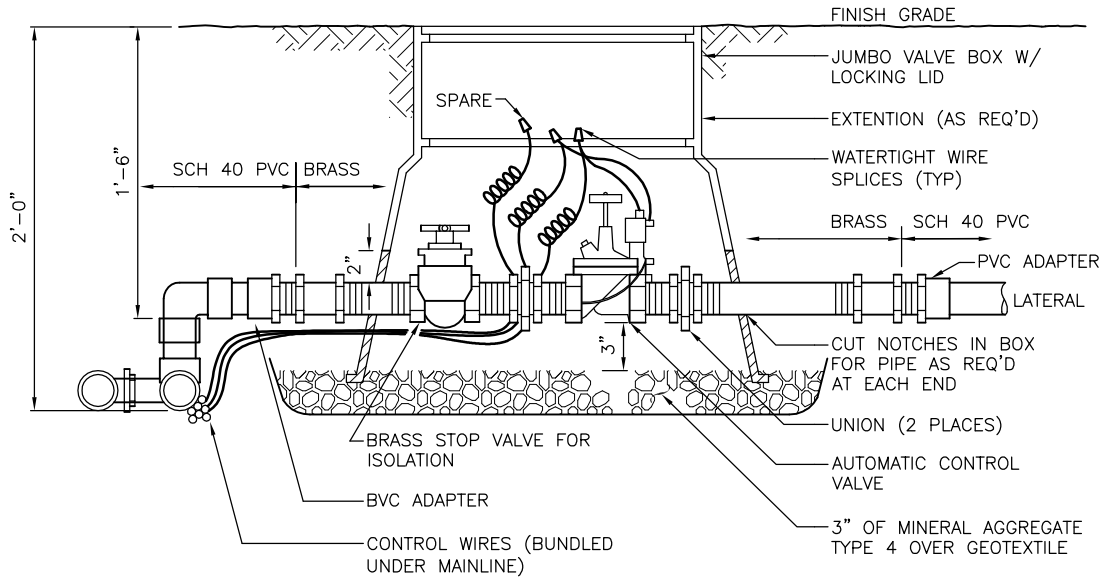
REF STD SPEC SEC 8-03

City of Seattle

NOT TO SCALE

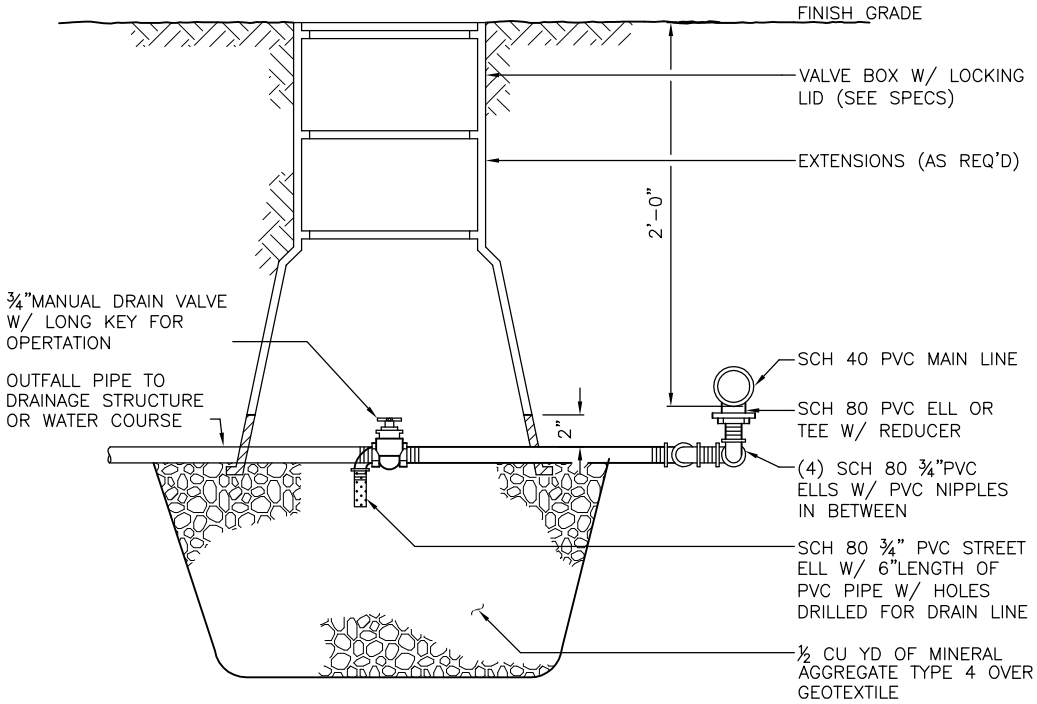
HOSE BIB ASSEMBLY AND QUICK COUPLER VALVE

REV DATE: 2003



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

AUTOMATIC CONTROL VALVE

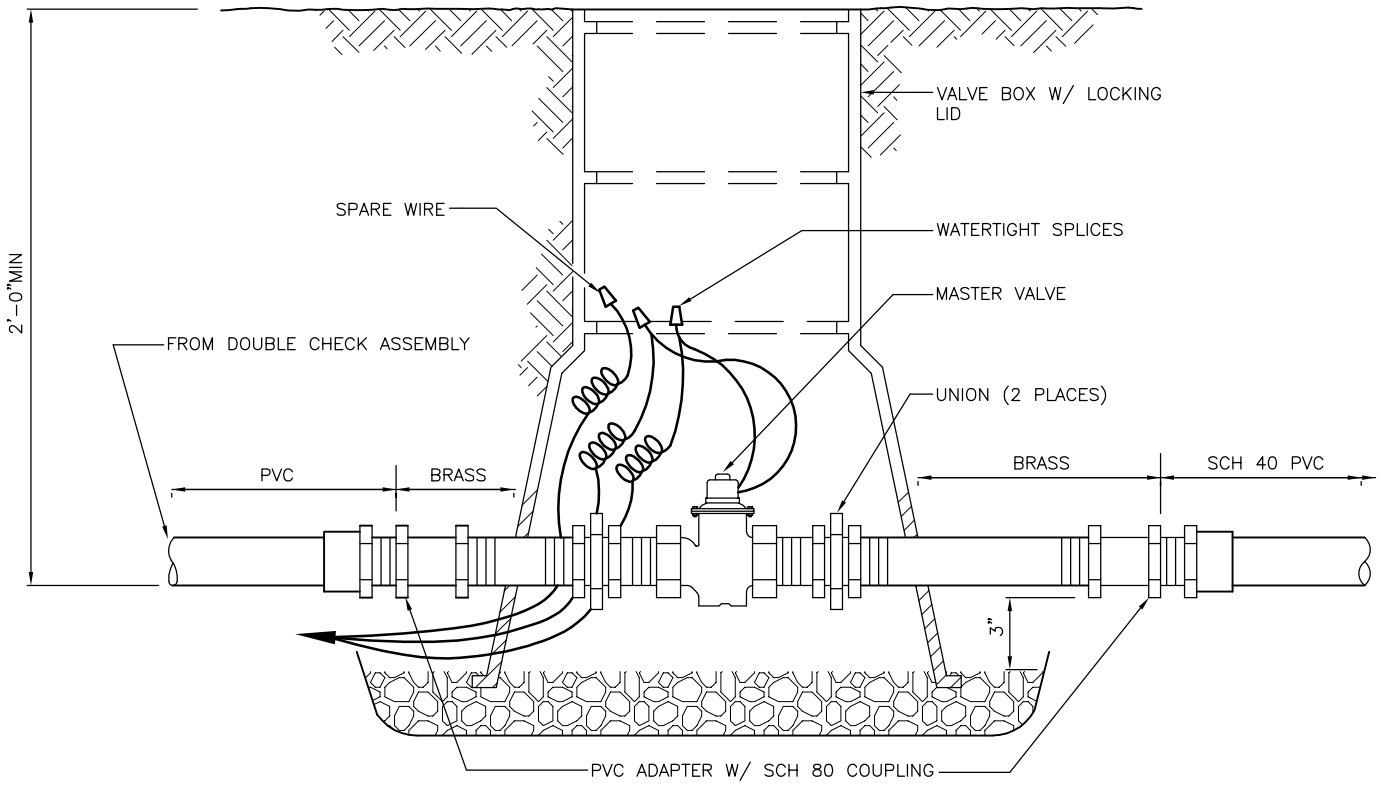


MANUAL DRAIN VALVE

REF STD SPEC SEC 8-03

City of Seattle	NOT TO SCALE	IRRIGATION VALVES

REV DATE: 2003

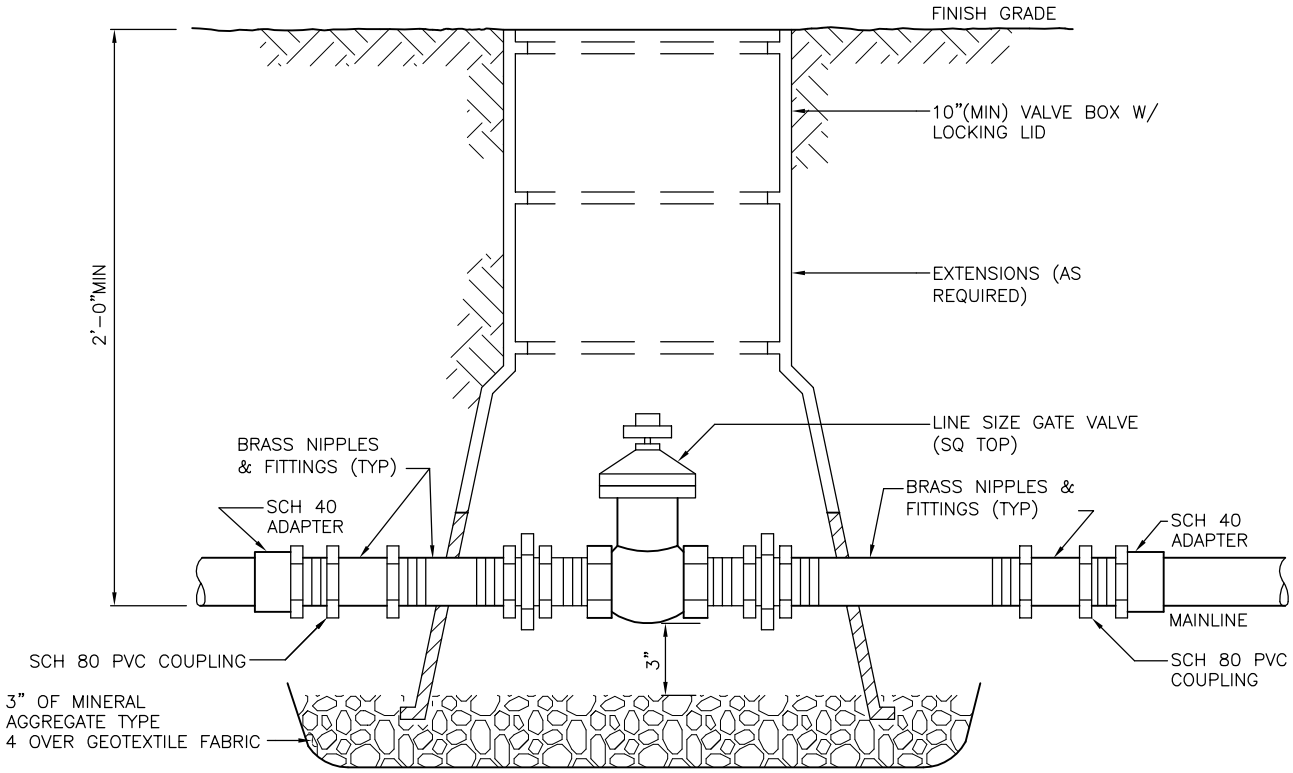


MASTER VALVE

REF STD SPEC SEC 8-03

City of Seattle	NOT TO SCALE	IRRIGATION VALVES

REV DATE: 2003



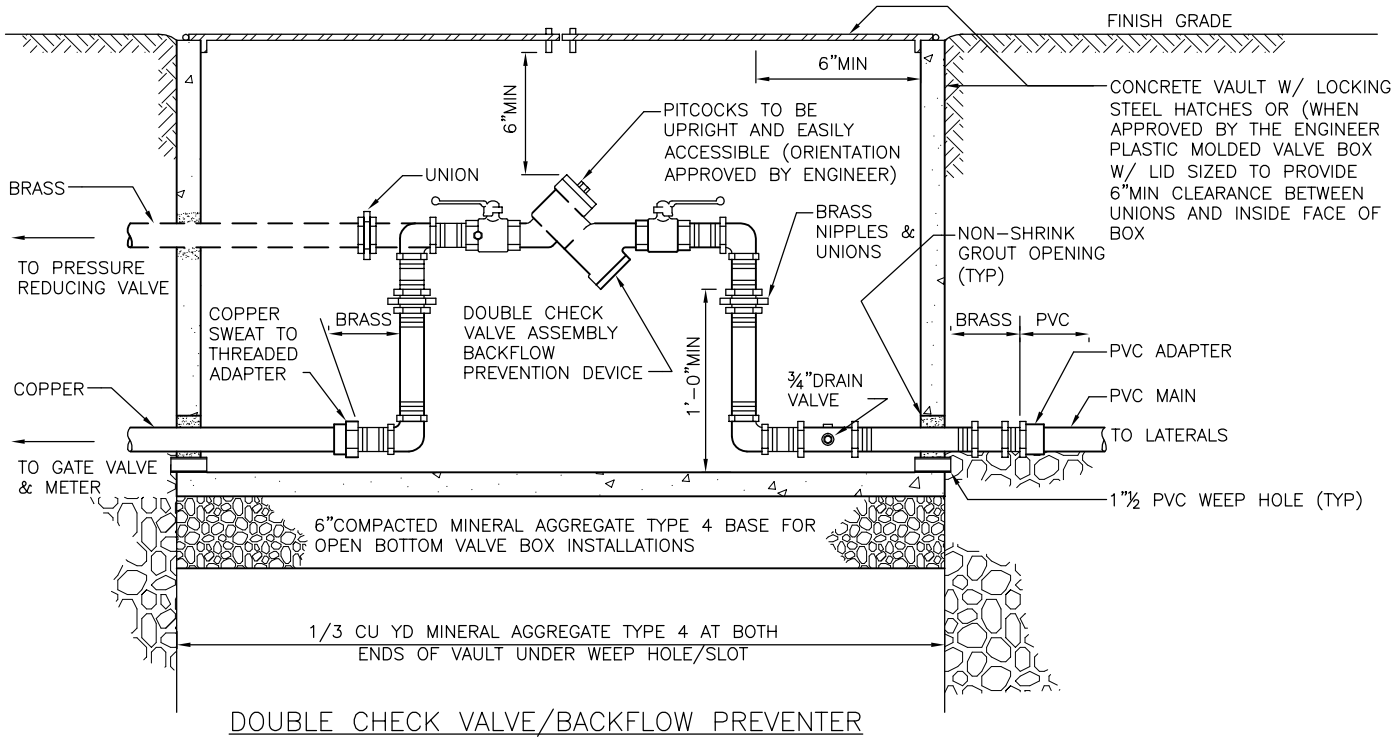
NOTES:
USE TEFLON TAPE ON ALL THREADED FITTINGS

GATE VALVE – 2 1/2"& LARGER

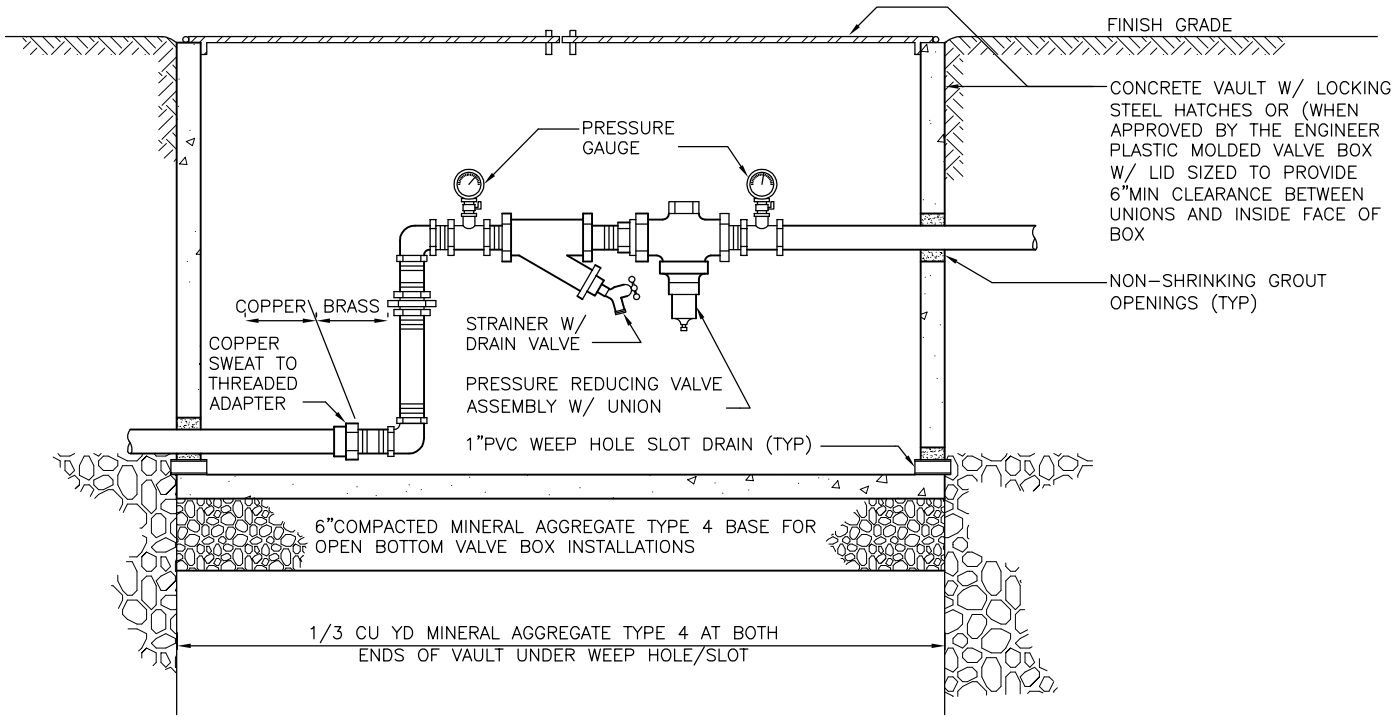
REF STD SPEC SEC 8-03

City of Seattle	NOT TO SCALE	IRRIGATION VALVE

REV DATE: 2003



DOUBLE CHECK VALVE/BACKFLOW PREVENTER



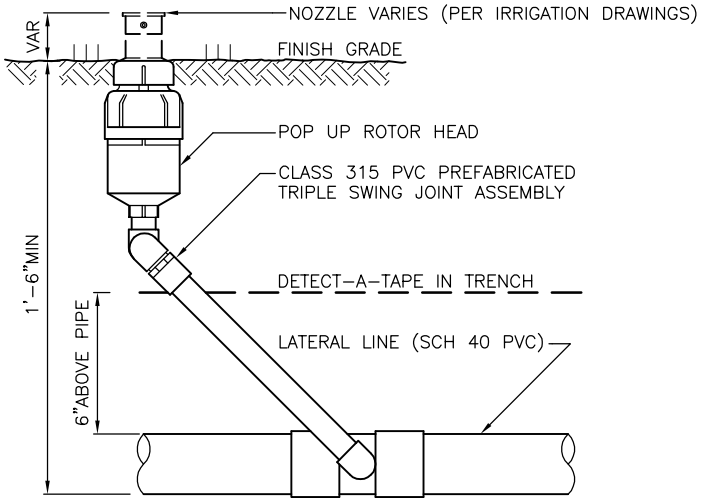
PRESSURE REDUCER STRAINER

(LOCATE DOWNSTREAM FROM BACKFLOW PREVENTION DEVICE)

REF STD SPEC SEC 8-03

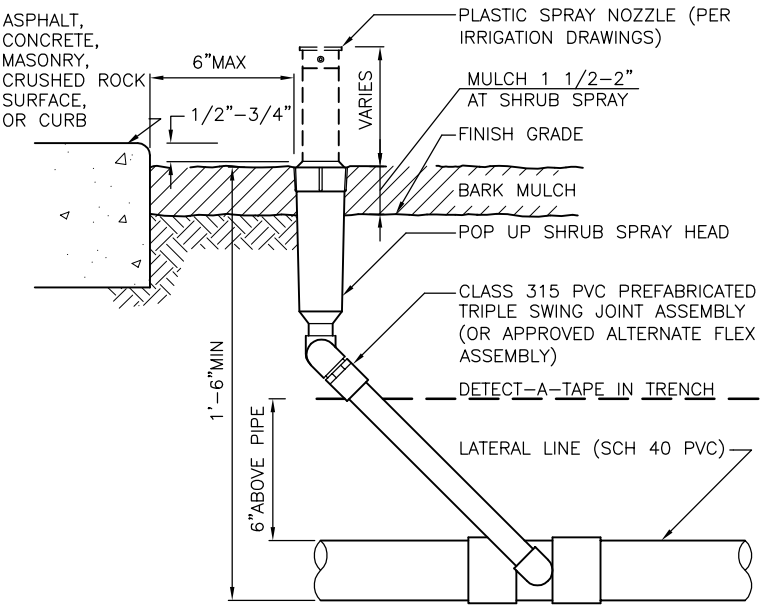
City of Seattle	NOT TO SCALE	IRRIGATION VALVES

REV DATE: 2003

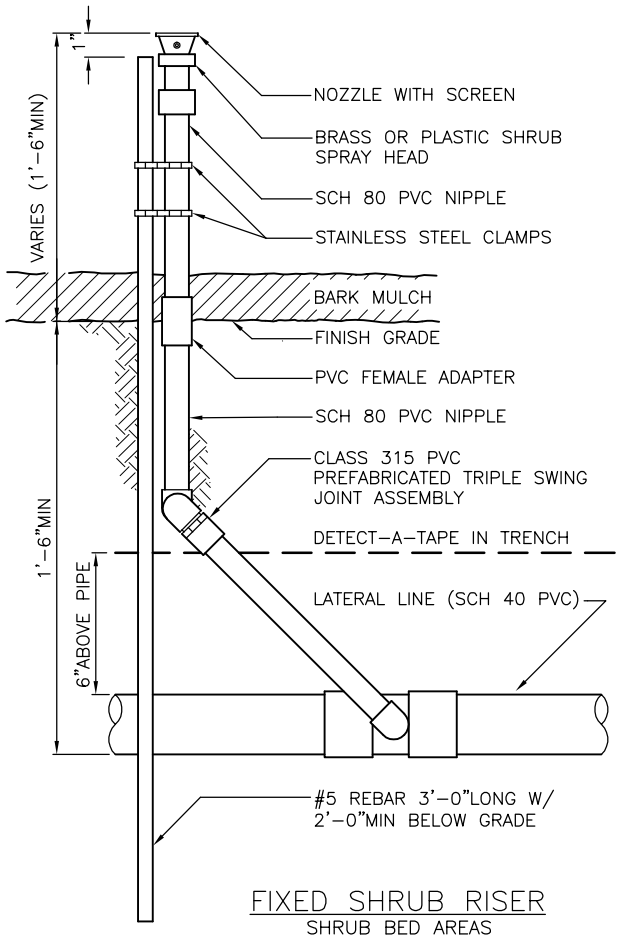


POP UP ROTOR HEAD
TURF AREAS

NOTE:
USE TEFLON TAPE ON ALL THREDED FITTINGS



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

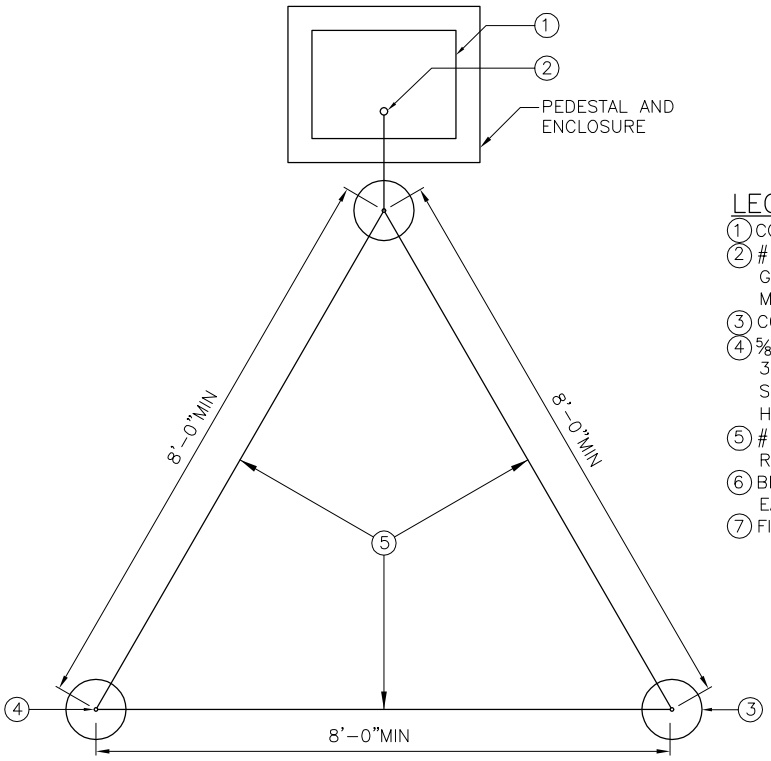


FIXED SHRUB RISER
SHRUB BED AREAS

REF STD SPEC SEC 8-03

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

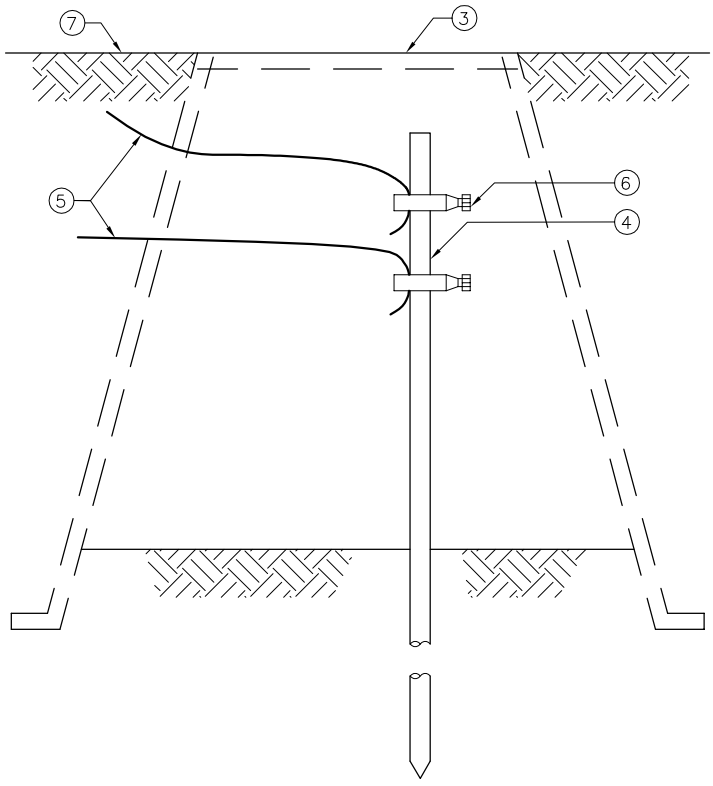
REV DATE: 2003



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

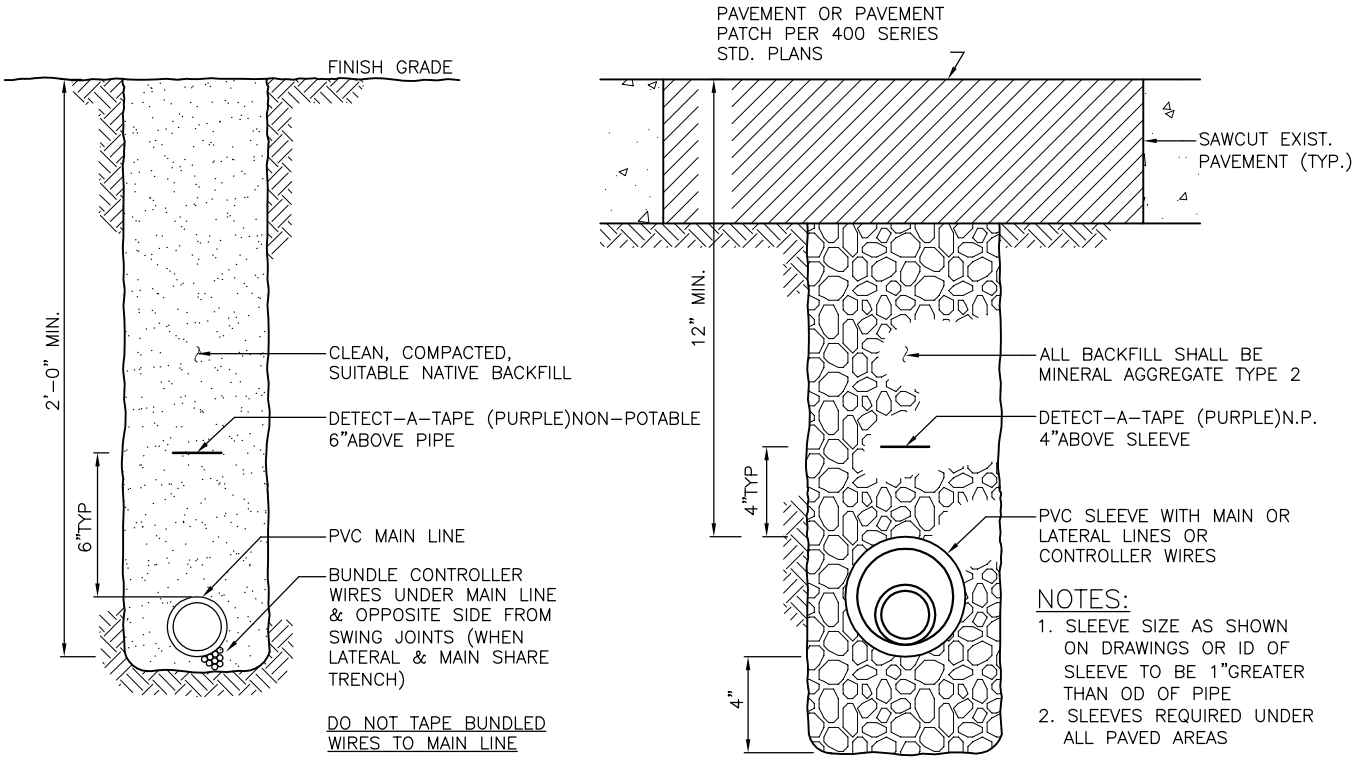
REF STD SPEC SEC 8-03

City of Seattle

NOT TO SCALE

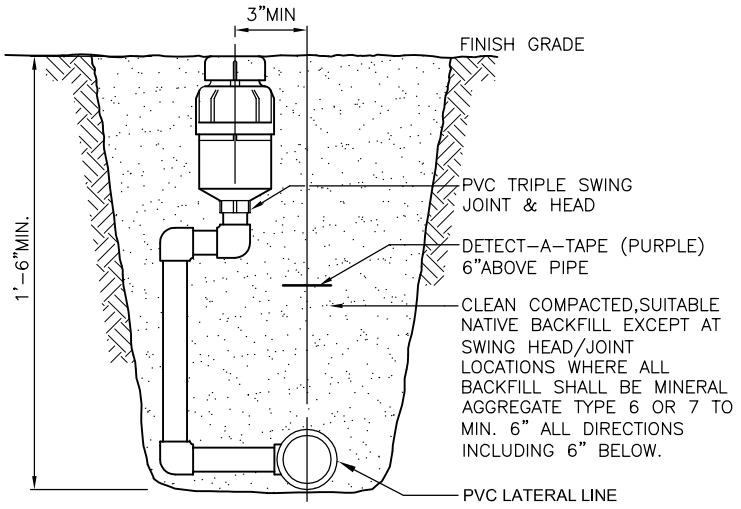
IRRIGATION CONTROLLER PEDESTAL AND ENCLOSURE GROUNDING

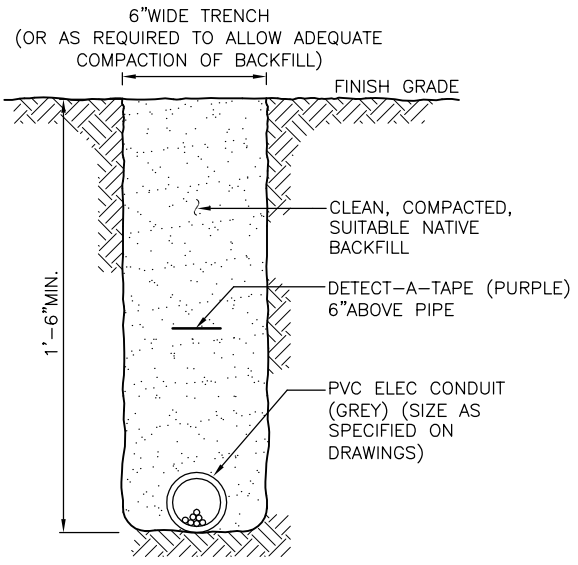
REV DATE: 2003



MAIN LINE

SLEEVE TRENCHING





LATERAL LINE

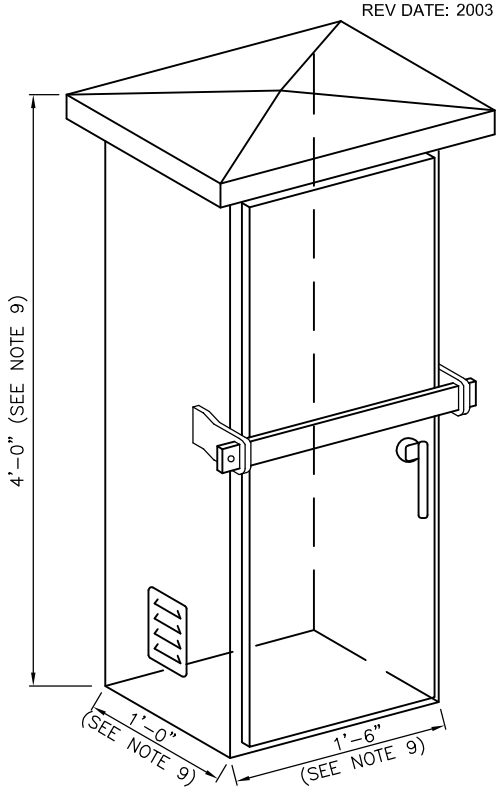
POWER SUPPLY TRENCH

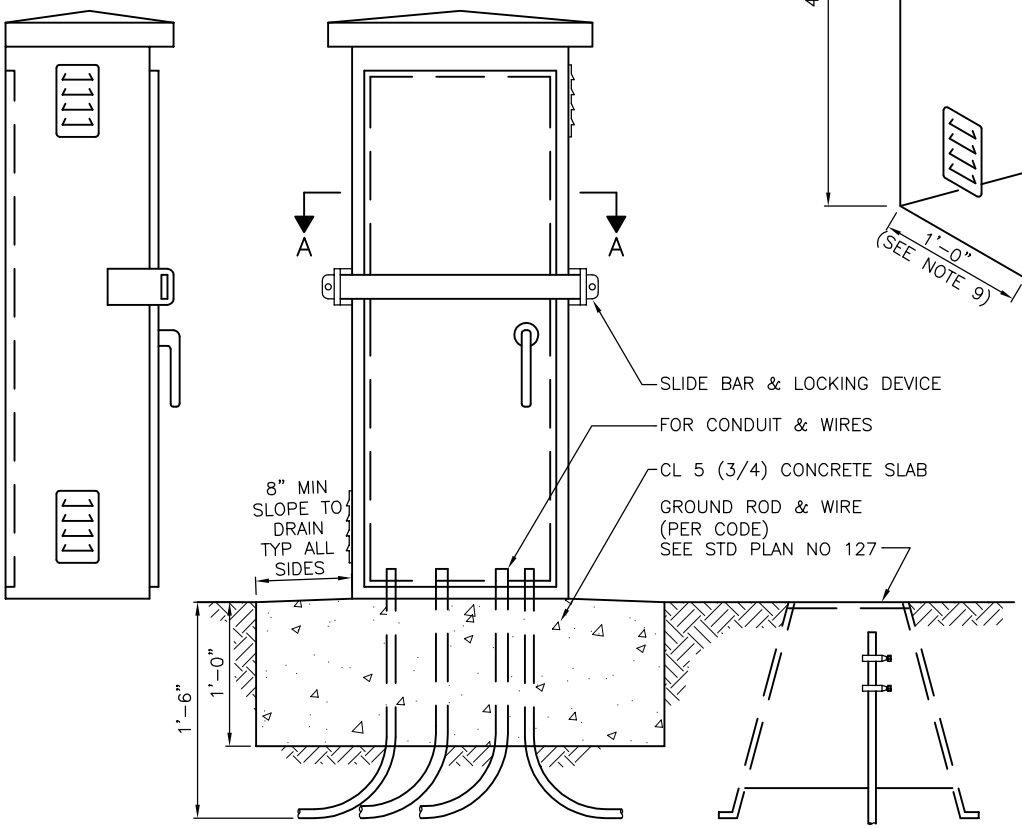
REF STD SPEC SEC 8-03

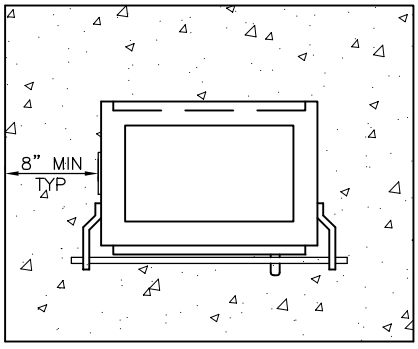
City of Seattle	NOT TO SCALE	IRRIGATION TRENCHES

REV DATE: 2003

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.







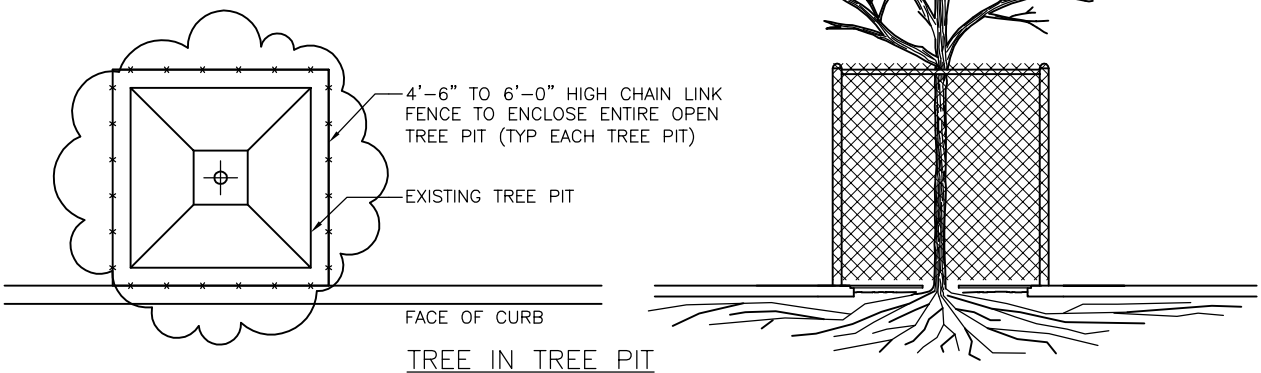
SECTION A-A

REF STD SPEC SEC 8-03

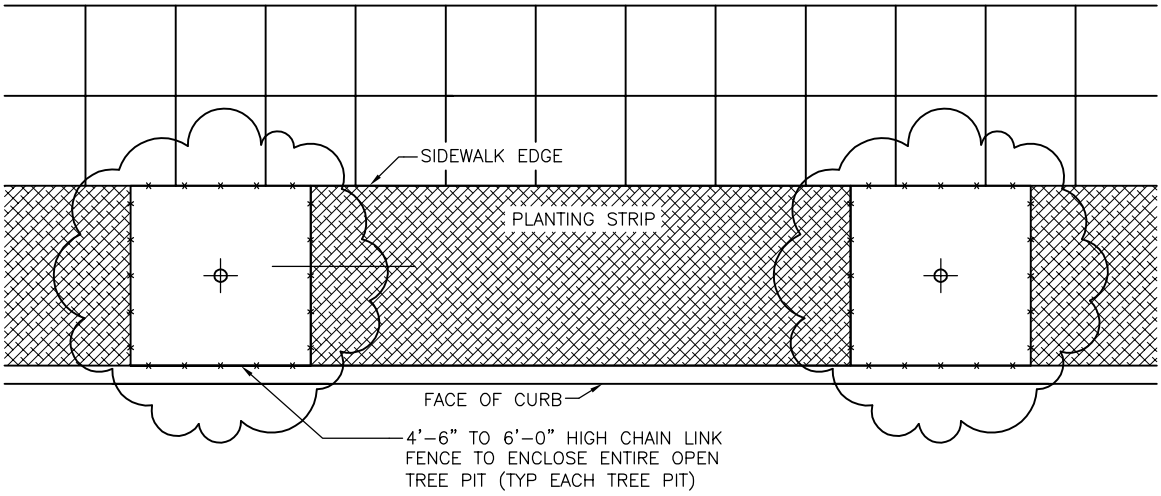
City of Seattle | NOT TO SCALE | IRRIGATION CONTROLLER CABINET

REV DATE: AUG 2010

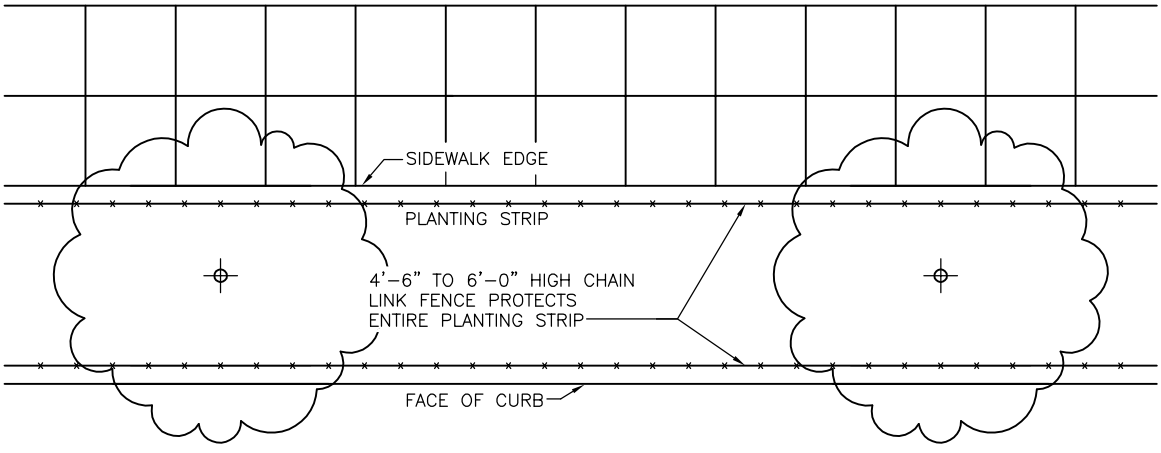
NOTES:
CONSIDER TRAFFIC TURNING VISIBILITY AND PEDESTRIAN VISIBILITY WHEN SELECTING FENCE HEIGHT; TYPICALLY SHORTER FENCING AROUND TREE PITS BETWEEN SIDEWALK AND ROADWAY IS DESIRED.



TREE IN TREE PIT



TREE IN PLANTING STRIP–OPTION 1

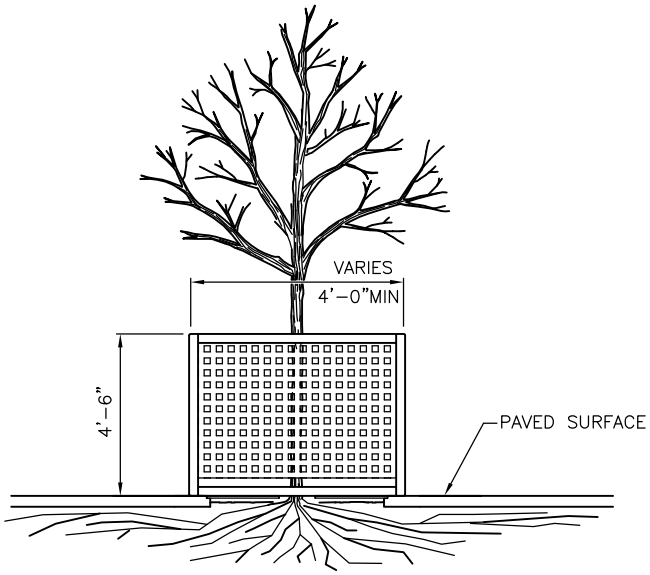


TREE IN PLANTING STRIP–OPTION 2

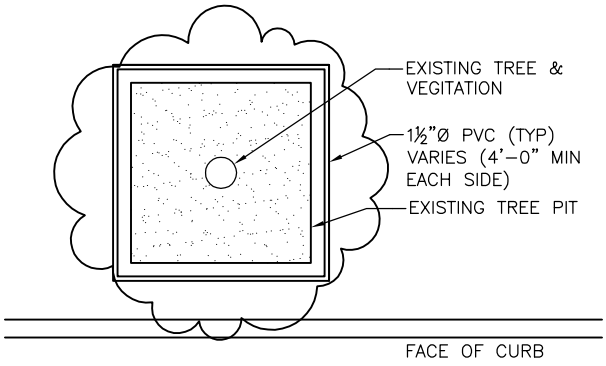
REF STD SPEC SEC 1-07.16(2), 8-01

City of Seattle	NOT TO SCALE	TREE PROTECTION DURING CONSTRUCTION

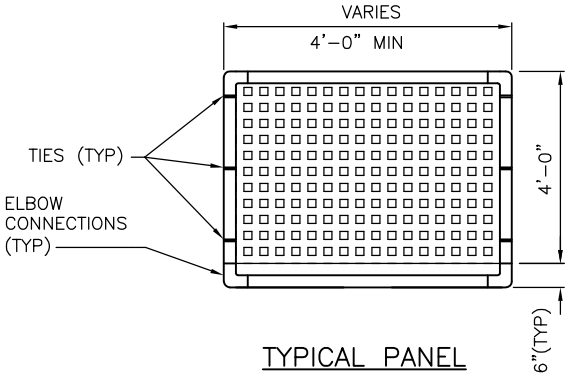
REV DATE: DEC 2010



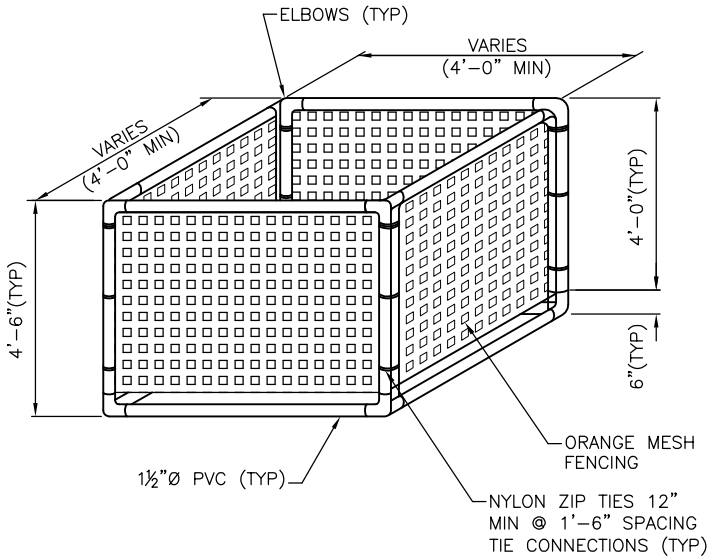
TYPICAL TREE GUARD RAIL



PLAN VIEW



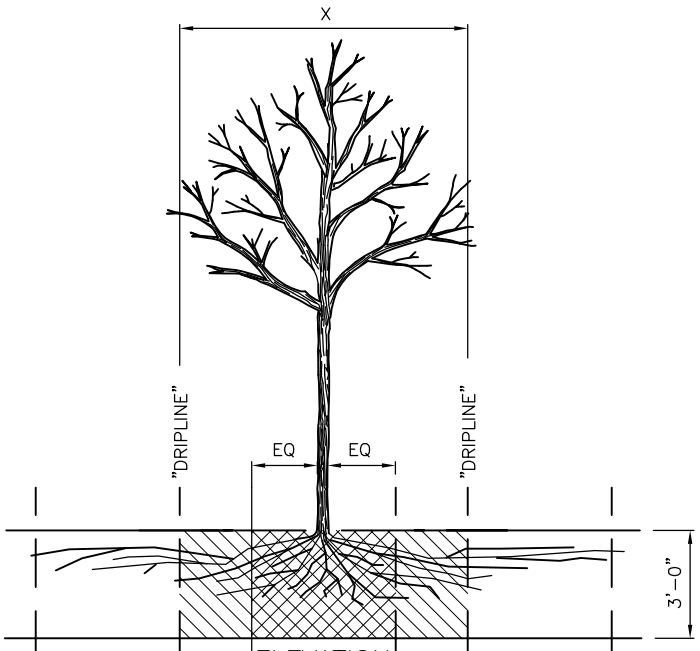
TYPICAL PANEL



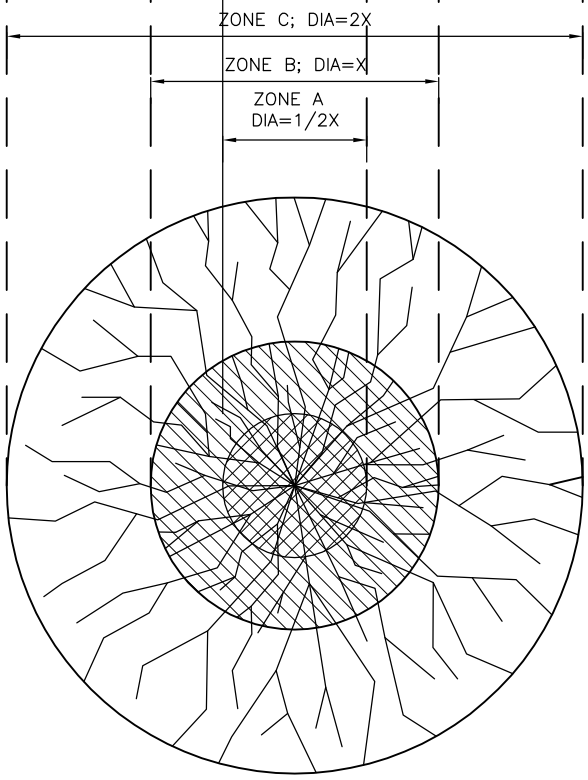
REF STD SPEC SEC 1-07.16(2) & 8-01

City of Seattle	NOT TO SCALE	REUSABLE TEMPORARY TREE & LANDSCAPE PROTECTION FENCE

REV DATE: DEC 2010



ELEVATION



PLAN

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

TRENCHING/EXCAVATION

ZONE A (CRITICAL ROOT ZONE)

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

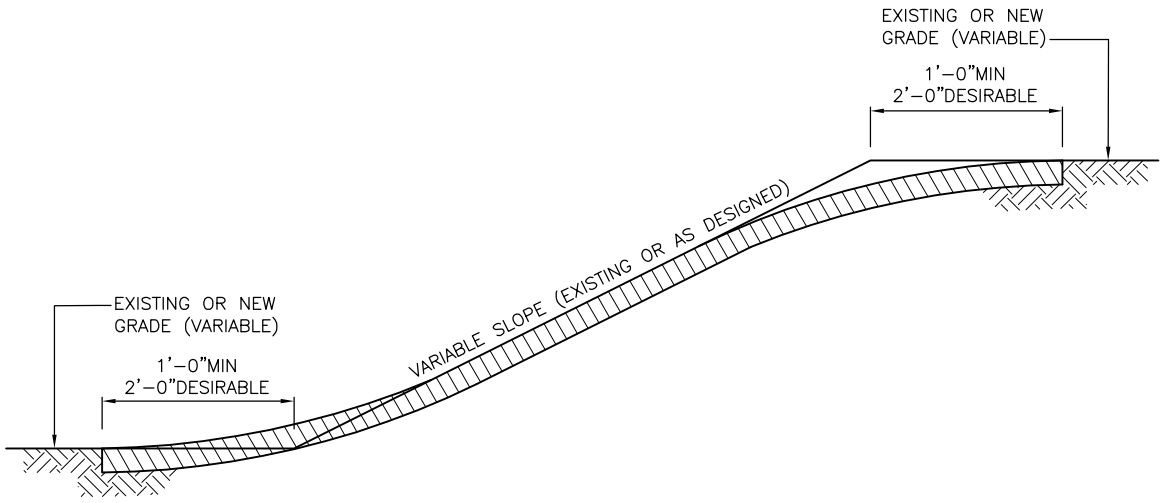
ZONE B (DRIPLINE)

1. ZONE B FOR ASYMMETRICAL COLUMNAR AND NARROW CONICAL TREE FORMS. ZONE B = 1' RADIUS FOR EVERY 1" OF TRUNK DIAMETER.
2. TUNNELING MAY BE REQUIRED FOR TRENCHES DEEPER THAN 3'-0".

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

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

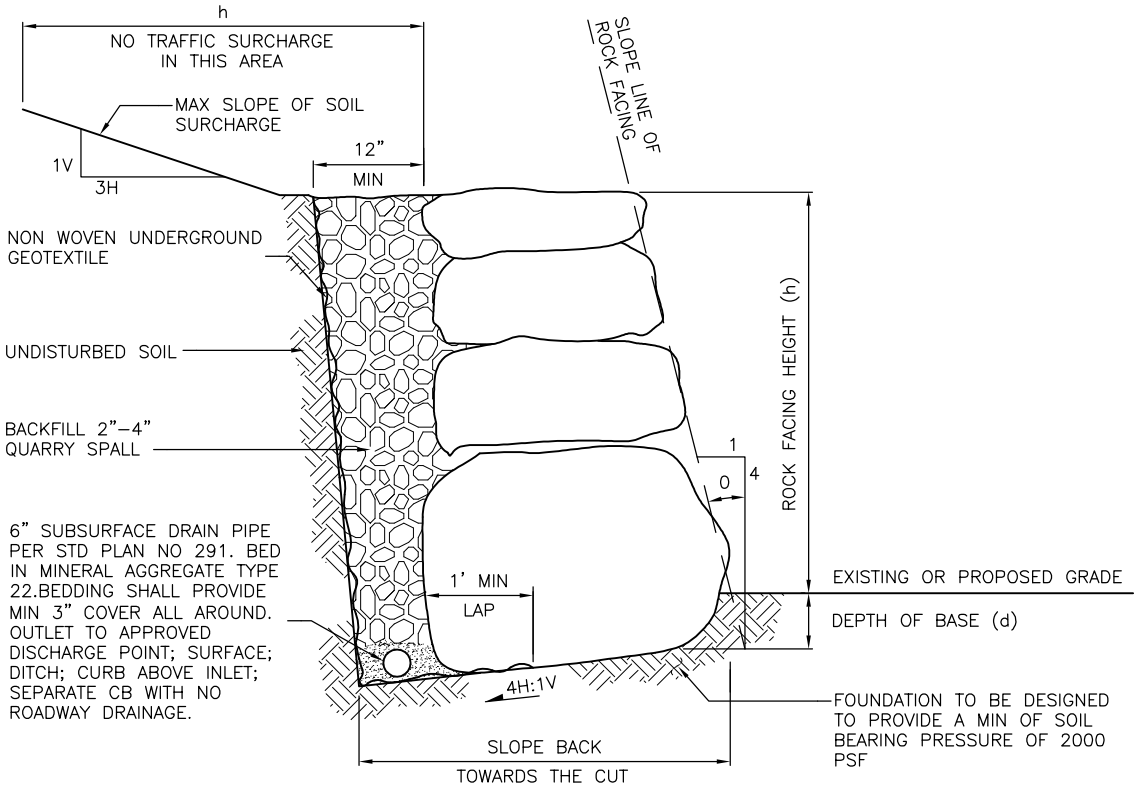
REV DATE: 2003



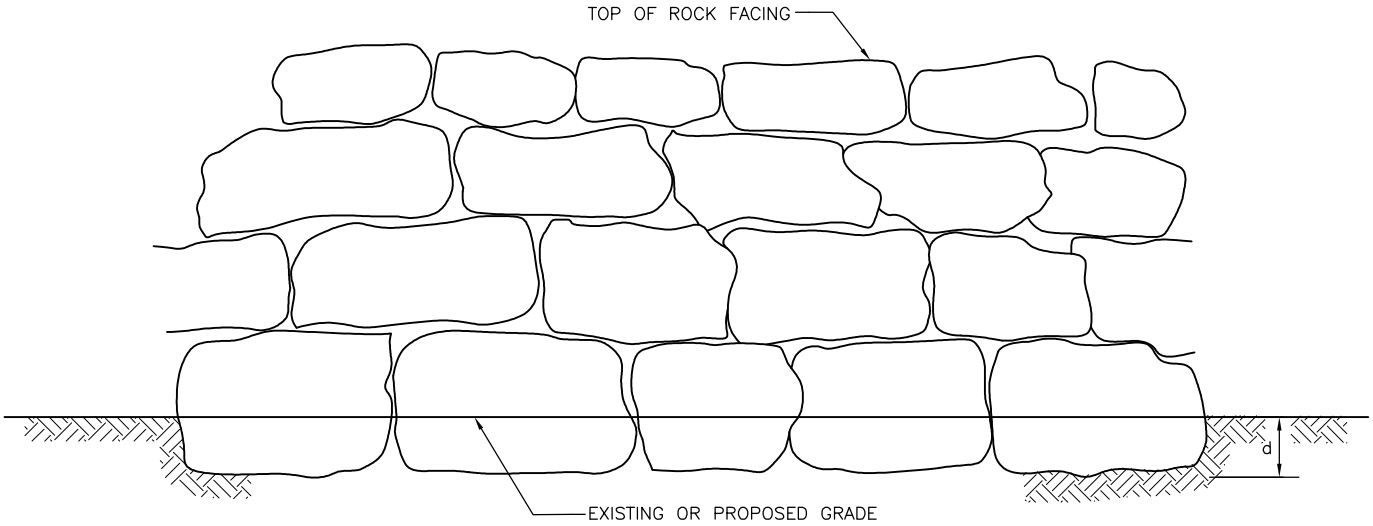
REF STD SPEC SEC 2-04

City of Seattle	NOT TO SCALE	SLOPE ROUNDING

REV DATE: 2003



SECTION



ELEVATION

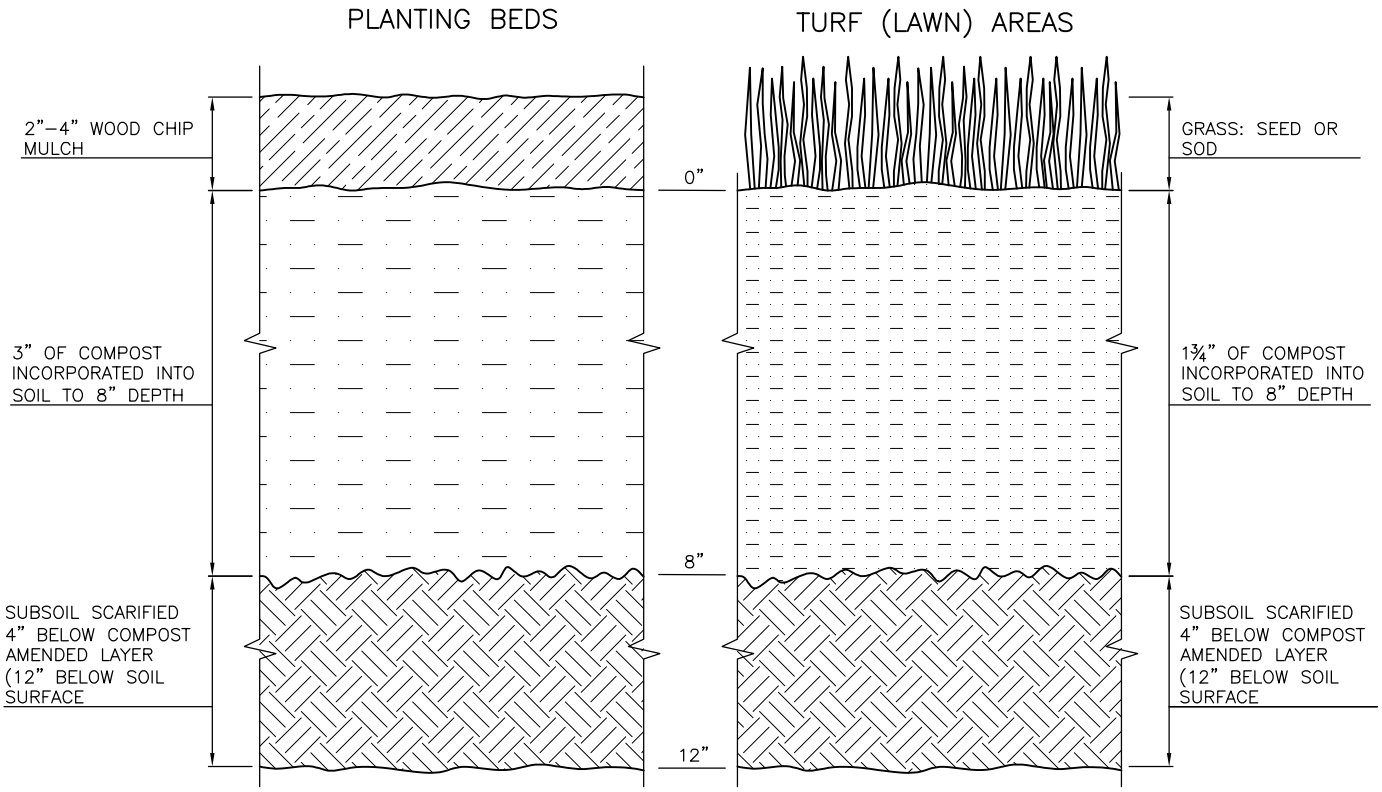
(h)	(d)	MINIMUM ROCK SIZE(BASE)	SIZE(TOP)
2 FEET	3 INCHES	2–MAN	1–MAN
4 FEET	6 INCHES	3–MAN	2–MAN
6 FEET	9 INCHES	4–MAN	2–MAN
8 FEET	12 INCHES	5–MAN	2–MAN

ø = 14° ±1°

REF STD SPEC SEC 2-13

City of Seattle | NOT TO SCALE | ROCK FACING

REV DATE: JUN 2010



NOTES:

1. ALL SOIL AREAS DISTURBED OR COMPACTED DURING CONSTRUCTION, AND NOT COVERED BY BUILDINGS OR PAVEMENT, SHALL BE AMENDED WITH COMPOST TO A MINIMUM 8" DEPTH, AND SUBSOIL SCARIFIED 4" BELOW THAT COMPOST–AMENDED LAYER, FOR A FINISHED 12" OF UNCOMPACTED DEPTH IN ALL LANDSCAPE AREAS.

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

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

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

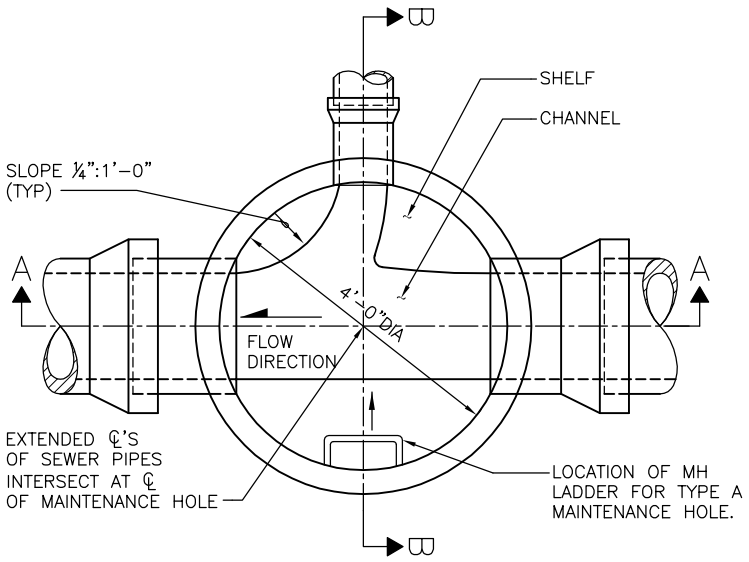
5. PLANTING BEDS SHALL RECEIVE 3 INCHES OF COMPOST TILLED IN TO 8–INCH DEPTH, OR PLACE 8" OF IMPORTED SOIL CONTAINING 35–40% COMPOST BY VOLUME. MULCH AFTER PLANTING, WITH 2–4 INCHES OF ARBORIST WOOD CHIP MULCH OR APPROVED EQUAL.

6. REFER TO CITY OF SEATTLE STANDARD SPECIFICATIONS:
   8–01 TREE, VEGETATION, AND SOIL PROTECTION PLAN (TVSPP).
   8–02 TOPSOIL TYPE B.
   9–14.1 TOPSOIL TYPE A – IMPORTED, TOPSOIL TYPE B – REUSED AMENDED SITE SOIL, PLANTING SOIL, AND TURF AREA SOIL, ARBORIST WOOD CHIP MULCH, AND COMPOSTED MATERIAL (COMPOST).

REF STD SPEC SEC 8-02

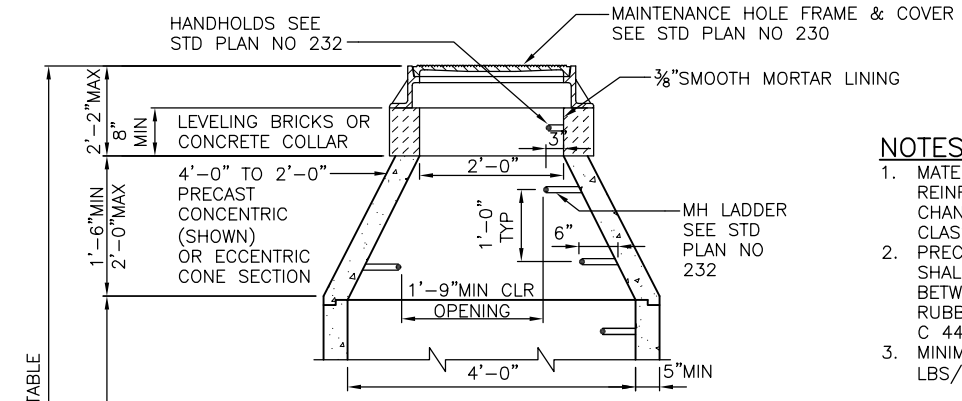
City of Seattle	NOT TO SCALE	SOIL AMENDMENT AND DEPTH

REV DATE: DEC 2010

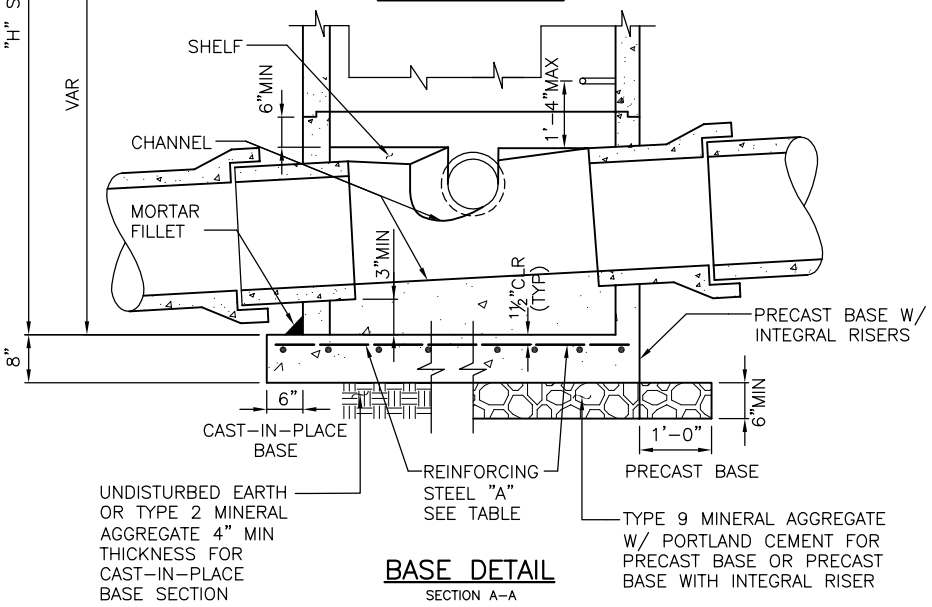


PLAN VIEW
(TOP REMOVED)

"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



BASE DETAIL
SECTION A–A

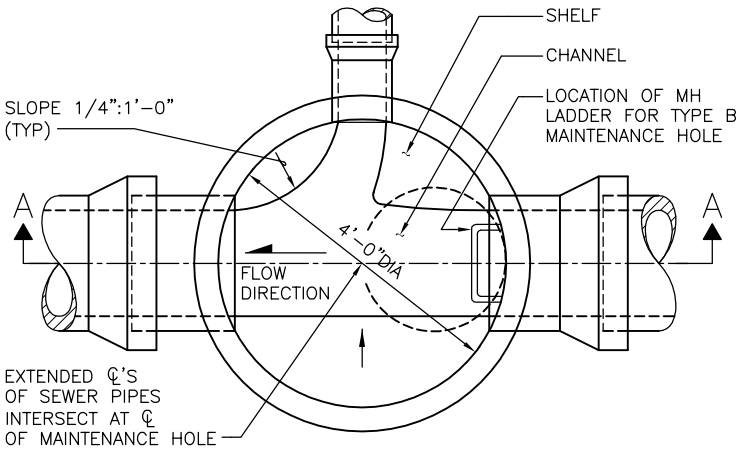
NOTES:

1. MATERIAL; CONCRETE–CLASS 4000 REINFORCING STEEL–ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

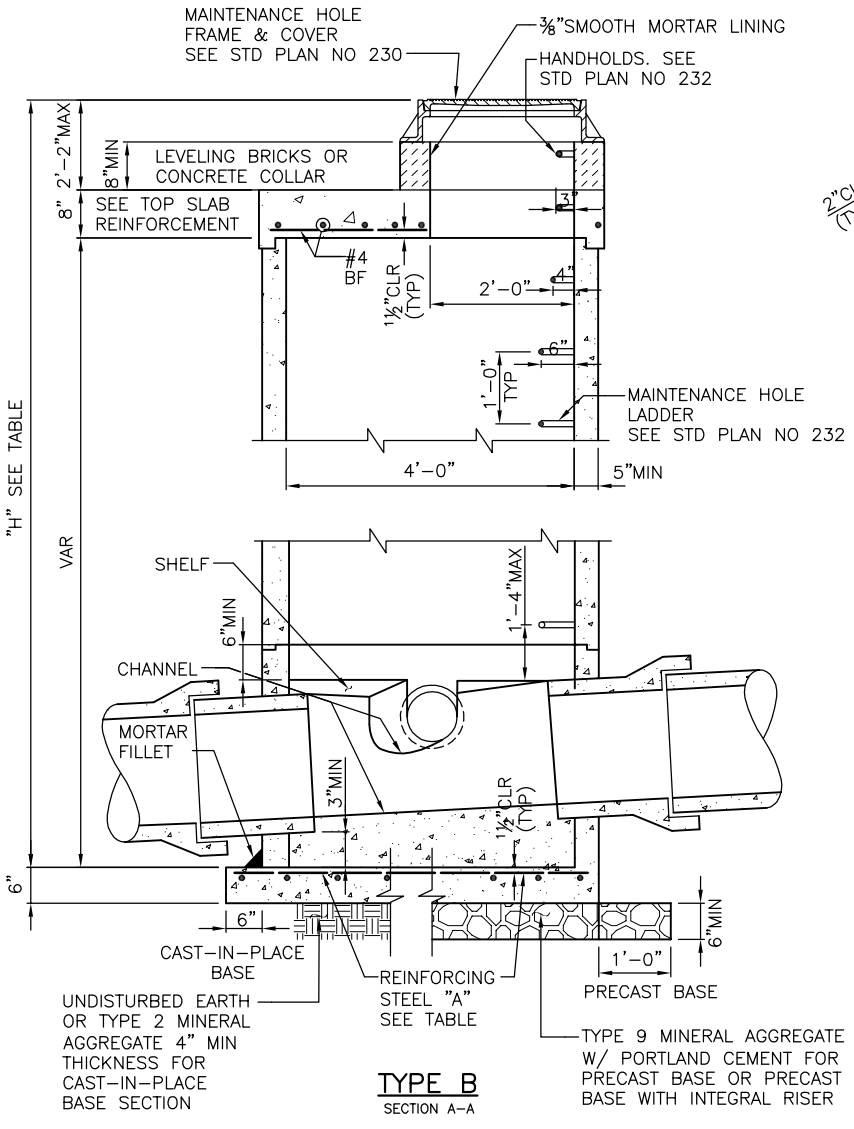
City of Seattle	NOT TO SCALE	TYPE 204A MAINTENANCE HOLE

REV DATE: DEC 2010

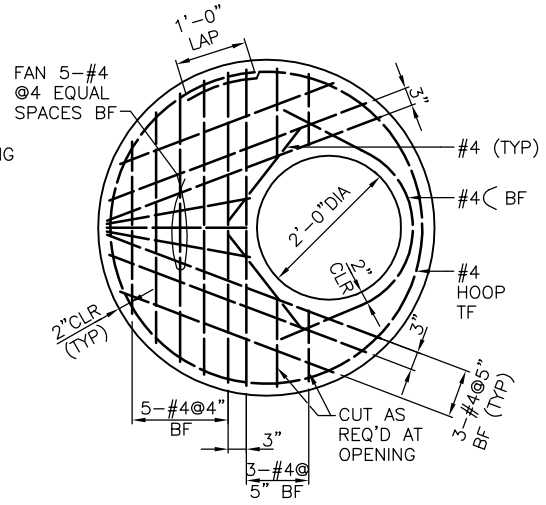


PLAN VIEW
(TOP REMOVED)

"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



TYPE B
SECTION A-A



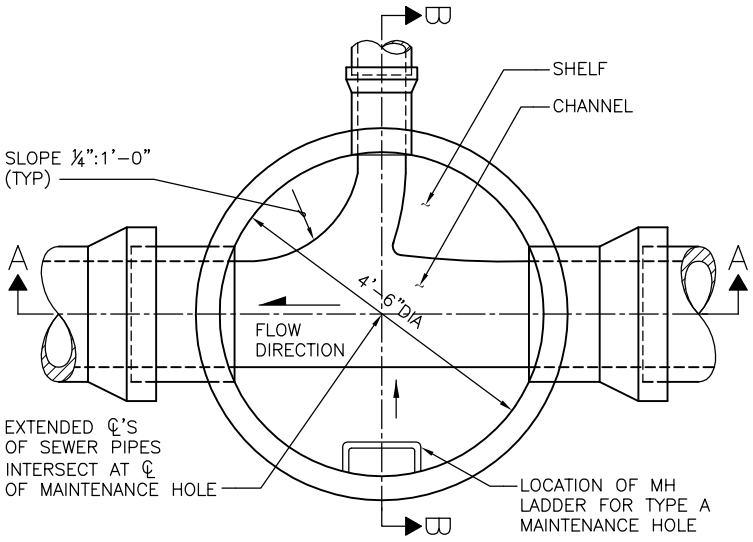
NOTES:

1. MATERIAL; CONCRETE-CLASS 4000 REINFORCING STEEL-ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

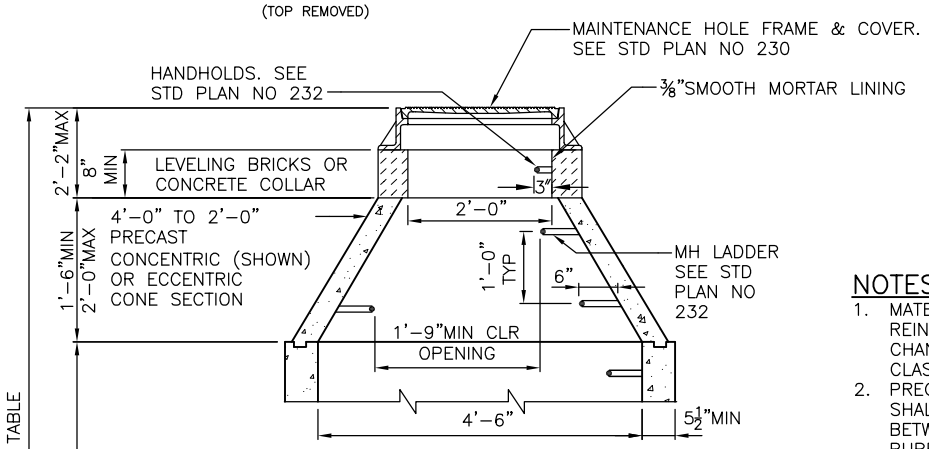
City of Seattle	NOT TO SCALE	TYPE 204B MAINTENANCE HOLE

REV DATE: DEC 2010

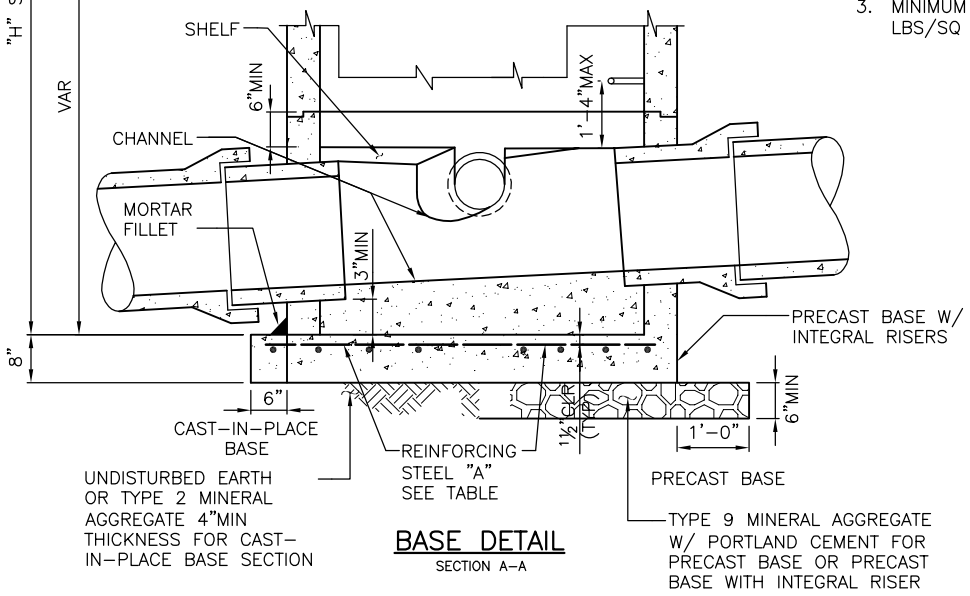


PLAN VIEW
(TOP REMOVED)

"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



BASE DETAIL
SECTION A–A

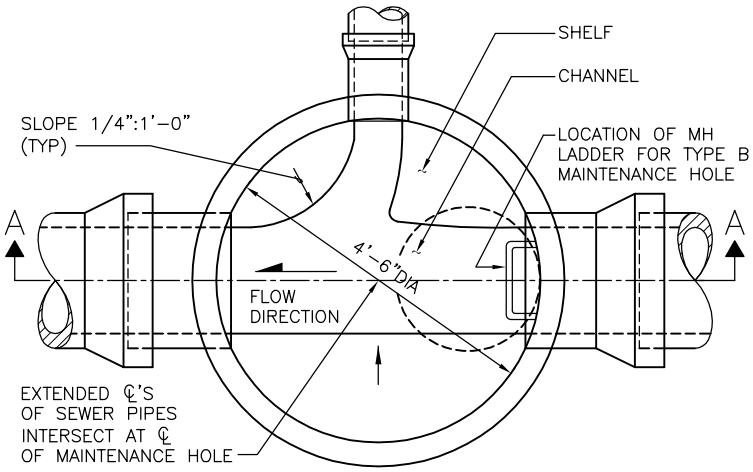
NOTES:

1. MATERIAL; CONCRETE–CLASS 4000 REINFORCING STEEL–ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

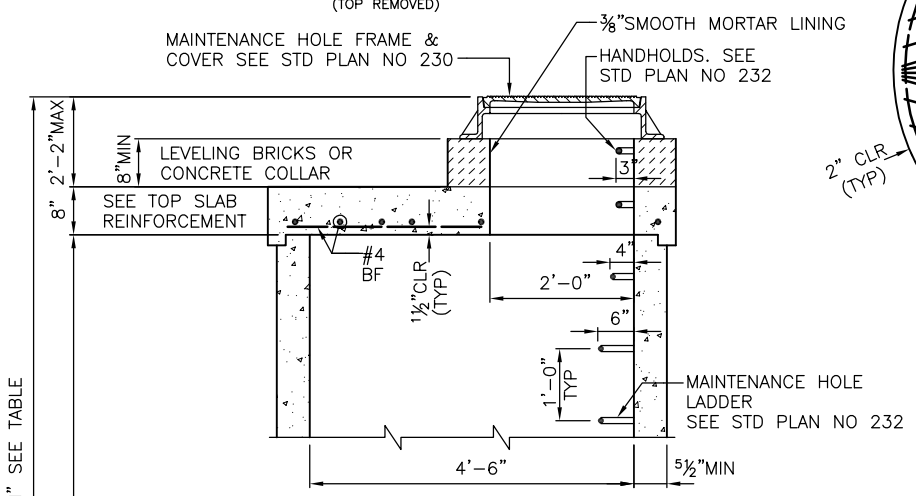
City of Seattle	NOT TO SCALE	TYPE 204.5A MAINTENANCE HOLE

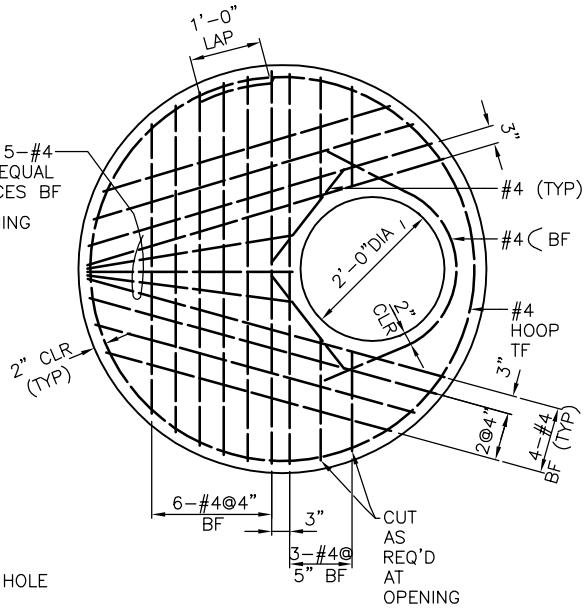
REV DATE: DEC 2010



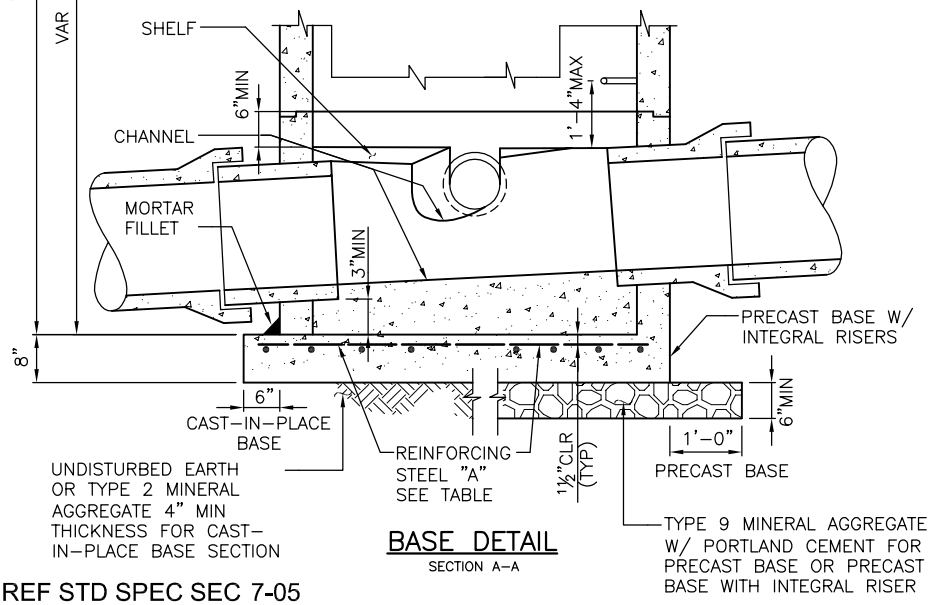
PLAN VIEW
(TOP REMOVED)

"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



BASE DETAIL
SECTION A-A

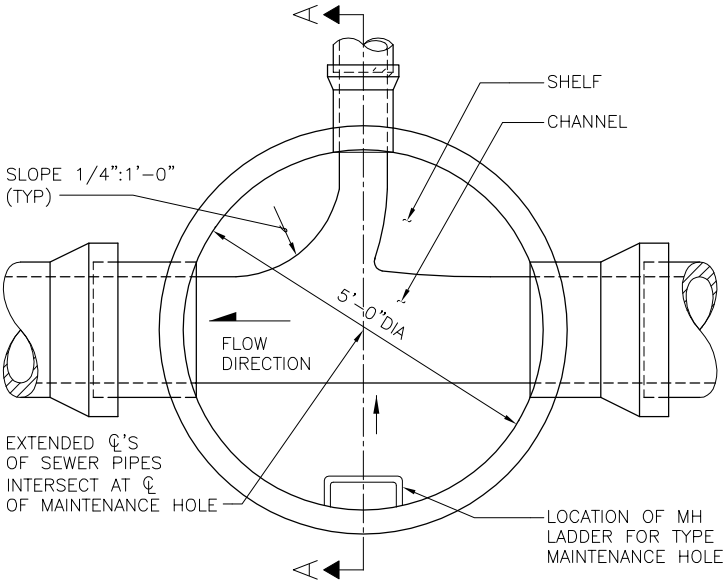
NOTES:

1. MATERIAL; CONCRETE-CLASS 4000 REINFORCING STEEL-ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

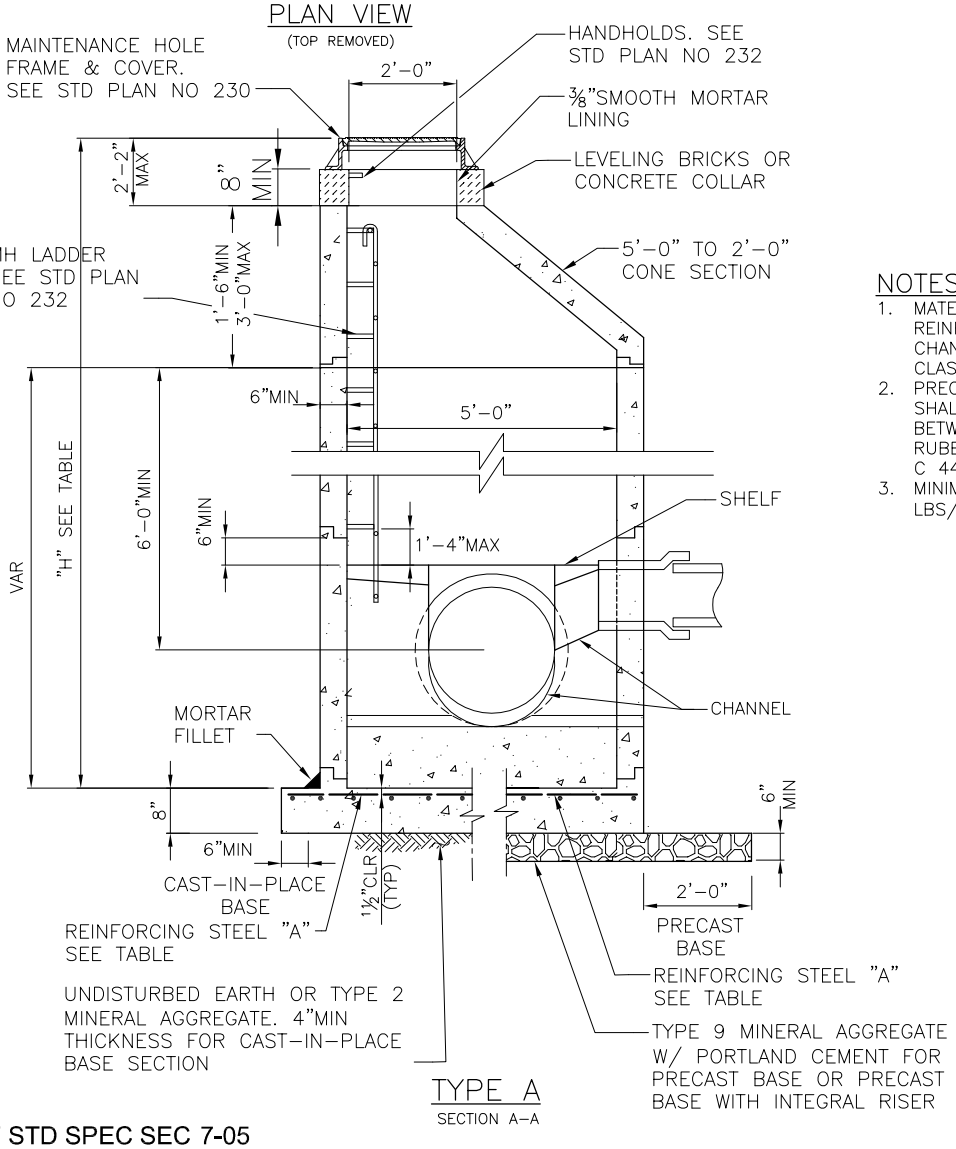
City of Seattle	NOT TO SCALE	TYPE 204.5B MAINTENANCE HOLE

REV DATE: DEC 2010



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



TYPE A
SECTION A-A

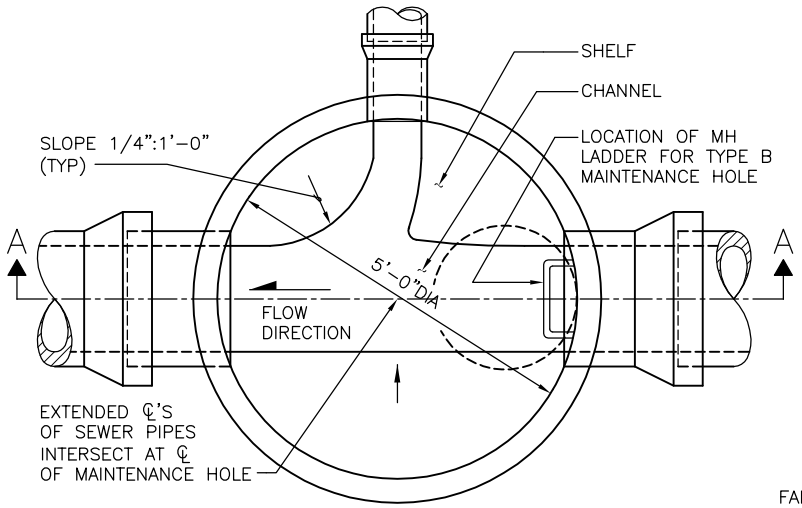
NOTES:

1. MATERIAL; CONCRETE-CLASS 4000 REINFORCING STEEL-ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

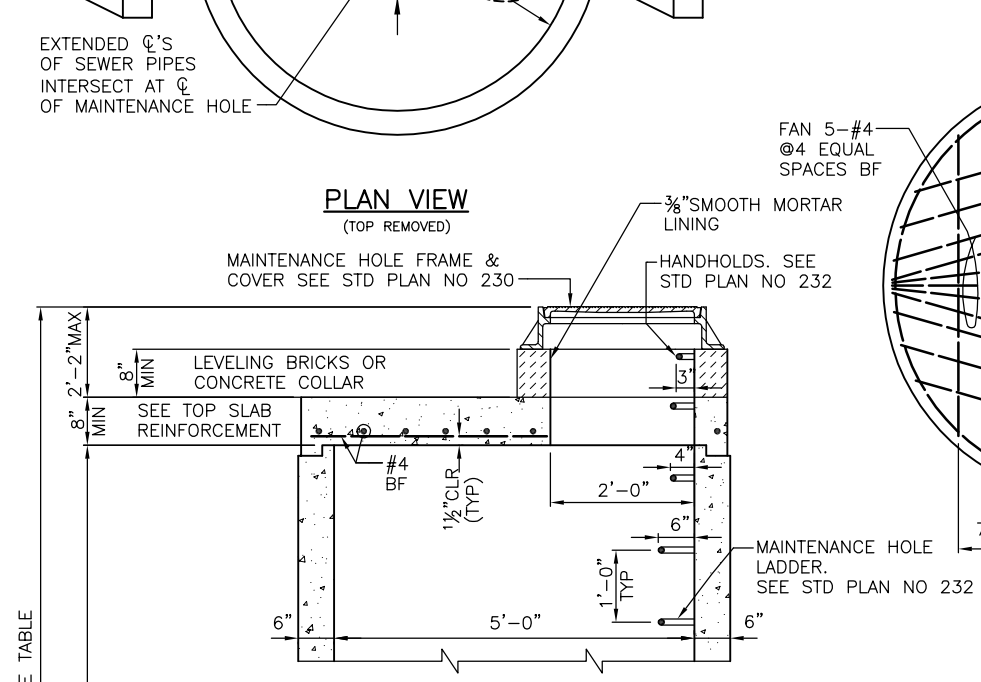
City of Seattle	NOT TO SCALE	TYPE 205A MAINTENANCE HOLE

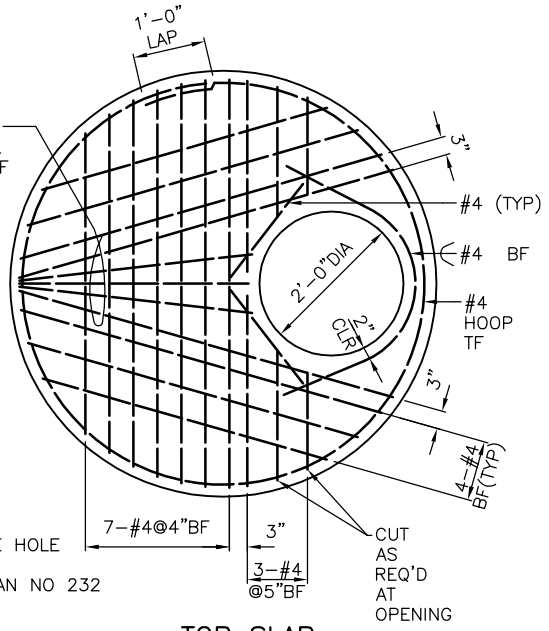
REV DATE: DEC 2010



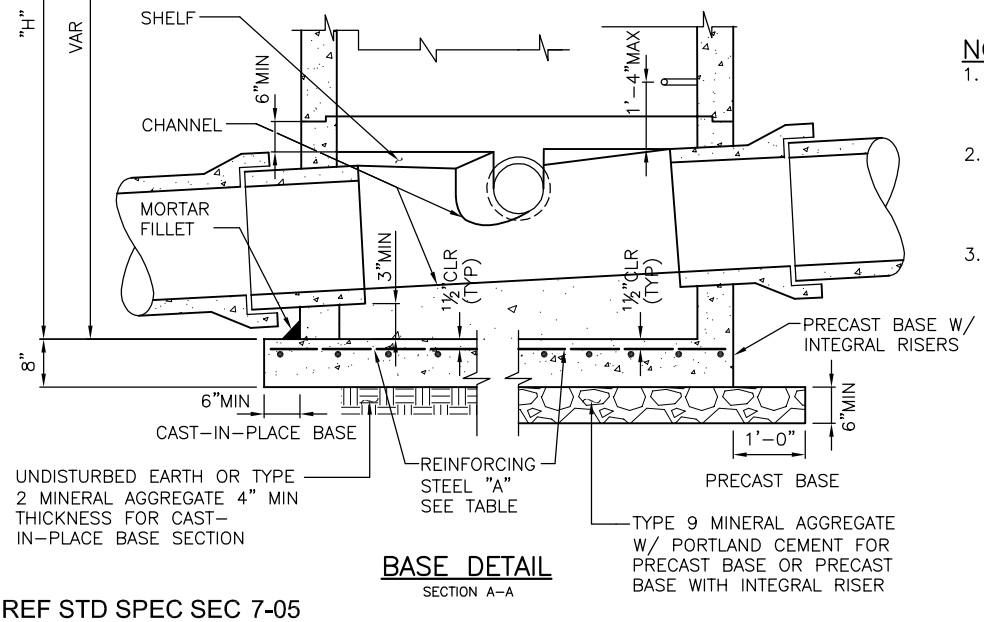
PLAN VIEW
(TOP REMOVED)

"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



BASE DETAIL
SECTION A-A

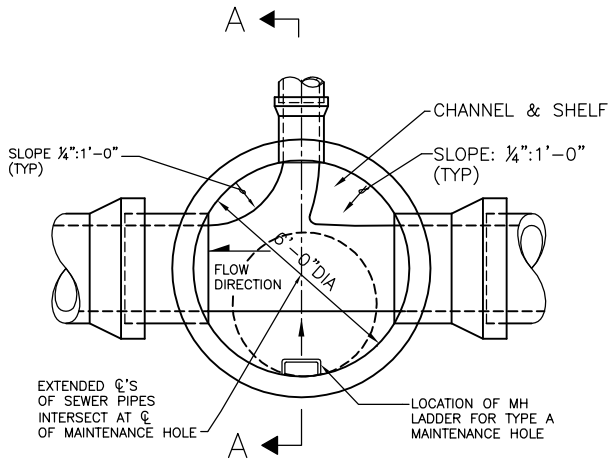
NOTES:

1. MATERIAL; CONCRETE-CLASS 4000 REINFORCING STEEL-ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

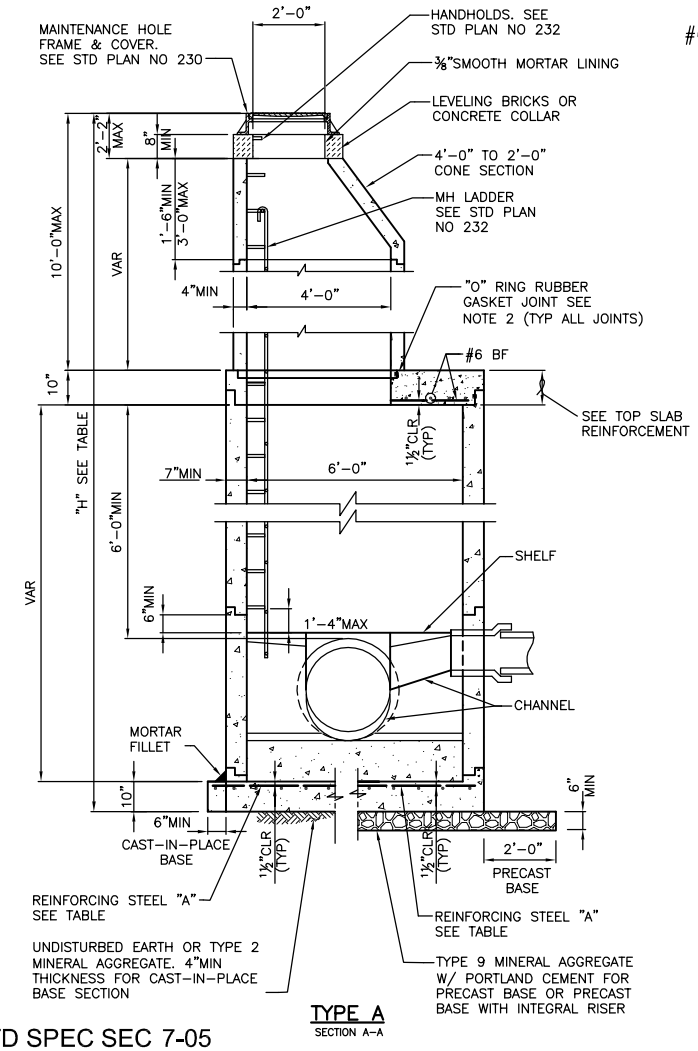
City of Seattle | NOT TO SCALE | TYPE 205B MAINTENANCE HOLE

REV DATE: DEC 2010

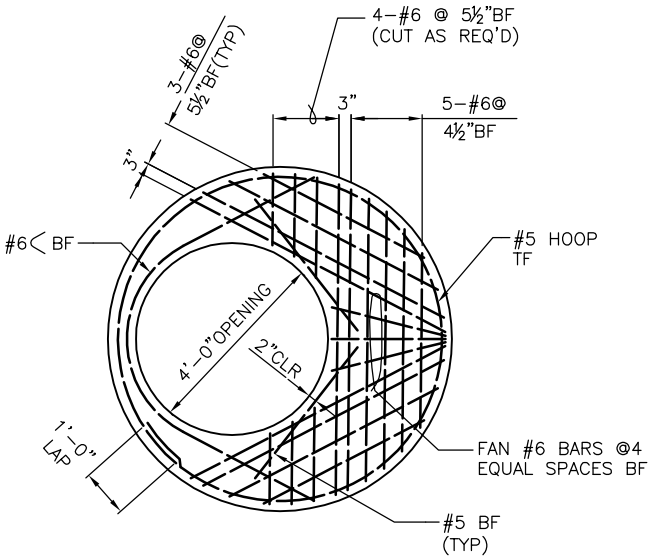


PLAN VIEW
(TOP REMOVED)

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



TYPE A
SECTION A–A



TOP SLAB REINFORCEMENT

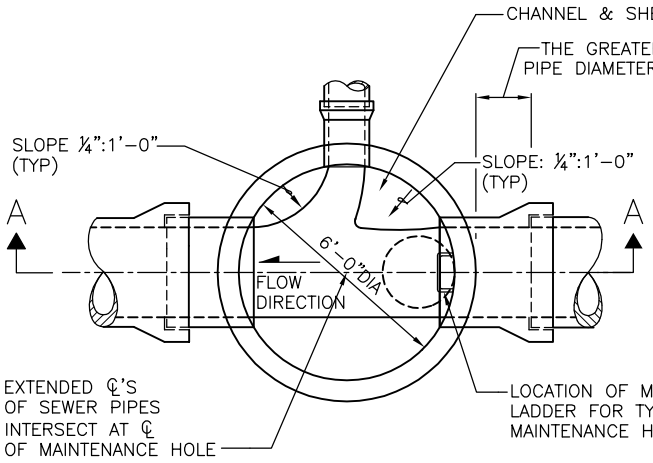
NOTES:

1. MATERIAL; CONCRETE–CLASS 4000 REINFORCING STEEL–ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

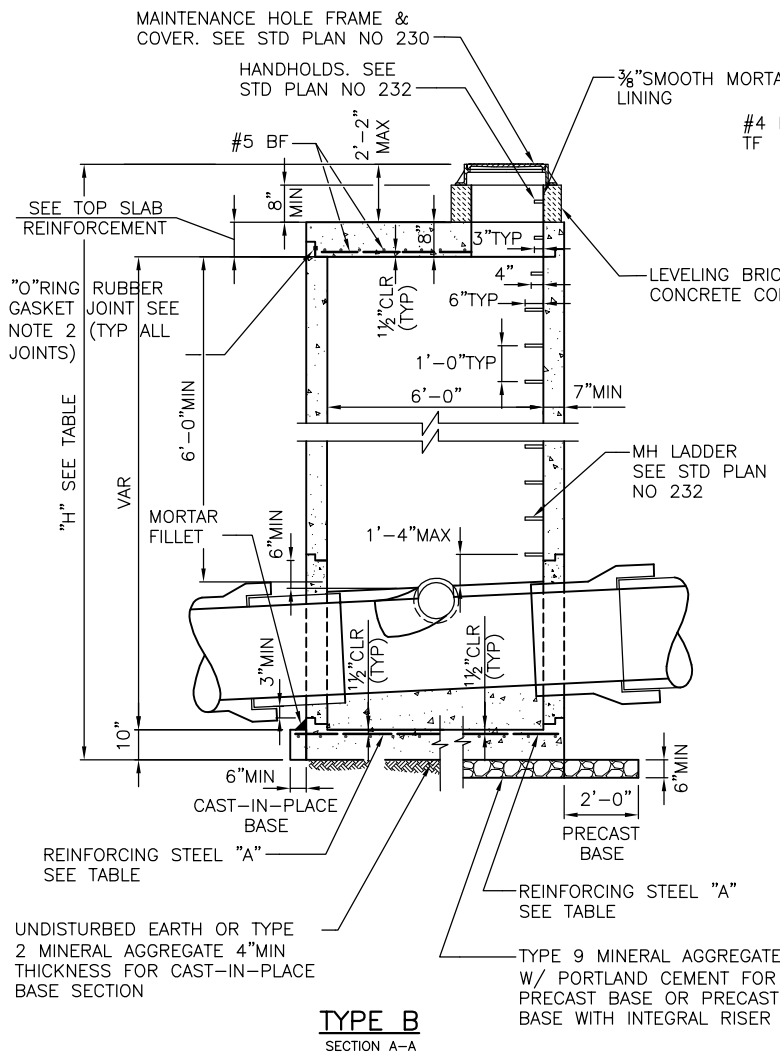
City of Seattle | NOT TO SCALE | TYPE 206A MAINTENANCE HOLE

REV DATE: DEC 2010

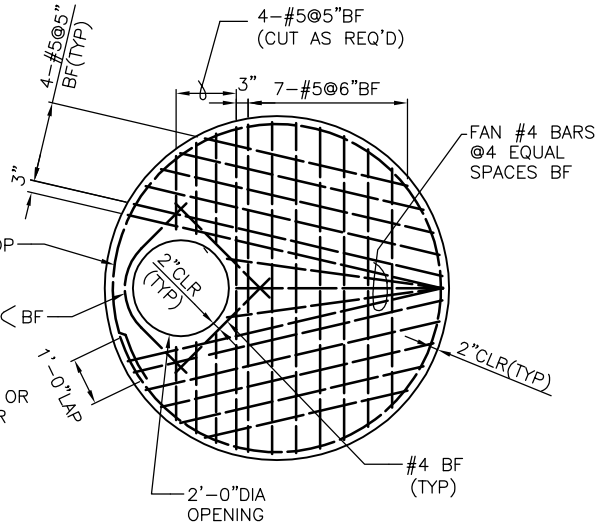


PLAN VIEW
(TOP REMOVED)

"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



TYPE B
SECTION A–A



TOP SLAB REINFORCEMENT

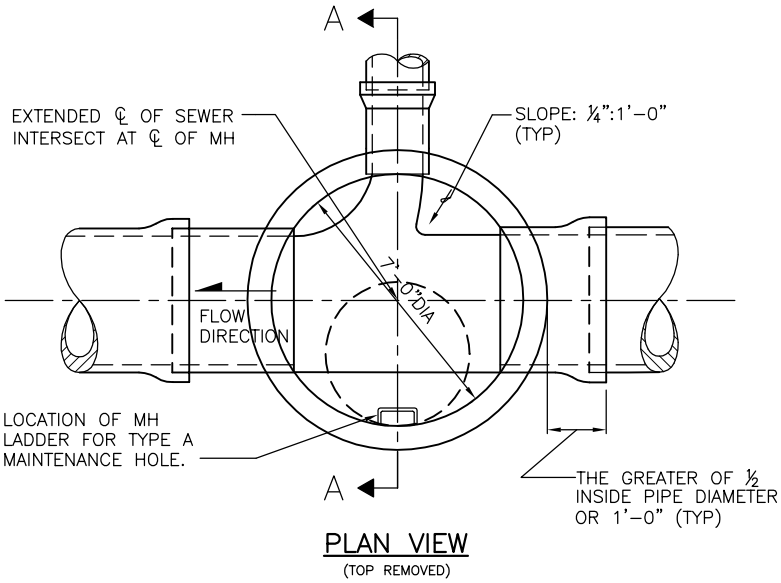
NOTES:

1. MATERIAL; CONCRETE–CLASS 4000 REINFORCING STEEL–ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

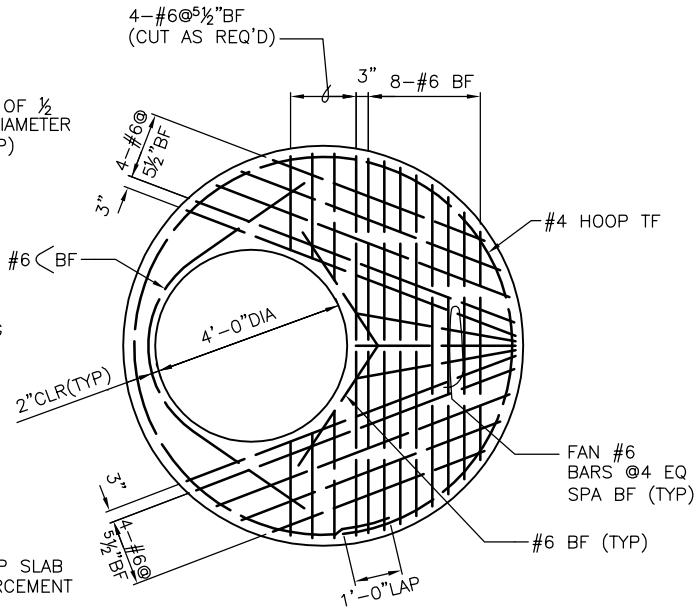
City of Seattle	NOT TO SCALE	TYPE 206B MAINTENANCE HOLE

REV DATE: DEC 2010

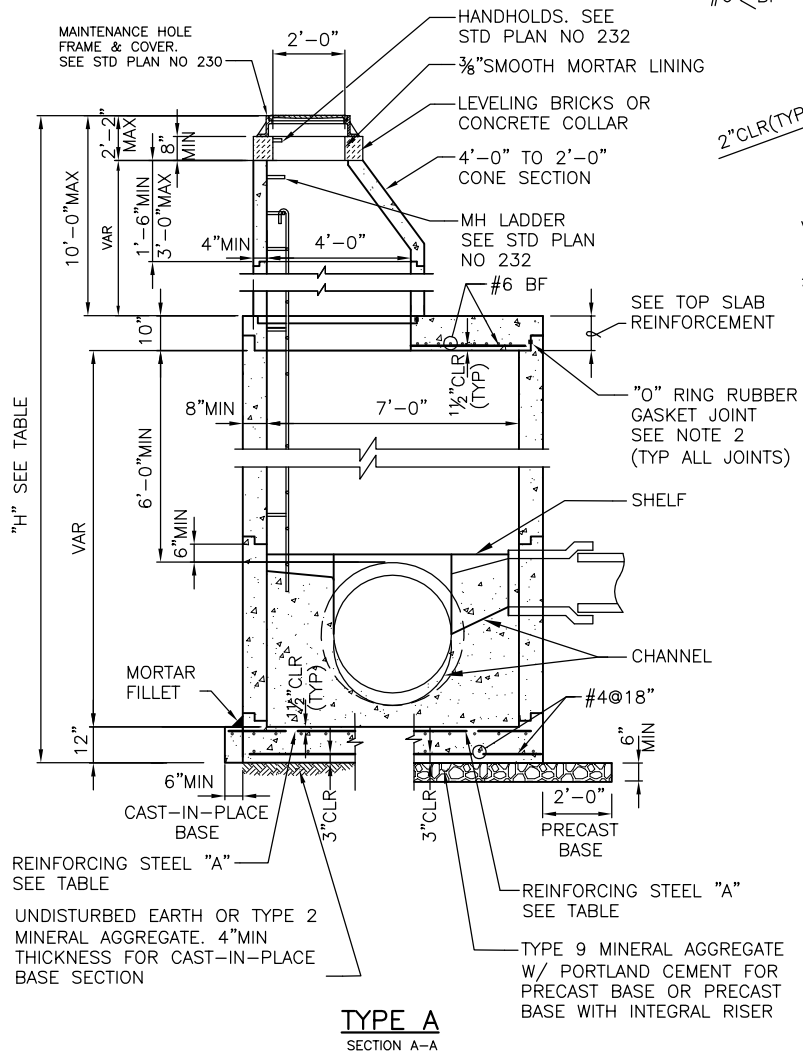


PLAN VIEW
(TOP REMOVED)

"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



TYPE A
SECTION A–A

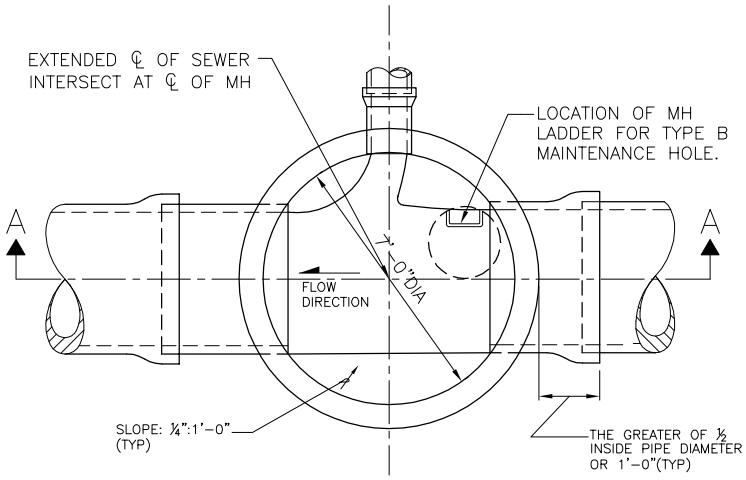
NOTES:

1. MATERIAL; CONCRETE–CLASS 4000 REINFORCING STEEL–ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

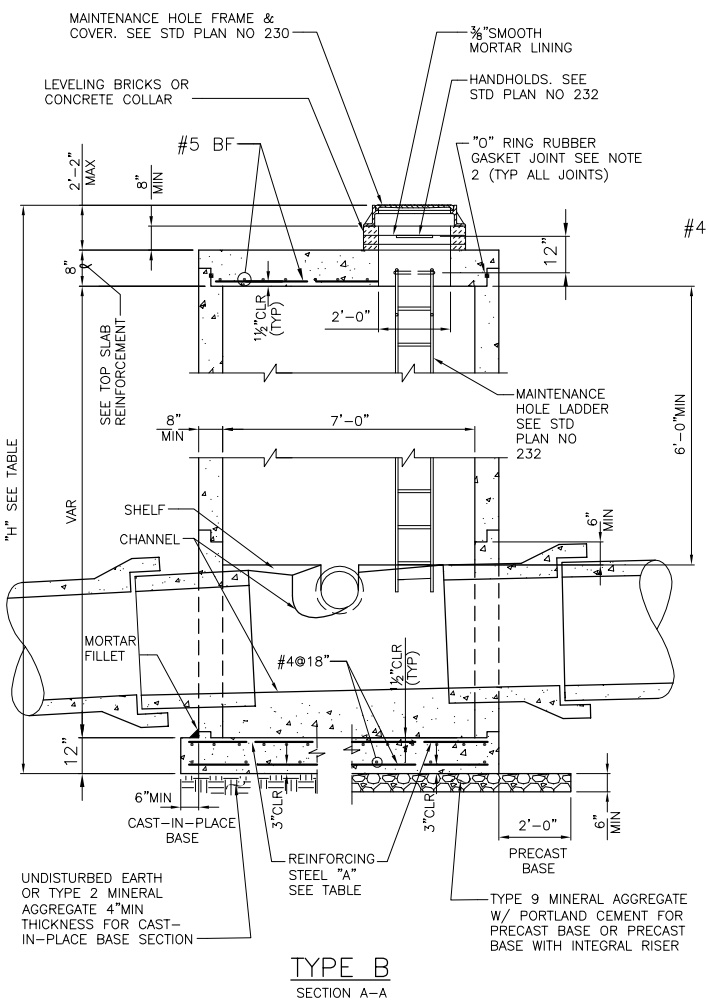
City of Seattle | NOT TO SCALE | TYPE 207A MAINTENANCE HOLE

REV DATE: DEC 2010

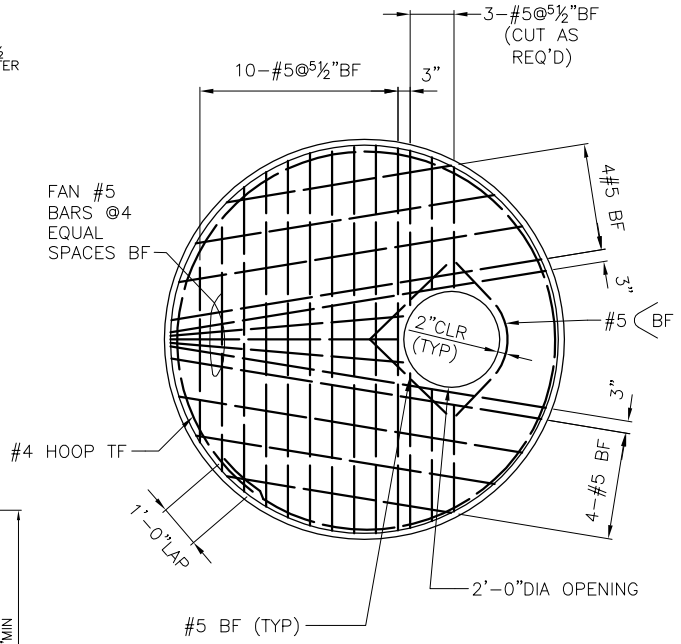


PLAN VIEW
(TOP REMOVED)

"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



TYPE B
SECTION A-A



TOP SLAB REINFORCEMENT

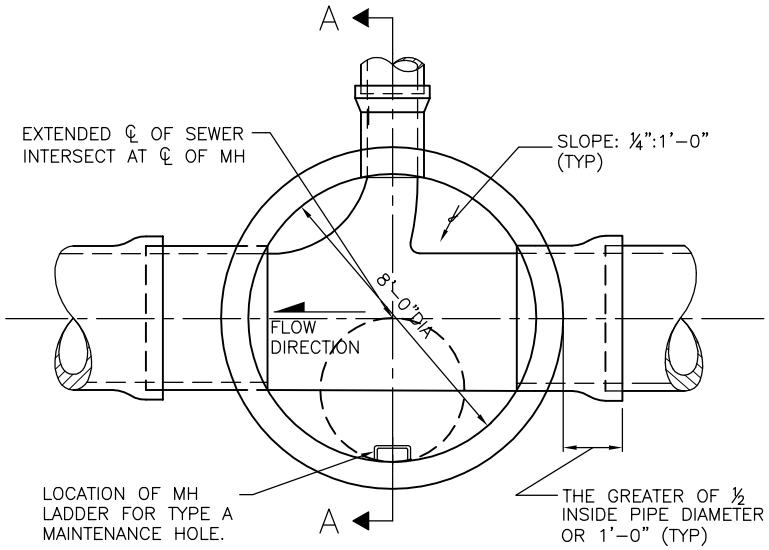
NOTES:

1. MATERIAL; CONCRETE-CLASS 4000 REINFORCING STEEL-ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

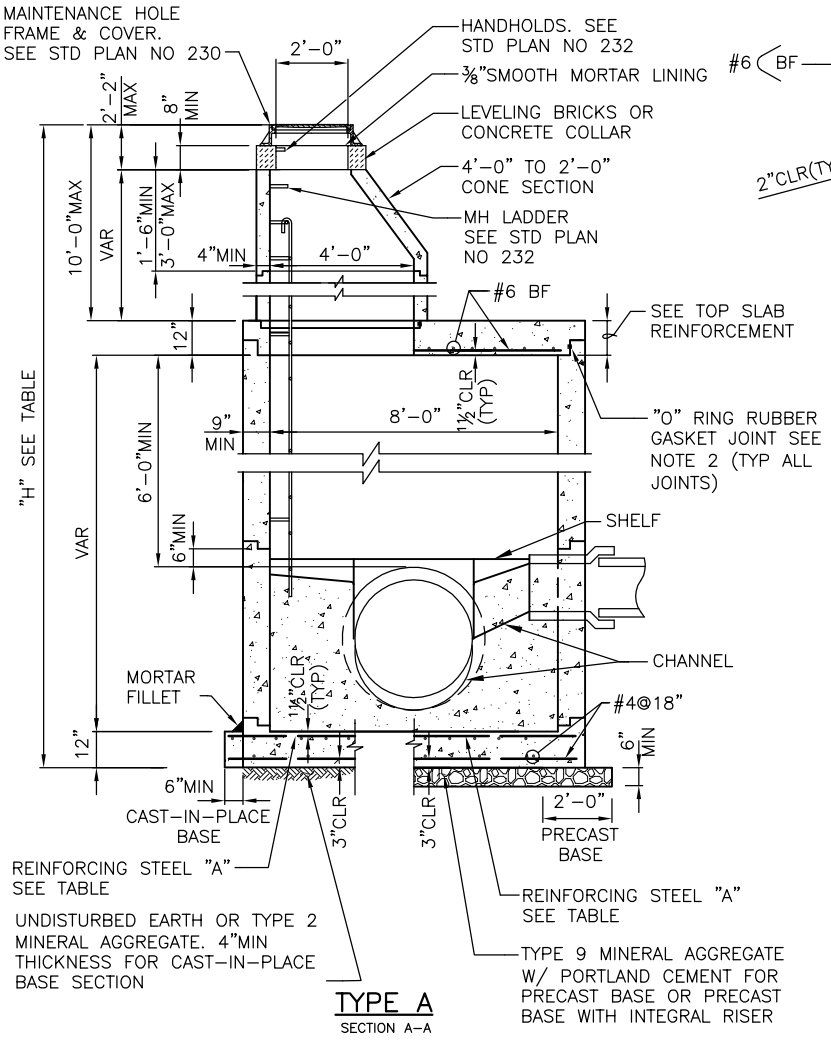
City of Seattle	NOT TO SCALE	TYPE 207B MAINTENANCE HOLE

REV DATE: DEC 2010

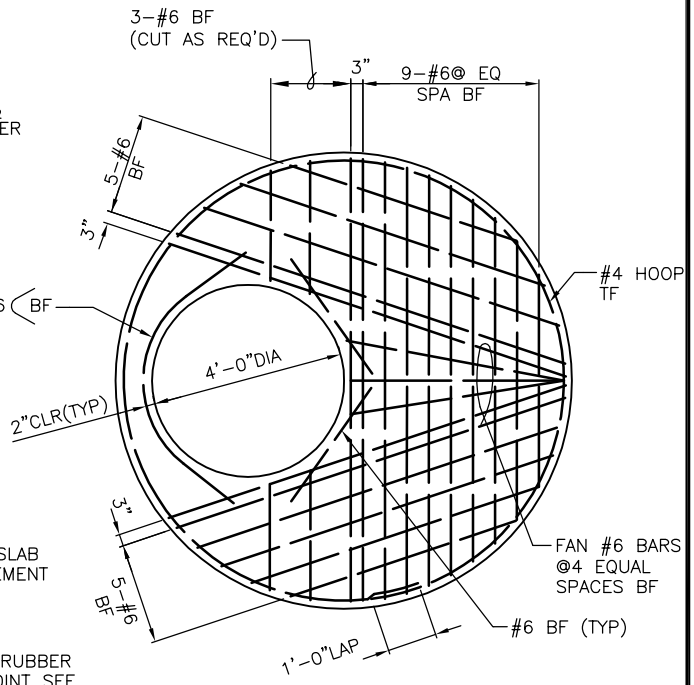


PLAN VIEW
(TOP REMOVED)

"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



TYPE A
SECTION A–A



TOP SLAB REINFORCEMENT

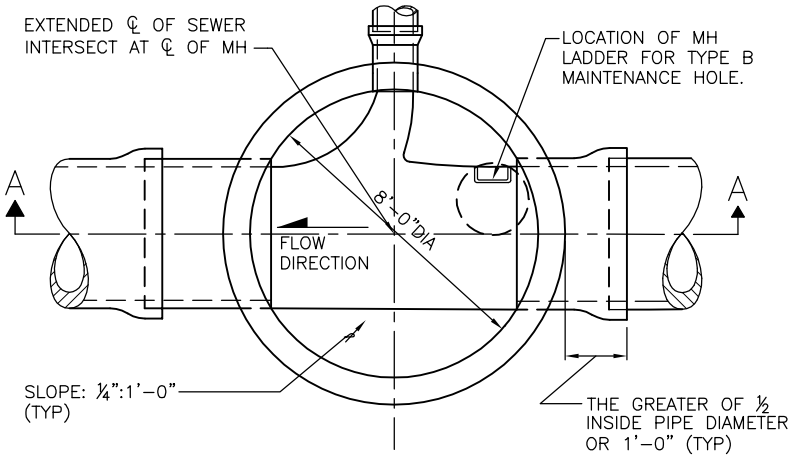
NOTES:

1. MATERIAL; CONCRETE–CLASS 4000 REINFORCING STEEL–ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

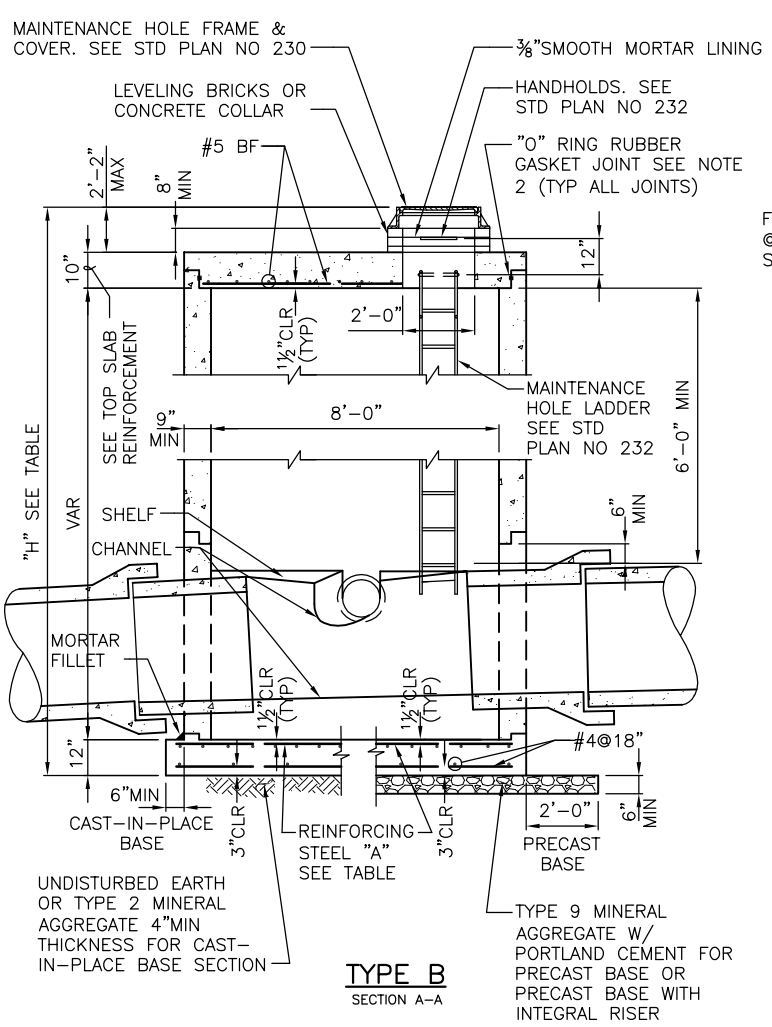
City of Seattle	NOT TO SCALE	TYPE 208A MAINTENANCE HOLE

REV DATE: DEC 2010

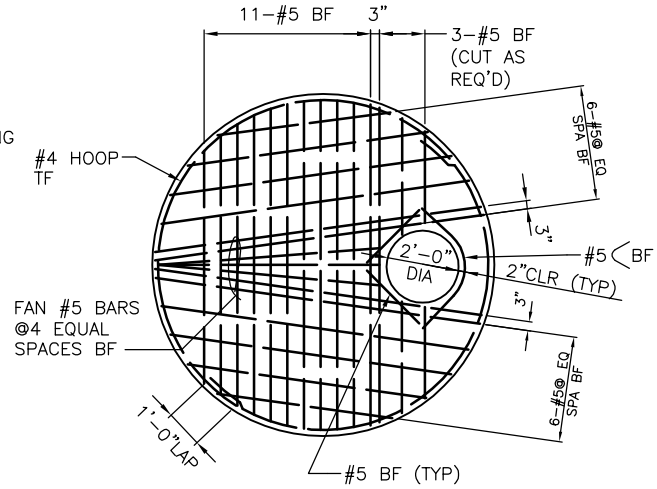


PLAN VIEW
(TOP REMOVED)

"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



TYPE B
SECTION A-A



TOP SLAB REINFORCEMENT

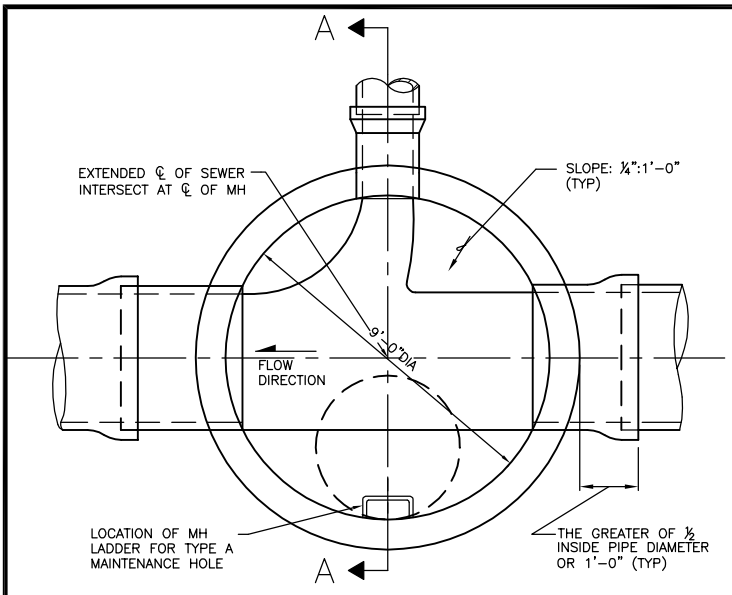
NOTES:

1. MATERIAL; CONCRETE-CLASS 4000 REINFORCING STEEL-ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

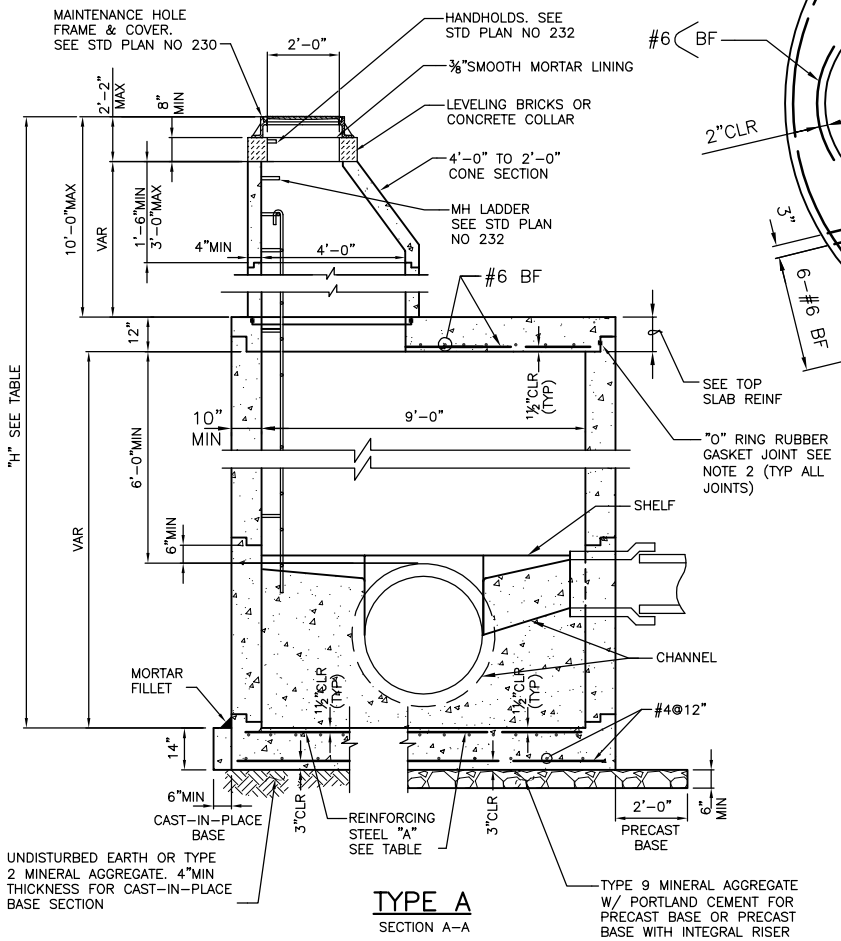
City of Seattle	NOT TO SCALE	TYPE 208B MAINTENANCE HOLE

REV DATE: DEC 2010

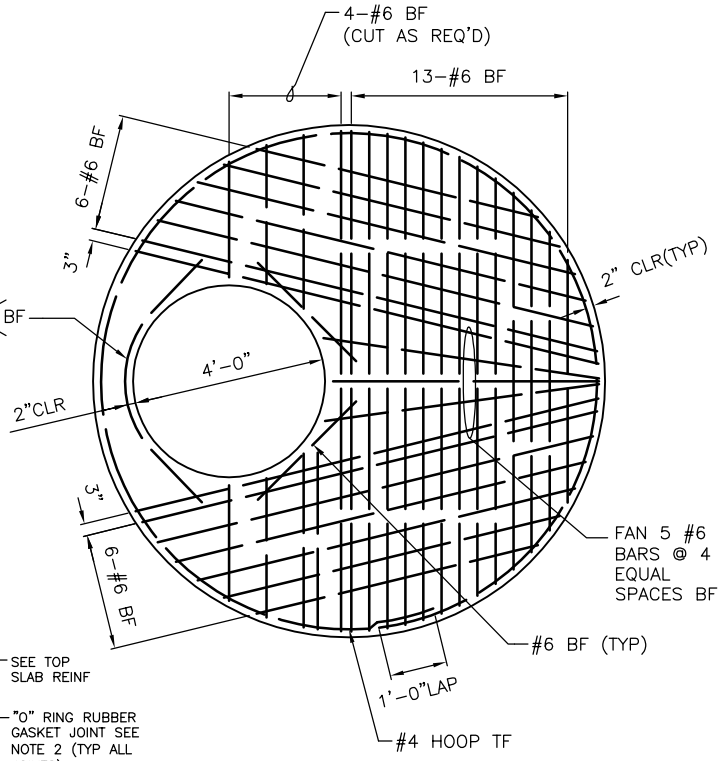


PLAN VIEW
(TOP REMOVED)

"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



TYPE A
SECTION A-A



TOP SLAB REINFORCEMENT

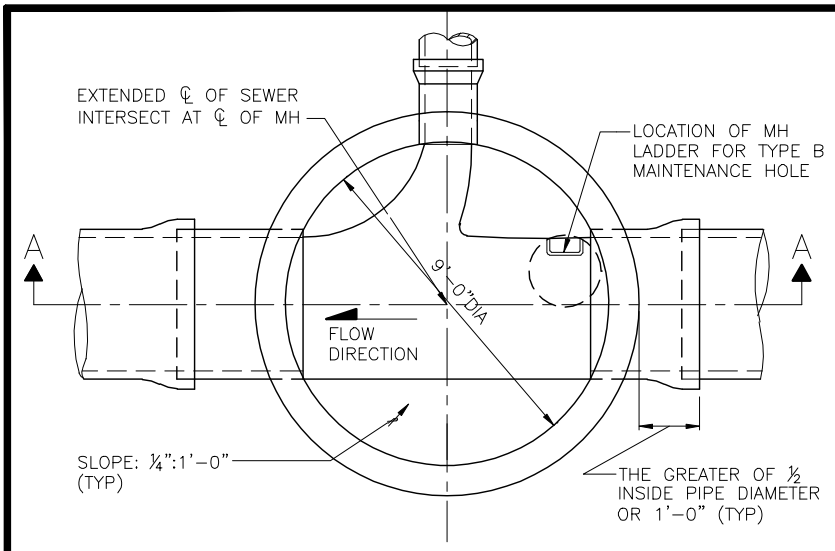
NOTES:

1. MATERIAL; CONCRETE-CLASS 4000 REINFORCING STEEL-ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

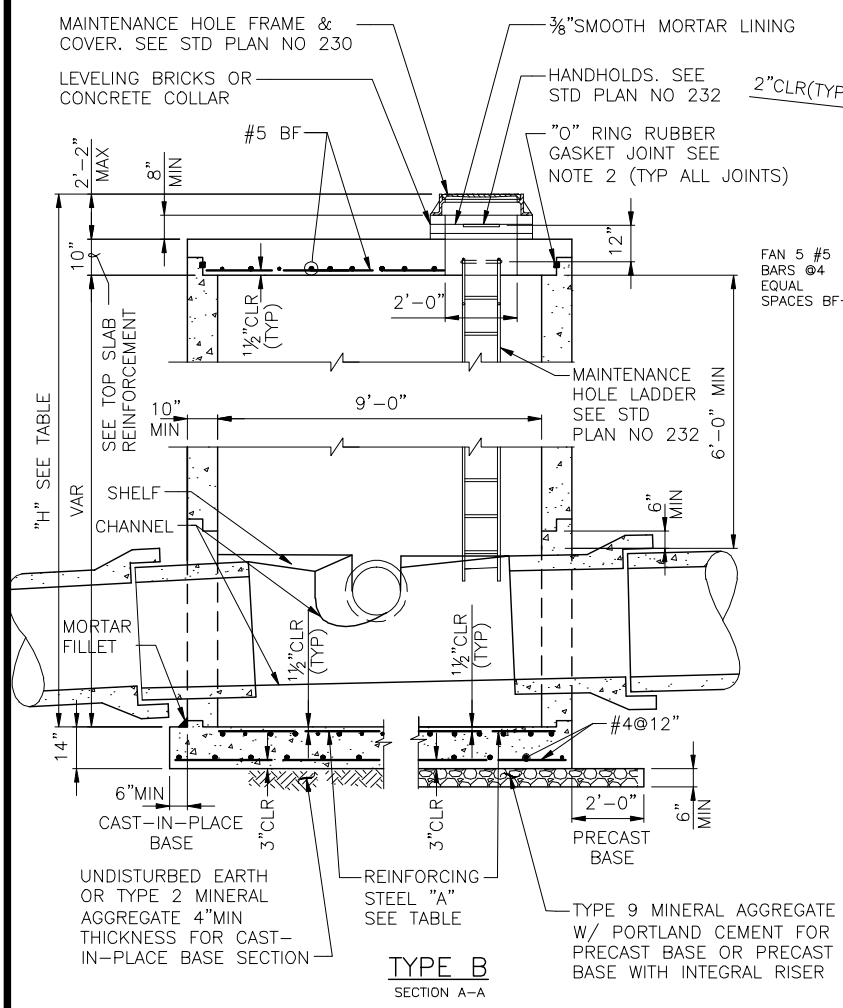
City of Seattle	NOT TO SCALE	TYPE 209A MAINTENANCE HOLE

REV DATE: DEC 2010

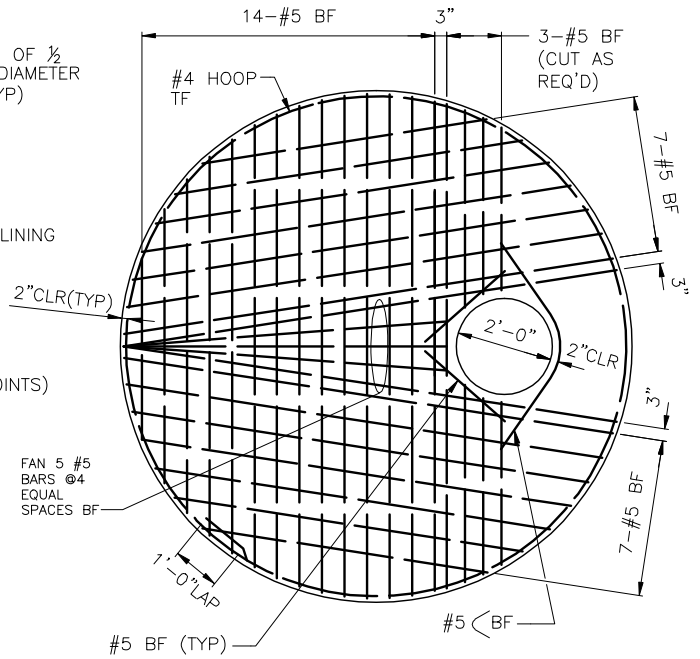


PLAN VIEW
(TOP REMOVED)

"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



TYPE B
SECTION A-A



TOP SLAB REINFORCEMENT

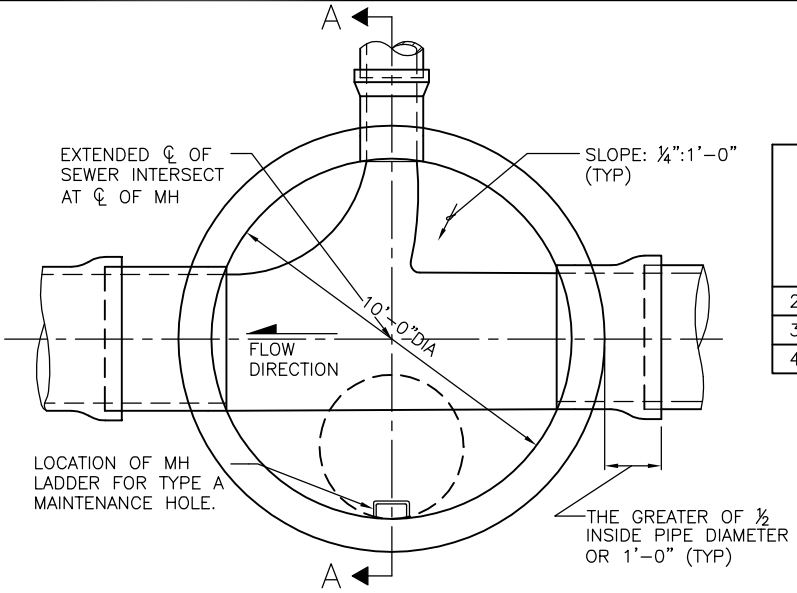
NOTES:

1. MATERIAL; CONCRETE-CLASS 4000 REINFORCING STEEL-ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

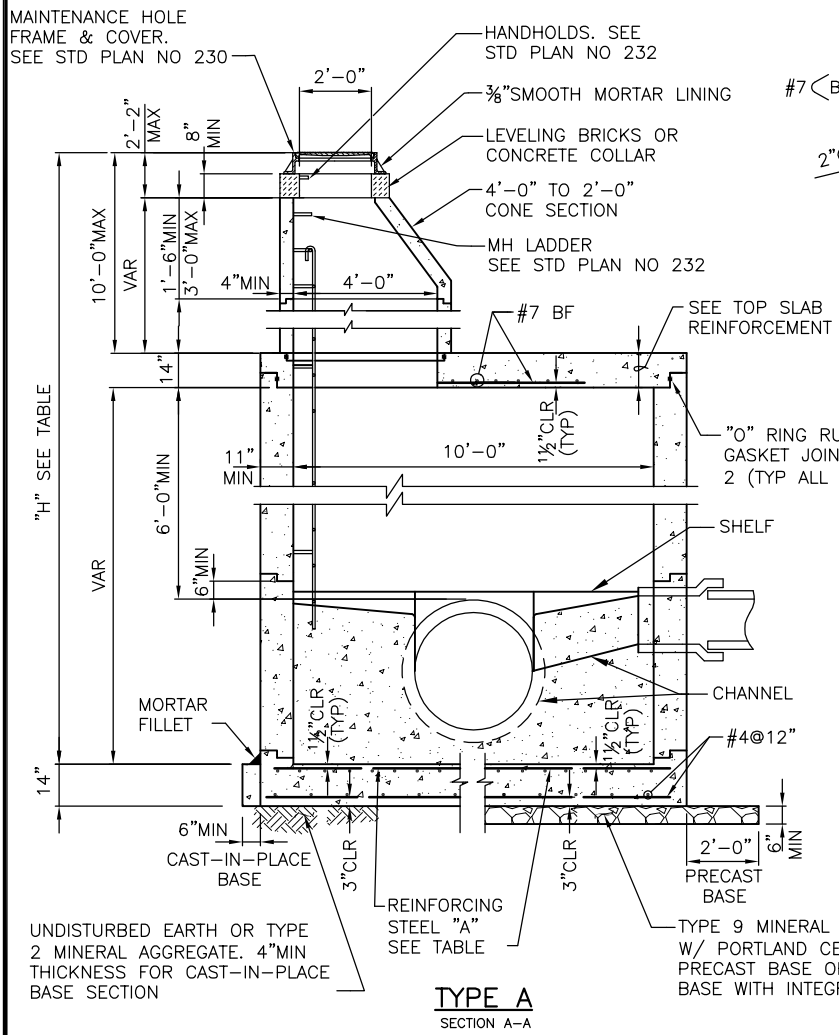
City of Seattle	NOT TO SCALE	TYPE 209B MAINTENANCE HOLE

REV DATE: DEC 2010

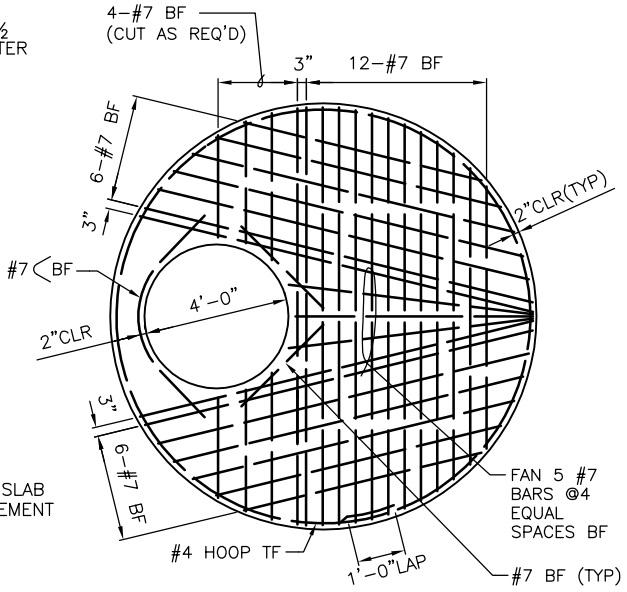


PLAN VIEW
(TOP REMOVED)

"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



TYPE A
SECTION A–A



TOP SLAB REINFORCEMENT

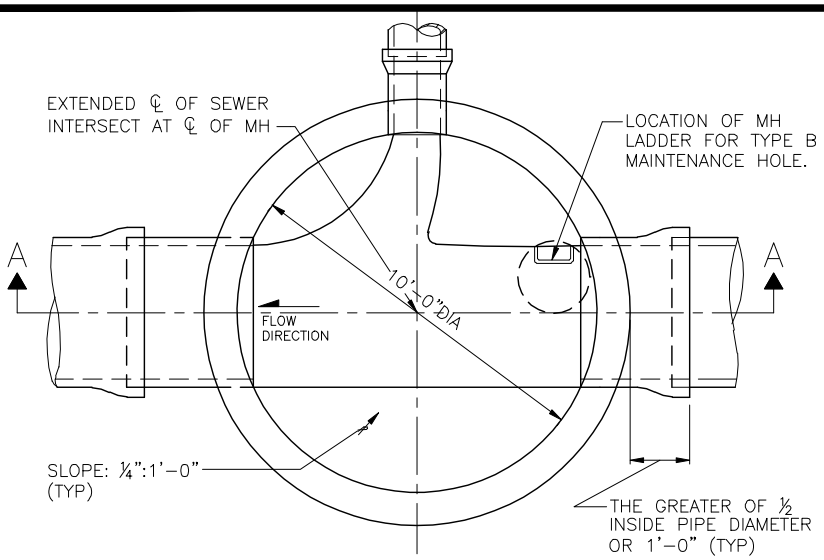
NOTES:

1. MATERIAL; CONCRETE–CLASS 4000 REINFORCING STEEL–ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

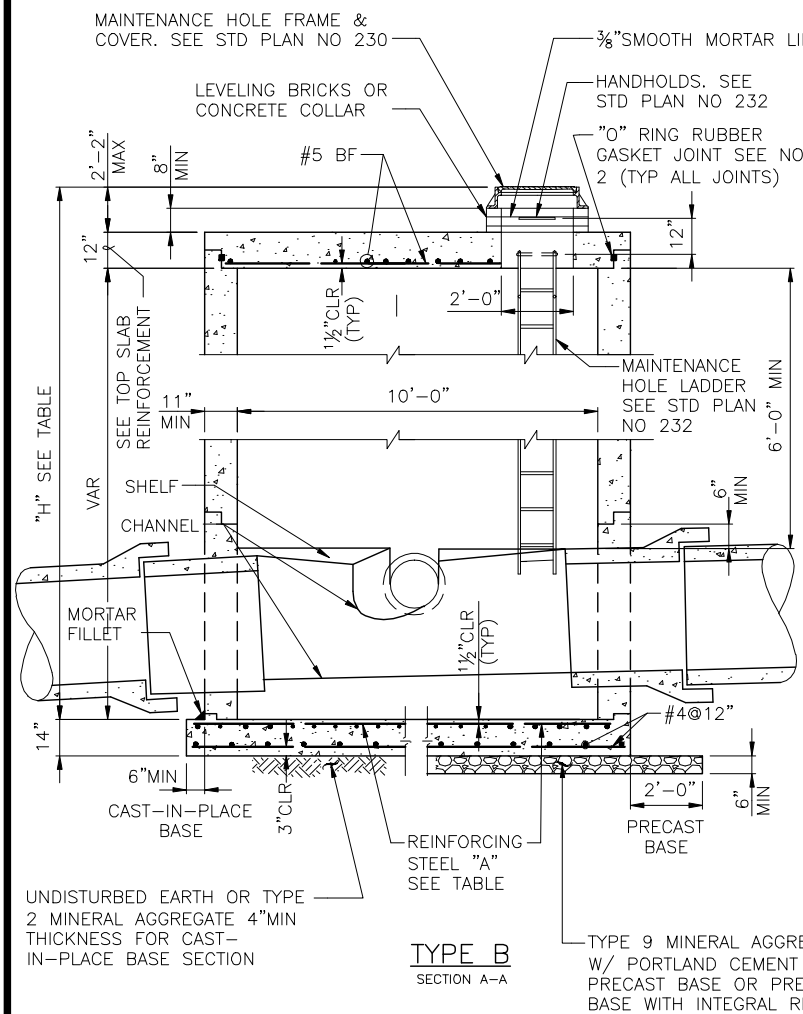
City of Seattle	NOT TO SCALE	TYPE 210A MAINTENANCE HOLE

REV DATE: DEC 2010

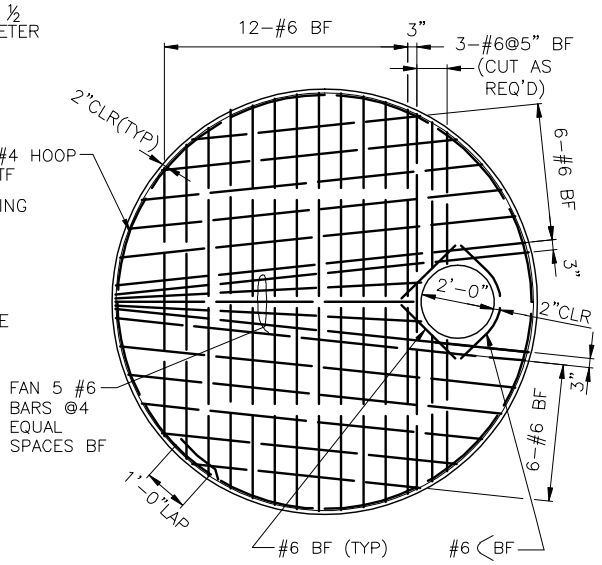


PLAN VIEW
(TOP REMOVED)

"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



TYPE B
SECTION A-A



TOP SLAB REINFORCEMENT

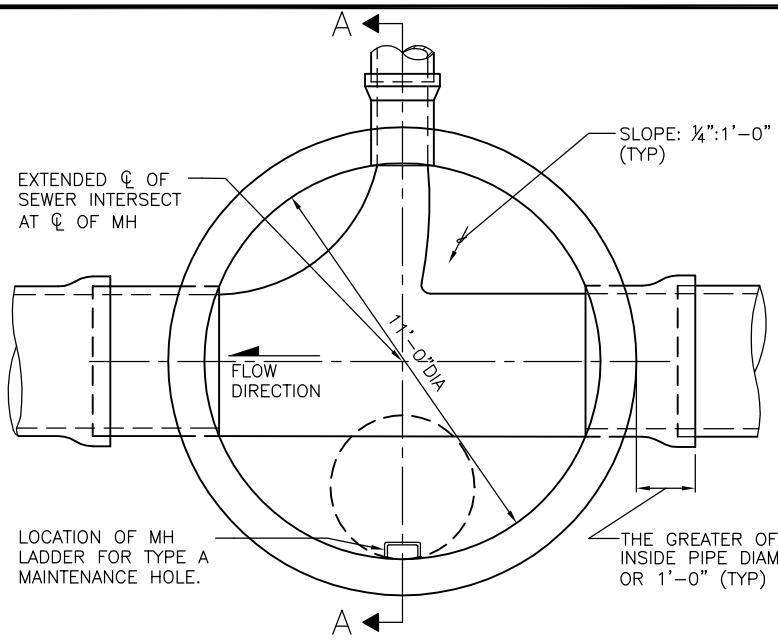
NOTES:

1. MATERIAL; CONCRETE-CLASS 4000 REINFORCING STEEL-ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

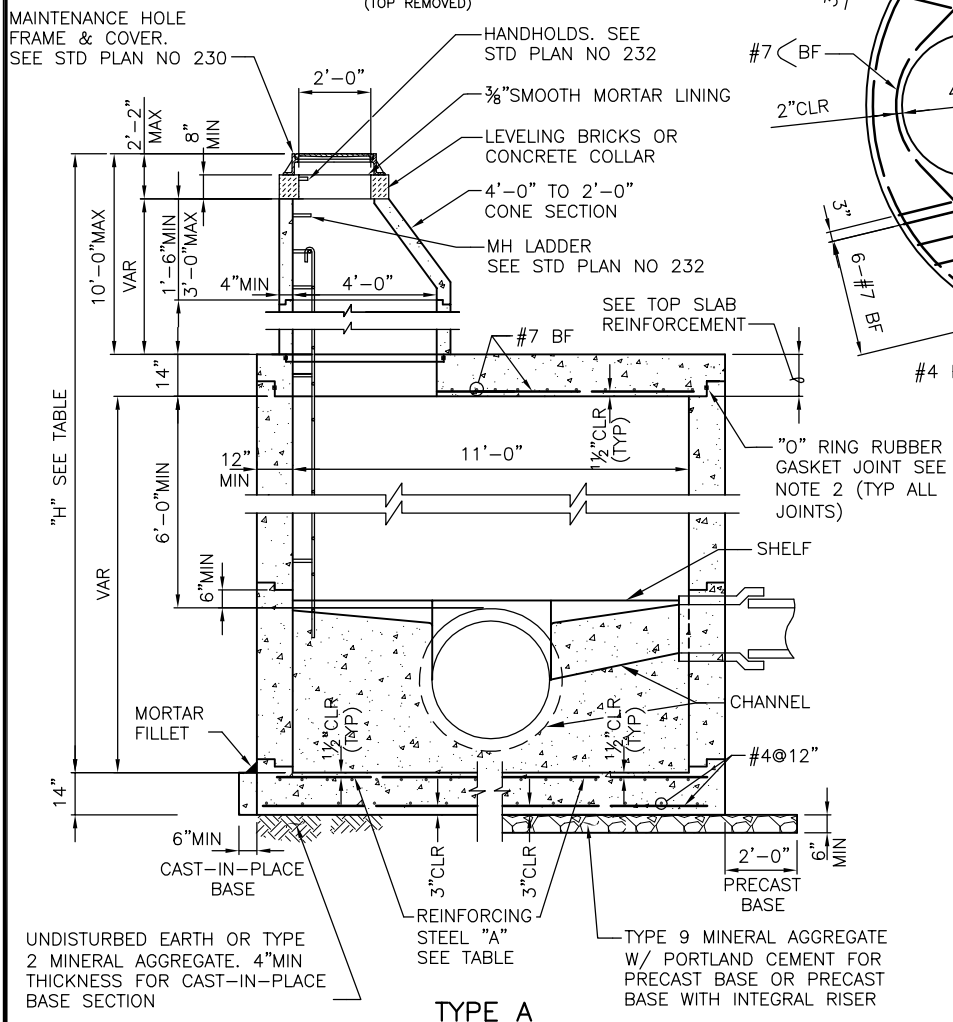
City of Seattle	NOT TO SCALE	TYPE 210B MAINTENANCE HOLE

REV DATE: DEC 2010

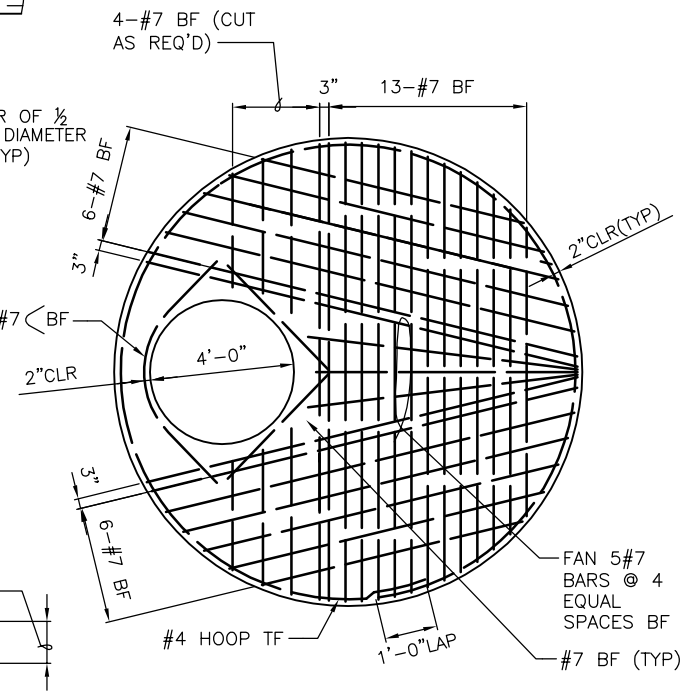


PLAN VIEW
(TOP REMOVED)

"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



TYPE A
SECTION A–A



TOP SLAB REINFORCEMENT

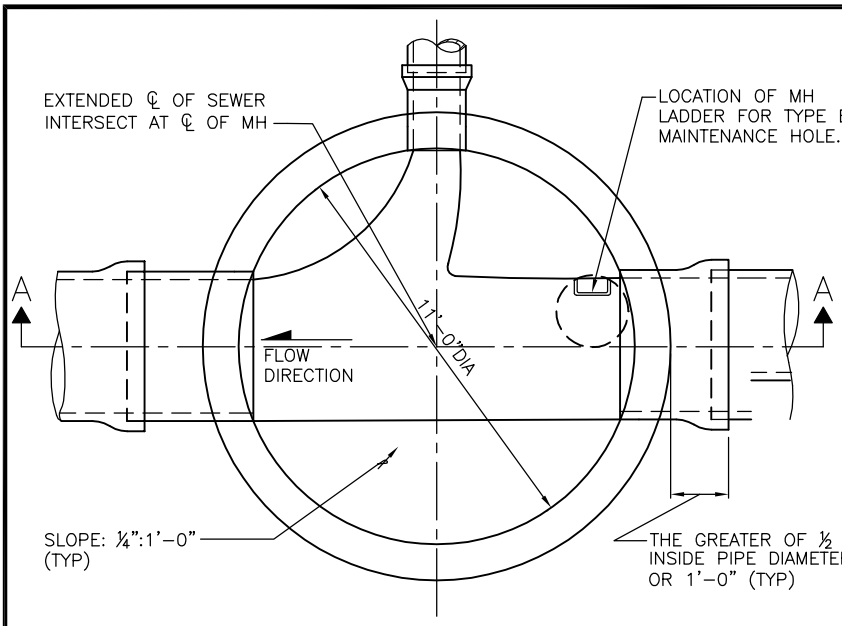
NOTES:

1. MATERIAL; CONCRETE–CLASS 4000 REINFORCING STEEL–ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

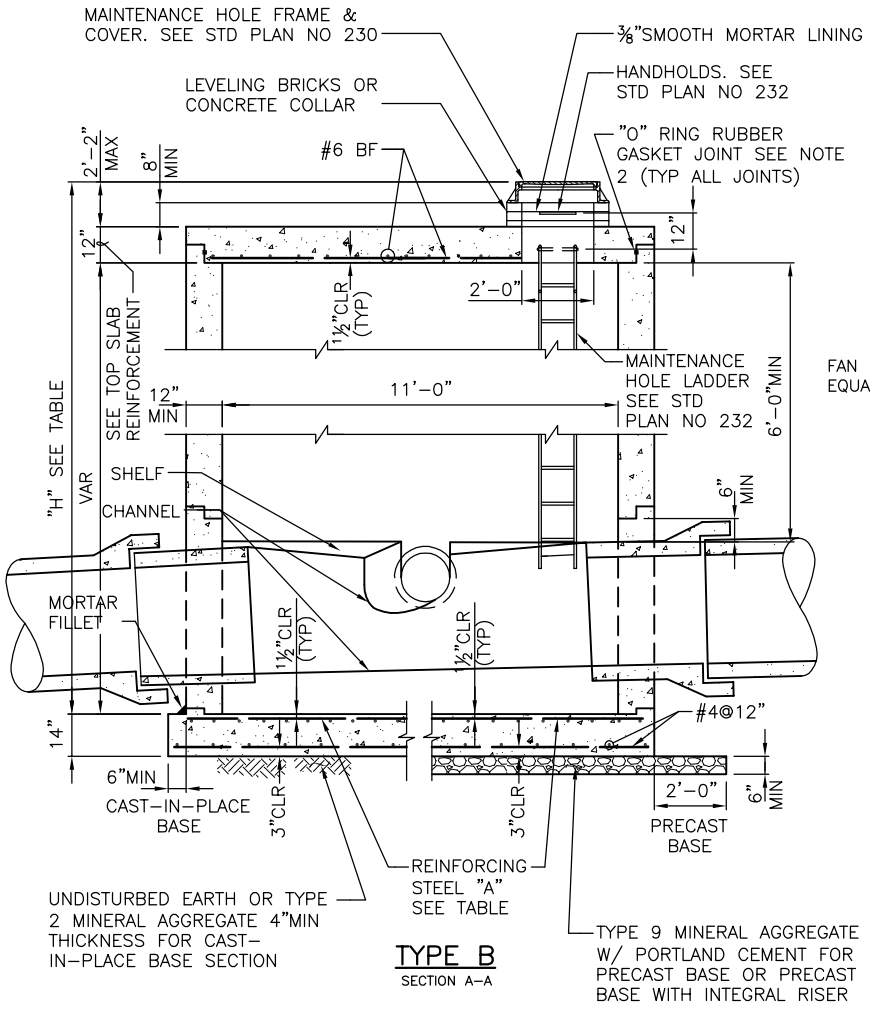
City of Seattle | NOT TO SCALE | TYPE 211A MAINTENANCE HOLE

REV DATE: DEC 2010

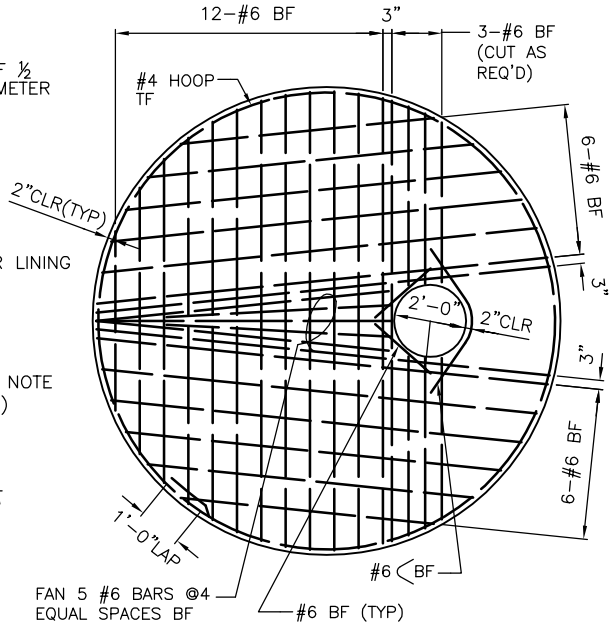


PLAN VIEW
(TOP REMOVED)

"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



TYPE B
SECTION A-A



TOP SLAB REINFORCEMENT

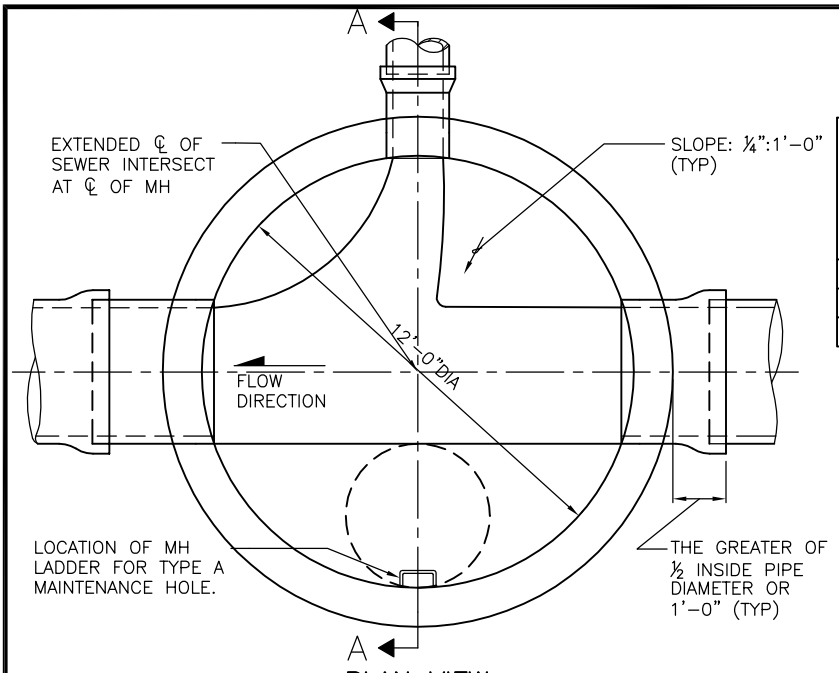
NOTES:

1. MATERIAL; CONCRETE-CLASS 4000 REINFORCING STEEL-ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

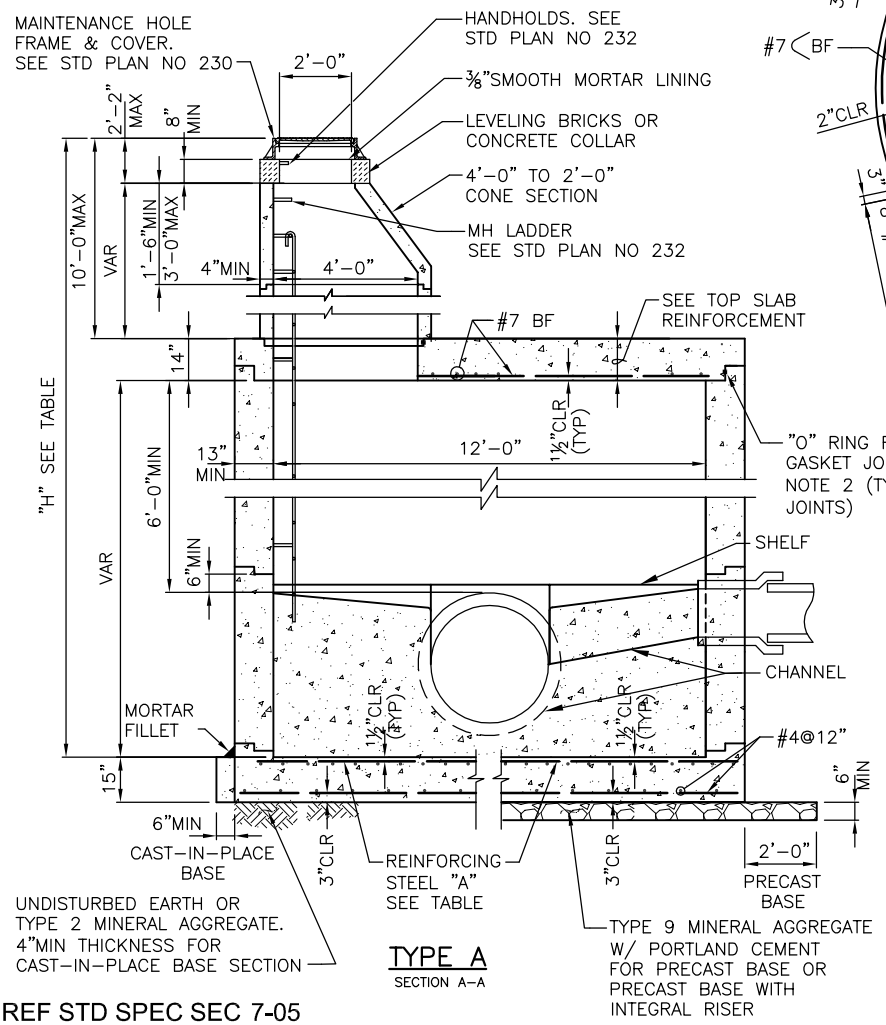
City of Seattle	NOT TO SCALE	TYPE 211B MAINTENANCE HOLE

REV DATE: DEC 2010

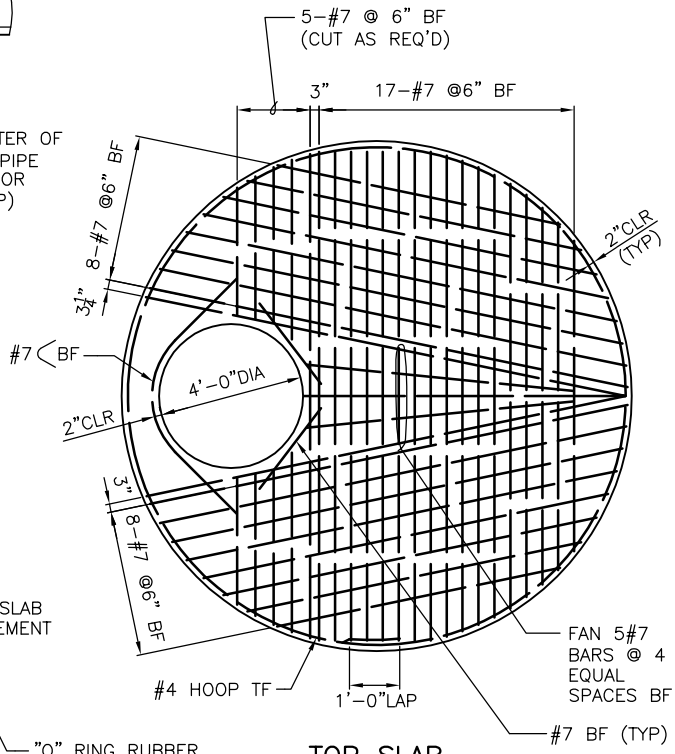


PLAN VIEW
(TOP REMOVED)

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



TYPE A
SECTION A–A



TOP SLAB REINFORCEMENT

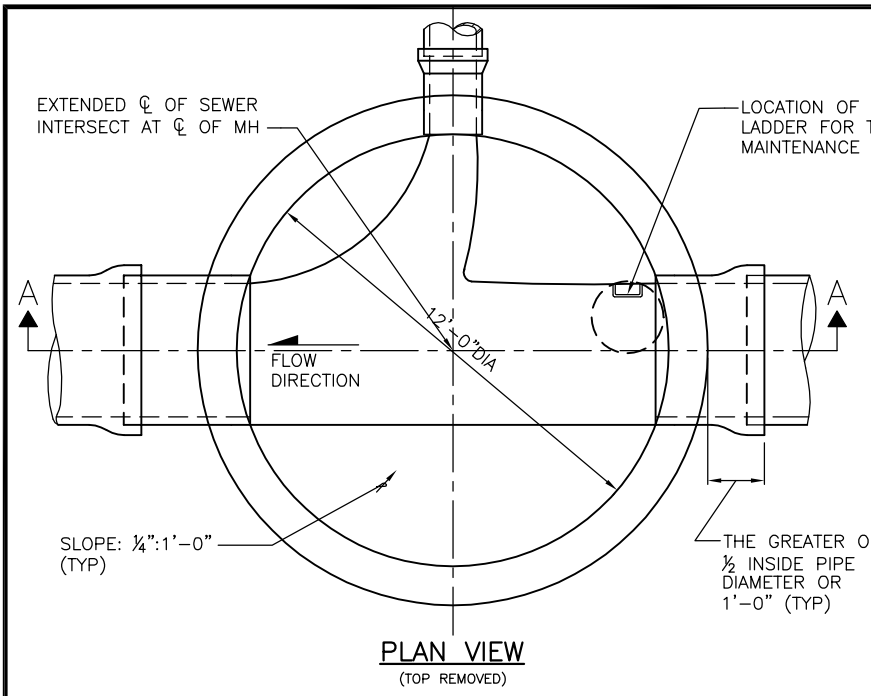
NOTES:

1. MATERIAL; CONCRETE–CLASS 4000 REINFORCING STEEL–ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

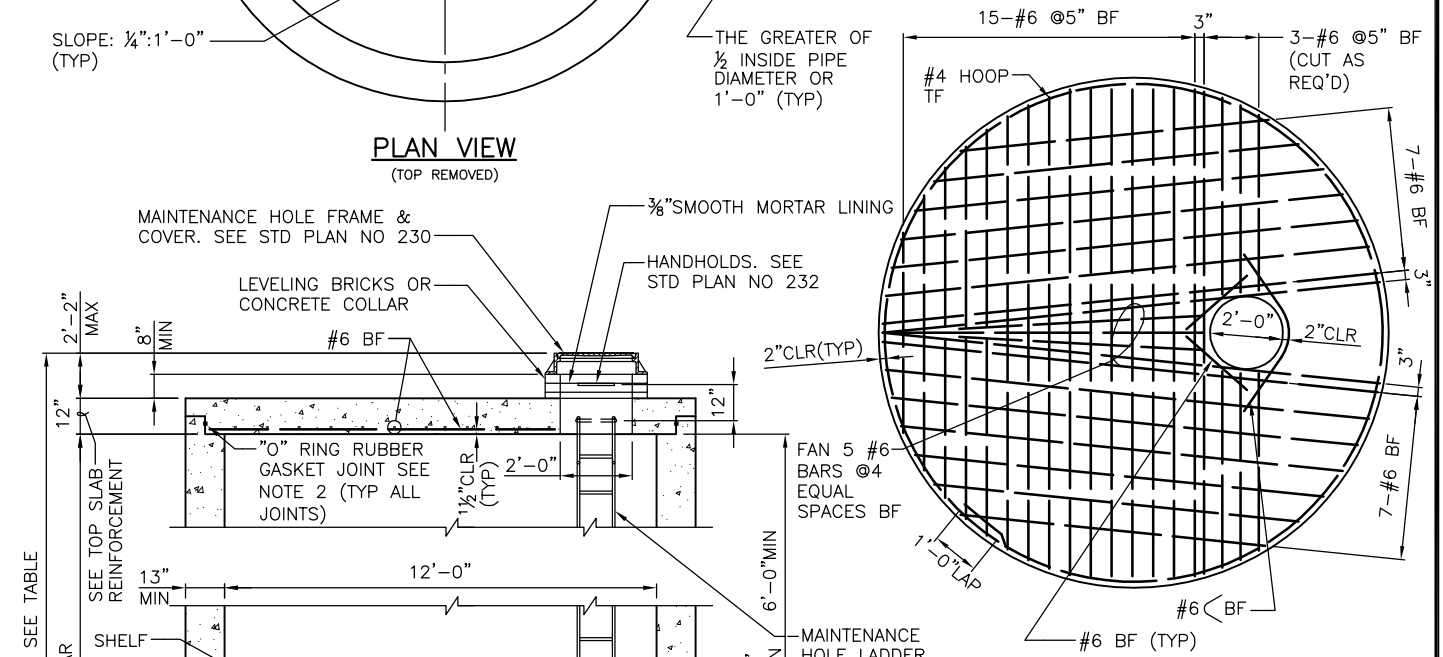
City of Seattle | NOT TO SCALE | TYPE 212A MAINTENANCE HOLE

REV DATE: DEC 2010

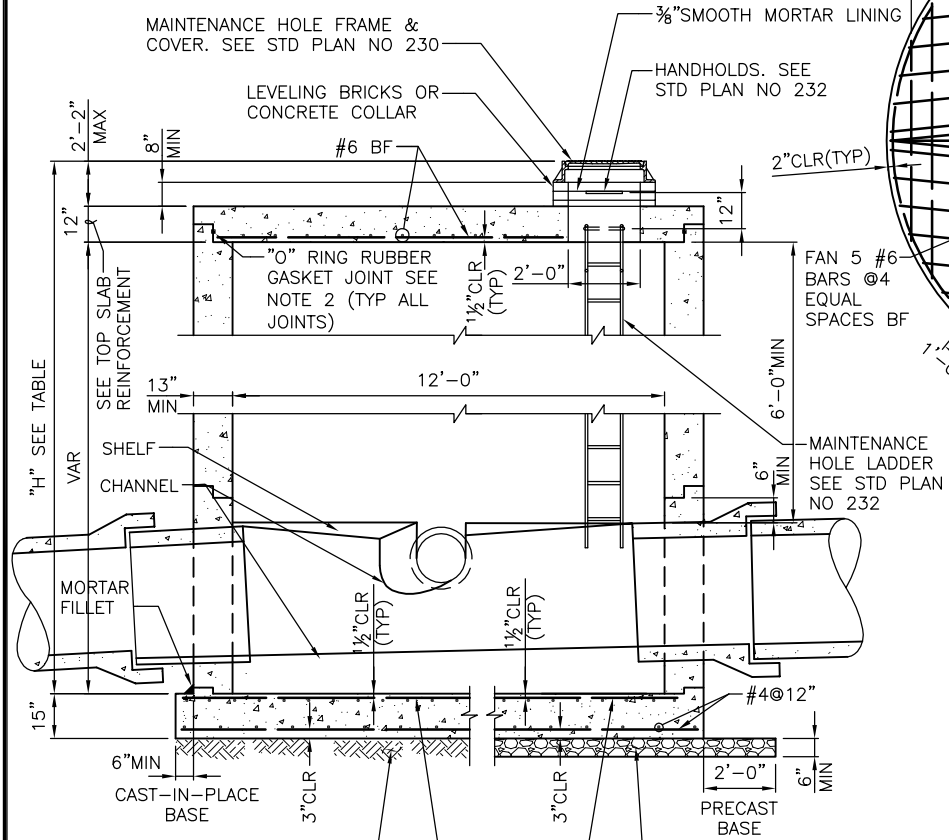


PLAN VIEW
(TOP REMOVED)

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



TOP SLAB REINFORCEMENT



TYPE B
SECTION A-A

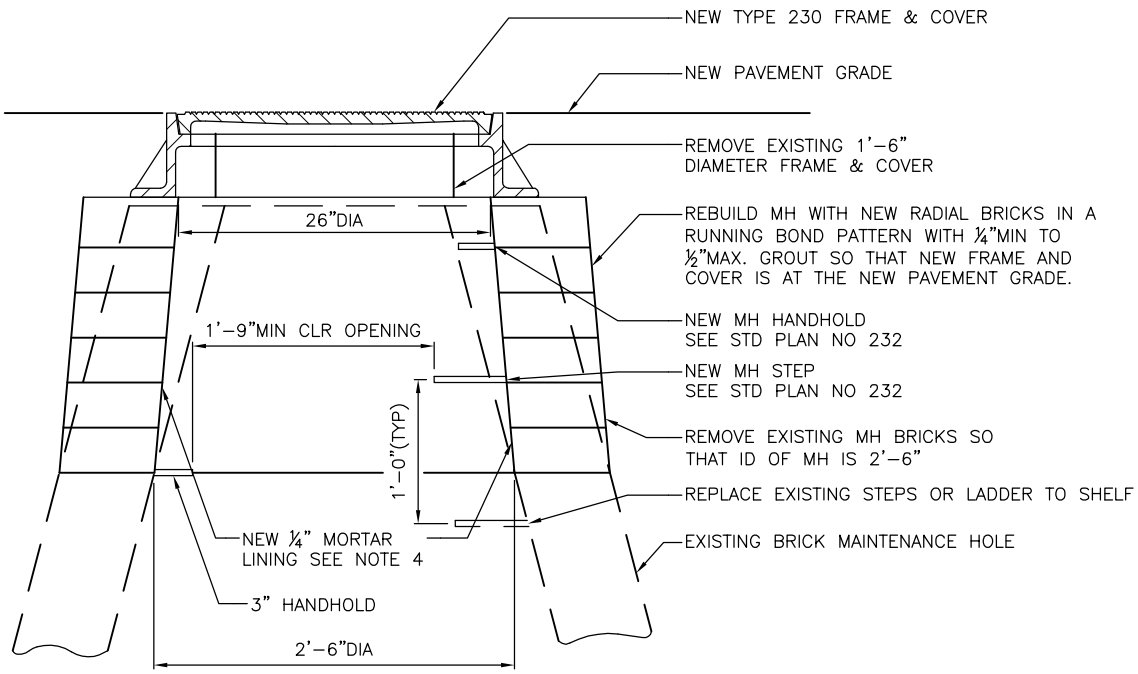
NOTES:

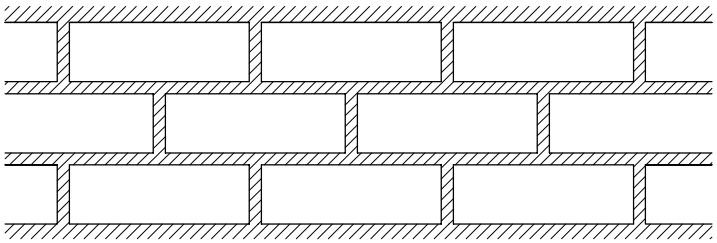
1. MATERIAL; CONCRETE-CLASS 4000 REINFORCING STEEL-ASTM A615 GRADE 60 CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT

REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	TYPE 212B MAINTENANCE HOLE

REV DATE: FEB 2010





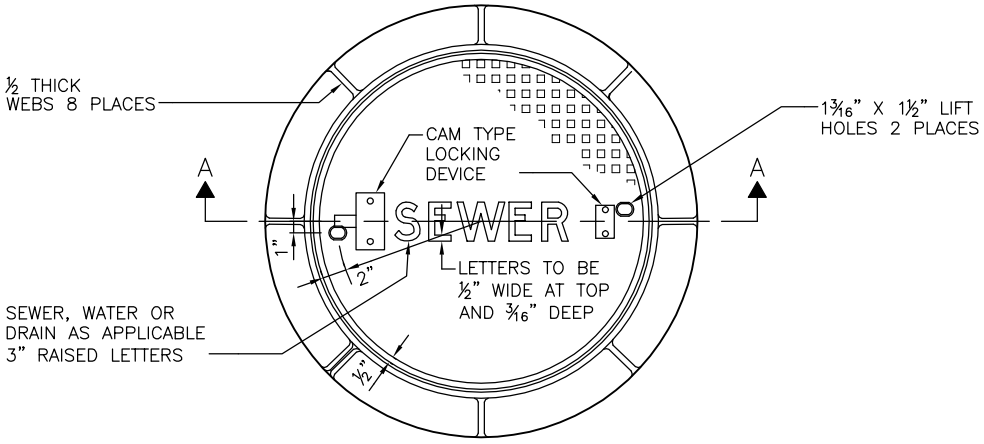
RUNNING BOND PATTERN

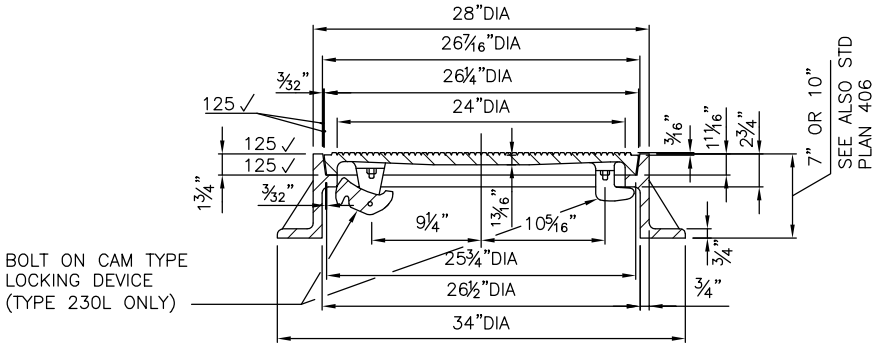
GROUT BETWEEN ALL BRICKS

REF STD SPEC SEC 7-05

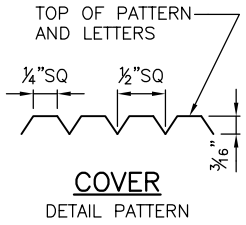
City of Seattle	NOT TO SCALE	REBUILD EXISTING BRICK MAINTENANCE HOLE

REV DATE: DEC 2010





SECTION
A–A



COVER
DETAIL PATTERN

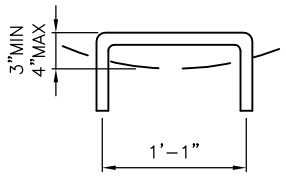
NOTES:

1. DESIGNATE LOCKING COVER AS TYPE 230L FOR USE IN NON–VEHICULAR TRAFFIC AREAS.
2. COVER THICKNESS IS MEASURED FROM THE BOTTOM OF THE PATTERN.
3. FRAMES SHALL BE MANUFACTURED FROM CAST IRON OR DUCTILE IRON.
4. COVERS SHALL BE MANUFACTURED FROM DUCTILE IRON.

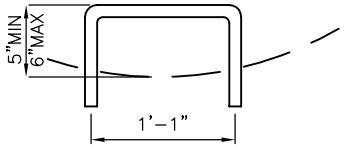
REF STD SPEC SEC 7-05, 9-12

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

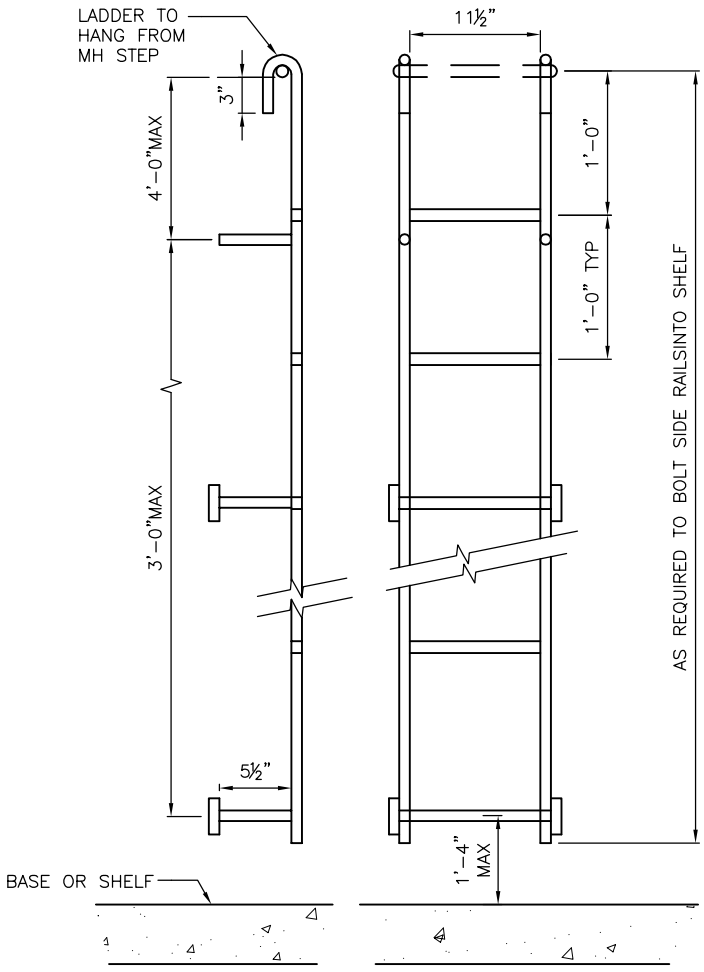
REV DATE: 2005



HANDHOLD



STEP



LADDER

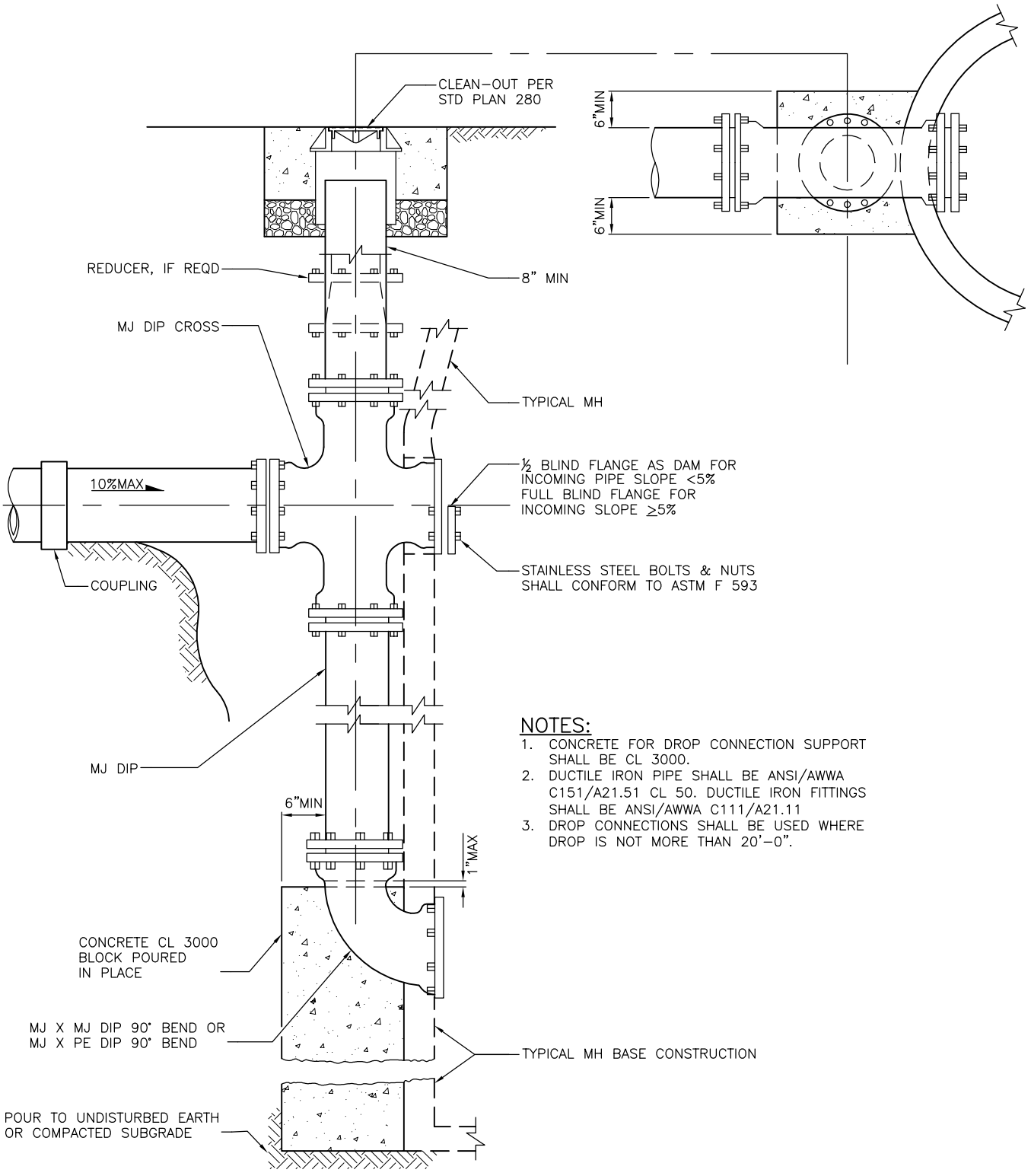
NOTES:

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

REF STD SPEC SEC 7-05

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

REV DATE: JUN 2010



NOTES:

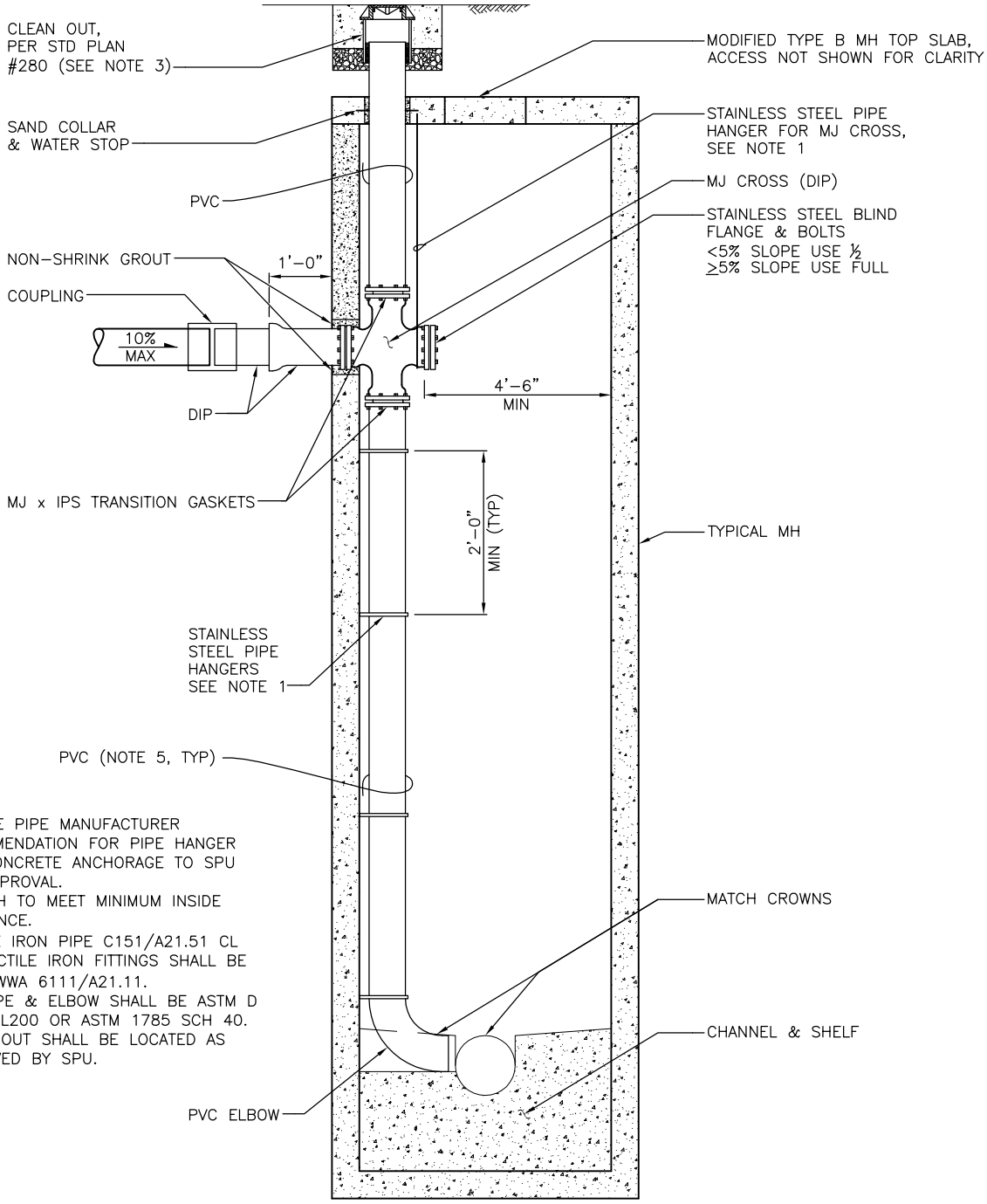
1. CONCRETE FOR DROP CONNECTION SUPPORT SHALL BE CL 3000.
2. DUCTILE IRON PIPE SHALL BE ANSI/AWWA C151/A21.51 CL 50. DUCTILE IRON FITTINGS SHALL BE ANSI/AWWA C111/A21.11
3. DROP CONNECTIONS SHALL BE USED WHERE DROP IS NOT MORE THAN 20'–0".

DUCTILE IRON OUTSIDE DROP CONNECTION

REF STD SPEC SEC 7-08

City of Seattle	NOT TO SCALE	OUTSIDE DROP CONNECTION

REV DATE: 2005



NOTE:

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 SHALL BE ANSI/AWWA 6111/A21.11.
4. PVC PIPE & ELBOW SHALL BE ASTM D 2241 CL200 OR ASTM 1785 SCH 40.
5. CLEAN-OUT SHALL BE LOCATED AS APPROVED BY SPU.

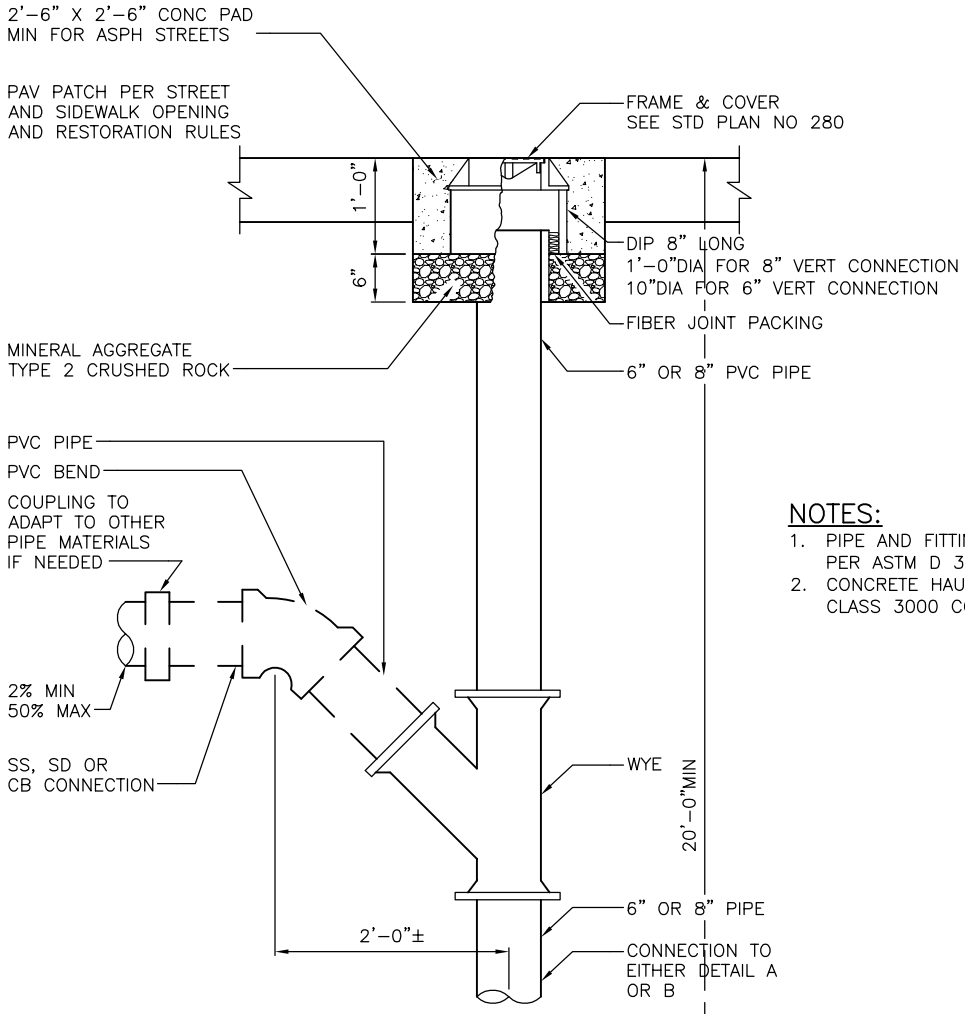
INSIDE DROP

(18" DIAMETER PIPE MAXIMUM)

REF STD SPEC SEC 7-08

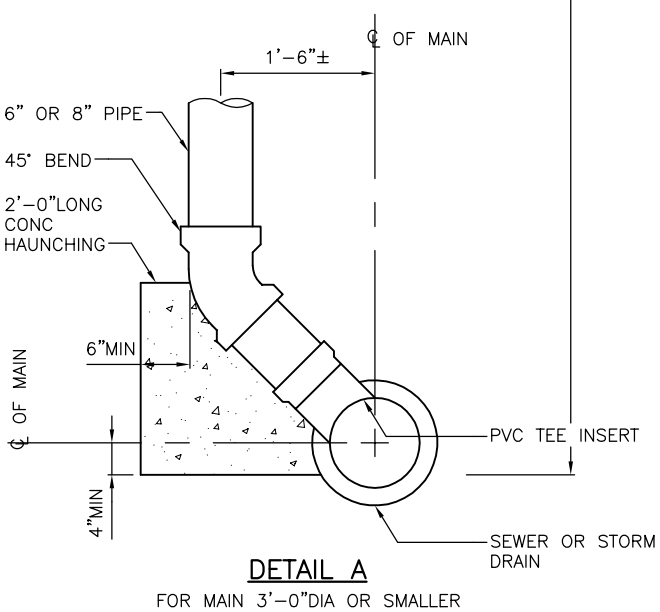
City of Seattle	NOT TO SCALE	INSIDE DROP CONNECTION

REV DATE: JUN 2010



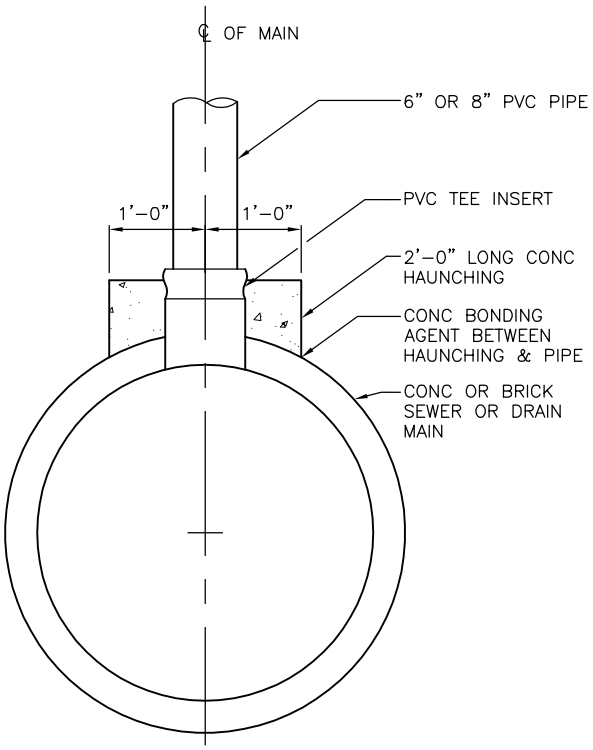
NOTES:

1. PIPE AND FITTINGS SHALL BE PVC PER ASTM D 3034 SDR 35.
2. CONCRETE HAUNCHING IS TO BE CLASS 3000 CONCRETE.



DETAIL A

FOR MAIN 3'-0"DIA OR SMALLER



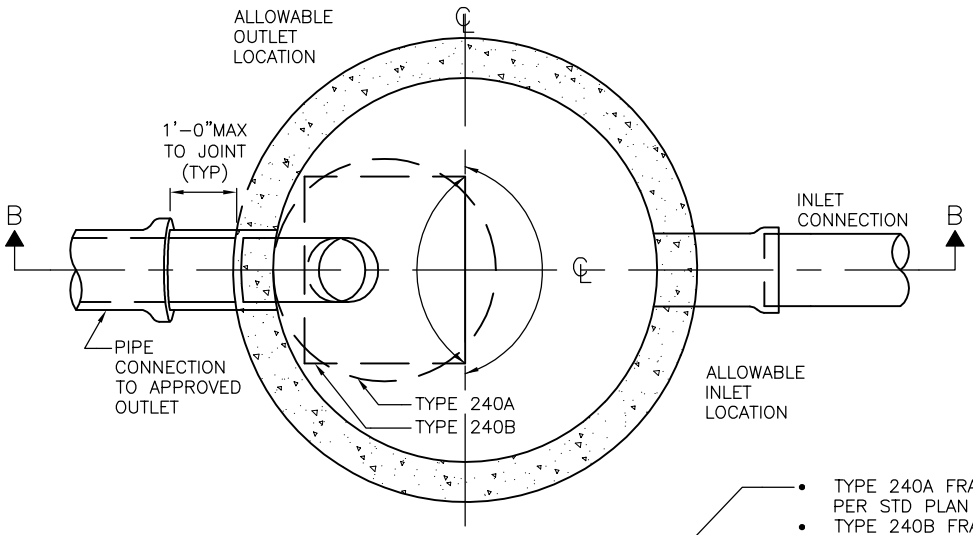
DETAIL B

FOR MAIN 3'-6"DIA OR LARGER

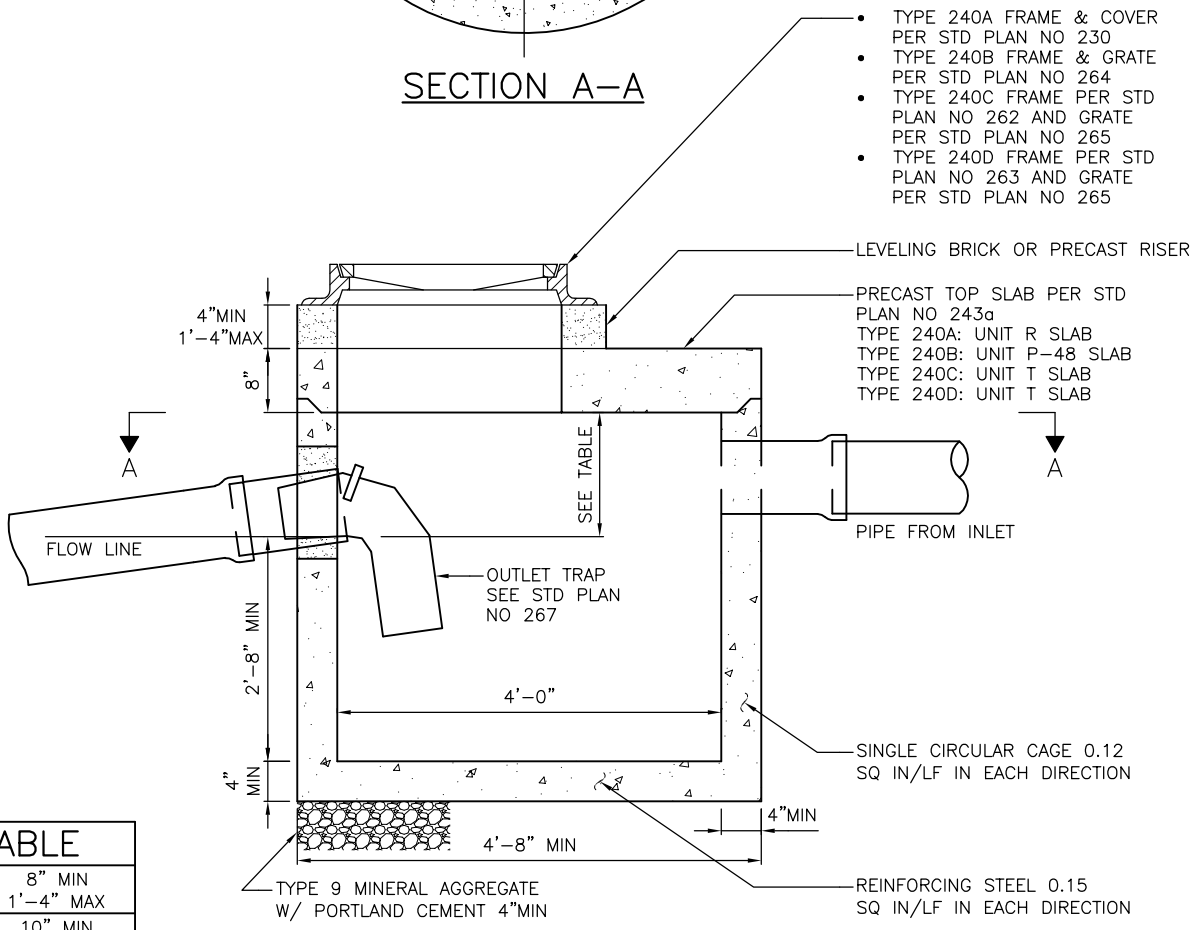
REF STD SPEC SEC 7-08 & 7-17

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

REV DATE: JAN 2009



SECTION A–A



SECTION B–B

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

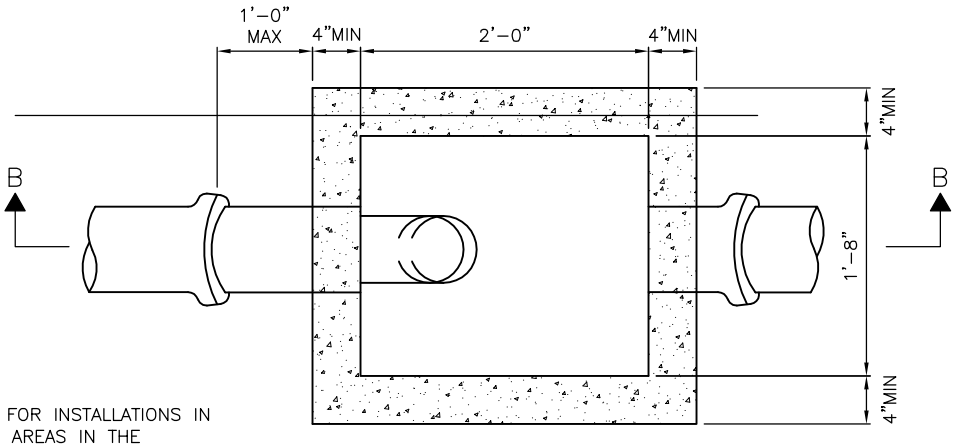
NOTES:

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

REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	TYPE 240 CATCH BASIN

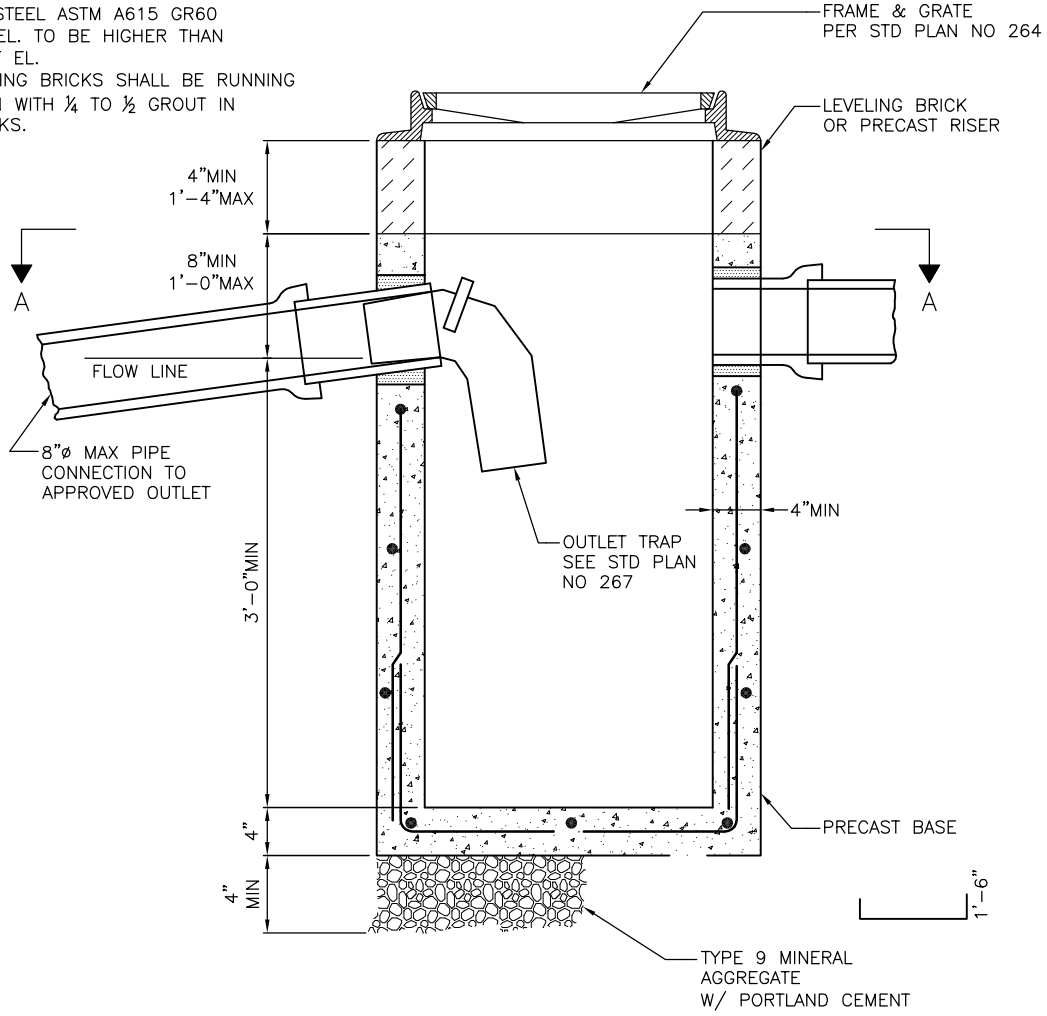
REV DATE: OCT 2008



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 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 SHALL BE RUNNING BOND PATTERN WITH ¼ TO ½ GROUT IN BETWEEN BRICKS.

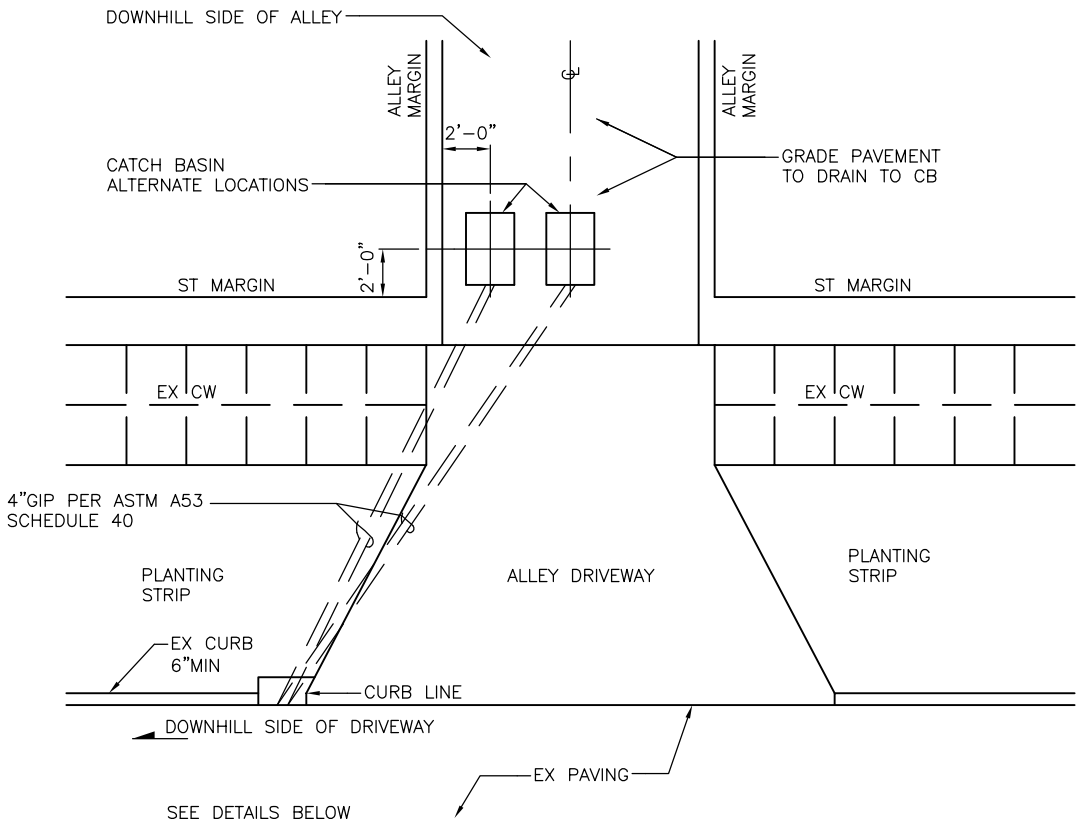


SECTION B–B

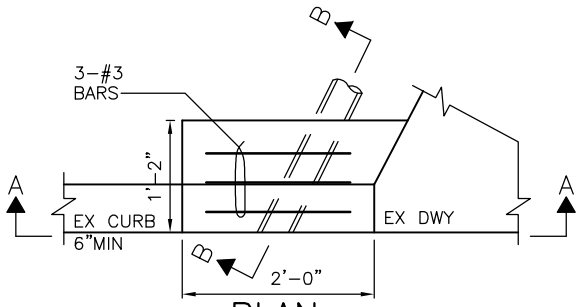
REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	TYPE 241 CATCH BASIN

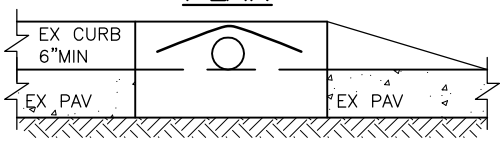
REV DATE: 2005



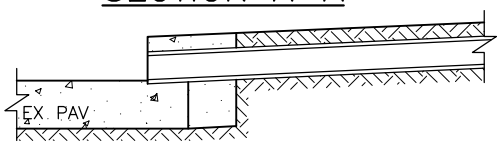
PLAN



PLAN



SECTION A–A

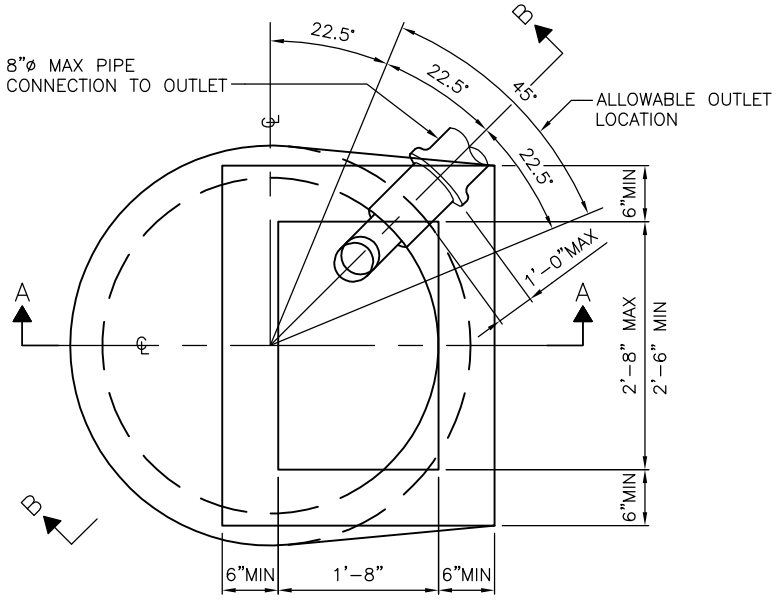


SECTION B–B

REF STD SPEC SEC 7-05 & 7-08

City of Seattle	NOT TO SCALE	TYPE 241 CATCH BASIN INSTALLATIONS

REV DATE: OCT 2008

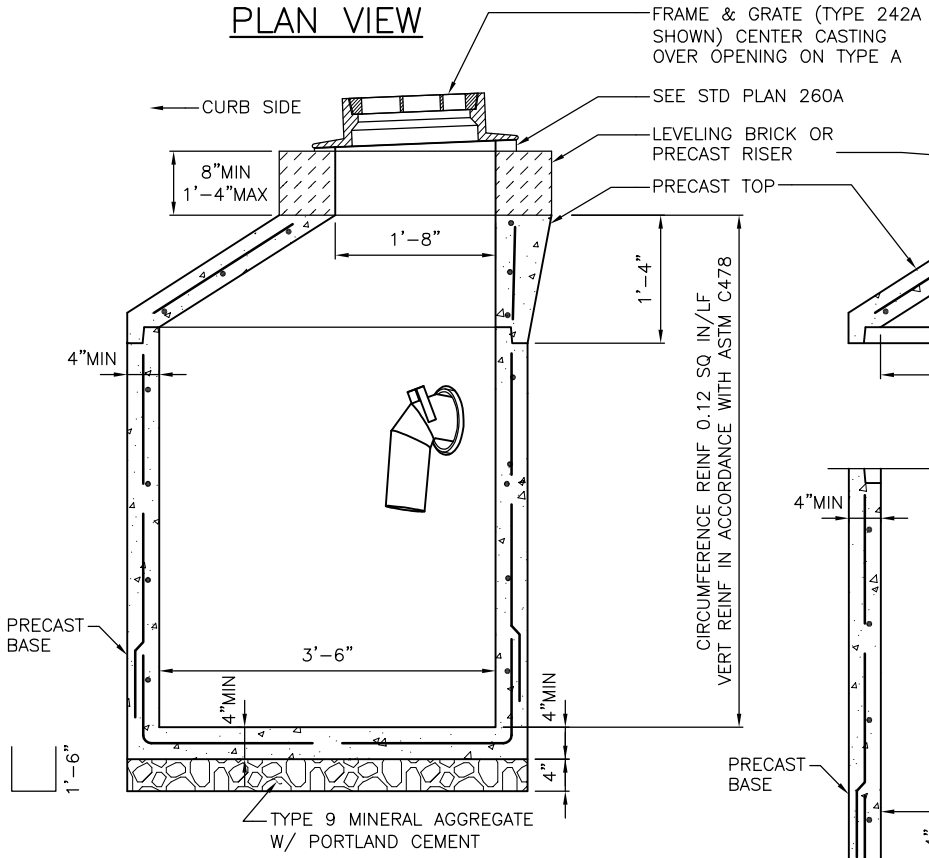


PLAN VIEW

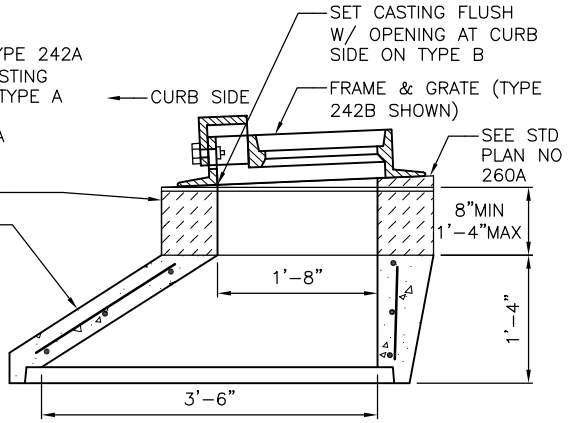
CB TYPE	CASTING	
	FRAME	GRATE
A	NO 262	NO 265
B	NO 263	NO 265

NOTES:

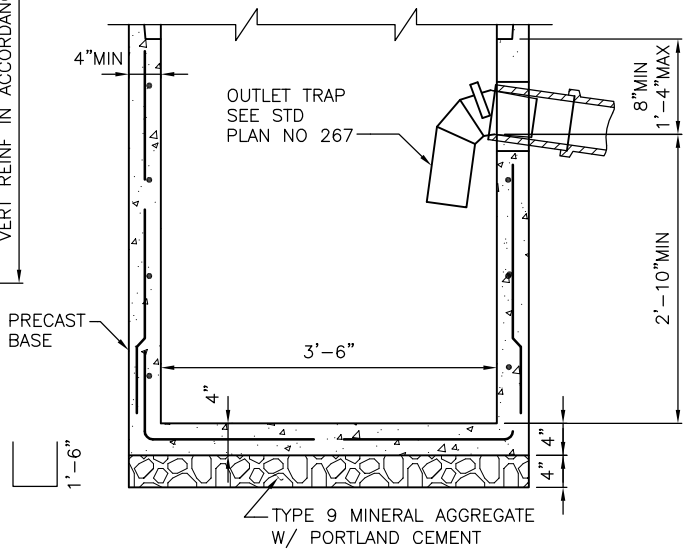
1. MATERIAL: CONCRETE: CLASS 4000
   REINFORCING STEEL: ASTM A 615 GR 60
2. INSTALL & LOCATE PER STD PLANS NOS 260 & 261
3. OUTLET TRAP TO BE LOCATED DIRECTLY BELOW FRAME AND GRATE
4. USE OF LEVELING BRICKS SHALL BE RUNNING BOND PATTERN WITH ¼ TO ½ GROUT IN BETWEEN BRICKS.



TYPE A
SECTION A-A



TYPE B
SECTION A-A

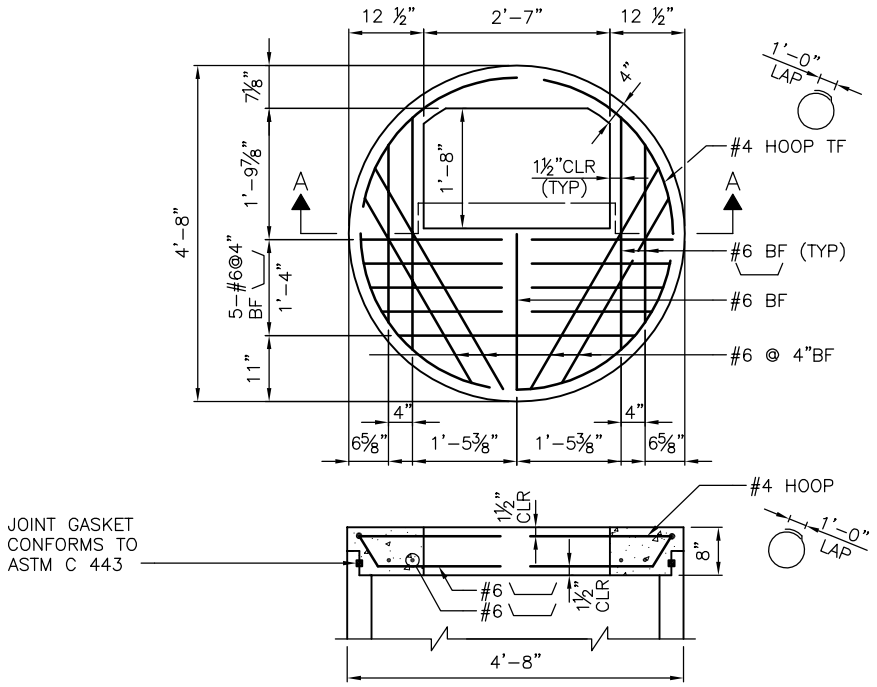


TYPE A & B
SECTION B-B

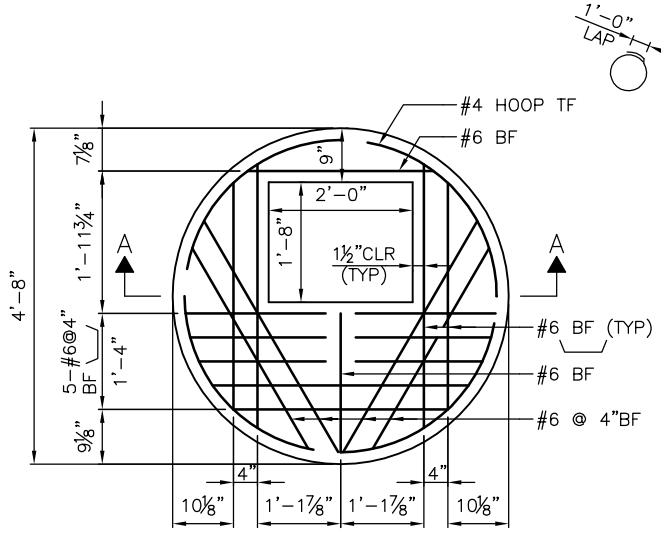
REF STD SPEC SEC 7-05

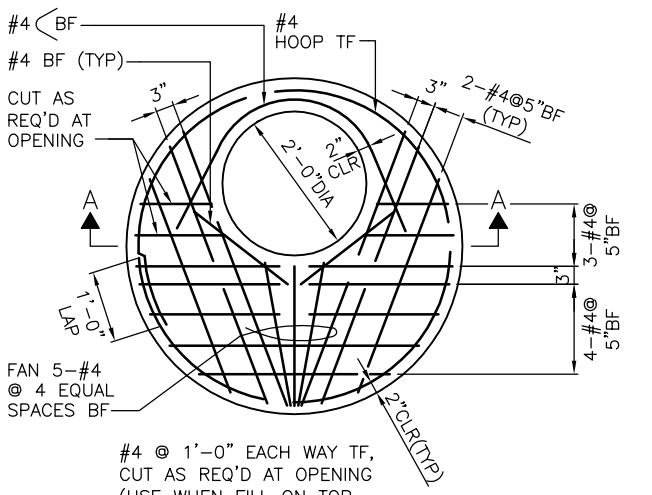
City of Seattle	NOT TO SCALE	TYPE 242 CATCH BASIN

REV DATE: SEPT 2008



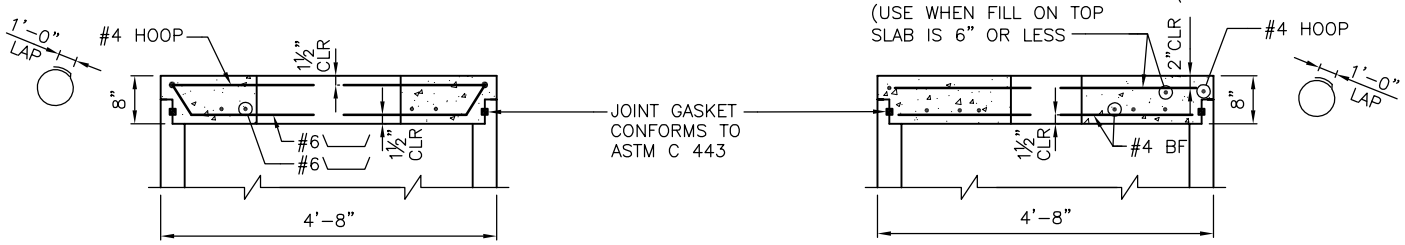
UNIT T
SECTION A–A





UNIT P–48
SECTION A–A

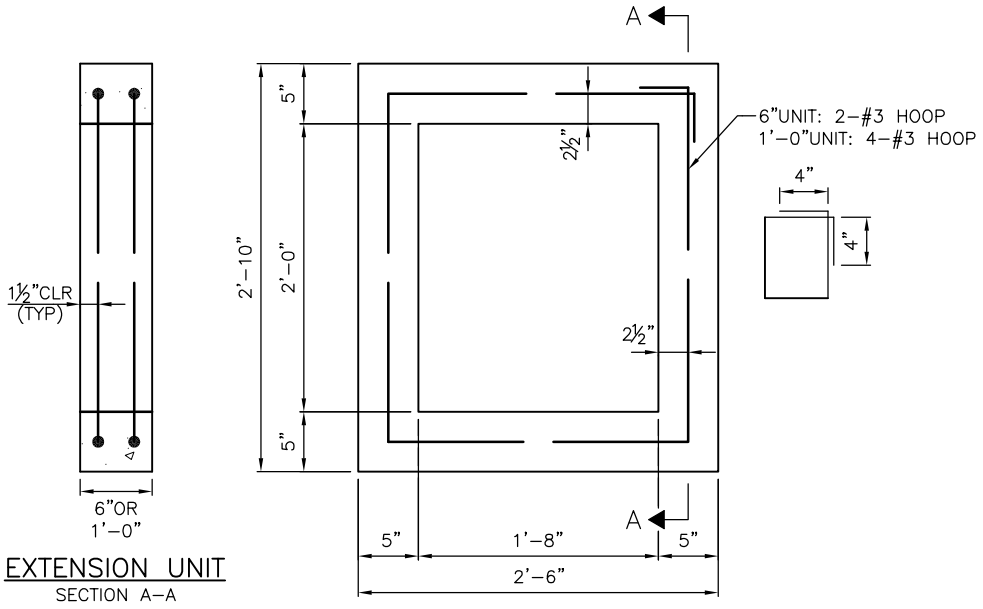
UNIT R
SECTION A–A



REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	PRECAST CATCH BASIN TOP SLAB

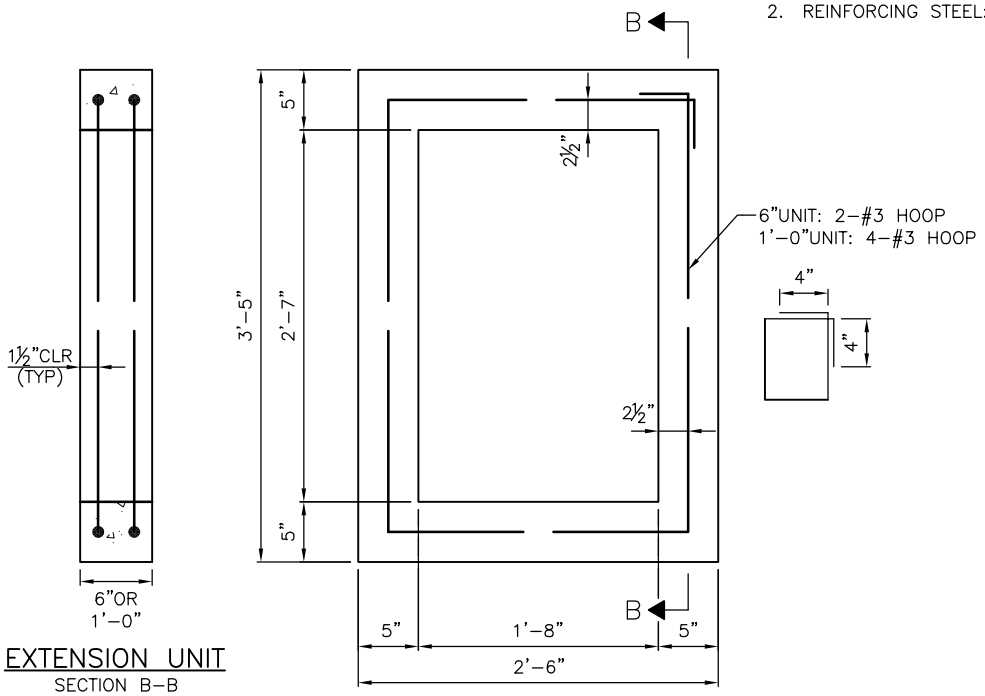
REV DATE: 2003



EXTENSION UNIT
SECTION A–A

UNIT S

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



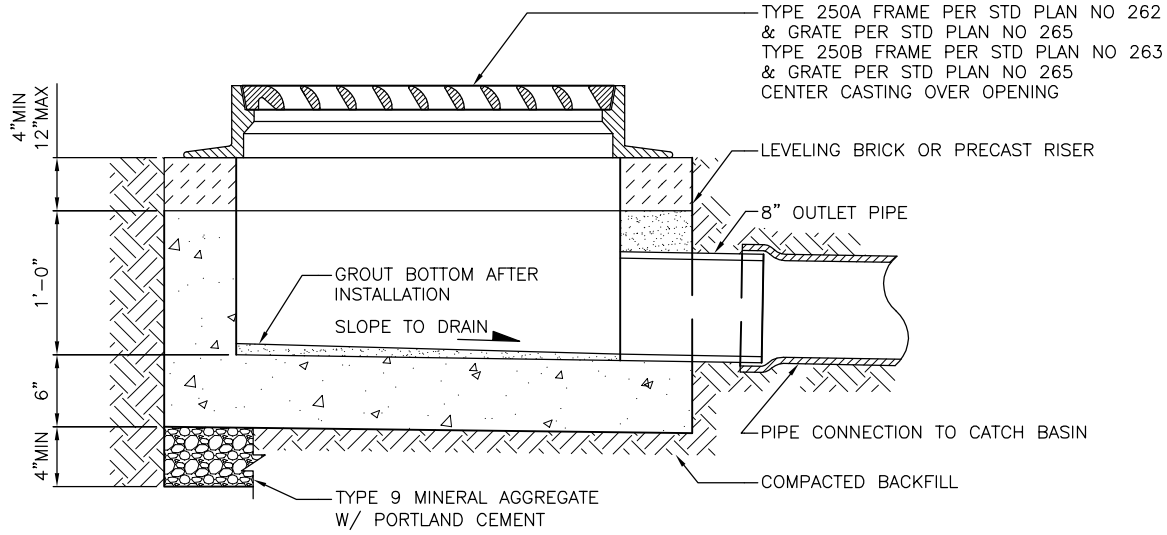
EXTENSION UNIT
SECTION B–B

UNIT U

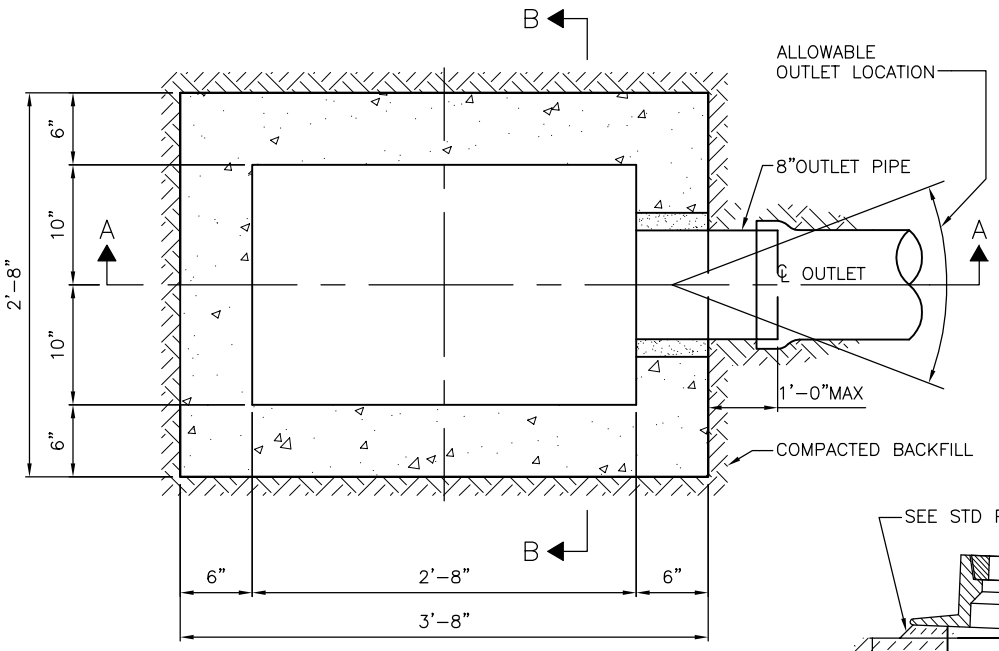
REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	PRECAST CATCH BASIN EXTENSION RISERS

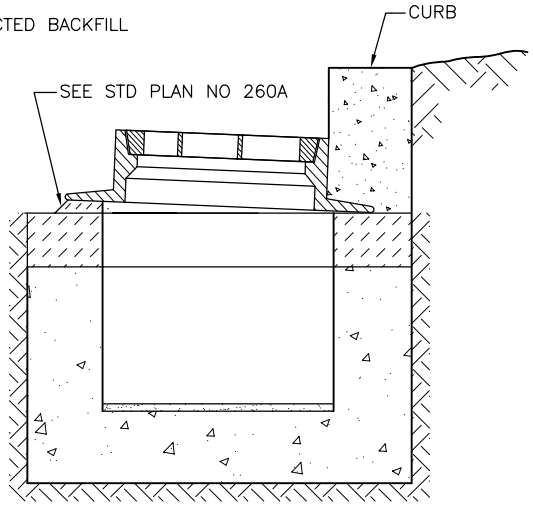
REV DATE: OCT 2008



SECTION A–A



PLAN VIEW



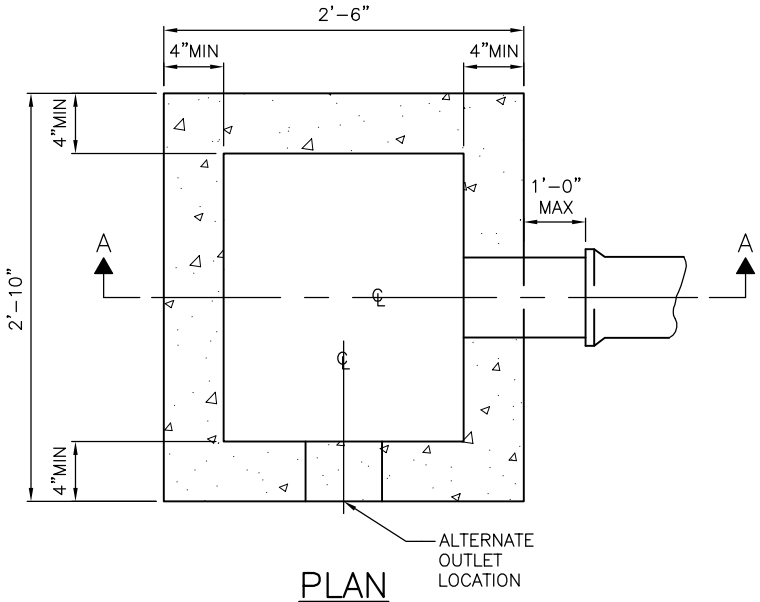
SECTION B–B

TYPE A ONLY

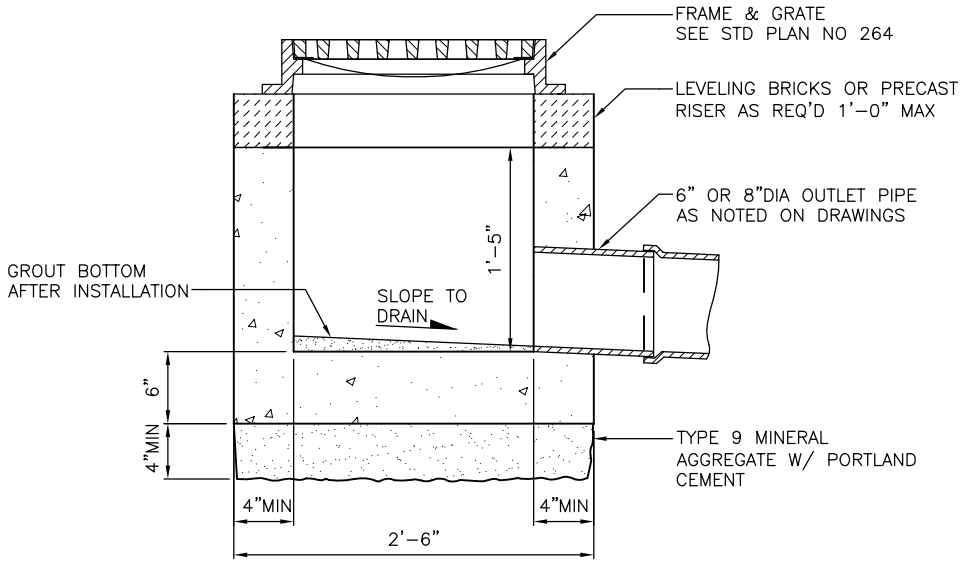
REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	TYPE 250 INLET

REV DATE: 2008



PLAN

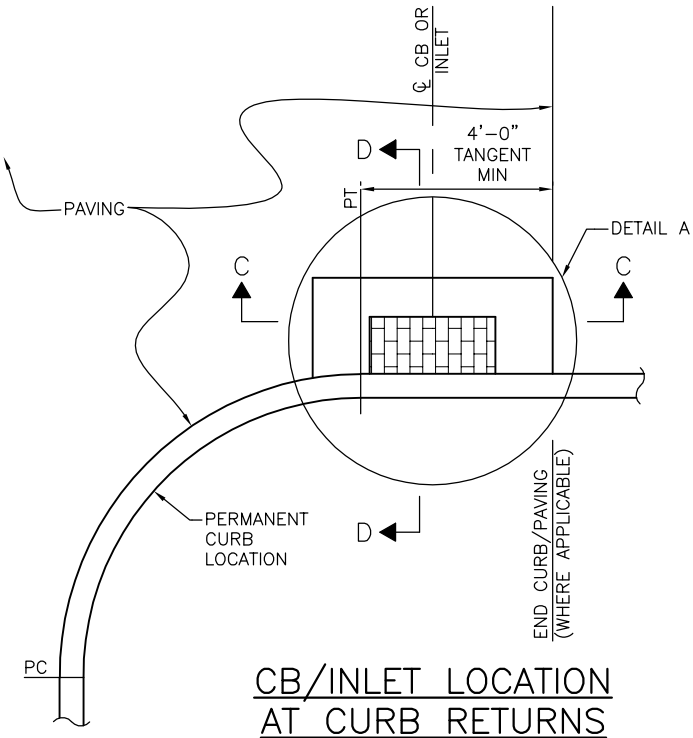


SECTION A–A

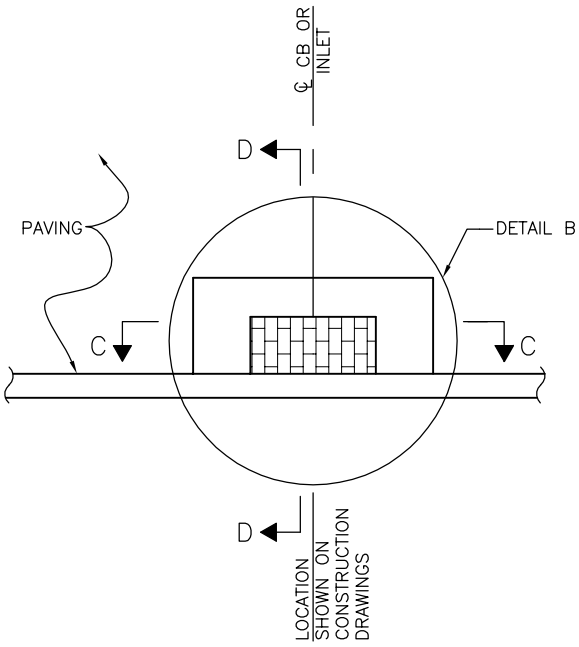
REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	TYPE 252 INLET

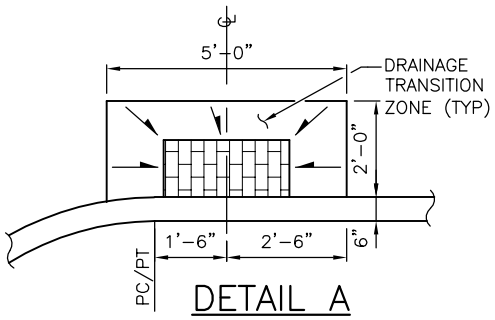
REV DATE: 2005



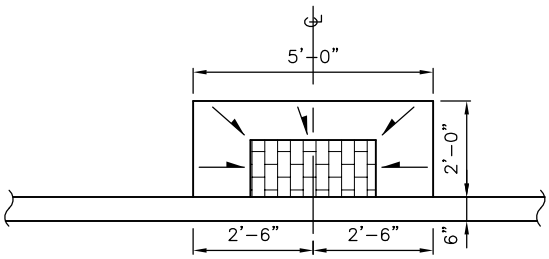
CB/INLET LOCATION AT CURB RETURNS



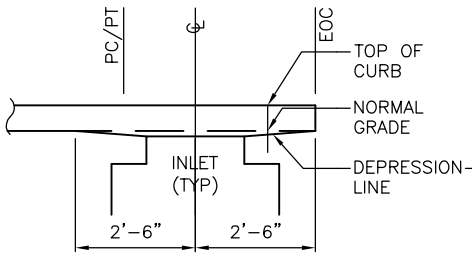
CB/INLET LOCATION NOT AT CURB RETURNS



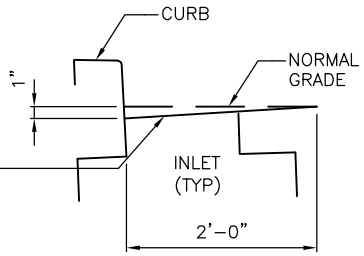
DETAIL A



DETAIL B



SECTION C–C



SECTION D–D

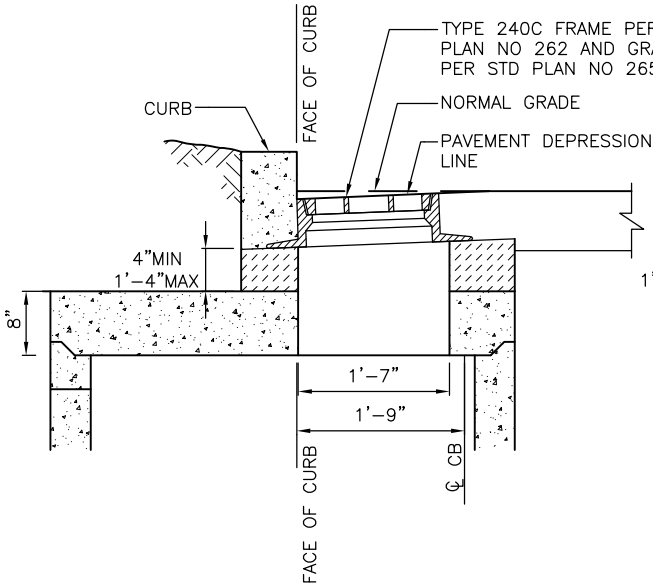
NOTE

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

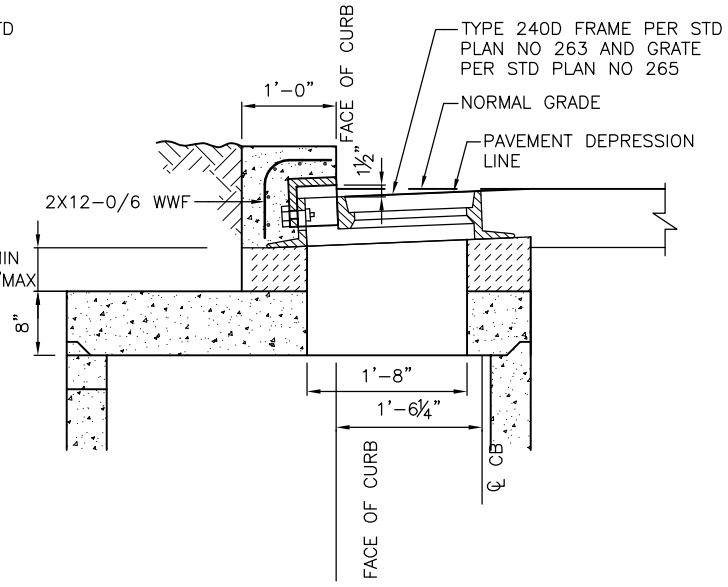
REF STD SPEC SEC 7-05

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

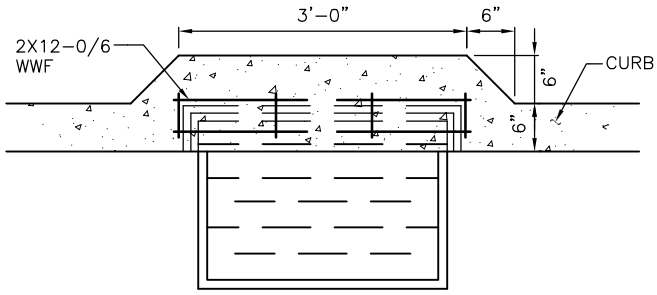
REV DATE: DEC 2010



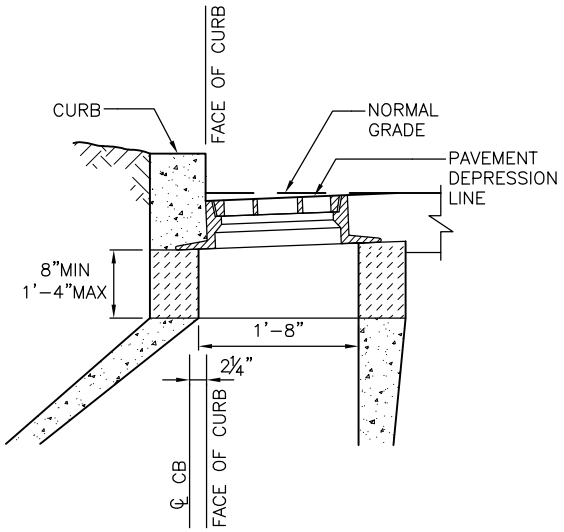
TYPE 240C CB



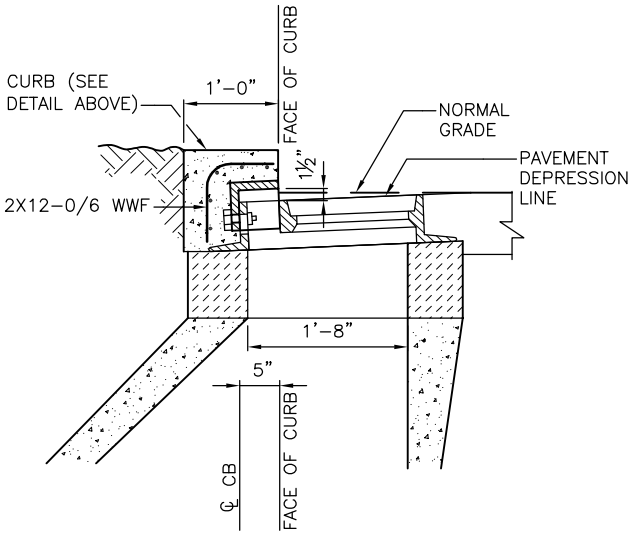
TYPE 240D CB



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



TYPE 242A CB
(TYPE 250A INLET SIMILAR)

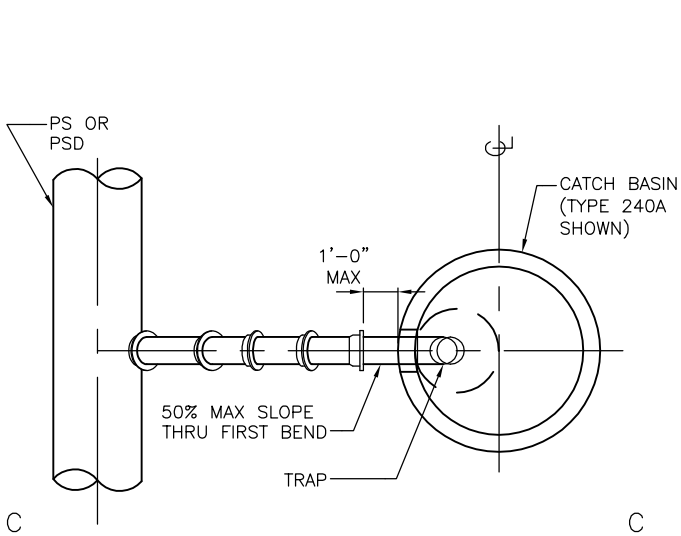


TYPE 242B CB
(TYPE 250B INLET SIMILAR)

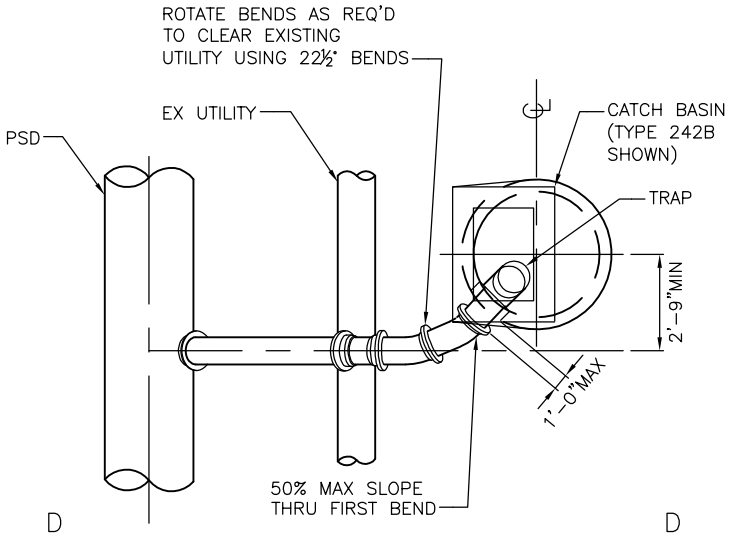
REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	CATCH BASIN & INLET INSTALLATION

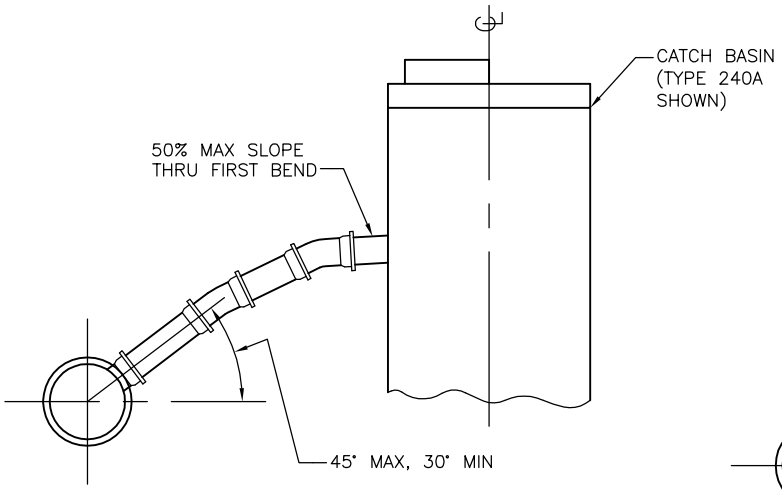
REV DATE: OCT 2008



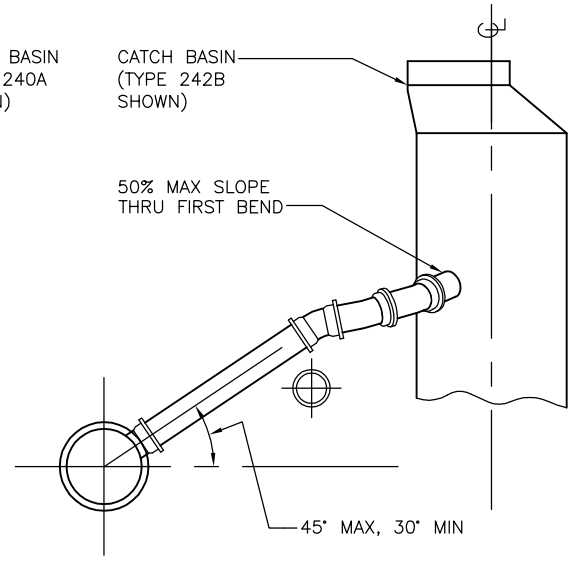
TYPE A



TYPE B



SECTION C–C



SECTION D–D

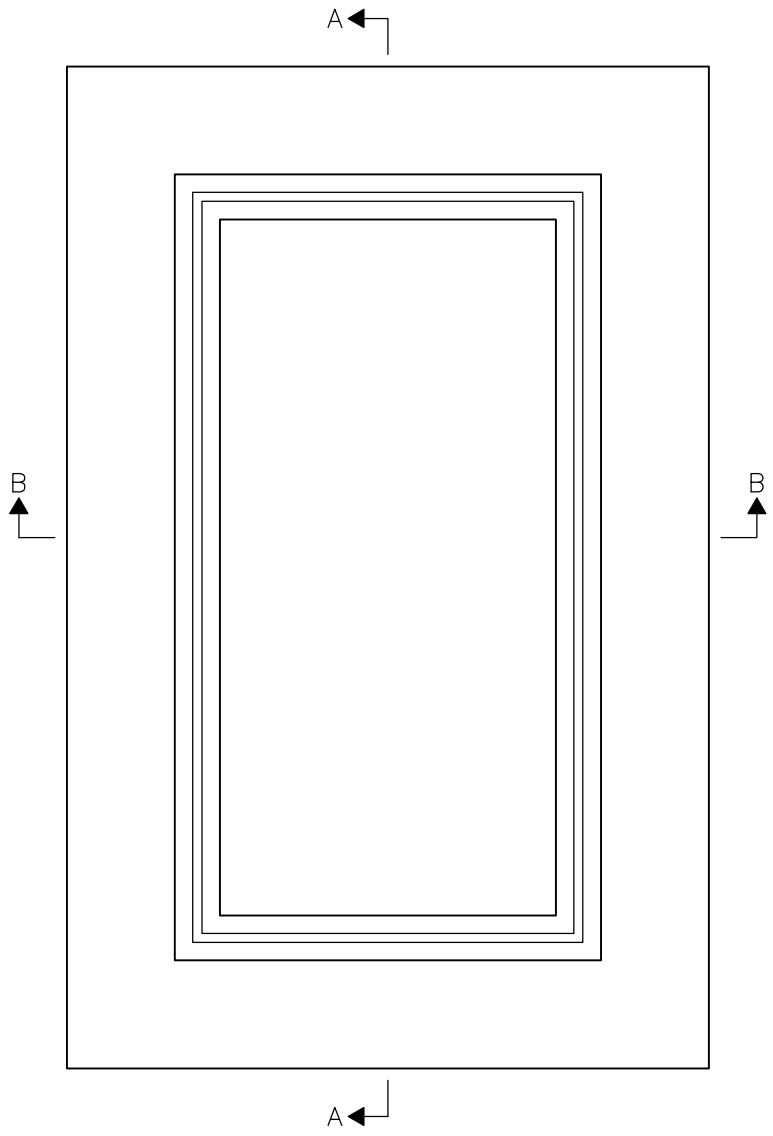
NOTES:

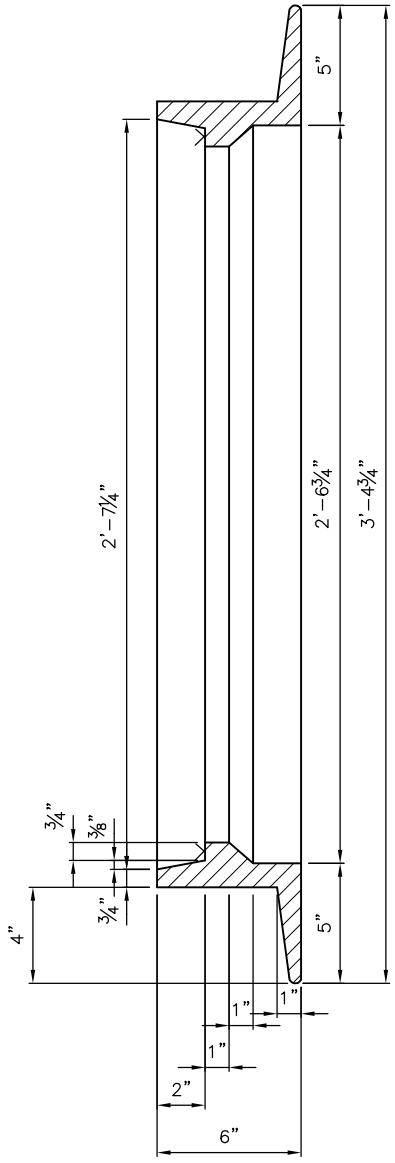
1. TYPE A CONNECTIONS SHALL BE USED WITH CB TYPES 240A, 240B AND 241.
2. TYPE B CONNECTIONS SHALL BE USED WITH CB TYPES 240C, 240D, 242A AND 242B.
3. CONNECTIONS SHALL MAINTAIN A MINIMUM OF 2% AND A MAXIMUM OF 100% GRADE.
4. MAX BEND SHALL BE 22½° OR 1/16 BEND. USE OF 1/8 BEND REQUIRES APPROVAL BY SPU.

REF STD SPEC SEC 7-08

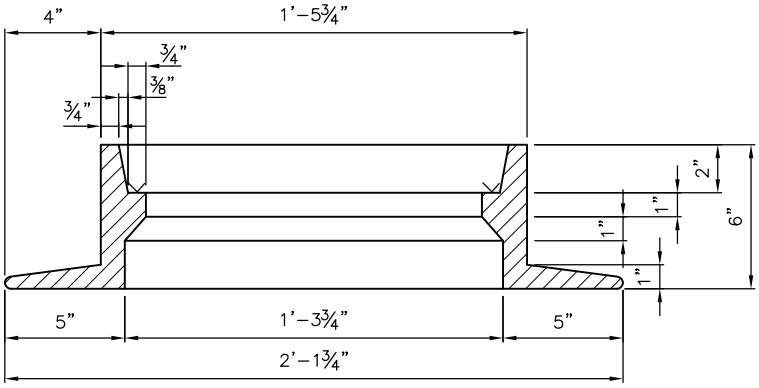
City of Seattle	NOT TO SCALE	TYPICAL CATCH BASIN CONNECTION

REV DATE: 2003





SECTION A–A

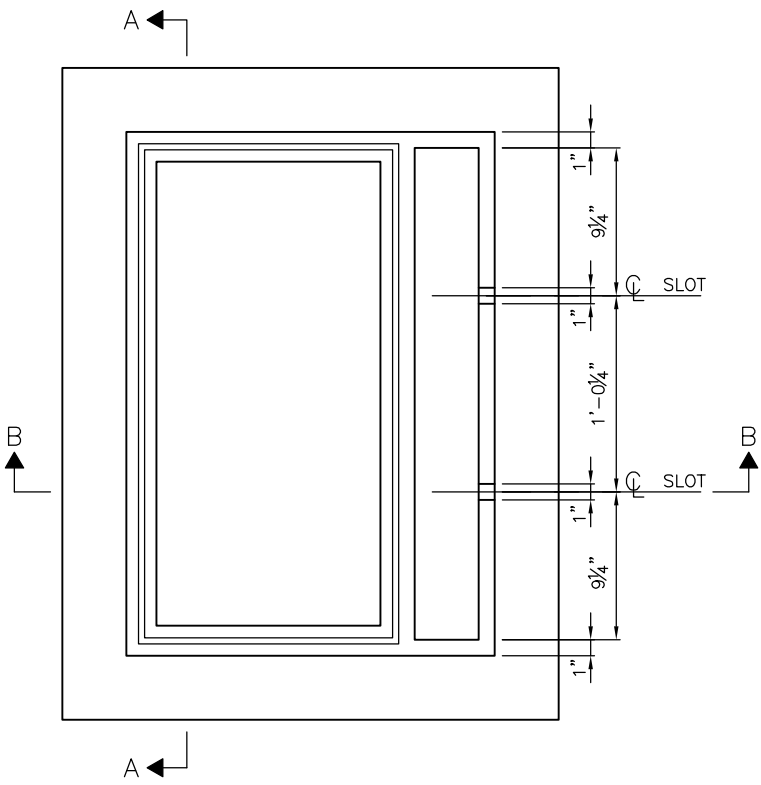


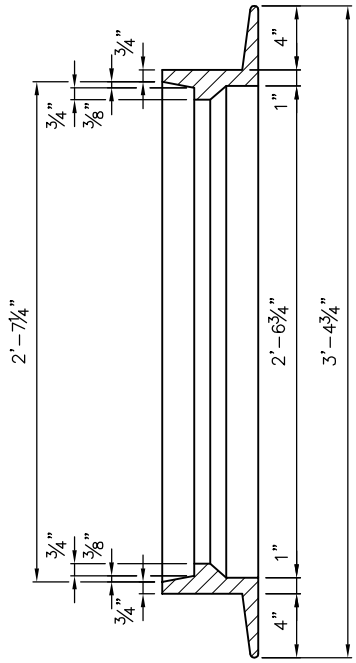
SECTION B–B

REF STD SPEC SEC 9-12

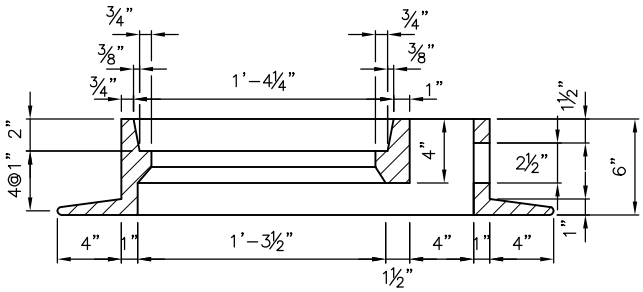
City of Seattle	NOT TO SCALE	TYPE 262 INLET FRAME

REV DATE: 2003

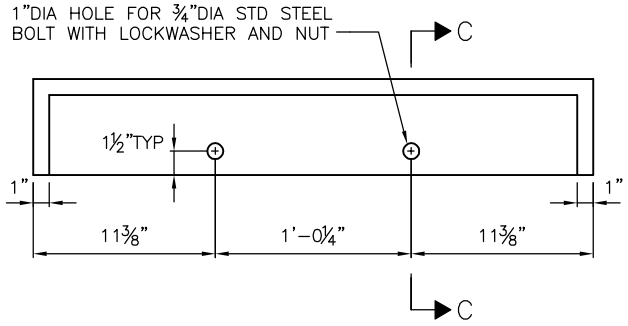




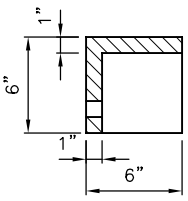
SECTION A–A



SECTION B–B



CURB INLET

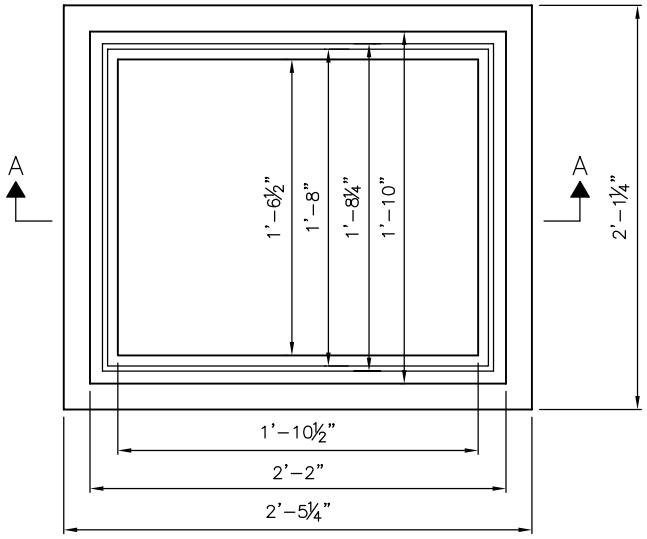


SECTION C–C

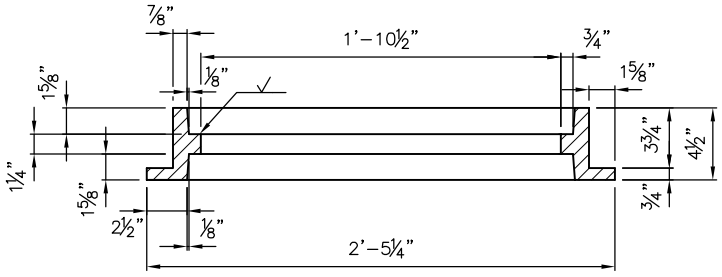
REF STD SPEC SEC 9-12

City of Seattle	NOT TO SCALE	TYPE 263 INLET FRAME

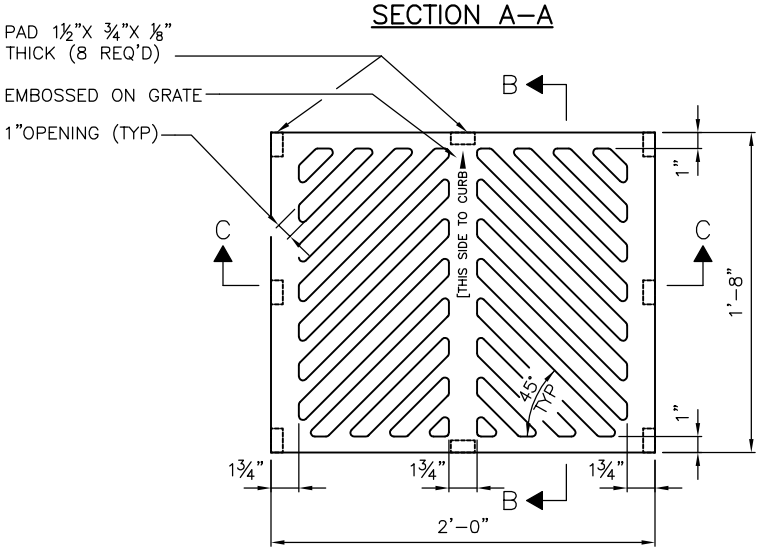
REV DATE: JUL 2010



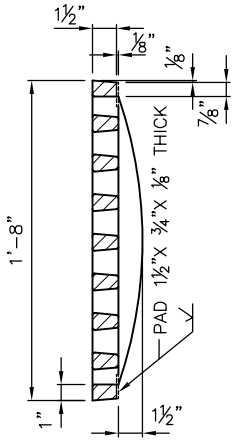
FRAME



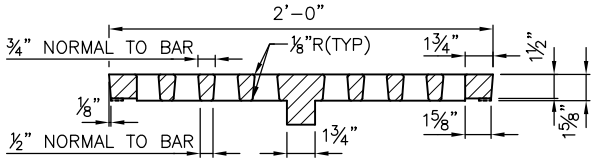
SECTION A–A



GRATE



SECTION B–B



SECTION C–C

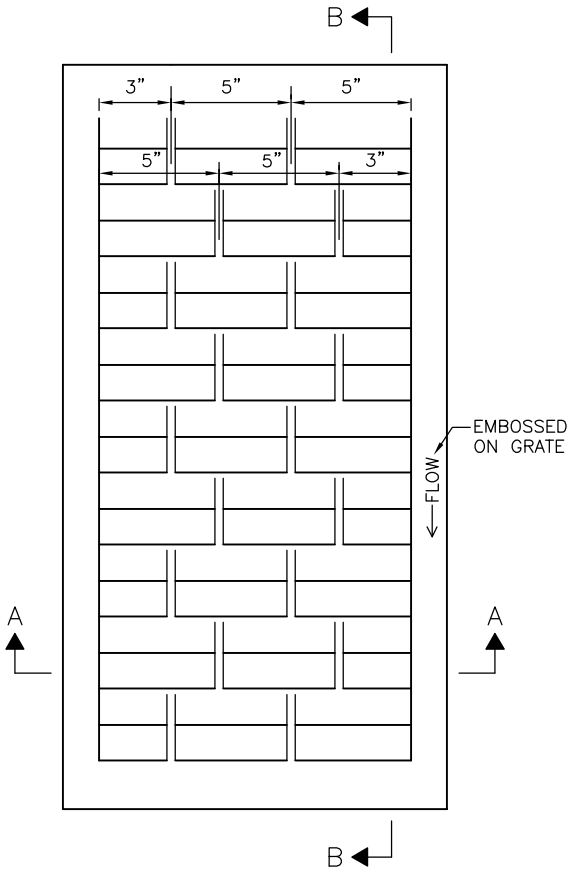
NOTES:

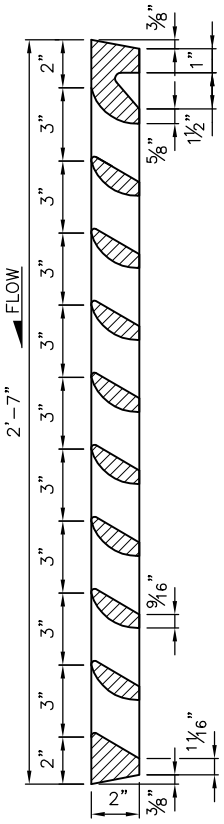
1. OTHER GRATES ACCEPTABLE; SPECIFY VANE, SOLID COVER, BI–DIRECTIONAL VANE, ADA OR BEEHIVE ON PLANS.
2. GRATE MATERIAL: DUCTILE IRON

REF STD SPEC SEC 7-05

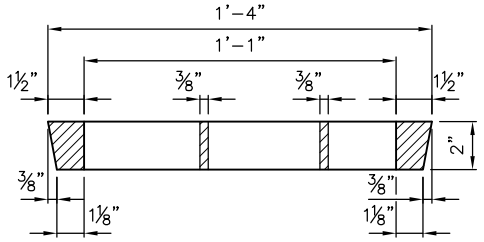
City of Seattle	NOT TO SCALE	INLET FRAME & GRATE

REV DATE: 2003



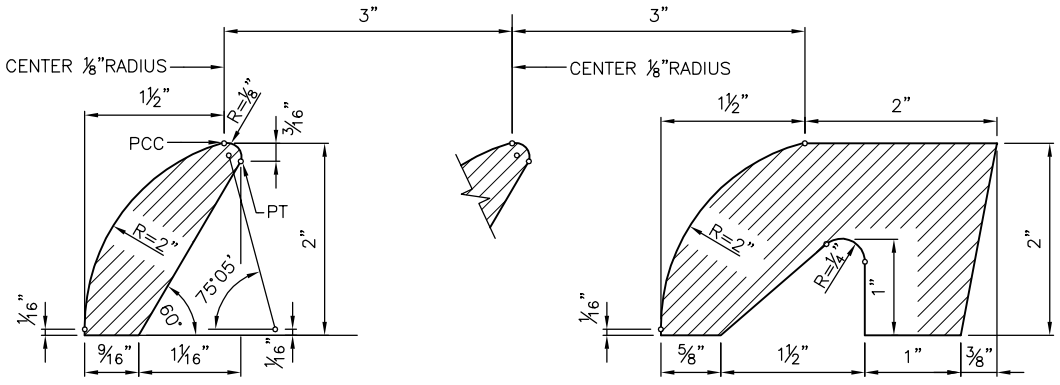


SECTION B–B



SECTION A–A

GRATE MATERIAL:
DUCTILE IRON



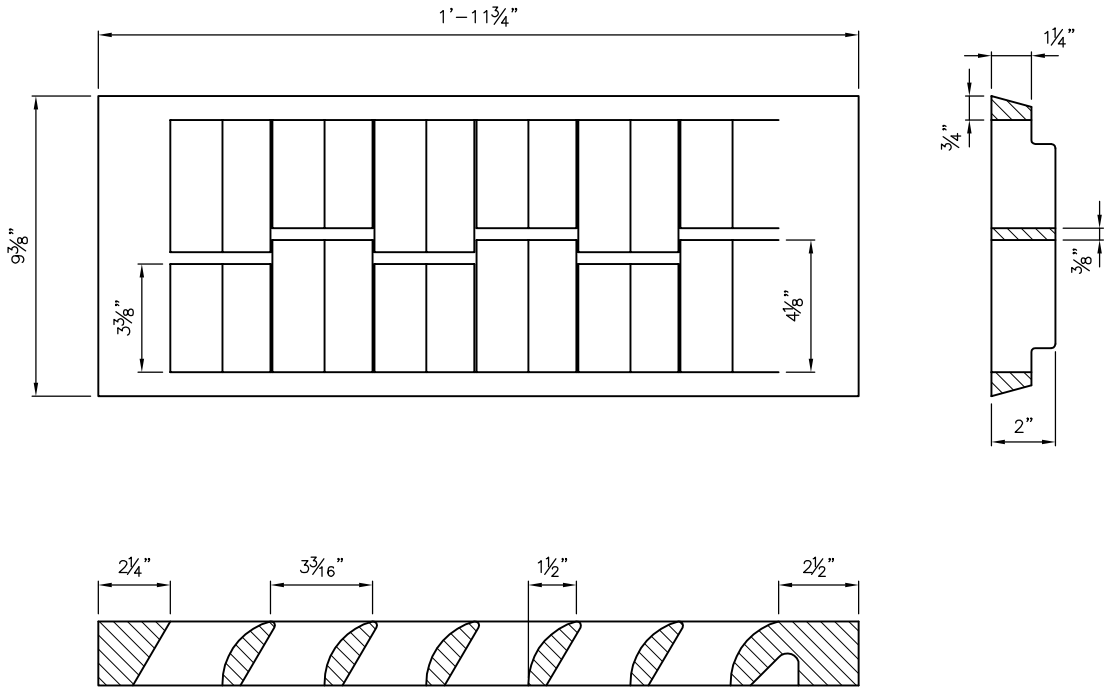
VANE DETAIL

END DETAIL

REF STD SPEC SEC 7-05

City of Seattle	NOT TO SCALE	VANED GRATE

REV DATE: DEC 2010



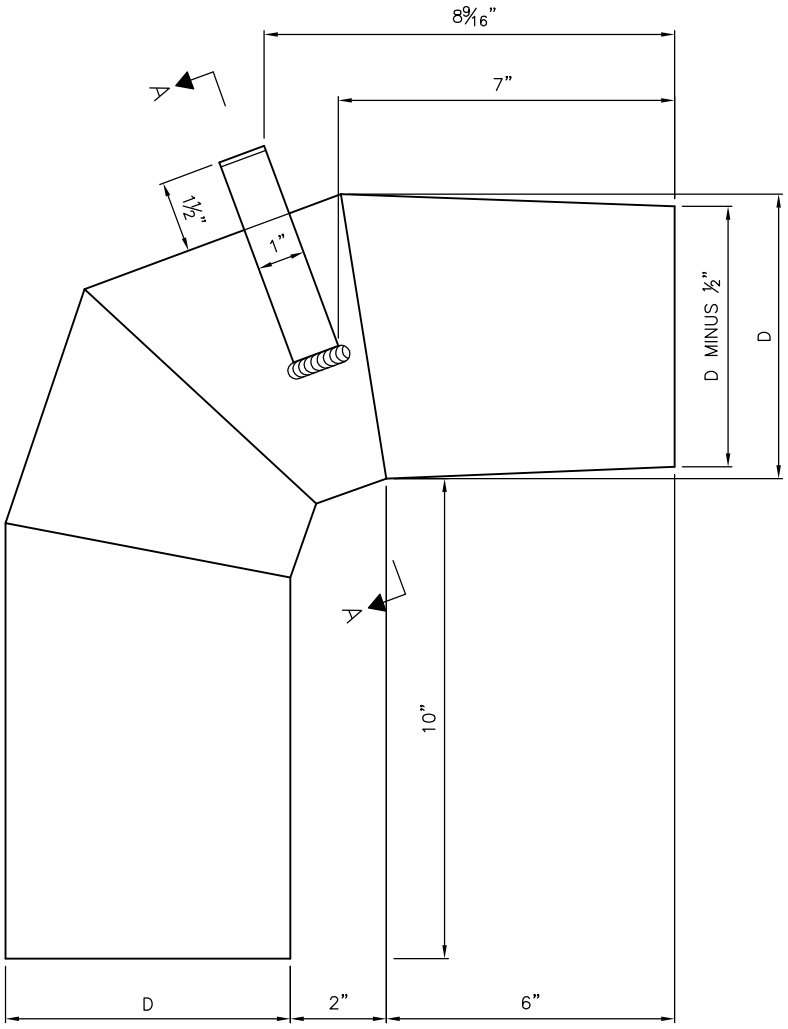
NOTES:

1. OPEN AREA – 100 SQUARE INCHES.
2. SEE STD PLAN 265 FOR VANE AND END DETAIL.
3. STD PLAN 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

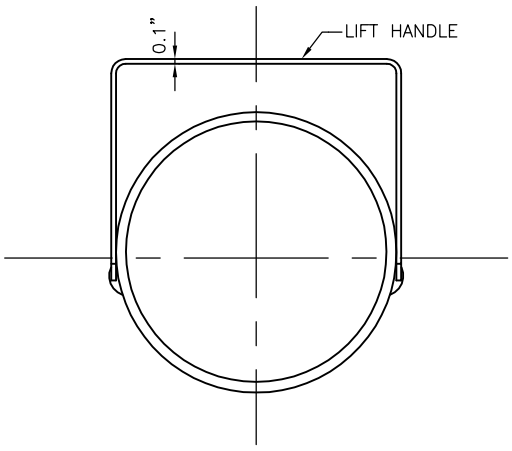
City of Seattle	NOT TO SCALE	TYPE 266 REPLACEMENT VANED GRATE

REV DATE: FEB 2010



NOTES:

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



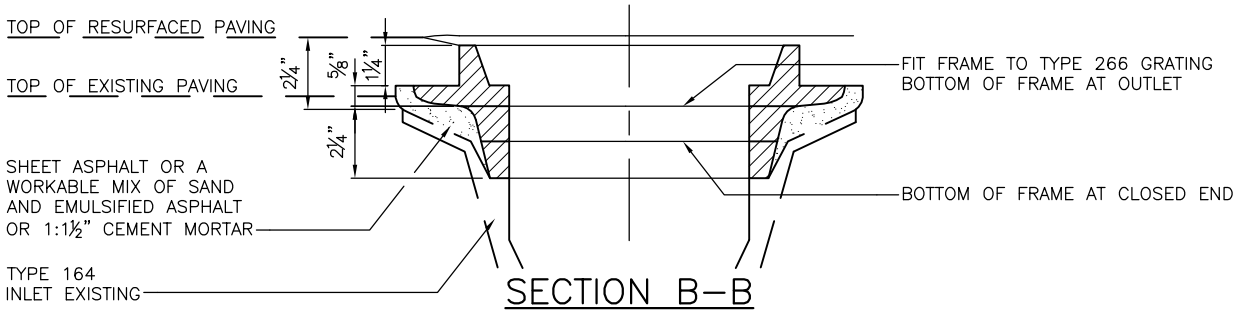
SECTION A–A

NTS

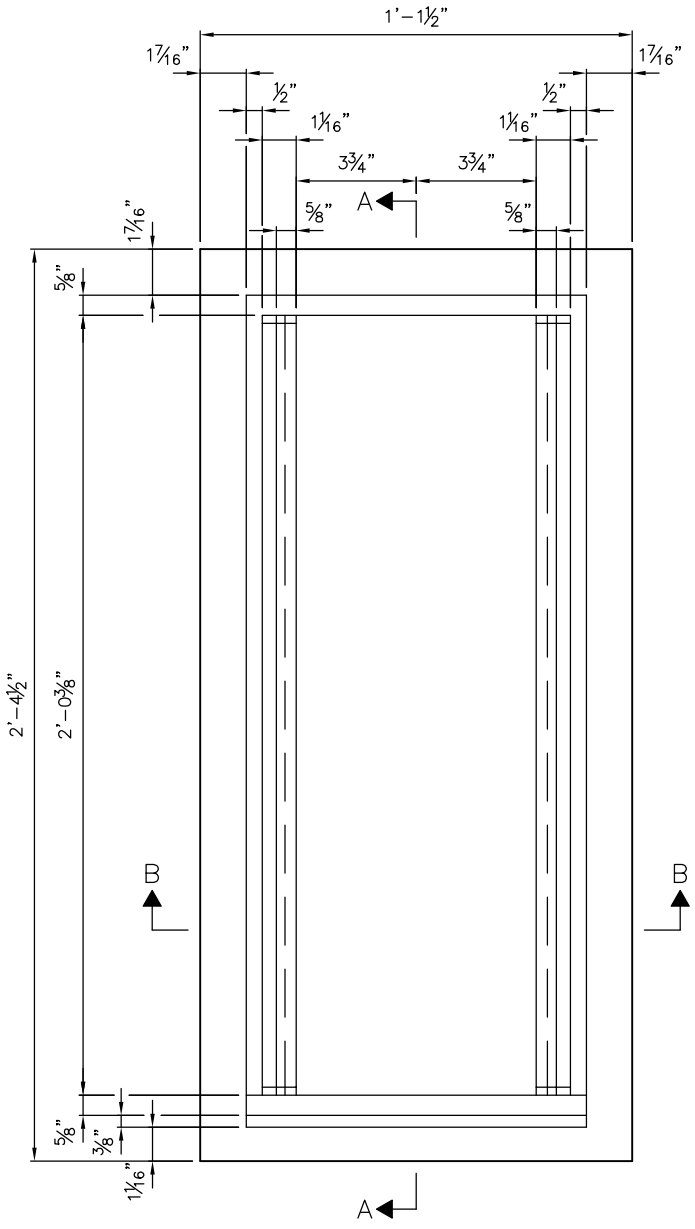
REF STD SPEC SEC 9-12

City of Seattle	NOT TO SCALE	OUTLET TRAP

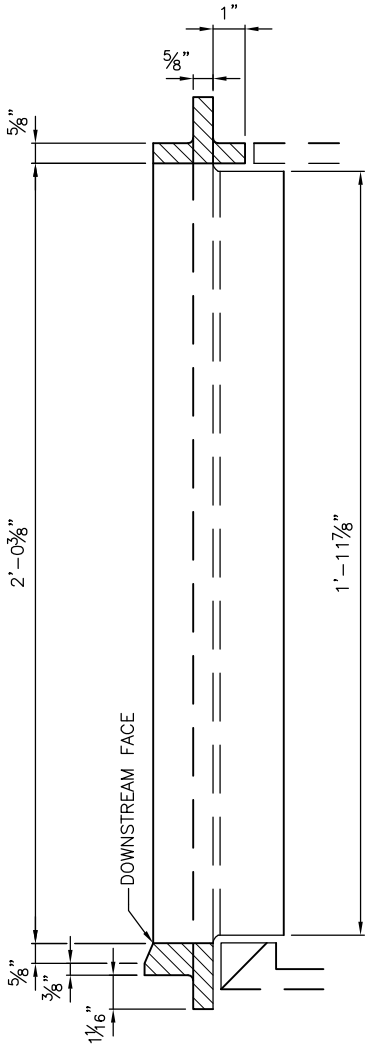
REV DATE: 2008



SECTION B–B



PLAN



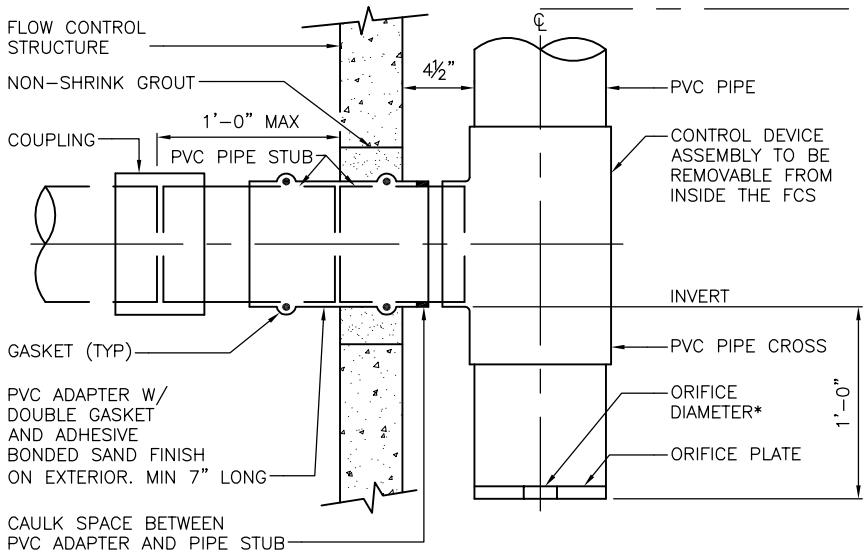
SECTION A–A

THESE DIMENSIONS MAY BE CHANGED IF NECESSARY TO FIT EXISTING CASTINGS

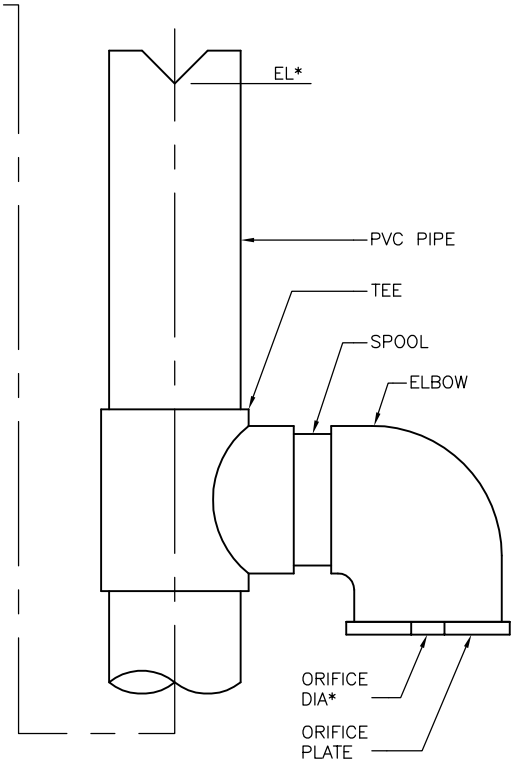
REF STD SPEC SEC 9-05

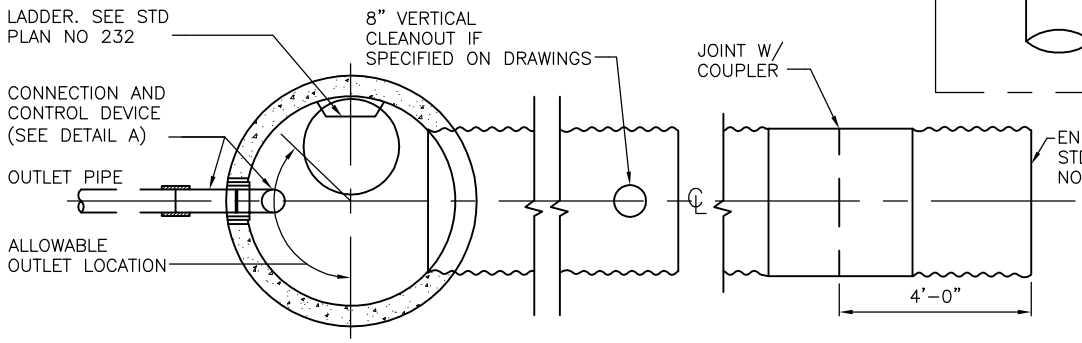
City of Seattle	NOT TO SCALE	EXTENSION FOR INLET

REV DATE: FEB 2010



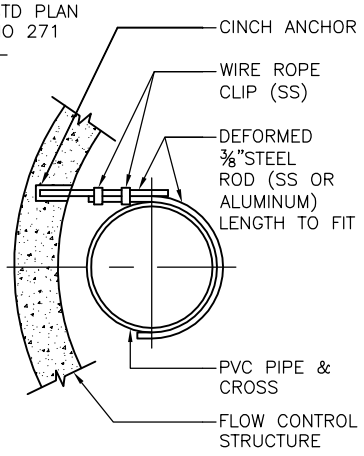
CONNECTION & CONTROL DEVICE DETAIL A

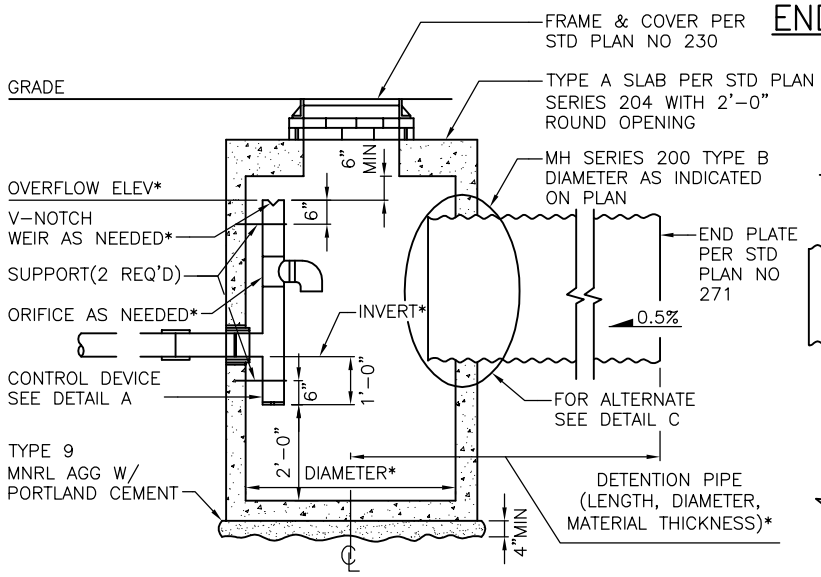




END CAP DETAIL

(WHEN REQUIRED)

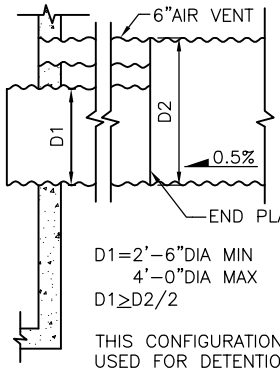




FLOW CONTROL STRUCTURE & DETENTION PIPE CMP

*SPECIFIC DESIGN INFORMATION AS INDICATED ON CONSTRUCTION DRAWINGS

NOTE – INVERT OF DETENTION PIPE HIGHER THAN INVERT OF OUTLET PIPE



D1=2'-6"DIA MIN
4'-0"DIA MAX
D1≥D2/2

THIS CONFIGURATION MAY BE USED FOR DETENTION PIPES LARGER THAN 3'-0" DIA. USE CONFIGURATION SHOWN ON CONSTRUCTION DRAWING PROFILE

PIPE SUPPORT DETAIL B

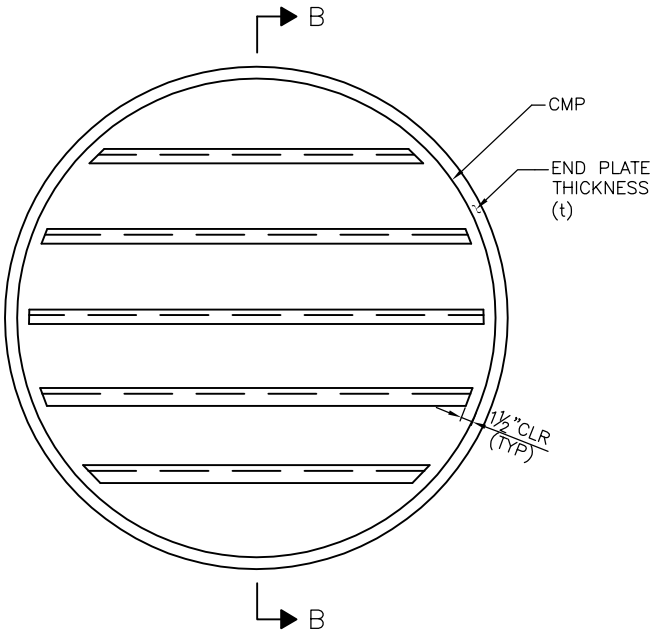
DETAIL C

REF STD SPEC SEC 7-16

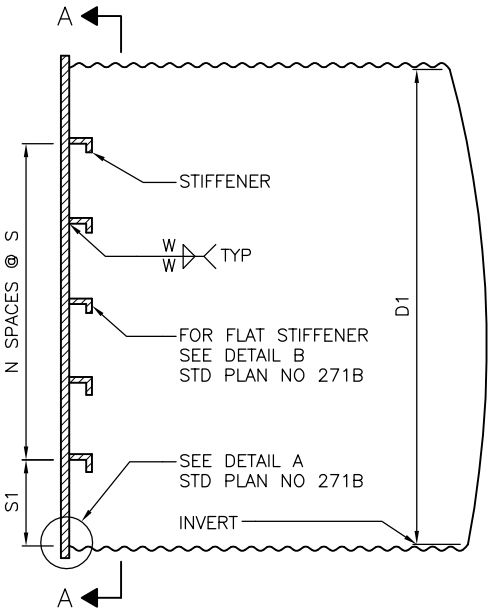
NOT FOR USE IN ROW

City of Seattle | NOT TO SCALE | FLOW CONTROL STRUCTURE

REV DATE: 2003

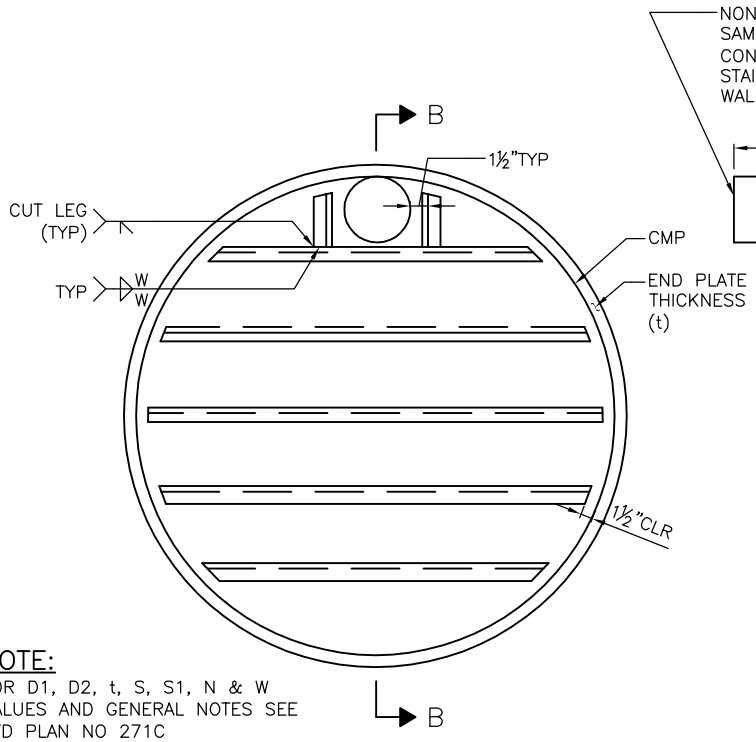


SECTION A–A



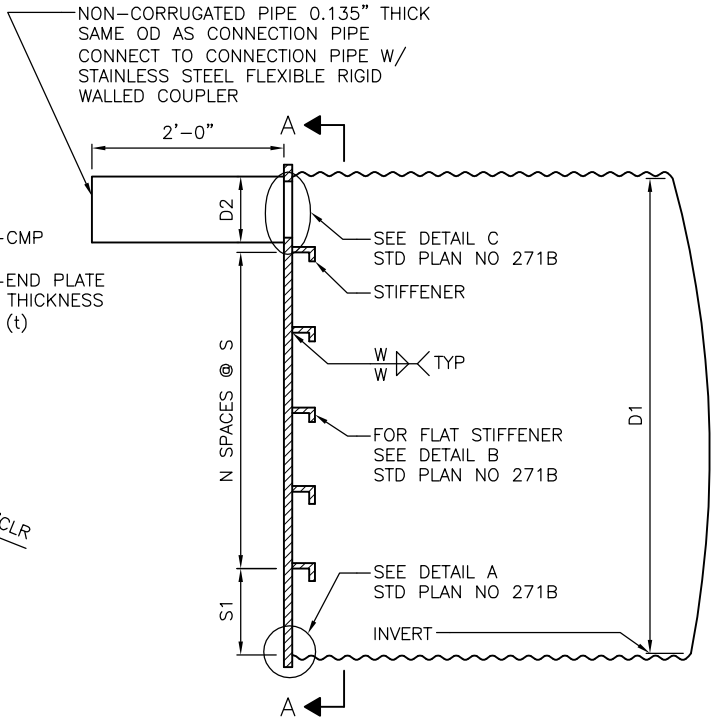
TYPE A

SECTION B–B



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

SECTION A–A



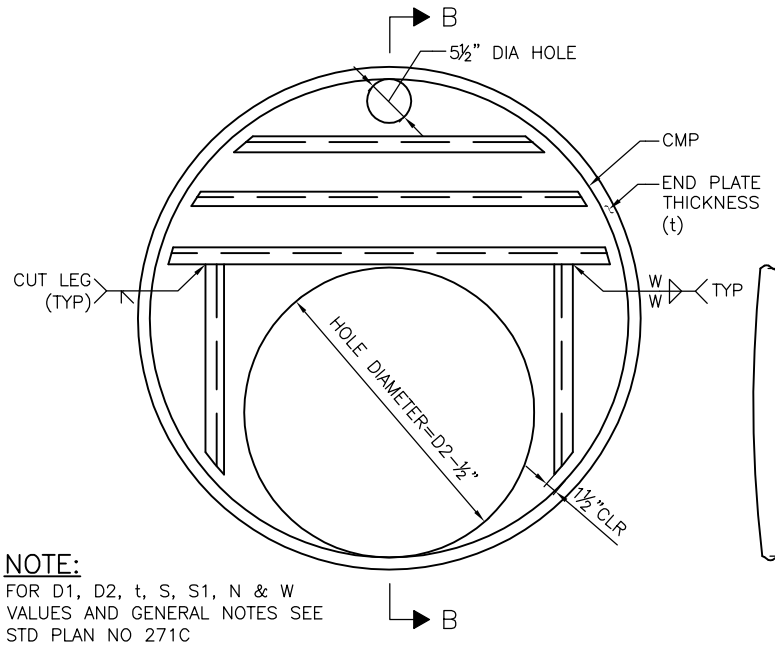
TYPE B

SECTION B–B

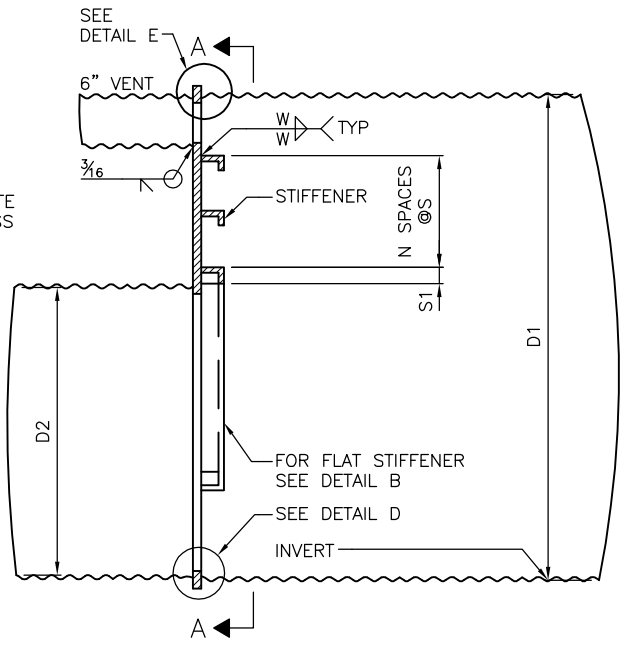
REF STD SPEC SEC 7-16

City of Seattle	NOT TO SCALE	DETENTION STRUCTURE END PLATE DETAILS

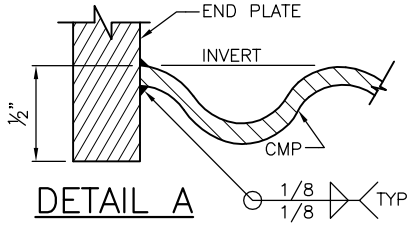
REV DATE: 2003



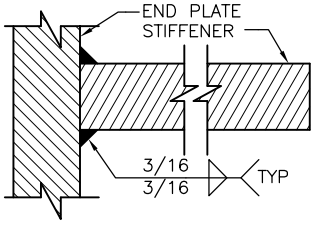
NOTE:
FOR D1, D2, t, S, S1, N & W VALUES AND GENERAL NOTES SEE STD PLAN NO 271C



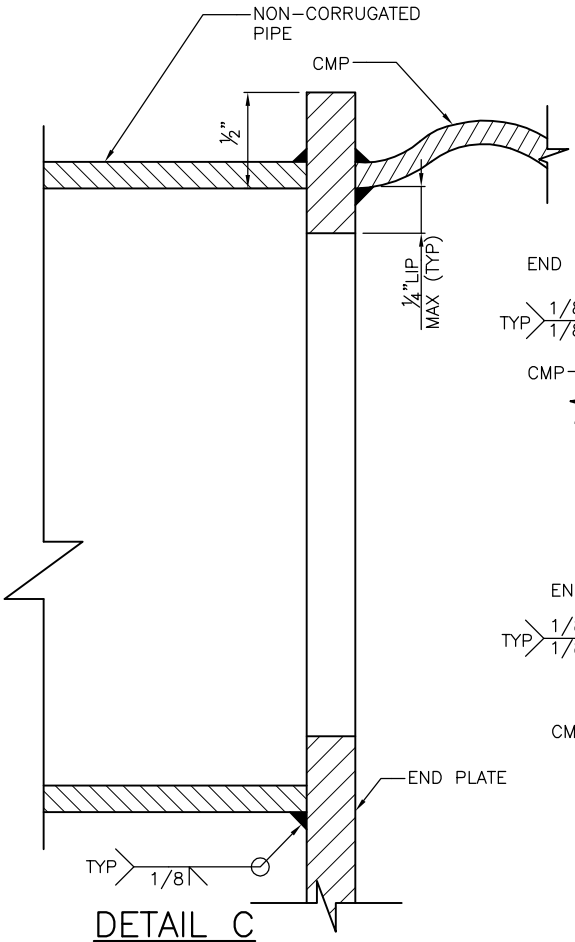
SECTION A–A TYPE C SECTION B–B



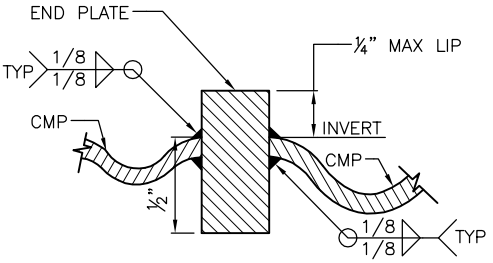
DETAIL A



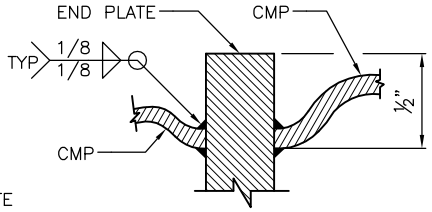
DETAIL B
FLAT STIFFENER



DETAIL C



DETAIL D



DETAIL E

REF STD SPEC SEC 7-16

City of Seattle	NOT TO SCALE	DETENTION STRUCTURE END PLATE DETAILS

REV DATE: 2003

PIPE DIAMETER		END PLATE THICKNESS	STIFFENER TYPE & SIZE	STIFFENER SPACING			SIZE W
D1	D2	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"

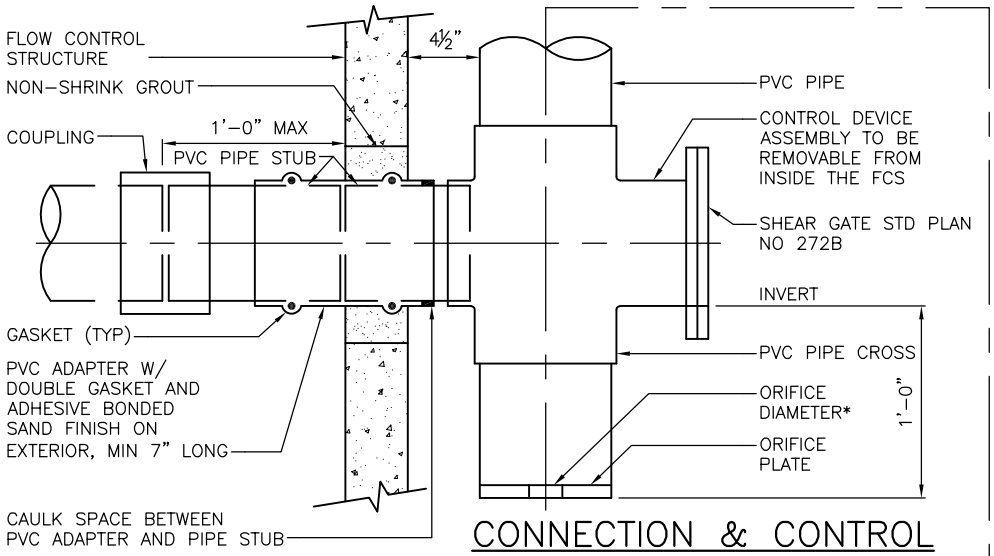
NOTES:

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 SHALL BE USED ONLY FOR ALUMINUM CMP

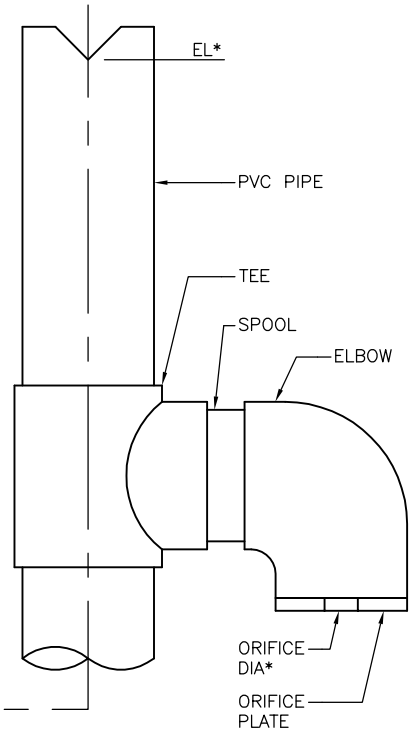
REF STD SPEC SEC 7-16

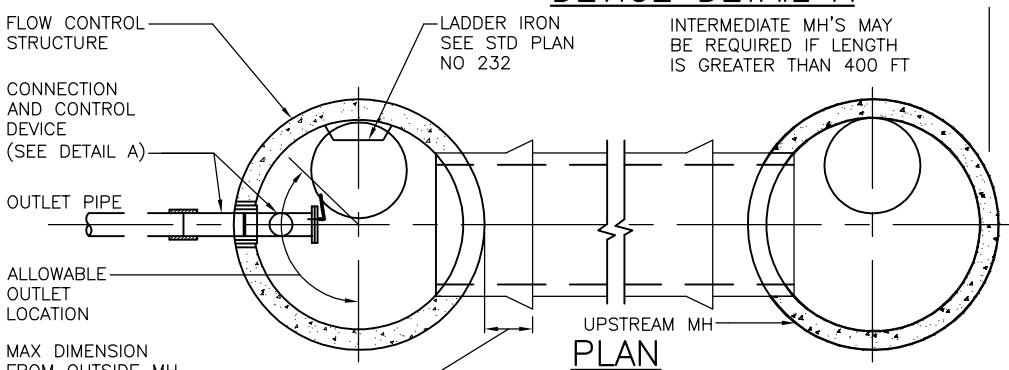
City of Seattle | NOT TO SCALE | DETENTION STRUCTURE END PLATE DETAILS

REV DATE: FEB 2010

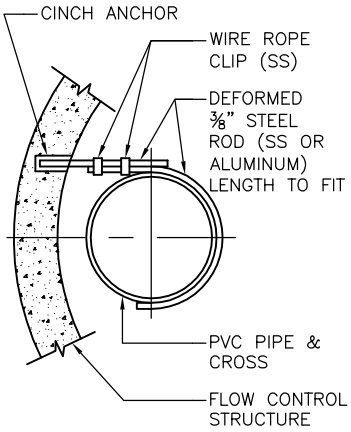


CONNECTION & CONTROL DEVICE DETAIL A

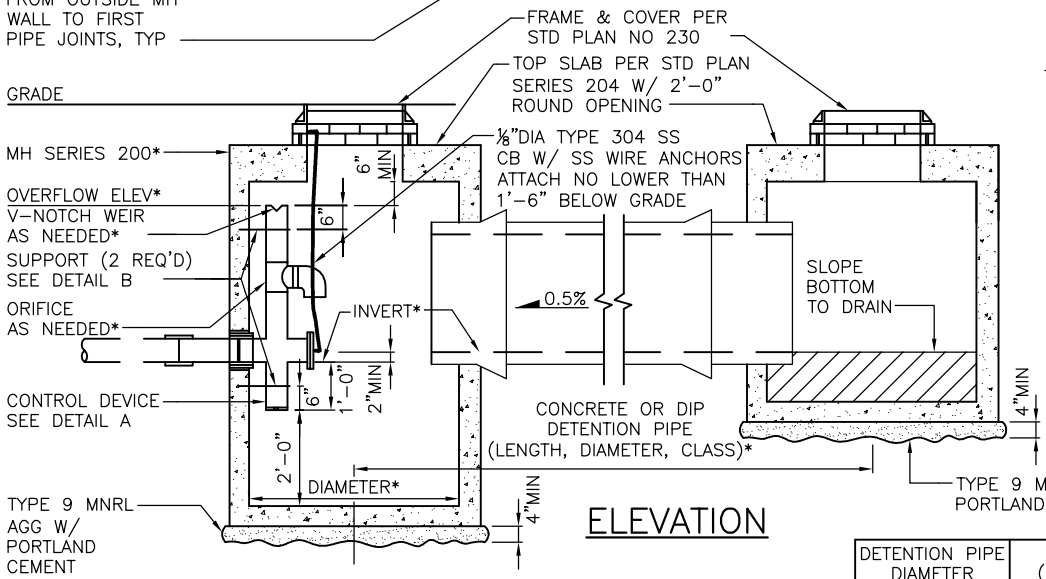




PLAN



PIPE SUPPORT DETAIL B



ELEVATION

FLOW CONTROL STRUCTURE & DETENTION PIPE

DETENTION PIPE DIAMETER	FCS * (MH SIZE)	UPSTREAM * (MH SIZE)
18"	201B	201A OR B
24"	201B	201A OR B
30"	202B	202B
36"	202B	202B
48"	203B	203B
60"	204B	204B
72"	205B	205B

*SPECIFIC DESIGN INFORMATION AS INDICATED ON CONSTRUCTION DRAWINGS

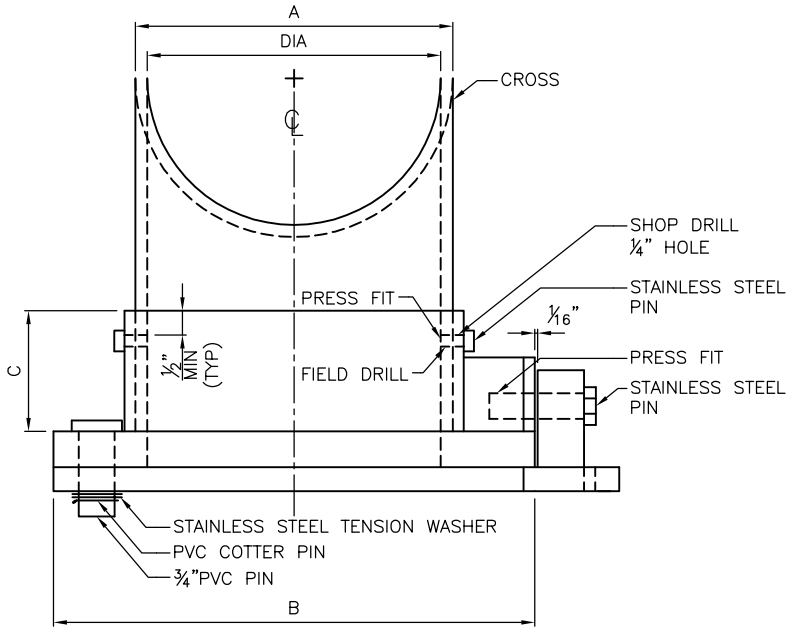
REF STD SPEC SEC 7-16

City of Seattle

NOT TO SCALE

FLOW CONTROL STRUCTURE (CONC OR DIP DETENTION PIPE)

REV DATE: 2003



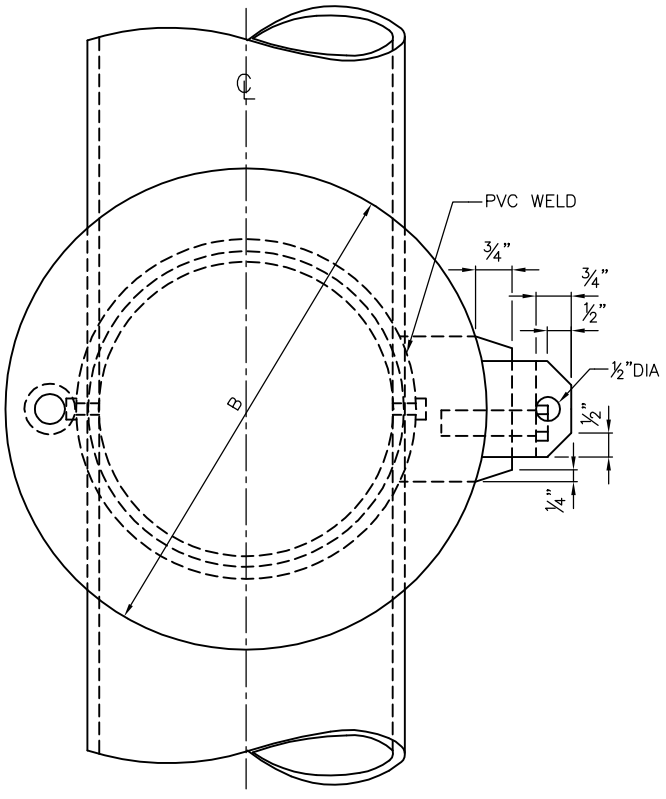
TOP VIEW

NOTE:
SHEER GATE FOR USE IN ROW ONLY.

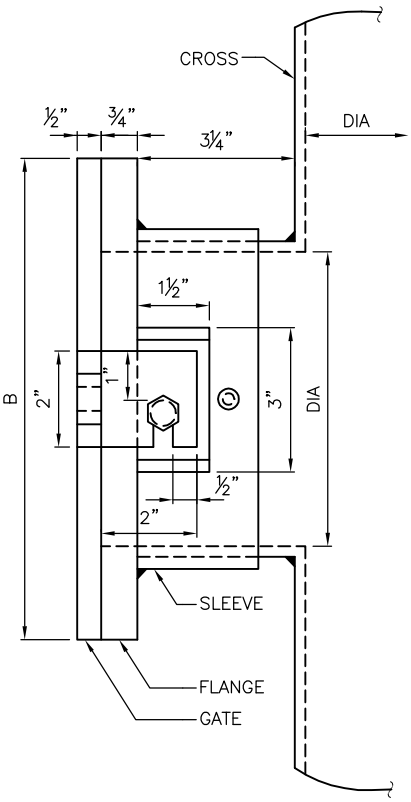
DIA	A	B*	C*
4"	4½"	8"	2"
6"	6⅝"	10"	2½"
8"	8⅝"	12"	3"
10"	10¾"	14"	3"
12"	12¾"	16"	3"

*MINIMUM

DIA= OUTLET PIPE DIAMETER



FRONT VIEW

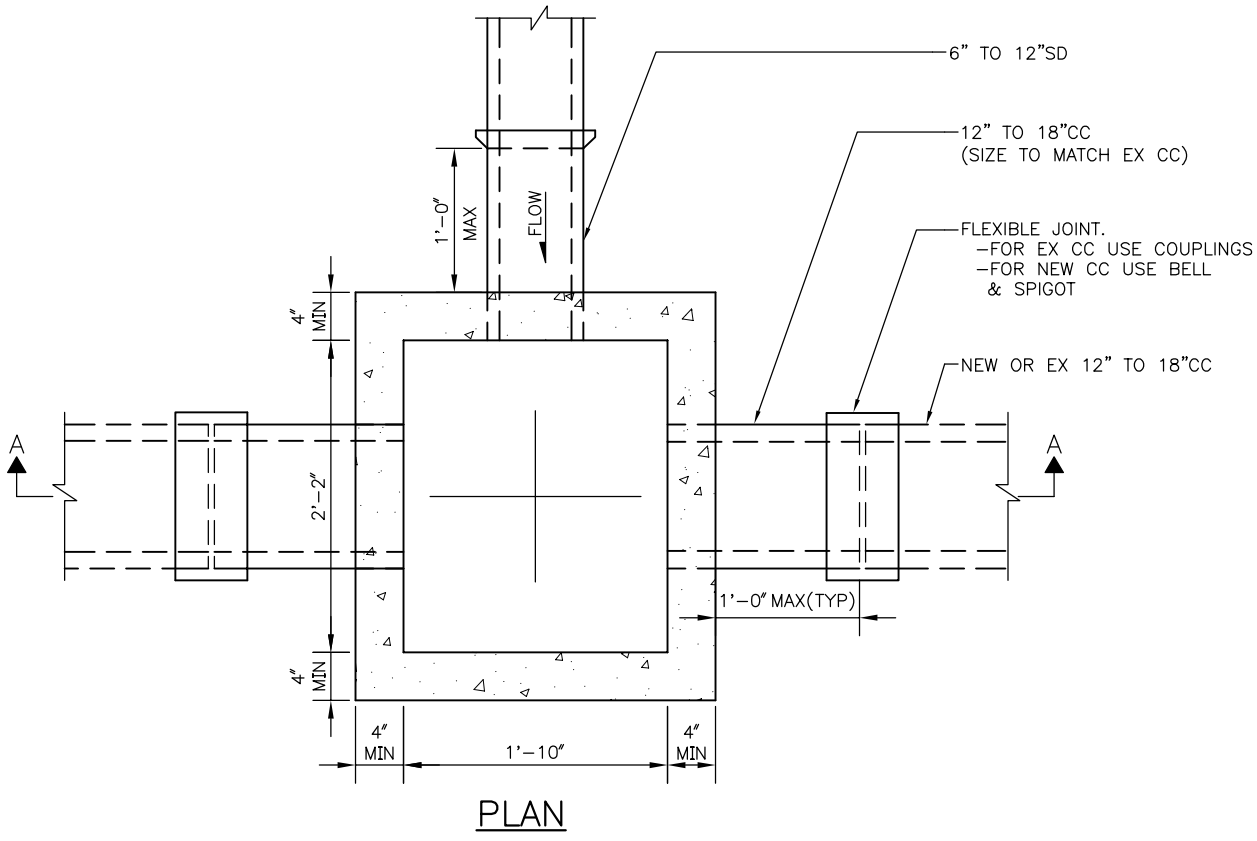


SIDE VIEW

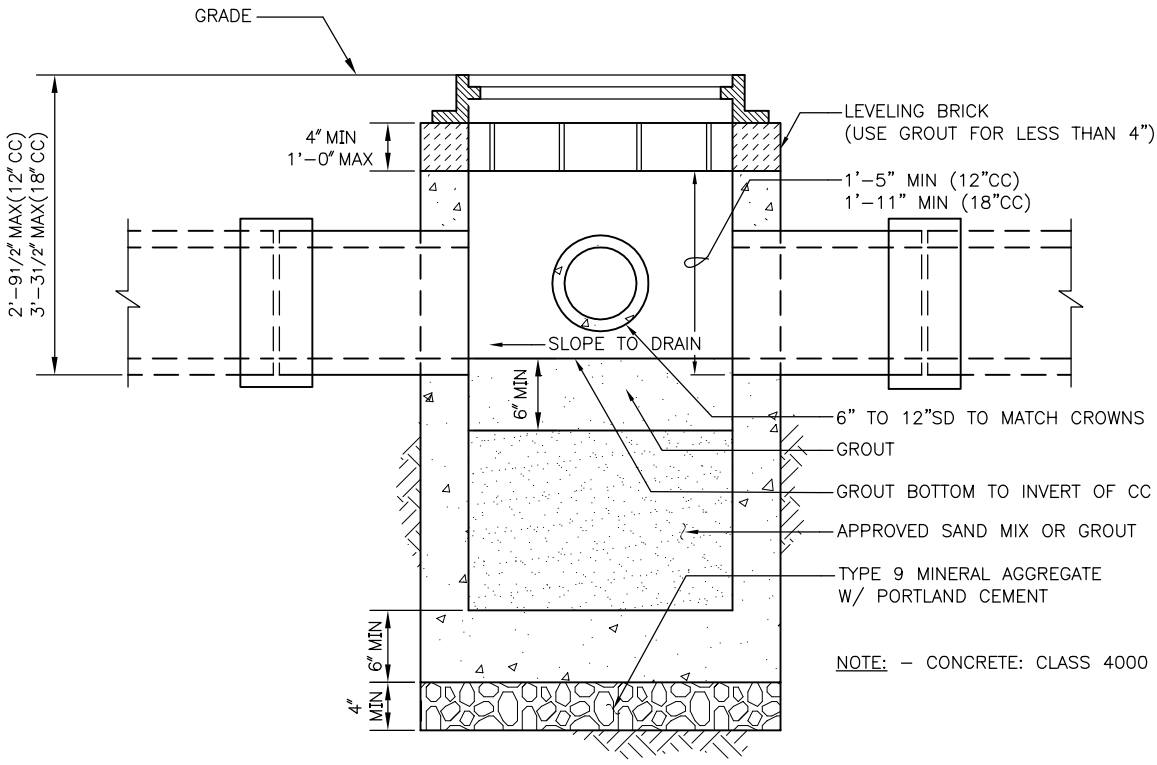
REF STD SPEC SEC 7-16

City of Seattle	NOT TO SCALE	PVC SHEAR GATE

REV DATE: DEC 2010



PLAN

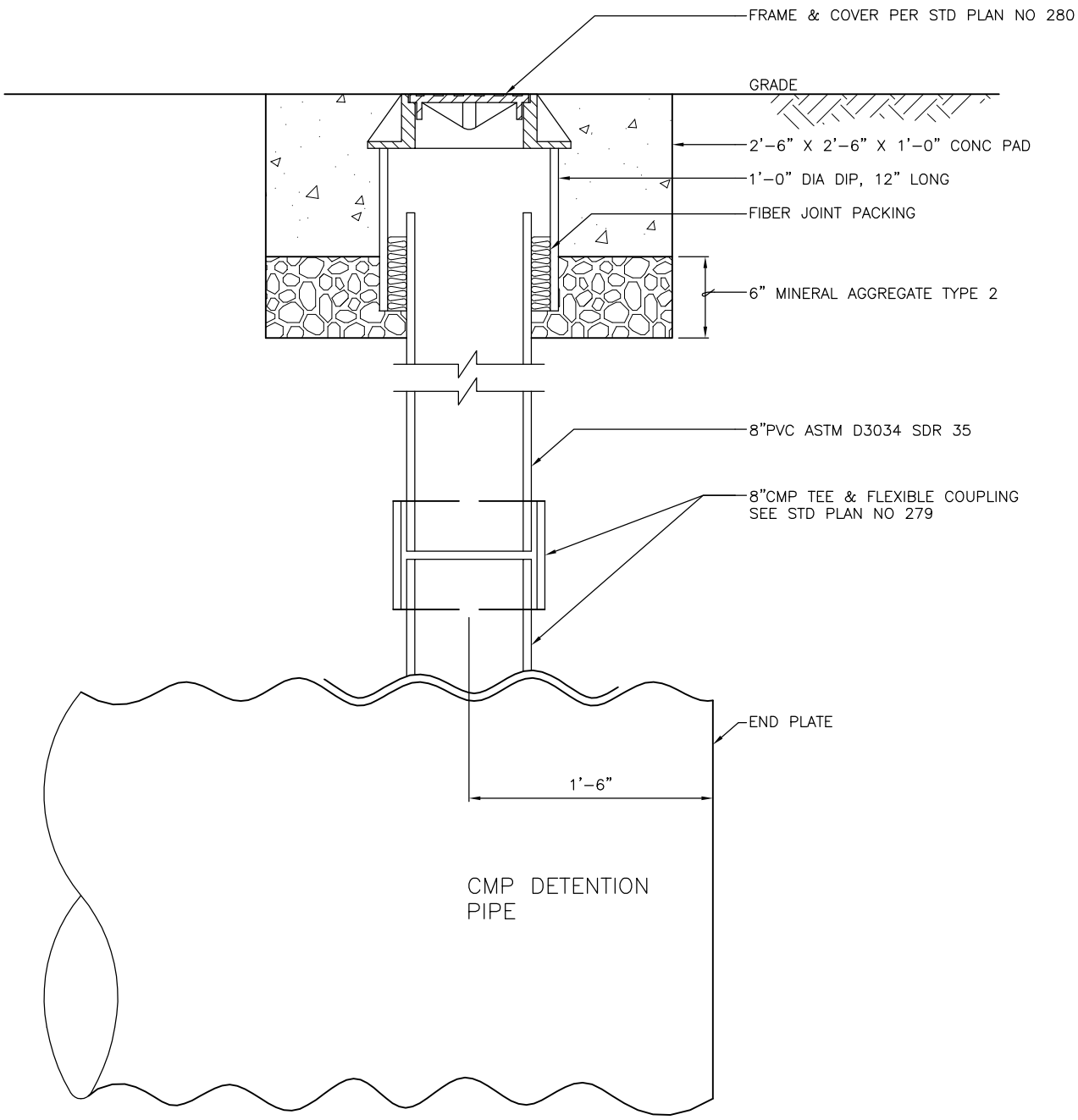


SECTION A–A

REF STD SPEC SEC 7-02 & 9-12.9

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

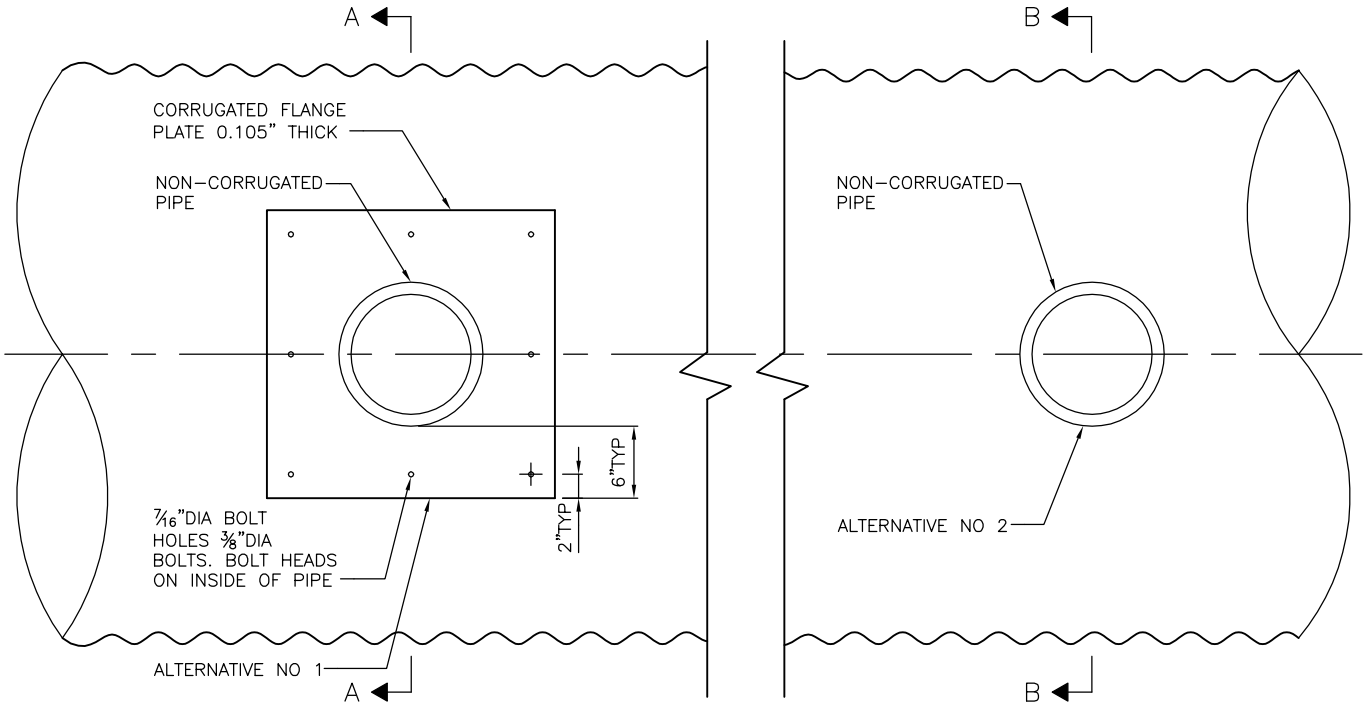
REV DATE: 2003

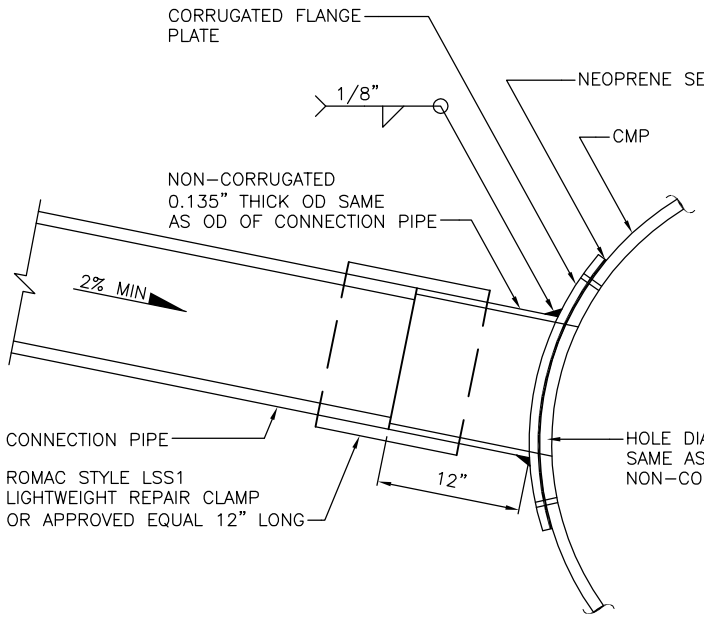


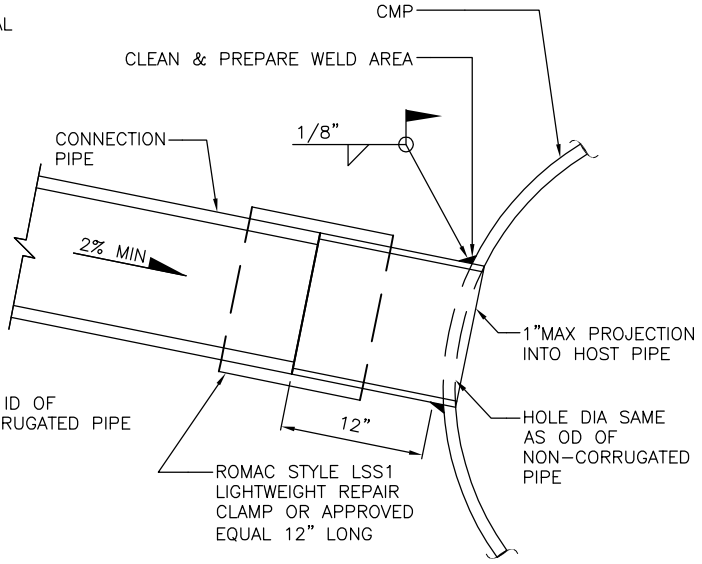
REF STD SPEC SEC 7-19 & 7-16.2

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

REV DATE: FEB 2010







SECTION A–A

NOTES:

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

SECTION B–B

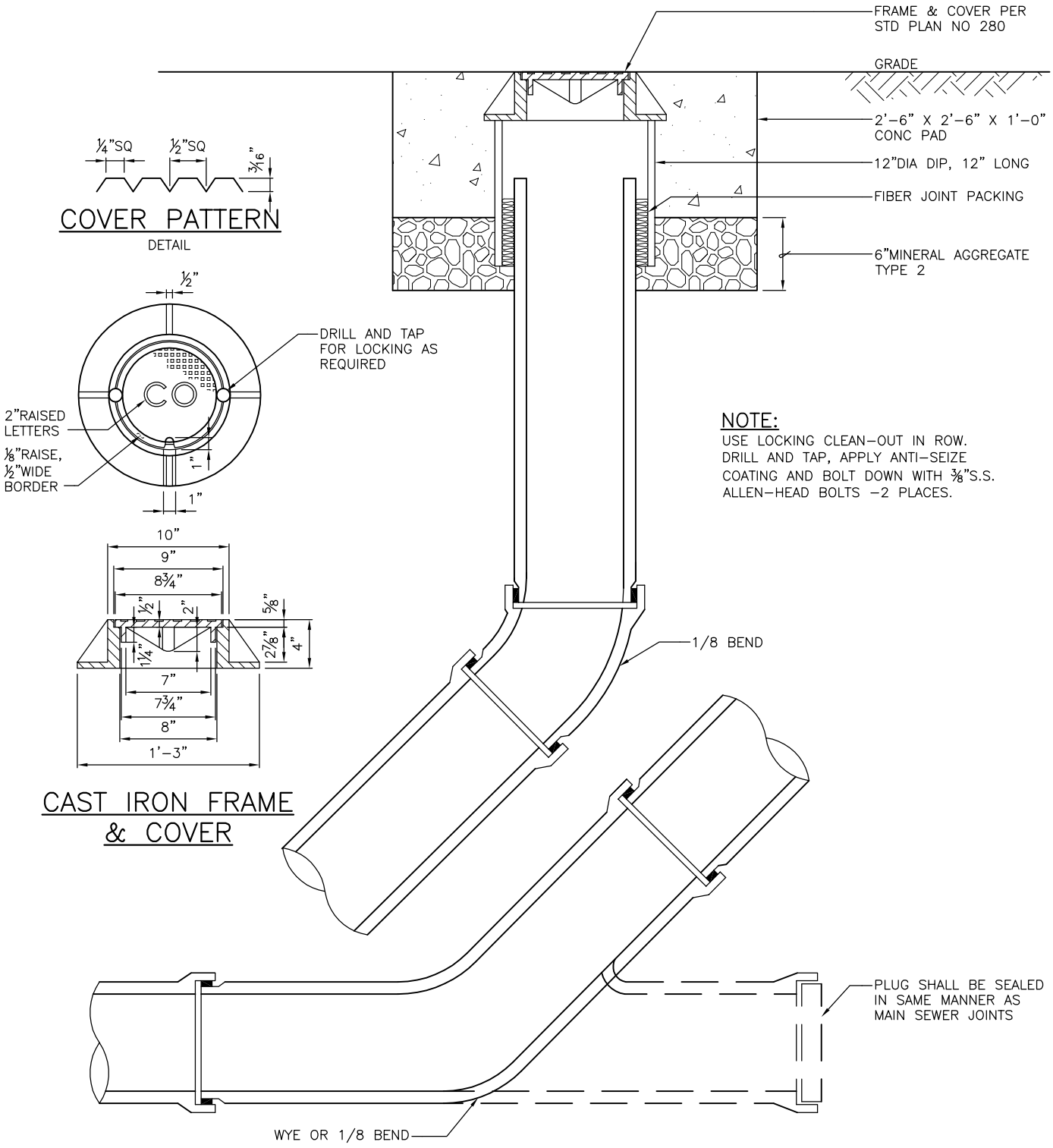
NOTE:

1. USE ALTERNATIVE NO 1 IF PIPE CONDITION PROHIBITS WELDING

REF STD SPEC SEC 7-17 & 7-16.2

City of Seattle | NOT TO SCALE | TEE INSTALLATION CORRUGATED METAL PIPE

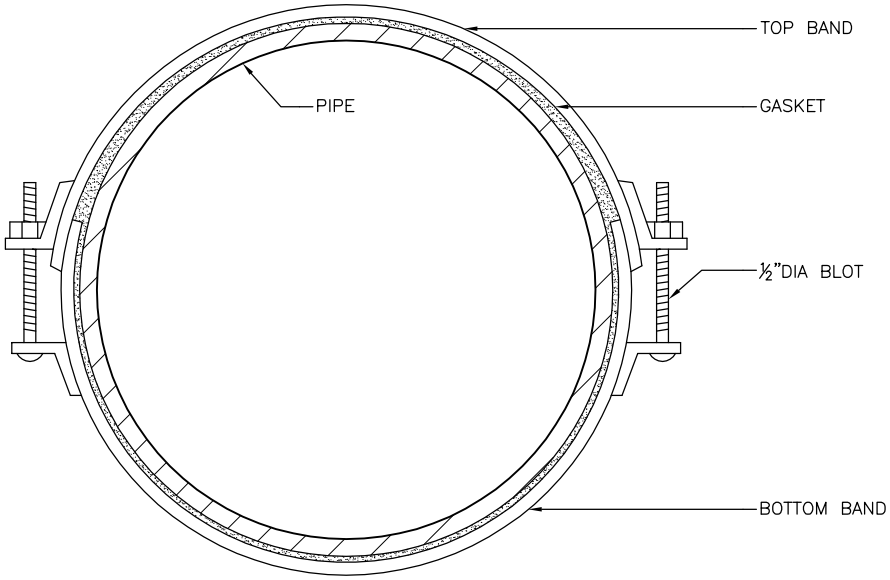
REV DATE: 2003

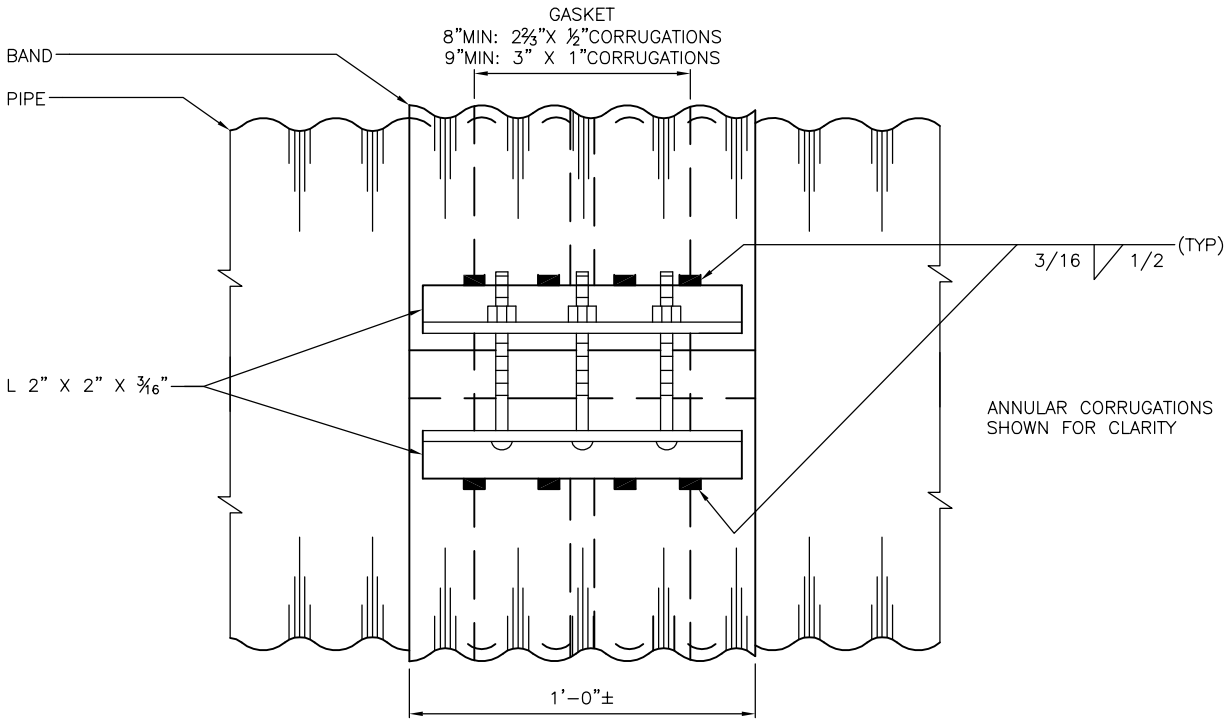


REF STD SPEC SEC 7-19

City of Seattle	NOT TO SCALE	8" CLEAN-OUT

REV DATE: 2003





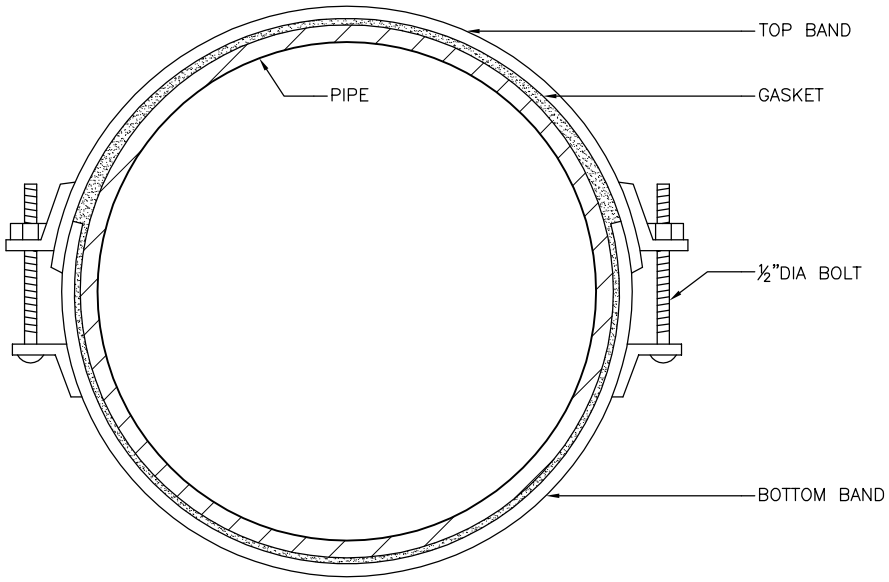
FOR PIPES LESS THAN 48" DIAMETER

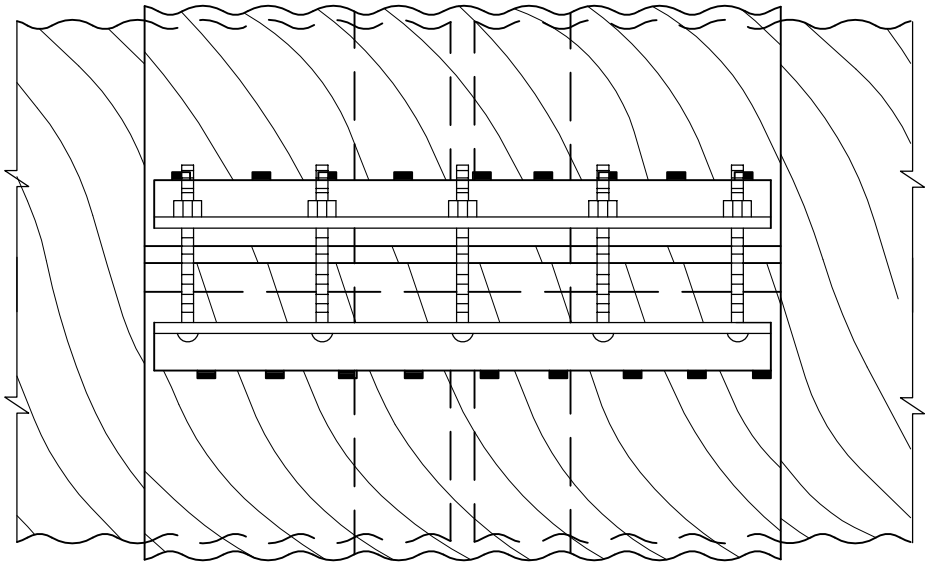
(HELICAL OR ANNULAR)

REF STD SPEC SEC 7-16.2 & 9-05

City of Seattle	NOT TO SCALE	CORRUGATED METAL PIPE COUPLING BANDS

REV DATE: 2003

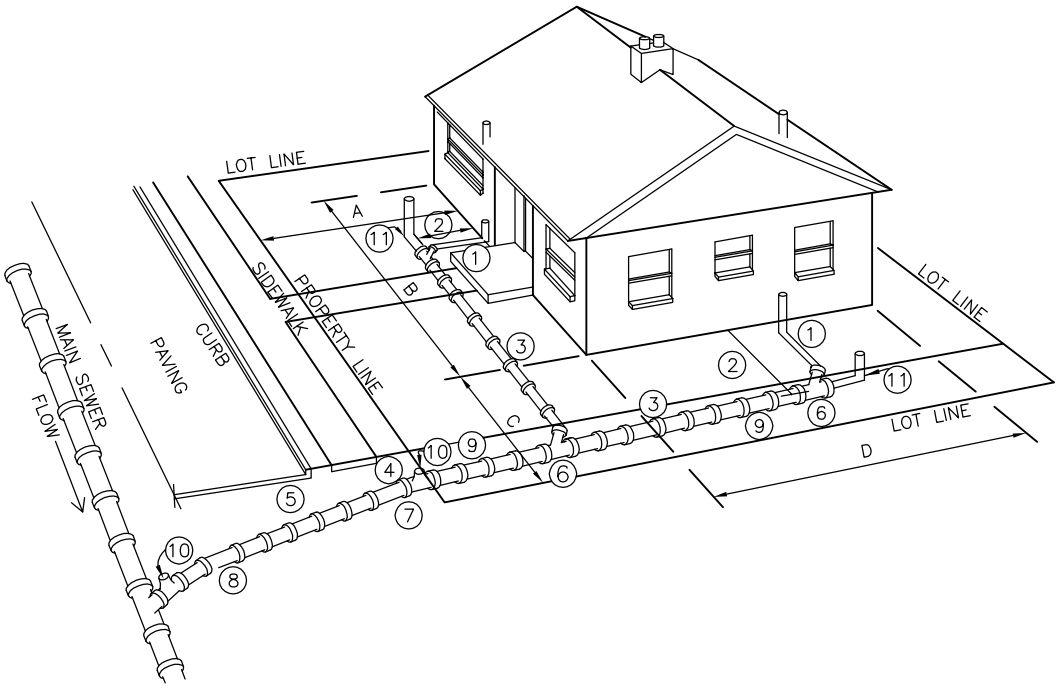




REF STD SPEC SEC 7-16.2 & 9-05

City of Seattle	NOT TO SCALE	CORRUGATED METAL PIPE COUPLING BANDS

REV DATE: AUG 2010



NOTES:

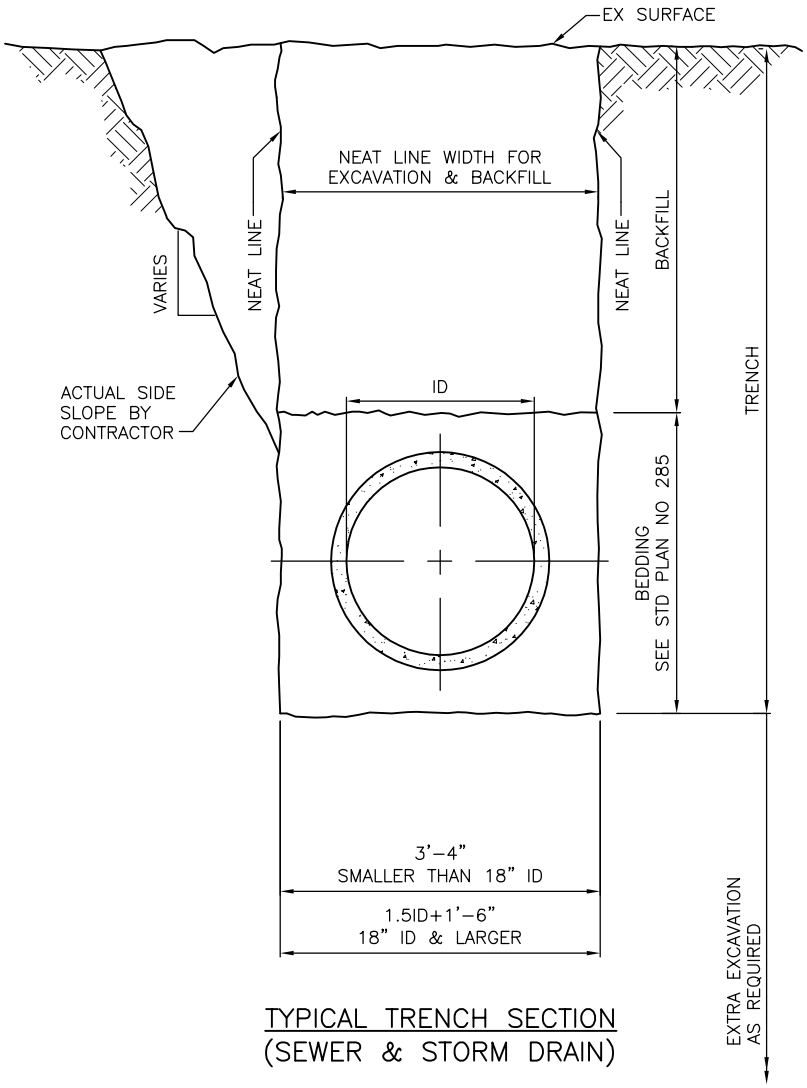
1. ALL SANITARY PLUMBING OUTLETS SHALL BE CONNECTED TO THE SANITARY SEWER OR COMBINED SEWER.
2. 2'–6"MIN DISTANCE FROM HOUSE, EXCEPT FOR SOIL PIPE CONNECTION.
3. 1'–6"MIN COVER OF PIPE.
4. 2'–6"MIN COVER AT PROPERTY LINE.
5. 5'–0"MIN COVER AT CURB LINE.
6. LAY PIPE IN STRAIGHT LINE BETWEEN BENDS. MAKE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

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

REF STD SPEC SEC 7-18

City of Seattle	NOT TO SCALE	SIDE SEWER INSTALLATION

REV DATE: DEC 2010

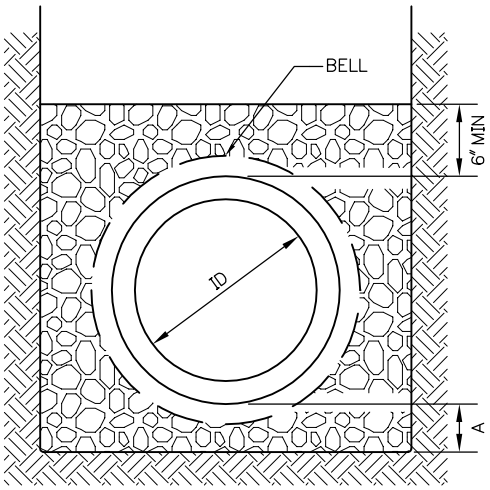


TYPICAL TRENCH SECTION
(SEWER & STORM DRAIN)

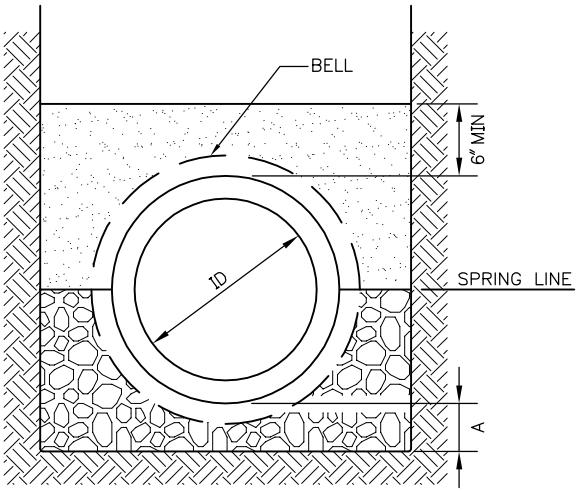
REF STD SPEC SEC 7-17

City of Seattle	NOT TO SCALE	TYPICAL SEWER TRENCH SECTION

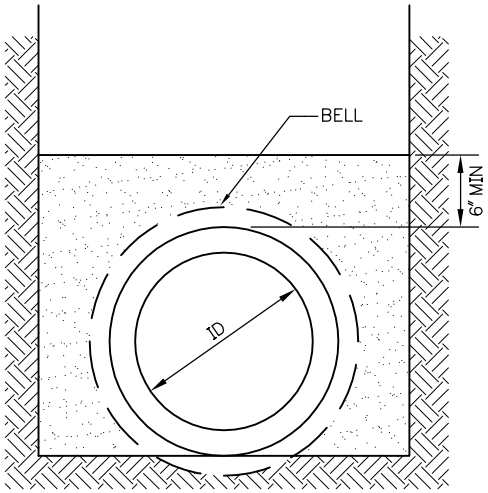
REV DATE: SEPT 2010



CLASS B BEDDING



CLASS C BEDDING



CLASS D BEDDING

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

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.

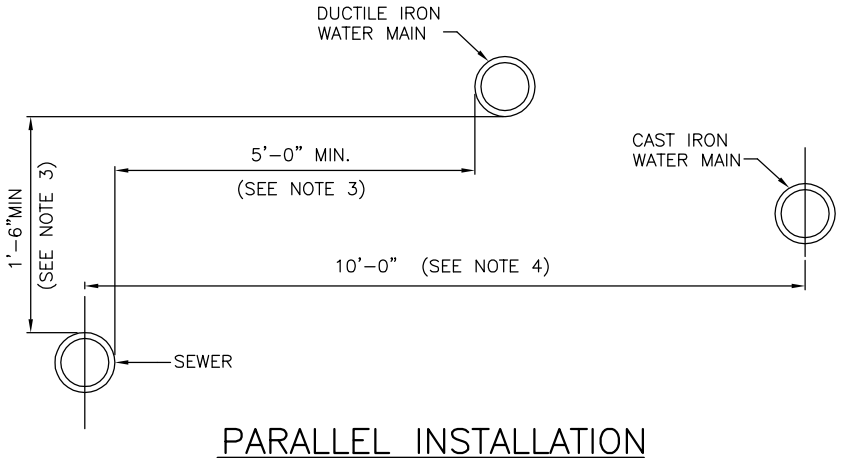
REF STD SPEC SEC 7-17

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

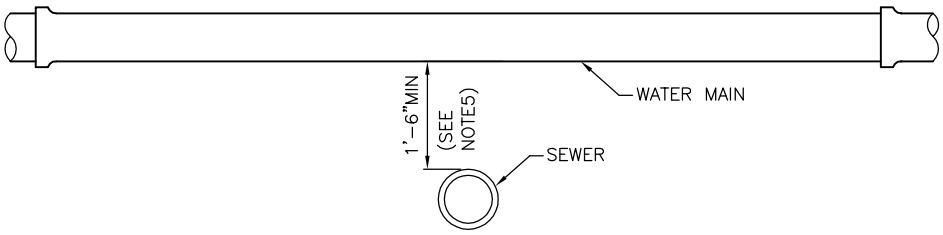
REV DATE: AUG 2010

NOTES

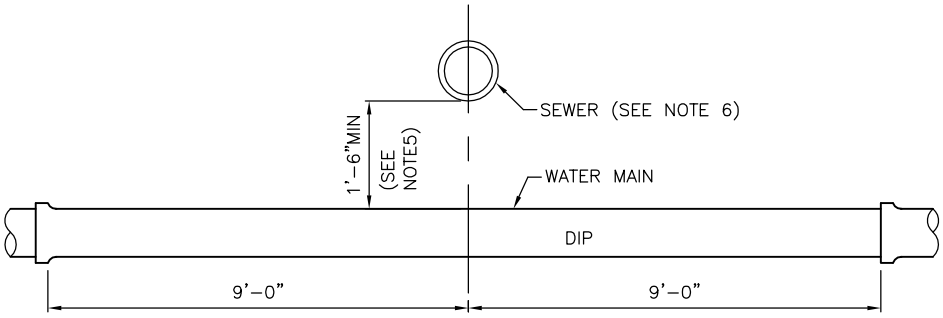
1. EXCEPTIONS TO STD PLAN NO. 286 SHALL BE APPROVED BY SEATTLE PUBLIC UTILITIES, WATER QUALITY DIVISION.
2. "SEWER" INCLUDES SANITARY SEWER, COMBINED SEWER AND SIDE SEWER.
3. WHERE MINIMUM CLEARANCES CANNOT BE MET, SEWER SHALL BE CONSTRUCTED OF MATERIALS AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS INCLUDING WATER MAIN PRESSURE TESTING REQUIREMENTS.
4. NO VERTICAL CLEARANCE REQUIRED.
5. IF MINIMUM VERTICAL SEPARATION CANNOT BE MET, WATER MAIN SHALL BE A STANDARD SINGLE 18'–0" NOMINAL LENGTH DUCTILE IRON WATER MAIN SECTION CENTERED AT THE POINT OF CROSSING.
6. SEWER SHALL HAVE ADEQUATE FOUNDATION SUPPORT TO PREVENT SETTLEMENT ON THE WATER MAIN AND TO PREVENT DEFLECTION OF WATER MAIN JOINTS.
7. CROSSINGS AT AN ANGLE BETWEEN 90° AND 45° MAY OCCUR BETWEEN 9'–0" AND 6'–0" OF WATER MAIN JOINT. FOR CROSSINGS LESS THAN 45°, SEE NOTE 1.



PARALLEL INSTALLATION



CROSSING WATER OVER SEWER



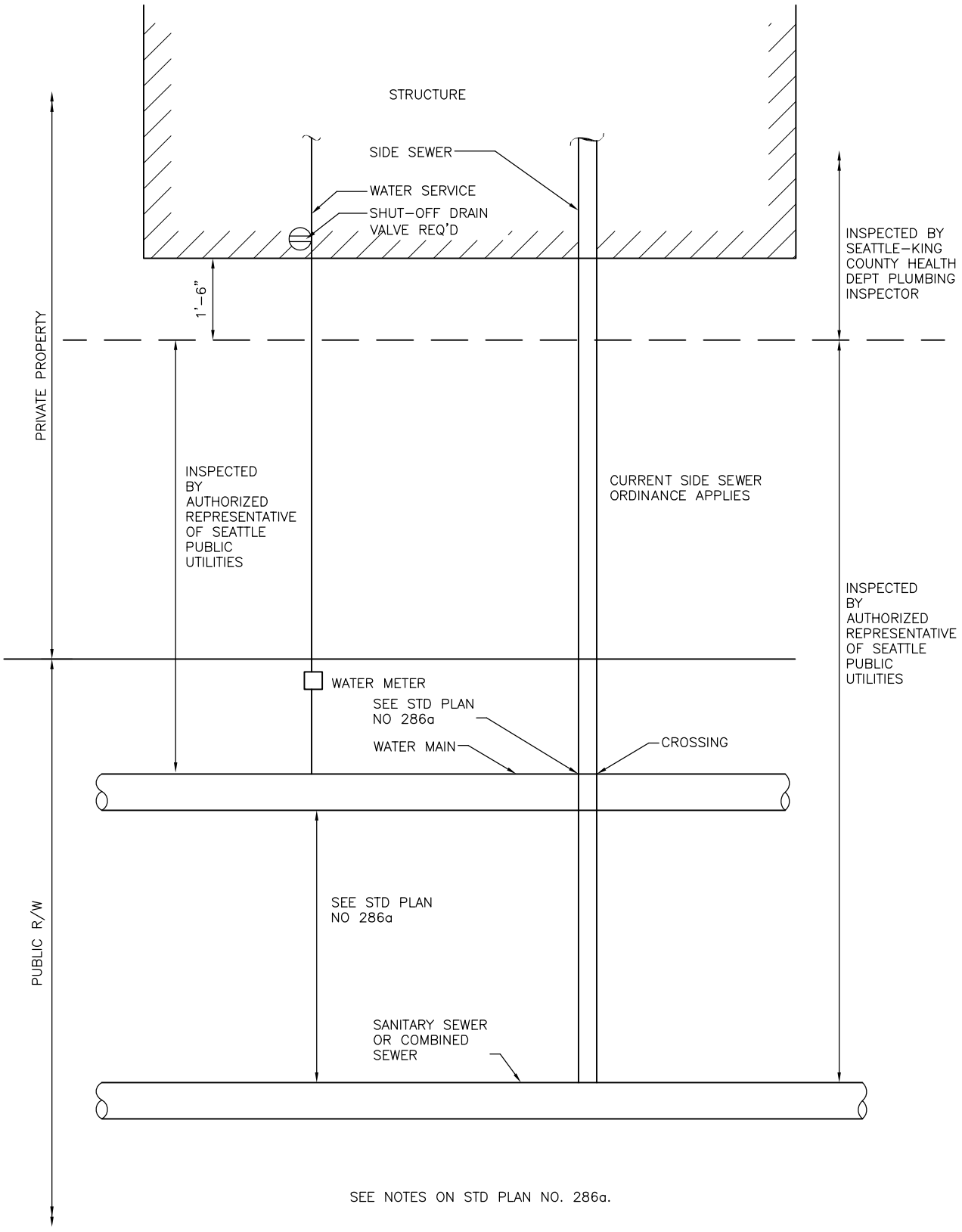
STANDARD SINGLE 18'–0"NOMINAL LENGTH DUCTILE IRON WATER MAIN SECTION CENTERED AT THE POINT OF CROSSING

CROSSING WATER UNDER SEWER

REF STD SPEC SEC 1-07.17 & 7-11

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

REV DATE: AUG 2010

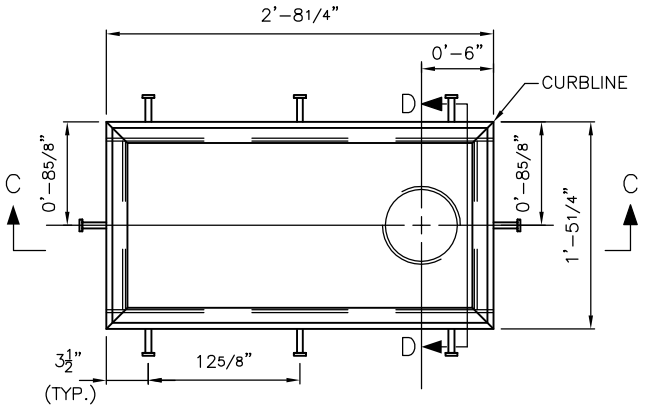


SEE NOTES ON STD PLAN NO. 286a.

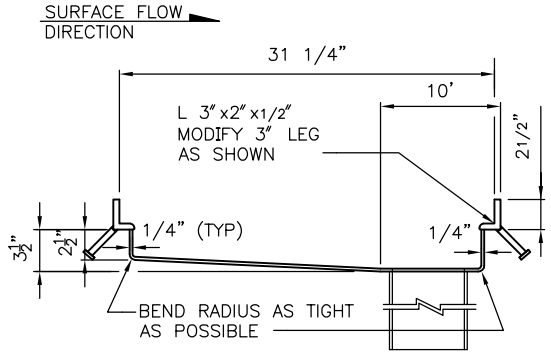
REF STD SPEC SEC 1-07.17 & DIV 7

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

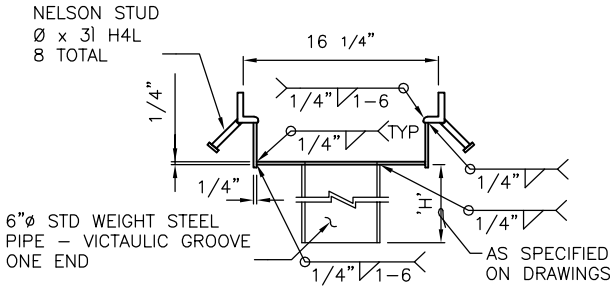
REV DATE: 2003



PLAN VIEW – BRIDGE DRAIN



SECTION C–C



SECTION D–D

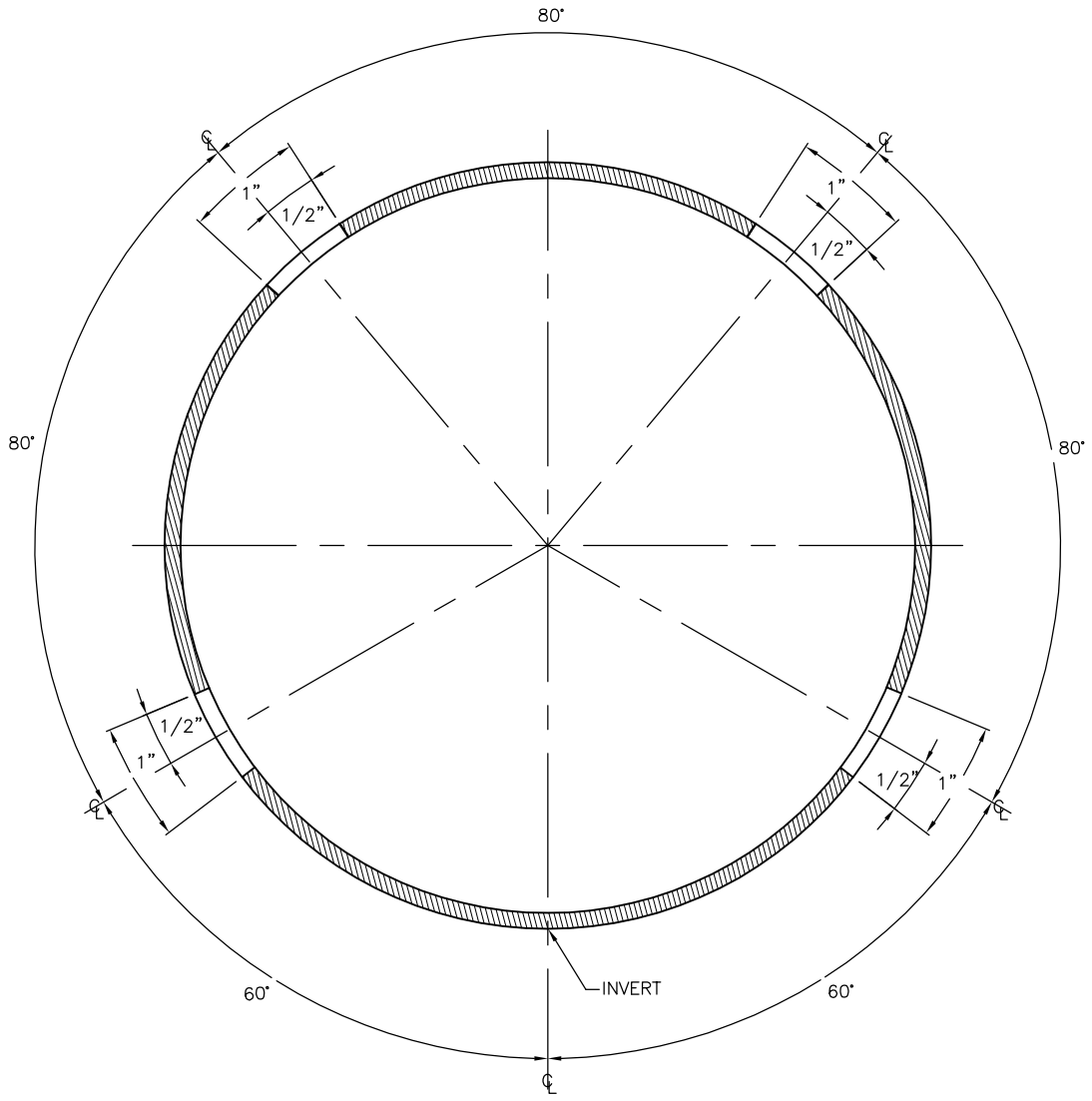
NOTES:

1. ALL 1/4" STEEL & L3"x 2"x 1/2" 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



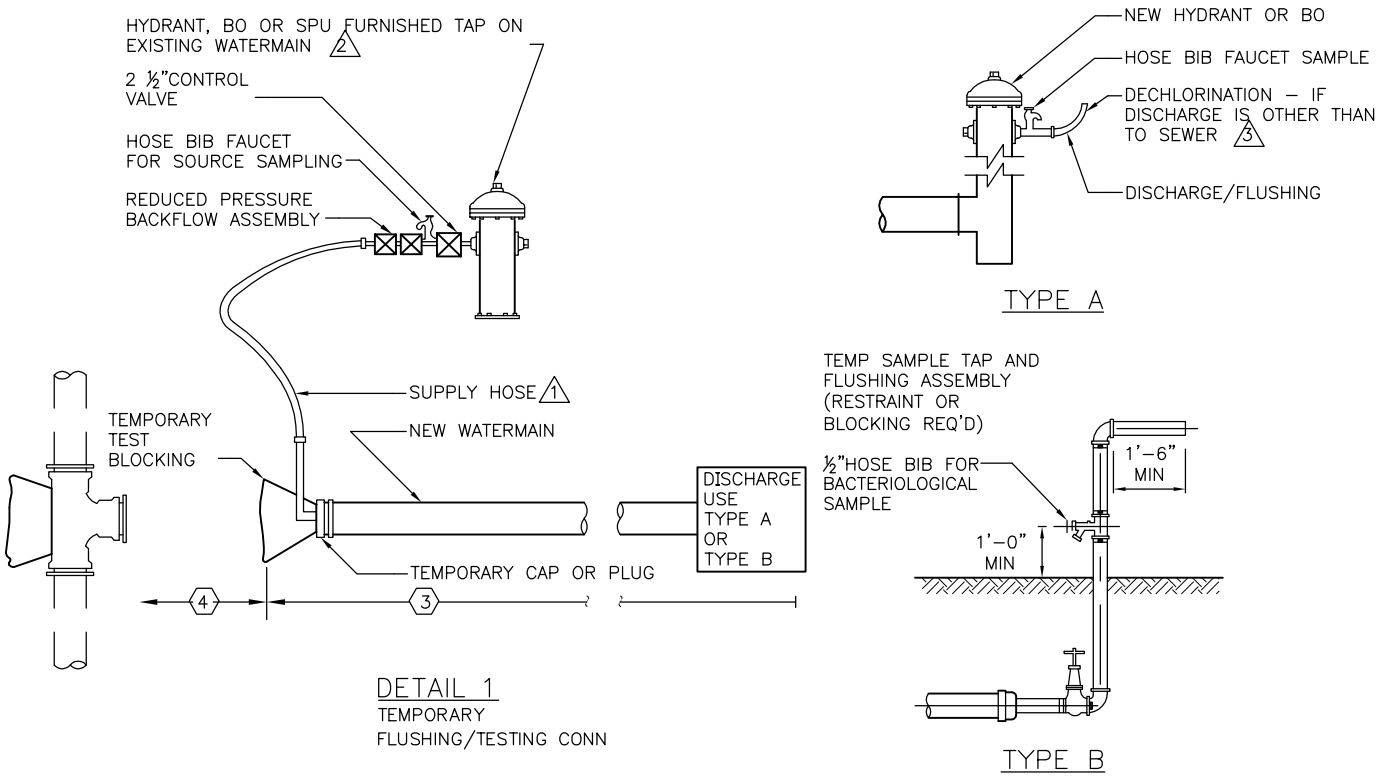
NOTES:

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: 2003



DETAIL 1
TEMPORARY
FLUSHING/TESTING CONN

NOTES

1. ALL FITTINGS SHALL BE DUCTILE IRON
2. ALL EXCAVATION SHALL PROVIDE A MINIMUM OF 1'–0"CLEAR AROUND PIPE AND FITTINGS.
3. THESE PLANS ARE FOR DIP AND CIP WATERMAINS 12"OR SMALLER DIA OTHER SIZES AND TYPES SEE PROJECT DRAWINGS
4. REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) SHALL BE INSTALLED AS A UNIT (TWO SHUT–OFF VALVES, RELIEF PORT, TWO CHECK VALVES AND FOUR TEST COCKS). WHEN RPBA IS CONNECTED TO HYDRANT AND THE HOSE BIB FAUCET SAMPLE THEY SHALL BE CAPPED WHEN NOT IN USE. ASSEMBLY SHALL BE TESTED WHEN INSTALLED BY A WASHINGTON STATE CERTIFIED BACKFLOW ASSEMBLY TESTER (BAT) AND A CURRENT TEST REPORT SHALL BE ON SITE. FOR INSTALLATION PROCEDURES CALL 684–3536.

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 OF EXISTING PIPE PRIOR TO INSTALLING NEW WATERMAIN. ENGINEER TO DTERMINE OUTSIDE DIAMETER OF EXISTING PIPE WHEN CONTRACTOR EXCAVATES TO DTERMINE ALIGNMENT & GRADE.

(2.) ALL EXCAVATION, PIPE, FITTINGS (EXCEPT AS NOTED BELOW), OTHER MATERIAL, BEDDING, BACKFILL, COMPACTION & STREET RESTORATION BY CONTRACTOR. ALL MATERIALS SHALL BE ON JOB SITE PRIOR TO SHUTDOWN OF EXISTING MAIN.

(3.) INSTALLED BY CONTRACTOR

(4.) CONNECTION PIPE: CONTRACTOR FURNISHED, INSTALLED BY SPU

(5.) WATERMAIN WITH PLAIN ENDS

(6.) MECHANICAL JOINT SLEEVE WITH SPACER CUT TO FIT GAP, FURNISHED AND INSERTED AT TIME OF CONNECTION BY SPU

(7.) TAPPING SLEEVE & TAPPING VALVE FURNISHED AND INSTALLED BY SPU

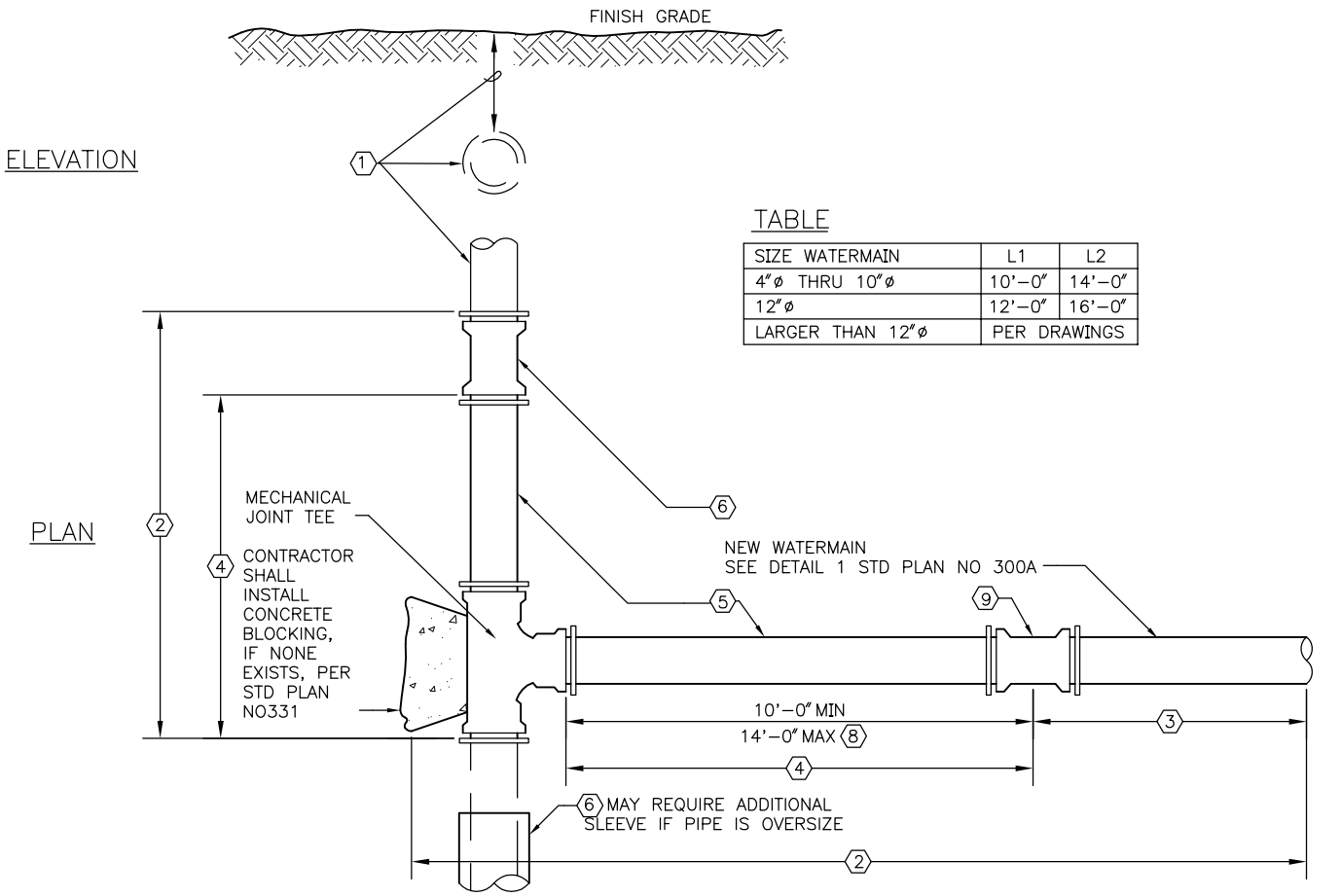
(8.) APPLIES TO PIPES 4" THROUGH 12". ALL LARGER SIZES TO BE ADDRESSED ON DRAWINGS

(9.) MECHANICAL JOINT SLEEVE, FURNISHED BY CONTRACTOR AND INSTALLED BY SPU, SPACERS BY SPU WHERE REQUIRED

REF STD SPEC SEC 7-11

City of Seattle	NOT TO SCALE	CONNECTIONS TO EXISTING WATERMAINS

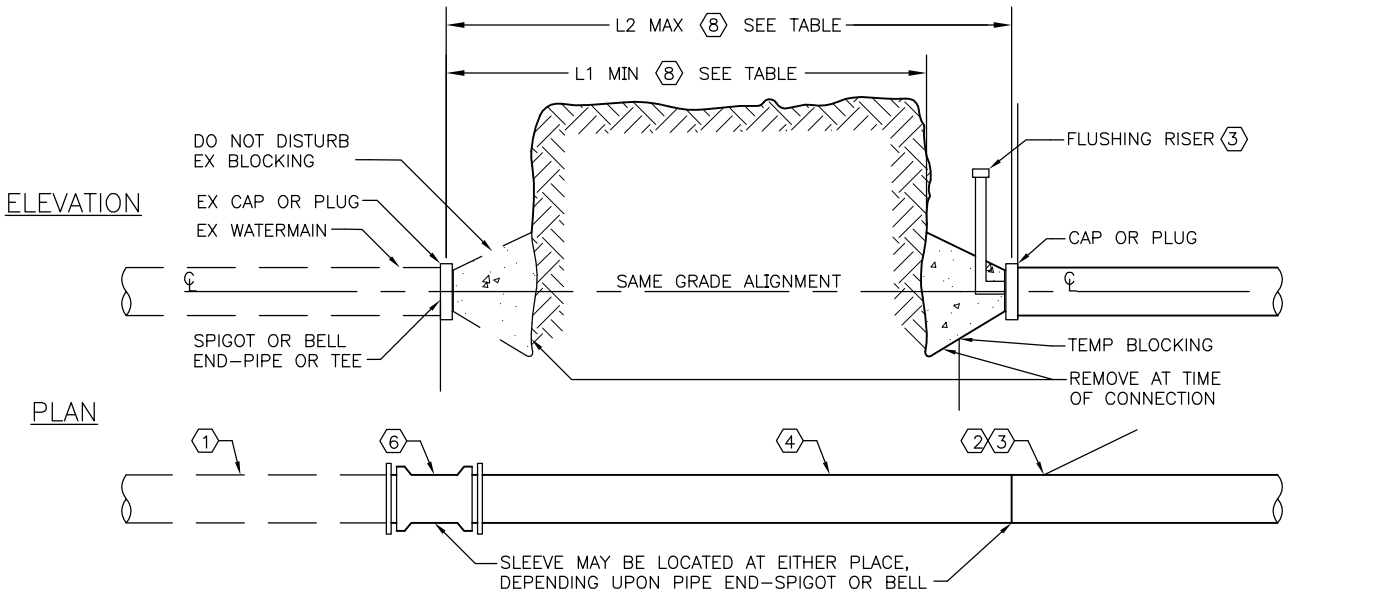
REV DATE: 2003



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)

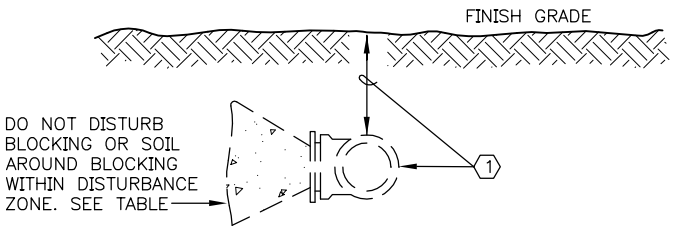


CONNECTIONS TO EXISTING MAIN, STUB OR END OUTLET OF TEE OR CROSS

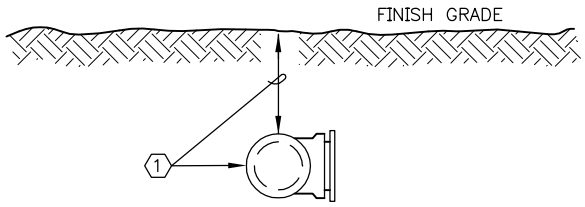
REF STD SPEC SEC 7-11

City of Seattle	NOT TO SCALE	CONNECTIONS TO EXISTING WATERMAINS

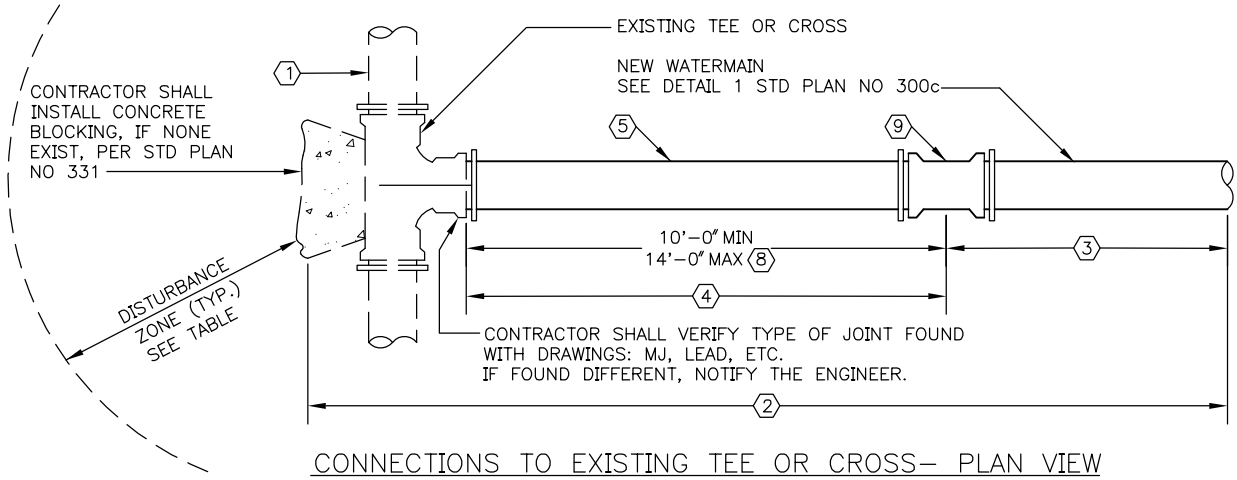
REV DATE: 2003



EXISTING PLUGGED TEE OR CROSS



NEW PLUGGED TEE OR CROSS

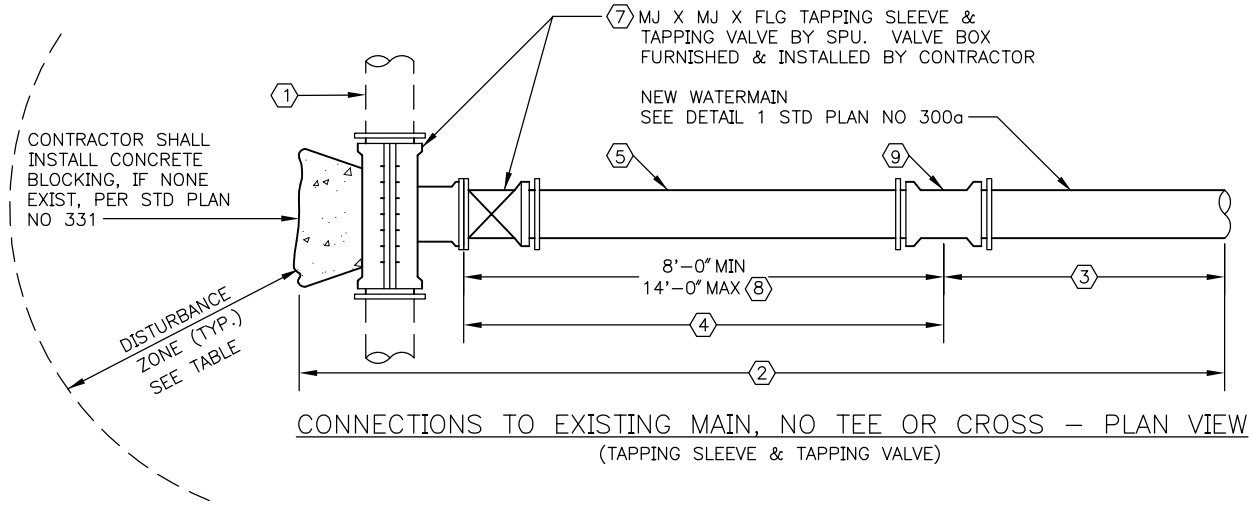


CONNECTIONS TO EXISTING TEE OR CROSS– PLAN VIEW

TABLE

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

* SPU MAY INCREASE DISTURBANCE ZONE.
SEE CONTRACT DOCUMENTS

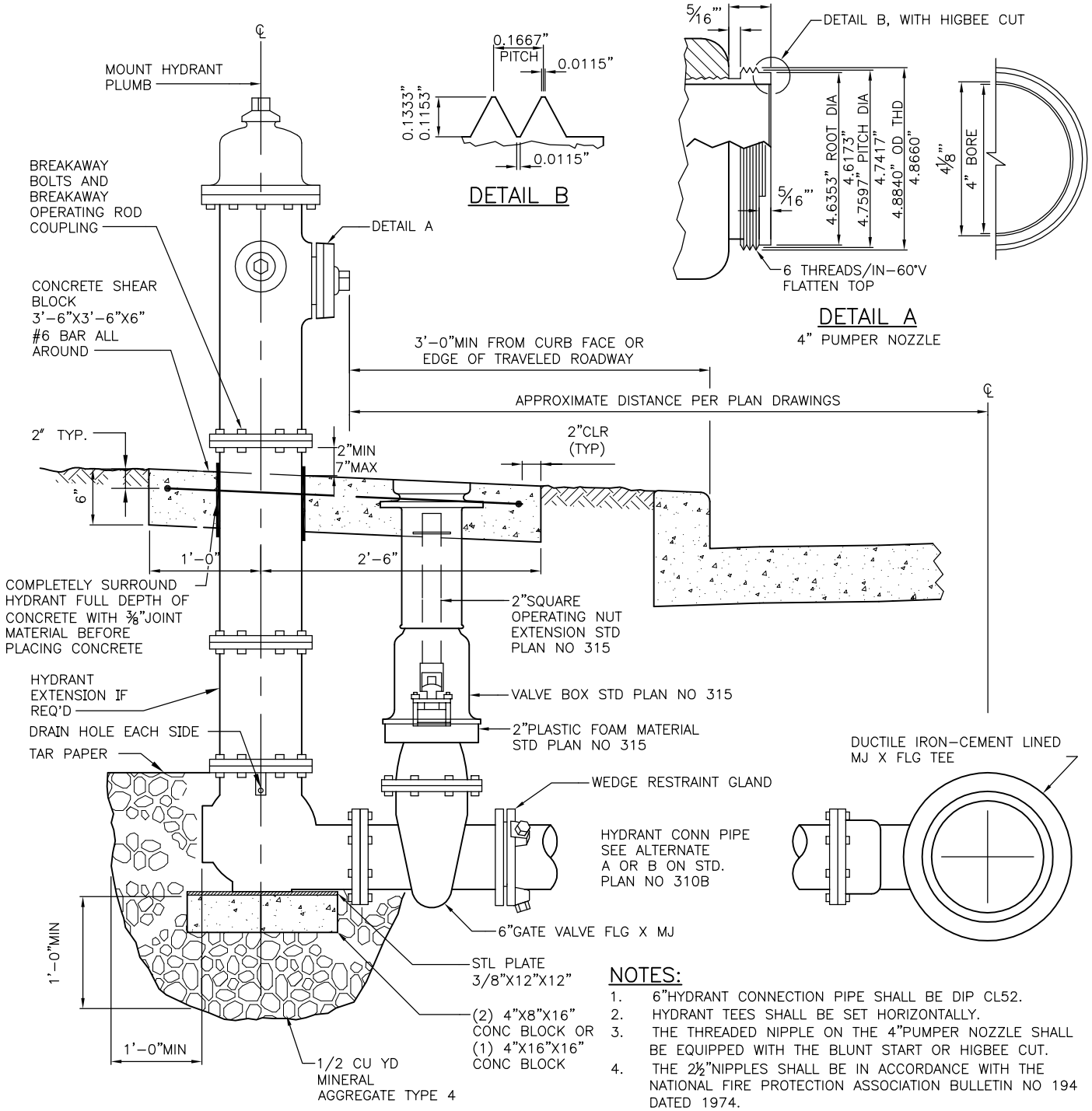


CONNECTIONS TO EXISTING MAIN, NO TEE OR CROSS – PLAN VIEW
(TAPPING SLEEVE & TAPPING VALVE)

REF STD SPEC SEC 7-11

City of Seattle	NOT TO SCALE	CONNECTIONS TO EXISTING WATERMAINS

REV DATE: AUG 2010



HYDRANT DETAIL

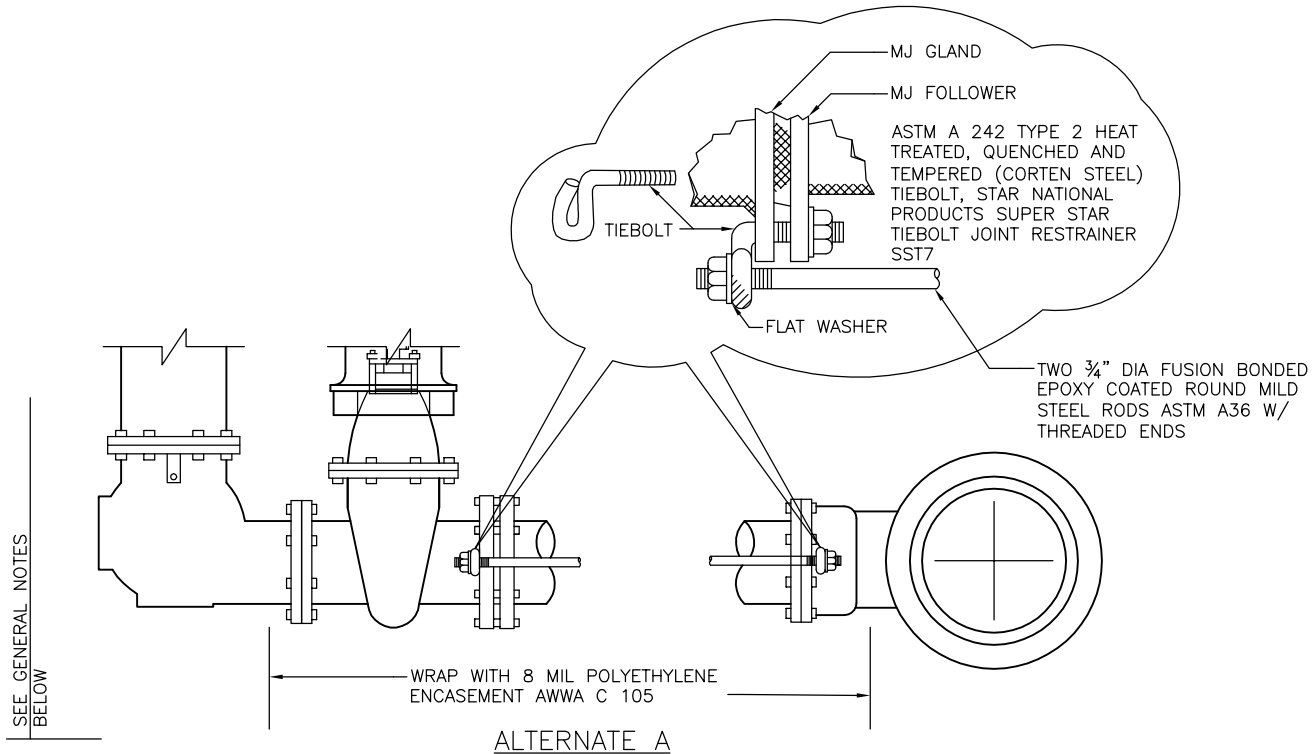
NOTES:

1. 6"HYDRANT CONNECTION PIPE SHALL BE DIP CL52.
2. HYDRANT TEES SHALL BE SET HORIZONTALLY.
3. THE THREADED NIPPLE ON THE 4"PUMPER NOZZLE SHALL BE EQUIPPED WITH THE BLUNT START OR HIGBEE CUT.
4. THE 2½"NIPPLES SHALL 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 SHALL BE CLEANED AND COATED WITH TWO COATS OF ROYSTON R28 MASTIC.
6. AFTER BACKFILLING, THE OUTSIDE OF THE HYDRANT (ABOVE THE GROUND LINE) SHALL BE THOROUGHLY CLEANED AND PAINTED WITH TWO COATS OF KELLY–MOORE LUXLITE 43–616 CAT YELLOW.
7. PUMPER PORT SHALL FACE CURB.
8. RESTRAINT SHALL BE BY WEDGE RESTRAINT SYSTEM SUCH AS MEGALUG OR UNIFLANGE. SEE STD SPEC 9–30.5(5).

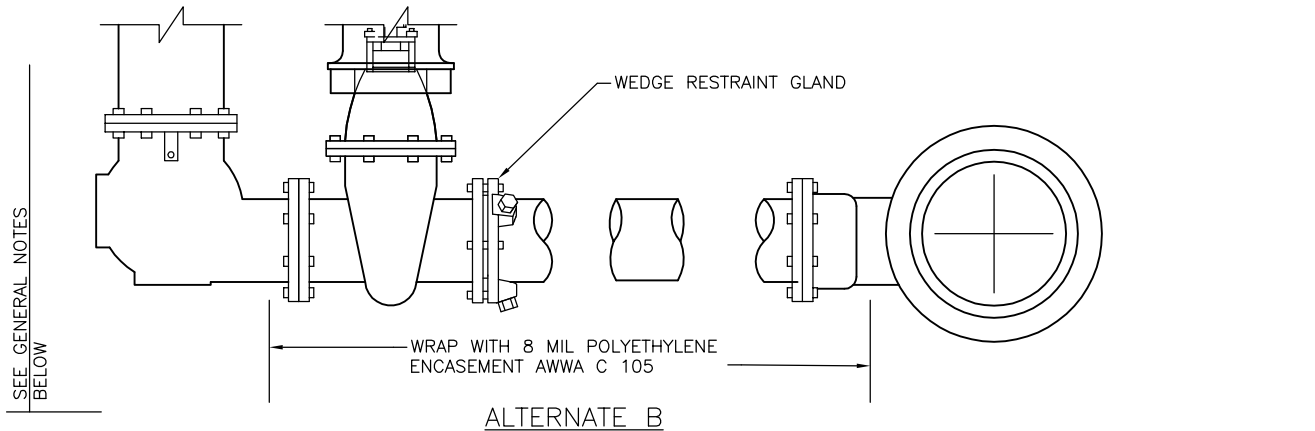
REF STD SPEC SEC 7-14

City of Seattle	NOT TO SCALE	TYPE 310 HYDRANT SETTING DETAIL

REV DATE: 2008



ALTERNATE A
TIEBOLT RESTRAINT



ALTERNATE B
MECHANICAL JOINT W/ WEDGE RESTRAINT GLANDS

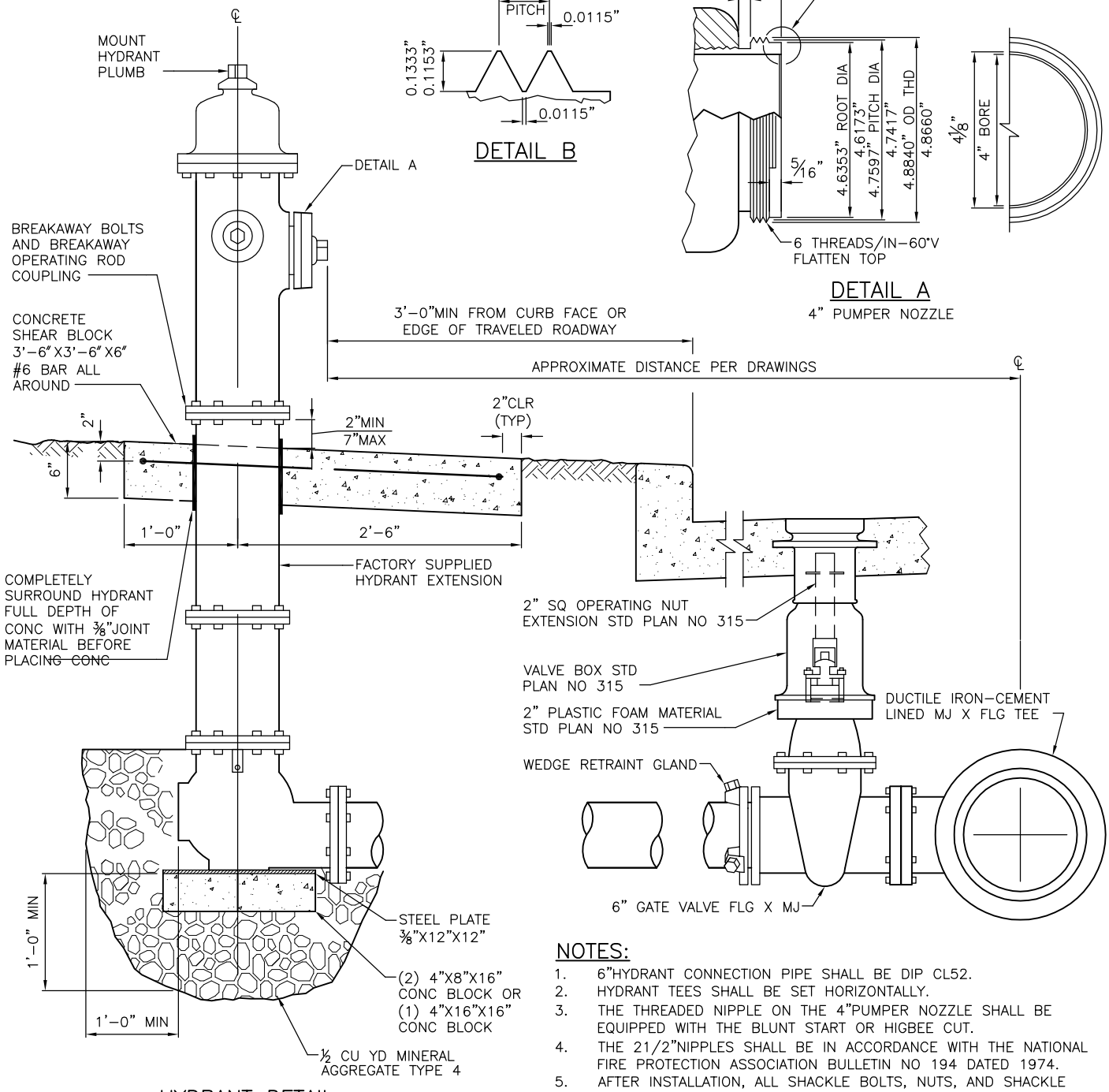
GENERAL NOTES:

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

REF STD SPEC SEC 7-14

City of Seattle	NOT TO SCALE	TYPE 310 HYDRANT SETTING DETAIL

REV DATE: AUG 2010



HYDRANT DETAIL

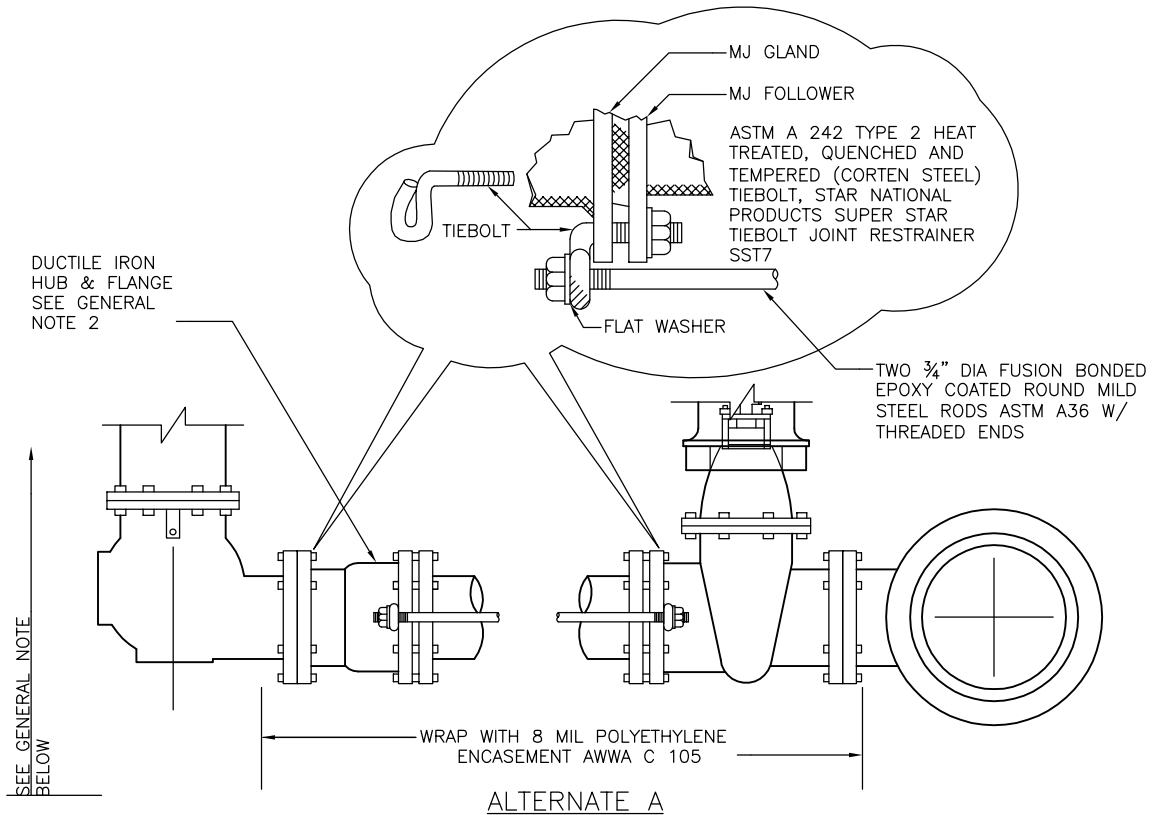
NOTES:

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

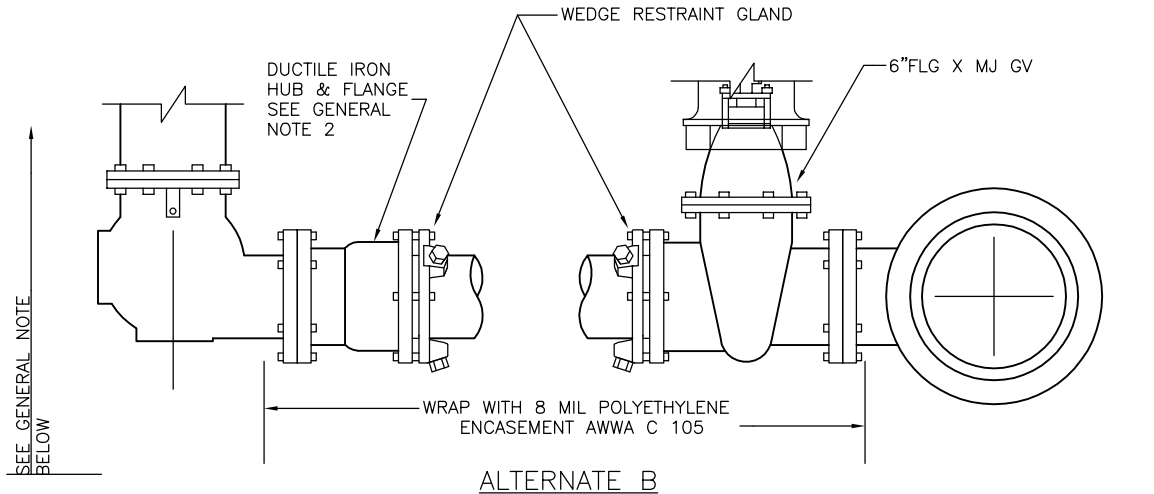
REF STD SPEC SEC 7-14

City of Seattle	NOT TO SCALE	TYPE 311 HYDRANT SETTING DETAIL

REV DATE: 2008



ALTERNATE A
TIEBOLT RESTRAINT



ALTERNATE B
MECHANICAL JOINT W/ WEDGE RESTRAINT GLANDS

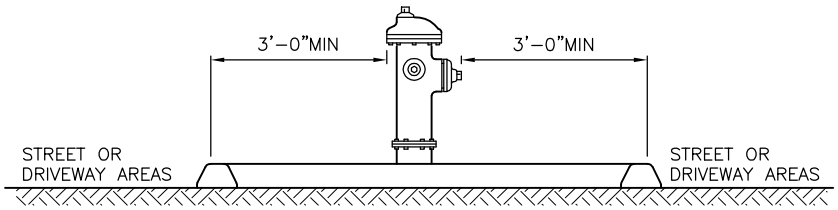
GENERAL NOTES:

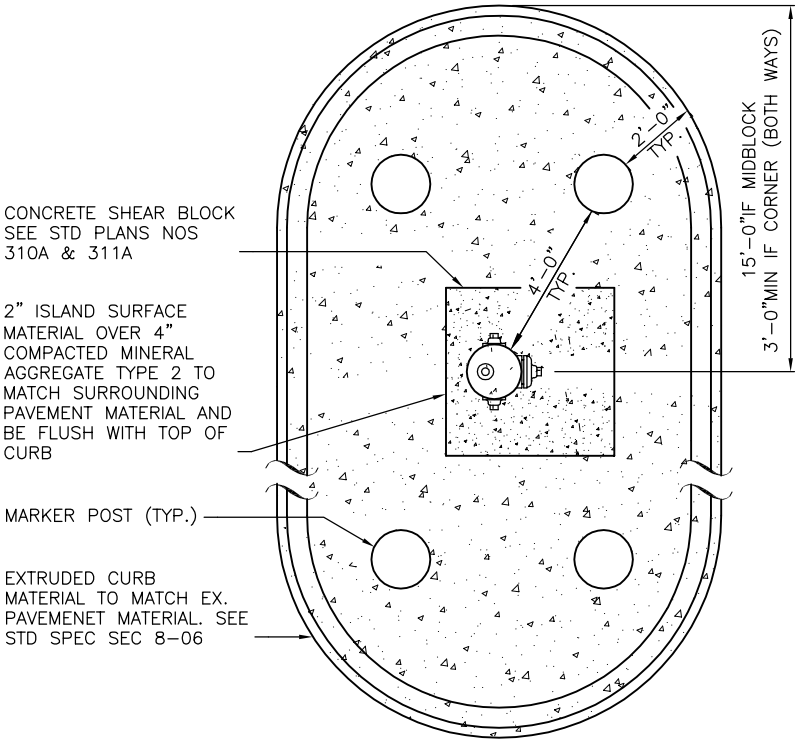
1. WHERE WATERMAINS ARE INSTALLED WITH POLYETHYLENE ENCASEMENT OR TAPE COATINGS, THE HYDRANT BARREL AND VALVE SHALL BE SIMILARLY ENCASED, COATED AND/OR JOINTS BONDED. WHERE WATERMAIN IS THERMOPLASTIC COATED, THE HYDRANT BARREL SHALL BE TAPE COATED
2. WHERE 6"GATE VALVE IS TO BE LOCATED WITHIN A PARKING–PERMITTED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

REF STD SPEC SEC 7-14

City of Seattle	NOT TO SCALE	TYPE 311 HYDRANT SETTING DETAIL

REV DATE: 2008

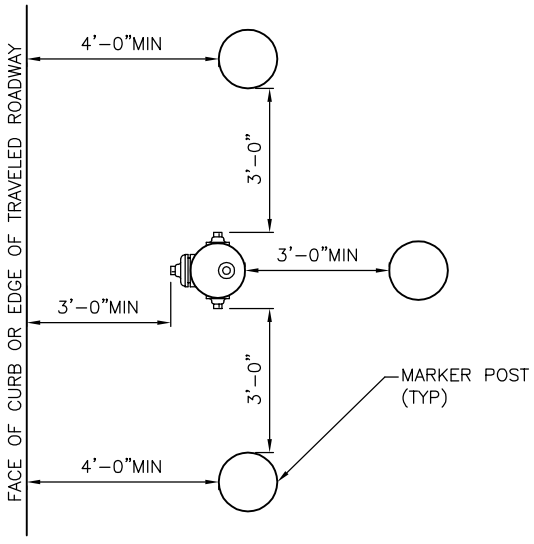




TRAFFIC ISLAND MARKER POST LAYOUT FOR FIRE HYDRANTS IN PARKING AREAS

NOTES

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

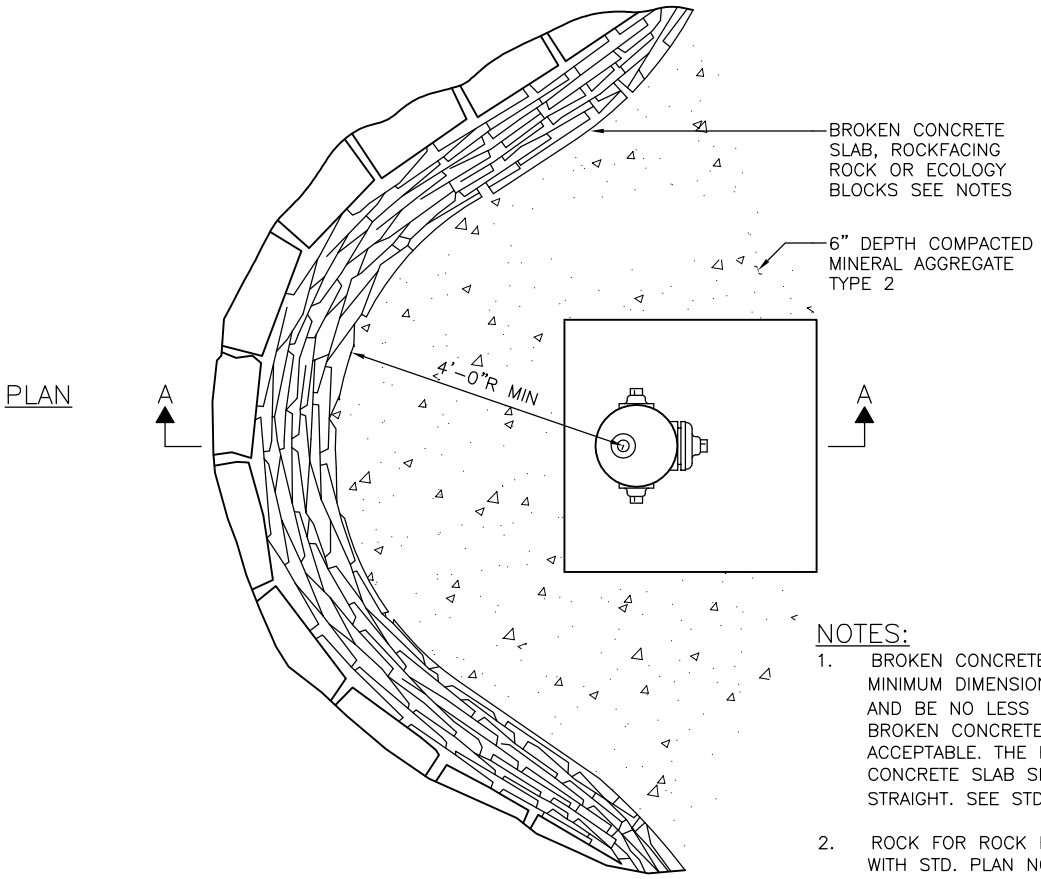


MARKER POST LAYOUT FOR FIRE HYDRANTS IN PARKING AREAS

REF STD SPEC SEC 7-14

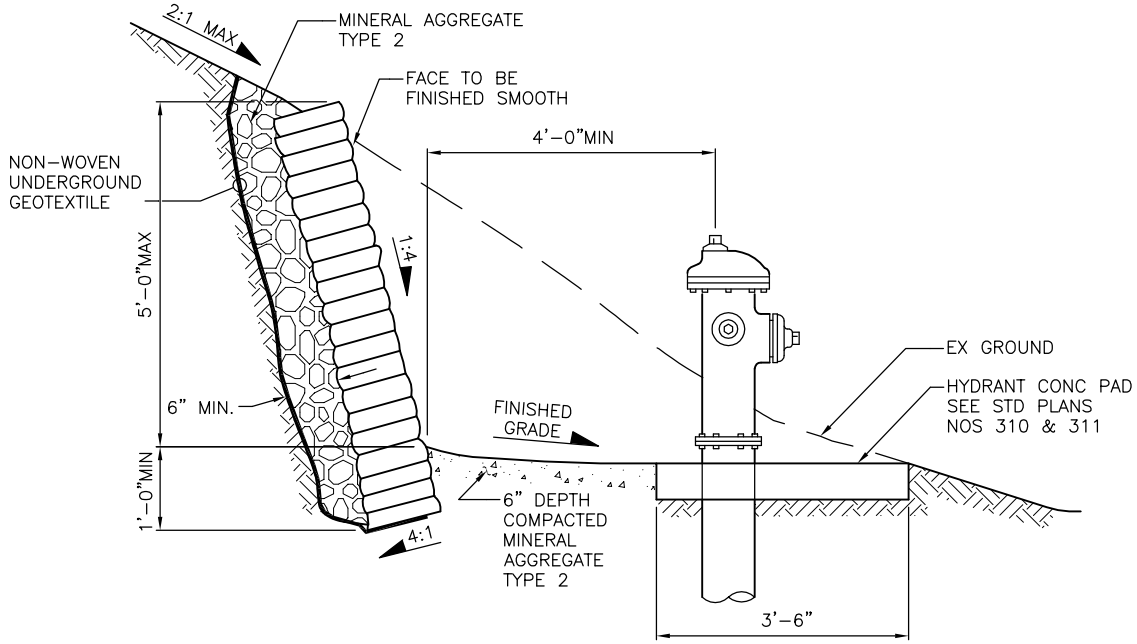
City of Seattle	NOT TO SCALE	FIRE HYDRANT MARKER LAYOUT

REV DATE: 2003



NOTES:

1. BROKEN CONCRETE SLABS SHALL HAVE MINIMUM DIMENSIONS O 3'-0" X 1'-6" AND BE NO LESS THAN 3 1/2" THICK. BROKEN CONCRETE SIDEWALK IS ACCEPTABLE. THE FACE SIDE OF CONCRETE SLAB SHALL BE STRAIGHT. SEE STD. SPEC SEC 8-15.3(5)A
2. ROCK FOR ROCK FACING SHALL COMPLY WITH STD. PLAN NO. 141 SEE STD. SPEC 2-08.3(5)

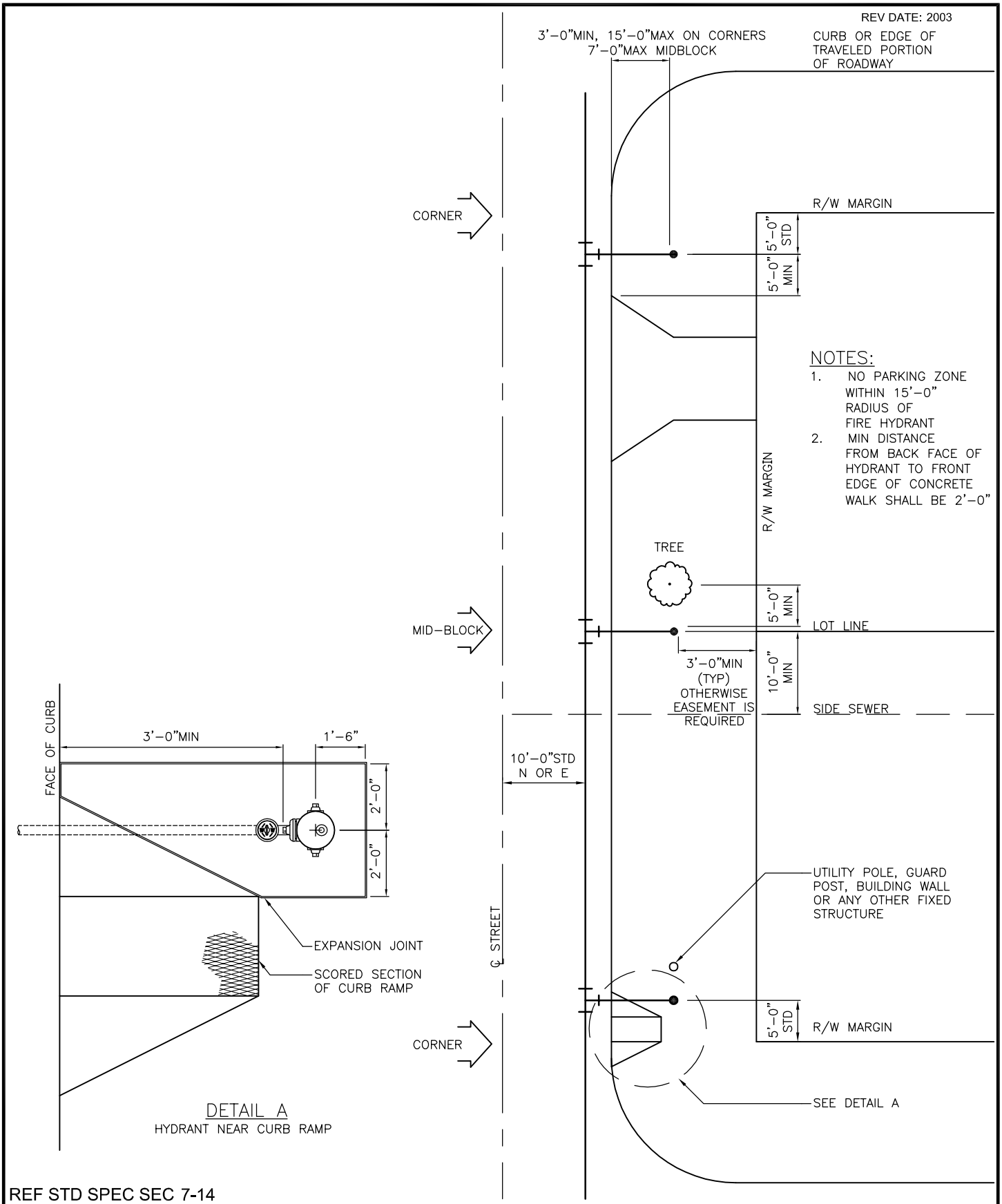


SECTION A-A

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

City of Seattle | NOT TO SCALE | WALL REQUIREMENTS FOR HYDRANTS

REV DATE: 2003

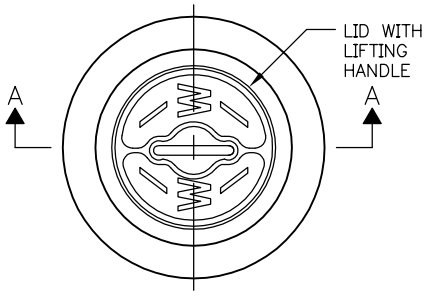


DETAIL A
HYDRANT NEAR CURB RAMP

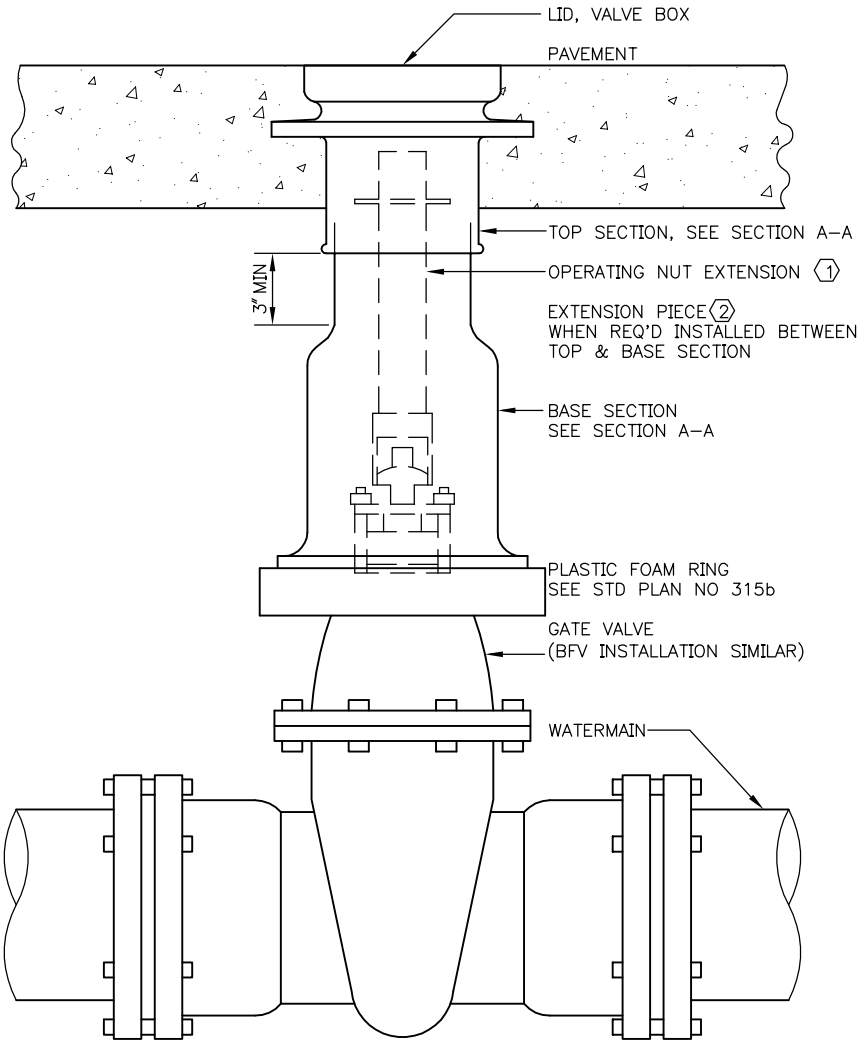
REF STD SPEC SEC 7-14

City of Seattle	NOT TO SCALE	FIRE HYDRANT LOCATIONS & CLEARANCES

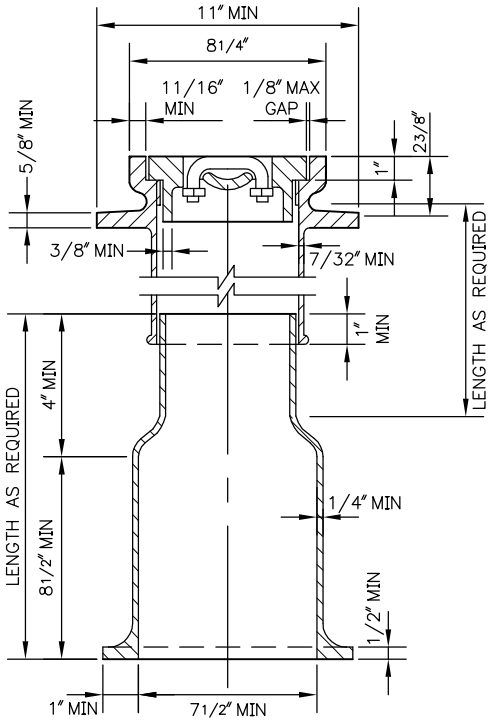
REV DATE: 2003



PLAN



VALVE BOX ASSEMBLY
TYPICAL SETTING DETAIL



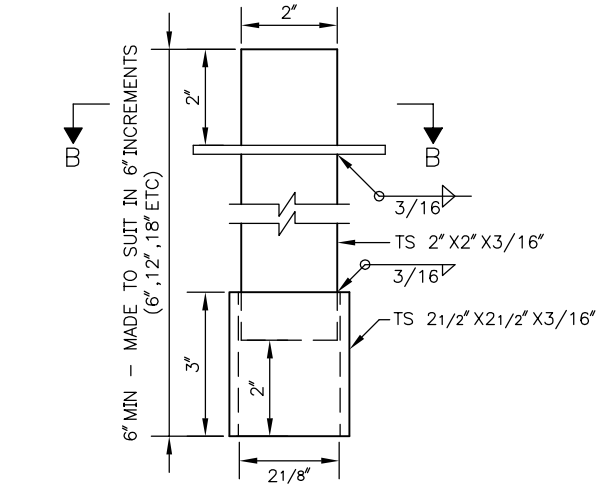
SECTION A–A

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

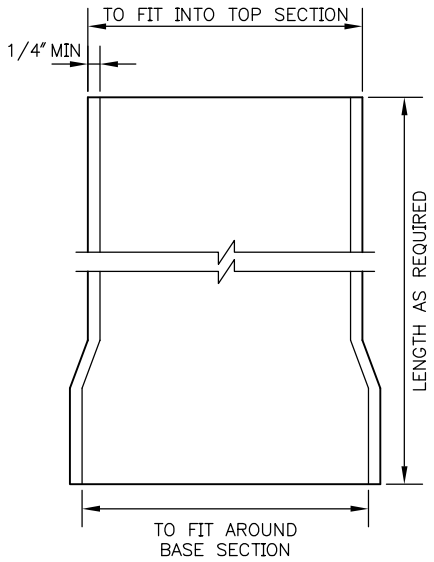
REF STD SPEC SEC 7-12

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

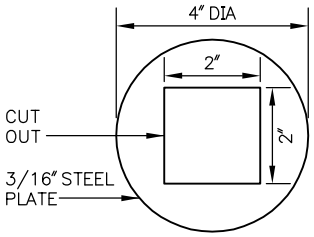
REV DATE: 2003



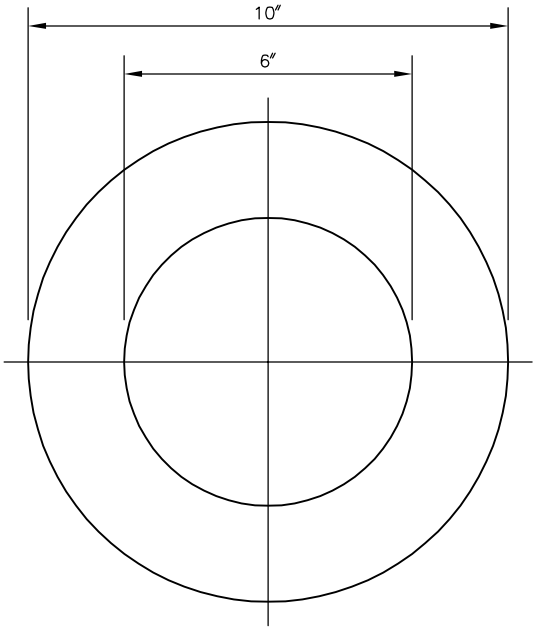
OPERATING NUT EXTENSION DETAIL 1



EXTENSION PIECE 2
WHEN REQUIRED



SECTION B–B



PLASTIC FOAM RING DETAIL

NOTES:

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

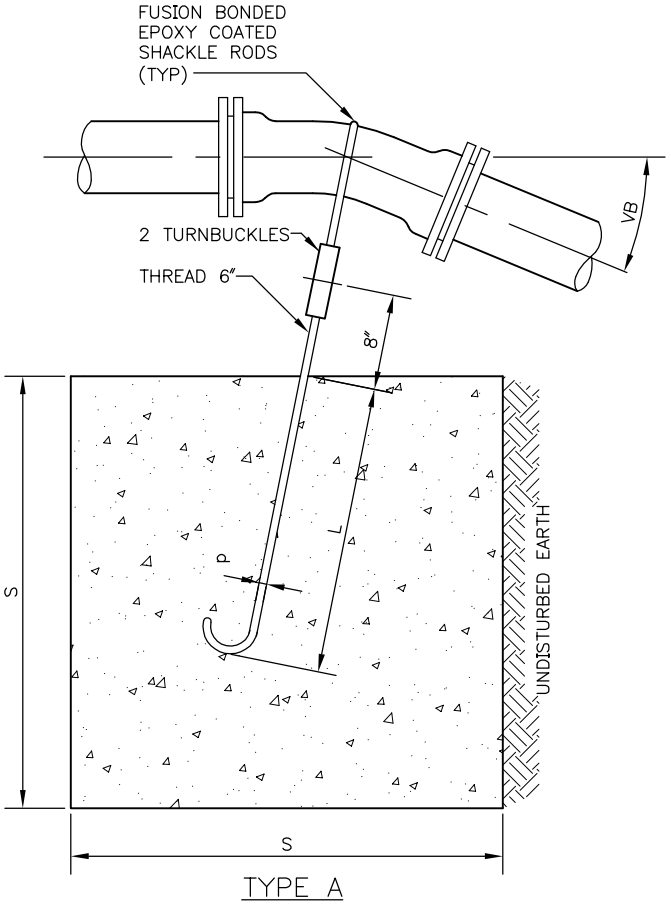
LEGEND:

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

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

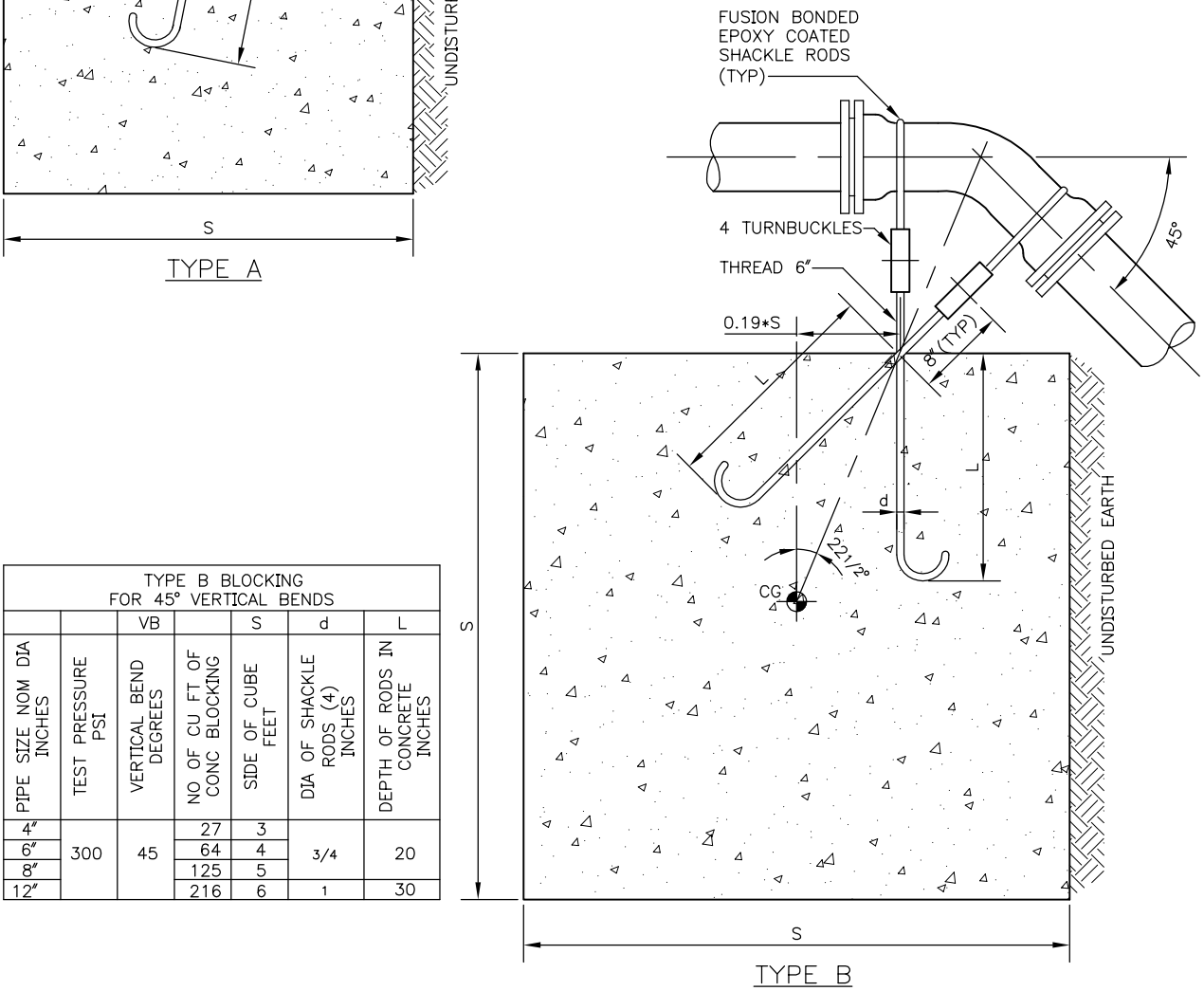
REF STD SPEC SEC 7-12 & 9-30

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



TYPE A

TYPE A BLOCKING FOR 11 1/4° & 22 1/2° 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	11 1/4	8	2	3/4	18
		22 1/2	12	2 1/4		24
6"	300	11 1/4	12	2 1/4	3/4	24
		22 1/2	27	3		
8"	300	11 1/4	16	2 1/2	3/4	24
		22 1/2	43	3 1/2		
12"	300	11 1/4	64	4	1	24
		22 1/2	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 (4) INCHES	DEPTH OF RODS IN CONCRETE INCHES
4"	300	45	27	3	3/4	20
6"			64	4		
8"			125	5		
12"			216	6	1	30

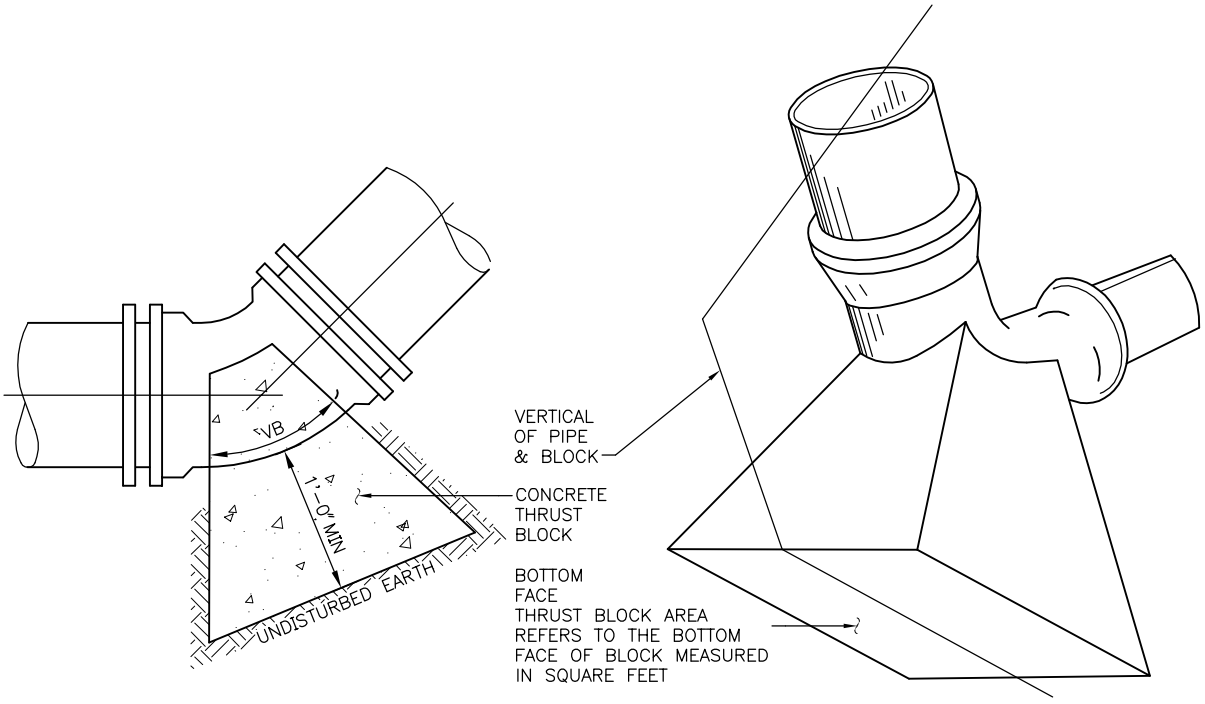
FOR NOTES SEE STD PLAN NO 330b

REF STD SPEC SEC 7-11

City of Seattle

NOT TO SCALE

WATERMAIN THRUST BLOCKING VERTICAL FITTINGS



TYPE C

TYPE "C" BLOCKING FOR 11 1/4°, 22 1/2°, 45° AND 90° VERTICAL BENDS THRUST BLOCK AREA IN SQUARE FEET									
SOIL	FIRM SILT OR FIRM SILTY SAND			COMPACT SAND			COMPACT SAND & GRAVEL		
PIPE SIZE / FITTING	90° BEND	TEE 45°BEND & DEAD END	11 1/4° & 22 1/2° BEND	90° BEND	TEE 45°BEND & DEAD END	11 1/4° & 22 1/2° BEND	90° BEND	TEE 45°BEND & DEAD END	11 1/4° & 22 1/2° BEND
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									

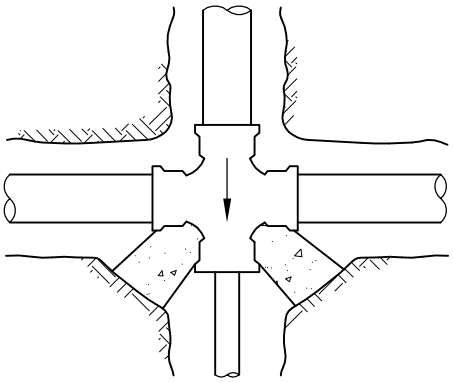
NOTES:

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

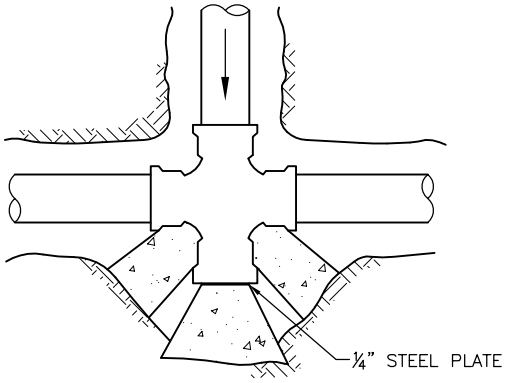
REF STD SPEC SEC 7-11

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

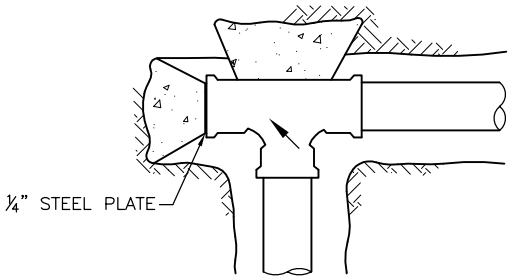
REV DATE: 2008



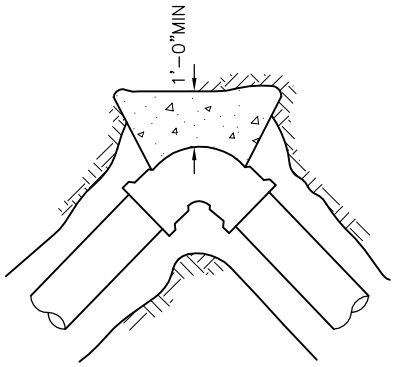
UNBALANCED CROSS



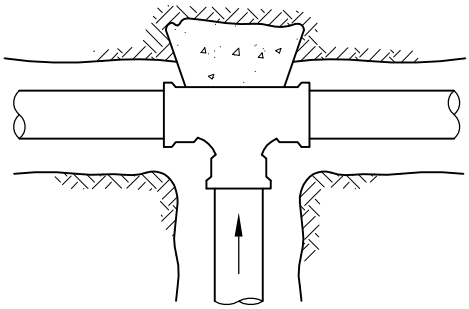
CROSS WITH PLUG



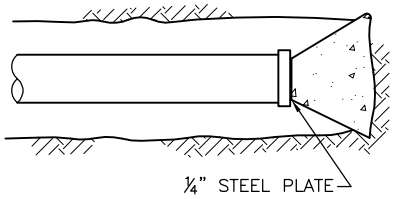
PLUGGED TEE



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	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
PIPE SIZE 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 IN LIEU OF POURED-IN-PLACE BLOCKING FOR FITTINGS IN HEAVY OUTLINED PORTION OF TABLE.

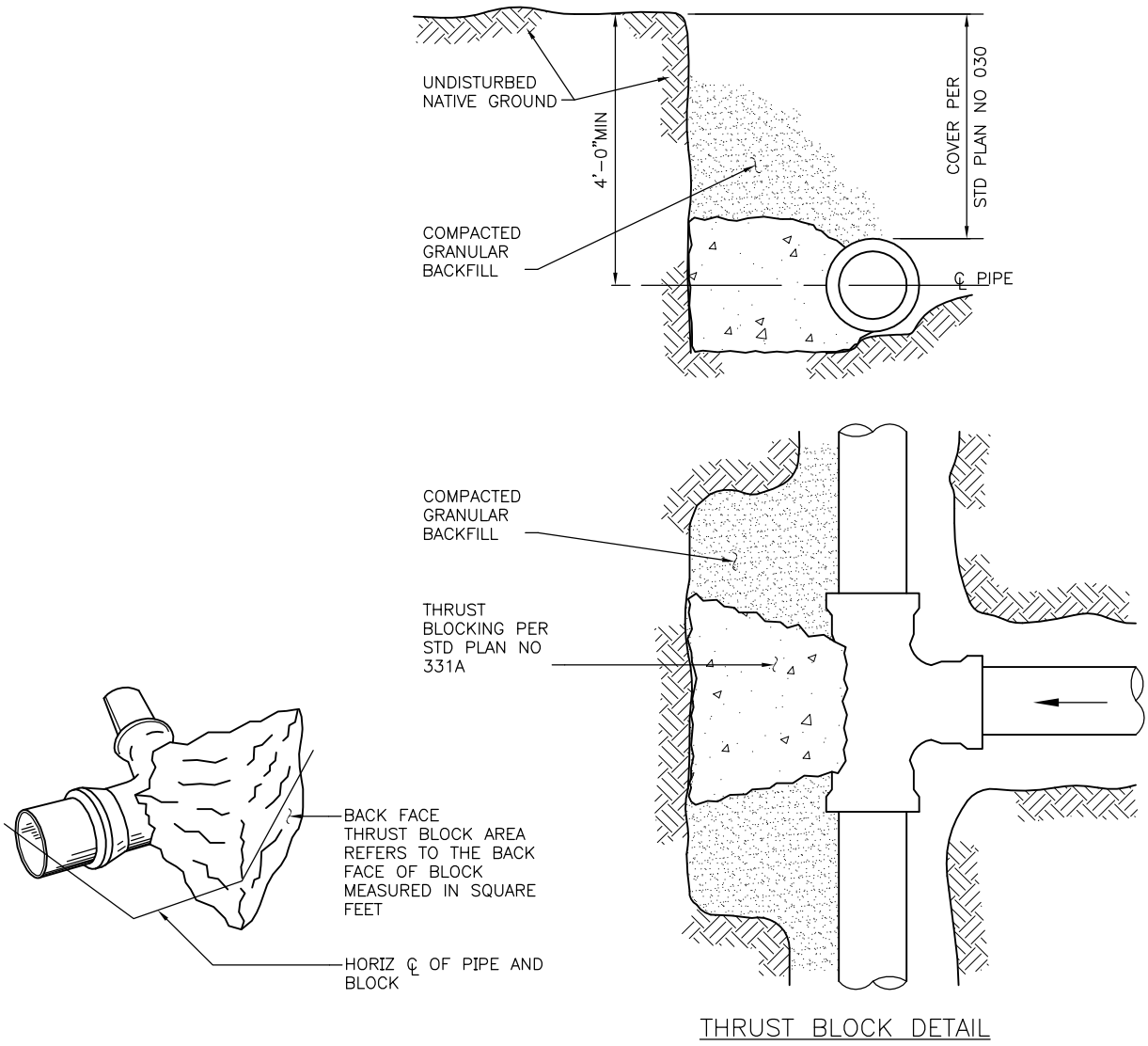
REF STD SPEC SEC 7-11

City of Seattle

NOT TO SCALE

WATERMAIN THRUST BLOCKING HORIZONTAL FITTINGS

REV DATE: 2003



THRUST BLOCK DETAIL

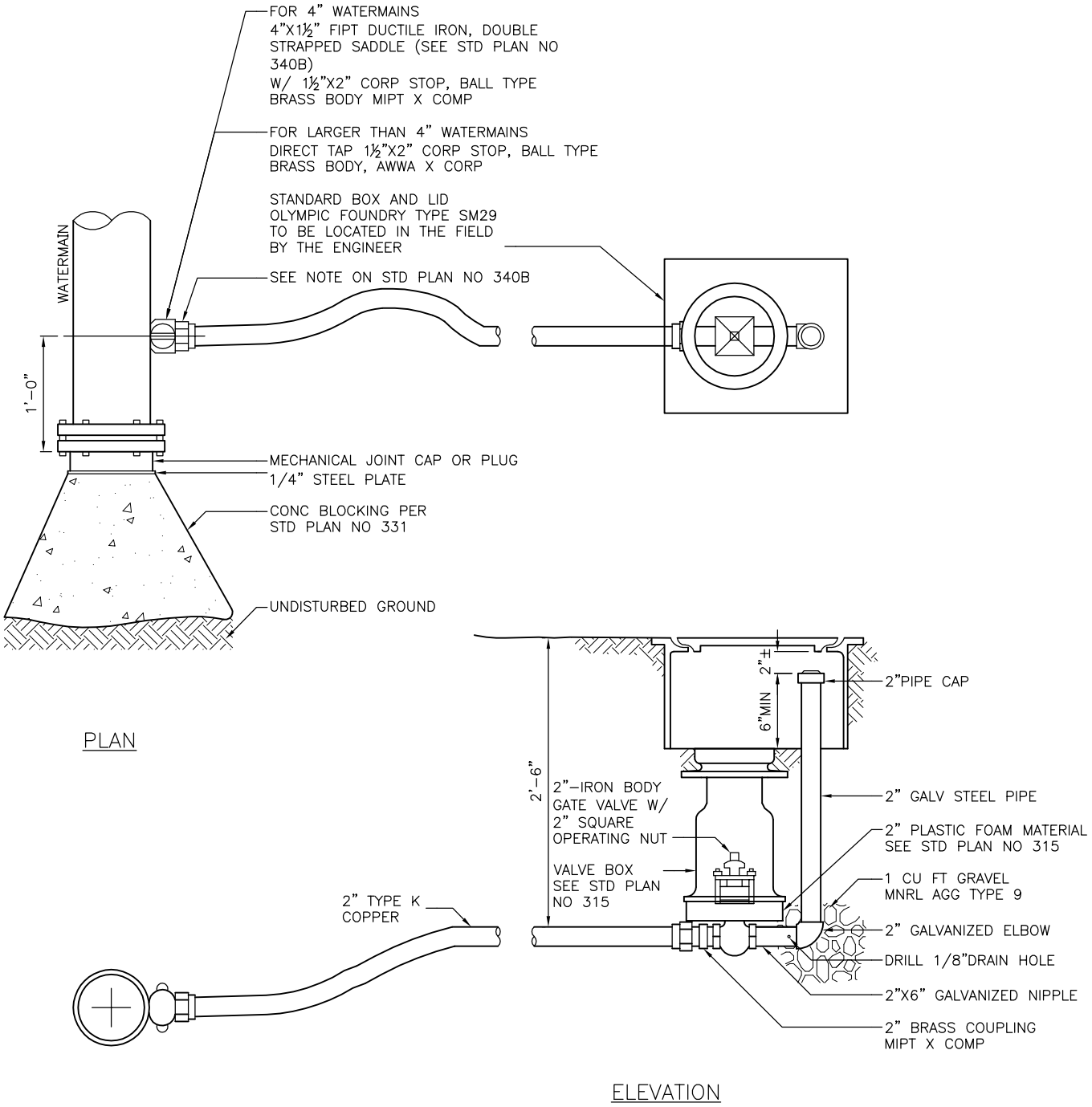
NOTES:

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

REF STD SPEC SEC 7-11

City of Seattle	NOT TO SCALE	WATERMAIN THRUST BLOCKING HORIZONTAL FITTINGS

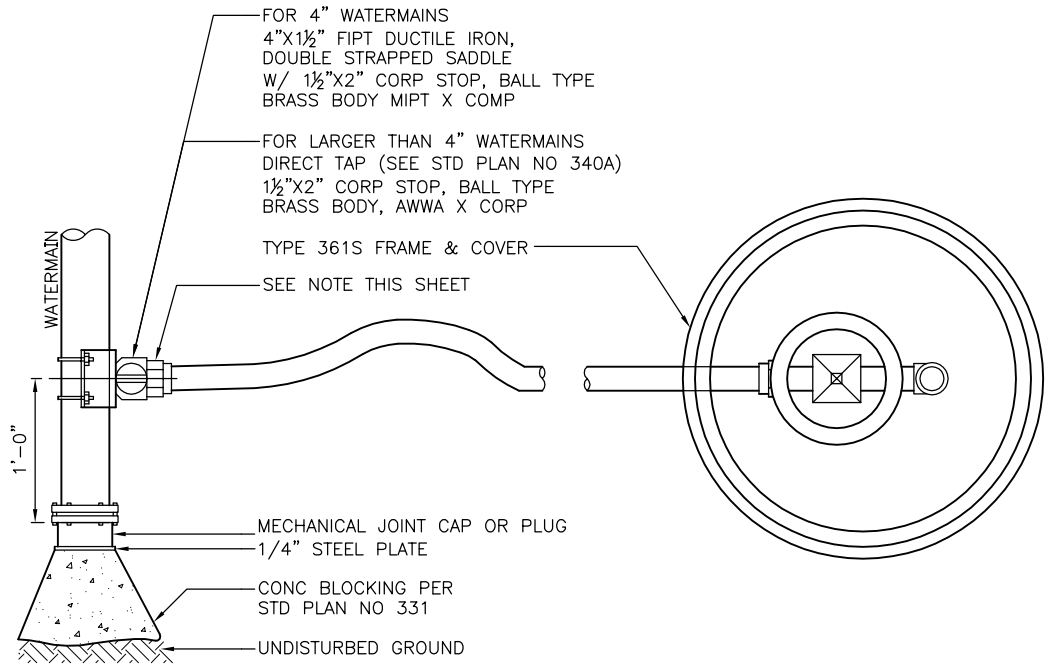
REV DATE: 2003



REF STD SPEC SEC 7-11

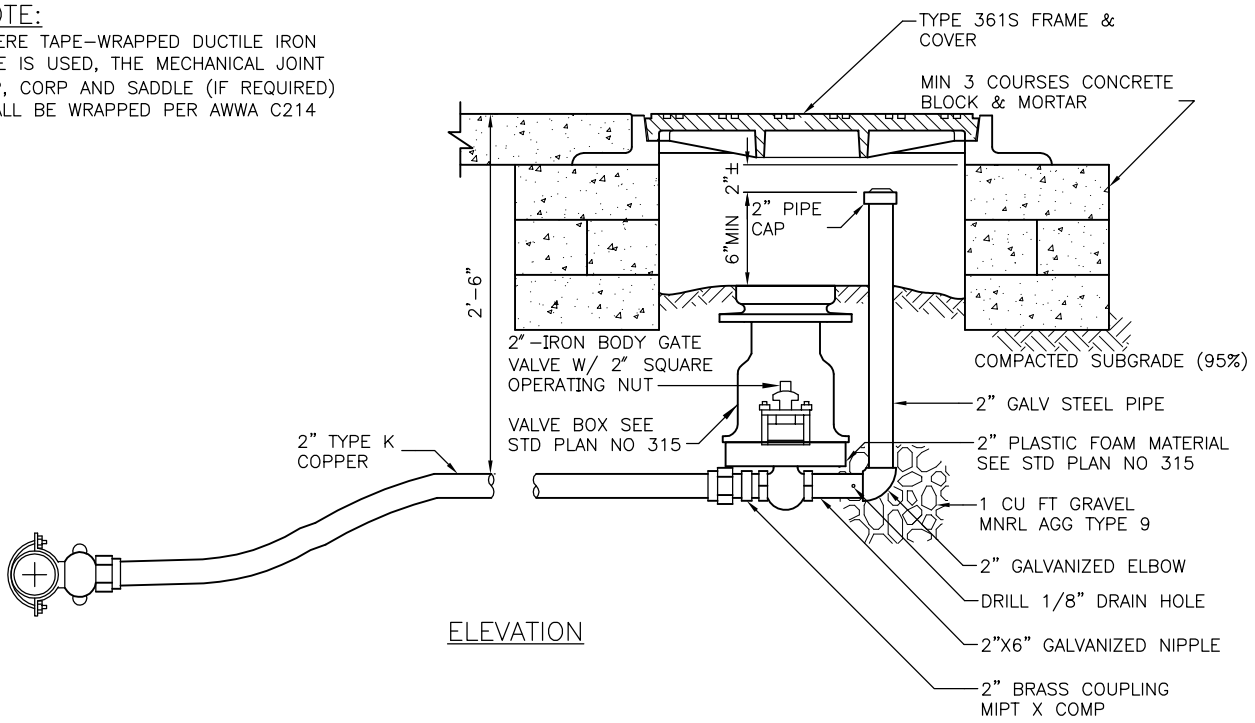
City of Seattle	NOT TO SCALE	2" BLOW OFF TYPE A NON TRAFFIC INSTALLATION

REV DATE: 2003



PLAN

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

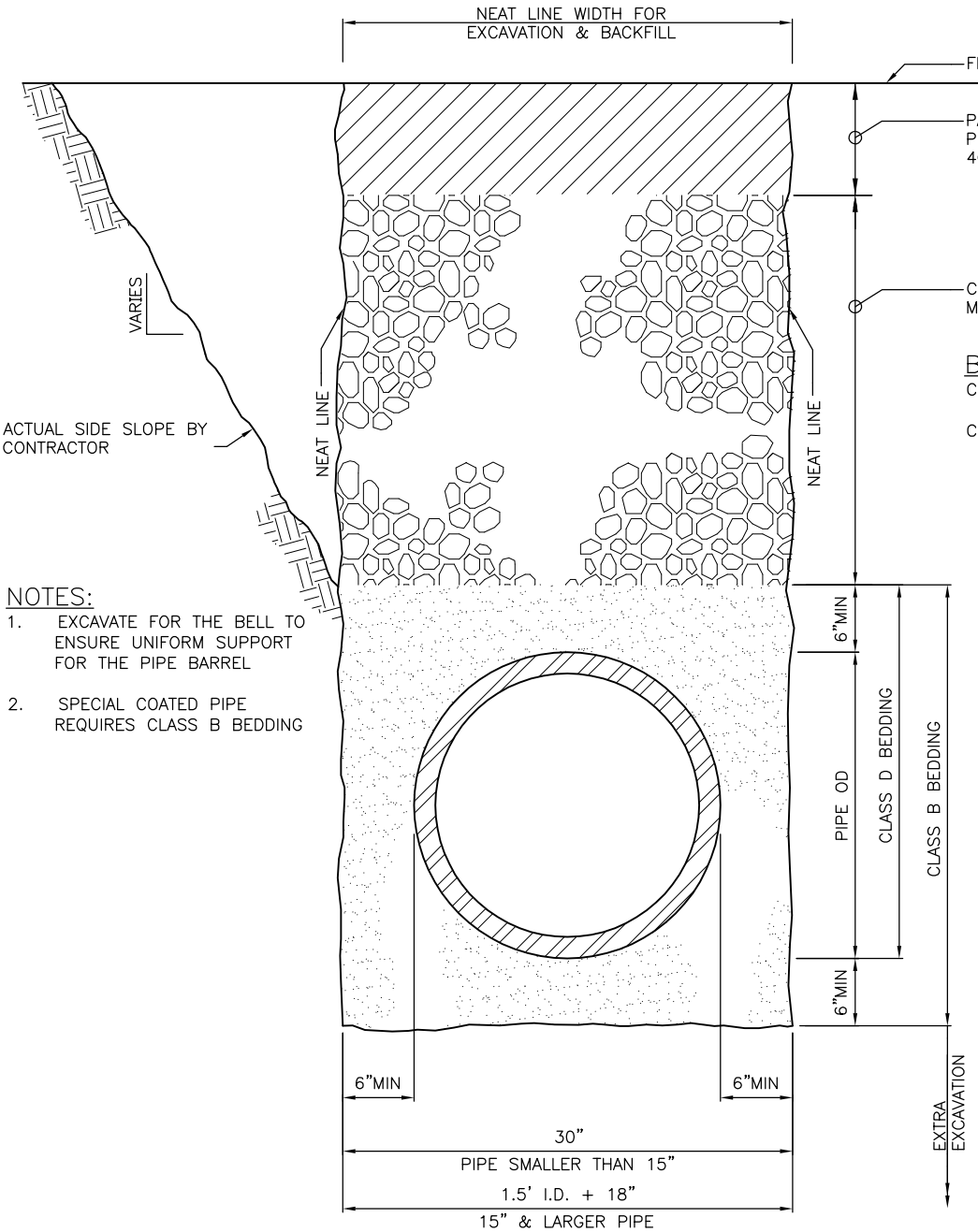


ELEVATION

REF STD SPEC SEC 7-11

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

REV DATE: DEC 2010



BEDDING MATERIAL

CLASS D:
- SUITABLE NATIVE MATERIAL

CLASS B:
- FOR DISTRIBUTION WATERMAIN, MINERAL AGGREGATE TYPE 6 OR TYPE 7
- FOR TRANSMISSION WATERMAIN, MINERAL AGGREGATE TYPE 9
- SPECIAL BEDDING TO BE INDICATED ON DRAWINGS

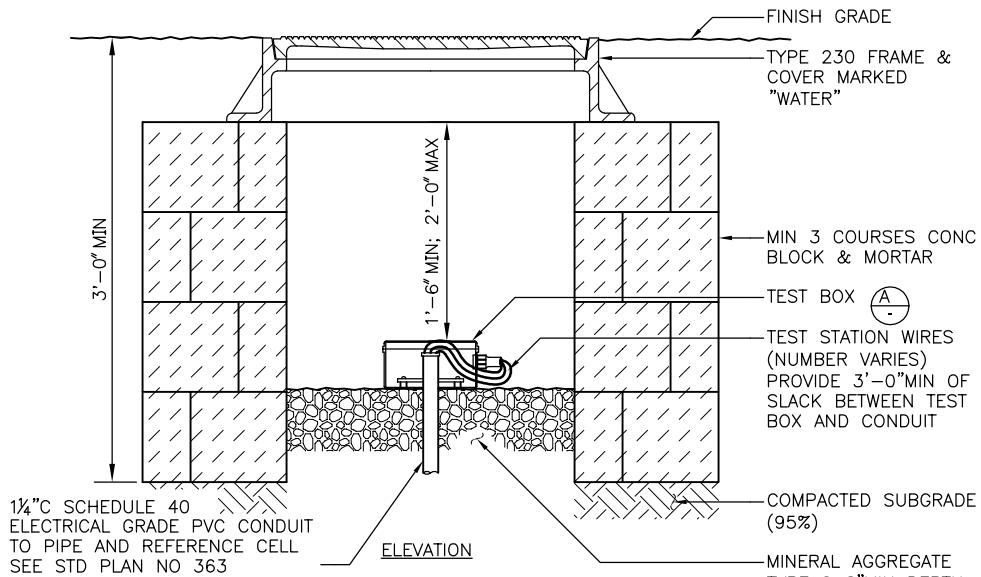
NOTES:

1. EXCAVATE FOR THE BELL TO ENSURE UNIFORM SUPPORT FOR THE PIPE BARREL
2. SPECIAL COATED PIPE REQUIRES CLASS B BEDDING

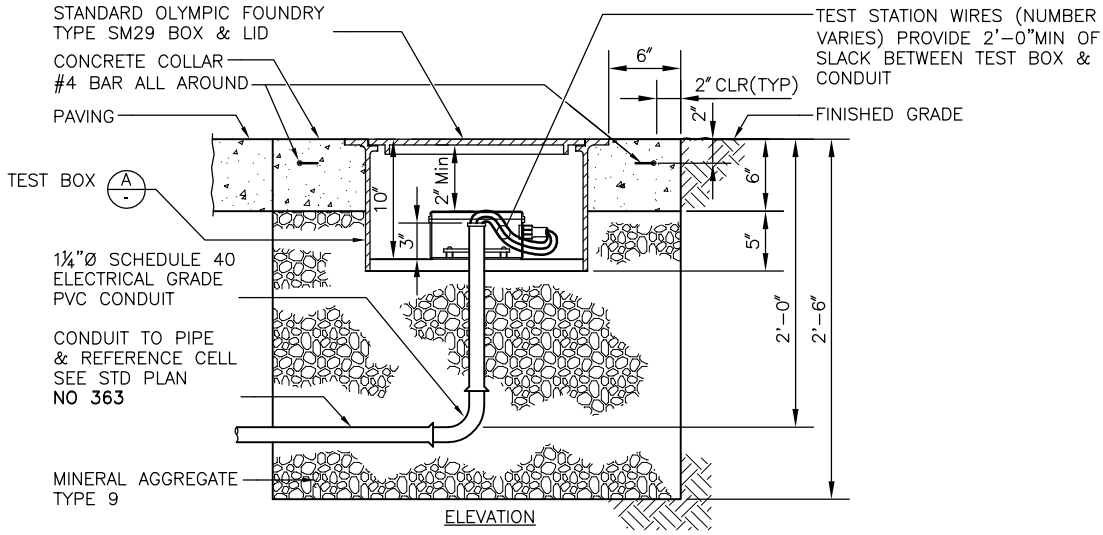
REF STD SPEC SEC 7-10

City of Seattle	NOT TO SCALE	WATERMAIN TRENCH AND BEDDING

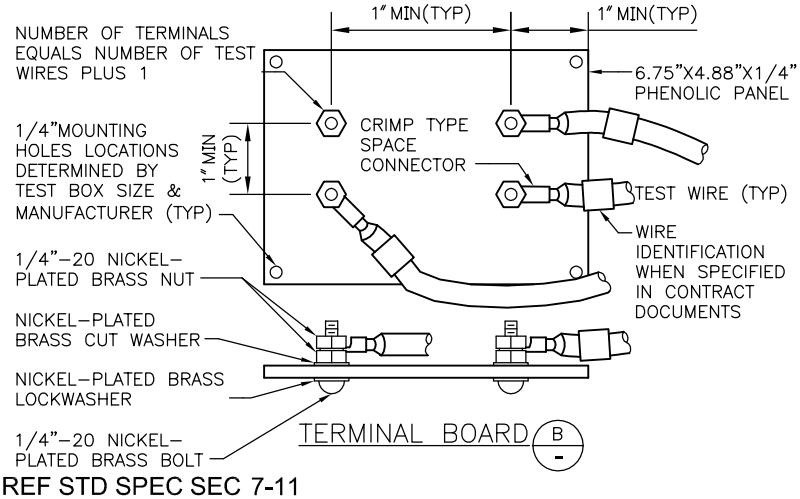
REV DATE: 2003



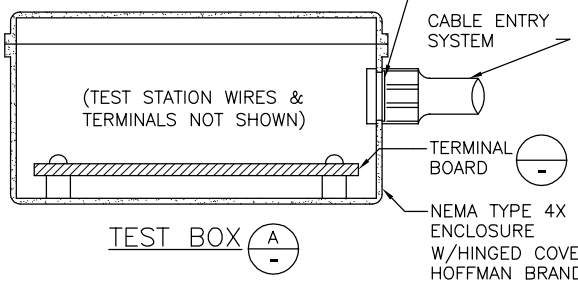
ELECTROLYSIS TEST STATION – TRAFFIC AREA



ELECTROLYSIS TEST STATION – NON–TRAFFIC AREA



TERMINAL BOARD B

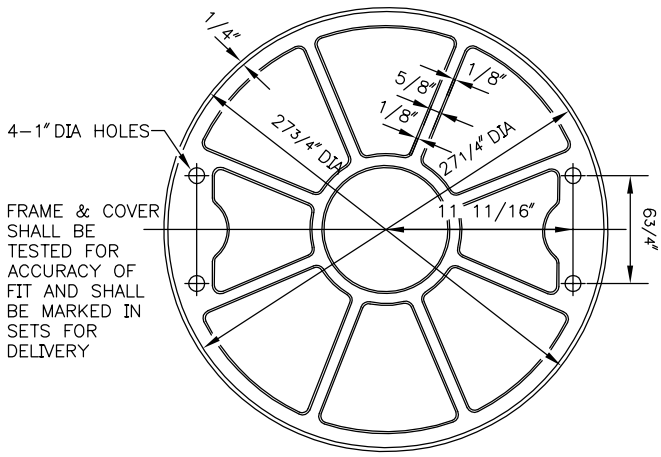


TEST BOX A

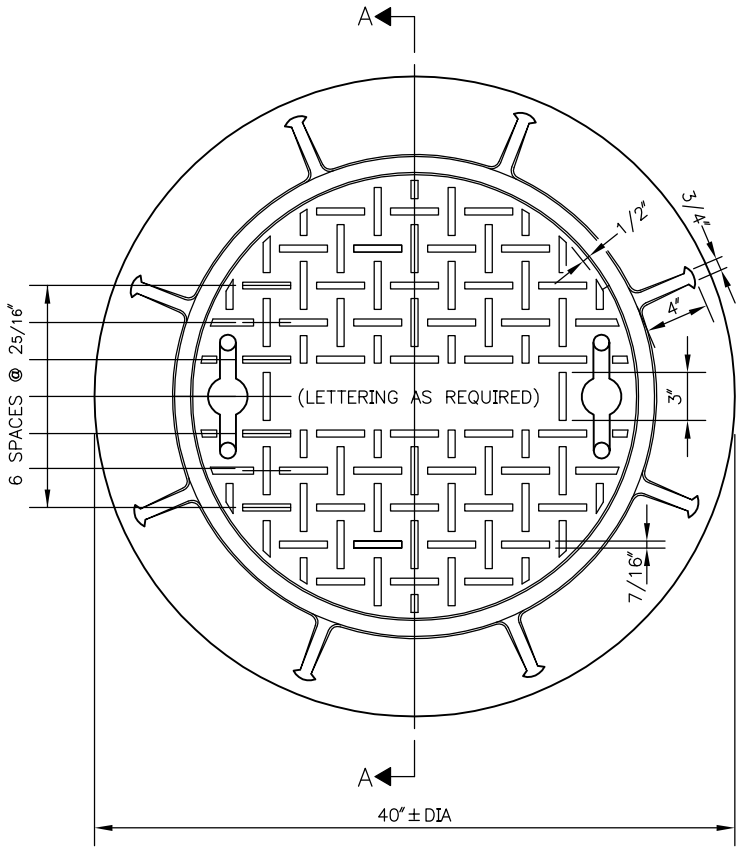
REF STD SPEC SEC 7-11

City of Seattle	NOT TO SCALE	WATERMAIN ELECTROLYSIS TEST STATION

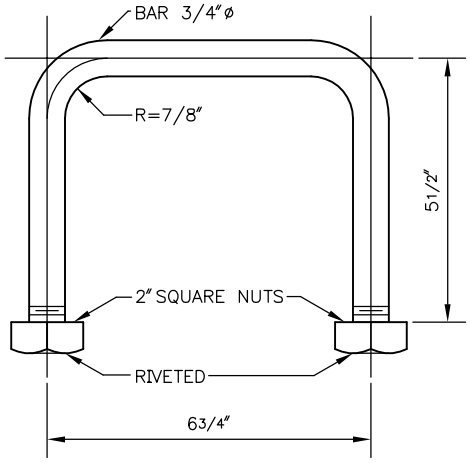
REV DATE: 2003



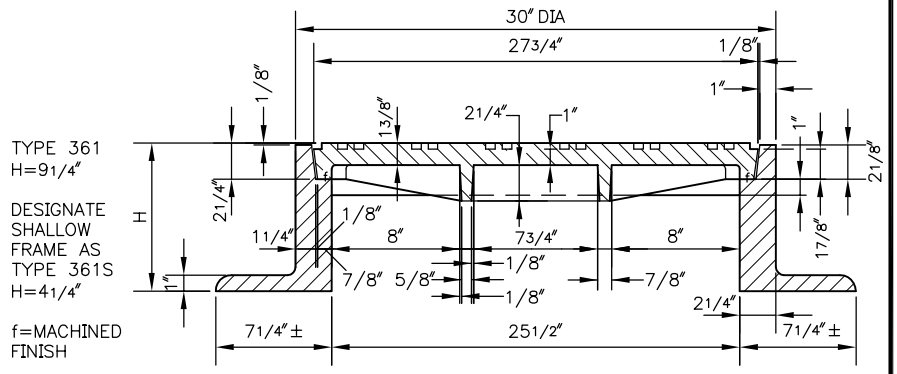
BOTTOM VIEW



TOP VIEW



LIFTING HANDLE
(2 REQUIRED)

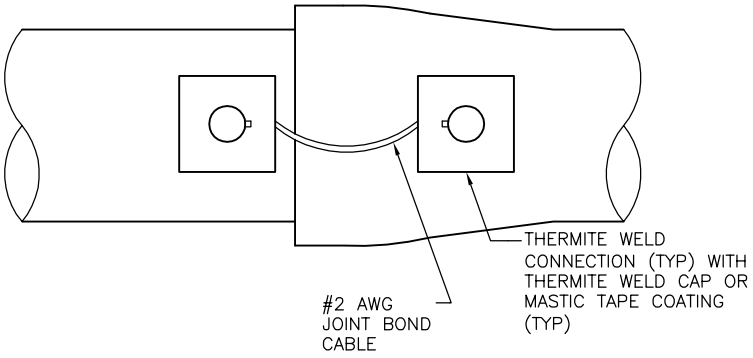


SECTION A–A

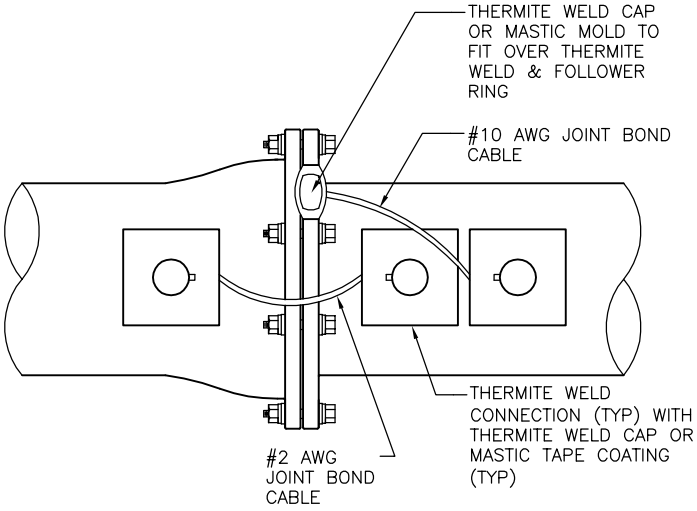
REF STD SPEC SEC 7-12

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

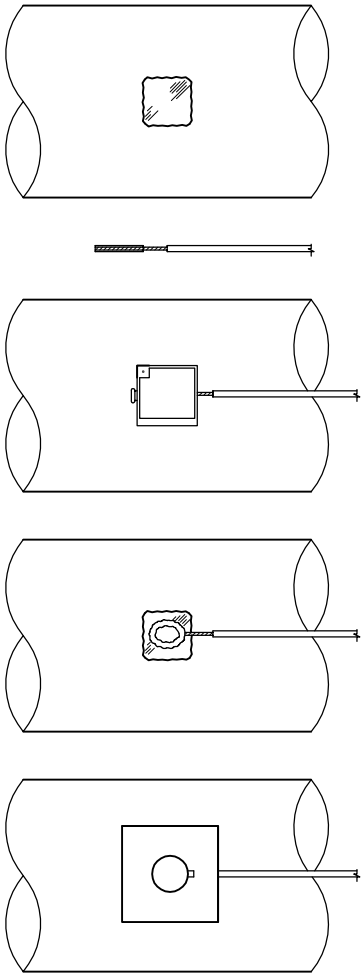
REV DATE: 2003



SLIP JOINT BOND CONNECTION



MECHANICAL JOINT BOND CONNECTION



THERMITE WELD CONNECTION

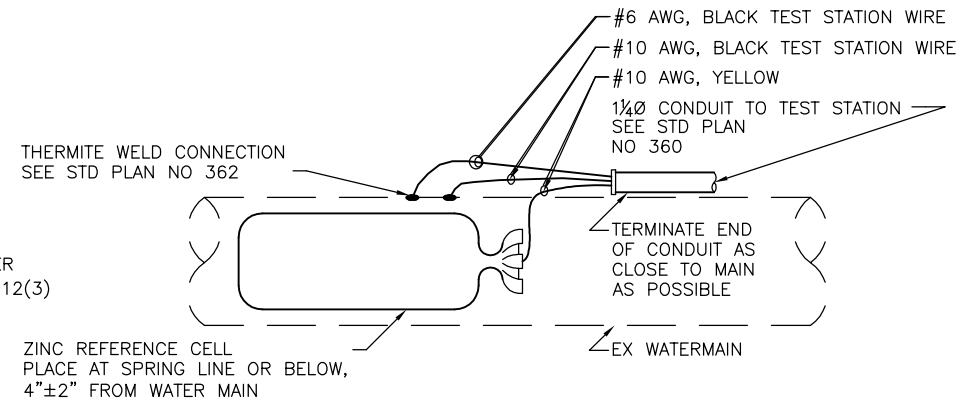
CONNECTION SEQUENCE:

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

REF STD SPEC SEC 7-11

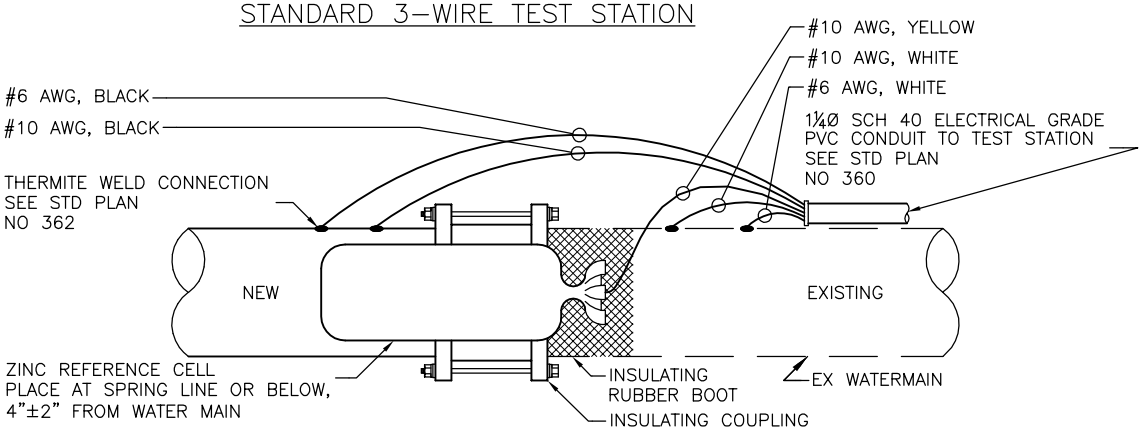
City of Seattle	NOT TO SCALE	JOINT BONDING FOR DIP WATERMAINS & JOINTS BONDING DETAIL

REV DATE: 2003

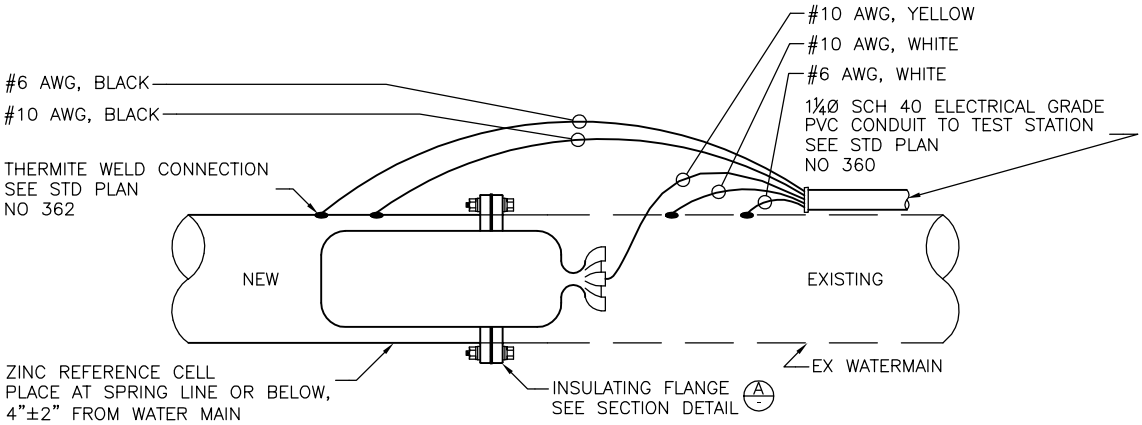


NOTE:
WIRE INSTALLATION PER STD SPEC SEC 9-30.12(3)

STANDARD 3-WIRE TEST STATION



INSULATING COUPLING 5-WIRE TEST STATION

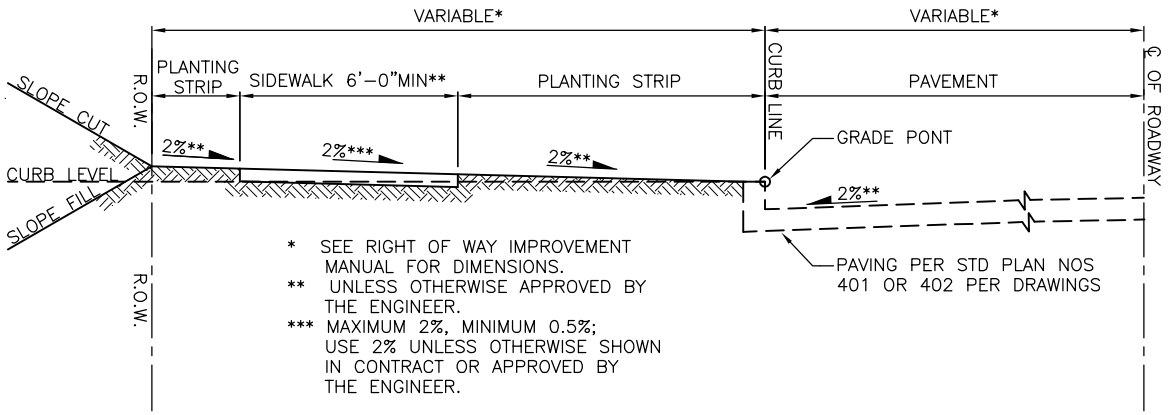


A INSULATING FLANGE 5-WIRE TEST STATION

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 2010

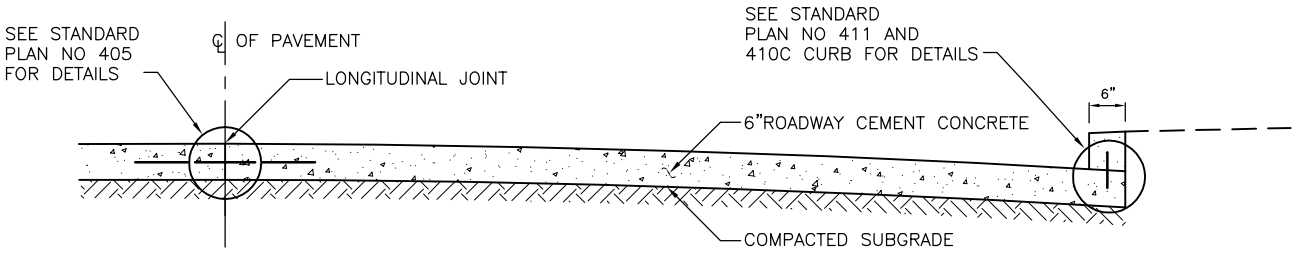


* SEE RIGHT OF WAY IMPROVEMENT MANUAL FOR DIMENSIONS.
** UNLESS OTHERWISE APPROVED BY THE ENGINEER.
*** MAXIMUM 2%, MINIMUM 0.5%; USE 2% UNLESS OTHERWISE SHOWN IN CONTRACT OR APPROVED BY THE ENGINEER.

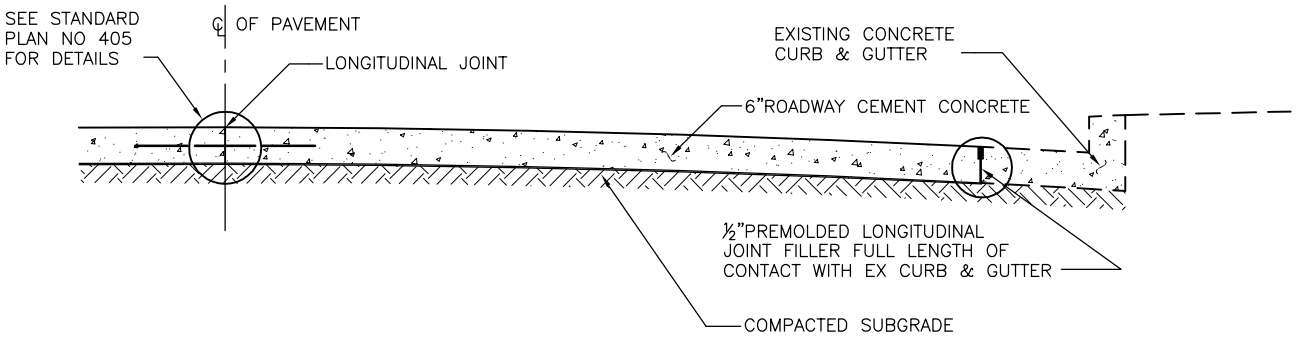
REF STD SPEC SEC 2-04

City of Seattle	NOT TO SCALE	HALF SECTION, GRADING

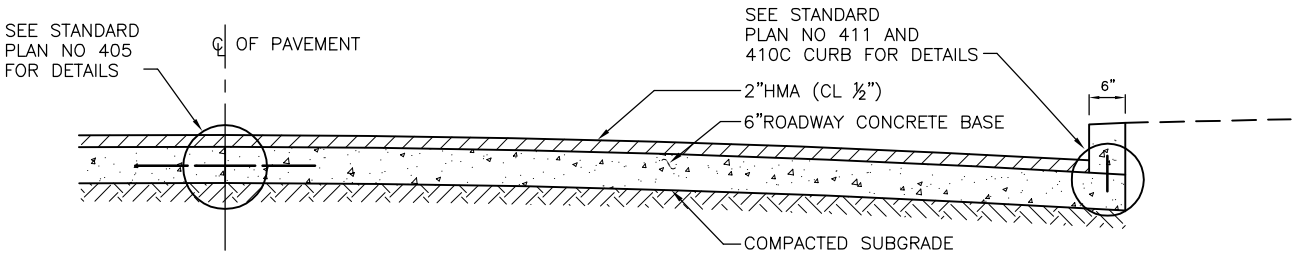
REV DATE: DEC 2010



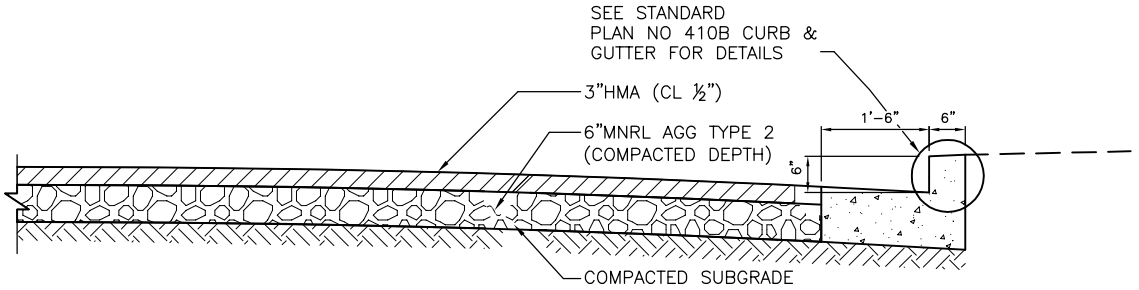
401A—CEMENT CONCRETE PAVEMENT WITH INTEGRAL CURB



401B—CEMENT CONCRETE PAVEMENT WITH EXISTING CURB & GUTTER



401C—HOT MIX ASPHALT ON CEMENT CONCRETE BASE



401D—HOT MIX ASPHALT OVER CRUSHED ROCK BASE

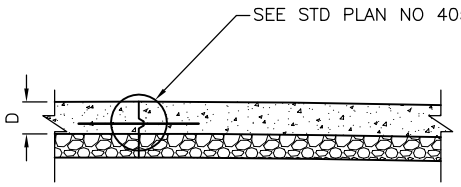
HMA DESIGN CRITERIA:

1. 3 MILLION ESAL'S UNLESS OTHERWISE SPECIFIED ON DRAWINGS
2. ASPHALT PG 64—22 UNLESS OTHERWISE SPECIFIED ON DRAWINGS

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

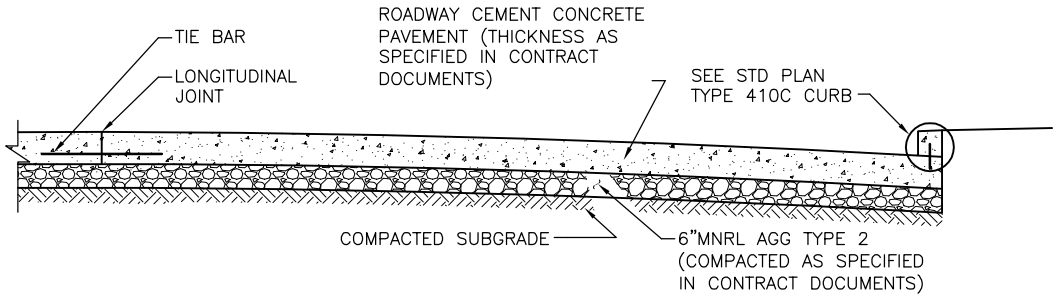
City of Seattle	NOT TO SCALE	RESIDENTIAL PAVEMENT SECTIONS

REV DATE: DEC 2010

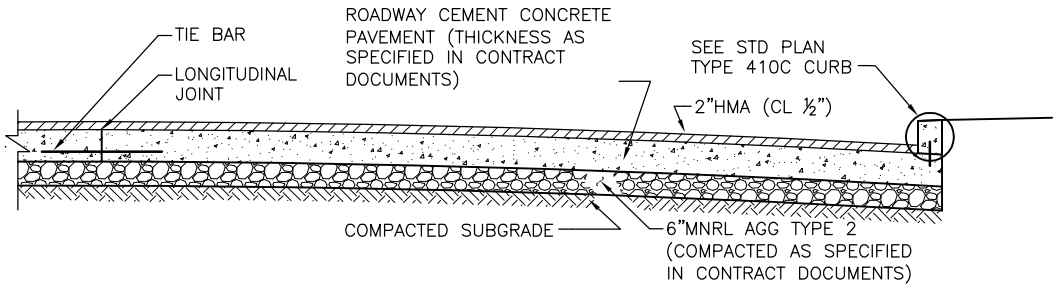


NOTES:
IF CONC THICKNESS IS 9 INCH OR GREATER OPTIONAL KEYWAY MAY BE USED
SEE STD PLAN NO 405 FOR DETAILS

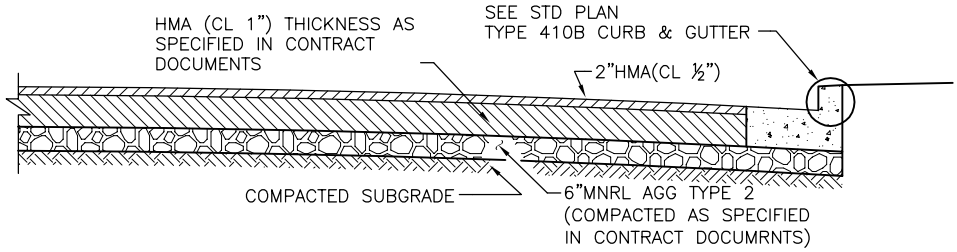
OPTIONAL KEYWAY
FOR LONGITUDINAL JOINT



402A–ROADWAY CONCRETE PAVEMENT ON CRUSHED ROCK



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



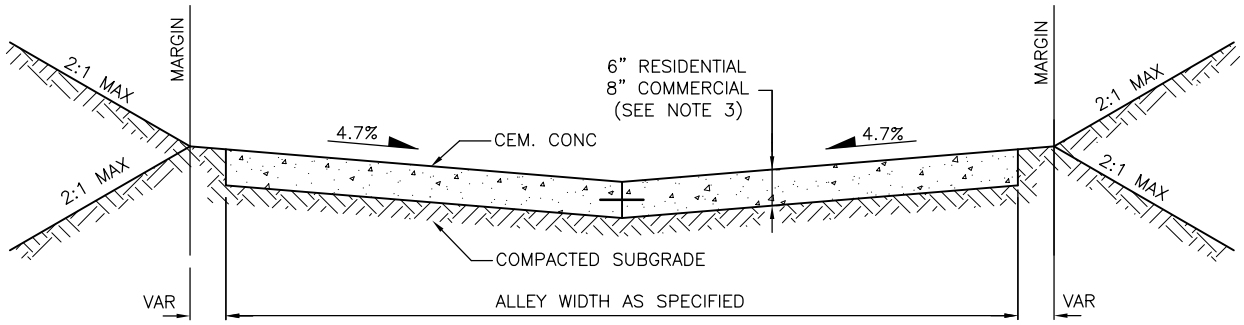
402C–HOT MIX ASPHALT ON CRUSHED ROCK BASE

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

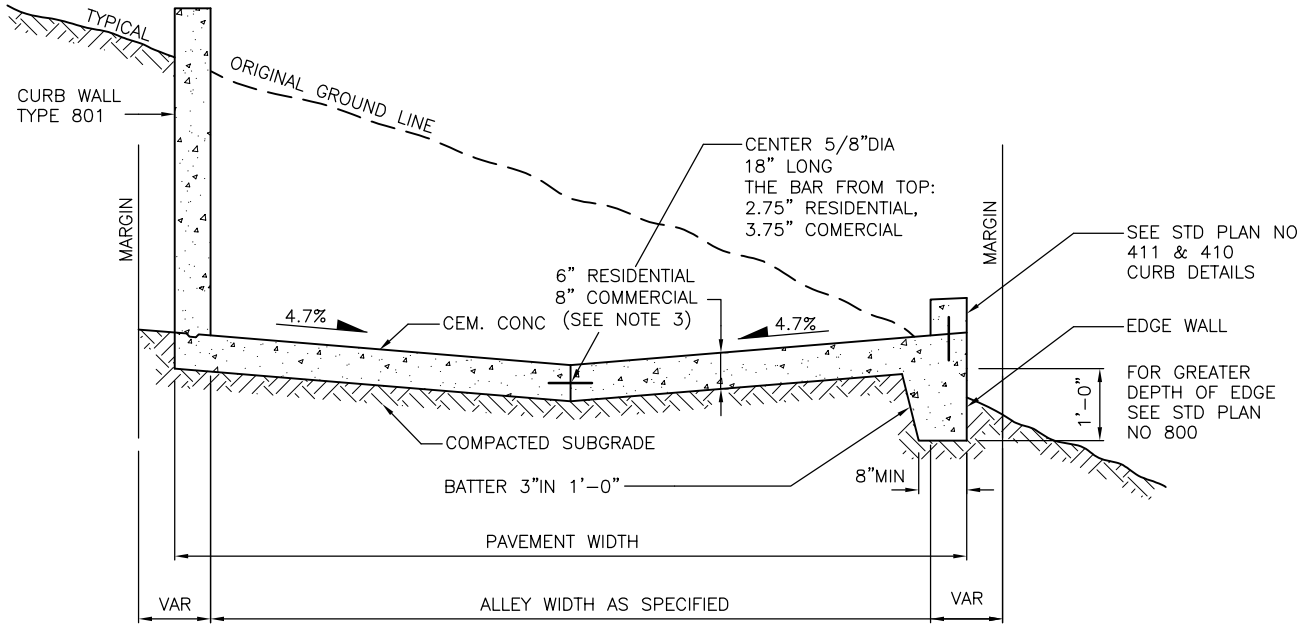
REF STD SPEC SEC 4-04, 5-05 & 8-04

City of Seattle	NOT TO SCALE	COMMERCIAL AND ARTERIAL PAVEMENT SECTIONS

REV DATE: DEC 2010



CONCRETE ALLEY PAVEMENT



CEMENT CONCRETE ALLEY PAVEMENT
403B–FOR SHALLOW EMBANKMENT AREA

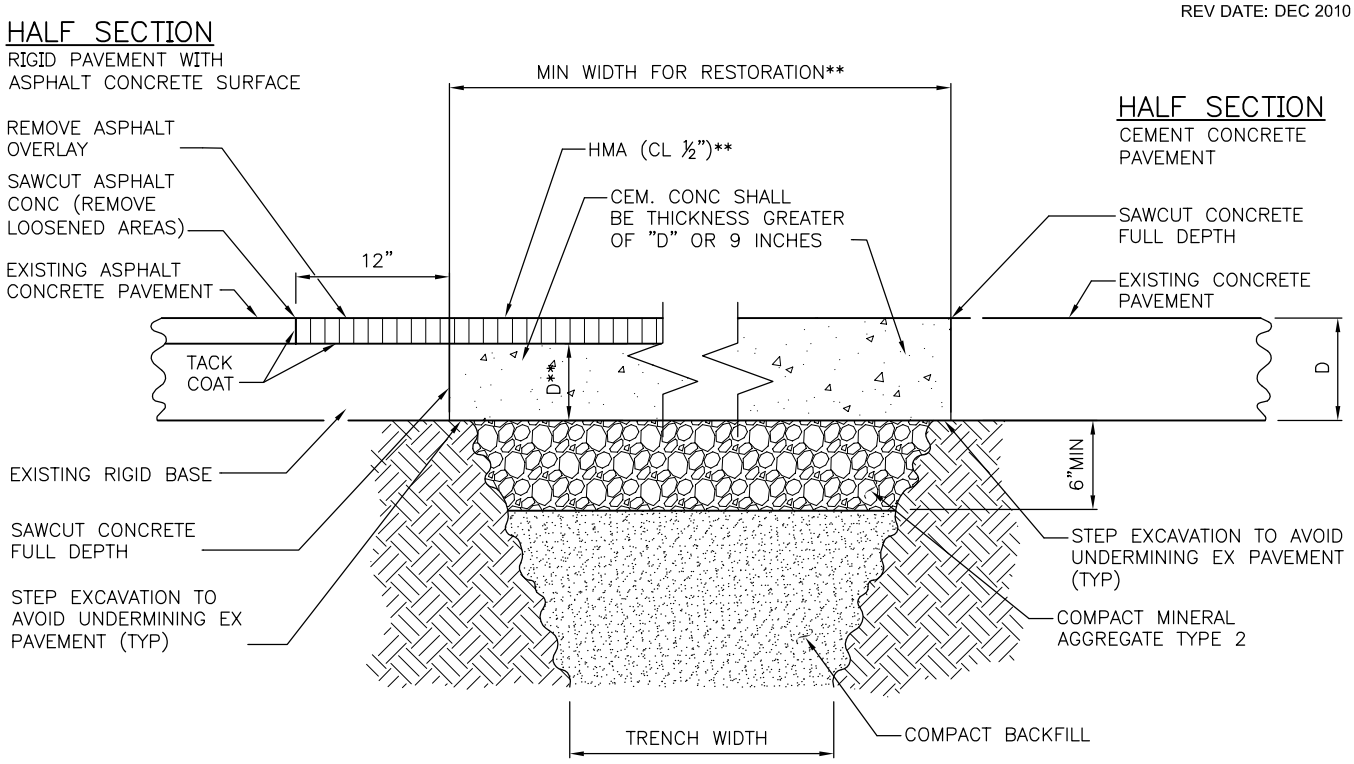
NOTES:

1. WHEN ALLEY PAVEMENT IS 16'–0" OR WIDER PLACE CONSTRUCTION JOINT WITH TIE BAR PER STD PLAN NO 405 ALONG CENTERLINE OF ALLEY.
2. FOR ADA ACCESSIBLE ACCESS TO ENTRY IN ALLEY CONSIDER ALTERNATIVE DESIGN; SUBJECT TO APPROVAL BY THE ENGINEER.
3. 8" OR AS SHOWN IN CONTRACT OR APPROVAL BY THE ENGINEER.

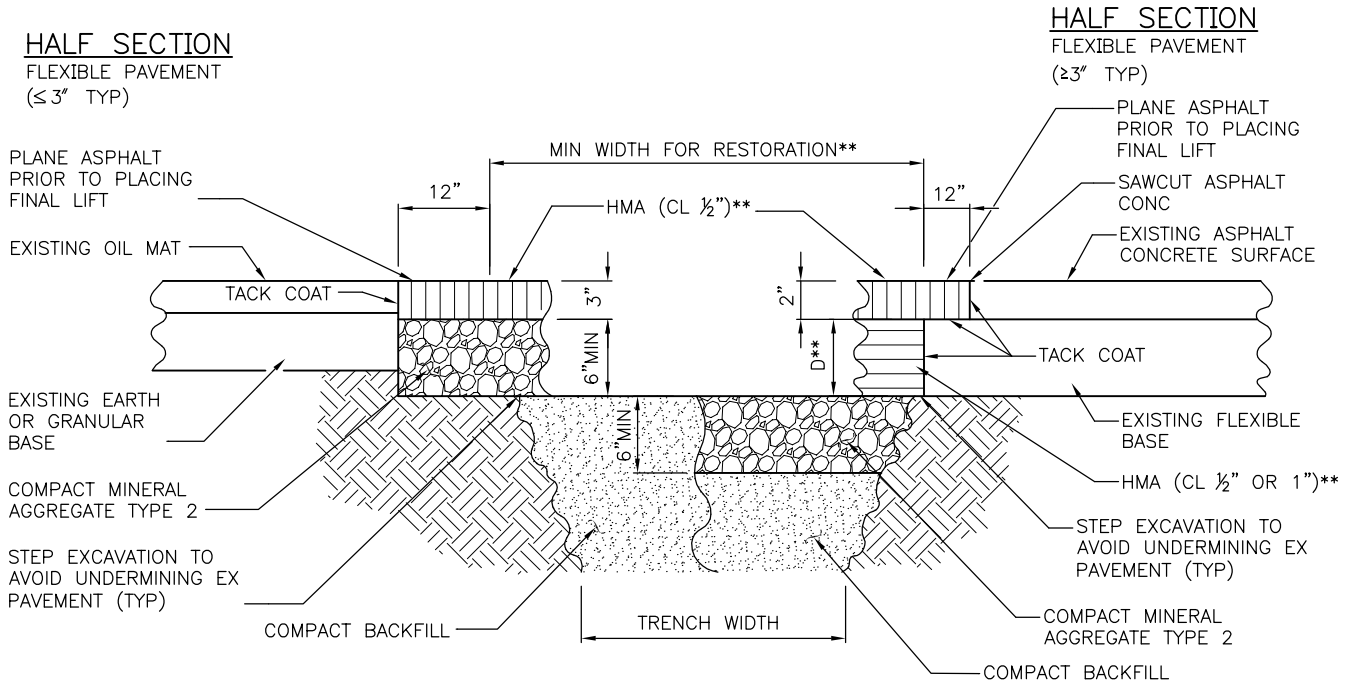
REF STD SPEC SEC 8-19

City of Seattle	NOT TO SCALE	ROADWAY CEMENT CONCRETE ALLEY PAVEMENTS

REV DATE: DEC 2010



TYPICAL PATCH FOR RIGID PAVEMENT



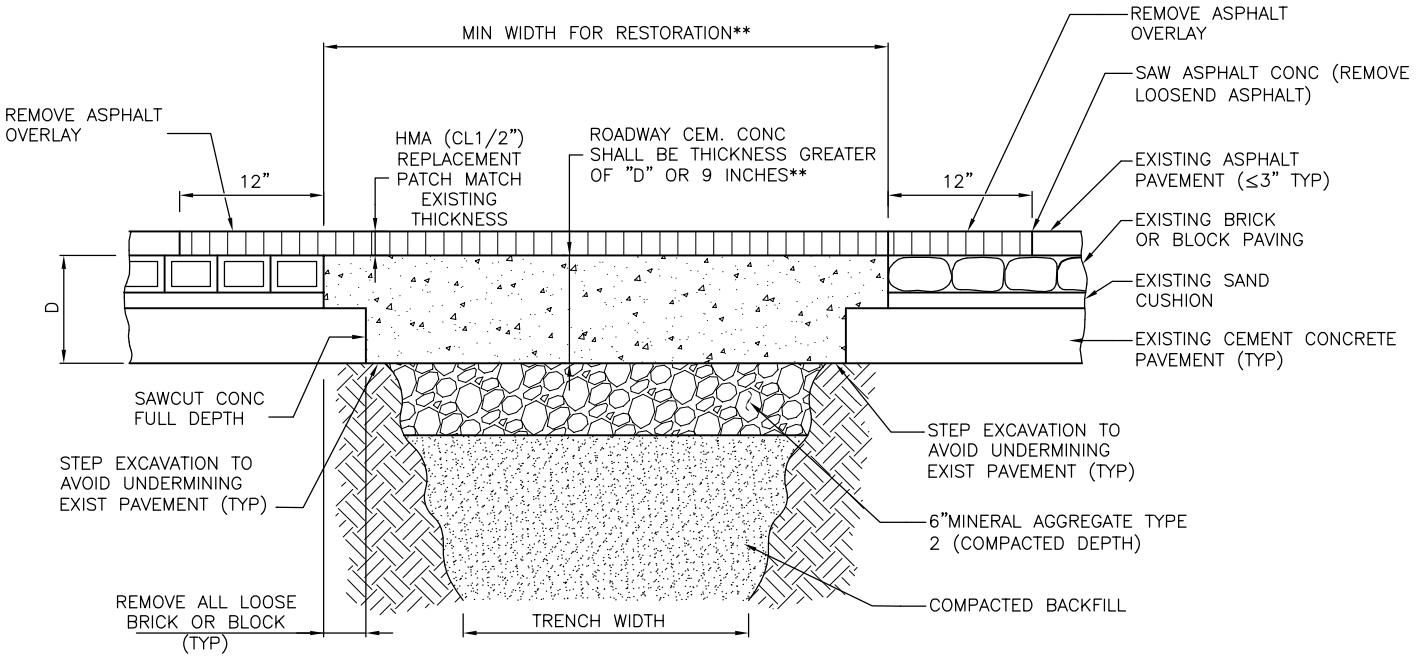
TYPICAL PATCH FOR FLEXIBLE PAVEMENT

** DEPTH OF RESTORATION SHALL MEET THE REQUIREMENTS OF "STREET AND SIDEWALK PAVEMENT OPENING AND RESTORATION RULES"
WIDTH OF RESTORATION SHALL MEET REQUIREMENTS OF STANDARD PLAN 404C.

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

City of Seattle	NOT TO SCALE	PAVEMENT PATCHING

REV DATE: DEC 2010



ASPHALT OVER RIGID BASE OF BRICK OR STONE BLOCK PAVEMENT

HALF SECTION

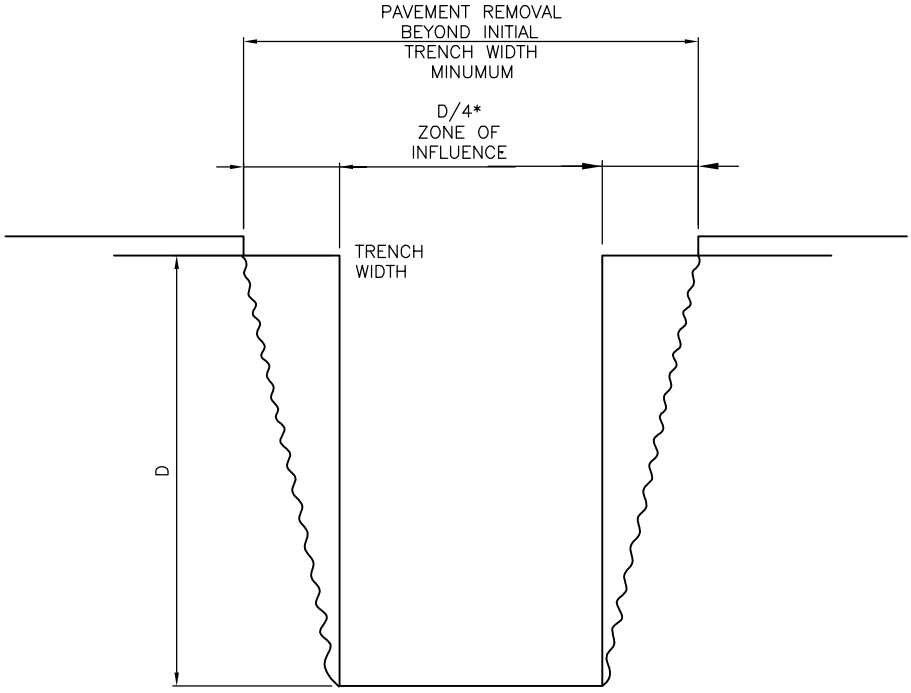
** WIDTH OF RESTORATION SHALL MEET REQUIREMENTS OF STANDARD PLAN 404C.
DEPTH OF RESTORATION SHALL MEET THE REQUIREMENTS OF "STREET AND SIDEWALK PAVEMENT OPENING AND RESTORATION RULES".

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

City of Seattle	NOT TO SCALE	PAVEMENT PATCHING

REV DATE: DEC 2010

NOTE:
THE ZONE OF INFLUENCE IS DEPENDENT ON SOIL TYPE AND CONDITION METHOD. THE AMOUNT OF PAVEMENT REMOVAL THAT MAY BE REQUIRED TO ALLOW FOR ADEQUATE RE–COMPACTION OF THE SOIL ADJOINING THE EXCAVATION IS BASED ON THE ESTIMATE OF SOIL MOVEMENT RESULTING FROM THE INSTALLATION OF THE UTILITY.

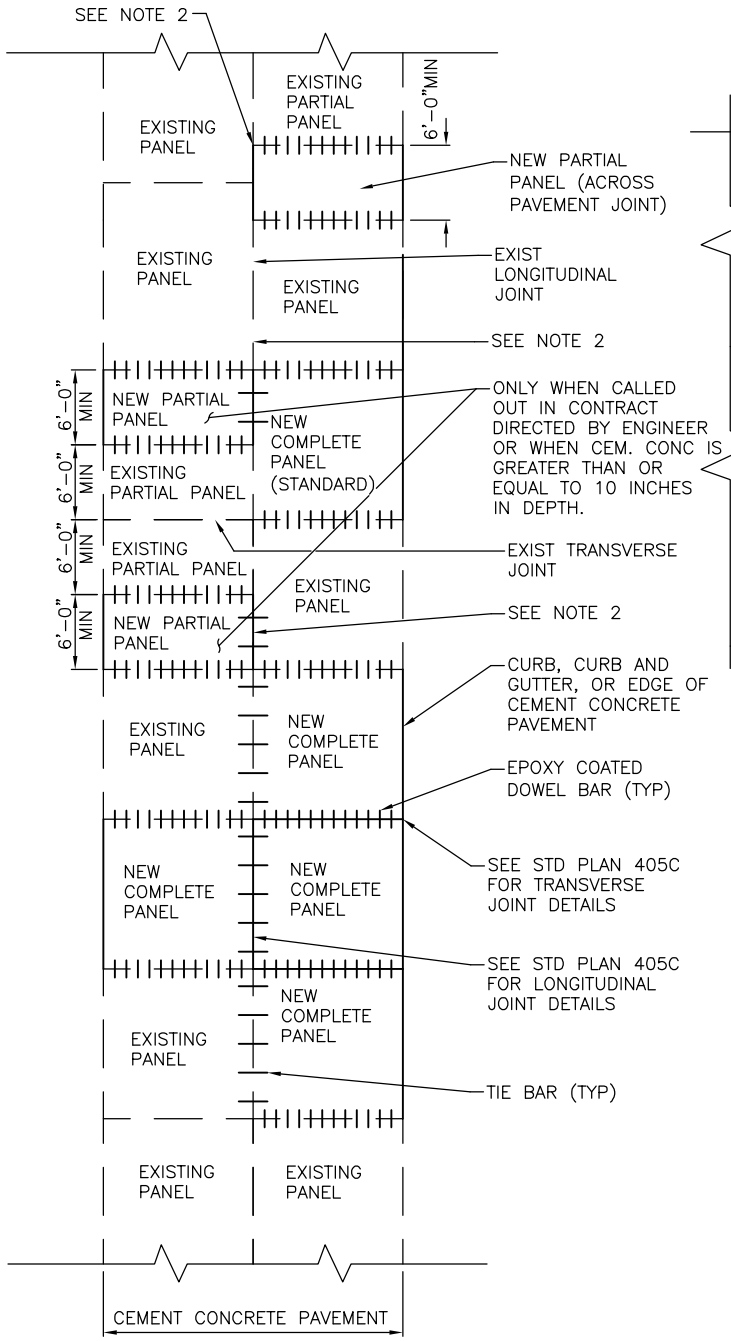


* ZONE OF INFLUENCE IS DEPENDENT ON THE TYPE AND CONDITION OF THE ADJACENT SOILS.

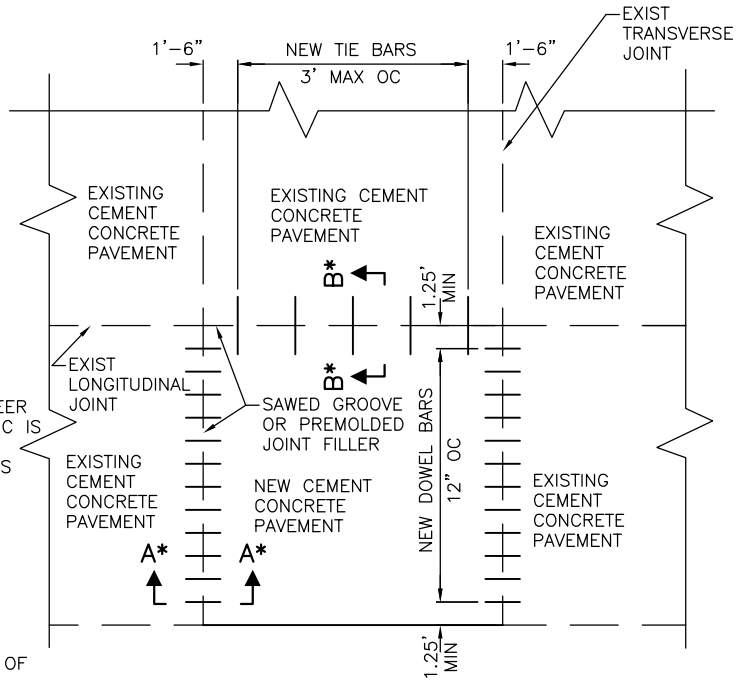
REF STD SPEC SEC 2-04

City of Seattle	NOT TO SCALE	PAVEMENT OPENING ZONE OF INFLUENCE

REV DATE: DEC 2010



PLAN VIEW
PANEL REPLACEMENT



PLAN VIEW
COMPLETE PANEL REPLACEMENT

NOTES

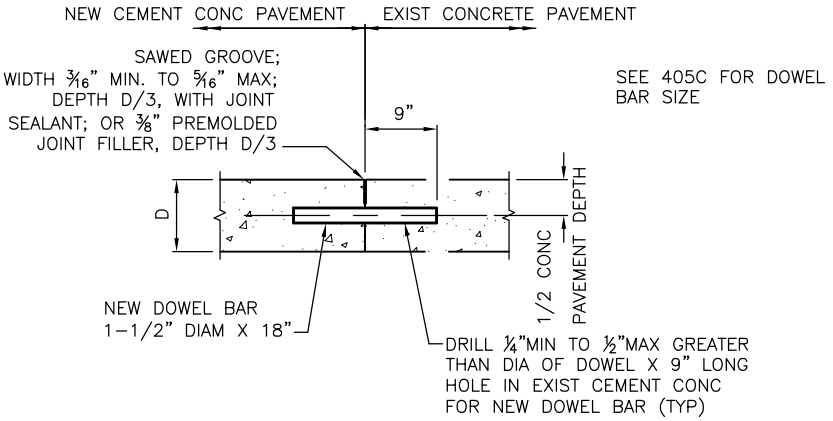
1. INSTALL TIE BARS ALONG LONGITUDINAL JOINT BETWEEN FULL PANEL REPLACEMENT AND EXIST CEMENT CONC PAVEMENT. TIE BARS ARE NOT INSTALLED BETWEEN CEMENT CONC PAVEMENT AND HOT MIX ASPHALT SHOULDERS.
2. PLACE POLYETHYLENE FILM OR BUILDING PAPER ALONG THE LONGITUDINAL JOINT BETWEEN PARTIAL PANEL REPLACEMENT AND EXIST PANEL.
3. TIE BARS AND DOWELS ARE NOT REQUIRED:
   - 3.1. WHEN INDICATED ON THE DRAWINGS BY "NO TIE BARS" OR "NO DOWEL BARS".
   - 3.2. WHEN EXISTING PAVEMENT IS LESS THAN A THICKNESS OF 8" OR WHEN THE ENGINEER DETERMINES THE EXISTING CONC NOT TO BE COMPETENT.
4. DO NOT PLACE LONGITUDINAL JOINTS OR SKEWED JOINTS WITHIN BIKE LANES.

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

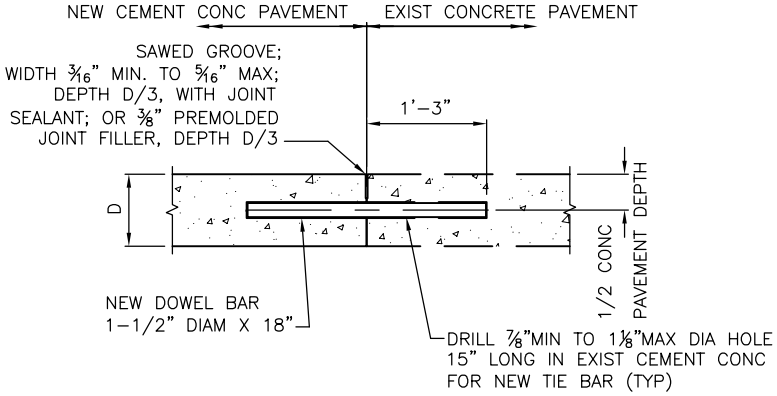
REF STD SPEC SEC 5-05

City of Seattle	NOT TO SCALE	ROADWAY CONCRETE PAVEMENT REPAIR

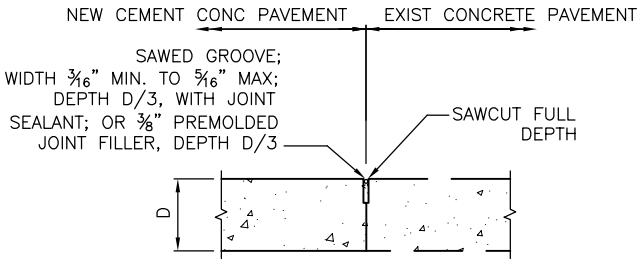
REV DATE: DEC 2010



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

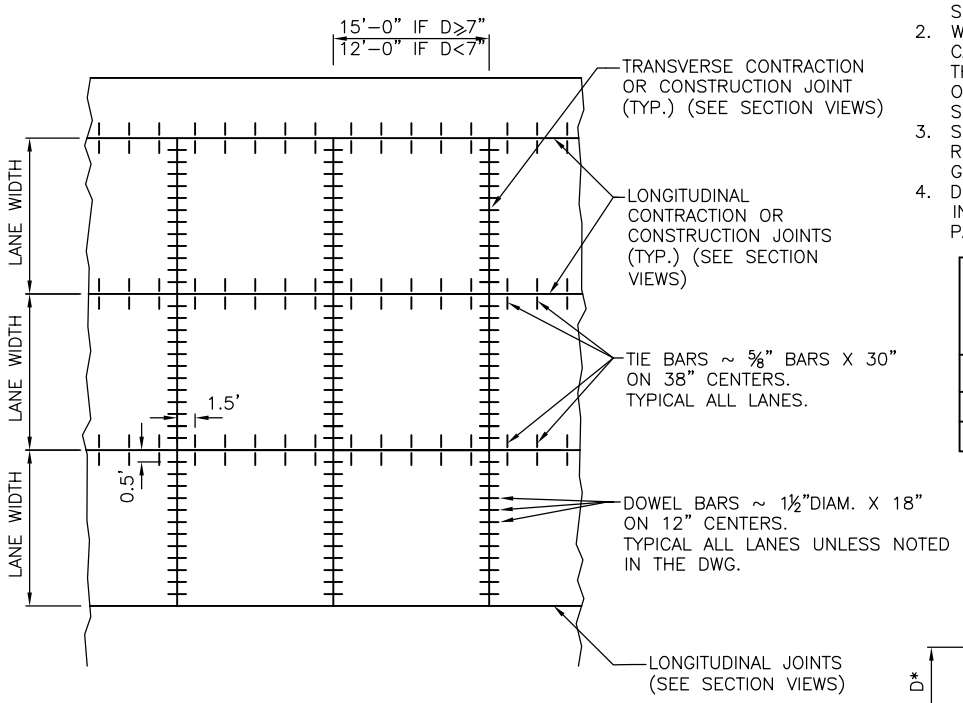
City of Seattle	NOT TO SCALE	PAVEMENT REPAIR DOWEL BAR AND TIE BAR DETAILS

REV DATE: DEC 2010

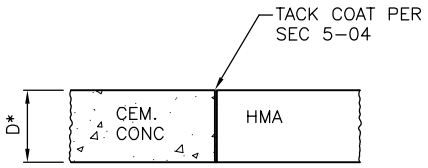
NOTES

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

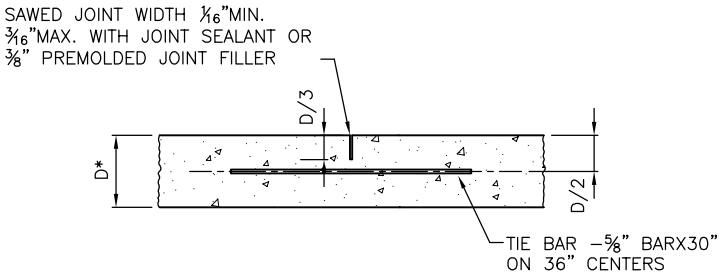
DEPTH (D) OF RDWY CEM. CONC	DOWEL BAR SIZE (DIA Ø)
6"≤D <9"	1"X18"
9"≤D <11"	1¼"X18"
11"≤D	1½"X18"



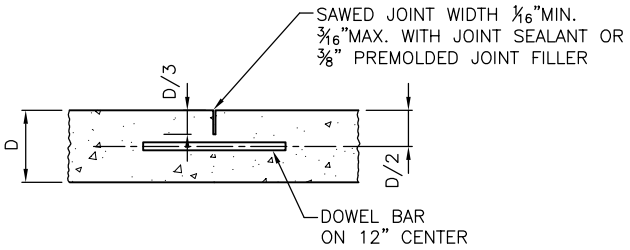
PLAN VIEW
PANEL REPLACEMENT



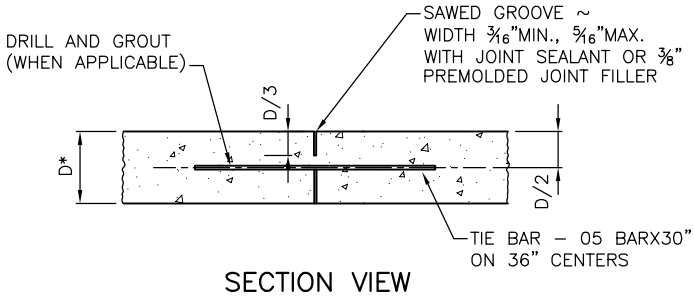
SECTION VIEW
CEM. CONC TO HMA
BUTT JOINT



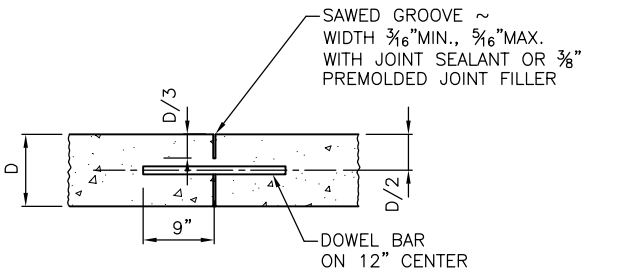
SECTION VIEW
LONGITUDINAL CONSTRUCTION JOINT



SECTION VIEW
TRANSVERSE CONSTRUCTION JOINT



SECTION VIEW
LONGITUDINAL CONSTRUCTION JOINT

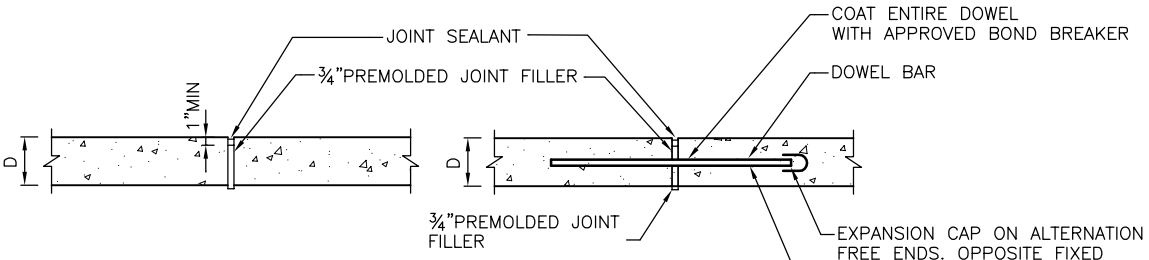


SECTION VIEW
TRANSVERSE CONSTRUCTION JOINT

REF STD SPEC SEC 5-05

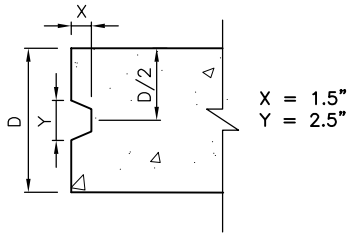
City of Seattle | NOT TO SCALE | ROADWAY CONCRETE PAVEMENT JOINTS

REV DATE: APR 2010



THROUGH JOINTS

USE ONLY WHEN SHOWN
IN CONTRACT OR APPROVED
BY THE ENGINEER



KEYWAY DETAIL

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

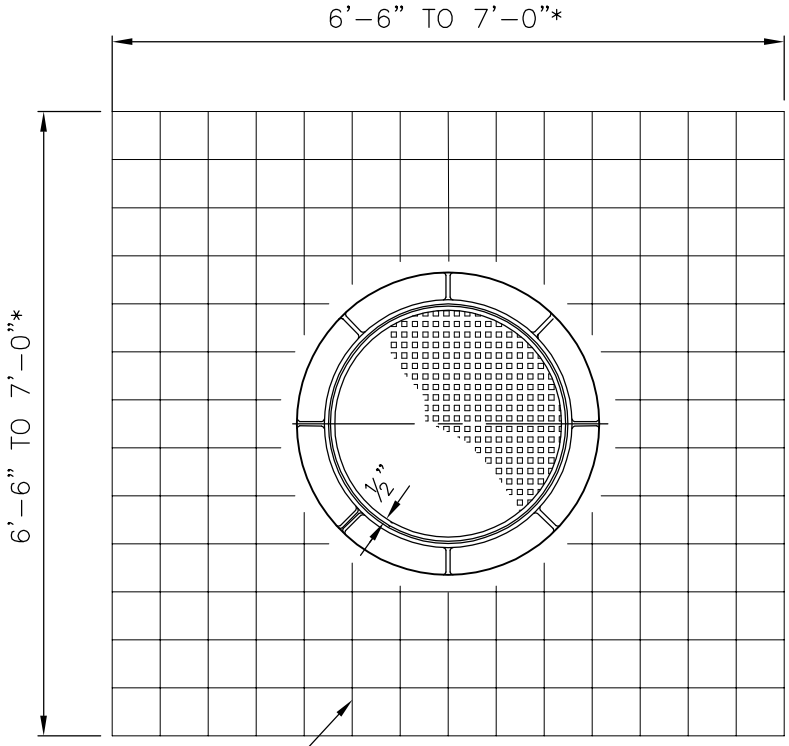
NOTES

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

REF STD SPEC SEC 5-05

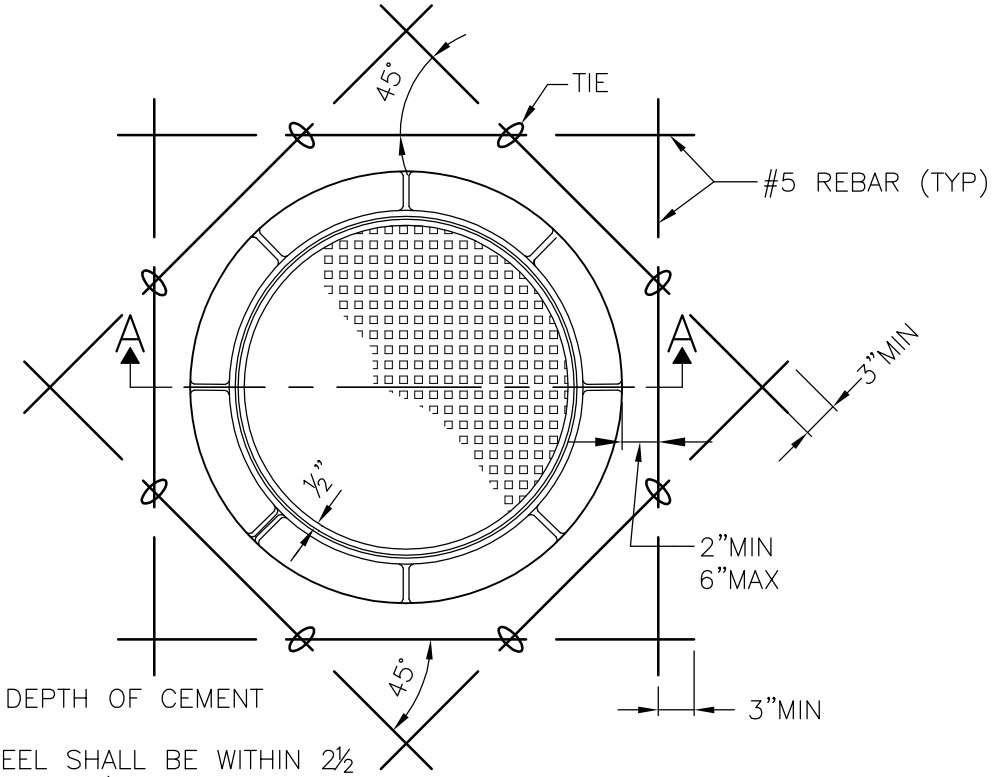
City of Seattle	NOT TO SCALE	THROUGH JOINTS AND OPTIONAL KEYWAYS FOR CEM CONC RDWY

REV DATE: DEC 2010



NOTES:

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



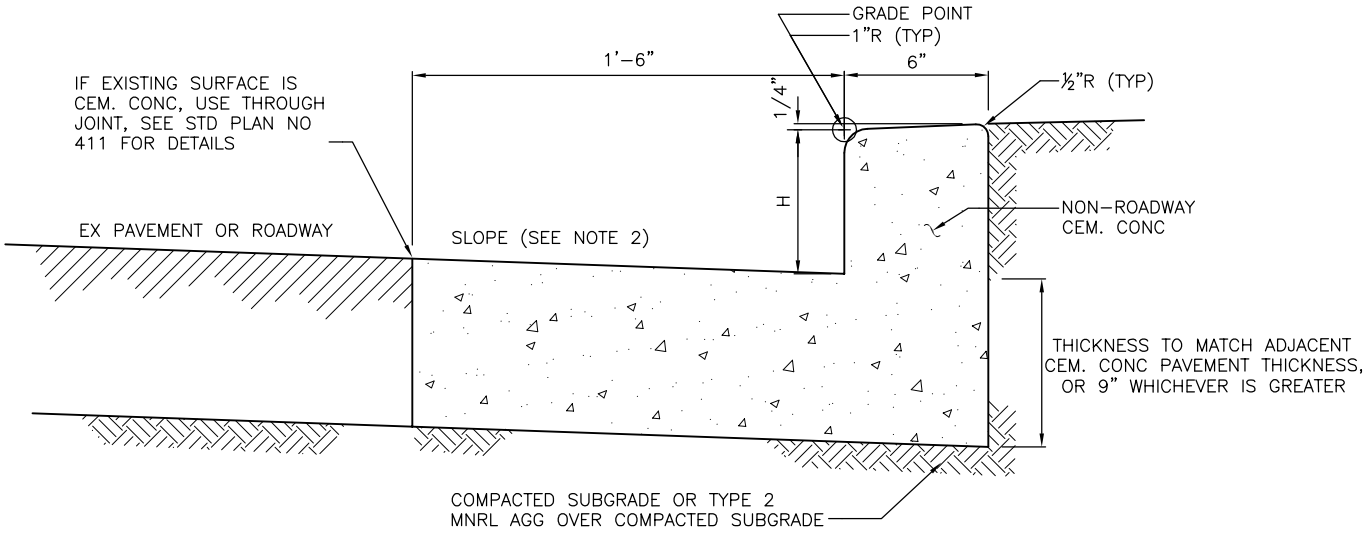
NOTES:

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

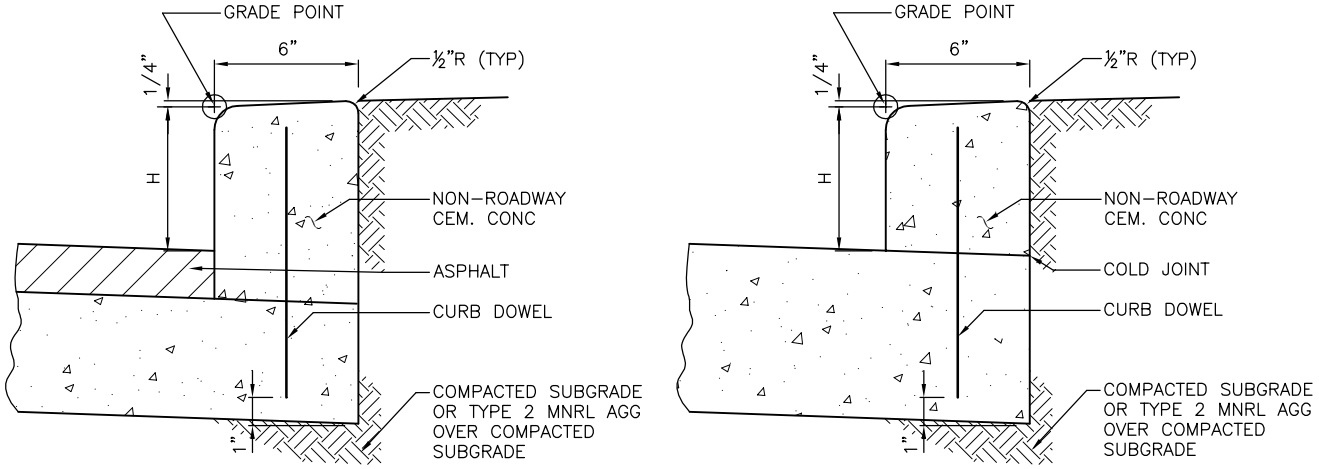
REF STD SPEC SEC 5-05

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

REV DATE: DEC 2010



410B CURB & GUTTER



410C CURB

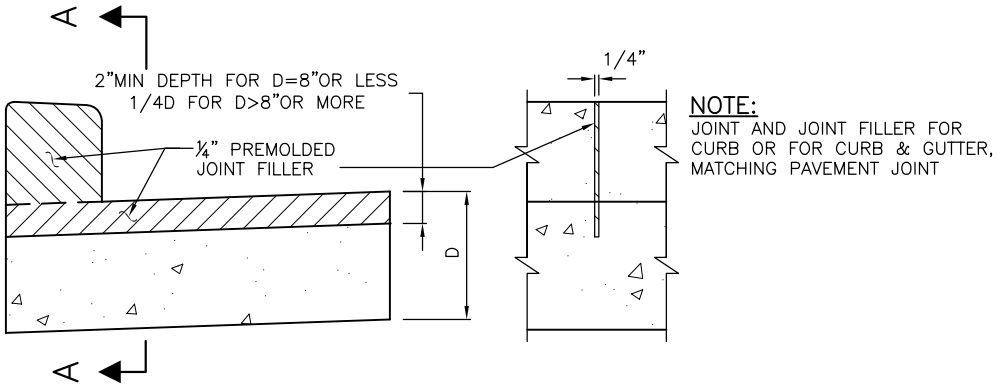
NOTES:

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

REF STD SPEC SEC 8-04

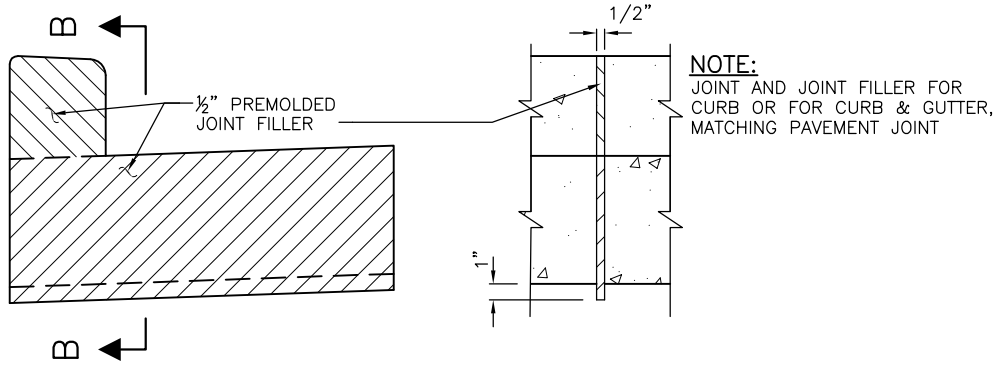
City of Seattle	NOT TO SCALE	TYPE 410 CURB

REV DATE: DEC 2010



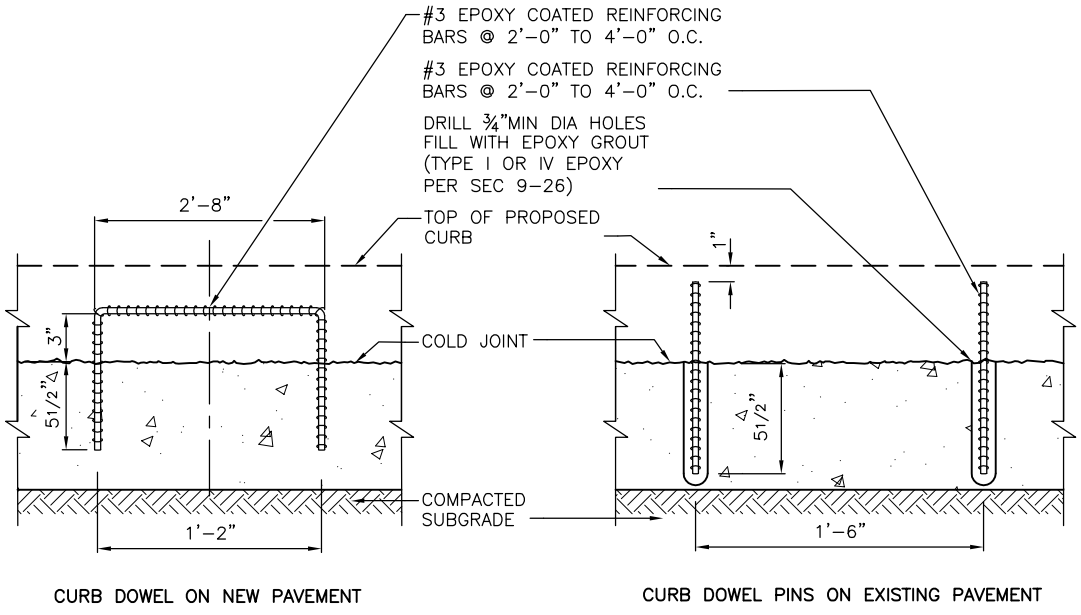
CONSTRUCTION JOINT FOR
CURB OR CURB & GUTTER

SECTION A–A



THROUGH JOINT FOR
CURB OR CURB & GUTTER

SECTION B–B



CURB DOWEL ON NEW PAVEMENT

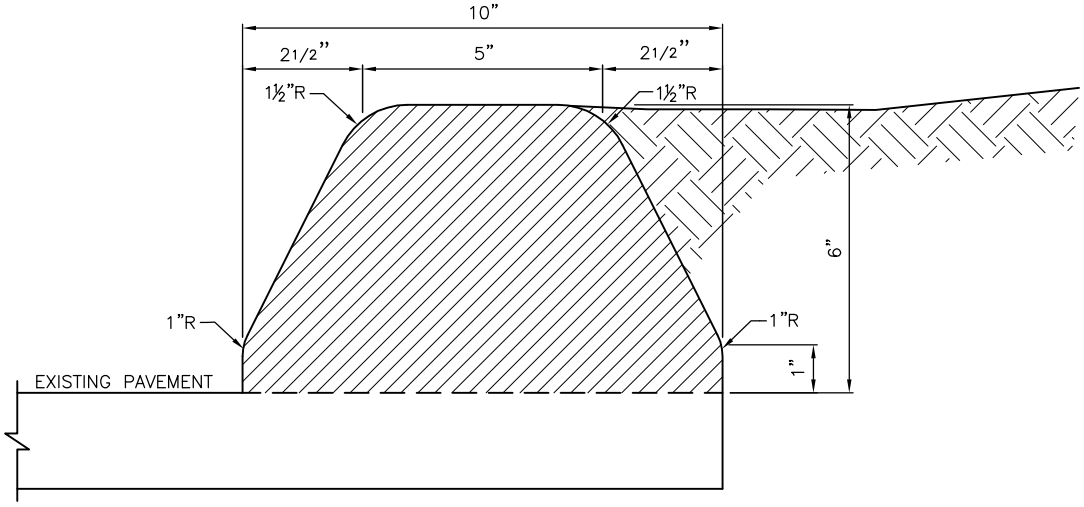
CURB DOWEL PINS ON EXISTING PAVEMENT

DOWELS FOR DOWELLED CURB CONSTRUCTION

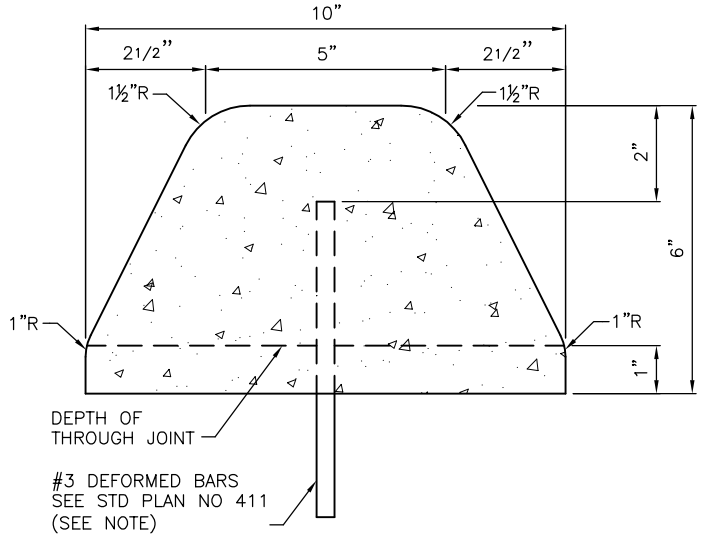
REF STD SPEC SEC 6-02 & 8-04

City of Seattle	NOT TO SCALE	CURB JOINTS & DOWELS

REV DATE: 2003



EXTRUDED ASPHALT CONCRETE CURB



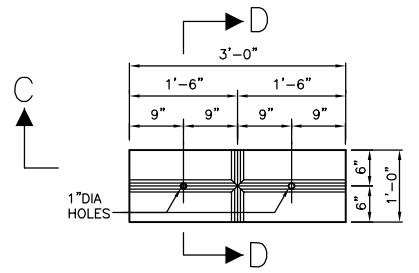
EXTRUDED CEMENT CONCRETE CURB

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

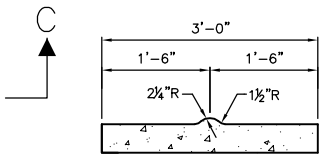
REF STD SPEC SEC 8-06

City of Seattle	NOT TO SCALE	EXTRUDED CURB

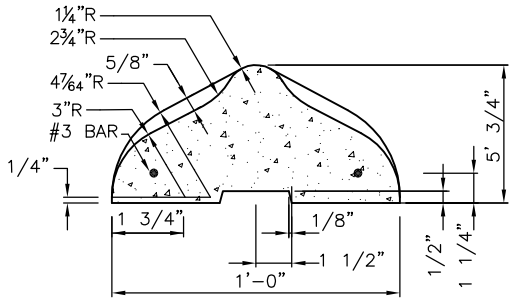
REV DATE: 2005



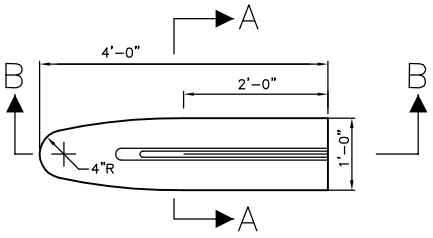
CURB PLAN



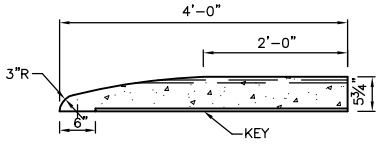
SECTION C–C



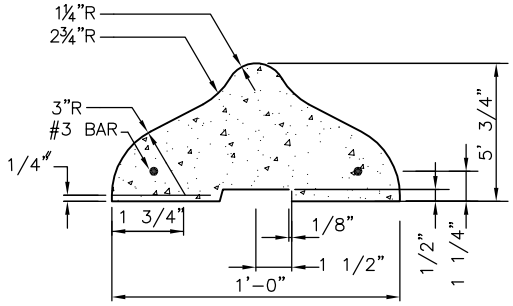
SECTION D–D



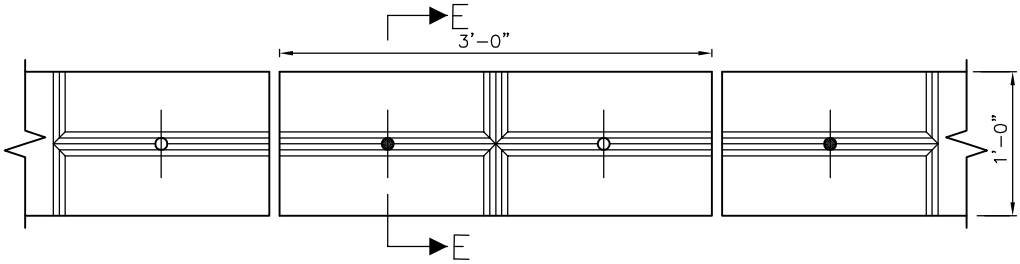
NOSING



SECTION B–B

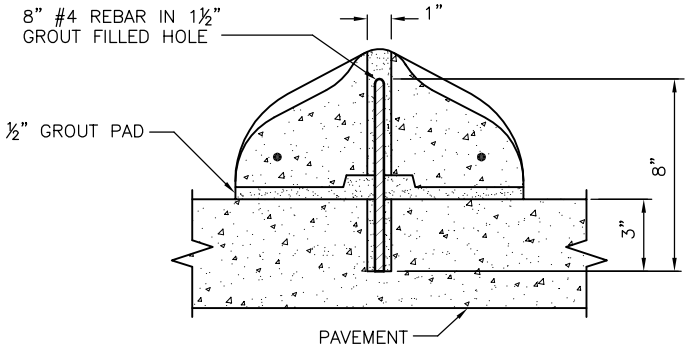


SECTION A–A



INSTALLATION DETAIL FOR STRAIGHT PRECAST TRAFFIC CURB

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

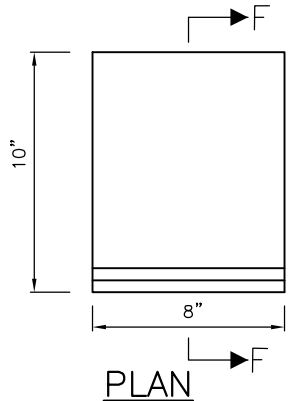


SECTION E–E

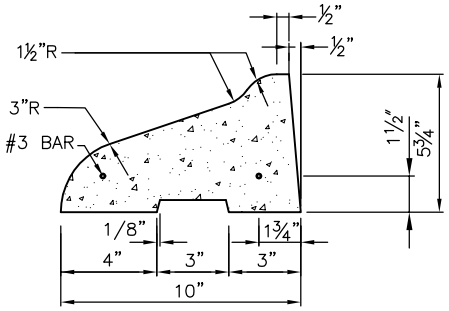
REF STD SPEC SEC 8-07

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

REV DATE: 2005

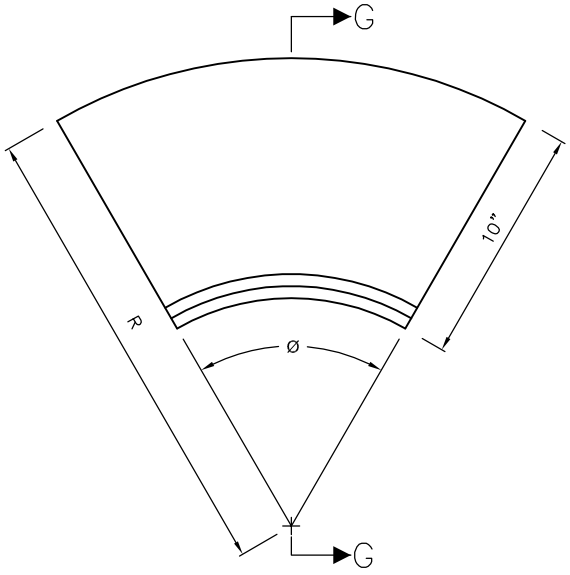


PLAN

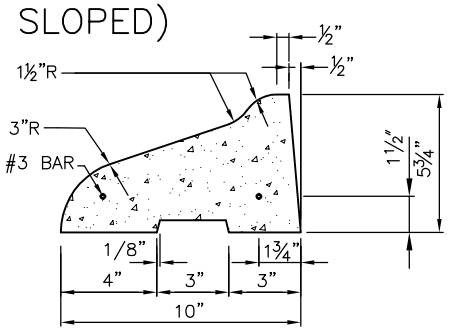


SECTION F–F

8" STRAIGHT BLOCK CURB (SINGLE SLOPED)



RADIAL CURB

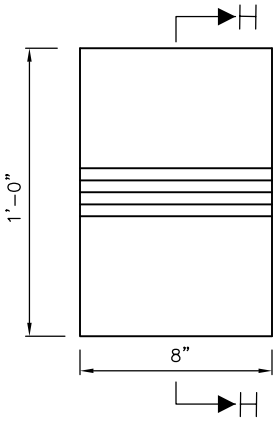


SECTION G–G

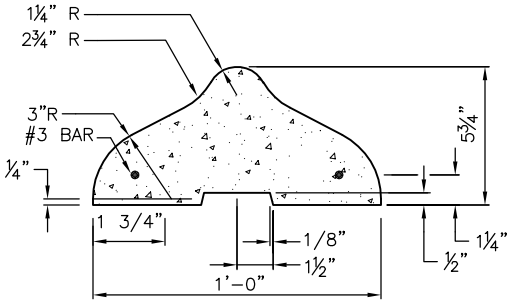
RADIAL CURB

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



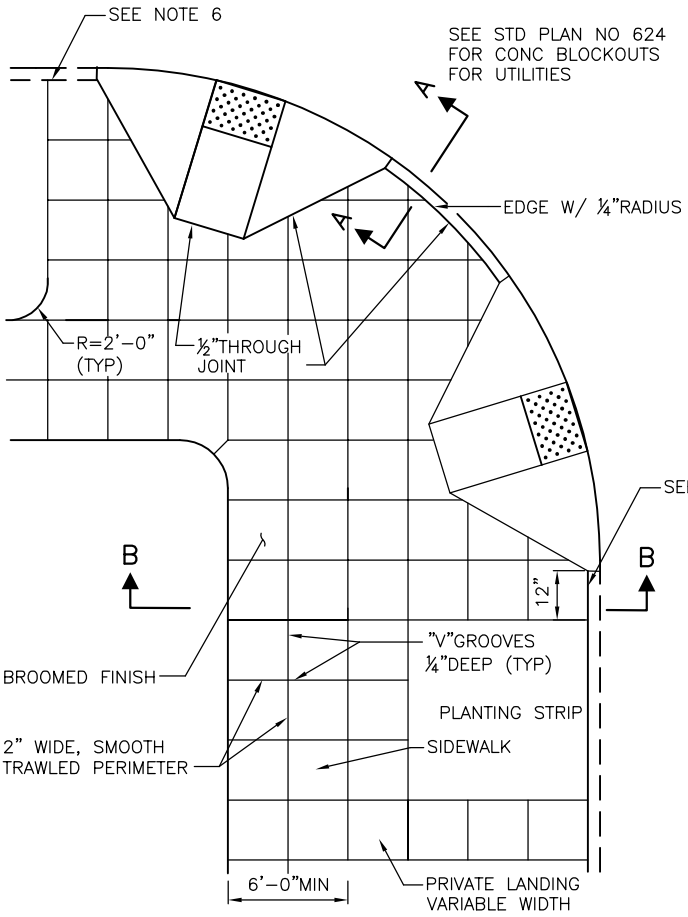
SECTION H–H

8" STRAIGHT BLOCK CURB (DUAL SLOPED)

REF STD SPEC SEC 8-07

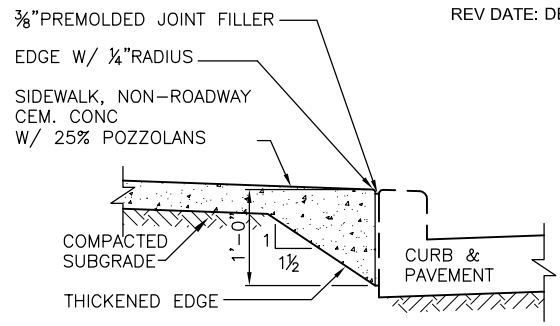
City of Seattle	NOT TO SCALE	8" BLOCK AND RADIAL TRAFFIC CURB ----

REV DATE: DEC 2010



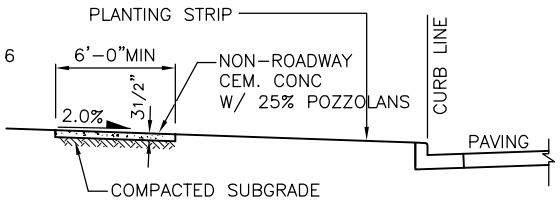
TYPICAL SIDEWALK & CURB RAMP DETAIL

5'-0"WIDE

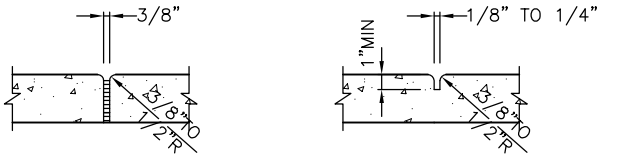


THROUGH JOINT @ SECTION A–A

UNLESS CURB IS MONOLITIC WITH SIDEWALK

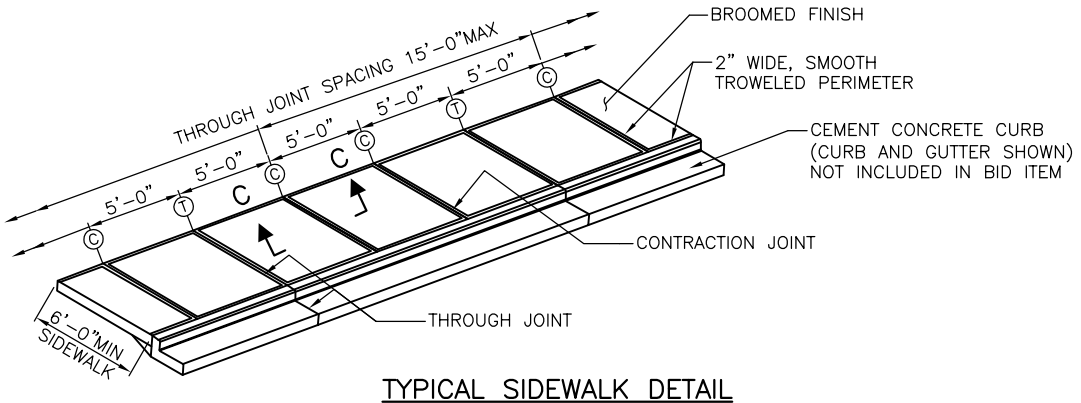


SECTION B–B



Ⓣ THROUGH JOINT

Ⓒ CONTRACTION JOINT



TYPICAL SIDEWALK DETAIL

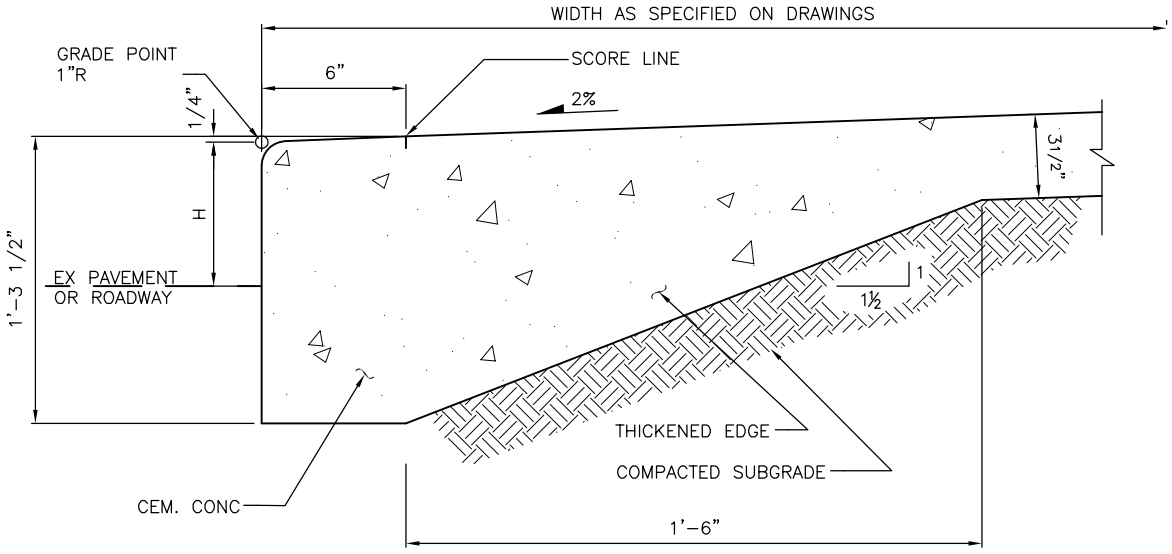
NOTES:

1. ½"THROUGH JOINTS SHALL BE LOCATED AS REQUIRED BY SECTION 8–14.3(6).
2. "V" GROOVE SCORING SHALL MATCH PATTERN IN ADJACENT EXISTING SIDEWALK. IN BUSINESS DISTRICTS, USE 2' SQUARE SCORING PATTERN. WHERE THERE IS NO ADJACENT EXISTING SIDEWALK, USE 5'–0" SCORING SHOWN IN TYPICAL SIDEWALK DETAIL.
3. FOR CURB RAMPS, SEE STANDARD PLAN 422.
4. FOR TREE PITS, SEE STANDARD PLAN 424.
5. WHEN PLANTING STRIP PAVEMENT IS APPROVED, ½"THROUGH JOINT IS REQUIRED ALONG ENTIRE PERIMETER.
6. 12" MINIMUM BETWEEN EDGE OF RAMP WING AND PLANTING STRIP IS DESIRABLE.
7. ALL SIDEWALK SHALL BE NON–ROADWAY CEM CONC W/ 25% POZZOLANS.

REF STD SPEC SEC 8-14

City of Seattle	NOT TO SCALE	CONCRETE SIDEWALK DETAILS

REV DATE: AUG 2010



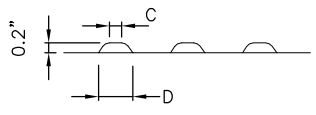
NOTES:

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

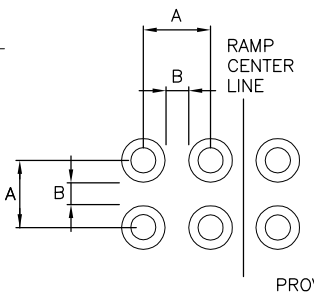
REF STD SPEC SEC 8-14

City of Seattle	NOT TO SCALE	SIDEWALK WITH MONOLITHIC CURB

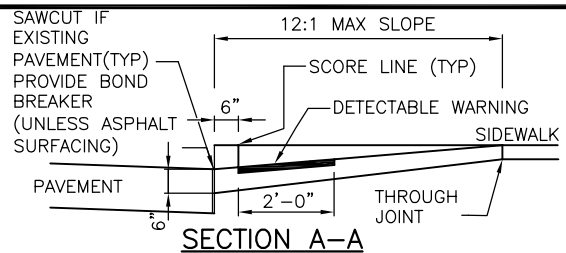
REV DATE: DEC 2010



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

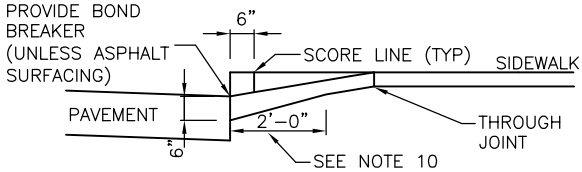


TRUNCATED DOMES PATTERN –DETECTABLE WARNING CONC PANELS

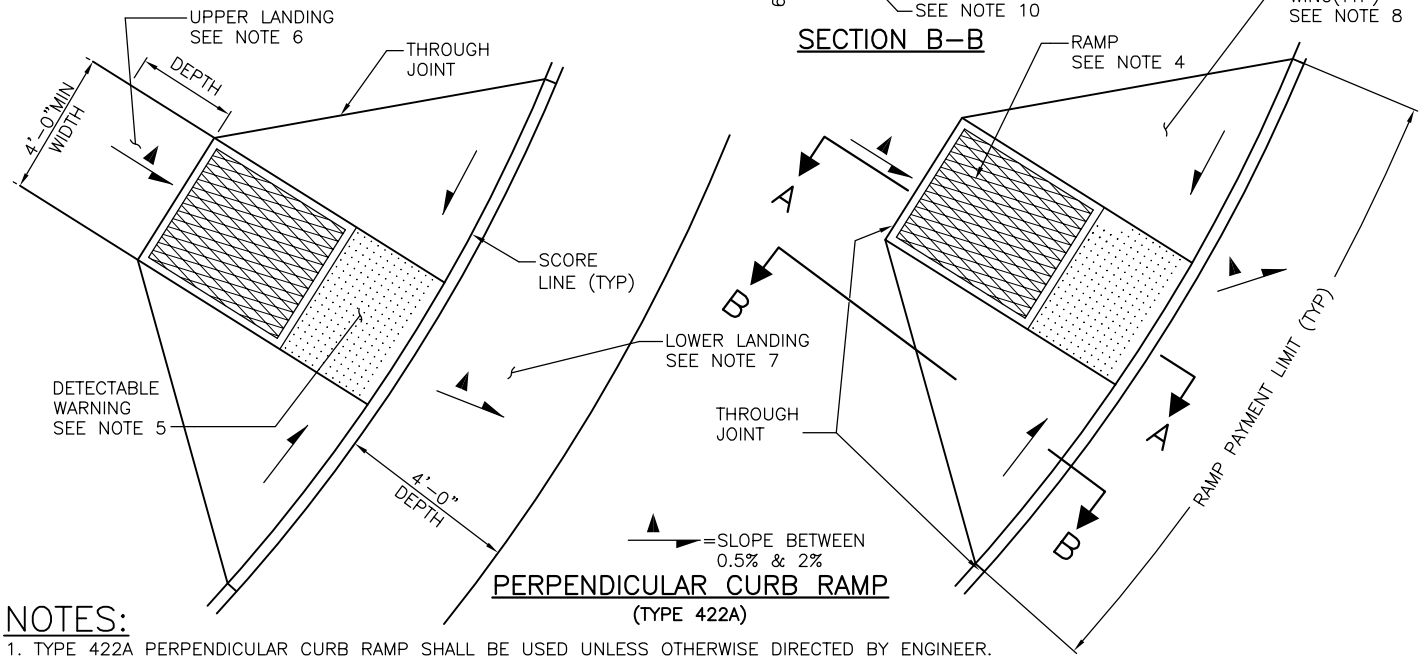


SECTION A–A

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



SECTION B–B



PERPENDICULAR CURB RAMP
(TYPE 422A)

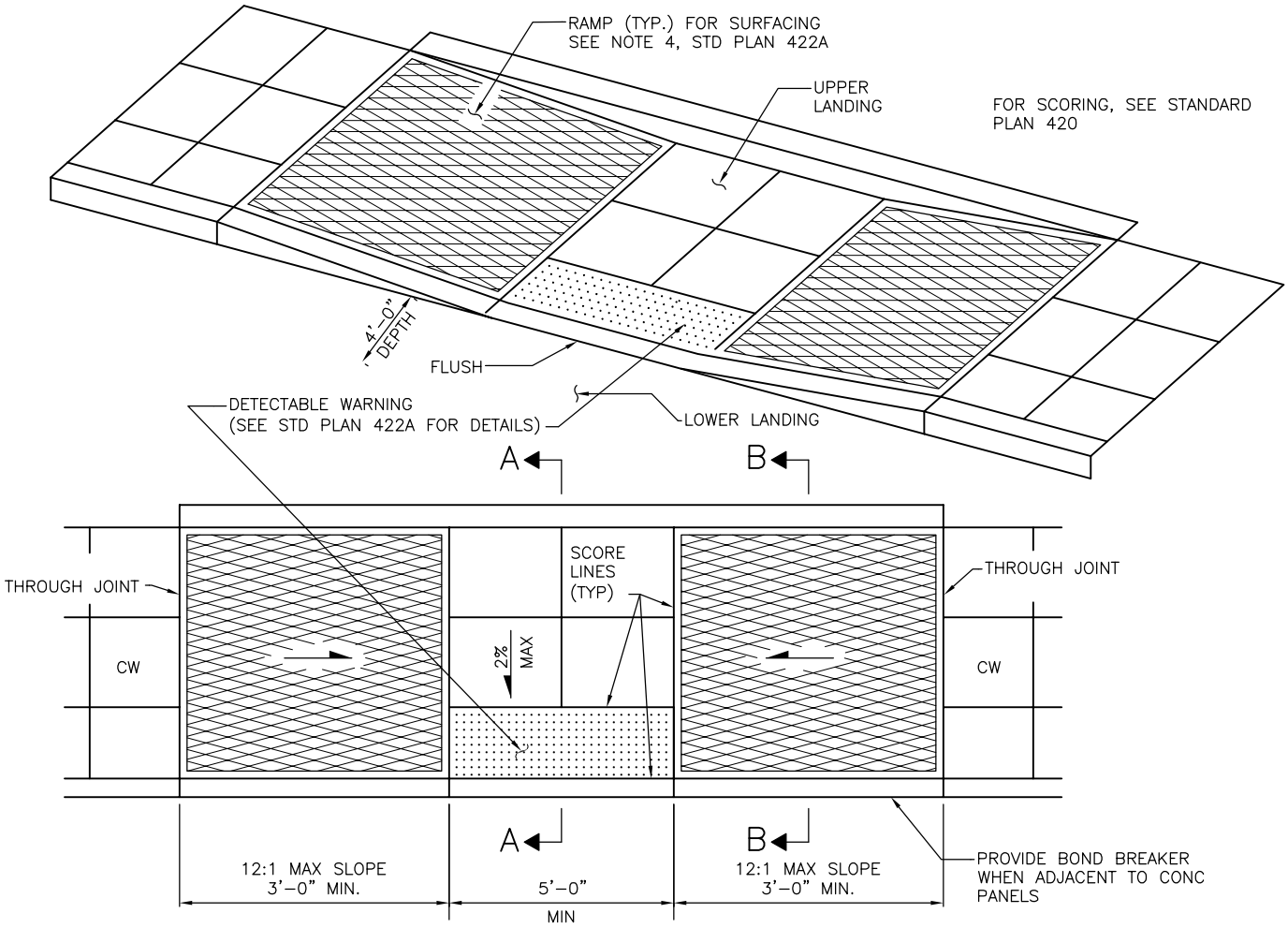
NOTES:

1. TYPE 422A PERPENDICULAR CURB RAMP SHALL BE USED UNLESS OTHERWISE DIRECTED BY ENGINEER.
2. TWO CURB RAMPS SHALL BE INSTALLED AT EACH CORNER UNLESS OTHERWISE DIRECTED BY ENGINEER. RECOMMENDED MINIMUM DISTANCE BETWEEN TWO ADJACENT CURB RAMPS SHALL BE 3'–0". WHERE SPACE IS RESTRICTED THE MINIMUM DISTANCE BETWEEN TWO ADJACENT CURB RAMPS MAY BE REDUCED TO 1'–0".
3. CURB RAMP SHALL BE CONSTRUCTED WITH COMPANION RAMP ON OPPOSITE SIDE OF THE ROADWAY UNLESS OTHERWISE DIRECTED BY ENGINEER.
4. RAMP CENTERLINE SHALL BE RADIAL / PERPENDICULAR TO THE ALIGNMENT OF THE FACE OF CURB. RAMP SURFACE SHALL HAVE A MAXIMUM SLOPE 12H:1V AND A MINIMUM WIDTH OF 4'–0". THE CROSS SLOPE OF THE RAMP SURFACE SHALL BE MAXIMUM OF 50H:1V. RAMP SURFACE SHALL HAVE A TEXTURED SURFACE OBTAINED WITH A FLATTENED EXPANDED METAL ¾"– 9 – 11 MESH PRESSED INTO THE STILL FRESH CONCRETE. LONG AXIS OF THE DIAMOND SHALL BE PERPENDICULAR TO THE CURB. MAXIMUM RAMP LENGTH SHALL BE 15 FEET.
5. DETECTABLE WARNING SHALL HAVE A TRUNCATED DOME PATTERN AS SHOWN, A MINIMUM WIDTH OF 2'–0" AND SHALL BE PLACED AT THE RAMP BOTTOM STARTING AT THE BACK OF CURB. DETECTABLE WARNING COLOR SHALL BE "CITY OF SEATTLE SAFETY YELLOW", UNLESS OTHERWISE DIRECTED.
6. UPPER LANDING SHALL BE FULL WIDTH OF THE RAMP AND SHALL HAVE A MINIMUM DEPTH OF 4'–0". SLOPE ON THE UPPER LANDING SHALL BE BETWEEN 0.5% AND 2%. AVOID PLACING HANDHOLES, UTILITY CASTINGS OR OTHER OBSTRUCTIONS IN THE UPPER LANDING.
7. LOWER LANDING SHALL BE FULL WIDTH OF THE RAMP AND SHALL EXTEND A MINIMUM 4'–0" BEYOND DETECTABLE WARNING. THE LOWER LANDING SHALL BE THE WIDTH OF THE RAMP AND FALL WHOLLY WITHIN THE LEGAL CROSSWALK, MARKED OR UNMARKED. SLOPE ON THE LOWER LANDING SHALL BE BETWEEN 0.5% AND 2%. GUTTER FLOW LINE SHALL BE SURVEYED BY THE CONTRACTOR PRIOR TO CONSTRUCTION TO ENSURE PONDING OF WATER SHALL NOT OCCUR ON THE LOWER LANDING.
8. WINGS SHALL HAVE A MAXIMUM SLOPE OF 10H:1V. IF UPPER LANDING HAS A DEPTH LESS THAN 4'–0", THE MAXIMUM SLOPE FOR THE WINGS SHALL BE 12H:1V. WINGS SHALL HAVE A BRUSHED FINISH. PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB SHALL CONTINUE THROUGH EACH WING.
9. POLES, HYDRANTS AND OTHER ABOVE GROUND OBSTRUCTIONS SHALL HAVE A MINIMUM LATERAL CLEARANCE OF 1'–0" FROM THE UPPER LANDING AND RAMP SURFACE.
10. ALL CHANGES IN LEVEL ACROSS JOINTS SHALL BE FLUSH. ANY DIFFERENCE IN ELEVATION OF $\frac{3}{16}$ INCH OR GREATER SHALL BE REPAIRED OR REPLACED.
11. ALL SLOPE GRADES SHALL BE MEASURED OFF THE HORIZON–LINE. IF EXISTING SITE CONDITIONS CONFLICT WITH OBTAINING GRADES SHOWN, THE DESIGNER / CONTRACTOR SHALL MAKE MINIMUM ADJUSTMENTS TO THE GRADES SHOWN TO MEET EXISTING SITE CONDITIONS; ADJUSTMENTS ARE SUBJECT TO ENGINEER APPROVAL.

REF STD SPEC SEC 8-14

City of Seattle	NOT TO SCALE	CURB RAMP DETAILS

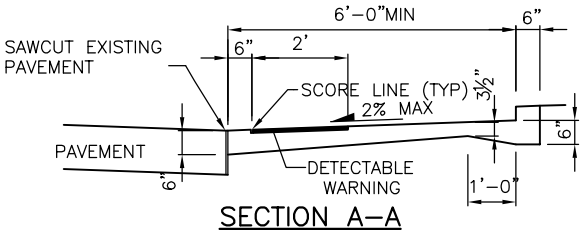
REV DATE: DEC 2010



PARALLEL CURB RAMP

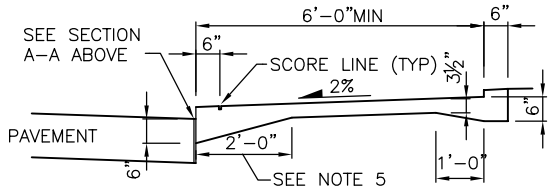
(TYPE 422b)

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



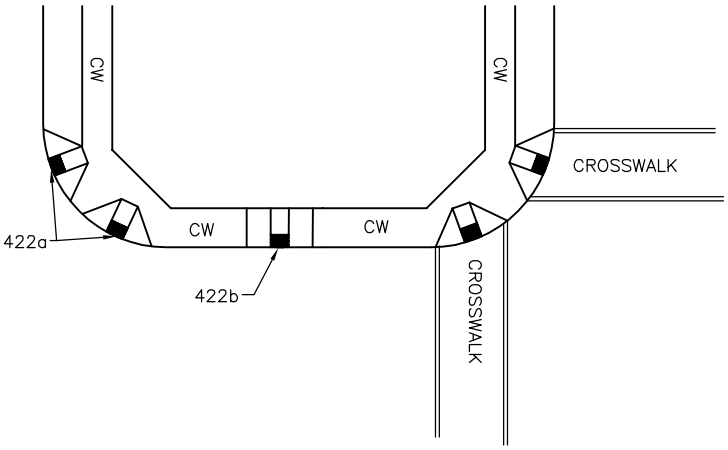
SECTION A–A

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



SECTION B–B

SEE STD PLAN NO 422a FOR NOTES

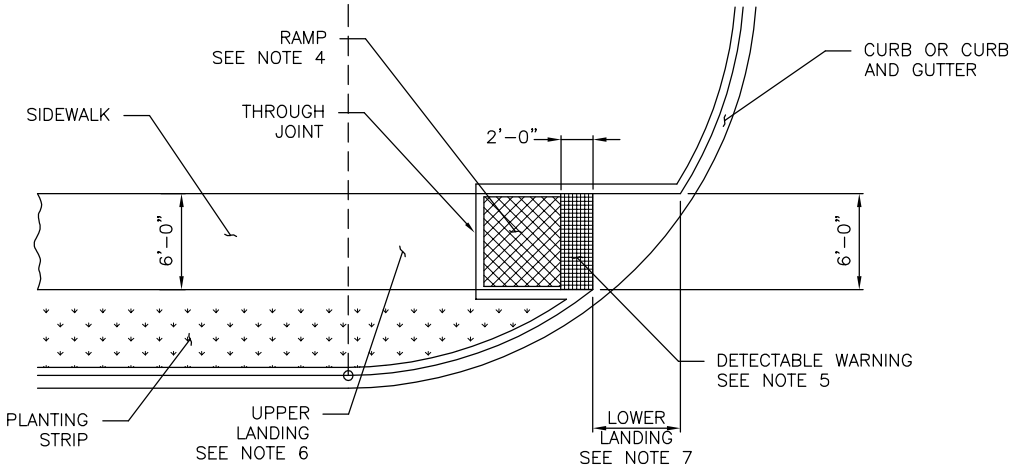


CURB RAMP LOCATIONS

REF STD SPEC SEC 8-14

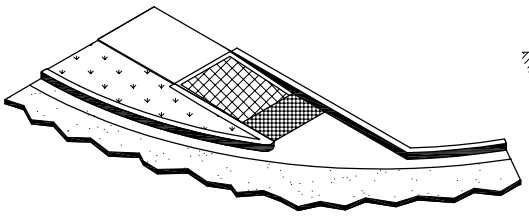
City of Seattle	NOT TO SCALE	CURB RAMP DETAILS

REV DATE: DEC 2010

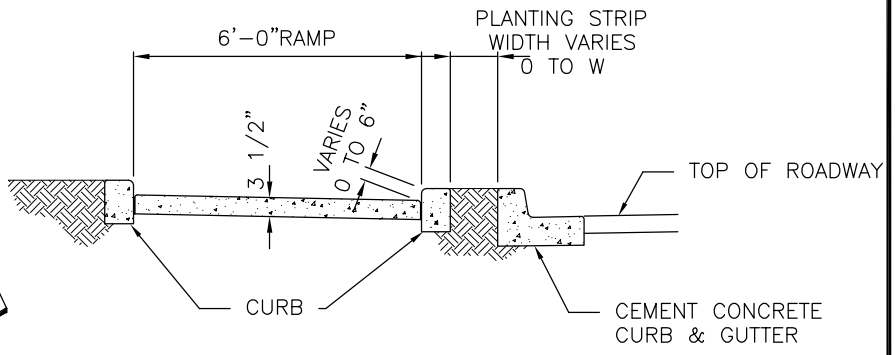


DIRECTIONAL CURB RAMP WITH PLANTING STRIP

USE WITH SDOT APPROVAL ONLY

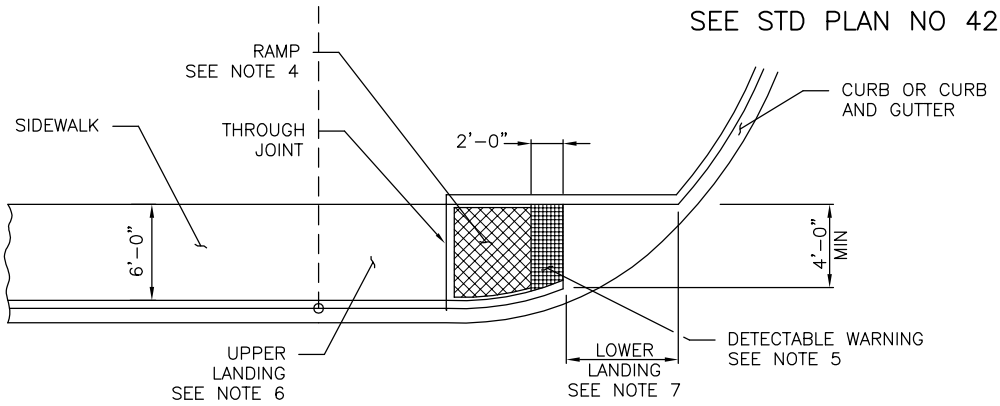


ISOMETRIC VIEW



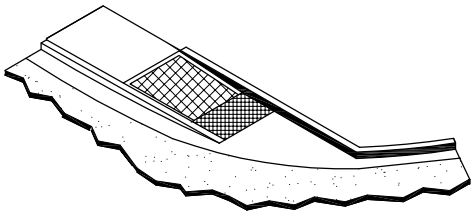
SECTION C

SEE STD PLAN NO 422a FOR NOTES

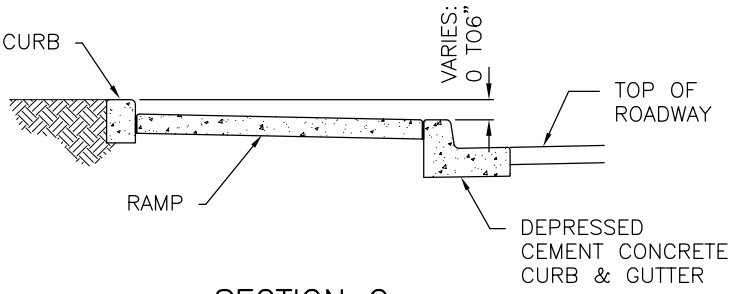


DIRECTIONAL CURB RAMP

USE WITH SDOT APPROVAL ONLY



ISOMETRIC VIEW

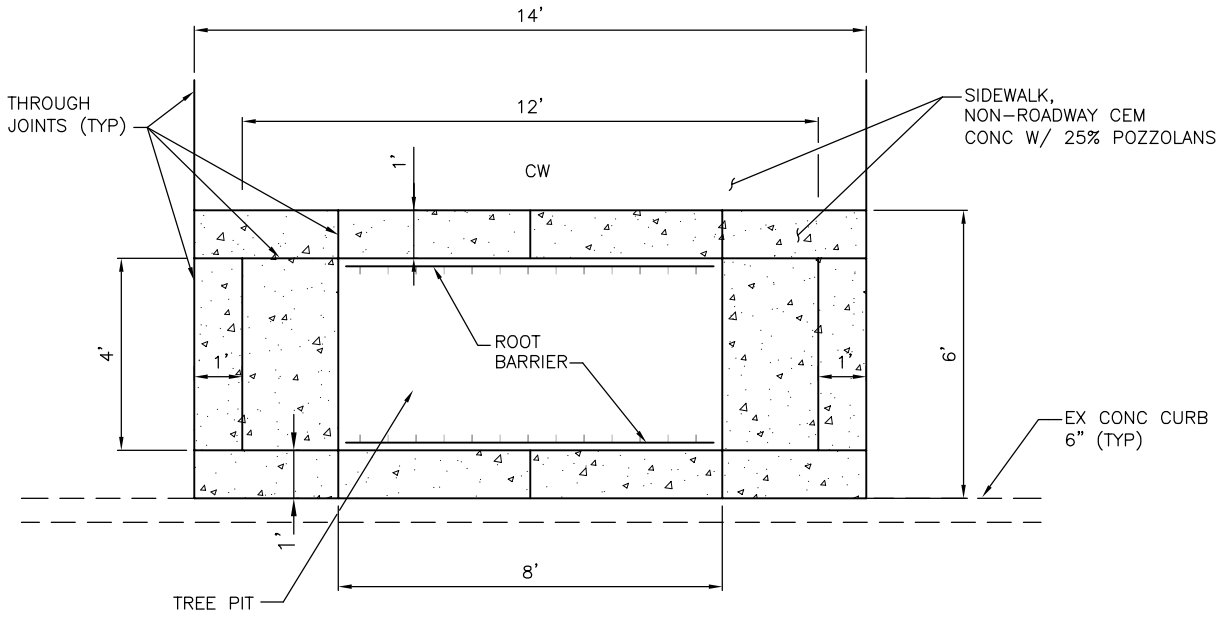


SECTION C

REF STD SPEC SEC 8-14

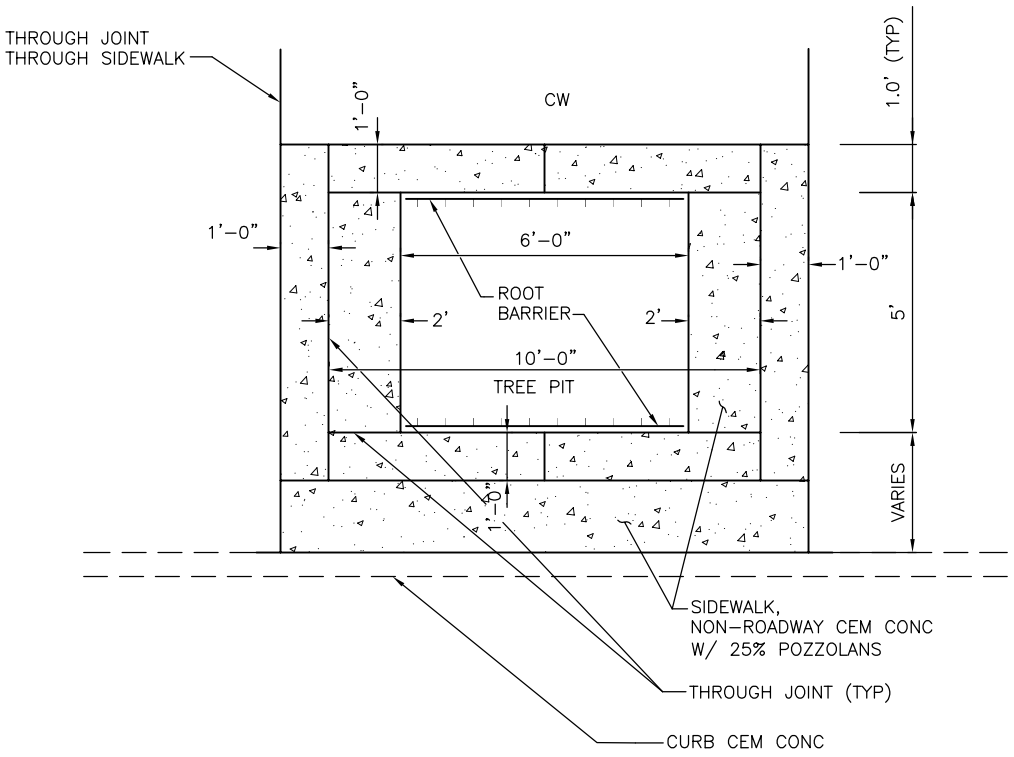
City of Seattle	NOT TO SCALE	DIRECTIONAL CURB RAMP

REV DATE: DEC 2010



TYPE A

NOTE
1. SEE STD PLAN 420 FOR CW SCORING DETAILS.
2. INSTALL ROOT BARRIER PER STANDARD PLAN NO. 100A.

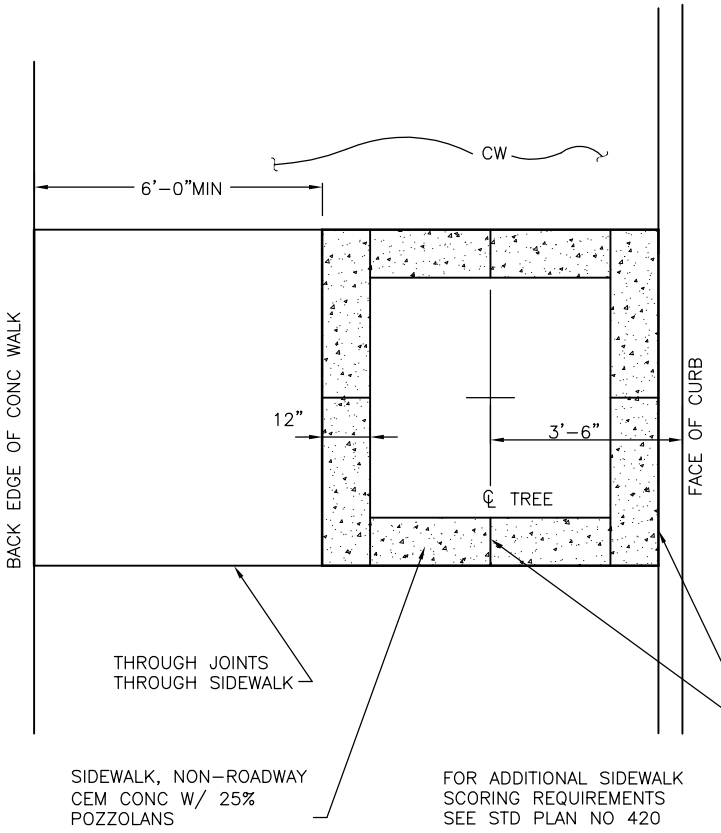


TYPE B

REF STD SPEC SEC 8-02 & 8-14

City of Seattle	NOT TO SCALE	EXPANDABLE TREE PIT DETAIL

REV DATE: DEC 2010



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

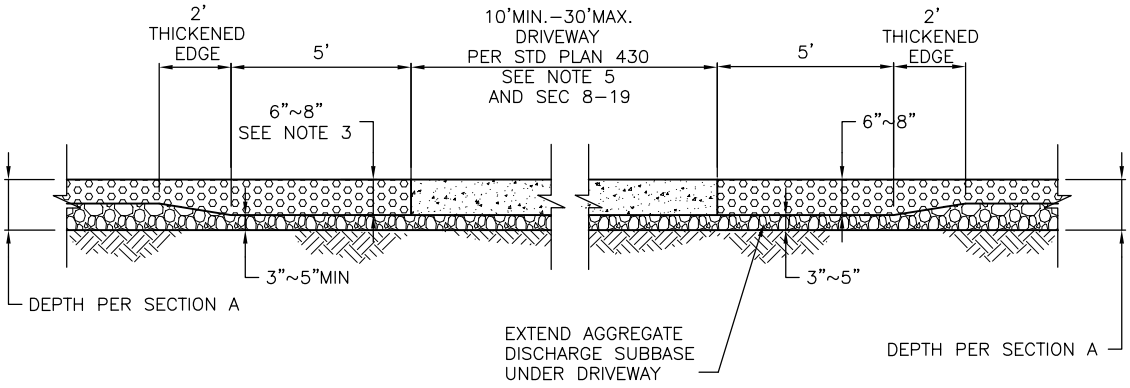
NOTE:
1. INSTALLATIONS REQUIRING LESS THAN STANDARD MIN CLEARANCES SHALL BE ALLOWED ONLY WITH APPROVAL BY THE ENGINEER.
2. INSTALL ROOT BARRIER PER STANDARD PLAN NO 100A.
3. SEE STD PLAN 420 FOR CW SCORING DETAILS.

TYPE C

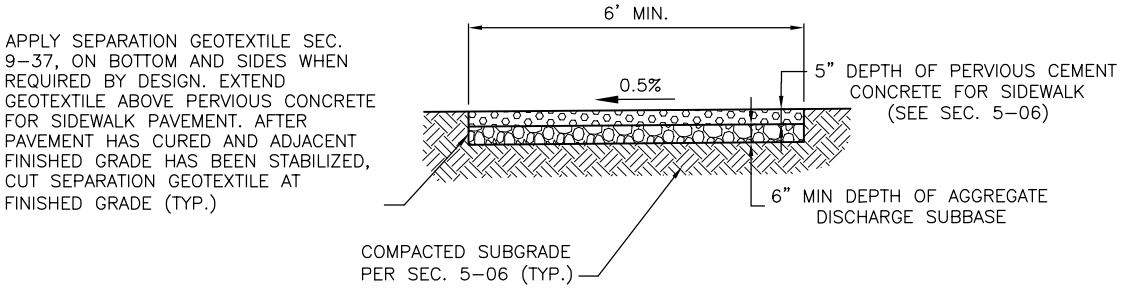
REF STD SPEC SEC 8-02 & 8-14

City of Seattle	NOT TO SCALE	TREE PIT DETAIL

REV DATE: DEC 2010



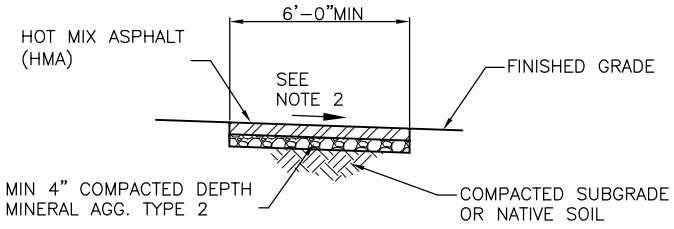
PERVIOUS CONC CEM SIDEWALK DEPTH
TRANSITION AT DRIVEWAYS PROFILE VIEW



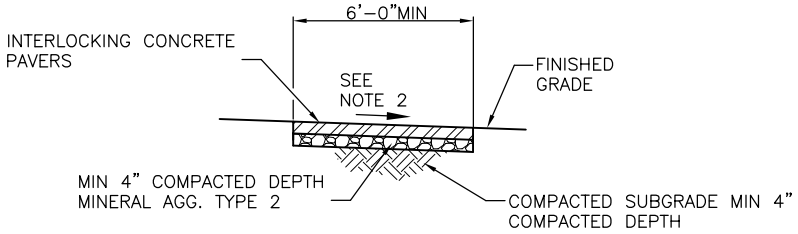
PERVIOUS CONC SECTION A

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 SHALL BE 8" MIN.
4. 5% MAX. PERVIOUS CEMENT CONCRETE PROFILE GRADE.



HOT MIX ASPHALT PAVEMENT SIDEWALK SECTION

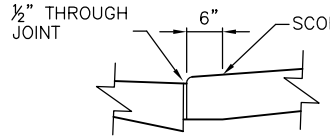


CONCRETE PAVER SIDEWALK SECTION

REF STD SPEC SEC 5-04, 5-06

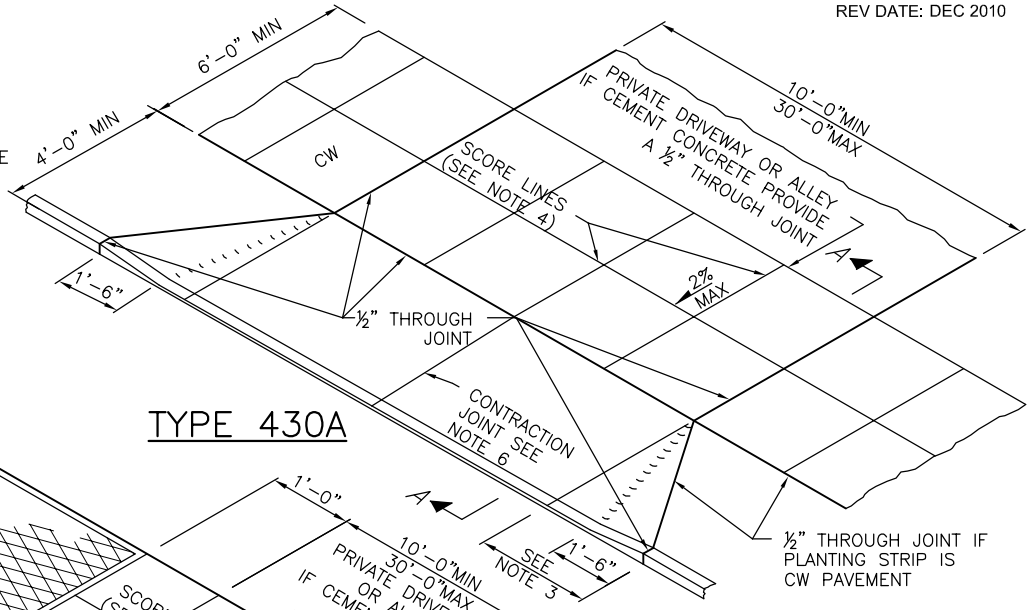
City of Seattle	NOT TO SCALE	ALTERNATIVE WALKWAYS

REV DATE: DEC 2010

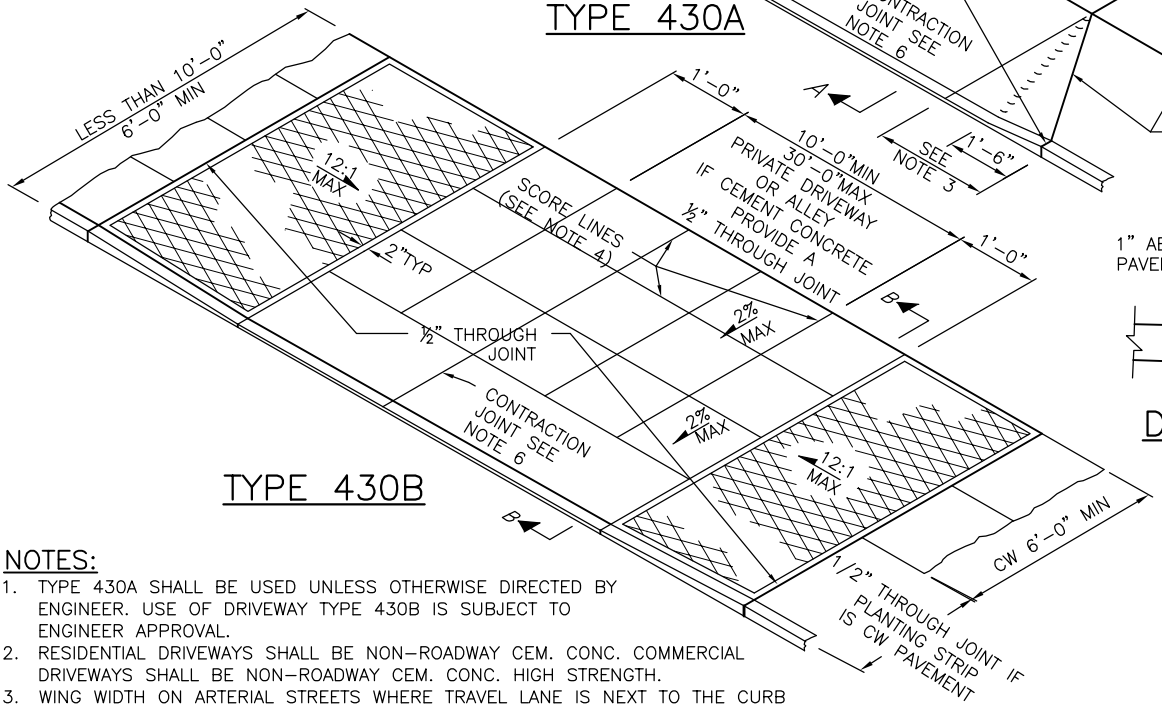


DETAIL B

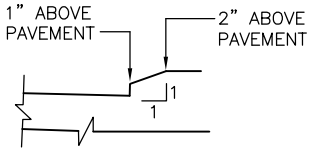
DRIVEWAY W/ MONOLITHIC CURB & APPROACH



TYPE 430A



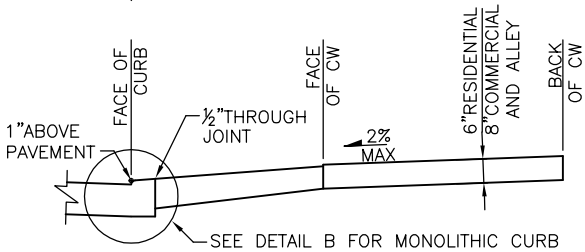
TYPE 430B



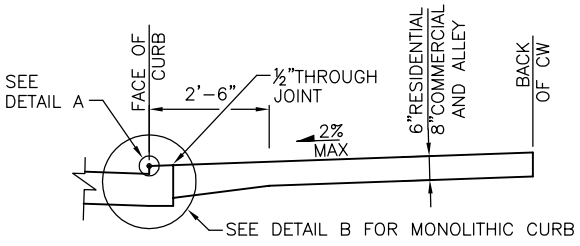
DETAIL A

NOTES:

1. TYPE 430A SHALL BE USED UNLESS OTHERWISE DIRECTED BY ENGINEER. USE OF DRIVEWAY TYPE 430B IS SUBJECT TO ENGINEER APPROVAL.
2. RESIDENTIAL DRIVEWAYS SHALL BE NON–ROADWAY CEM. CONC. COMMERCIAL DRIVEWAYS SHALL BE NON–ROADWAY CEM. CONC. HIGH STRENGTH.
3. WING WIDTH ON ARTERIAL STREETS WHERE TRAVEL LANE IS NEXT TO THE CURB SHALL BE 5'–0". OTHERWISE, WING WIDTH SHALL BE 2'–0".
4. "V" GROOVE SCORING SHALL MATCH PATTERN IN ADJACENT EXISTING SIDEWALK. IN BUSINESS DISTRICT, USE 2' SQUARE SCORING PATTERN. WHERE THERE IS NO ADJACENT EXISTING SIDEWALK, USE 5'–0" SCORING SHOWN IN TYPICAL SIDEWALK DETAIL STANDARD PLAN 420.
5. FOR CONCRETE DRIVEWAY CONSTRUCTED WITH CONCRETE SIDEWALK, SEE STANDARD PLAN 431.
6. CONCRETE DRIVEWAYS WITH A WIDTH GREATER THAN 15'–0" SHALL HAVE A ⅜" TRANSVERSE CONTRACTION JOINT NEAR THE CENTERLINE OF DRIVEWAY. SEE DETAIL SECTION C–C STANDARD PLAN 420.
7. FOR TYPE 430A SLOPE IN THE 6'–0" MINIMUM WIDE AREA CONNECTING TO CW ON EACH SIDE OF THE DRIVEWAY SHALL BE MAXIMUM 2% AND MINIMUM 0.5%. FOR TYPE 430B, SLOPE OF THE DRIVEWAY BETWEEN THE TWO RAMP SECTIONS SHALL BE MAXIMUM 2% AND MINIMUM 0.5%. DRIVEWAY ON THE PRIVATE SIDE OF THE CW MAY BE SLOPED AS NEEDED TO MATCH EXISTING SITE CONDITIONS.
8. RAMP SURFACE FOR DRIVEWAY 430B SHALL HAVE MAXIMUM SLOPE 12H:1V AND HAVE A TEXTURED SURFACE OBTAINED WITH A FLATTENED EXPANDED METAL ¾"–9–11 MESH PRESSED INTO THE STILL FRESH CONCRETE. LONG AXIS OF THE DIAMOND SHALL BE PARALLEL TO THE CURB.
9. ALL CHANGES IN LEVEL ACROSS JOINTS SHALL BE FLUSH WITH A MAXIMUM DIFFERENCE IN ELEVATION OF 3/16 INCH.
10. ALL SLOPE GRADES SHALL BE MEASURED OFF THE HORIZON–LINE. IF EXISTING SITE CONDITIONS CONFLICT WITH OBTAINING GRADES SHOWN, THE CONTRACTOR SHALL MAKE MINIMUM ADJUSTMENTS TO THE GRADES TO ACCOMMODATE EXISTING SITE CONDITIONS, ADJUSTMENTS ARE SUBJECT TO ENGINEER APPROVAL.



SECTION A–A

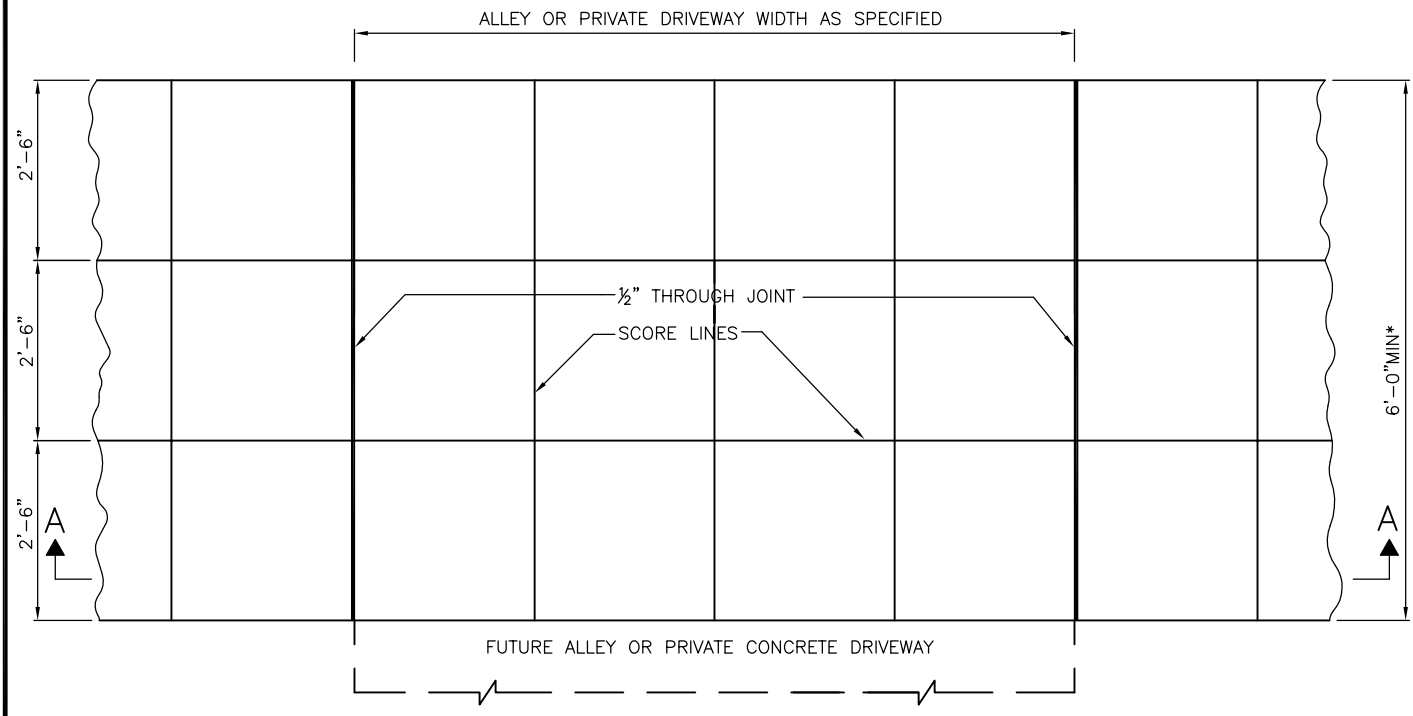


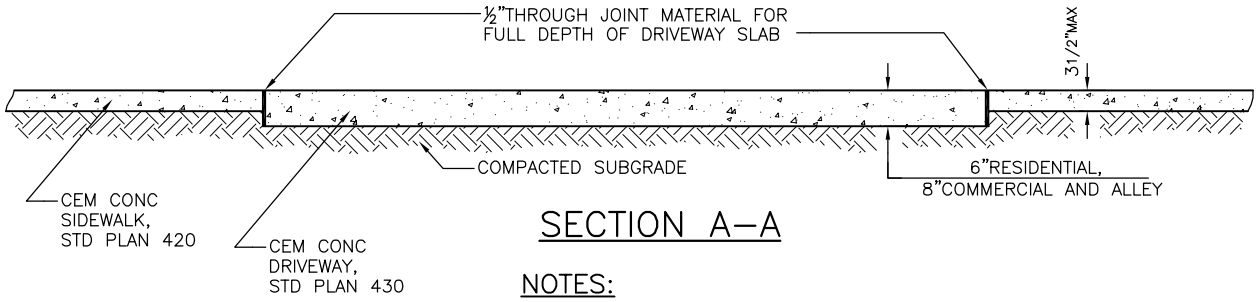
SECTION B–B

REF STD SPEC SEC 8-19

City of Seattle	NOT TO SCALE	TYPE 430 DRIVEWAY

REV DATE: DEC 2010





SECTION A–A

* UNLESS OTHERWISE APPROVED BY SDOT.

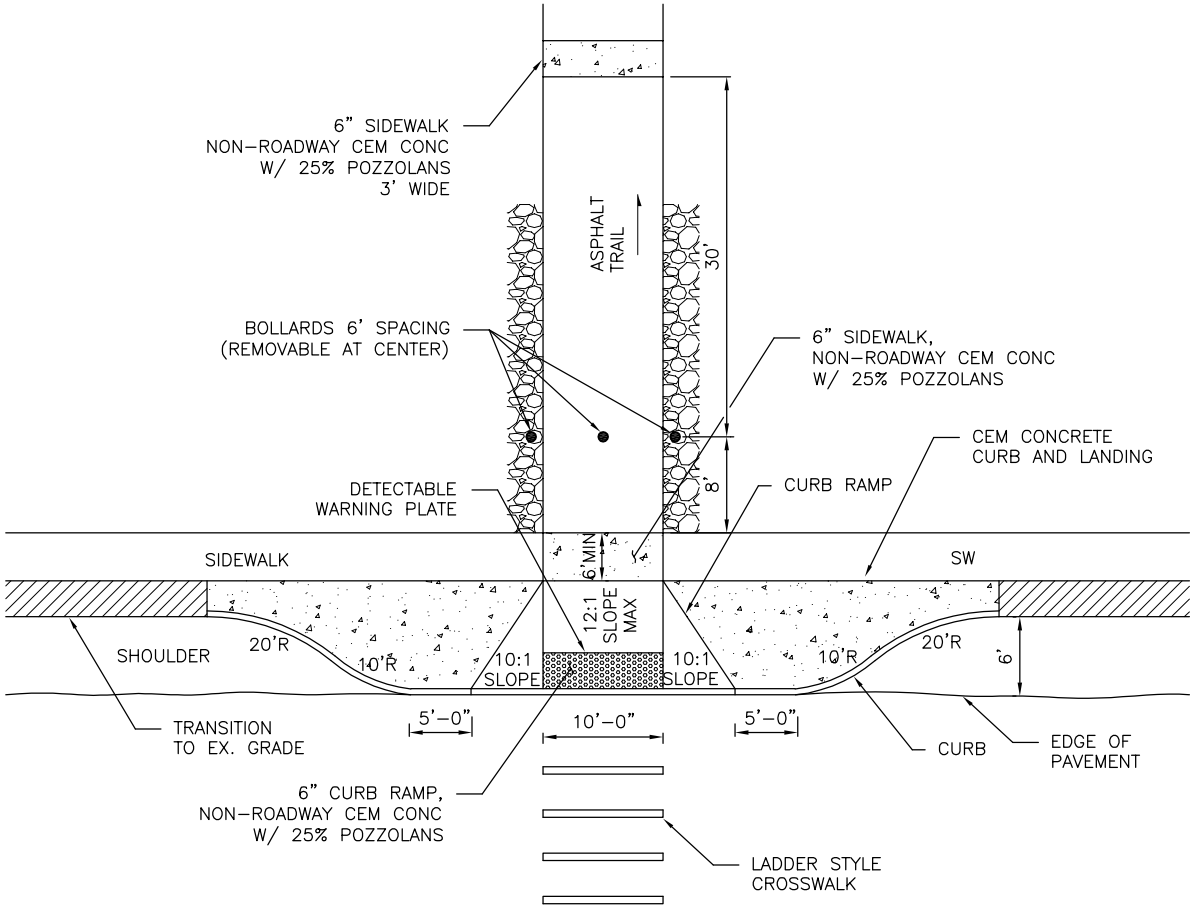
NOTES:

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

REF STD SPEC SEC 8-14 & 8-19

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

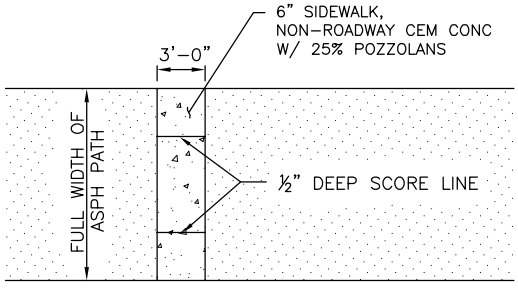
REV DATE: DEC 2010



MULTI PURPOSE TRAIL @ ARTERIAL STREET W/BULB–OUT (TYP)

NOTES:

1. FOR CURB RAMP AND DETECTABLE WARNING DETAILS SEE STANDARD PLAN 422.
2. FOR CROSSWALK DETAILS SEE STANDARD PLAN 712.
3. FOR BOLLARD DETAIL SEE STANDARD PLAN 463.
4. ASPHALT TRAIL CROSS SLOPE MINIMUM 1%, MAXIMUM 2%.
5. CEMENT CONCRETE WARNING PAD THICKNESS TO MATCH ASPHALT 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 SHALL BE FLUSH WITH A MAXIMUM DIFFERENCE IN ELEVATION OF $\frac{3}{16}$ INCH.
8. ALL SLOPE GRADES SHALL BE MEASURED OFF THE HORIZON–LINE. IF EXISTING SITE CONDITIONS CONFLICT WITH OBTAINING GRADES SHOWN, THE CONTRACTOR SHALL MAKE MINIMUM ADJUSTMENTS TO THE GRADES TO ACCOMMODATE EXISTING SITE CONDITIONS, ADJUSTMENTS ARE SUBJECT TO APPROVAL BY THE ENGINEER.
9. ALL CEMENT CONCRETE WARNING PADS SHALL BE BRUSHED FINISHED AND "V" GROOVED TO MATCH PATTERN IN ADJACENT OR NEARBY SIDEWALKS.

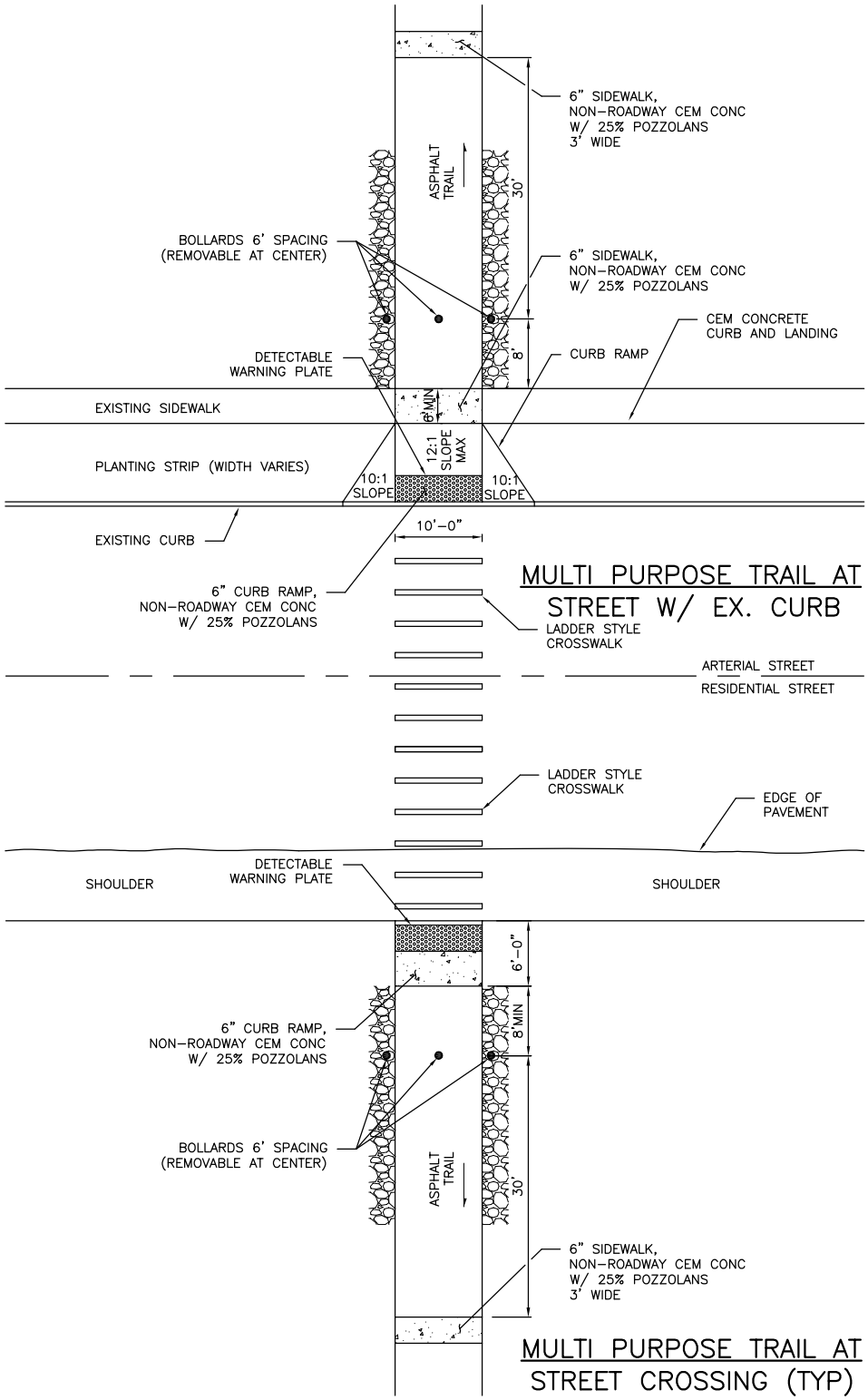


CEM CONC WARNING PAD

REF STD SPEC SEC

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

REV DATE: DEC 2010



MULTI PURPOSE TRAIL AT STREET W/ EX. CURB

MULTI PURPOSE TRAIL AT STREET CROSSING (TYP)

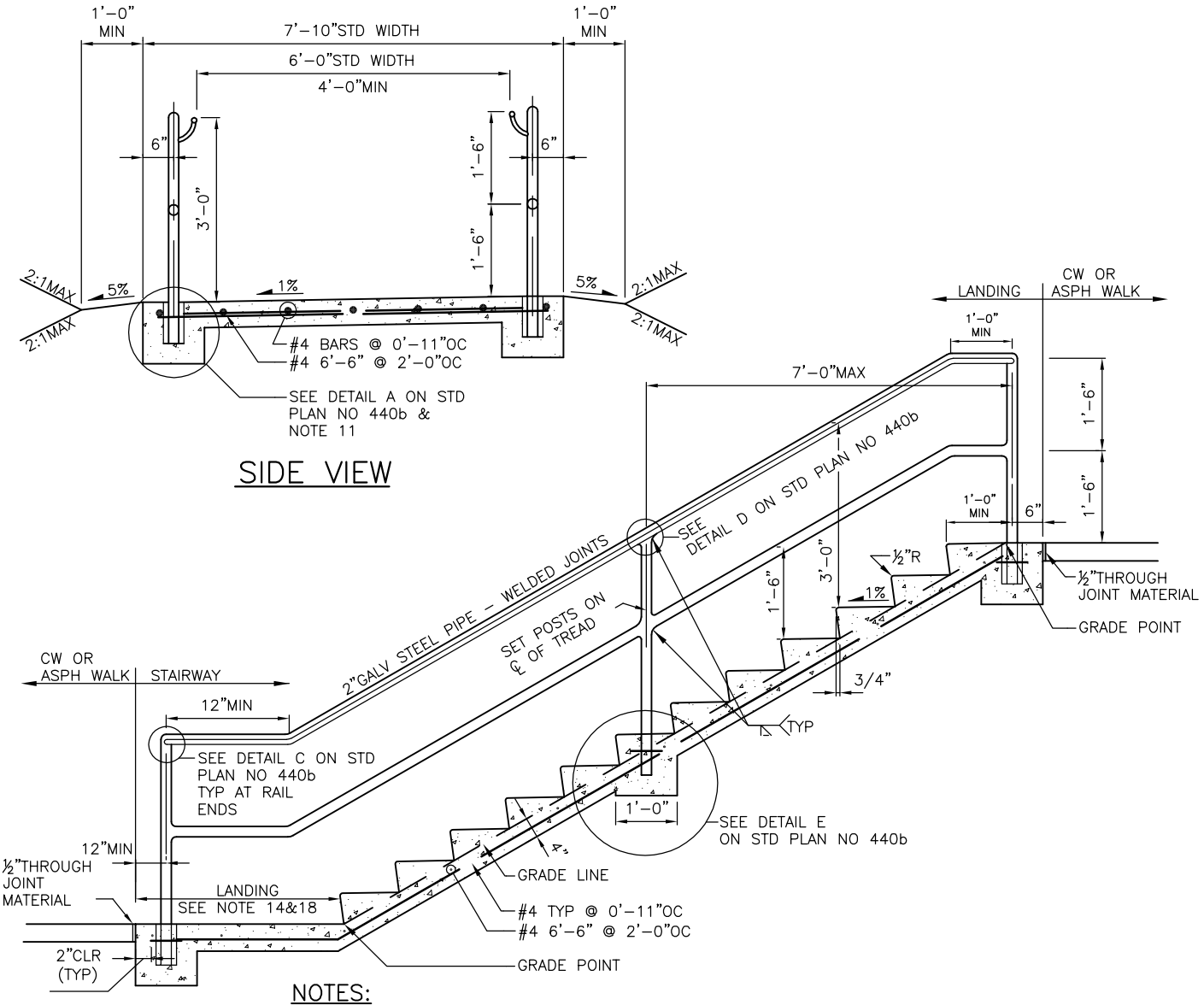
REF STD SPEC SEC

City of Seattle

NOT TO SCALE

MULTI-PURPOSE TRAIL AT STREET CROSSING

REV DATE: DEC 2010



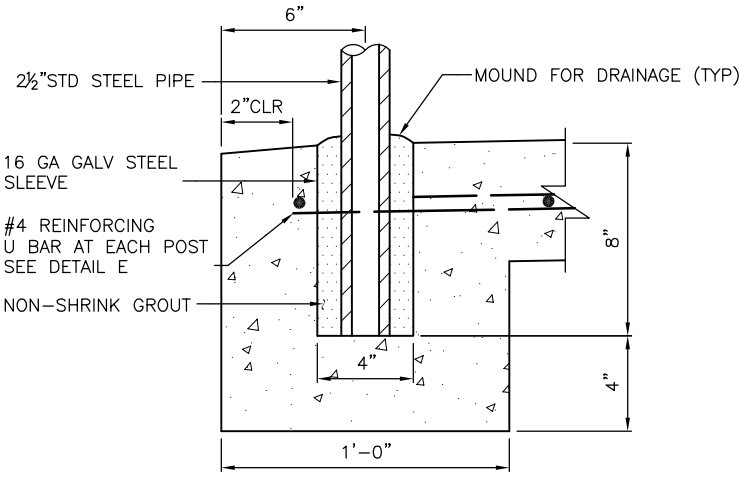
NOTES:

1. FLIGHTS OF STAIRS SHALL HAVE MAX VERTICAL RISE OF 12' BEFORE A LANDING.
2. AVOID FEWER THAN 2 RISERS PER FLIGHT.
3. STEPS IN FLIGHT MUST HAVE UNIFORM TREAD RUNS AND UNIFORM RISER HEIGHTS WITH TOLERANCE OF ±3/8".
4. TREADS SHALL BE 11"MIN, 12"MAX. RISERS SHALL BE 5"MIN, 7"MAX.
5. LANDINGS BETWEEN FLIGHTS OF RISERS MUST HAVE SAME WIDTH AS STEPS AND A MIN LENGTH OF 4'–0".
6. FLIGHTS OF 2' OR MORE STEPS SHALL HAVE HANDRAILS ON BOTH SIDES.
7. HANDRAILS SHALL BE CONTINUOUS ACROSS LANDINGS BETWEEN FLIGHTS OF STEPS.
8. HANDRAILS SHALL BE GALVANIZED AFTER FABRICATION.
9. PIPE MATERIAL SHALL BE ASTM A53.
10. REINFORCING STEEL SHALL BE ASTM A615 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 SHALL BE 0.5%MIN FOR A MIN OF 4', ADJACENT SIDE WALK MAY BE PART OF LANDING IF SLOPE CRITERIA AND SETBACKS FROM HANDRAILS ARE MET.
15. TREAD SURFACE SHALL HAVE GROOVES AT THE NOSE FOR TRACTION.
16. IF LANDING IS ELEVATED, LANDING SHALL HAVE GUARDRAIL.
17. STAIRWAYS DEVIATING FROM STANDARD PLAN TO ACCOMMODATE BICYCLE FEATURES MAY BE USED UPON REVIEW.
18. BOTTOM LANDING DIMENSION FROM THE RAILING TO THE NOSE OF THE TREAD SHALL BE 2'–0"MIN + 1 TREAD WIDTH.

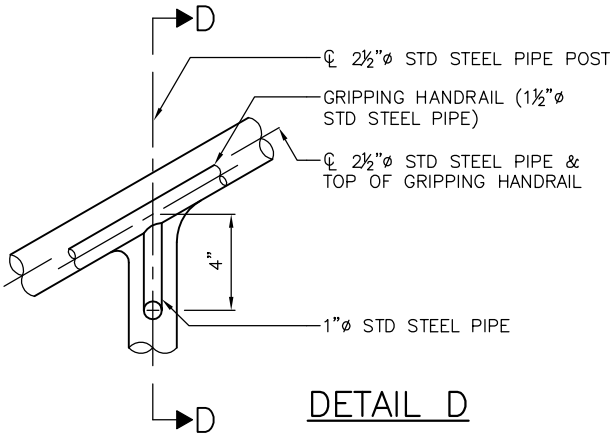
REF STD SPEC SEC 8-18

City of Seattle	NOT TO SCALE	CEMENT CONCRETE STAIRWAY & HANDRAIL

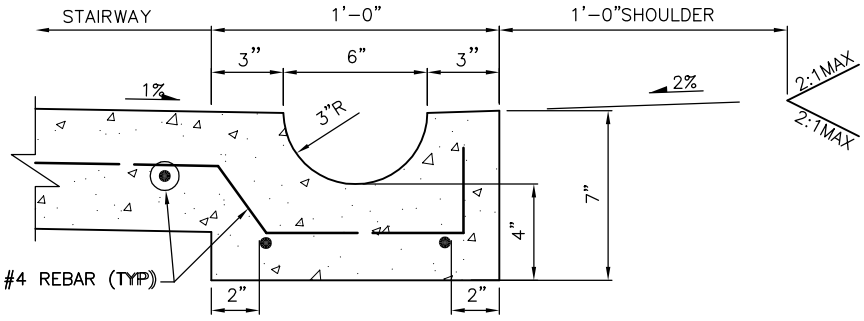
REV DATE: DEC 2010



DETAIL A

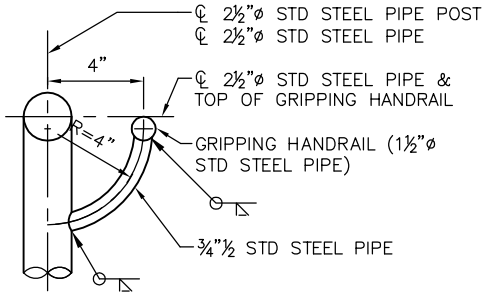


DETAIL D

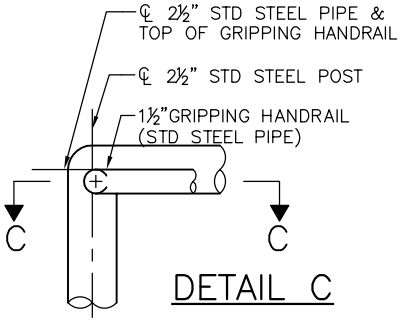


DETAIL B

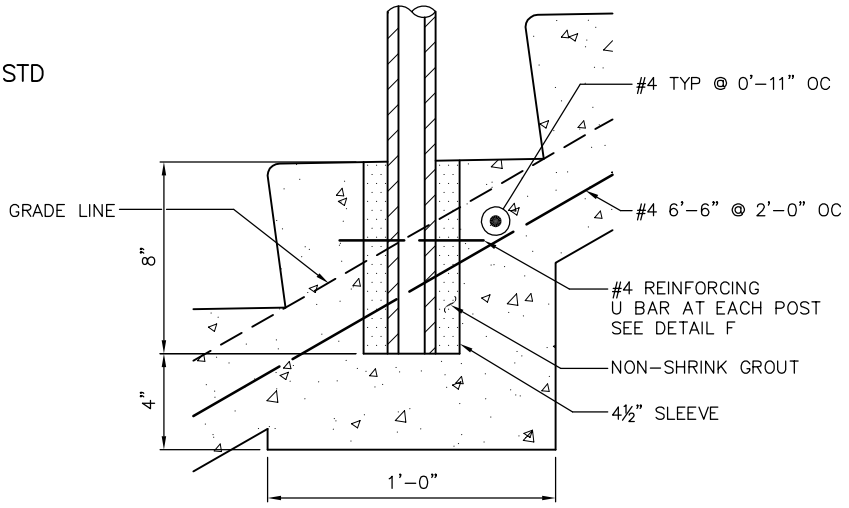
SEE NOTE 11 ON STD PLAN NO 440a



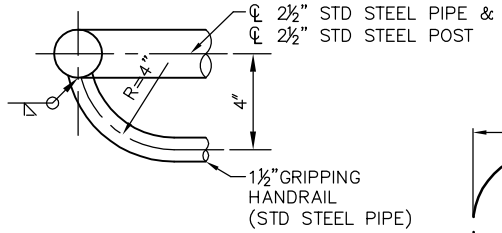
SECTION D–D



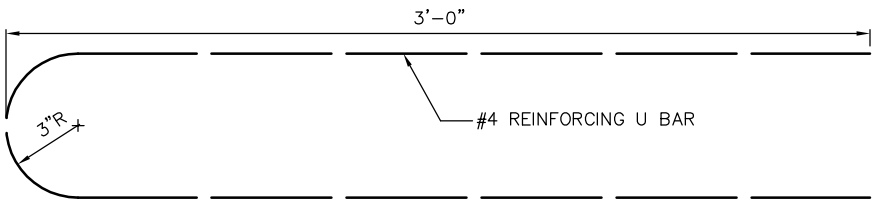
DETAIL C



DETAIL E



SECTION C–C

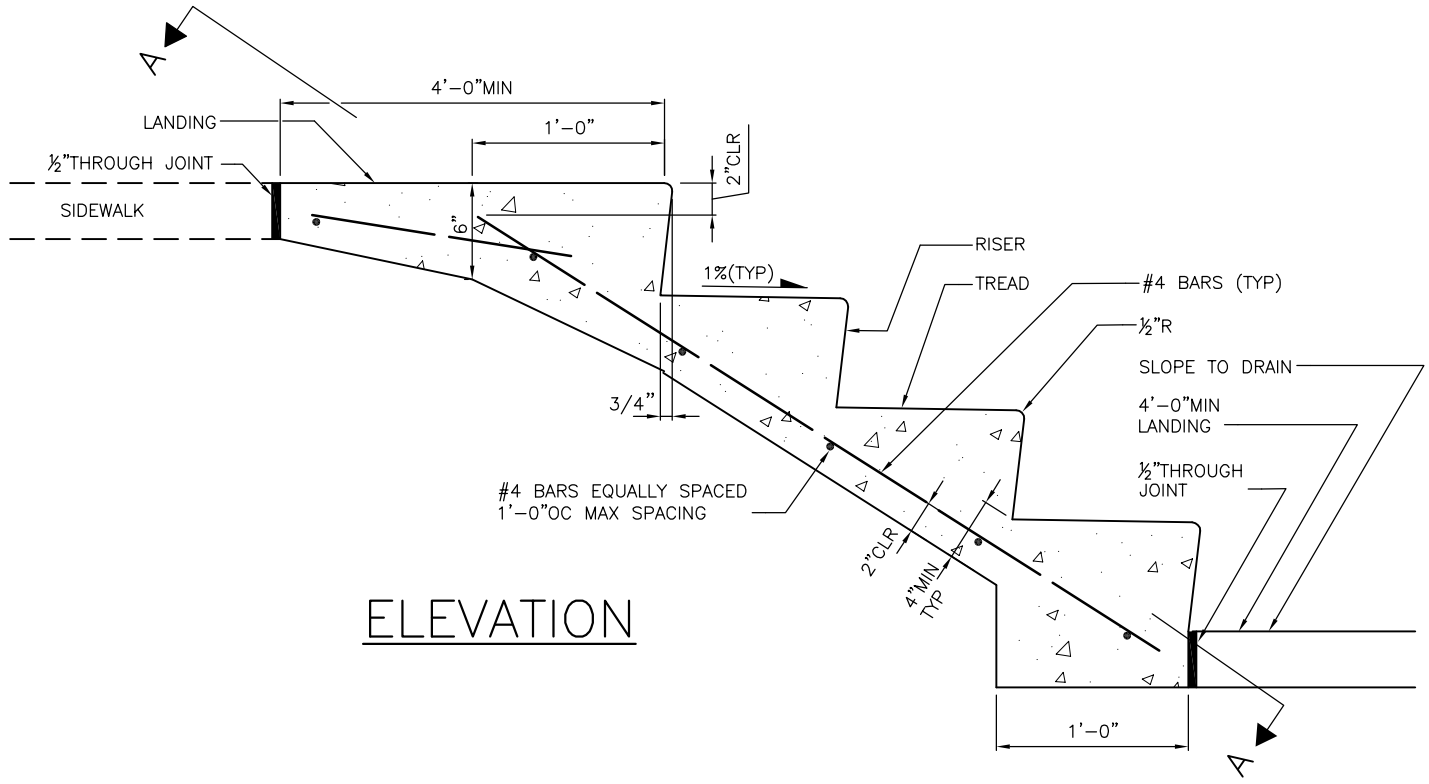


DETAIL F

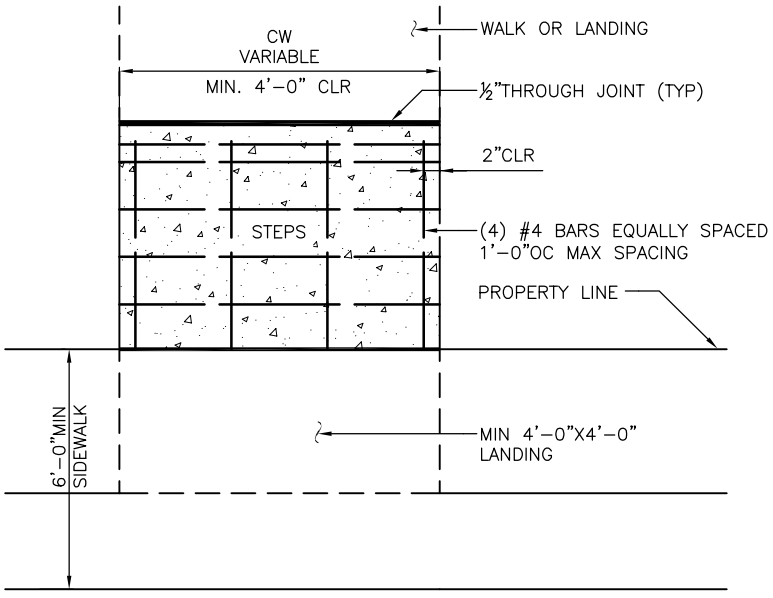
REF STD SPEC SEC 8-18

City of Seattle	NOT TO SCALE	CEMENT CONCRETE STAIRWAY & HANDRAIL

REV DATE: 2005



ELEVATION



SECTION A–A

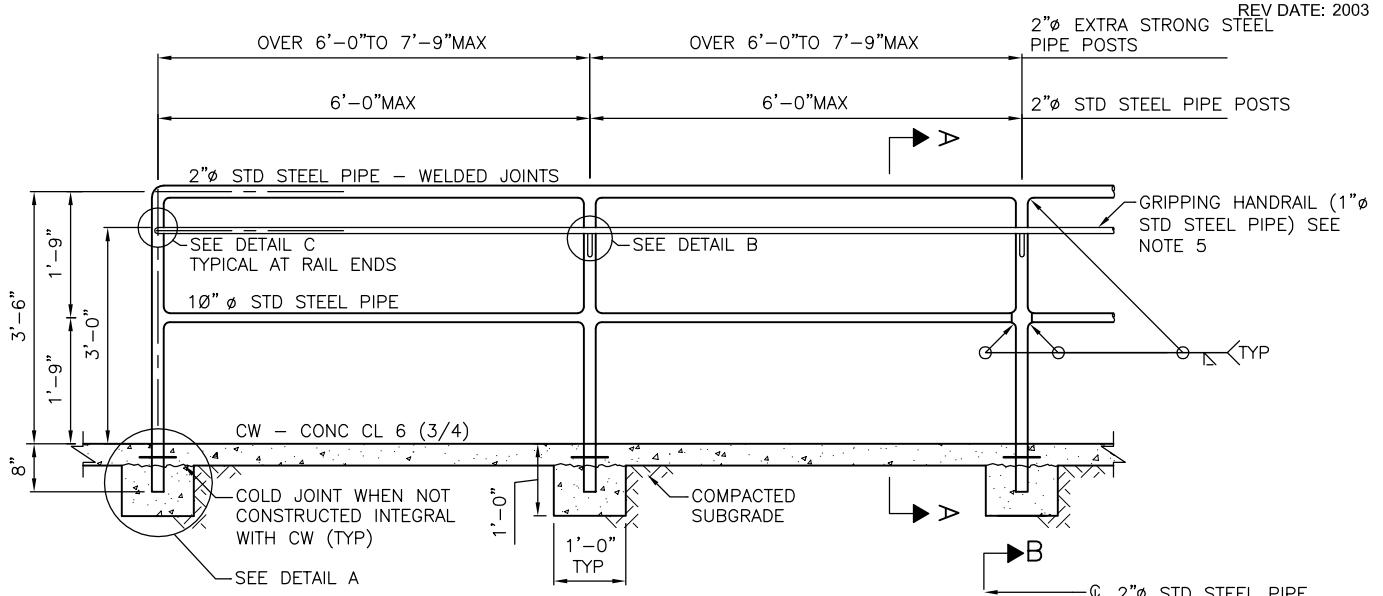
NOTES:

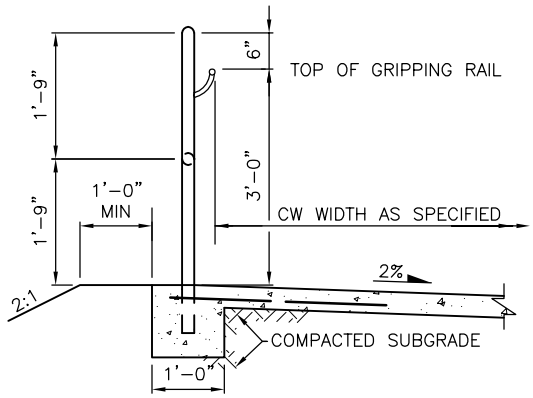
1. CEMENT CONCRETE SHALL BE CL 3000 TROWEL FINISH
2. NUMBER OF STEPS SHALL SUIT INDIVIDUAL CONDITIONS WITH UNIFORM TREAD AND RISER DIMENSIONS AS FOLLOWS:
   TREADS SHALL BE 11"MIN – 1'–0"MAX
   RISERS SHALL BE 5"MIN – 7"MAX
3. STEP WIDTH SHALL MATCH WIDTH OF EXISTING WALK, BUT SHALL BE NO LESS THAN 2'–6"WIDE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

REF STD SPEC SEC 8-18

City of Seattle	NOT TO SCALE	CEMENT CONCRETE STEPS

REV DATE: 2003

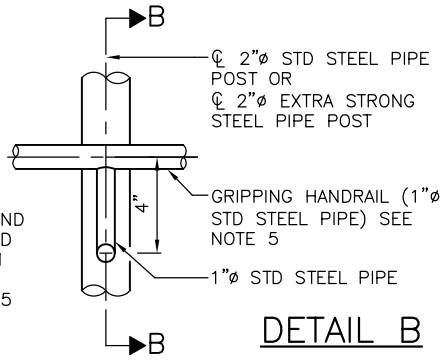




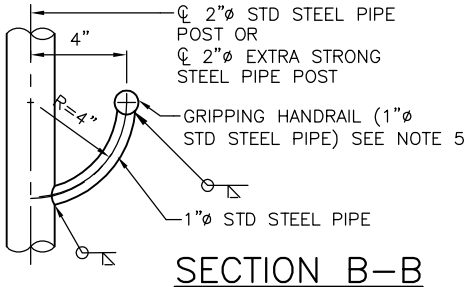
SECTION A–A

NOTES:

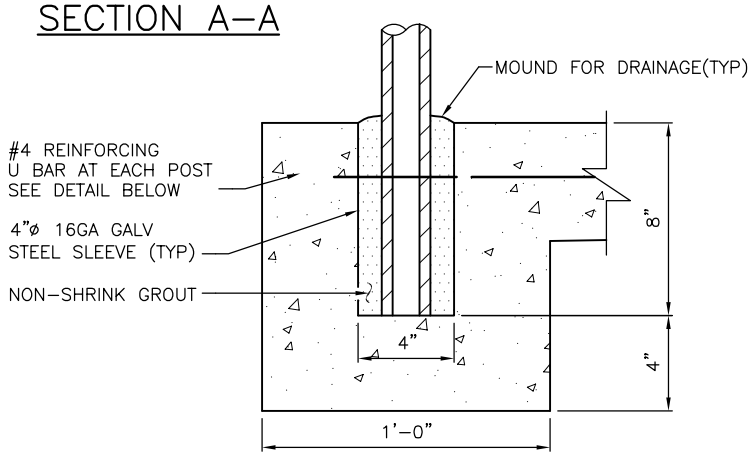
1. RAILING SHALL BE HOT DIP GALVANIZED AFTER FABRICATION
2. ALL POSTS SHALL BE PLUMB AND RAILS PARALLEL TO THE GROUND
3. PIPE MATERIAL SHALL CONFORM TO ASTM A 53
4. REINFORCING STEEL ASTM A 615 GR 60
5. IF THE CONCRETE WALK SLOPE IS 5% OR GREATER A GRIPPING HANDRAIL IS REQUIRED
6. PIPE DIAMETERS SHOWN ARE "NOMINAL" DIAMETERS AS GIVEN IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL



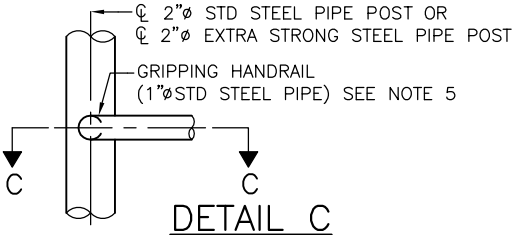
DETAIL B



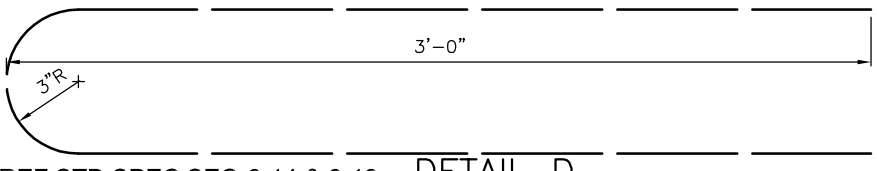
SECTION B–B



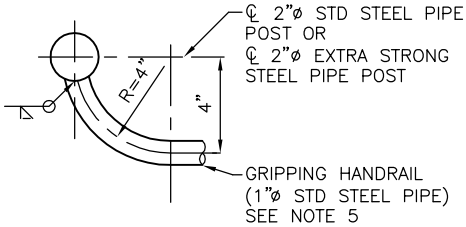
DETAIL A



DETAIL C



DETAIL D

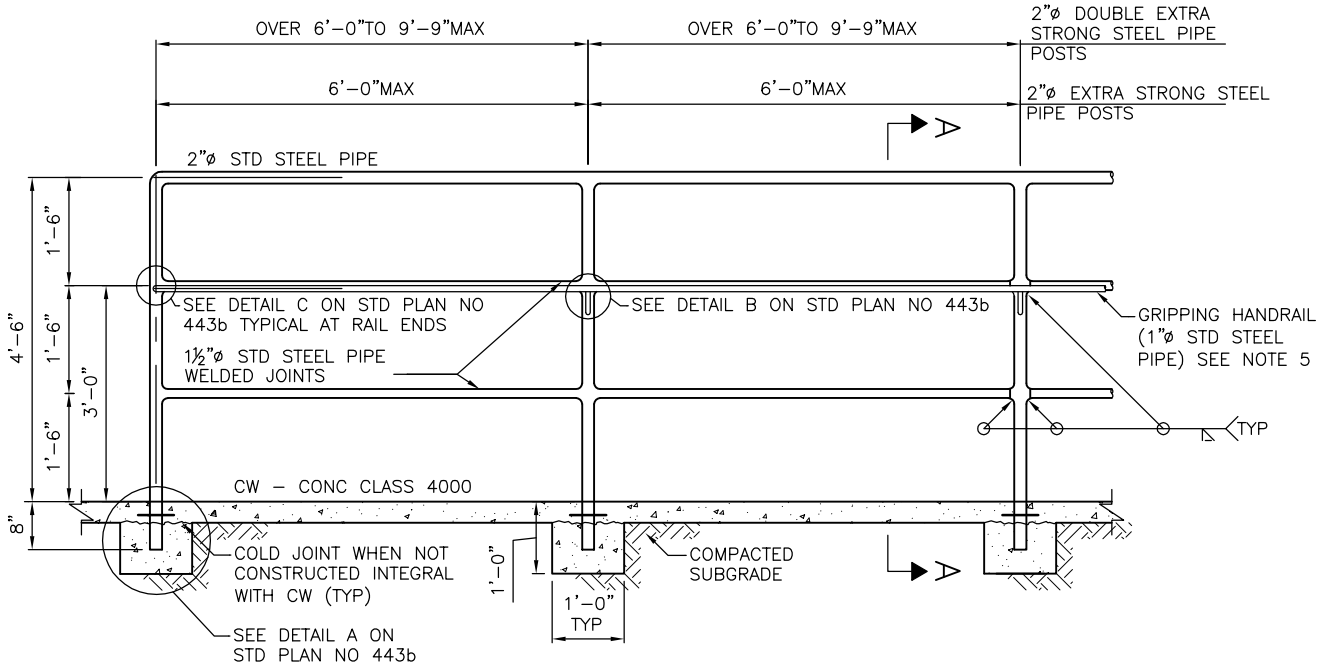


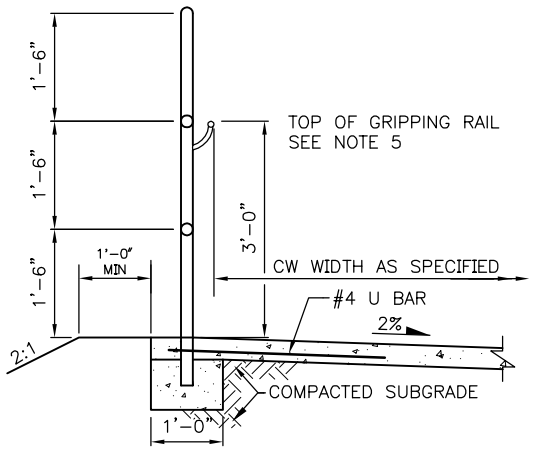
SECTION C–C

REF STD SPEC SEC 8-14 & 8-18

City of Seattle | NOT TO SCALE | STEEL PIPE HANDRAIL

REV DATE: 2003





SECTION A–A

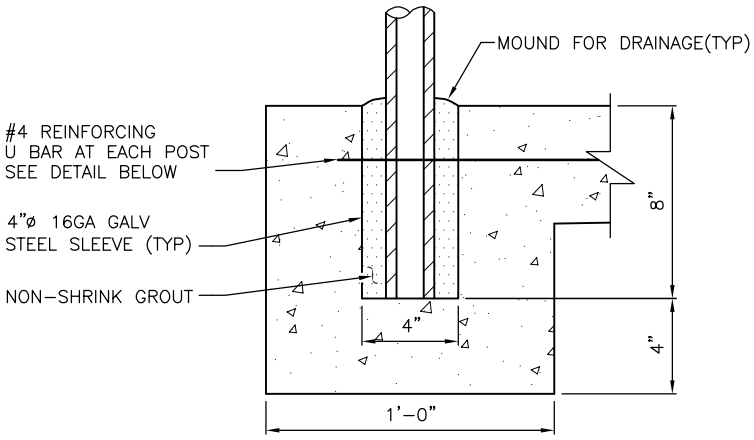
NOTES:

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

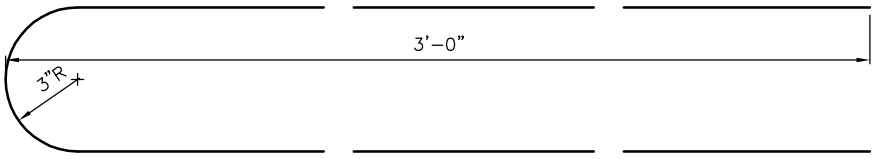
REF STD SPEC SEC 8-18

City of Seattle	NOT TO SCALE	STEEL PIPE RAILING FOR BIKE PATH

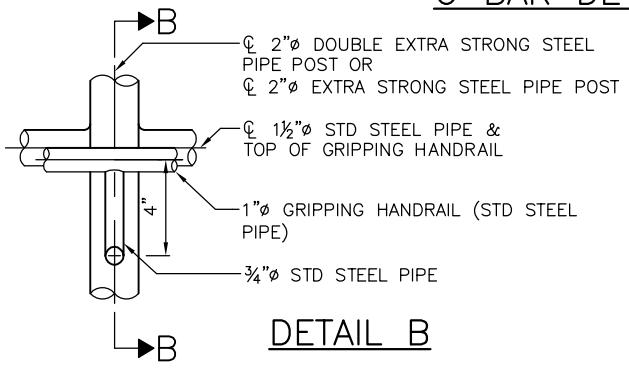
REV DATE: 2003



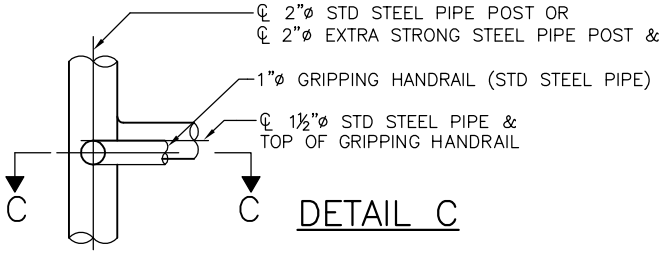
DETAIL A



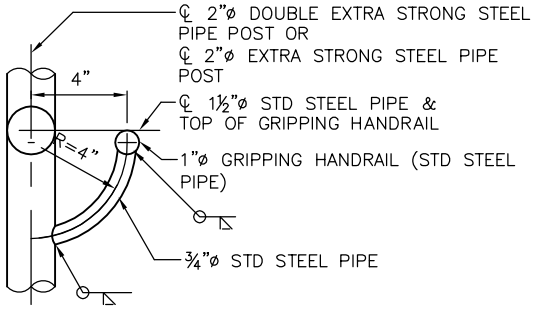
U BAR DETAIL



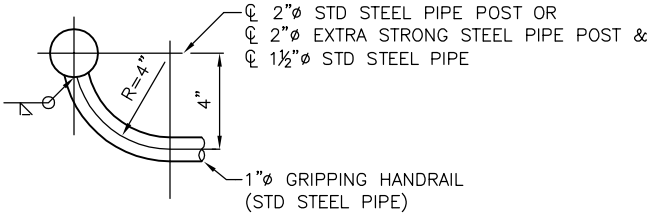
DETAIL B



DETAIL C



SECTION B-B

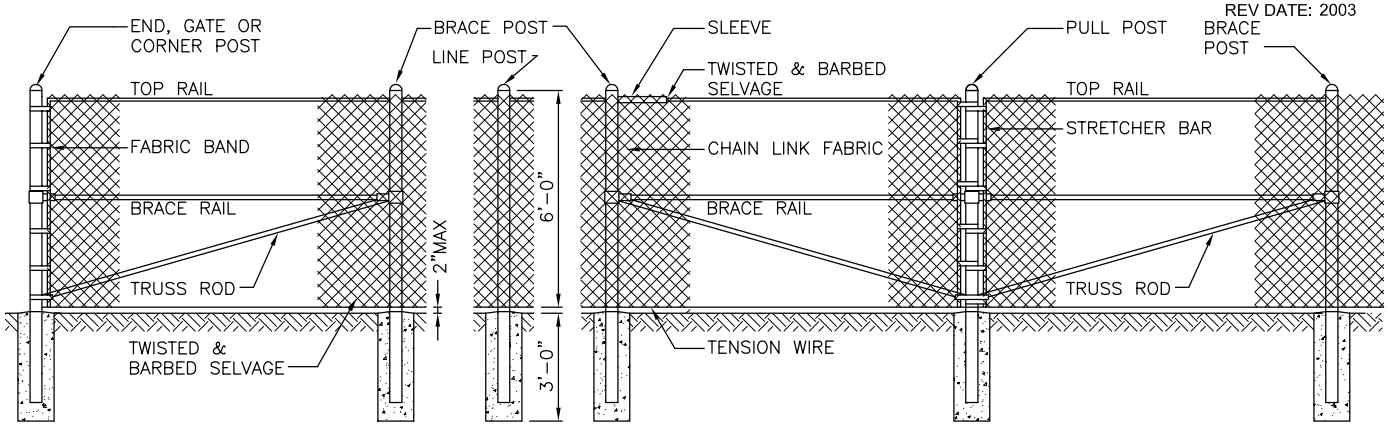


SECTION C-C

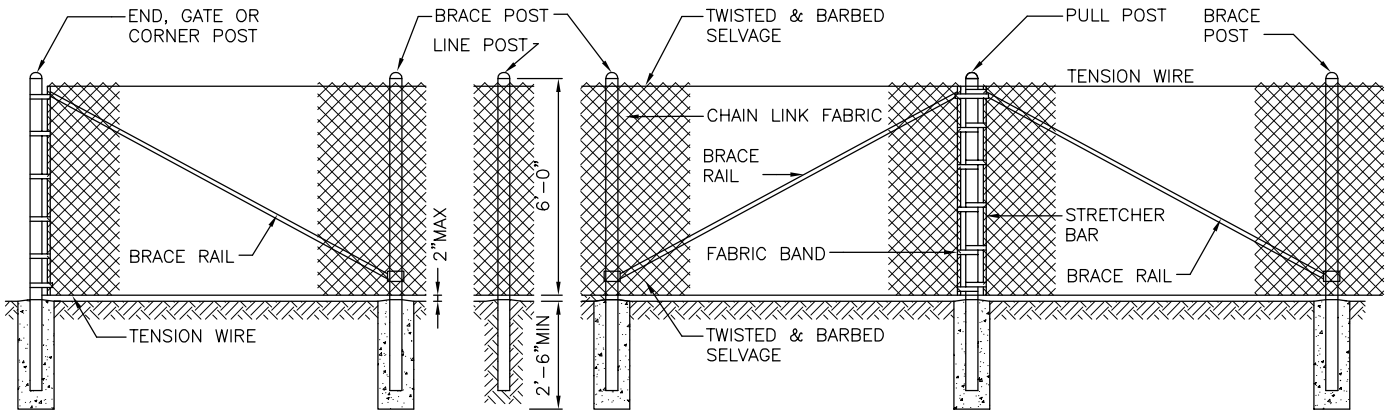
REF STD SPEC SEC 8-18

City of Seattle	NOT TO SCALE	STEEL PIPE RAILING FOR BIKE PATH

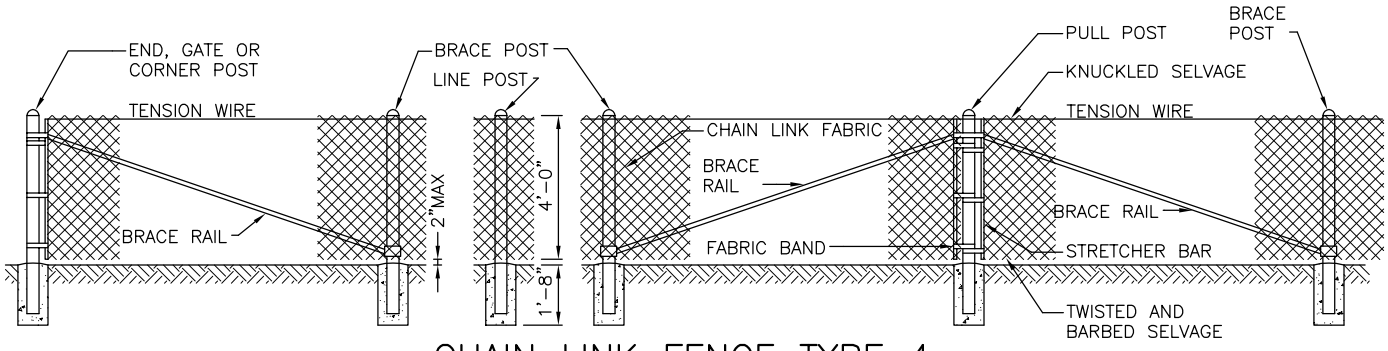
REV DATE: 2003



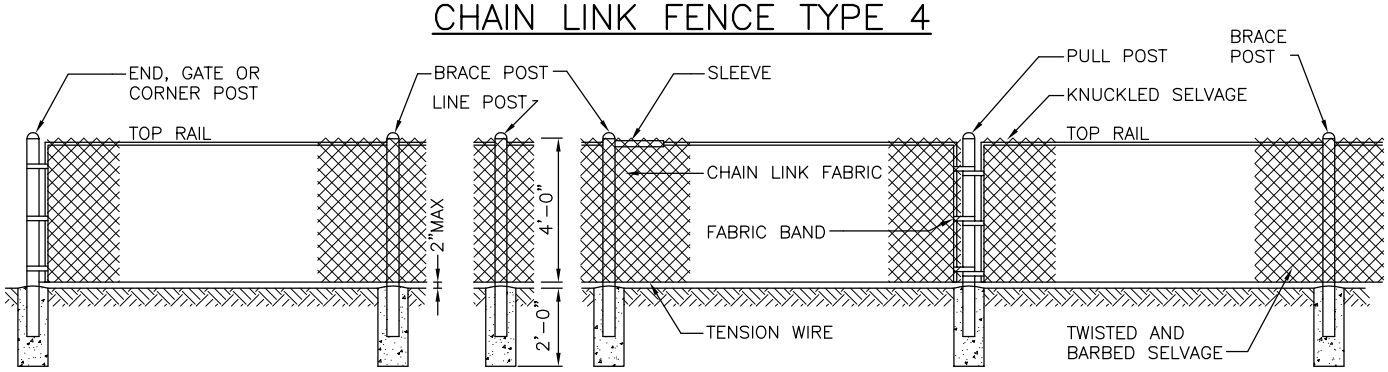
CHAIN LINK FENCE TYPE 1



CHAIN LINK FENCE TYPE 3



CHAIN LINK FENCE TYPE 4

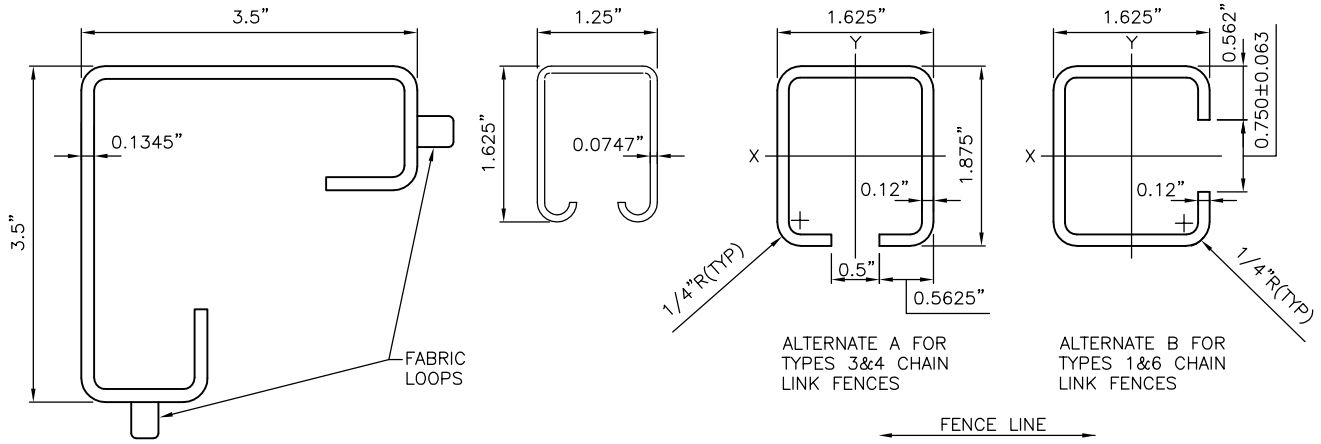


CHAIN LINK FENCE TYPE 6

REF STD SPEC SEC 8-12

City of Seattle	NOT TO SCALE	CHAIN LINK FENCE

REV DATE: AUG 2010



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	BRACE RAIL & TOP RAIL				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"

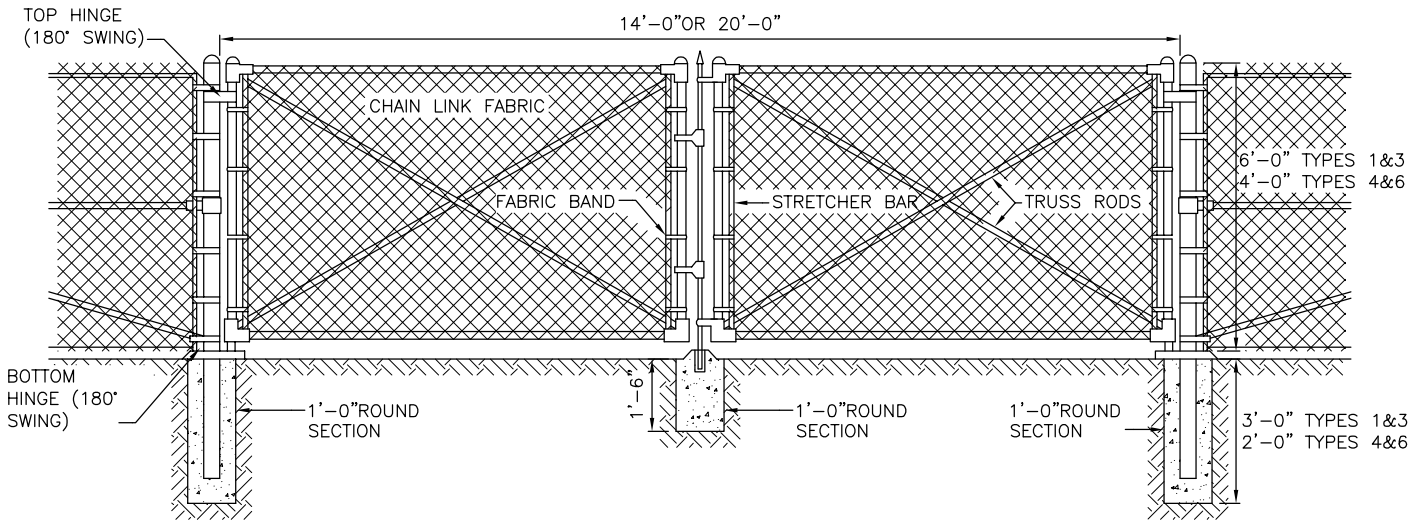
NOTES:

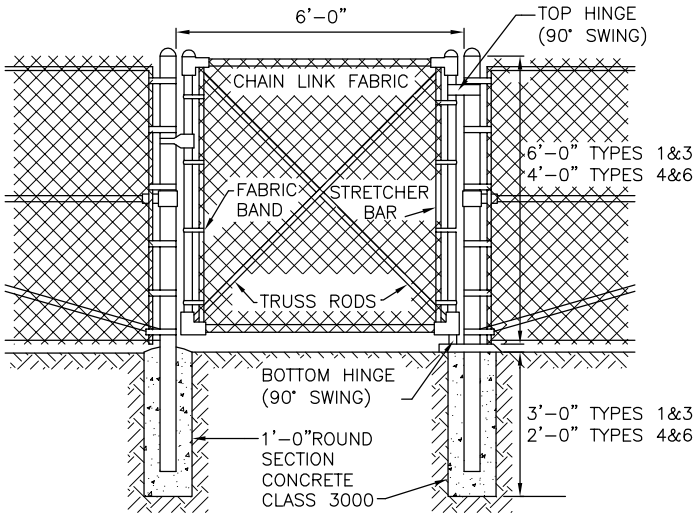
1. ALL CONCRETE POST BASES SHALL BE 10"MINIMUM DIAMETER, CL3000
2. POSTS SHALL BE SPACED AT 10'-0"MAXIMUM INTERVALS UNLESS OTHERWISE DIRECTED BY THE ENGINEER
3. TOP OR BOTTOM TENSION WIRES SHALL BE PLACED WITHIN THE LIMITS OF THE FIRST FULL FABRIC WEAVE
4. THE ILLUSTRATIVE DETAIL SHOWN HEREON SHALL NOT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

REF STD SPEC SEC 8-12

City of Seattle	NOT TO SCALE	CHAIN LINK FENCE

REV DATE: 2003





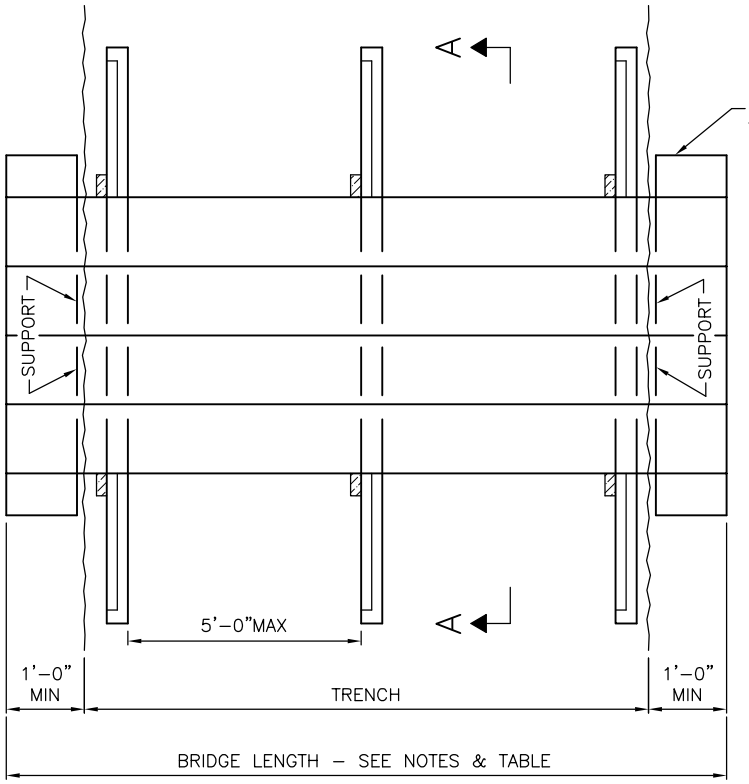
NOTES:

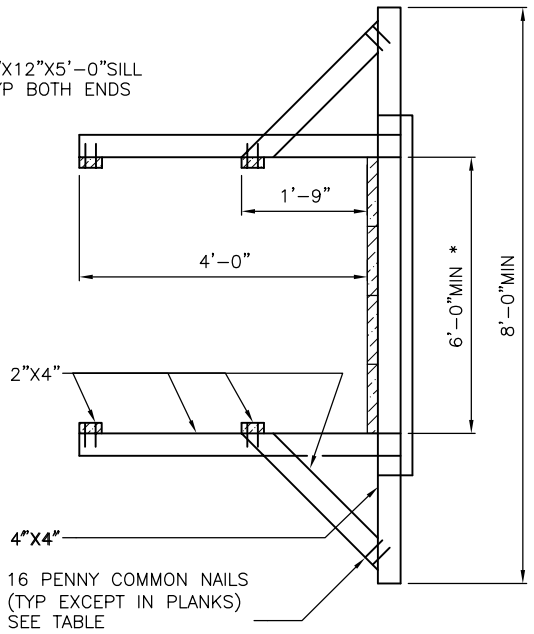
1. FENCE FABRIC SHALL BE SECURED TO GATE FRAMES WITH KNUCKLED SELVAGE ALONG TOP EDGE FOR TYPES 4&6 CHAIN LINK FENCE INSTALLATIONS
2. MINIMUM POST LENGTH:
   TYPES 1&3: 8'–8"
   TYPES 4&6: 5'–6"
3. CONCRETE OR GROUT AROUND POST AT GROUND LINE SHALL BE MOUNDED FOR DRAINAGE

REF STD SPEC SEC 8-12

City of Seattle	NOT TO SCALE	CHAIN LINK GATES

REV DATE: DEC 2010



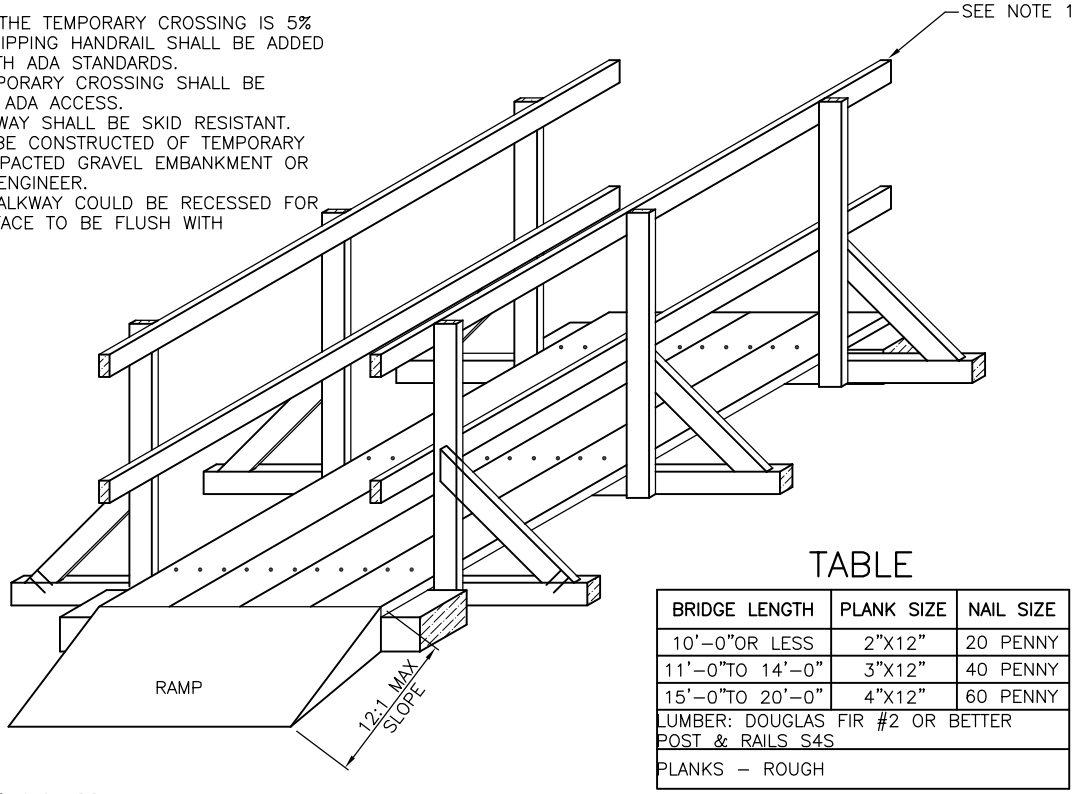


SECTION A–A

* UNLESS APPROVED BY SEATTLE DEPARTMENT OF TRANSPORTATION

NOTE:

1. IF THE SLOPE OF THE TEMPORARY CROSSING IS 5% OR GREATER, A GRIPPING HANDRAIL SHALL BE ADDED THAT COMPLIES WITH ADA STANDARDS.
2. ENDS OF THE TEMPORARY CROSSING SHALL BE SLOPED TO ALLOW ADA ACCESS.
3. SURFACE OF WALKWAY SHALL BE SKID RESISTANT.
4. THE RAMP SHALL BE CONSTRUCTED OF TEMPORARY PAVEMENT OR COMPACTED GRAVEL EMBANKMENT OR AS APPROVED BY ENGINEER.
5. THE TEMPORARY WALKWAY COULD BE RECESSED FOR THE WALKING SURFACE TO BE FLUSH WITH ADJOINING GRADE.



TABLE

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		

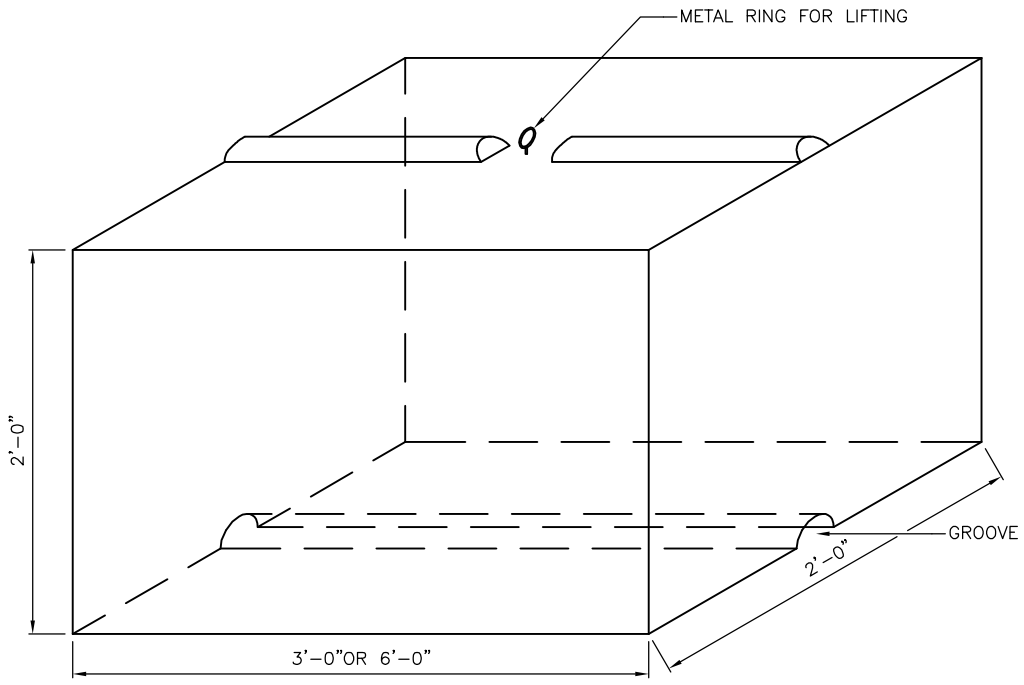
REF STD SPEC SEC 1-07.23

City of Seattle

NOT TO SCALE

TEMPORARY PEDESTRIAN WALKWAY

REV DATE: 2003

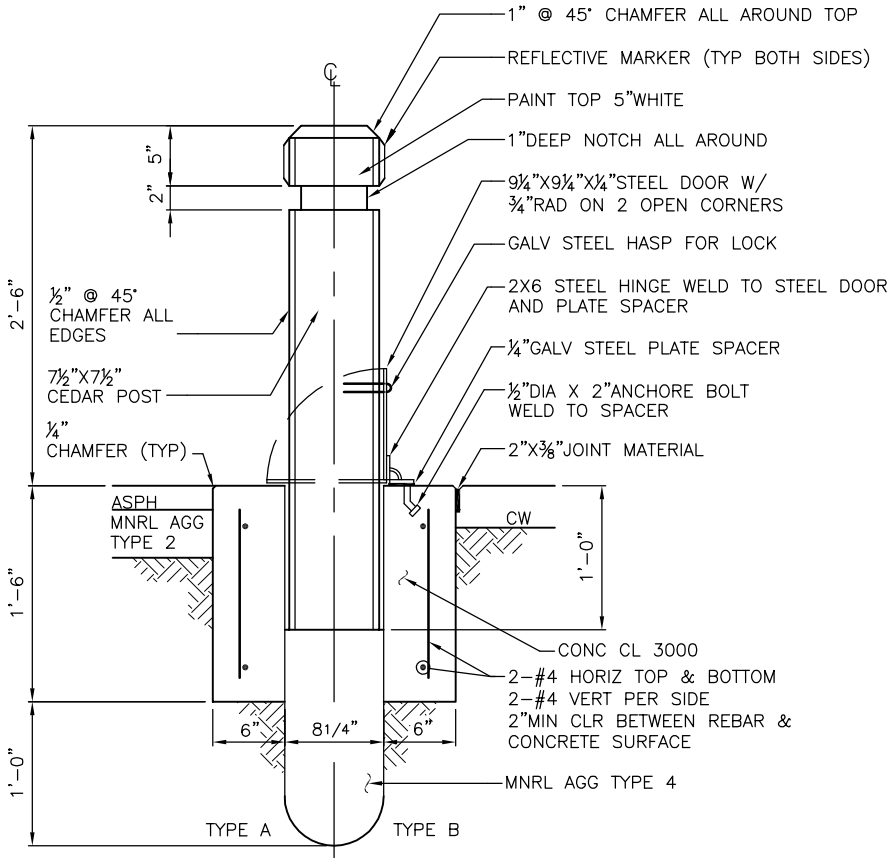


CONCRETE TONGUE & GROOVE BLOCK

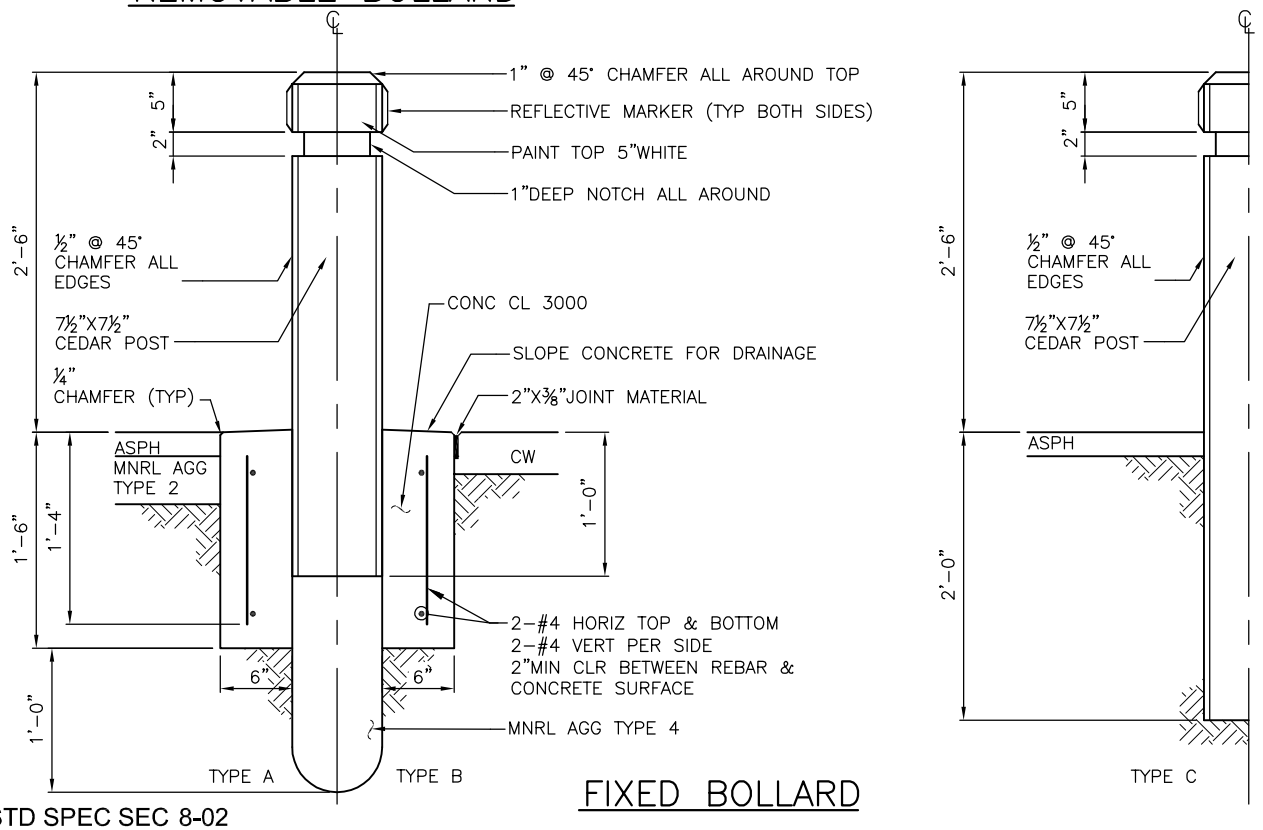
REF STD SPEC SEC

City of Seattle	NOT TO SCALE	ECOLOGY BLOCK, CONCRETE

REV DATE: 2003



REMOVABLE BOLLARD

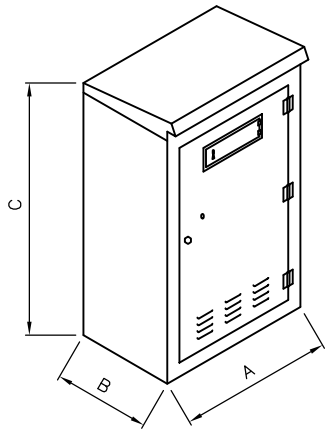


FIXED BOLLARD

REF STD SPEC SEC 8-02

City of Seattle	NOT TO SCALE	FIXED & REMOVABLE WOOD BOLLARD

REV DATE: MAY 2010

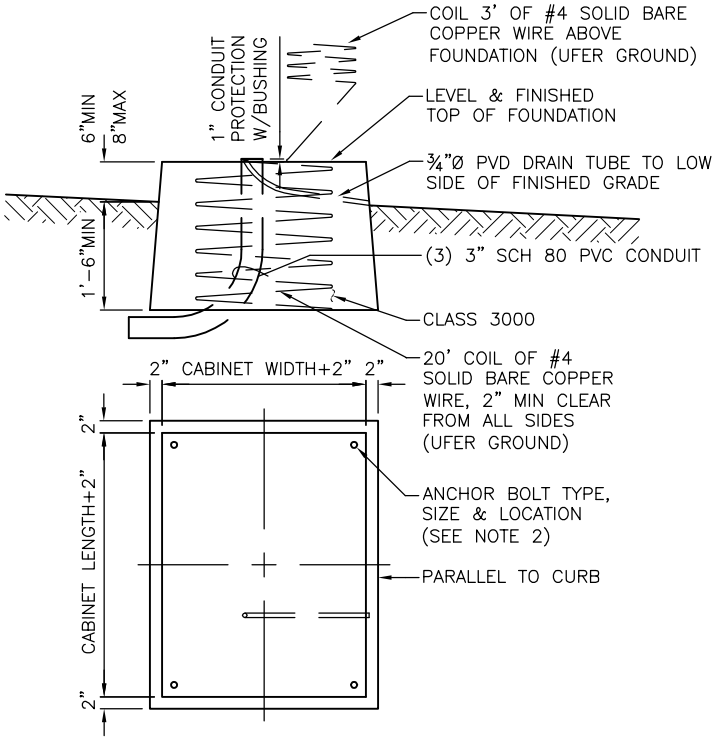


NOTES:

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

DIMENSION	TYPE II	TYPE III	TYPE VI	AUXIILIARY
A	30"	44"	44"	24"
B	17"	25 ½"	25½"	22"
C	38" TO 52"	50" TO 58"	64¾" TO 67½"	–

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

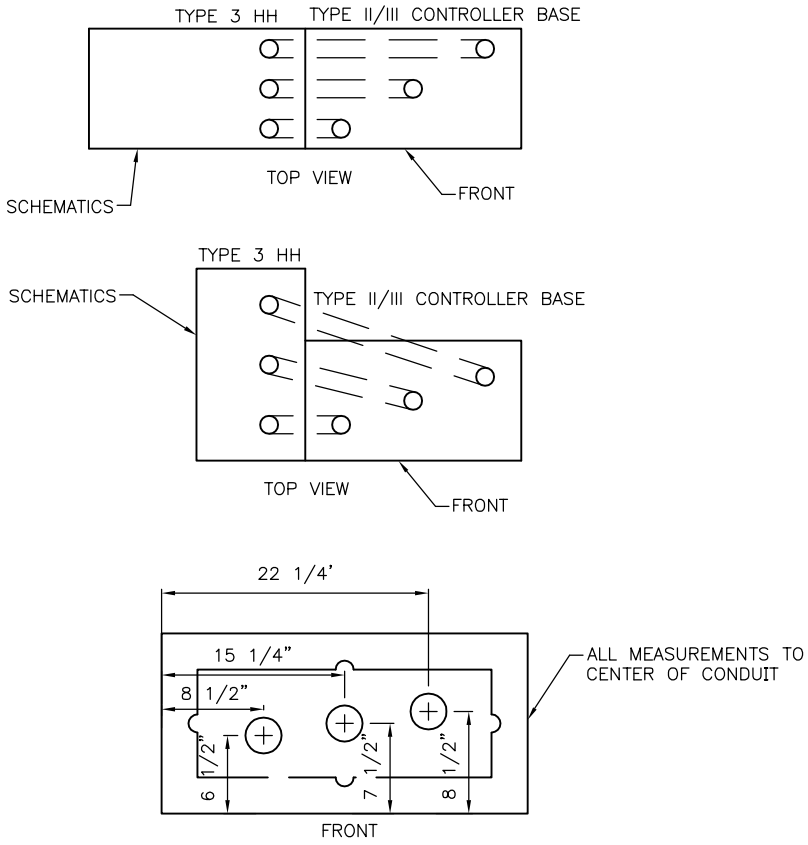


SIGNAL CONTROLLER FOUNDATION–TYPES II & III

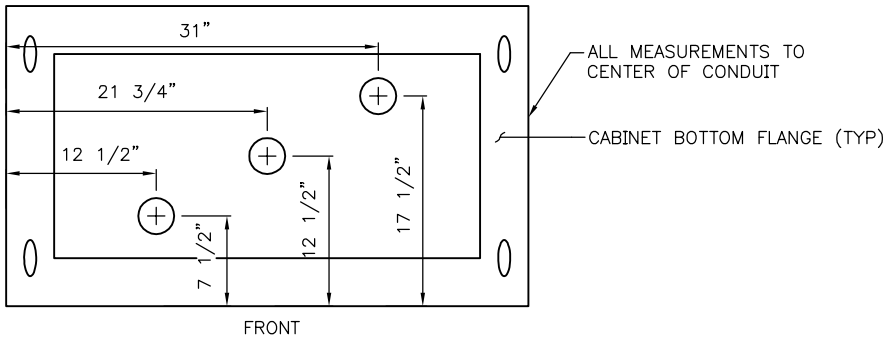
SEE STD PLAN NO 500B FOR CONDUIT LAYOUT

REF STD SPEC SEC 8-31 & 8-32

City of Seattle	NOT TO SCALE	SIGNAL CONTROLLER CABINET & FOUNDATION



CONDUIT LAYOUT–TYPE II SIGNAL CONTROLLER FOUNDATION

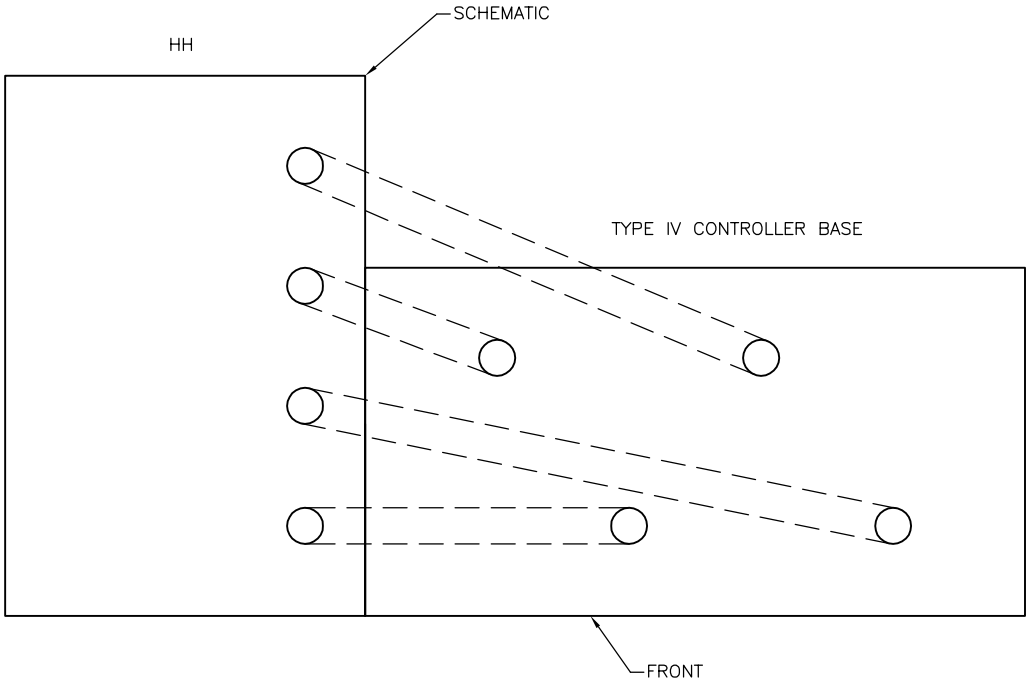


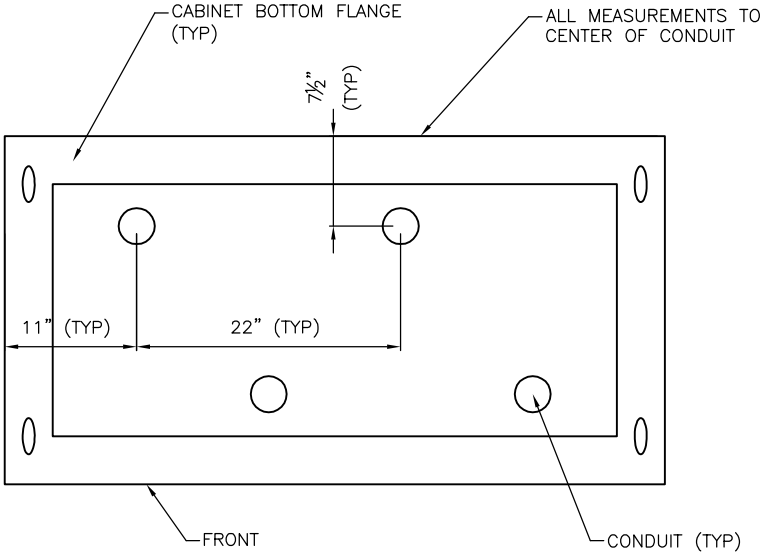
CONDUIT LAYOUT–TYPE III SIGNAL CONTROLLER FOUNDATION

REF STD SPEC SEC 8-31 & 8-32

City of Seattle	NOT TO SCALE	SIGNAL CONTROLLER FOUNDATION CONDUIT LAYOUT

REV DATE: JUN 2010



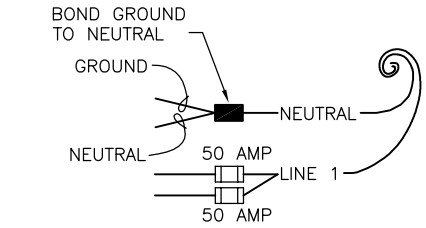


TOP VIEWS

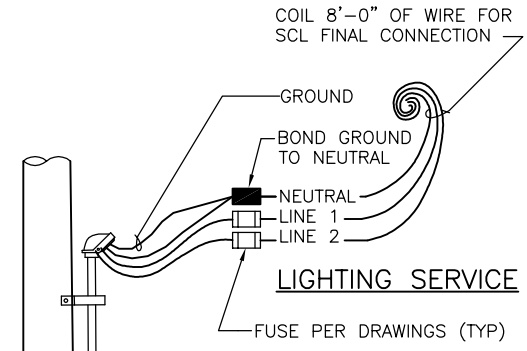
REF STD SPEC SEC 8-31 & 8-32

City of Seattle	NOT TO SCALE	SIGNAL CONTROLLER TYPE IV FOUNDATION CONDUIT LAYOUT

REV DATE: 2008



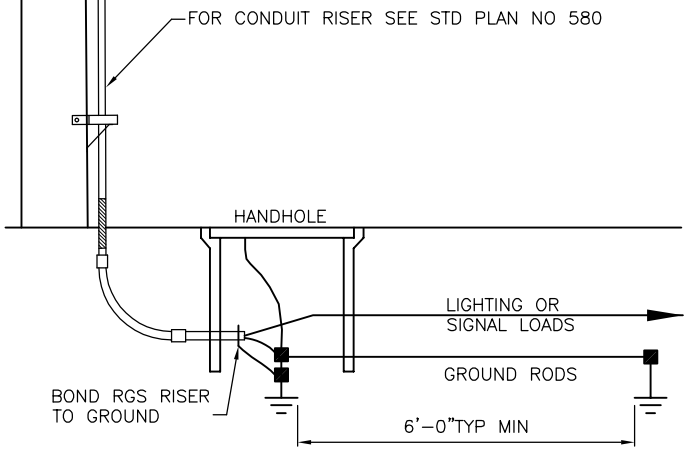
SIGNAL SERVICE



LIGHTING SERVICE

NOTES:

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

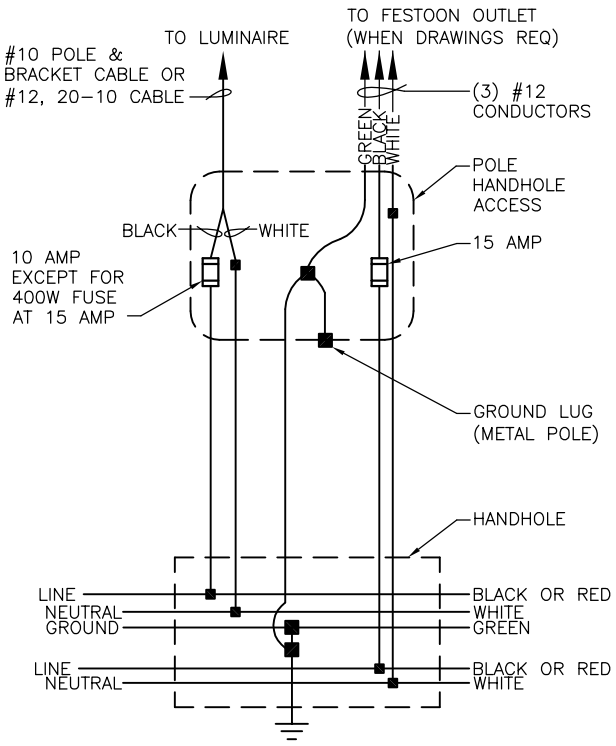


OVERHEAD SERVICE CONNECTION

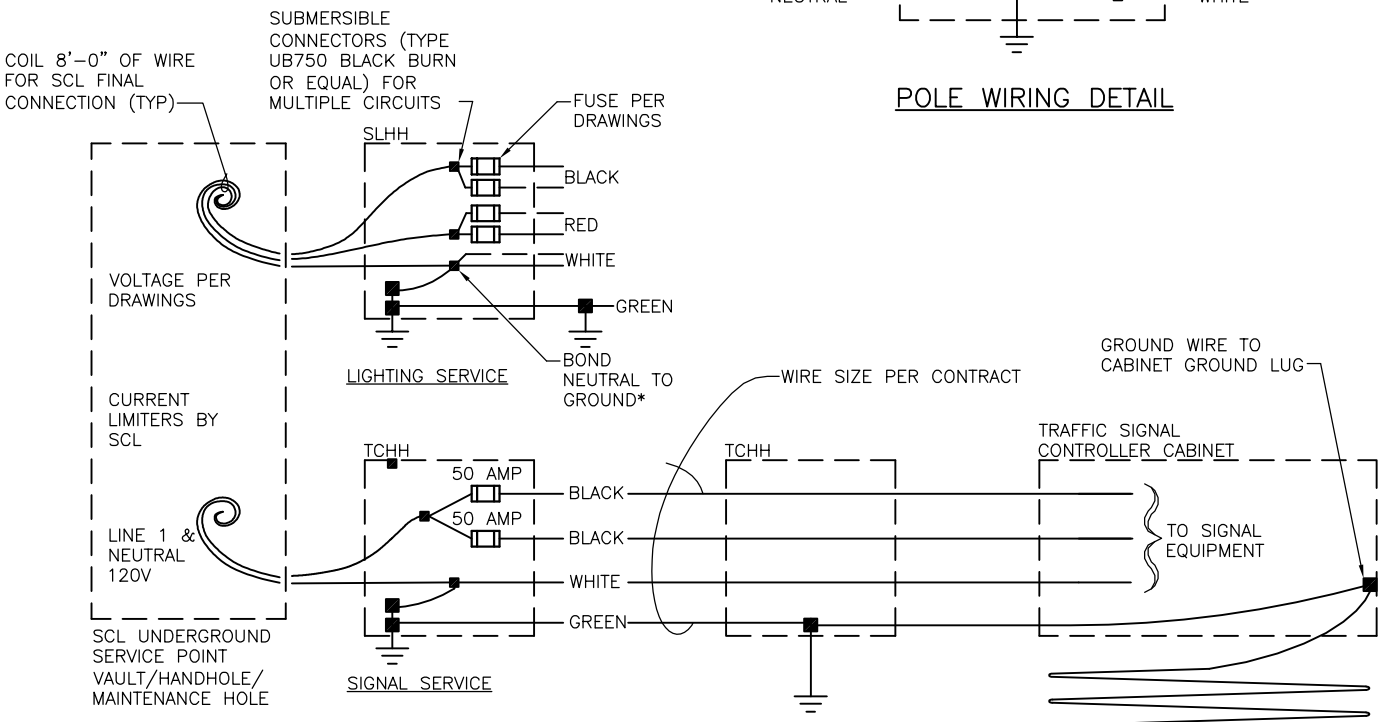
REF STD SPEC SEC 8-30, 8-31, 9-31, & 9-32

City of Seattle	NOT TO SCALE	SIGNAL & LIGHTING SERVICE CONNECTION & LIGHT POLE WIRING DETAIL

REV DATE: JUN 2010



POLE WIRING DETAIL



UNDERGROUND SERVICE CONNECTION

NOTES:

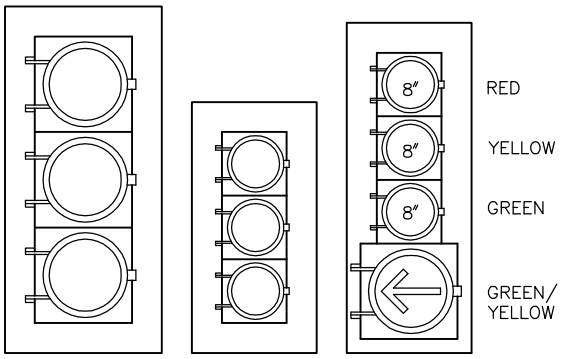
1. *SCL MAY REQ NEUTRAL TO BE BONDED TO GROUND IN SCL SERVICE POINT
2. BOND NEUTRAL TO GROUND AT ONLY ONE LOCATION

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

REF STD SPEC SEC 8-30 & 8-31

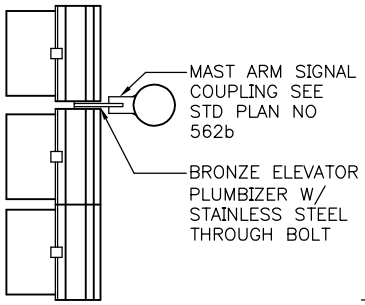
City of Seattle	NOT TO SCALE	SIGNAL & LIGHTING SERVICE CONNECTION & LIGHT POLE WIRING DETAIL

REV DATE: 2008

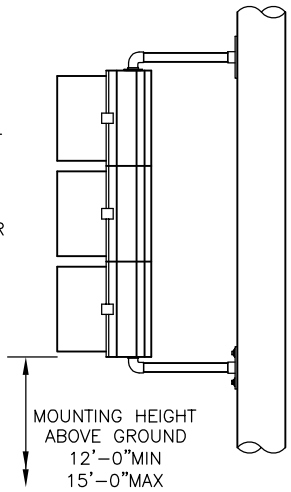


TYPICAL SIGNAL FACES

W/ TUNNEL VISORS &
5"BACKPLATE (LOUVERED)



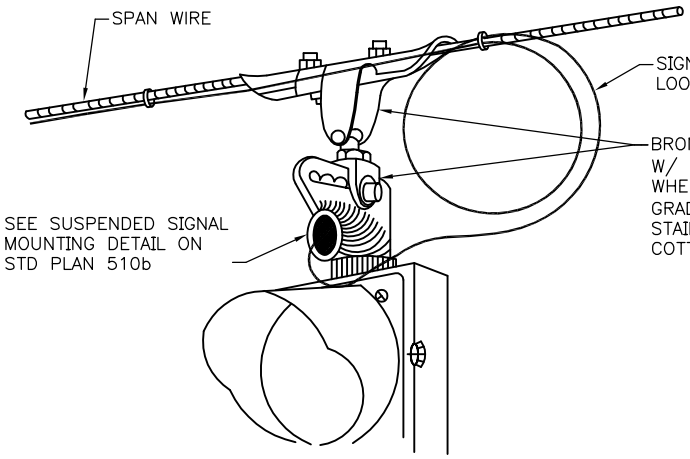
MAST ARM MOUNTING



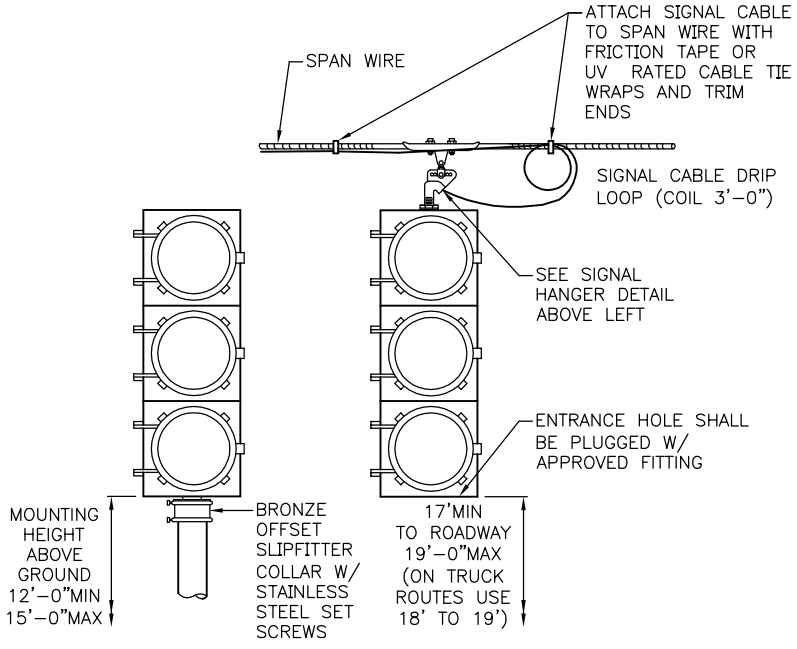
BRACKET MOUNTING

FOR SIGNAL HEAD BRACKET ASSEMBLY
SEE STD PLAN NO 511

NOTE:
BACKPLATES HAVE BEEN
OMITTED FROM VARIOUS
VIEWS FOR CLARITY



SIGNAL HANGER DETAIL



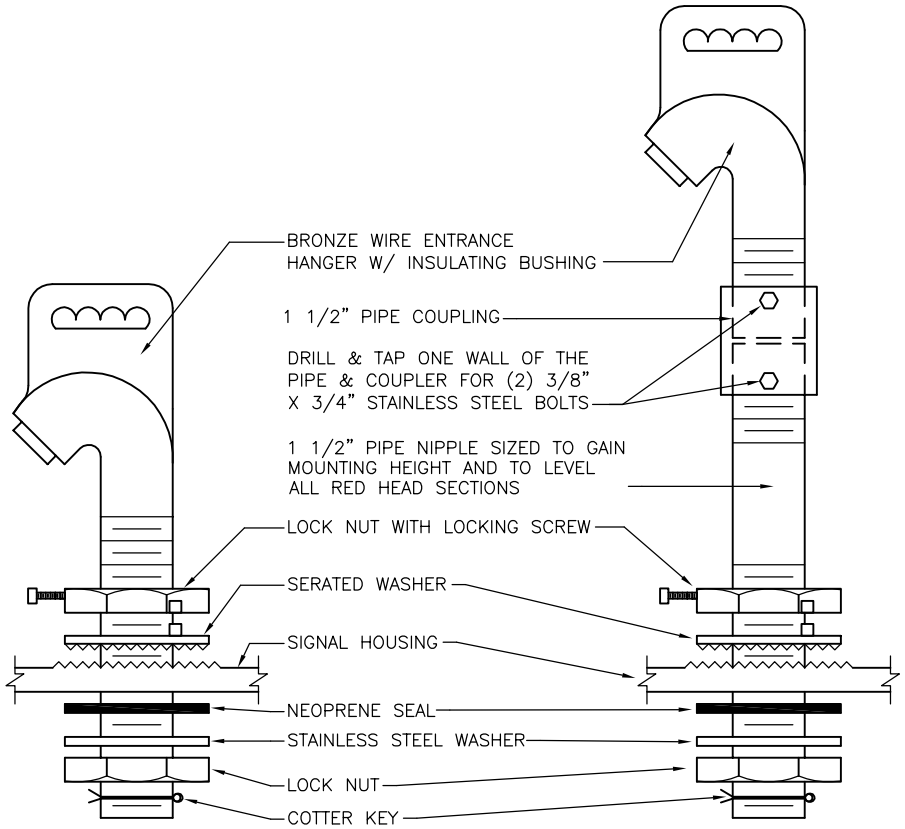
PEDESTAL TOP MOUNTING

FOR PEDESTAL SEE STD PLAN NO 524b

REF STD SPEC SEC 8-31

City of Seattle	NOT TO SCALE	VEHICULAR SIGNAL MOUNTING

REV DATE: 2003

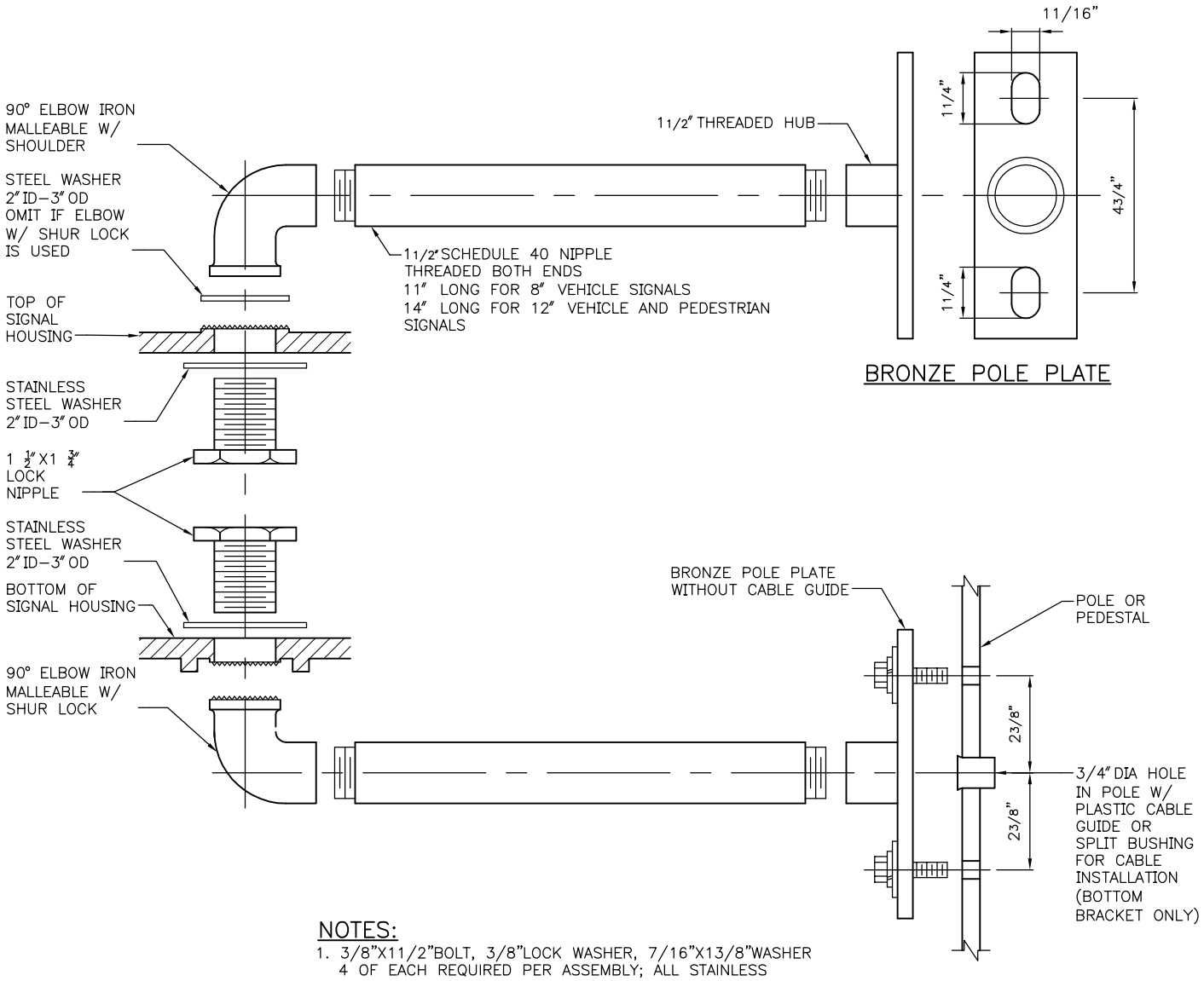


SUSPENDED SIGNAL MOUNTING DETAIL

REF STD SPEC SEC 8-31

City of Seattle	NOT TO SCALE	VEHICULAR SIGNAL MOUNTING

REV DATE: 2003



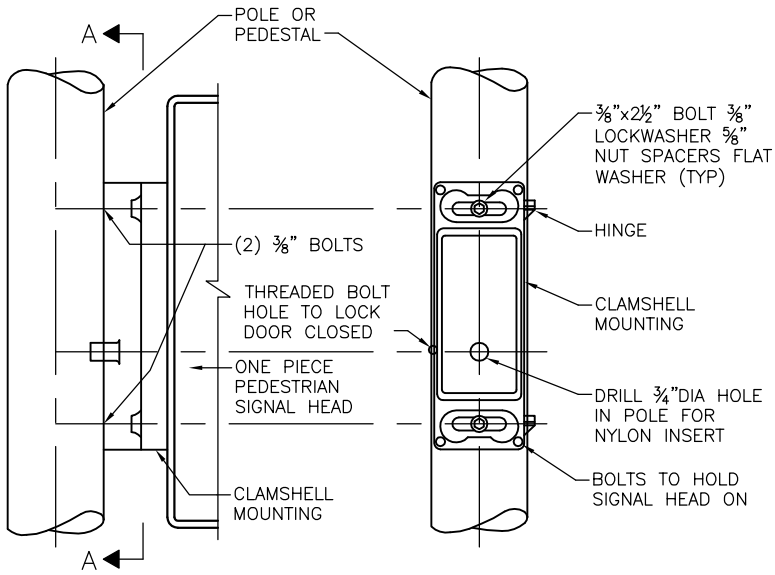
NOTES:

1. 3/8"X11/2"BOLT, 3/8"LOCK WASHER, 7/16"X13/8"WASHER 4 OF EACH REQUIRED PER ASSEMBLY; ALL STAINLESS STEEL.
2. MOUNTING SHALL BE AS FOLLOWS:
   - –ON METAL POLES THINNER THAN 7 GAUGE, USE 3/8" STAINLESS STEEL RIVNUTS.
   - –ON METAL POLES 7 GAUGE OR THICKER, DRILL AND TAP FOR 3/8" BOLT (STAINLESS STEEL RIVNUTS OPTIONAL).
   - –ON POLES FILLED OR MADE WITH CONCRETE USE 3/8"X21/2" MIN STUD BOLT ANCHORS, SLEEVE TYPE.
   - –ON WOOD POLES USE 11/2"X21/2"LAG BOLTS.

REF STD SPEC SEC 8-31

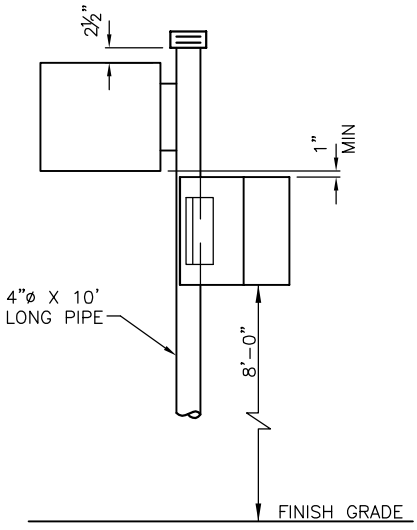
City of Seattle	NOT TO SCALE	SIGNAL HEAD BRACKET ASSEMBLY

REV DATE: JUN 2010

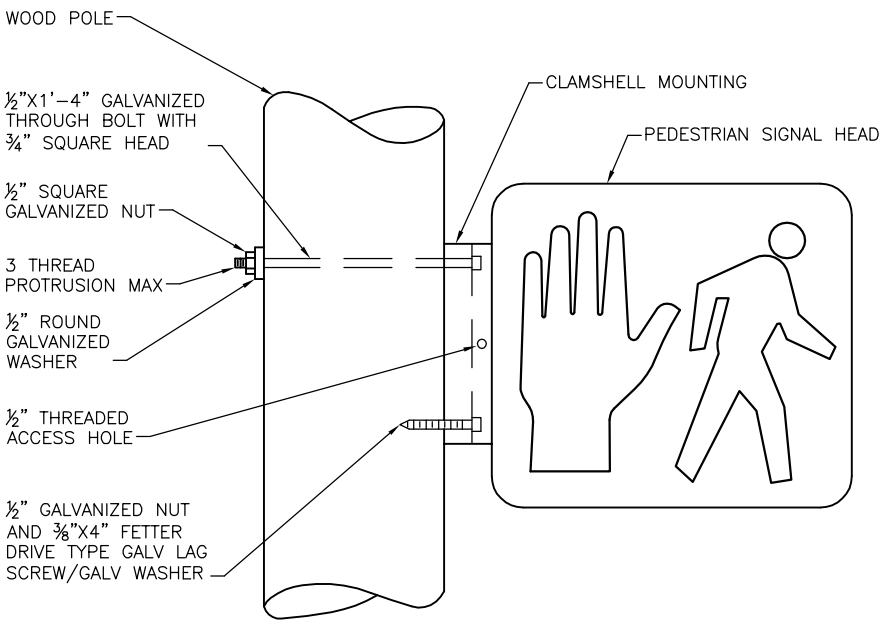


ELEVATION SECTION A–A

METAL POLE MOUNT



PEDESTAL MOUNT



WOOD POLE MOUNT

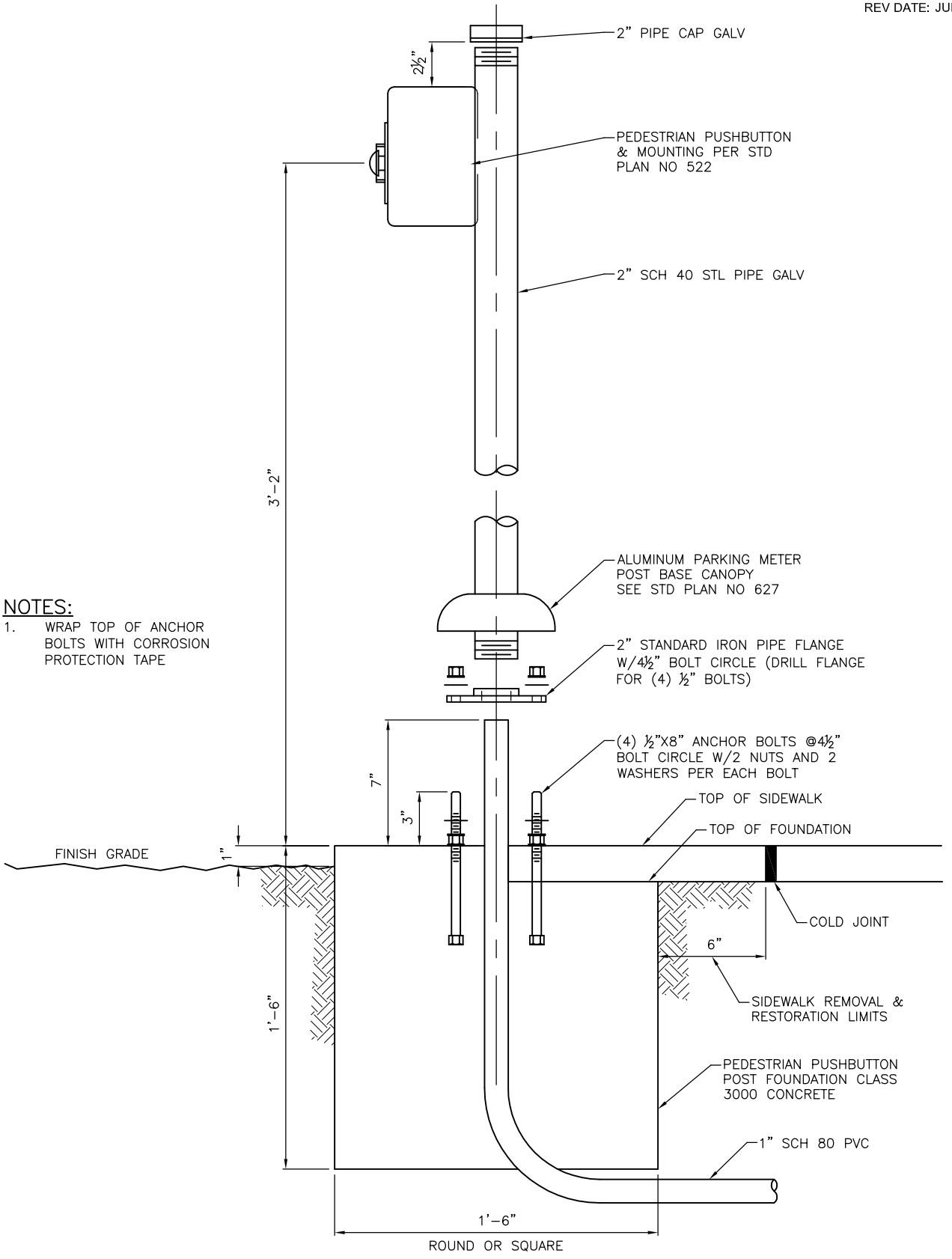
NOTES:

1. BOLT AND WASHERS SHALL BE STAINLESS STEEL
2. MOUNTING SHALL 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: JUN 2010



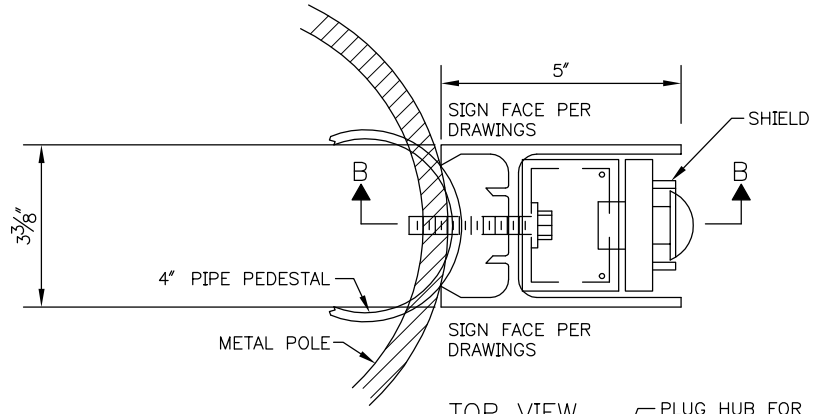
NOTES:

1. WRAP TOP OF ANCHOR BOLTS WITH CORROSION PROTECTION TAPE

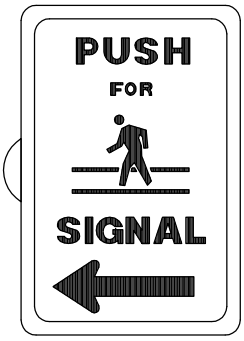
REF STD SPEC SEC 8-31 & 8-32

City of Seattle	NOT TO SCALE	PEDESTRIAN PUSHBUTTON POST & FOUNDATION

REV DATE: 2005



TOP VIEW



R–37L
MODIFIED
(PART NO H3)

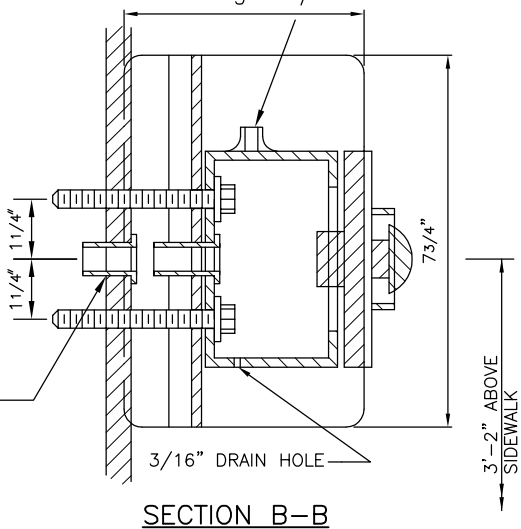
PLUG HUB FOR STEEL POLE MOUNTING

FOR WOOD POLE
USE 3/8″ GALV THRU BOLT FOR TOP HOLE & 3/8″X4″ GALV LAG BOLT & WASHER FOR BOTTOM HOLE

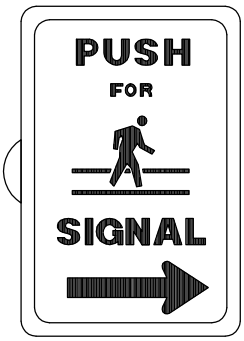
FOR METAL POLE
DRILL & TAP POLE FOR 3/8″X3 1/2″ STAINLESS STEEL BOLTS & WASHERS

–USE 3/8″X2 3/4″ BOLT FOR 4″ PIPE PEDESTAL

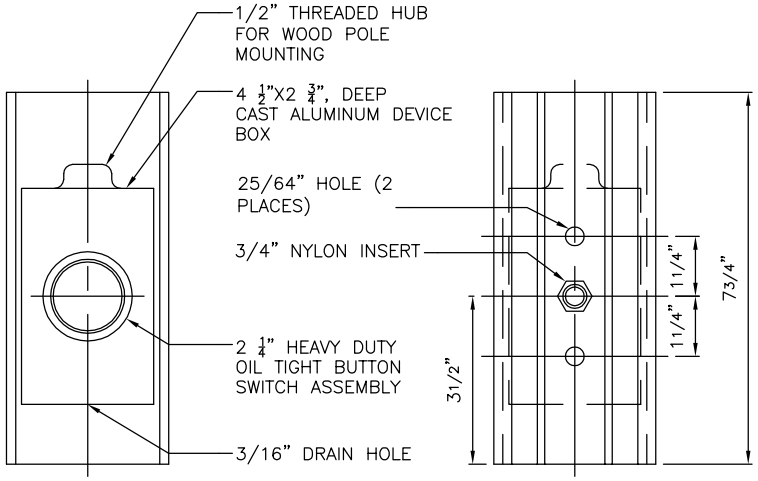
DRILL HOLE FOR 3/4″ NYLON INSERT (TYP)



SECTION B–B



R–37R
MODIFIED
(PART NO H3R)



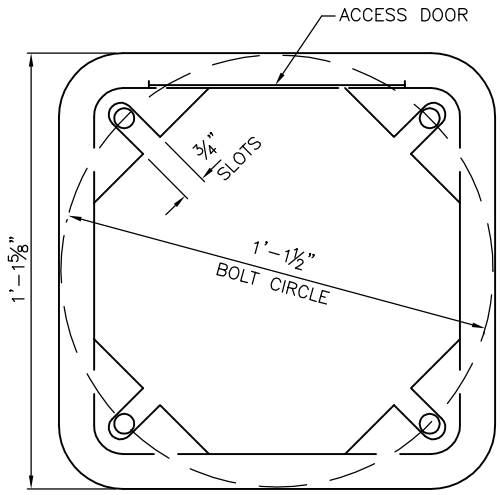
PPB ASSEMBLY

NOTES:
1. MOLDED ONE–PIECE ALUMINUM CONSTRUCTION
2. SIGNS SHALL BE FABRICATED FROM BAKED–ON ENAMEL DIRECTLY ON BOTH SIDES OF THE EXTRUSION

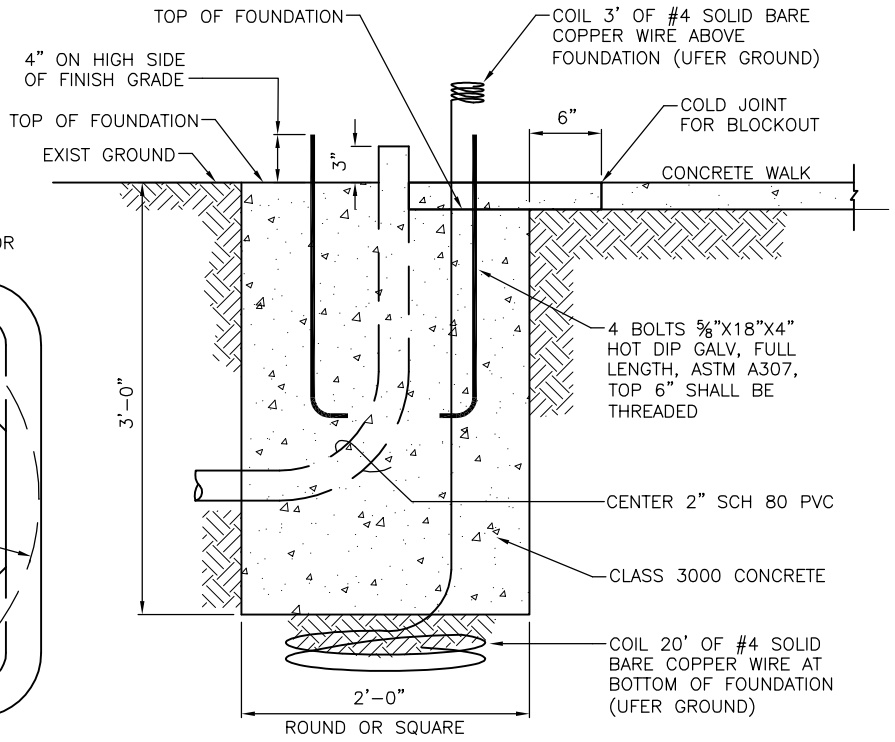
REF STD SPEC SEC 8-31

City of Seattle	NOT TO SCALE	PEDESTRIAN PUSHBUTTON & MOUNTING

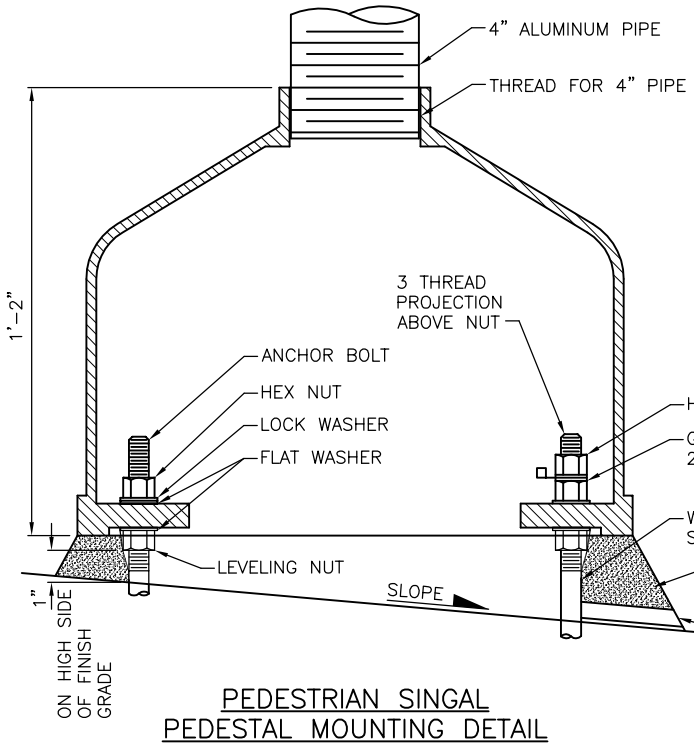
REV DATE: JUN 2010



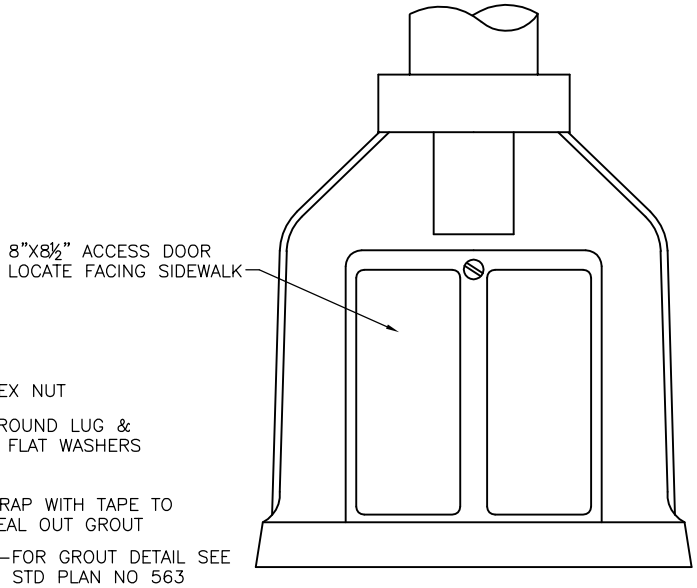
BOTTOM VIEW



PEDESTAL FOUNDATION



PEDESTRIAN SINGAL PEDESTAL MOUNTING DETAIL

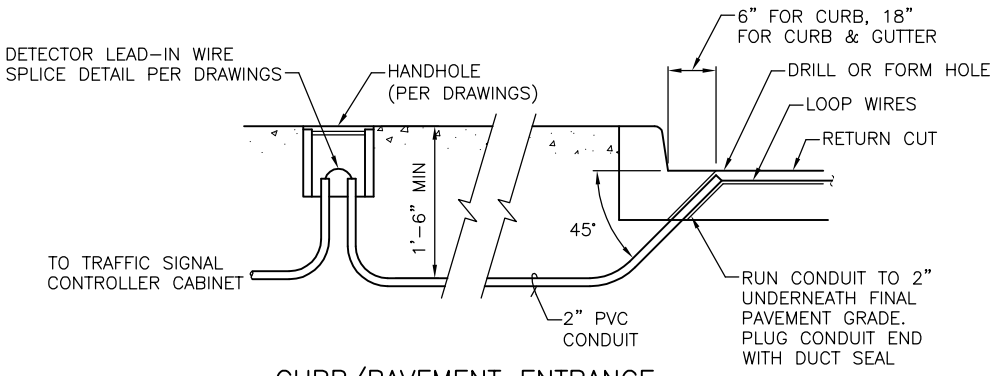


SQUARE ALUMINUM BASE PEDESTAL

REF STD SPEC SEC 8-32

City of Seattle	NOT TO SCALE	PEDESTAL & FOUNDATION

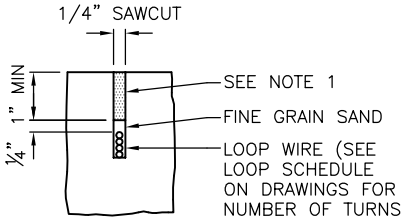
REV DATE: JUN 2010



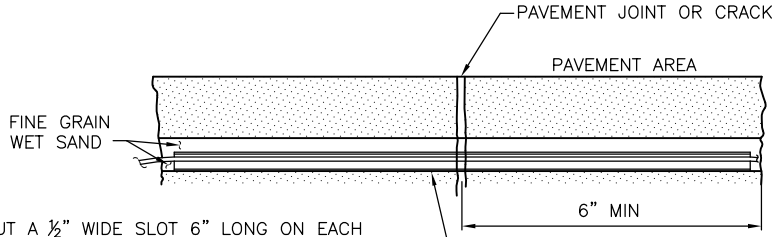
CURB/PAVEMENT ENTRANCE FOR DETECTOR LOOP WIRES

NOTES:

1. FILL CUT AFTER VERTICAL PLACEMENT AND TESTING WITH HOT PAVING GRADE LIQUID ASPHALT ASTM D 312 TYPE III OR QUICK SETTING HIGH STRENGTH GROUT
2. SHARP EDGE TOOLS SHALL NOT BE USED IN PLACING CONDUCTORS IN SAW CUTS
3. EACH PAIR OF LOOP WIRES IN THE RETURN CUT SHALL BE TWISTED A MINIMUM OF 3 TURNS PER FOOT AND MAY SHARE COMMON RETURN CUTS WITH OTHER TWISTED PAIRS
4. TAPE LOOP WIRE A MINIMUM OF 2 TURNS AT EACH CORNER
5. REMOVE SHARP CORNER EDGES IN SAW CUTS WHERE LOOP WIRE WILL BE BENT AROUND
6. PERFORM RESISTANCE AND CONTINUITY TESTS PRIOR TO SEALING LOOP WIRES
7. COIL 5'–0" OF LOOP WIRE IN HANDHOLE



SECTION A–A



CUT A ½" WIDE SLOT 6" LONG ON EACH SIDE OF JOINT OR CRACK

WRAP ENDS AND ENTIRE LENGTH OF TUBING WITH TWO LAYERS OF ELECTRICAL TAPE TO PREVENT ASPHALT OR CONCRETE FROM ENTERING THE TUBING

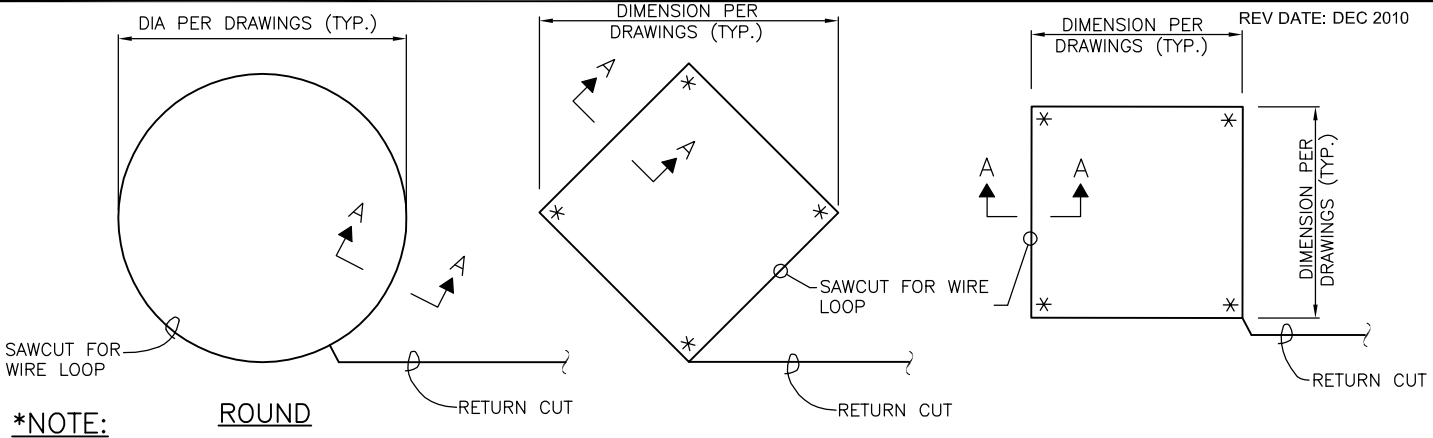
5/16"ID X ⅛" WALL PURE GUM NATURAL TUBING MUST CLEAR JOINT OR CRACK BY A MINIMUM OF 6" EACH SIDE

PAVEMENT JOINT OR CRACK DETAIL

REF STD SPEC SEC 8-31

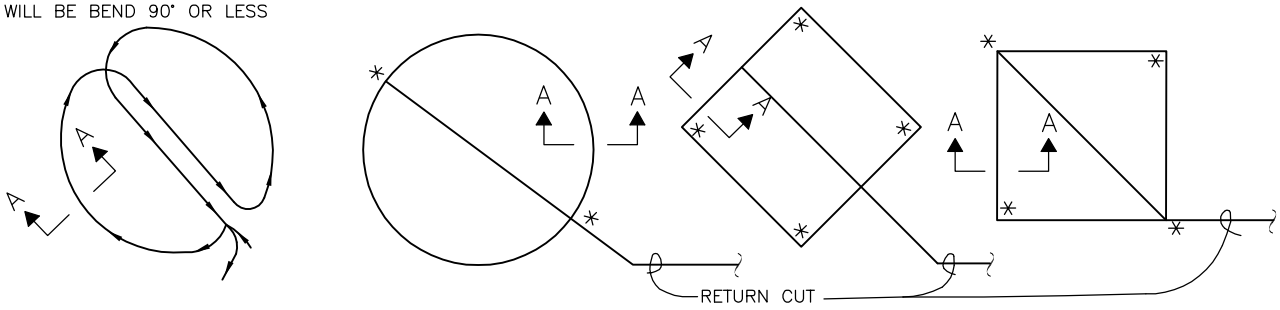
City of Seattle	NOT TO SCALE	LOOP DETECTORS

REV DATE: DEC 2010

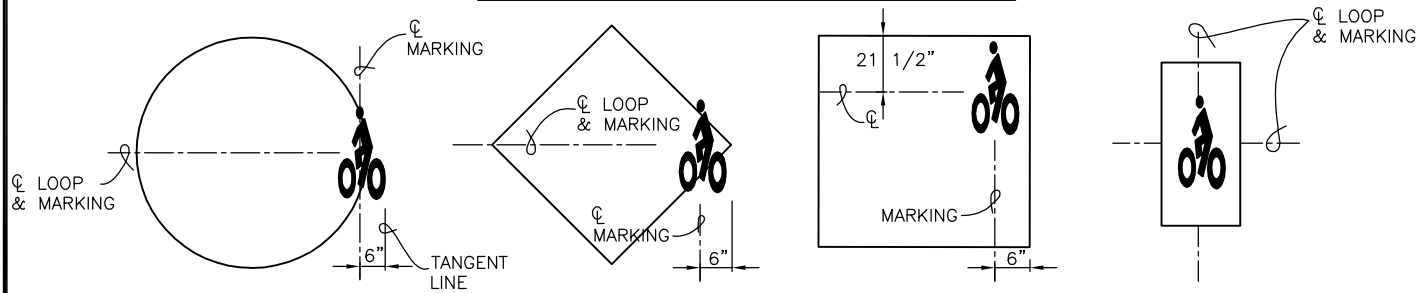


*NOTE:
OVERLAP CUT FOR FULL DEPTH AT CORNERS (TYP.) CHIP 1" BACK THEN ROUND OFF CORNERS WHERE LOOP WIRE WILL BE BEND 90° OR LESS

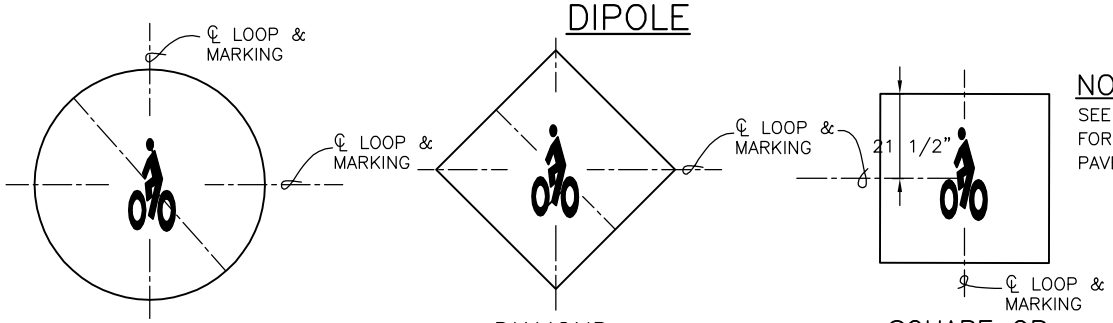
DIPOLE LOOP DETECTOR



QUADRIPOLE LOOP DETECTOR



DIPOLE

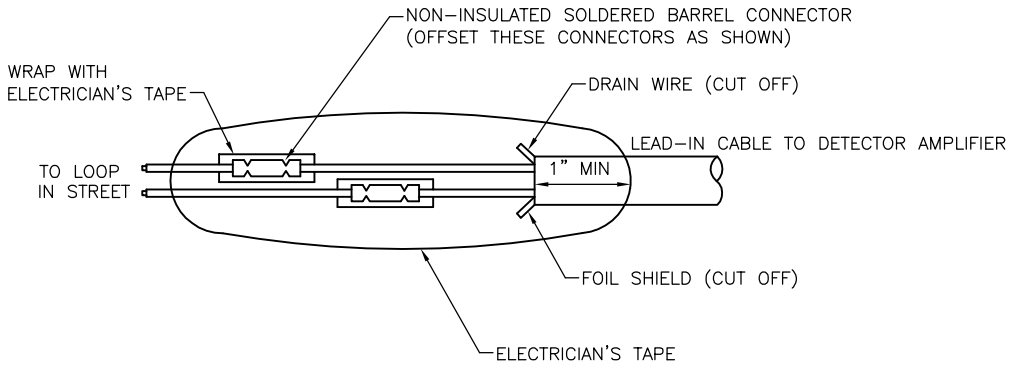


NOTE:
SEE STD PLAN NO. 725 FOR BICYCLE DETECTOR PAVEMENT MARKER DETAIL.

QUADRIPOLE

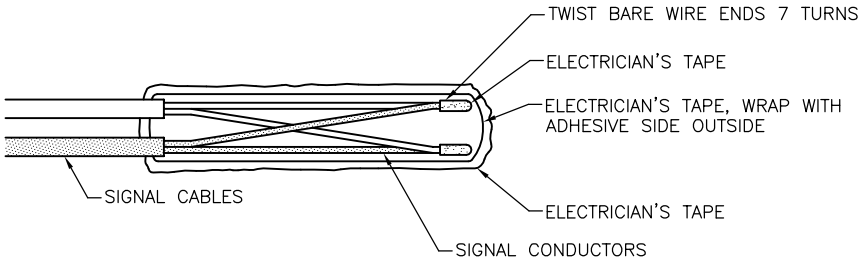
REF STD SPEC SEC 8-31

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



DETECTOR LEAD–IN WIRE SPLICE DETAIL

NOTE:
SOLDER CONNECTION AFTER CRIMPING

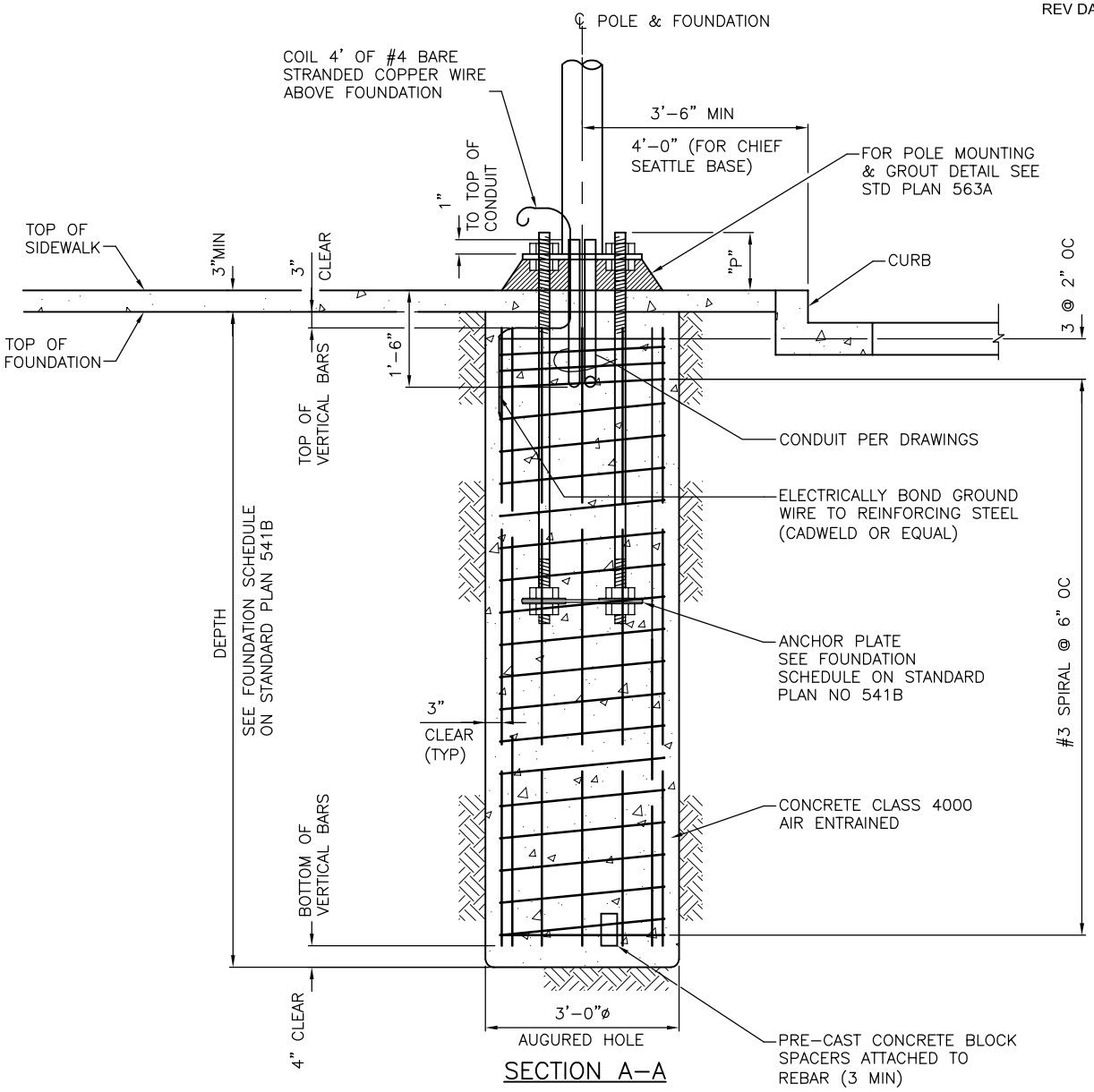


SIGNAL CABLE SPLICE

REF STD SPEC SEC 8-31

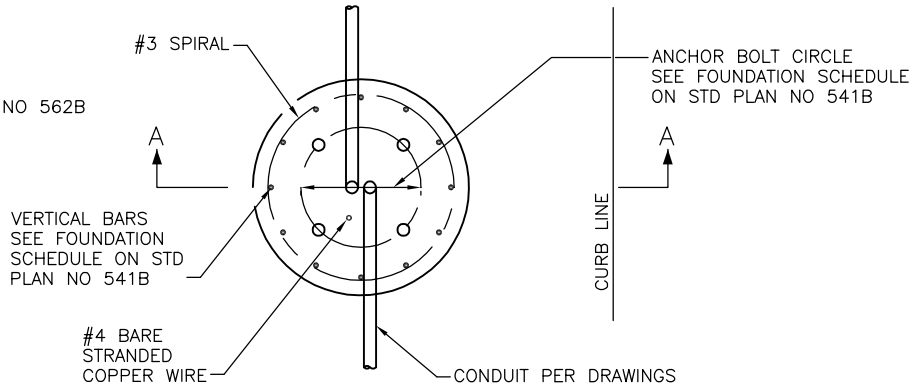
City of Seattle	NOT TO SCALE	DETECTOR LOOP WIRE & SIGNAL CABLE SPLICE

REV DATE: JUN 2010



SECTION A–A

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



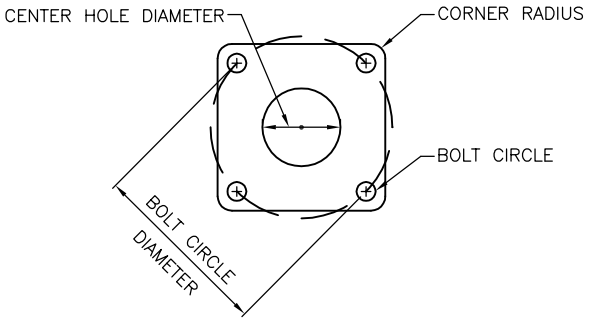
PLAN VIEW
STRAIN POLE FOUNDATION IN SIDEWALK

REF STD SPEC SEC 8-32, 6-02

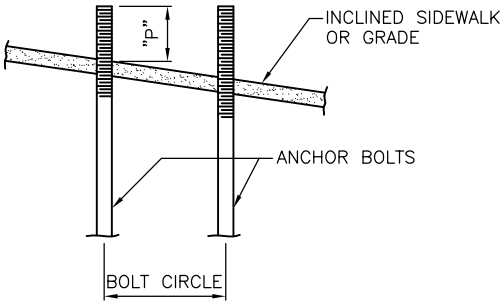
City of Seattle	NOT TO SCALE	FOUNDATION STRAIN POLE FOUNDATION DETAIL (TYPE T, V, X & Z)

REV DATE: JUN 2010

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



ANCHOR PLATE



INCLINED CONDITION

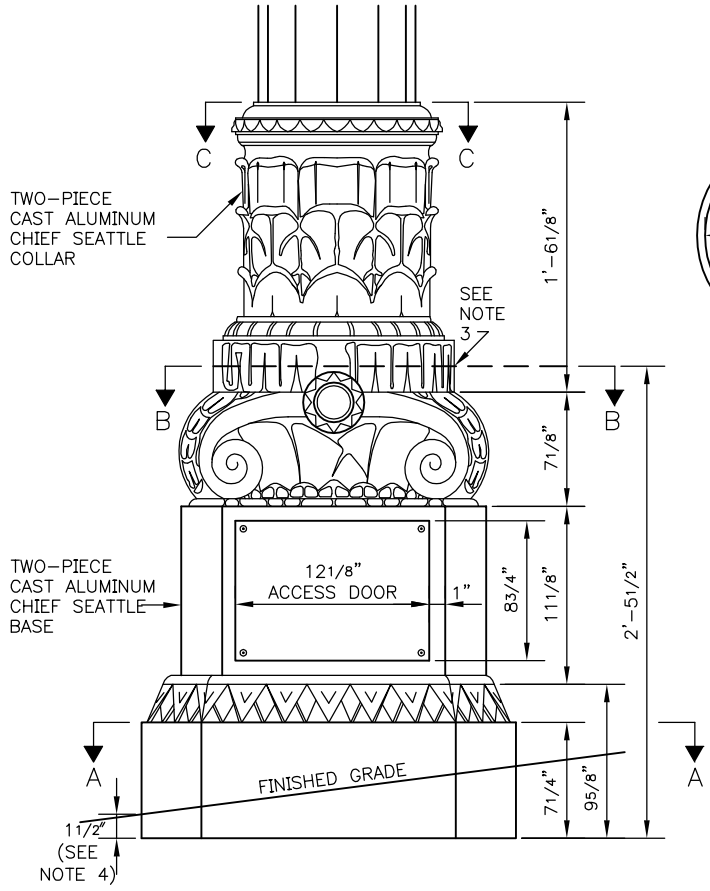
NOTES:

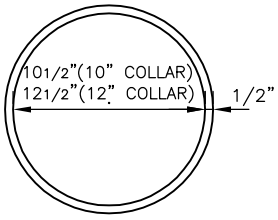
1. CONCRETE STRENGTH SHALL BE CLASS 4000 AIR ENTRAINED, 3/4"MAX SIZE COARSE AGGREGATE.
2. ANCHOR BOLTS FOR TYPE V,X,Z: ASTM F1554–99, GRADE 105, CLASS 2A INCLUDING SUPPLEMENTARY REQUIREMENTS S2, S3 AND S5. ANCHOR BOLTS FOR TYPE T: ASTM A576 (TYPE 1040 OR 045) FY=55 KSI MIN., ASTM A675 GRADE 90 OR ASTM A36 MOD FY=55 KSI. NUTS: ASTM A563 HEAVY HEX GRADE DH. HARDENED STEEL WASHERS: ASTM F436.
3. ANCHOR PLATE: ASTM A36. HOT DIP GALVANIZED.
4. ALL REINFORCING BARS SHALL BE DEFORMED BILLET STEEL CONFORMING TO ASTM CLASS A615, GRADE 60.
5. ANCHOR BOLTS SHALL BE HOT DIP GALVANIZED ASTM A153 INCLUDING NUTS & WASHERS (FULL LENGTH) WITH 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

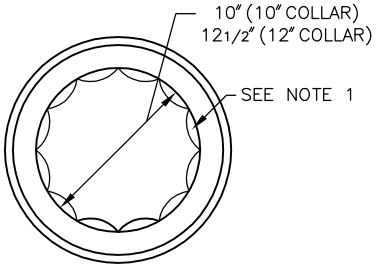
City of Seattle	NOT TO SCALE	STRAIN POLE FOUNDATION SCHEDULE & NOTES (TYPE T, V, X & Z)

REV DATE: DEC 2010

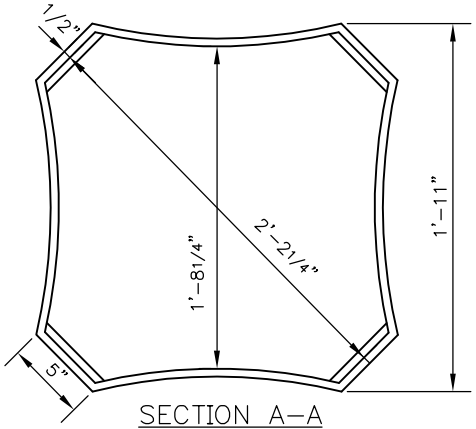




SECTION B–B
PLAN VIEW (TOP)



SECTION C–C
PLAN VIEW



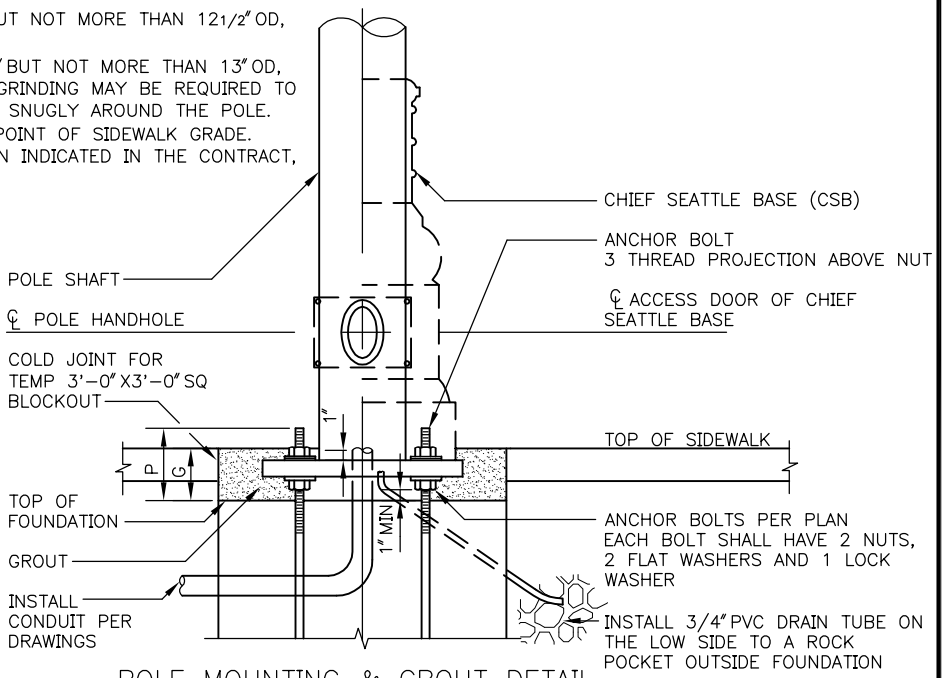
SECTION A–A
PLAN VIEW (BOTTOM)

NOTES:

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

REFER TO STANDARD PLAN ON 541b

POLE TYPE	G	P
T	6 1/2"	8"
V	6 1/2"	9"
X	7"	10"
Z	11 1/2"	11 1/2"



POLE MOUNTING & GROUT DETAIL

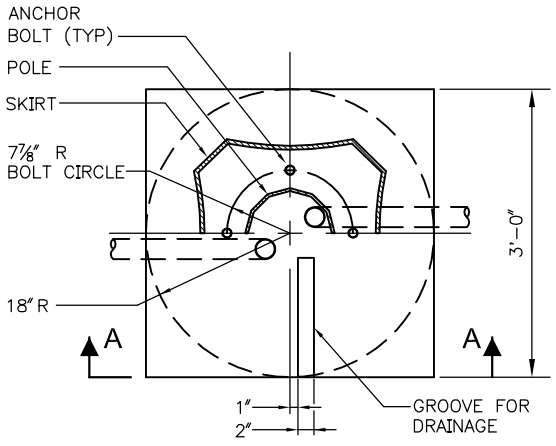
REF STD SPEC SEC 8-32

City of Seattle

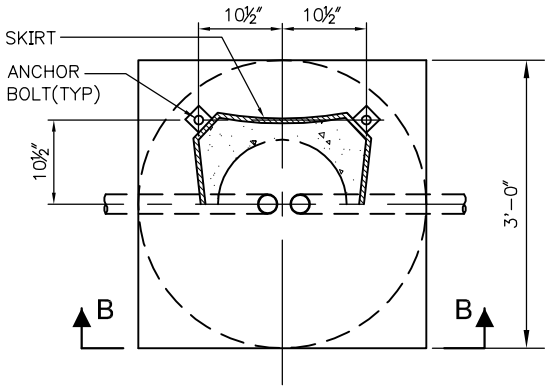
NOT TO SCALE

CHIEF SEATTLE BASE (CSB)

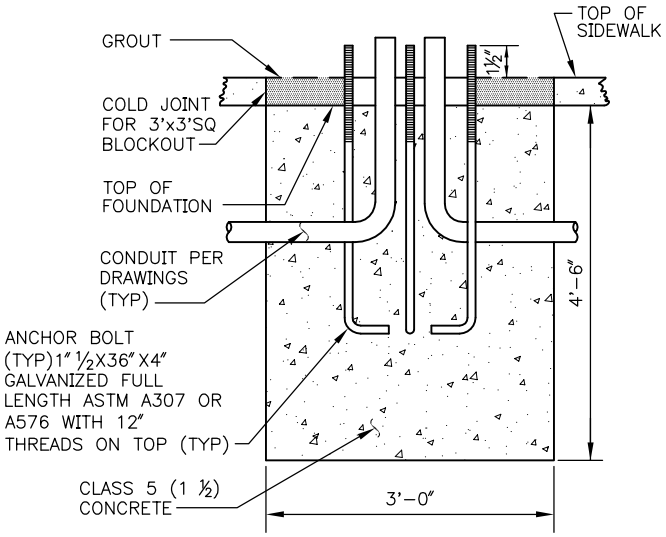
REV DATE: DEC 2010



PLAN



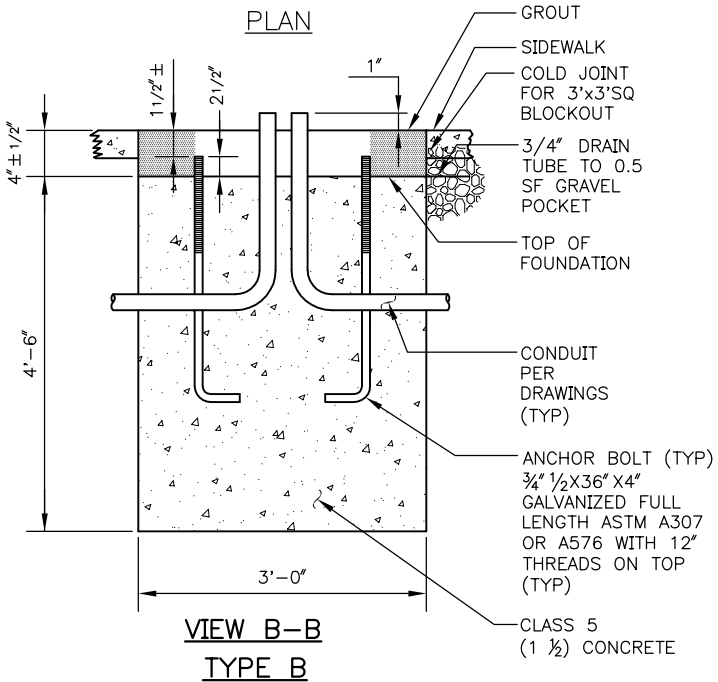
PLAN



VIEW A–A

TYPE A

BOLT PATTERN MUST BE DIAMOND SHAPE TO CURB.



VIEW B–B

TYPE B

TO BE USED FOR CONCRETE FILLED POLE, BOLTS ARE PARALLEL TO CURB.

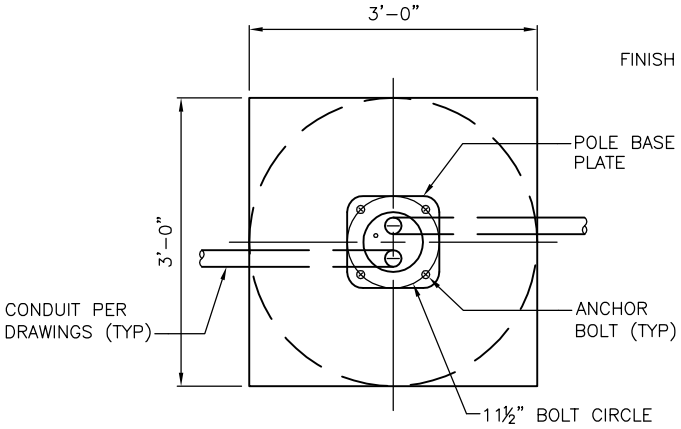
NOTES:

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

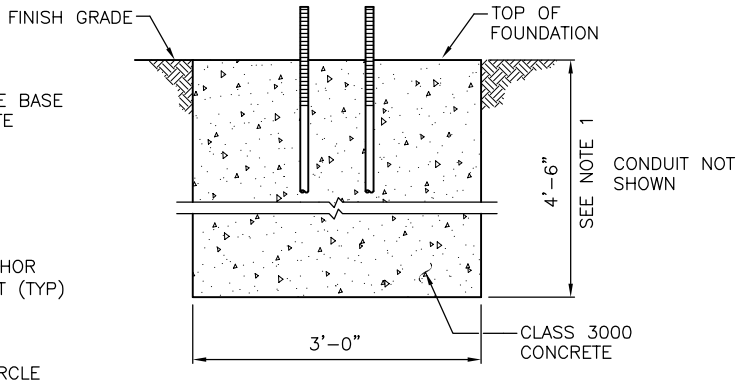
REF STD SPEC SEC 8-32

City of Seattle	NOT TO SCALE	CHIEF SEATTLE STREET LIGHT POLE FOUNDATION

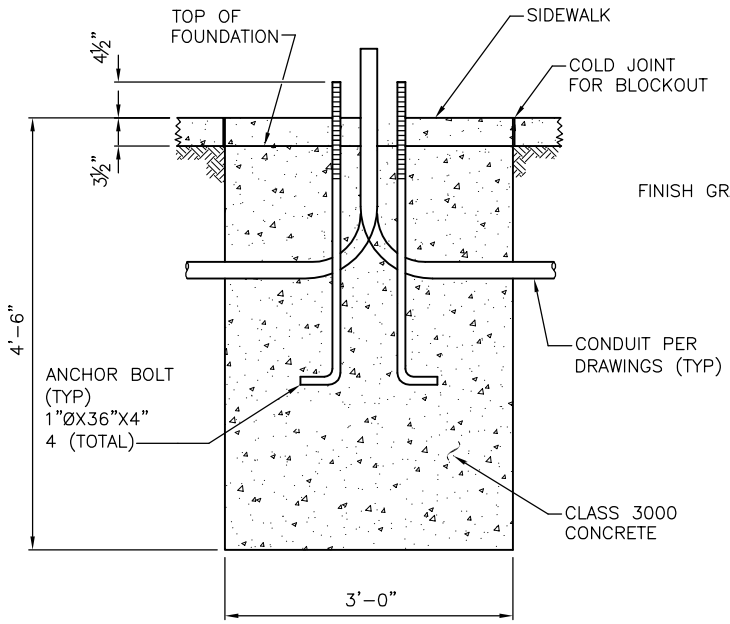
REV DATE: JUN 2010



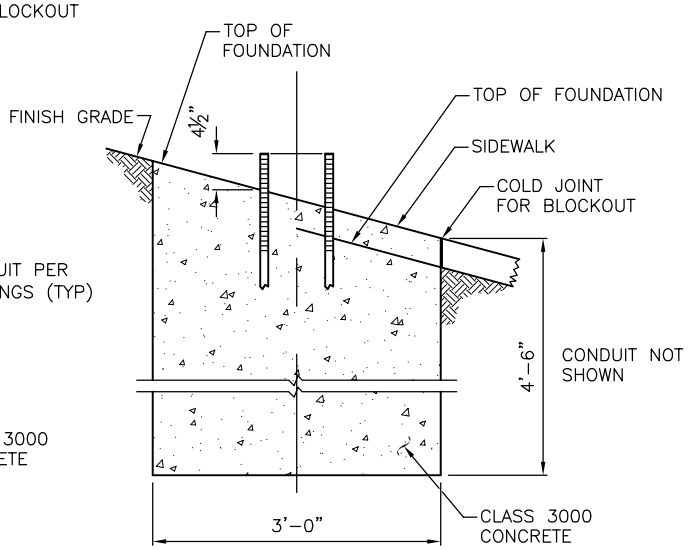
PLAN



IN EARTH



IN SIDEWALK



ON AN INCLINE

NOTES:

1. BOLT CIRCLE: 11½" TYP
2. SEE STD PLAN NO 563A FOR POLE MOUNTING AND GROUT DETAIL
3. ANCHOR BOLTS SHALL BE HOT DIP GALVANIZED (ASTM A153) FULL LENGTH AND FABRICATED FROM ASTM F1554 OR A576 WITH 12" THREADS ON TOP
4. INSTALL UFER GROUND IN FOUNDATION (SEE STD PLAN NO 524A)

REF STD SPEC SEC 8-32

City of Seattle	NOT TO SCALE	STREET LIGHT POLE FOUNDATIONS

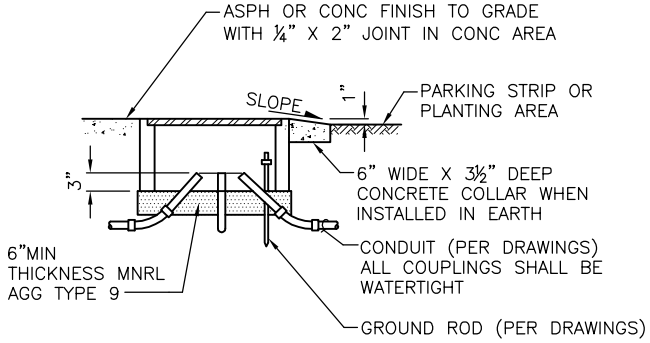
REV DATE: JUN 2010

NOTES:

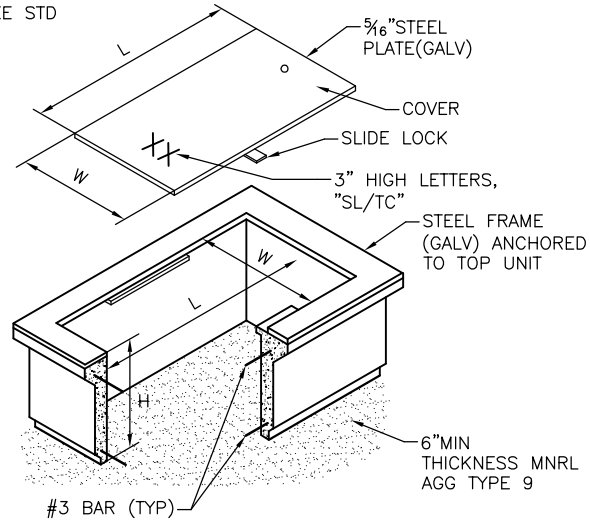
1. THE COVER SHALL HAVE 1/16" TO 1/8" CLEARANCE ON EACH EDGE WITHIN THE FRAME AFTER GALVANIZING.
2. THE GROUND ROD SHALL EXTEND 4" ABOVE THE BOTTOM OF THE HANDHOLE OR MINERAL AGGREGATE.
3. TYPE 1, 2, 3, 5 & 6 HANDHOLE COVERS SHALL HAVE "TC" AND/OR "SL" ON THEM, AS APPROPRIATE.
4. TYPE 4 HANDHOLE SHALL BE INSTALLED IN ROADWAYS, PARKING LOTS, ETC.
5. FOR PAVEMENT DEPTH 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 SHALL BE SECURED FROM THE HANDHOLE COVER TO THE FRAME. WITH A 4'–0" LENGTH FROM FRAME THAT CAN BE HOOKED UP TO A GROUND ROD.
7. ALL HANDHOLE COVERS AND FRAMES SHALL HAVE A NON–SKID SURFACE (SEE STD SPEC SEC 9–34.6)
8. ALL HANDHOLES SHALL HAVE A LOAD RATING OF H20.

HANDHOLE SCHEDULE

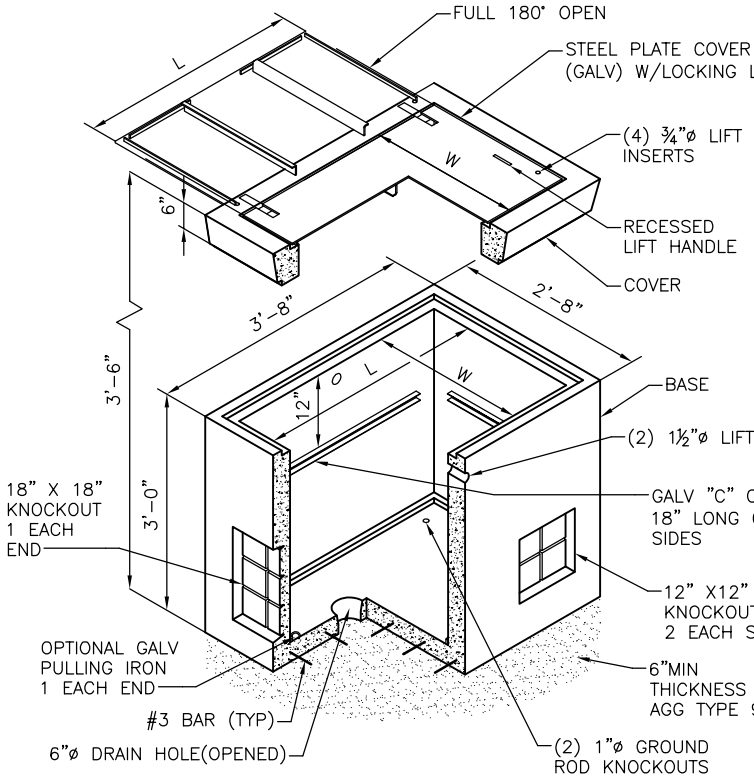
HANDHOLE TYPE	TOP UNIT INSIDE DIMENSION			EXTENSION UNIT(E)	COVER DIMENSIONS	
	L	W	H	H	L	W
1	19"	14"	12"	12"	18"	13"
2	28"	17"	12"	12"	26½"	17"
3	36"	24"	12"	12"	35"	24"
4	24"ø		VAR	NA	NA	NA
5	36"	24"	32"	NA	35"	24"
6	42"	42"	38½"	NA	33½"	33¾"
GRHH	8"ø			NA		



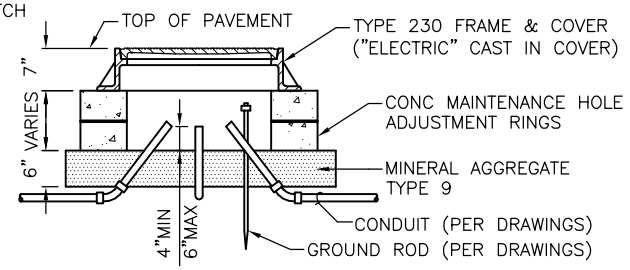
HANDHOLE INSTALLATION DETAIL



TYPE 1 & 2 HANDHOLE

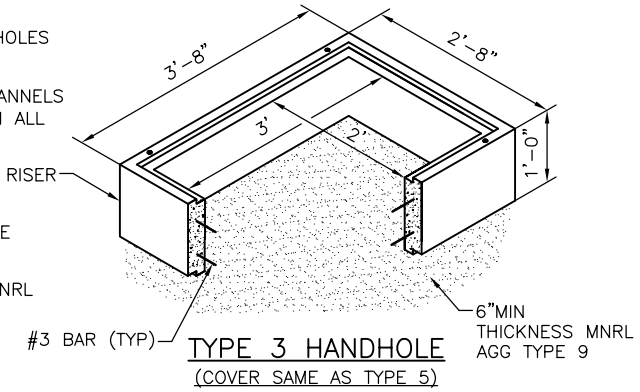


TYPE 5 HANDHOLE



TYPE 4 HANDHOLE

TRAFFIC BEARING



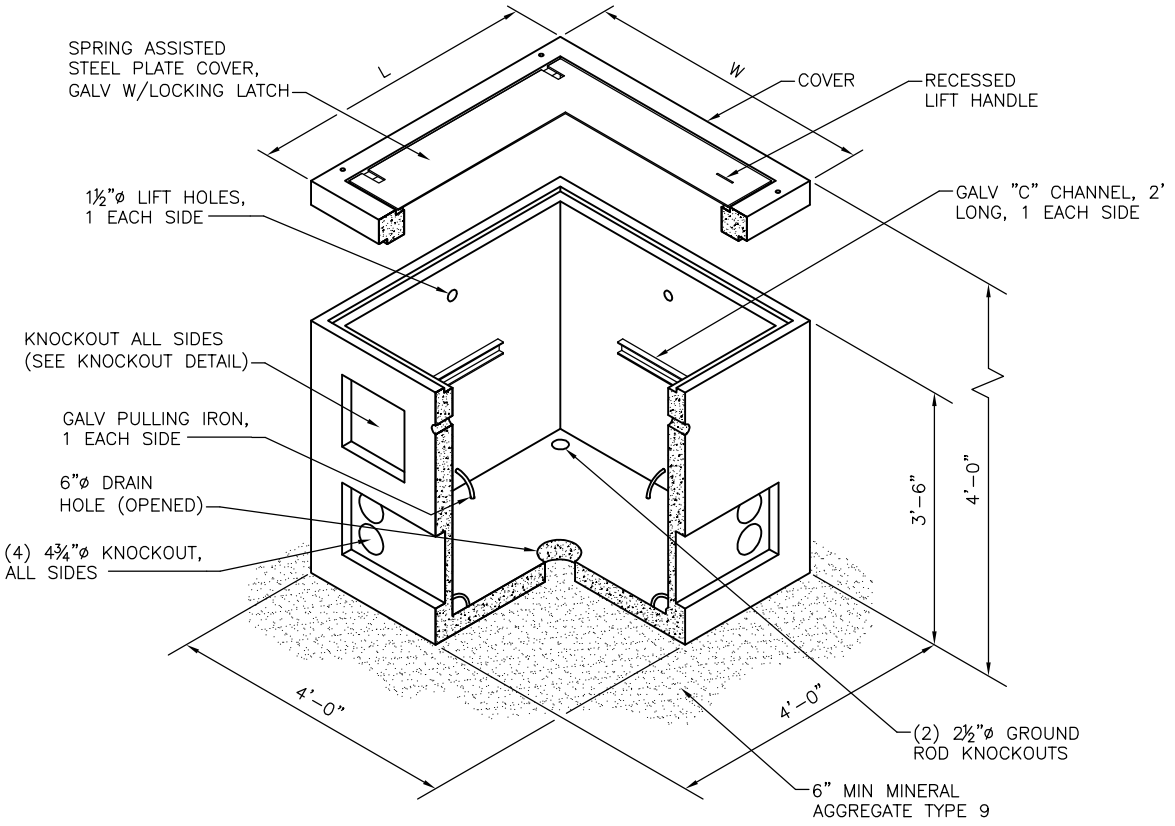
TYPE 3 HANDHOLE

(COVER SAME AS TYPE 5)

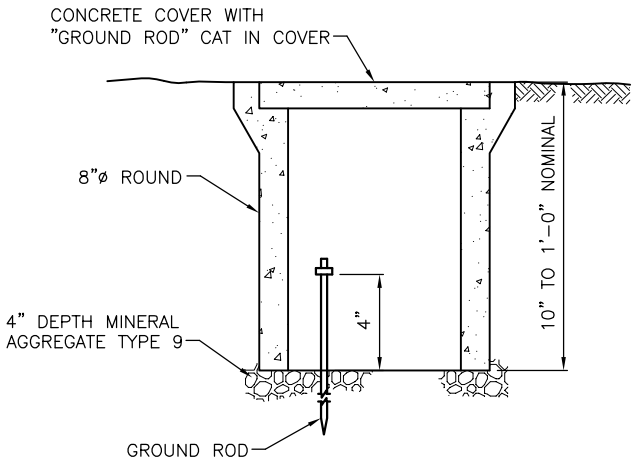
REF STD SPEC SEC 8-33

City of Seattle	NOT TO SCALE	HANDHOLES

REV DATE: JUN 2010



TYPE 6 MANHOLE



GROUND ROD HANDHOLE (GRHH)

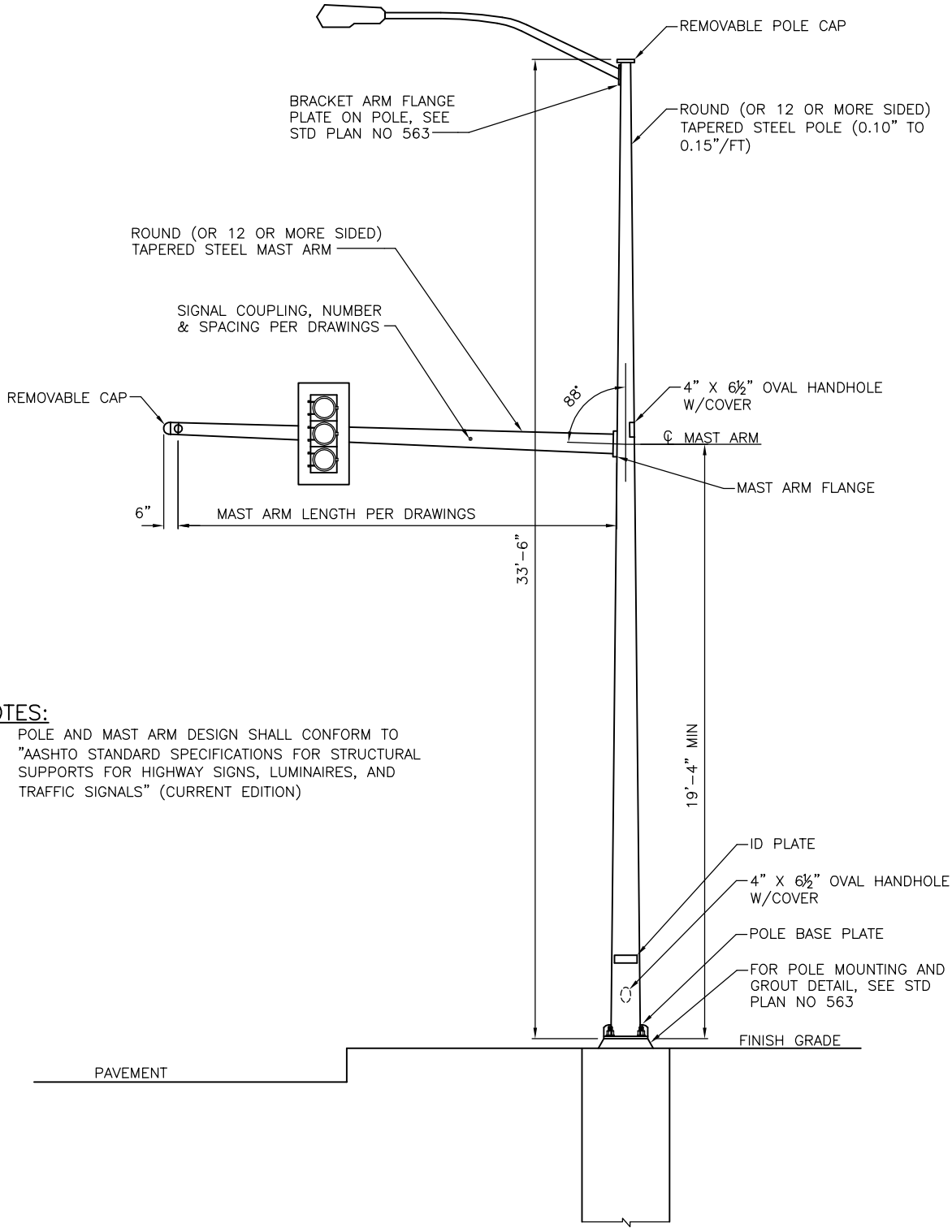
NOTES:

1. ALL HANDHOLES SHALL HAVE A H20 LOAD RATING.

REF STD SPEC SEC 8-33

City of Seattle	NOT TO SCALE	HANDHOLES

REV DATE: JUN 2010



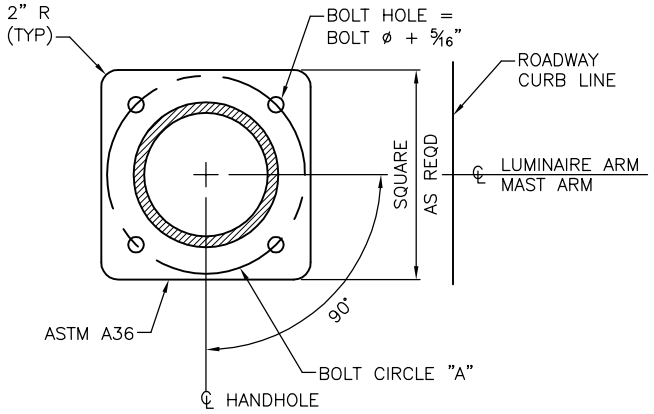
NOTES:

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

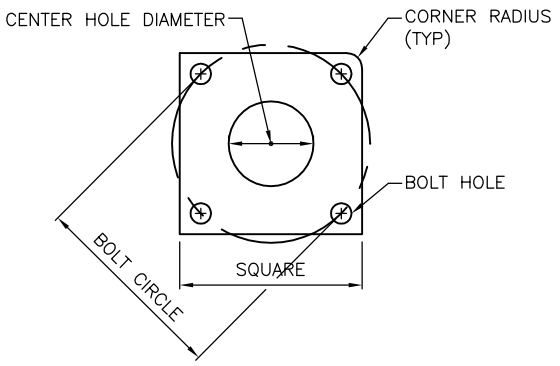
REF STD SPEC SEC 8-32

City of Seattle	NOT TO SCALE	STEEL MAST ARM POLE

REV DATE: JUN 2010

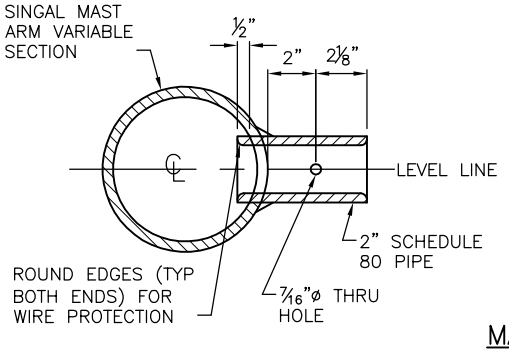


POLE BASE PLATE



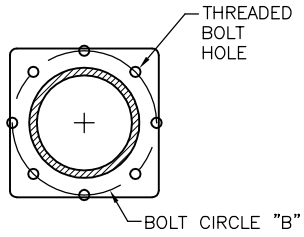
ANCHOR PLATE

PER FOUNDATION SCHEDULE

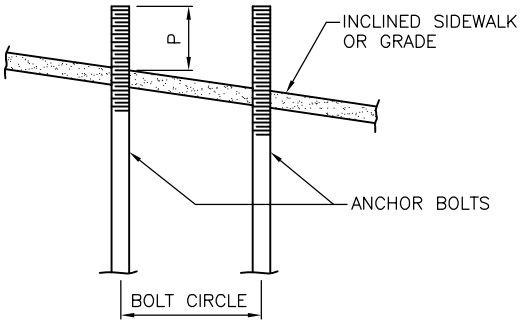


SIGNAL COUPLING

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 SHALL BE CLASS 4000 AIR ENTRAINED.
2. ANCHOR BOLTS SHALL 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 SHALL BE DEFORMED BILLET STEEL CONFORMING TO ASTM CLASS A615, GRADE 60.
5. ANCHOR BOLTS SHALL BE HOT DIP GALVANIZED ASTM A153 INCLUDING NUTS & WASHERS (FULL LENGTH) WITH A MINIMUM OF 18" OF THREADS ON TOP & 12" ON BOTTOM.
6. TAPE THE TOP OF ANCHOR BOLTS WITH CORROSION PROTECTION TAPE PER STD SPEC SEC 8–32.3(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"	8 #7	⅜" X 16" X 16"	14½"	1⅝"	10"	1⅝"
31'–0" TO 40'–0"	8'–6"	9'–6"	9"	16½"	1¾" X 72"	8 #8	⅜" X 16" X 16"	16½"	1⅞"	12½"	1⅝"
41'–0" TO 45'–0"	8'–6"	9'–6"	9"	18"	1¾" X 72"	8 #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"

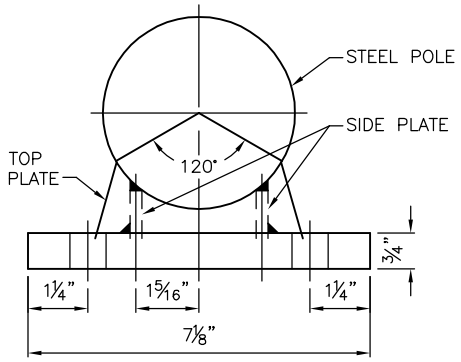
REF STD SPEC SEC 8-32

City of Seattle

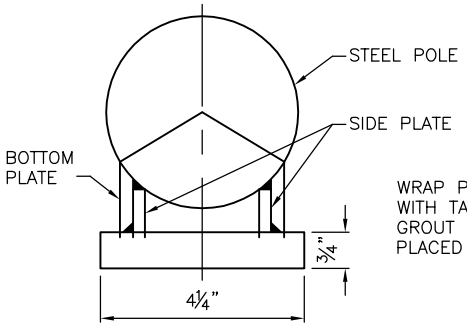
NOT TO SCALE

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

REV DATE: AUG 2010

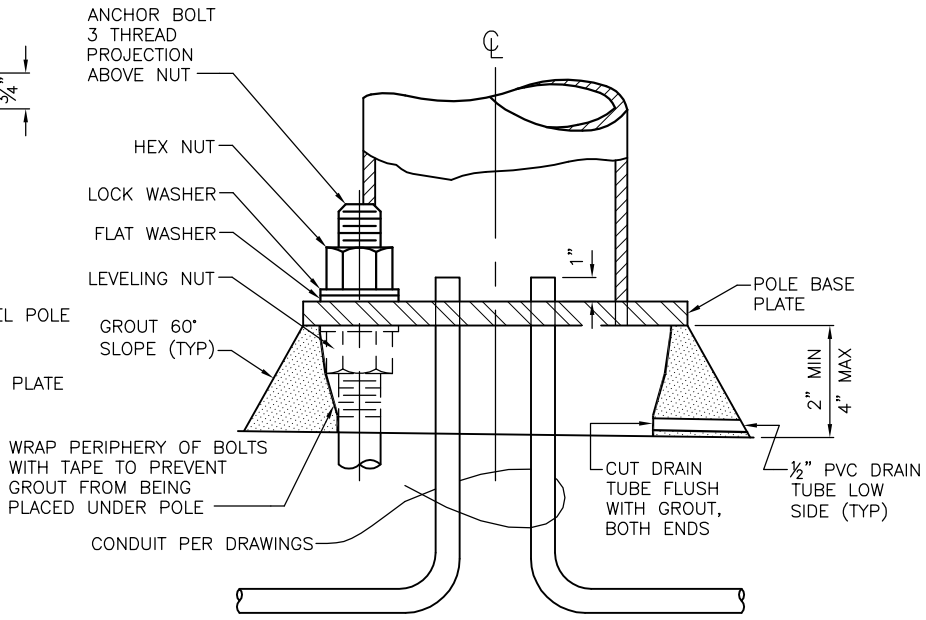


SECTION A–A

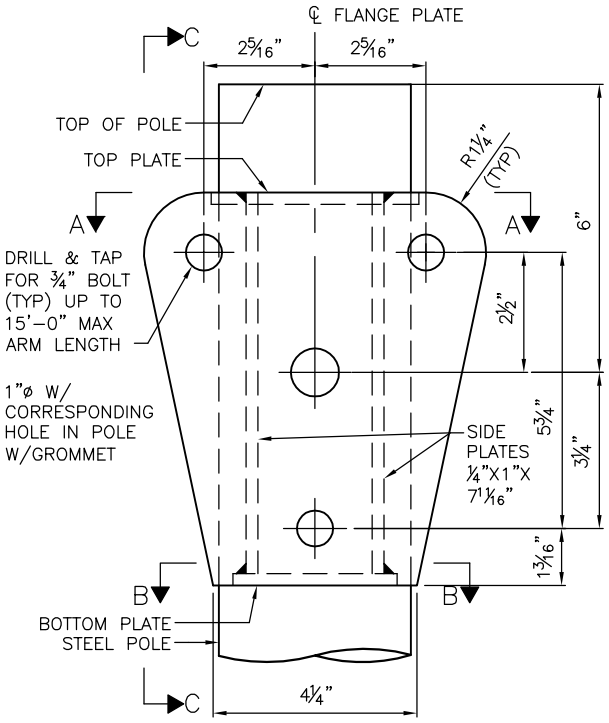


SECTION B–B

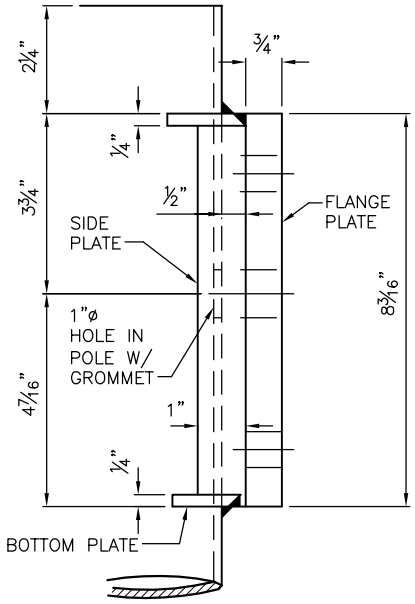
NOTE:
GROUT SHALL BE PREMIXED, NON–SHRINK AND NON–METALLIC



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



BRACKET ARM FLANGE PLATE ON POLE

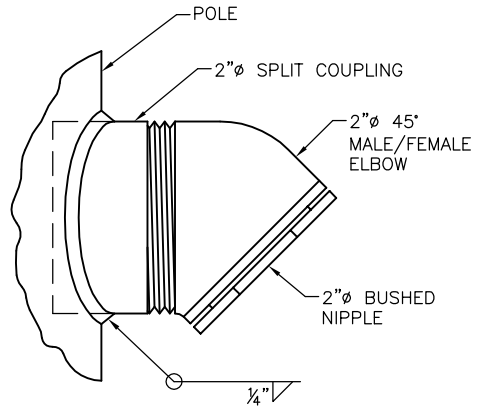


SECTION C–C
STRUCTURAL CARBON STEEL PLATES SHALL BE ASTM A36

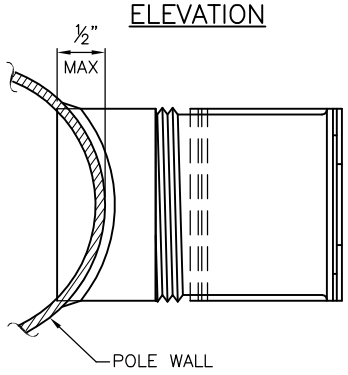
REF STD SPEC SEC 8-32

City of Seattle	NOT TO SCALE	MISCELLANEOUS STEEL POLE DETAILS

REV DATE: AUG 2010

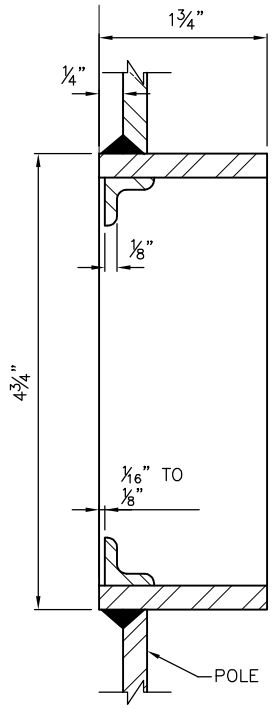


ELEVATION

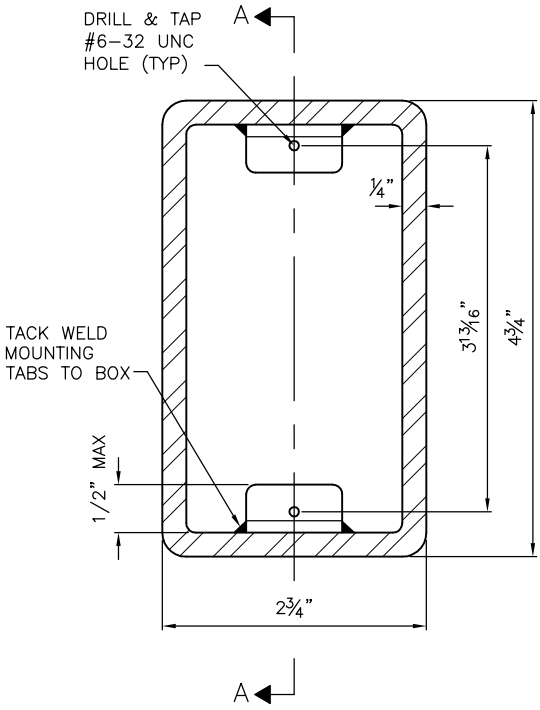


PLAN

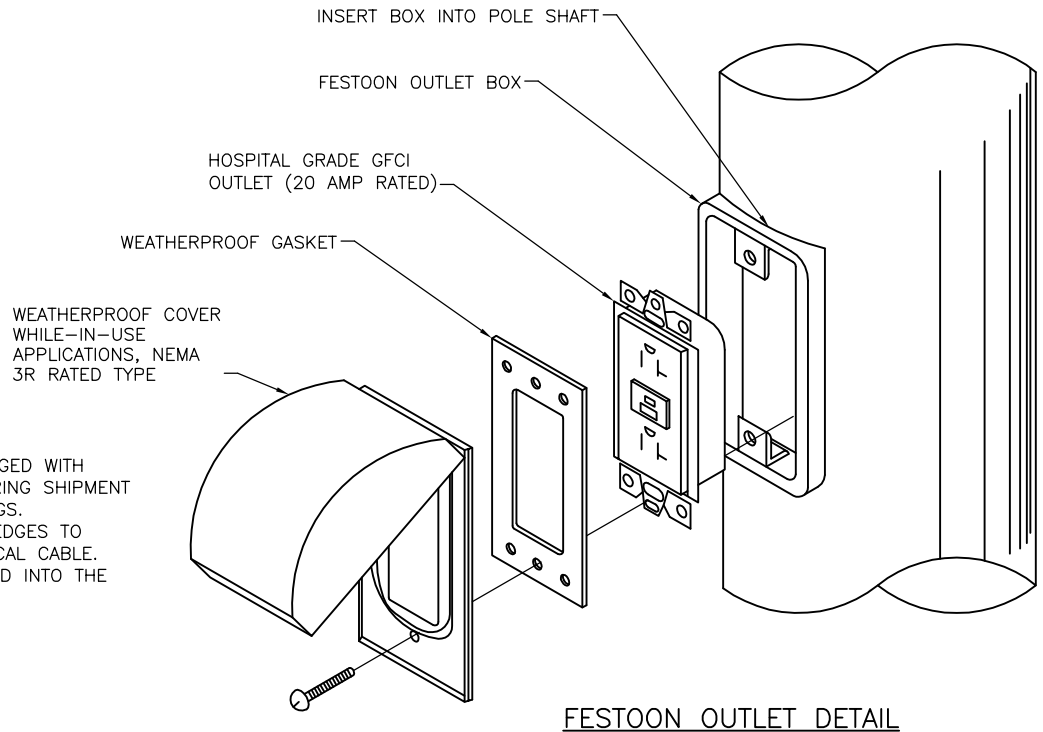
CABLE OUTLET DETAIL



SECTION A–A



FESTOON OUTLET BOX



FESTOON OUTLET DETAIL
(METAL POLES)

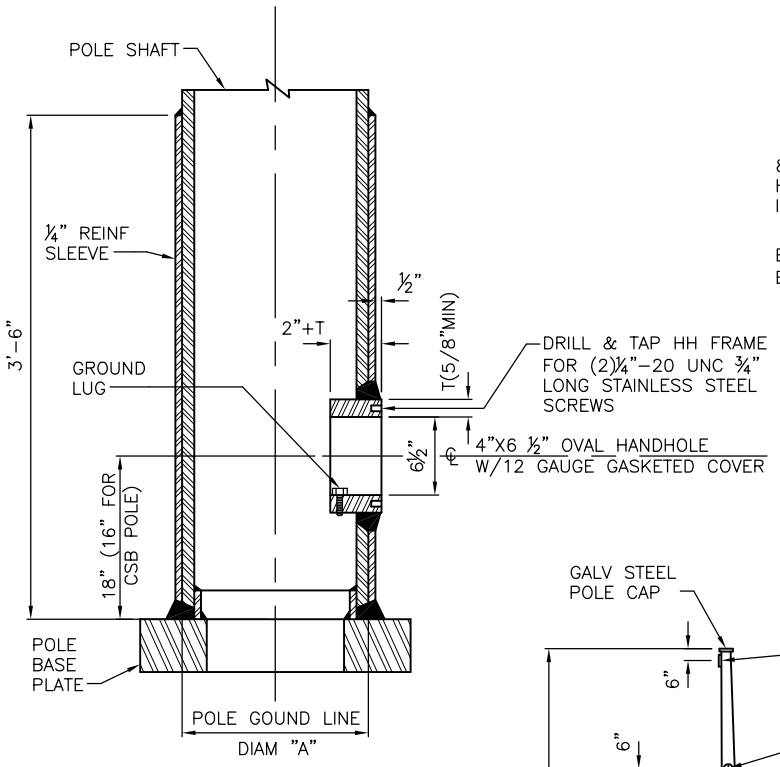
NOTES:

1. ALL OUTLETS SHALL BE PLUGGED WITH THREADED INSERT PLUGS DURING SHIPMENT TO PREVENT DAMAGE TO PLUGS.
2. REMOVE BURRS AND SHARP EDGES TO PREVENT DAMAGE TO ELECTRICAL CABLE.
3. SPLIT COUPLING SHALL EXTEND INTO THE POLE ½" MAX AS SHOWN.

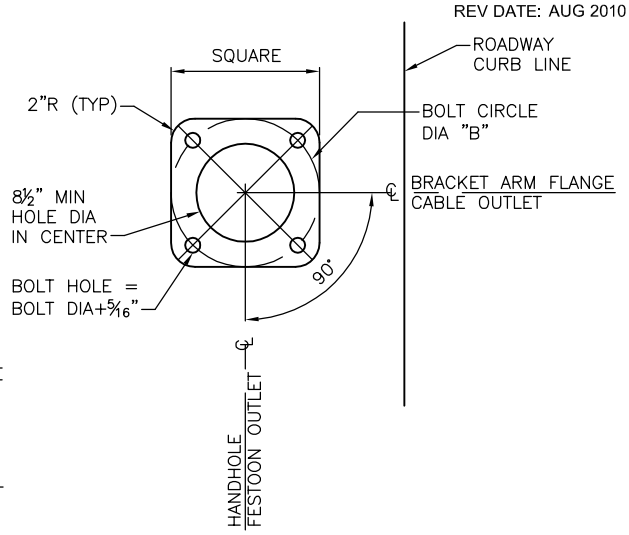
REF STD SPEC SEC 8-30 & 8-32

City of Seattle	NOT TO SCALE	MISCELLANEOUS STEEL POLE DETAILS

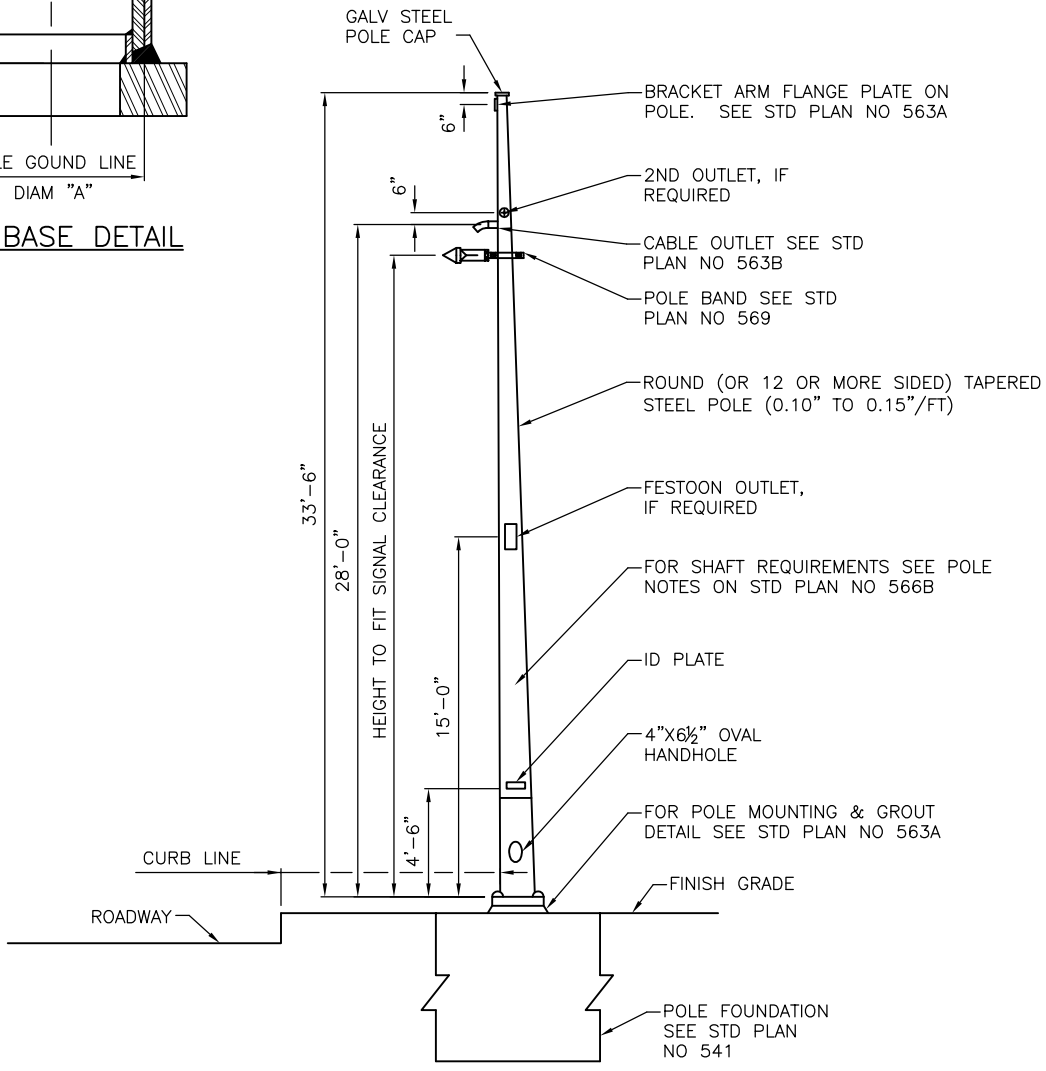
REV DATE: AUG 2010



POLE BASE DETAIL



POLE BASE PLATE



STRAIN POLE

REF STD SPEC SEC 8-32

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

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"

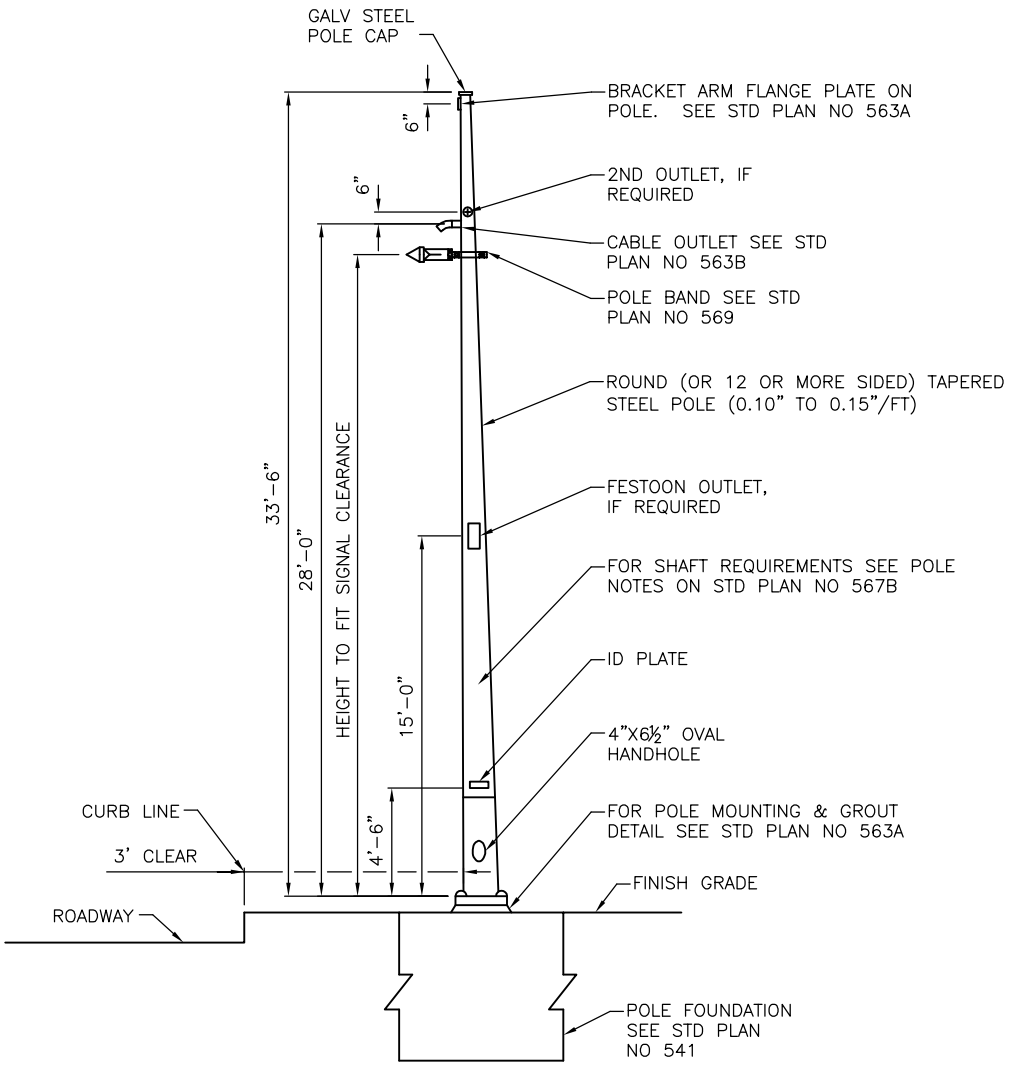
NOTES:

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

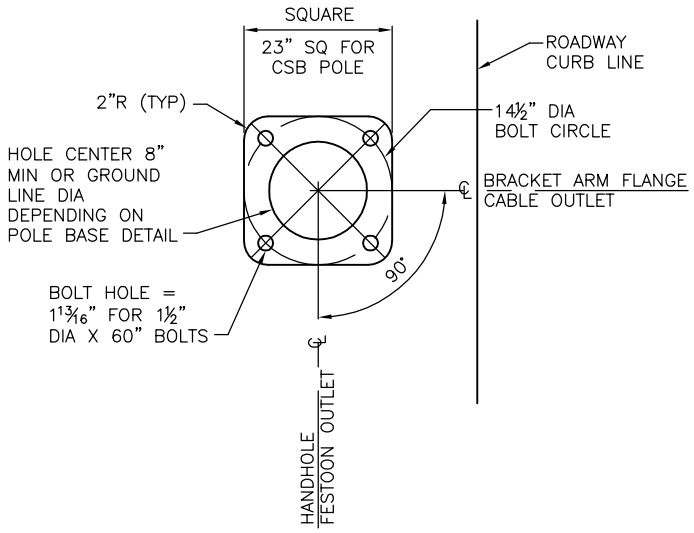
REF STD SPEC SEC 8-32, 9-33

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

REV DATE: AUG 2010



STRAIN POLE



POLE BASE PLATE

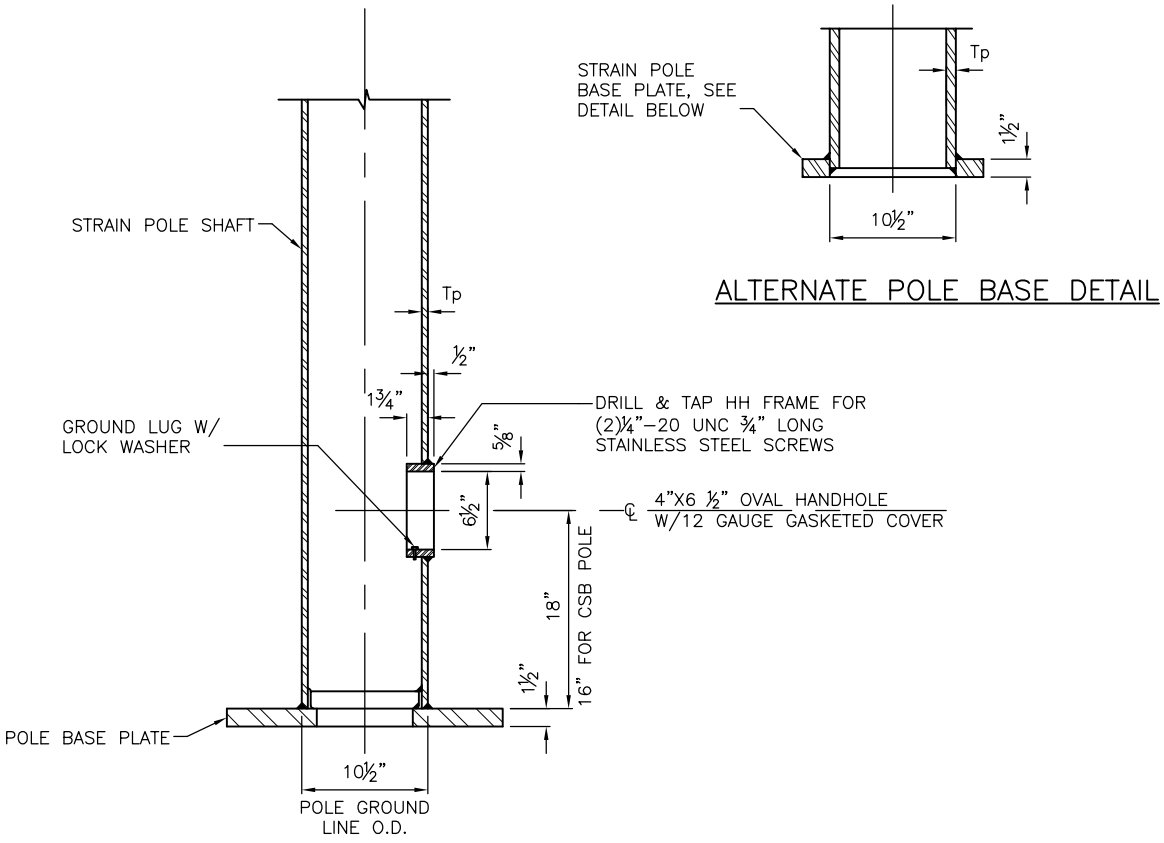
REF STD SPEC SEC 8-32

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

REV DATE: AUG 2010

NOTES:

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



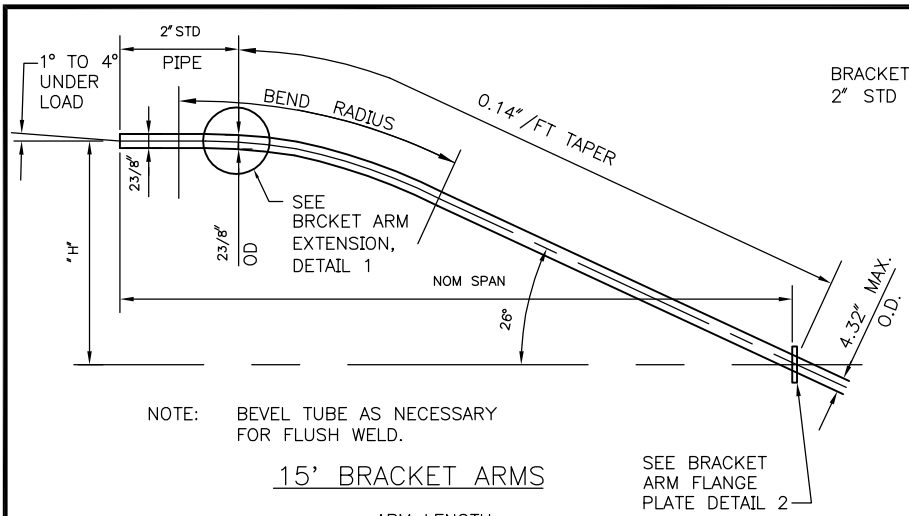
ALTERNATE POLE BASE DETAIL

POLE BASE DETAIL

REF STD SPEC SEC 8-32, 9-33

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

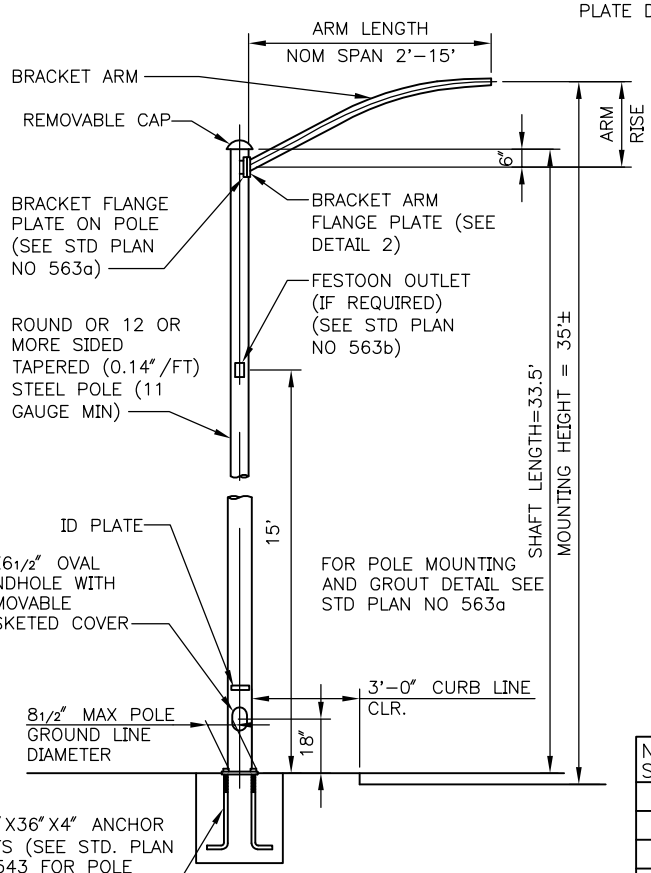
REV DATE: DEC 2010



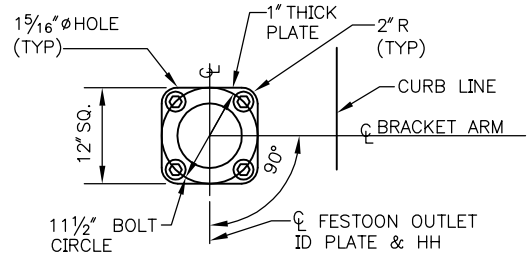
NOTE: BEVEL TUBE AS NECESSARY FOR FLUSH WELD.

SEE BRACKET ARM FLANGE PLATE DETAIL 2

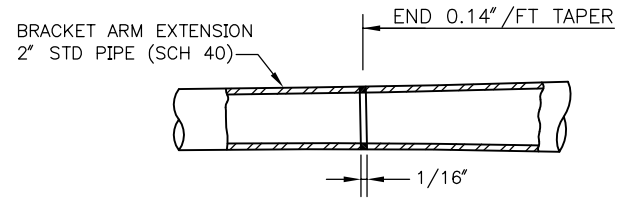
15' BRACKET ARMS



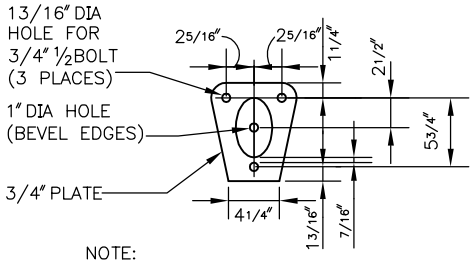
STEEL STREET LIGHT POLE



POLE BASE PLATE

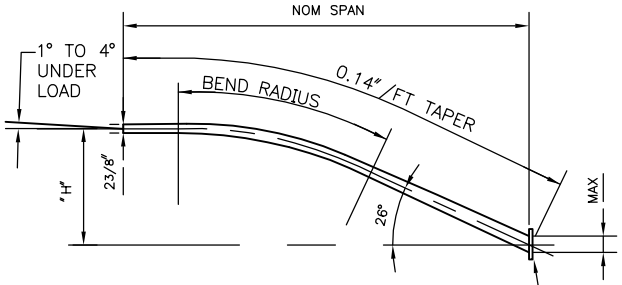


BRACKET ARM EXTENSION DETAIL 1



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

BRACKET ARM FLANGE PLATE DETAIL 2



NOTE: BEVEL TUBE AS NECESSARY FOR FLUSH WELD

SEE BRACKET ARM FLANGE PLATE DETAIL 2

2' THRU 12' BRACKET ARMS

NOM. SPAN	H*	BEND RADIUS	TUBE REQUIREMENT
2'	5 1/4"	—	2" STD PIPE
4'	12"	6'	11 GAUGE
6'	18"	9'	11 GAUGE
8'	24"	13'	11 GAUGE
10'	30"	15'	11 GAUGE
12'	33'	17'	11 GAUGE
15'	36"	17'	11 GAUGE

MATERIAL SPECIFICATION

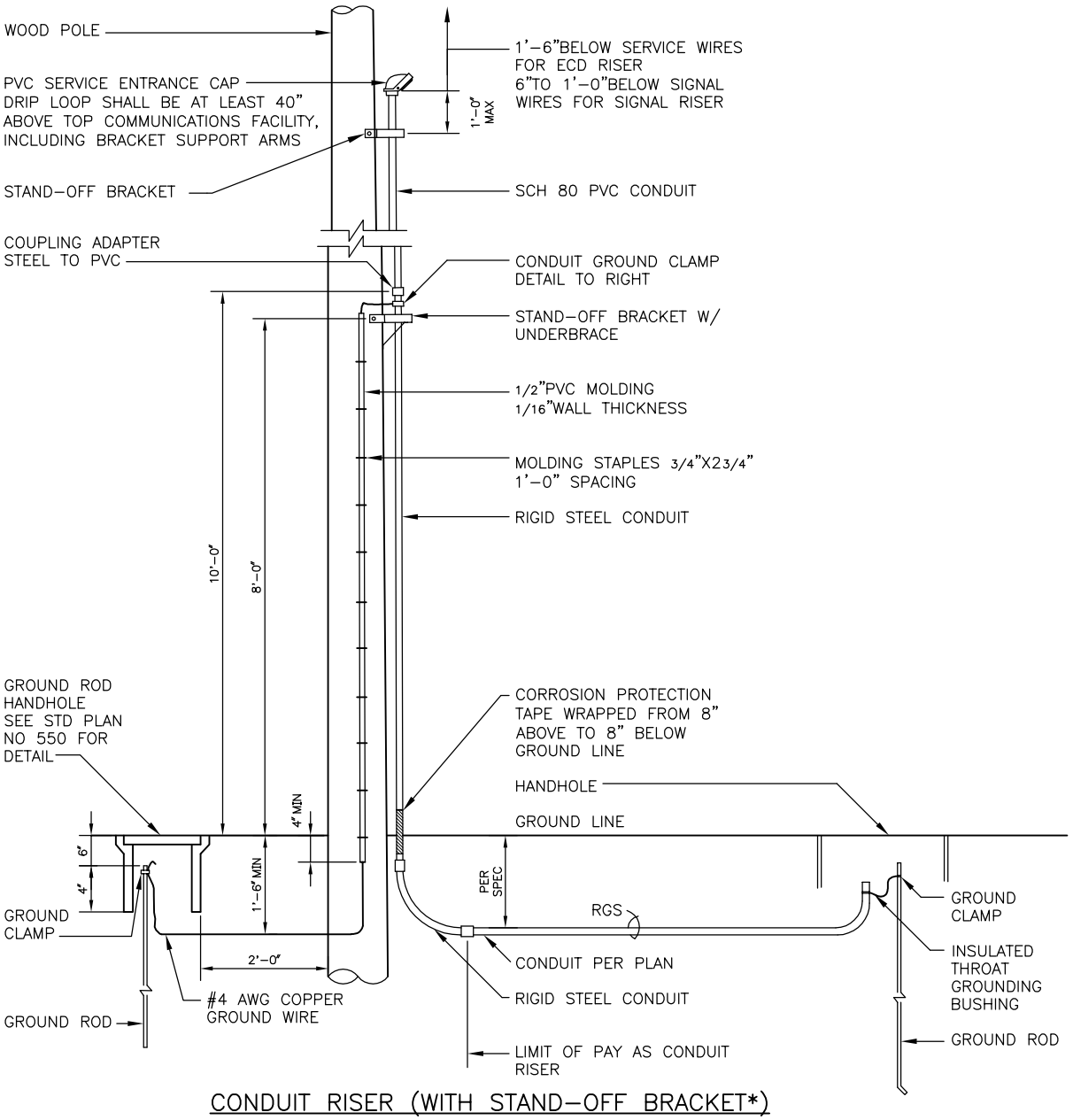
PLATE AND SHAPES: ASTM A36
POLE SHAFTS: ASTM A570 GR 40 MIN.
ANCHOR BOLTS: ASTM A307
BRACKET ARM FLANGE PLATE BOLT: ASTM A325

* 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: 2011



CONDUIT RISER (WITH STAND-OFF BRACKET*)

*WHEN THERE WILL BE ONLY ONE CONDUIT (1 1/2"OR SMALLER) ON THE POLE, ONE HOLE MALLEABLE IRON CLAMPS WITH 4"LAG SCREWS SHALL BE USED TO SECURE THE CONDUIT TO THE POLE IN LIEU OF THE STAND-OFF BRACKETS

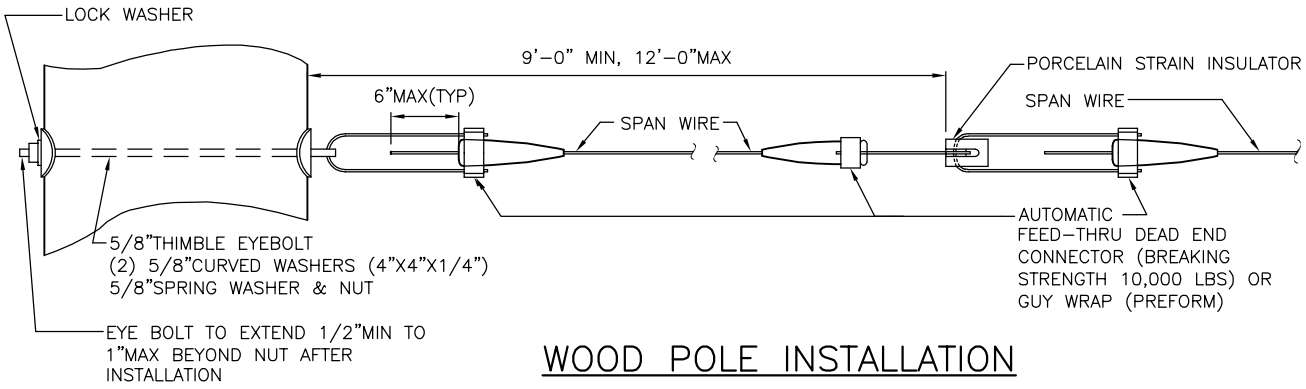
NOTES:

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

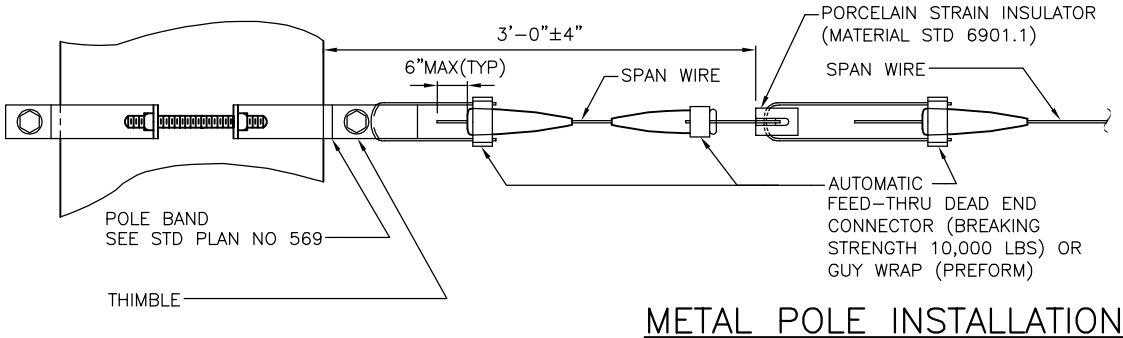
REF STD SPEC SEC 8-33, SCL CONSTRUCTION GUIDELINES U 7-10

City of Seattle	NOT TO SCALE	CONDUIT RISER

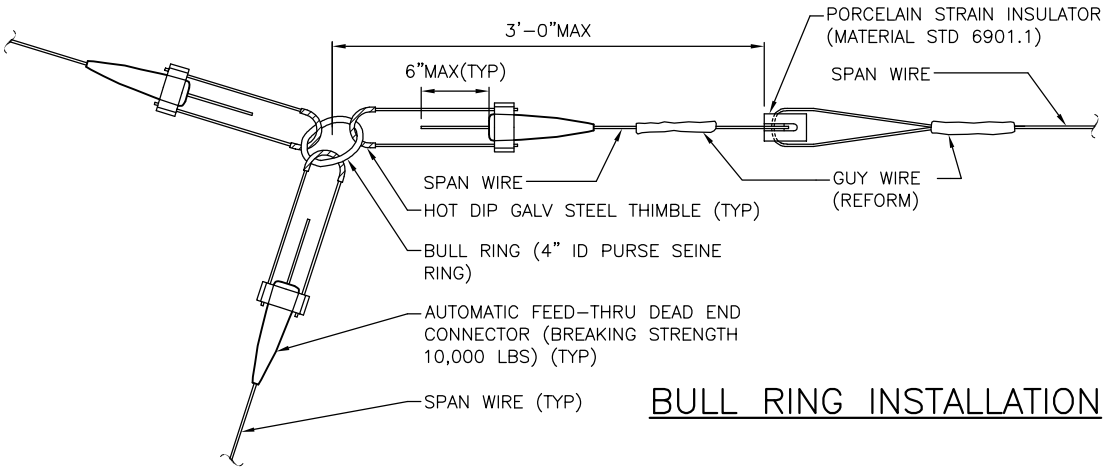
REV DATE: 2008



WOOD POLE INSTALLATION



METAL POLE INSTALLATION



BULL RING INSTALLATION

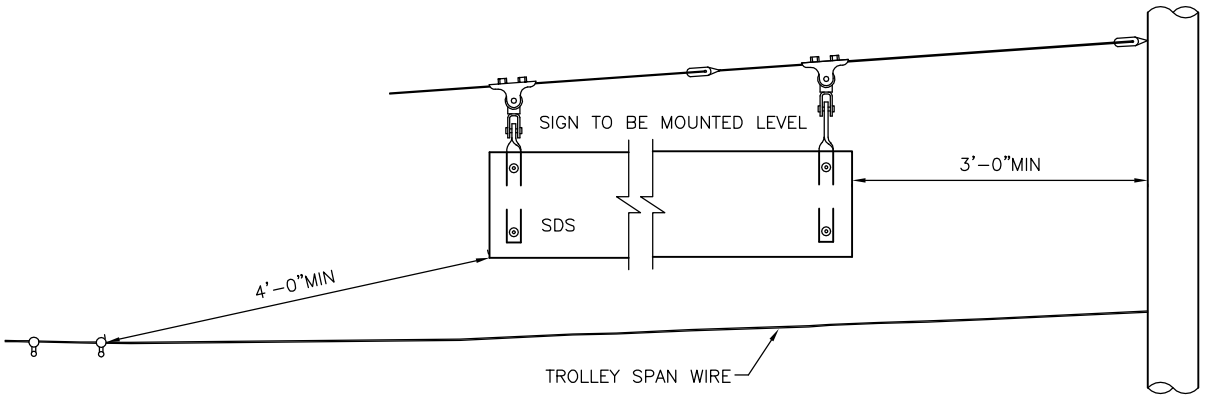
NOTES:

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

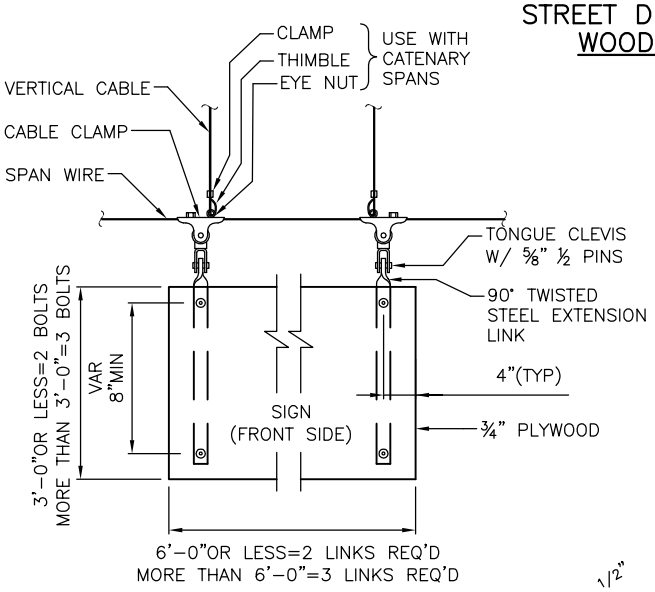
REF STD SPEC SEC 8-21 & SCL MATERIAL STANDARD 6901.1

City of Seattle	NOT TO SCALE	SPAN WIRE INSTALLATION

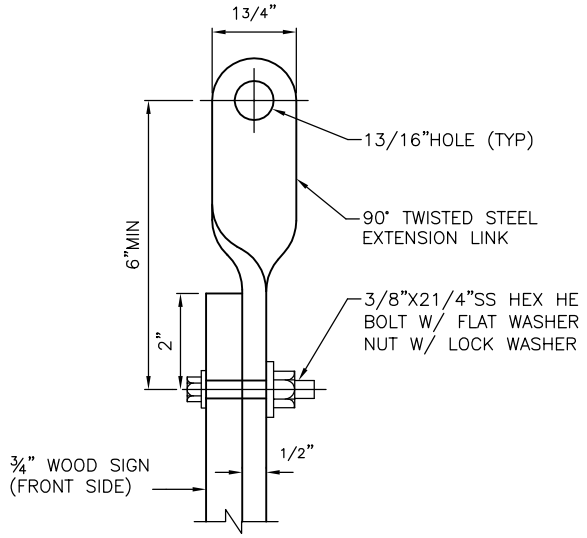
REV DATE: 2003



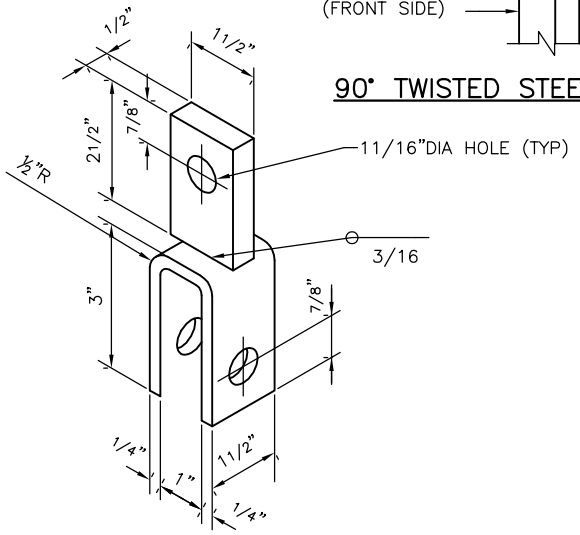
STREET DESIGNATION SIGN
WOOD SIGNS ONLY



SPAN WIRE MOUNTED
WOOD SIGN



90° TWISTED STEEL EXTENSION LINK



TONGUE CLEVIS

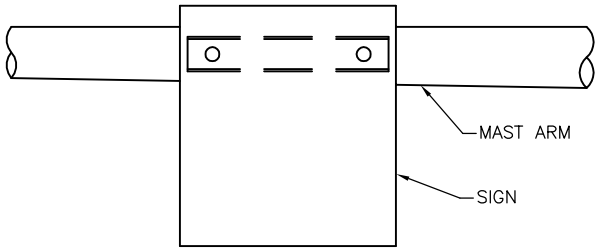
NOTES

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

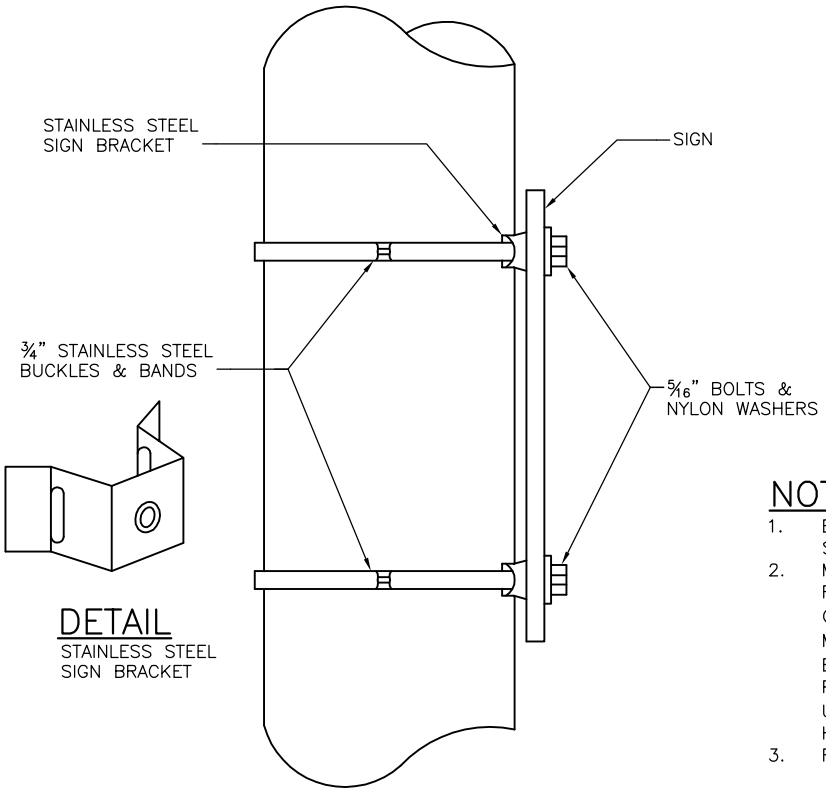
REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	OVERHEAD WOOD SIGNS SPANWIRE MOUNTED

REV DATE: AUG 2010



SIGN MOUNTING ON MAST ARM



DETAIL
STAINLESS STEEL
SIGN BRACKET

NOTES:

1. EXCEPT AS NOTED OTHERWISE, ALL HARDWARE SHALL BE STAINLESS STEEL.
2. MOUNTING OF TRAFFIC SIGNS SHALL 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.

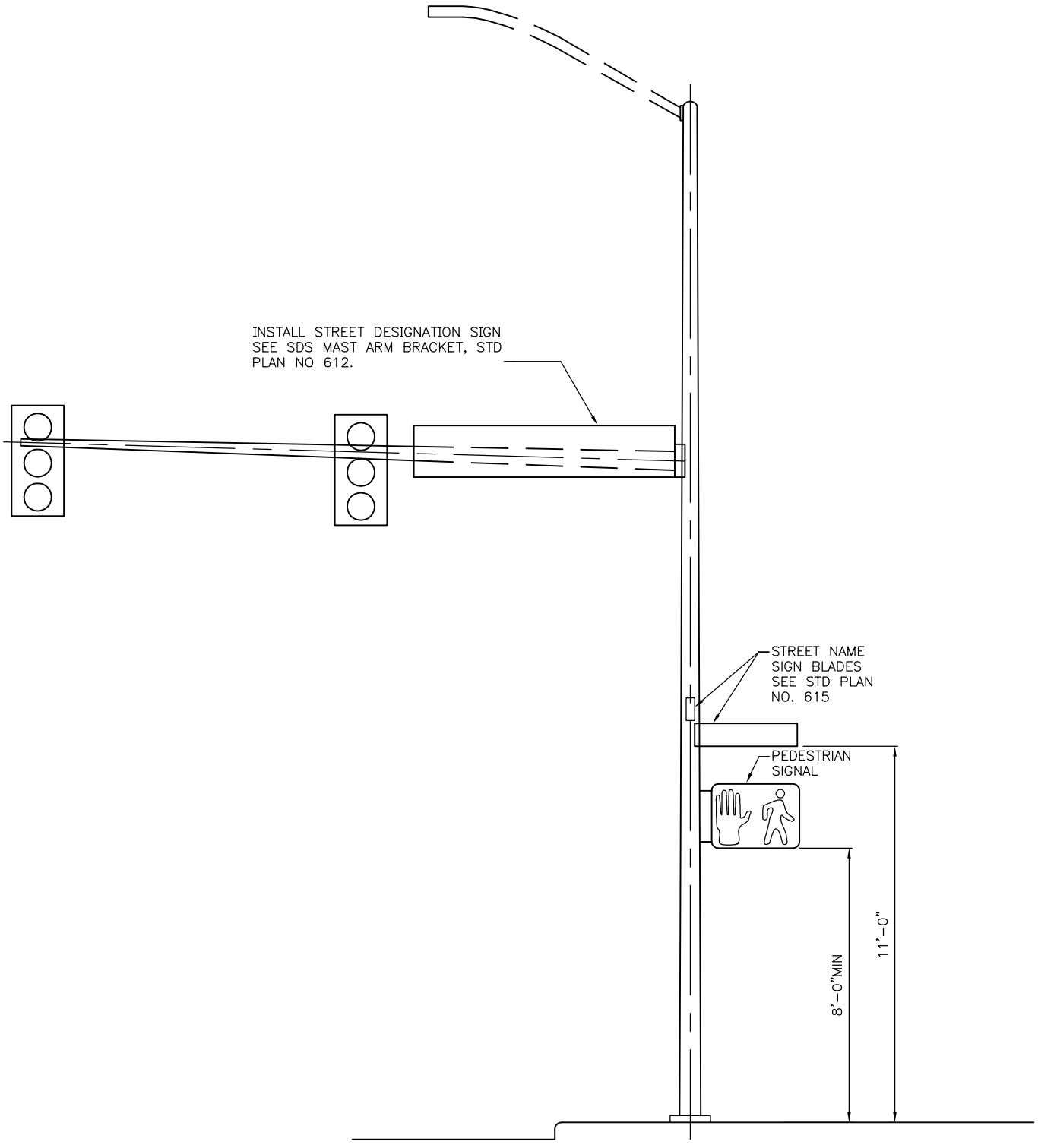
TEMPORARY SIGN MOUNTING ON METAL POLE

REF STD SPEC SEC 8-21

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

STANDARD PLAN NO 610

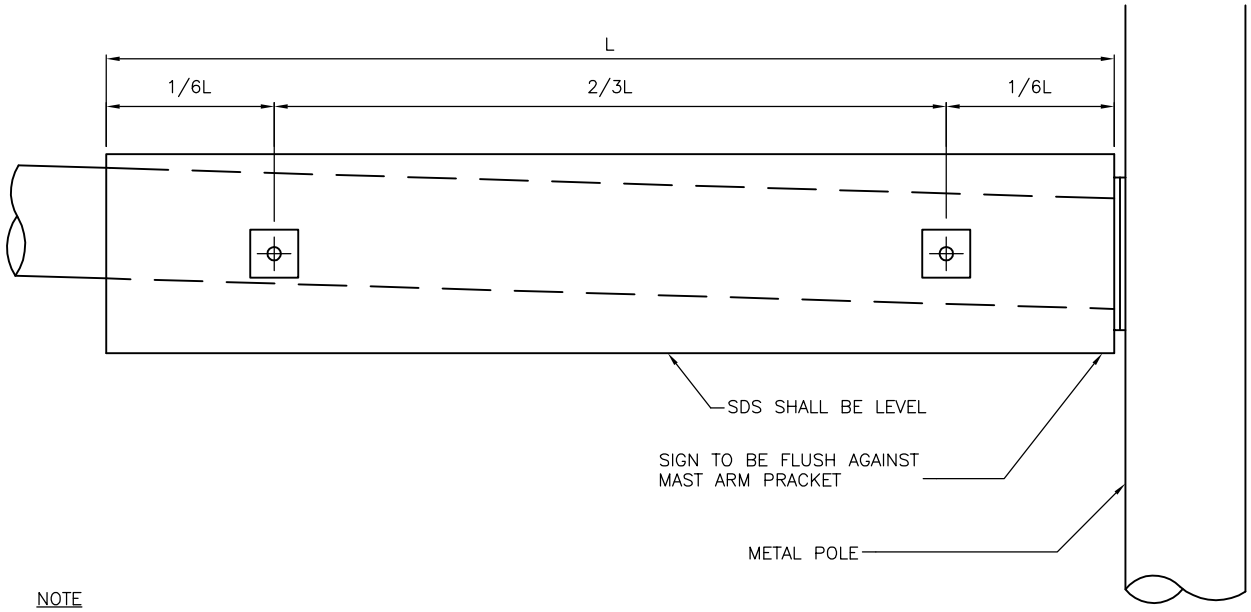
REV DATE: 2008



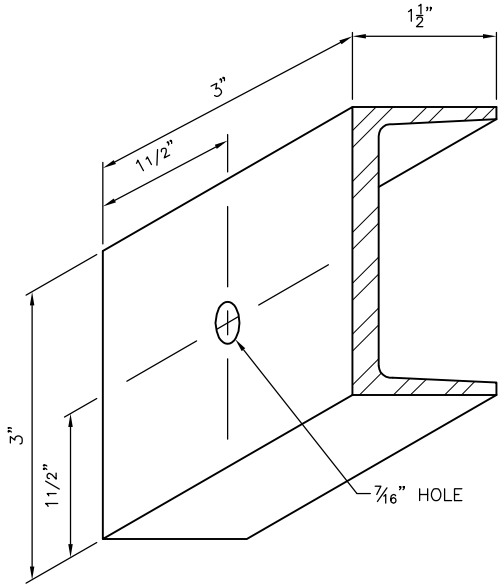
REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	STANDARD SIGN INSTALLATION STEEL POLES

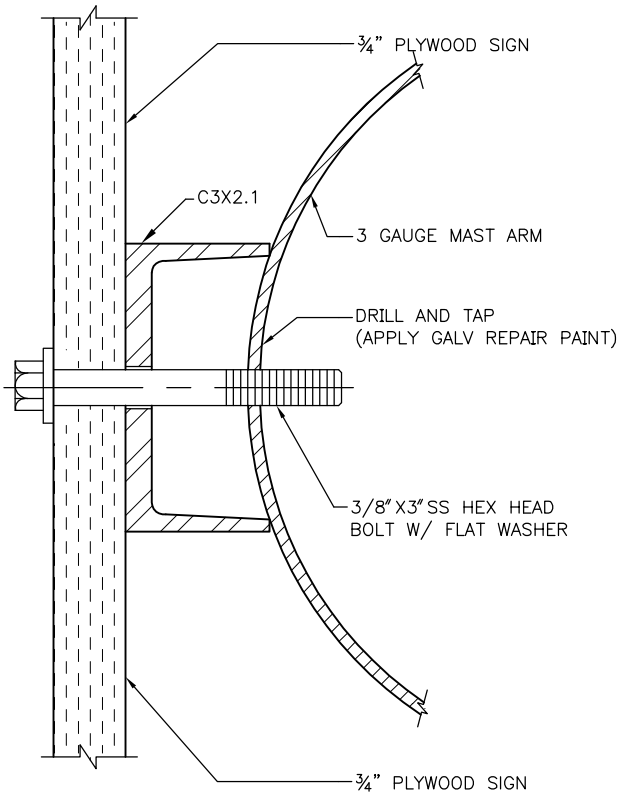
REV DATE: 2003



NOTE
ALL HARDWARE SHALL BE STAINLESS STEEL.



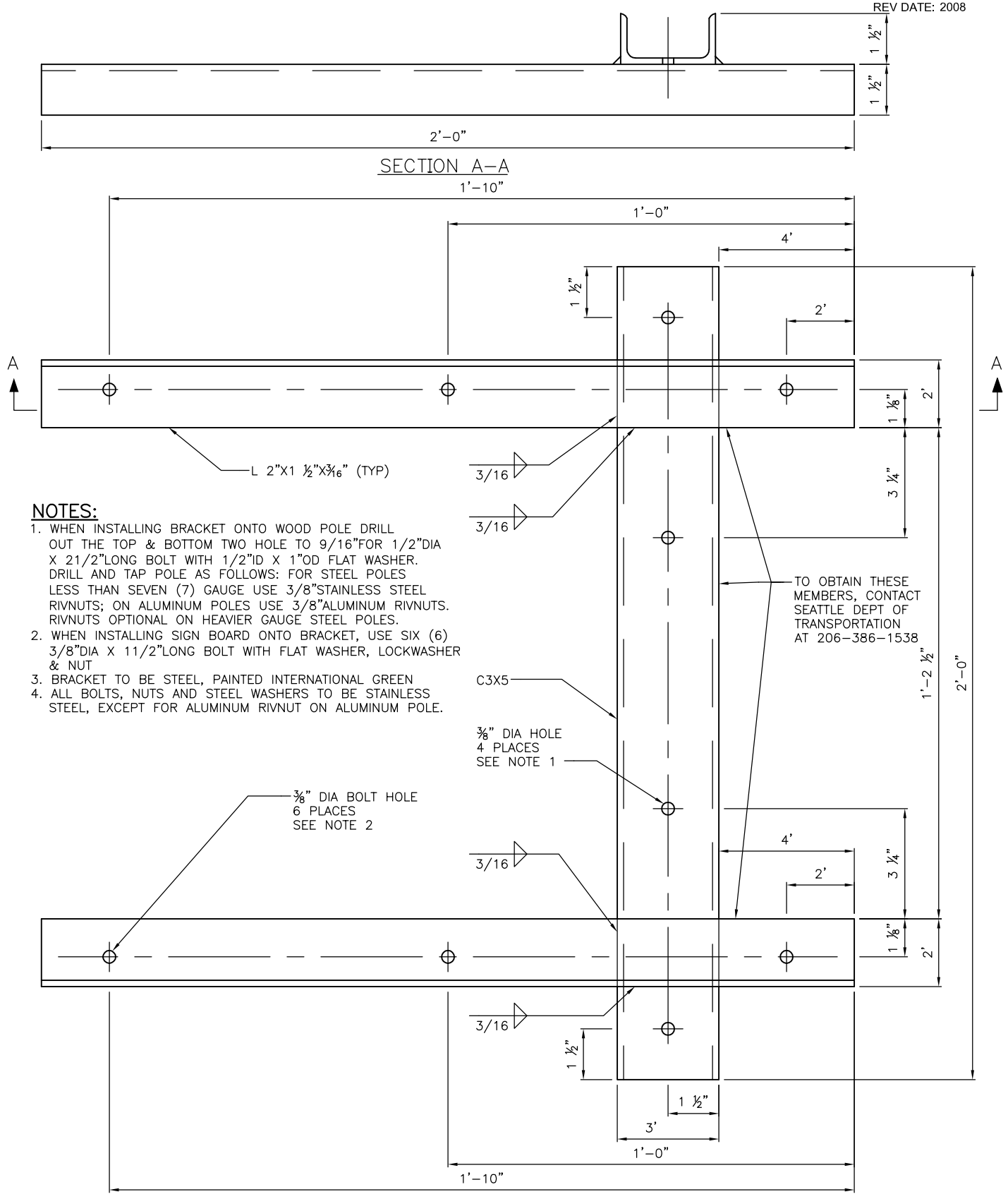
C3X2.1 EXTRUDED Al



REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	SDS BRACKET FOR STEEL MAST ARM POLES

REV DATE: 2008



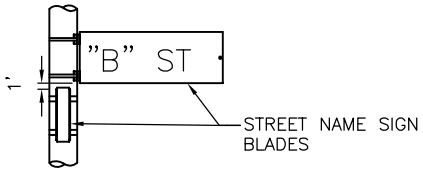
NOTES:

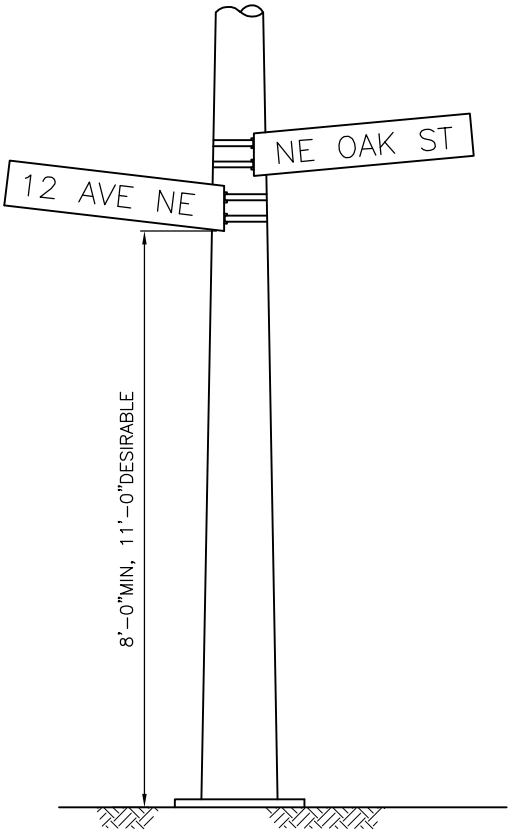
1. WHEN INSTALLING BRACKET ONTO WOOD POLE DRILL OUT THE TOP & BOTTOM TWO HOLE TO 9/16"FOR 1/2"DIA X 21/2"LONG BOLT WITH 1/2"ID X 1"OD FLAT WASHER. DRILL AND TAP POLE AS FOLLOWS: FOR STEEL POLES LESS THAN SEVEN (7) GAUGE USE 3/8"STAINLESS STEEL RIVNUTS; ON ALUMINUM POLES USE 3/8"ALUMINUM RIVNUTS. RIVNUTS OPTIONAL ON HEAVIER GAUGE STEEL POLES.
2. WHEN INSTALLING SIGN BOARD ONTO BRACKET, USE SIX (6) 3/8"DIA X 11/2"LONG BOLT WITH FLAT WASHER, LOCKWASHER & NUT
3. BRACKET TO BE STEEL, PAINTED INTERNATIONAL GREEN
4. ALL BOLTS, NUTS AND STEEL WASHERS TO BE STAINLESS STEEL, EXCEPT FOR ALUMINUM RIVNUT ON ALUMINUM POLE.

REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	SDS BRACKET FOR STEEL OR WOOD POLES

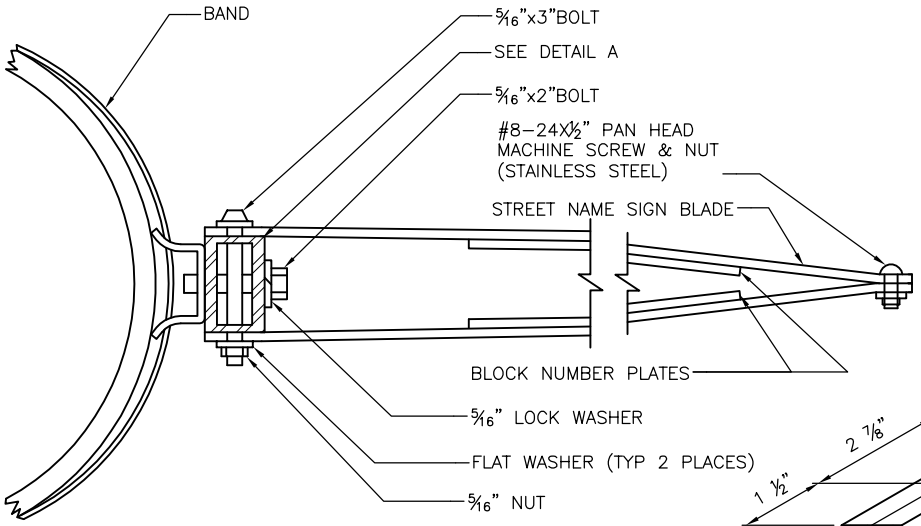
REV DATE: 2007



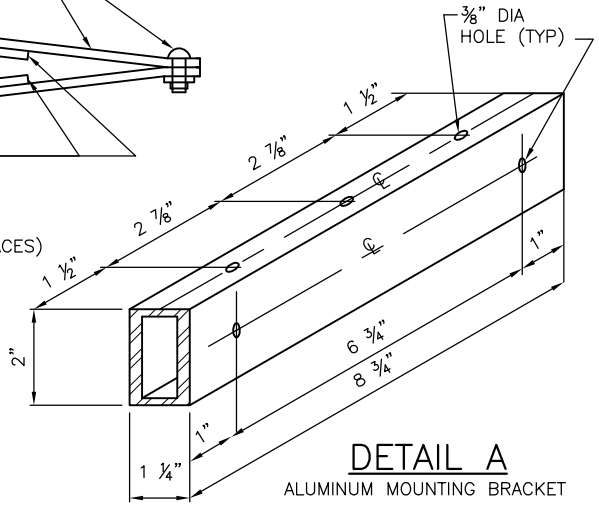


NOTES:

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.



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

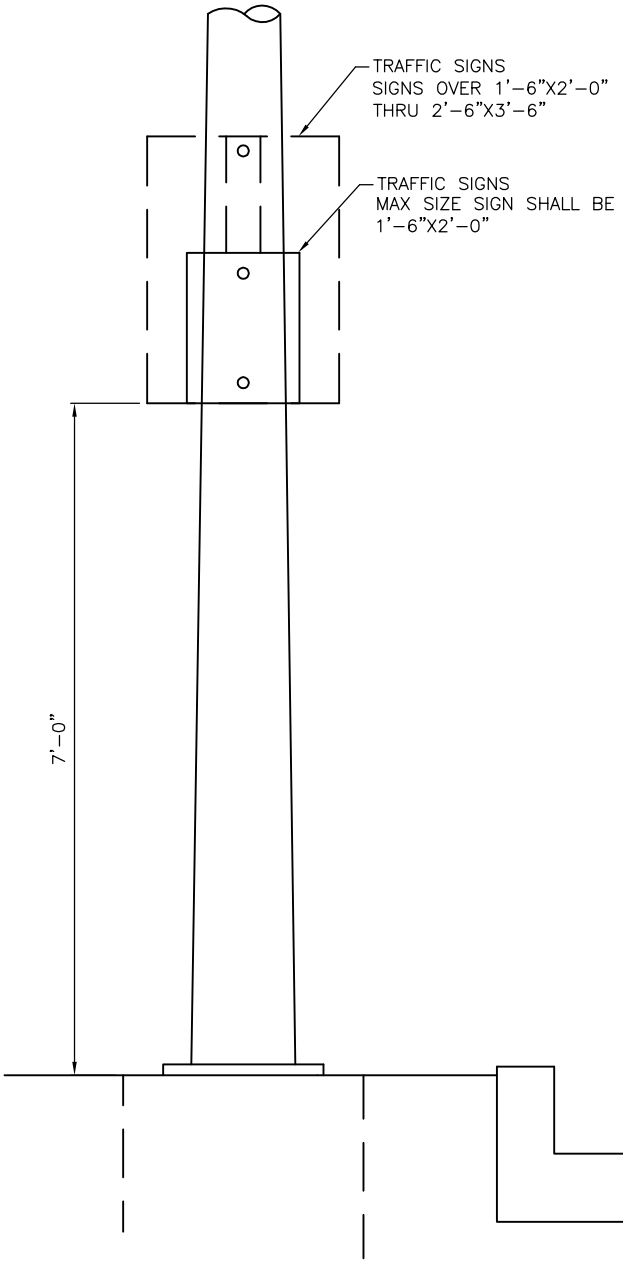


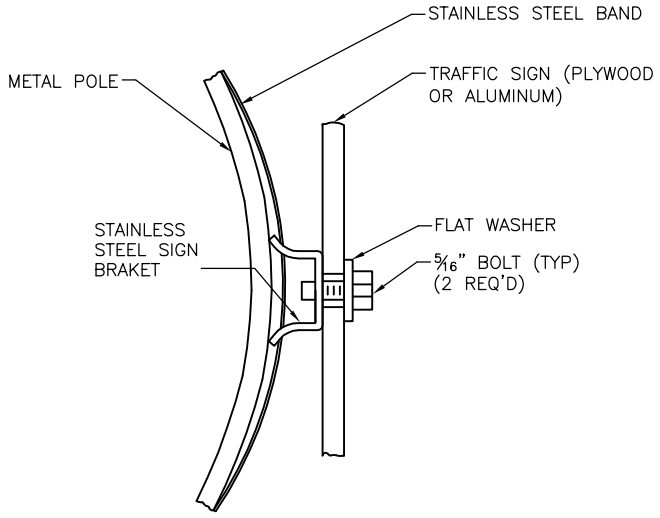
DETAIL A
ALUMINUM MOUNTING BRACKET

REF STD SPEC SEC 8-21

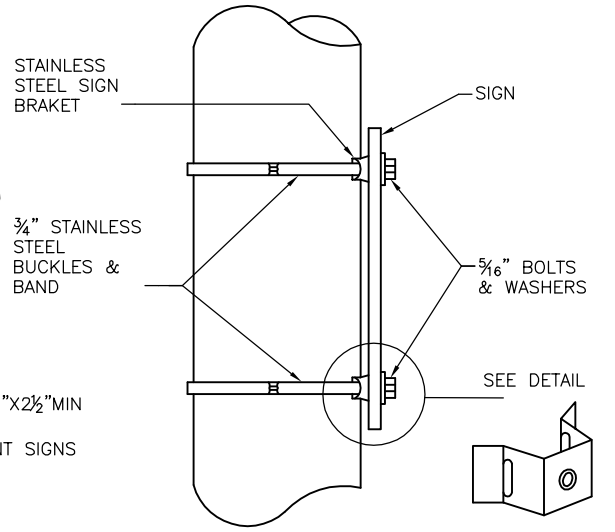
City of Seattle	NOT TO SCALE	SNS BRACKET FOR STEEL POLES

REV DATE: AUG 2010





TOP VIEW



SIDE VIEW

DETAIL
STAINLESS
STEEL SIGN
BRACKET

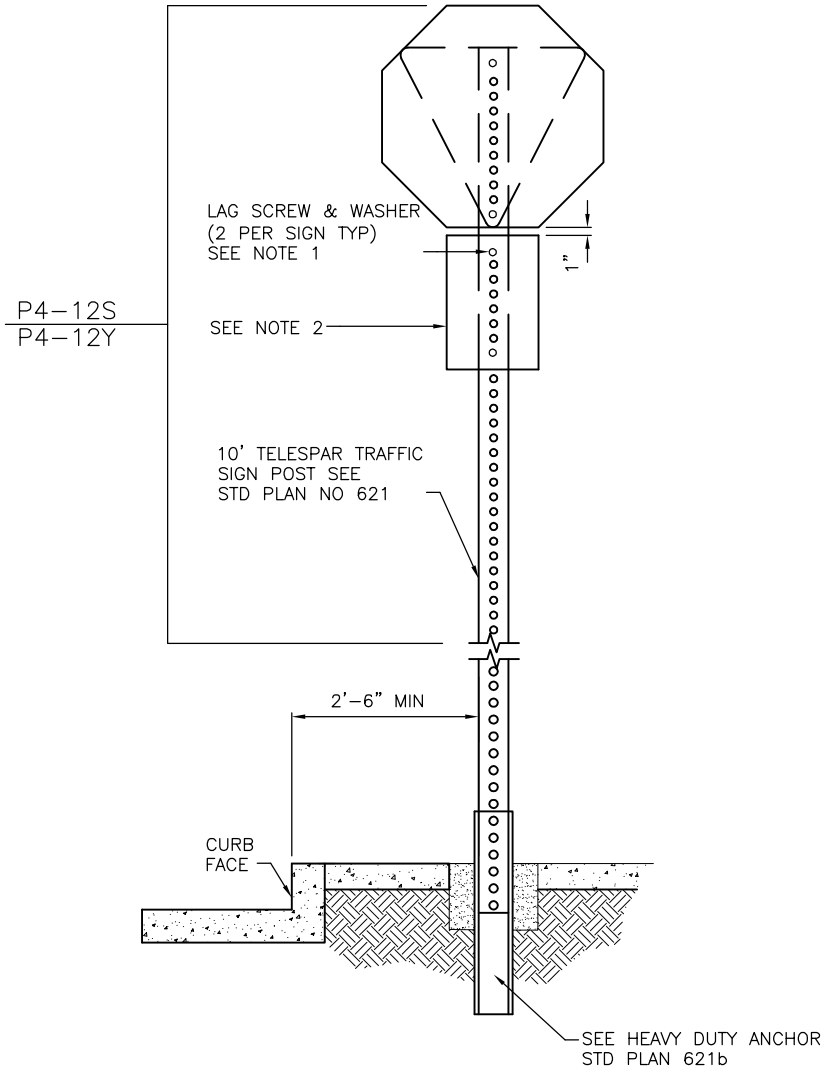
NOTES:

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: 2008



POST ANCHOR INSTALLATIONS

NOTES:

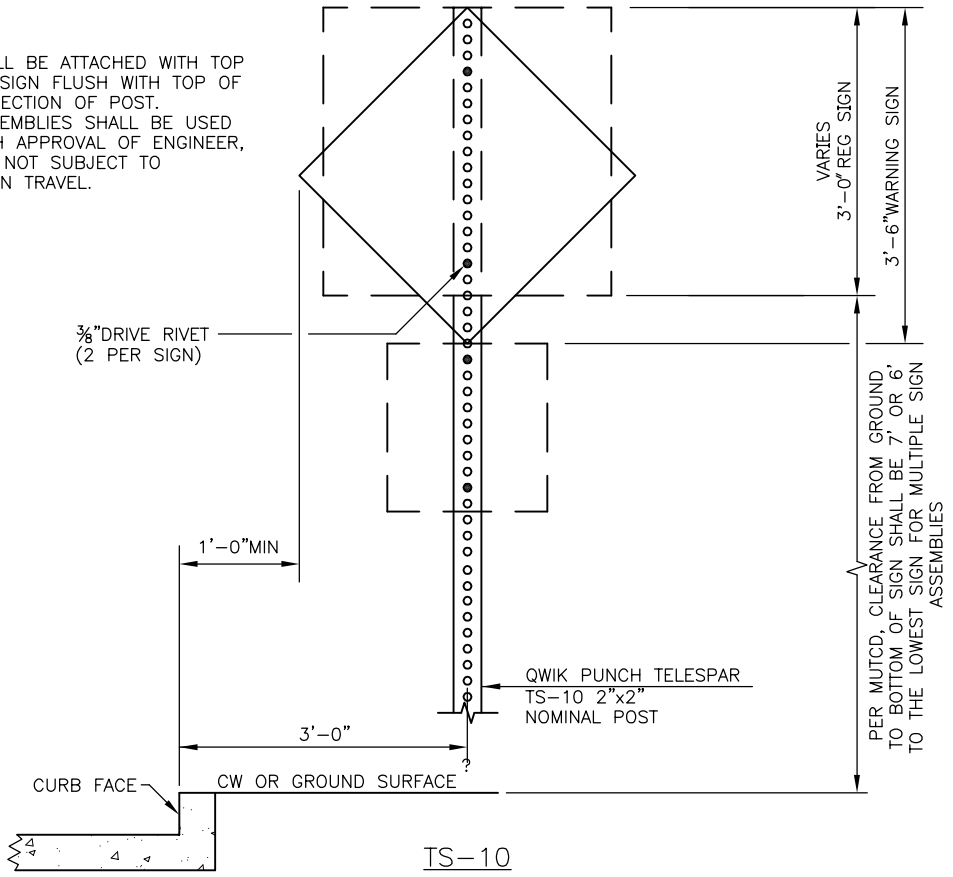
1. 5/16"X31/4" GALVANIZED OR PLATED LAG SCREW & 3/8"ID X 1"OD NYLON WASHER.
2. CONTACT SEATTLE DEPARTMENT OF TRANSPORTATION (684-5087) FOR DETAILS REGARDING SIGN MESSAGE AND FOUNDATION.

REF STD SPEC SEC 8-21

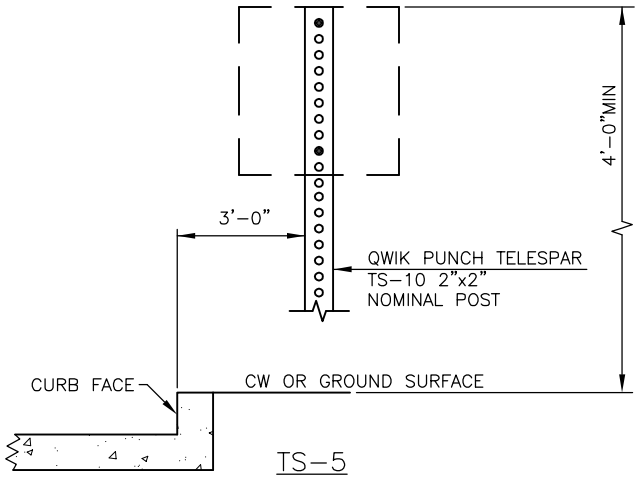
City of Seattle	NOT TO SCALE	STOP AND YIELD SIGN POST AND ANCHOR INSTALLATION

REV DATE: DEC 2010

NOTE:
1. SIGN SHALL BE ATTACHED WITH TOP EDGE OF SIGN FLUSH WITH TOP OF SQUARE SECTION OF POST.
2. TS–5 ASSEMBLIES SHALL BE USED ONLY WITH APPROVAL OF ENGINEER, IN AREAS NOT SUBJECT TO PEDESTRIAN TRAVEL.



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

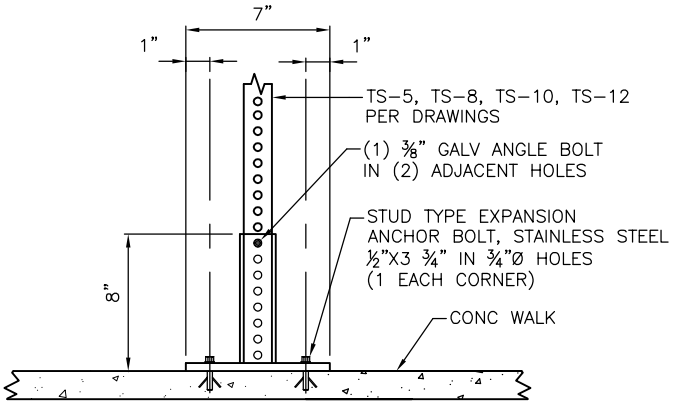


TS–5
(SEE STD PLAN 621b FOR POST ANCHOR DETAILS)

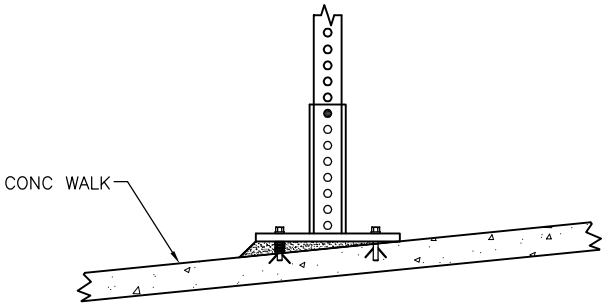
REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	WARNING AND REGULATORY SIGN POST

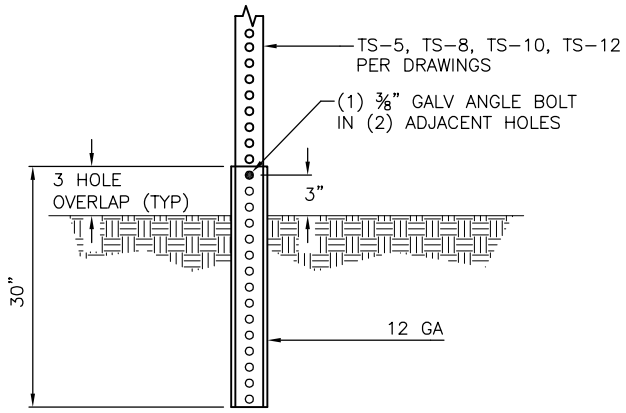
REV DATE: AUG 2010



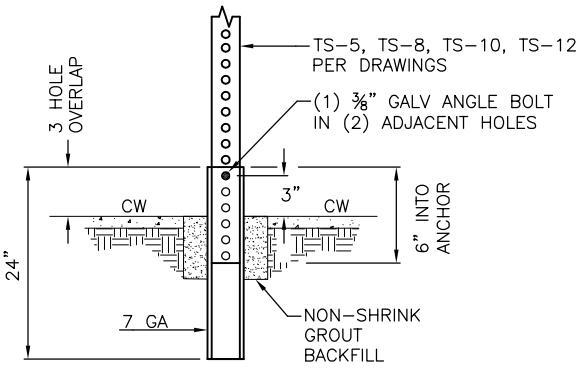
SURFACE MOUNT



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



LIGHT DUTY ANCHOR

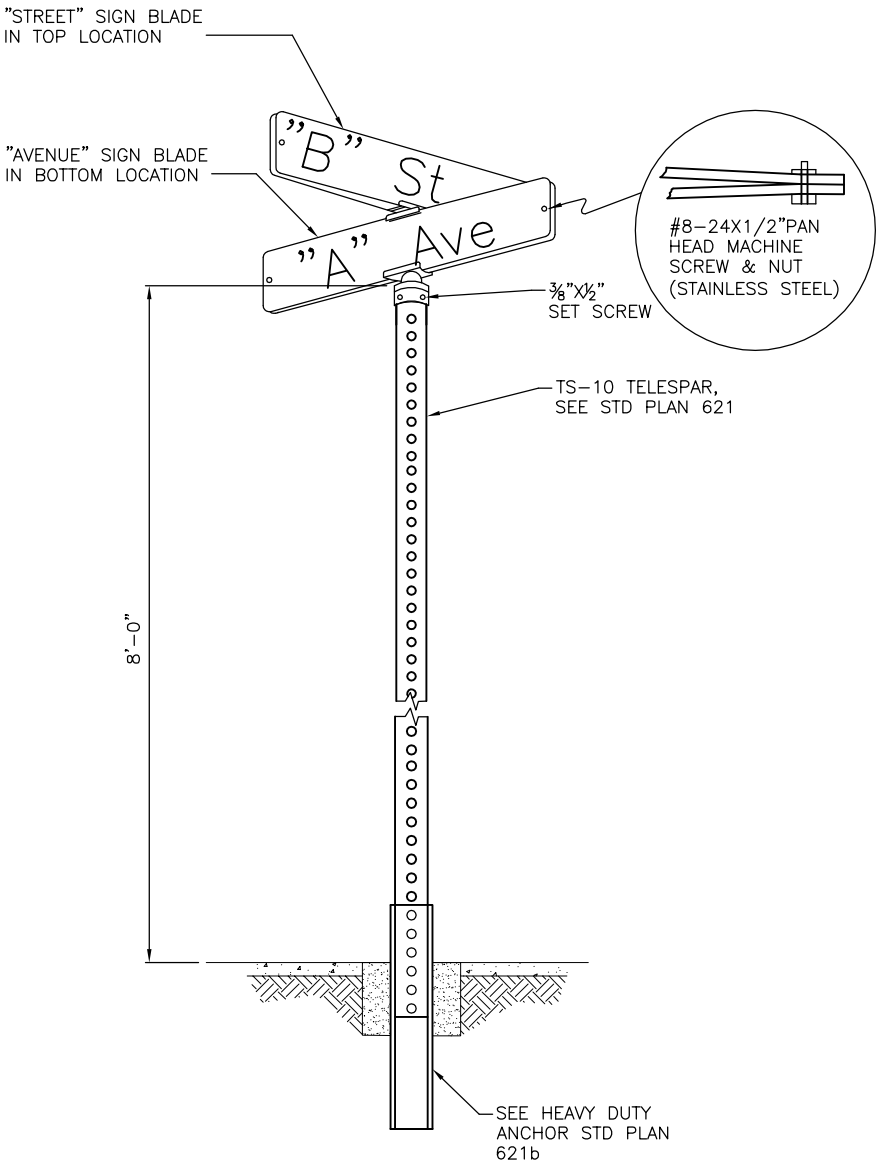


HEAVY DUTY ANCHOR

REF STD SPEC SEC 8-21

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

REV DATE: DEC 2010



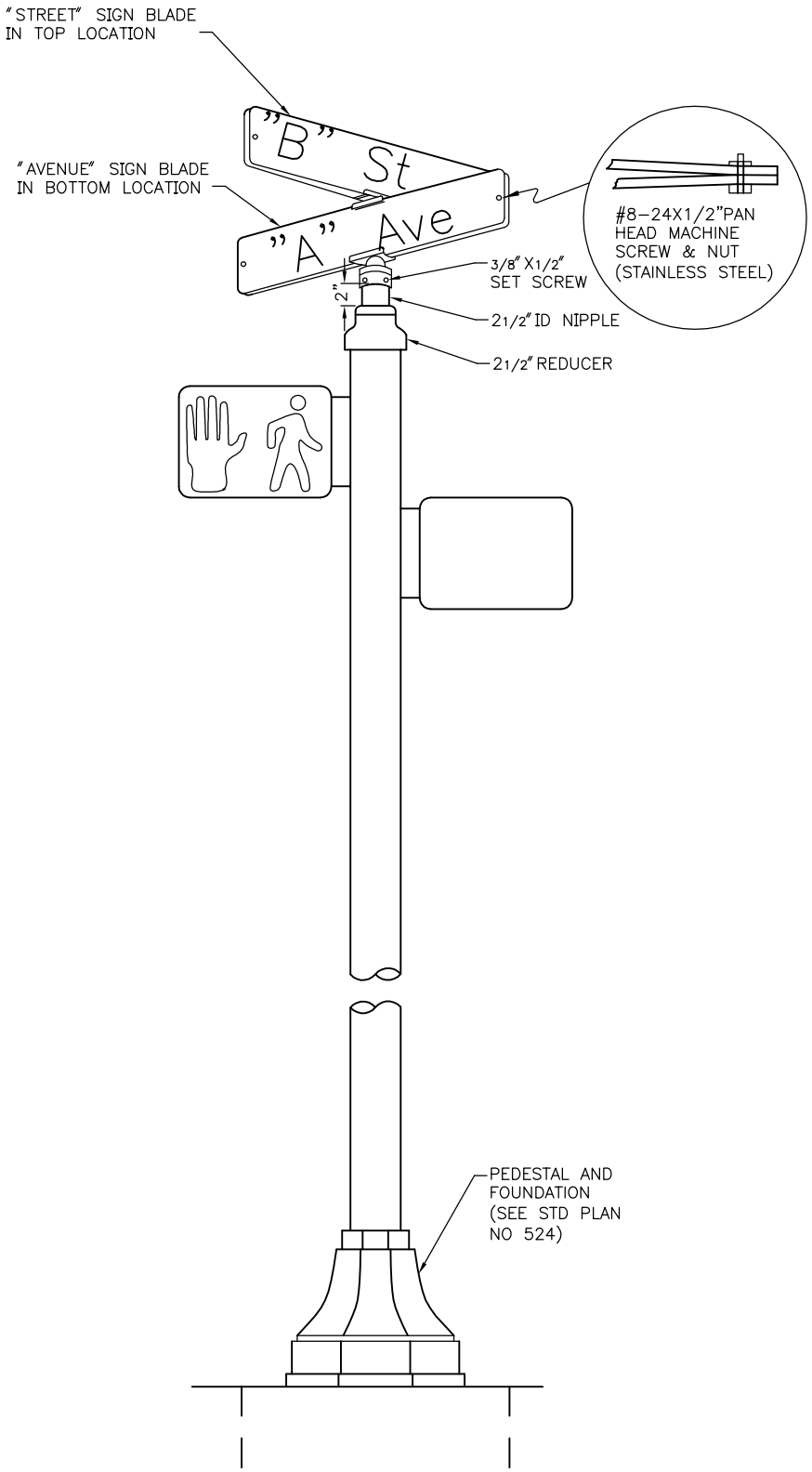
NOTES:

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

REF STD SPEC SEC

City of Seattle	NOT TO SCALE	STREET NAME SIGN INSTALLATION

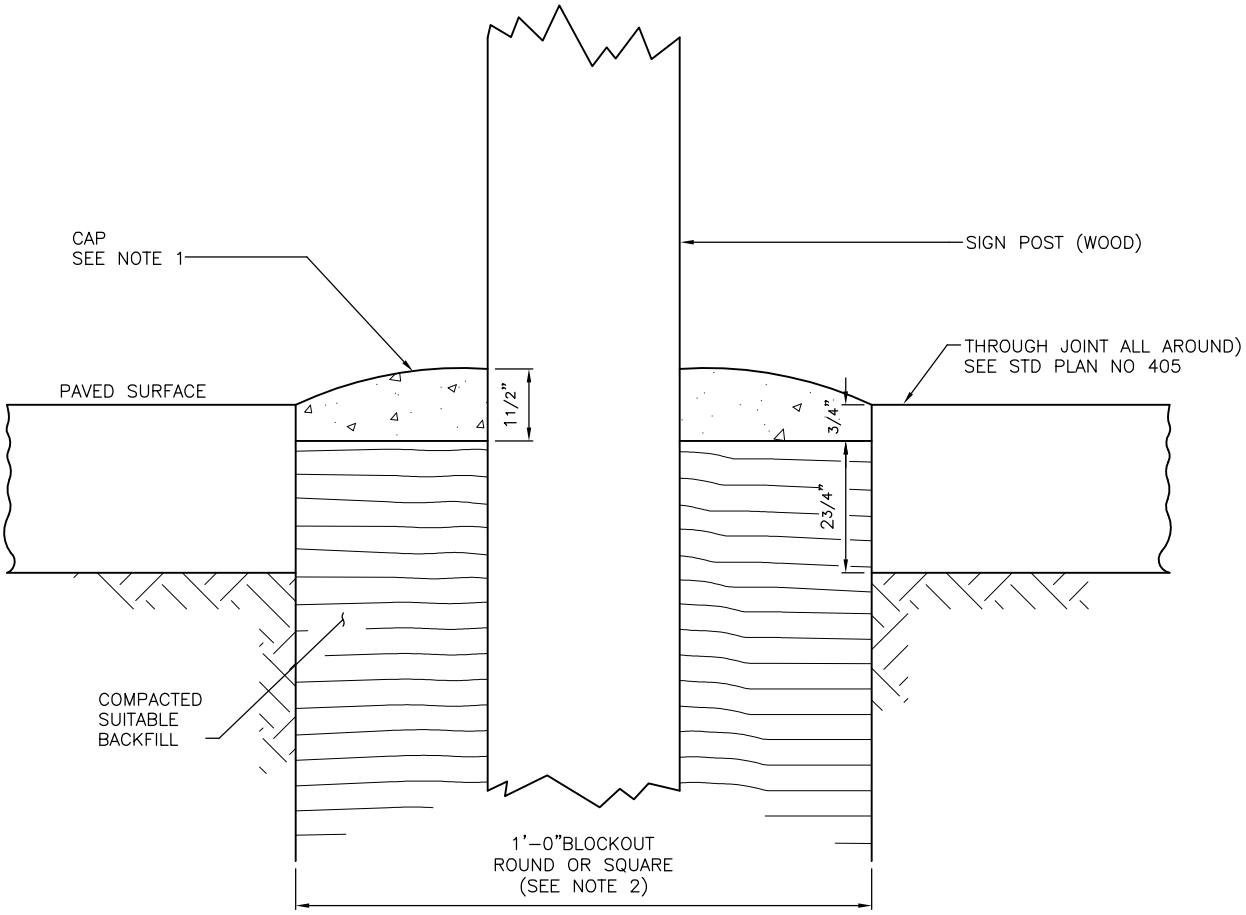
REV DATE: DEC 2010



REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	STREET NAME SIGN PEDESTAL INSTALLATION

REV DATE: 2003



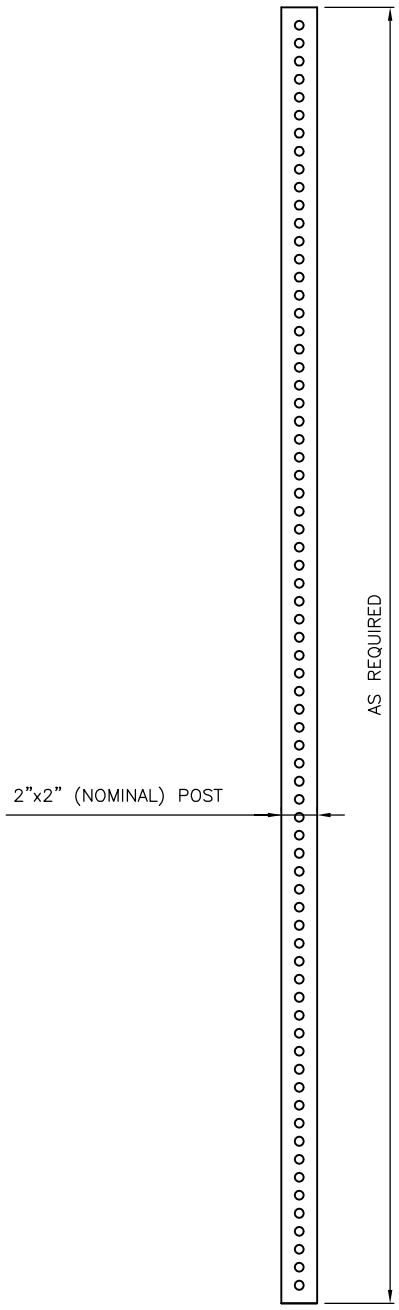
NOTES:

1. CAP SHALL BE MADE OF THE SAME MATERIAL AS THE SURROUNDING PAVED SURFACE AND SHALL BE MOUNDED FOR DRAINAGE AWAY FROM POST.
2. BLOCKOUTS SHALL BE PROVIDED FOR POST LOCATIONS WHERE NEW CONCRETE PAVEMENT (SIDEWALK, ROADWAY, ETC) IS BEING INSTALLED.
3. WHERE POST IS BEING INSTALLED IN EXISTING PAVED AREAS, HOLE IN PAVED SURFACE SHALL NOT EXCEED 1'–0"NOMINAL DIAMETER.

REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	POST CAP

REV DATE: DEC 2010



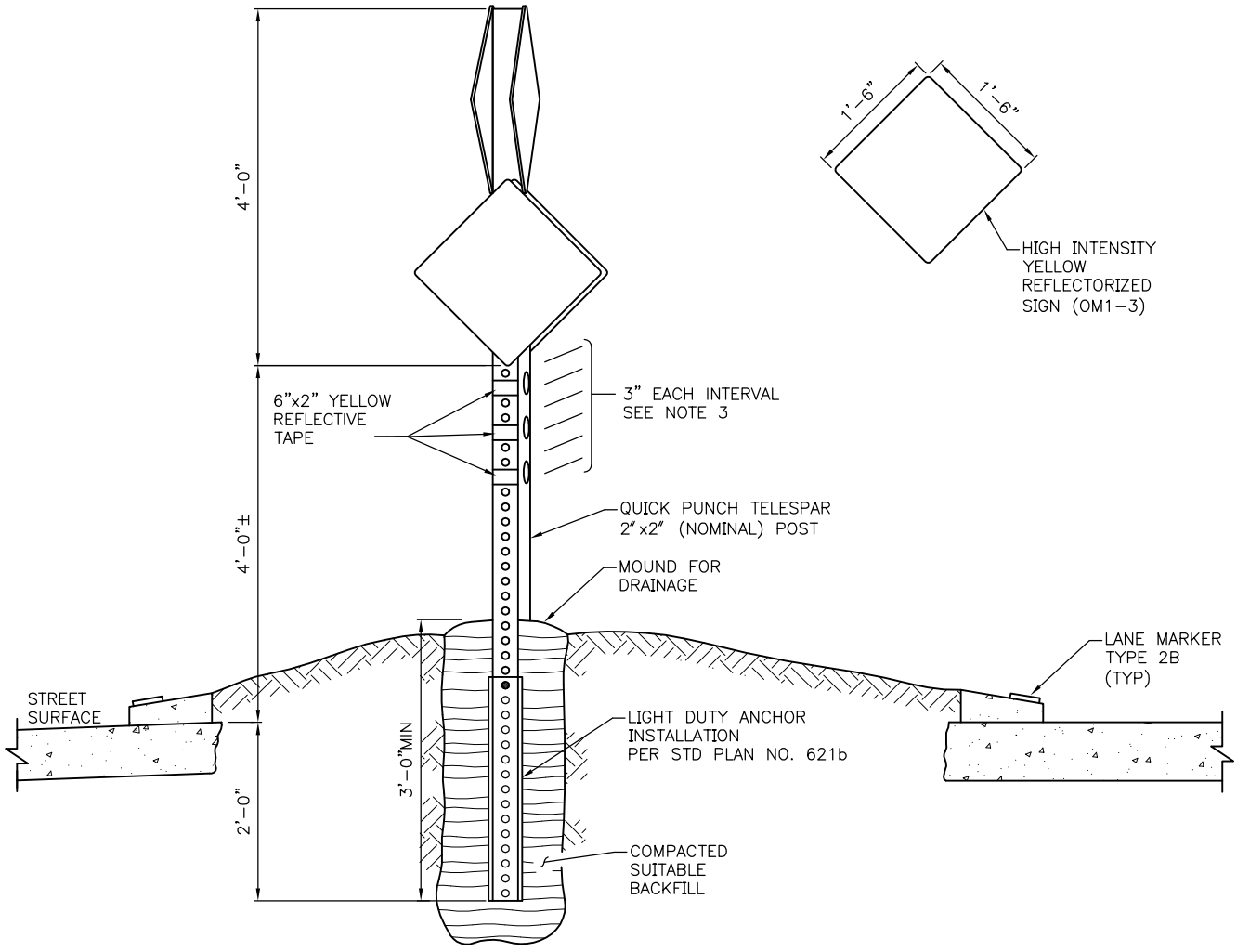
QWIK PUNCH TELESPAR STANDARD SIGN POST
(TS–5, TS–8, TS–10, TS–12)

NOTES:
1. SEE STD PLAN NO 620

REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	TRAFFIC SIGN POSTS

REV DATE: 2005



(TS-10)

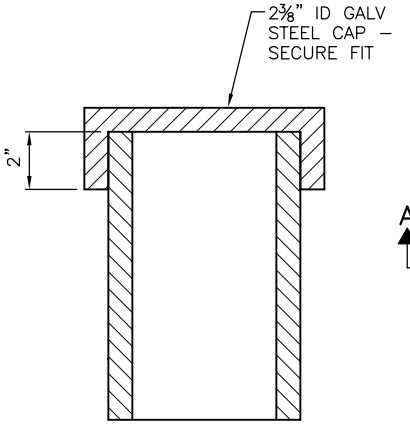
NOTES:

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 SHALL FACE THE HIGHER TRAFFIC VOLUME STREET
2. IN THE CASE WHERE AN APPROACH HAS A GRADE LARGER THAN 3% THE HIGHER SIGNS WILL FACE THE STEEPEST APPROACH TO ALLOW BETTER SIGHT DISTANCE
3. PLACE A MINIMUM OF THREE (3) REFLECTORS ON EACH AND EVERY SIDE OF POST OR PLACE THREE (3) HIGH INTENSITY REFLECTORIZED STRIPS COMPLETELY AROUND POST

REF STD SPEC SEC 8-21

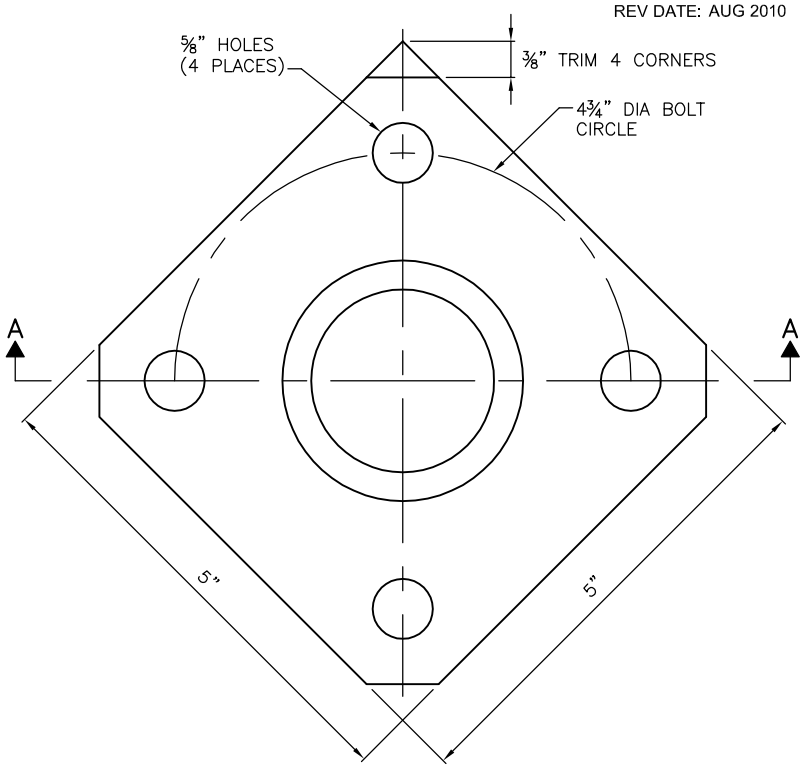
City of Seattle	NOT TO SCALE	OBJECT MARKER INSTALLATION IN TRAFFIC CIRCLE

REV DATE: AUG 2010



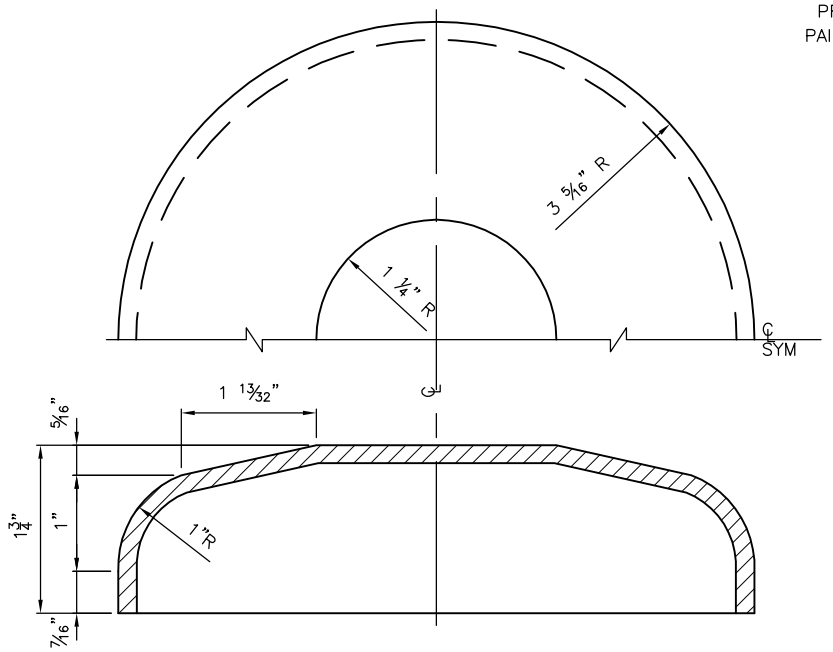
METER POST CAP

(TO BE USED W/ SIGN INSTALLATION)



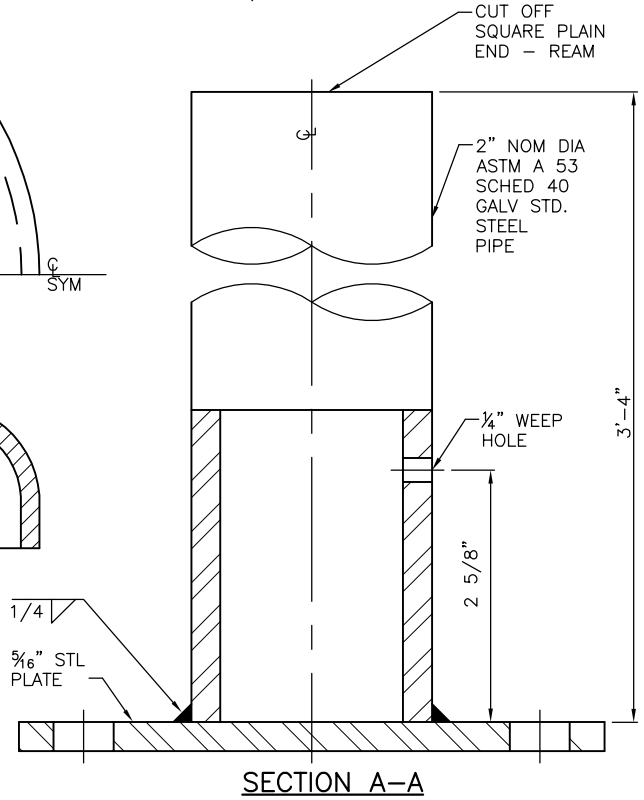
METER POST

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

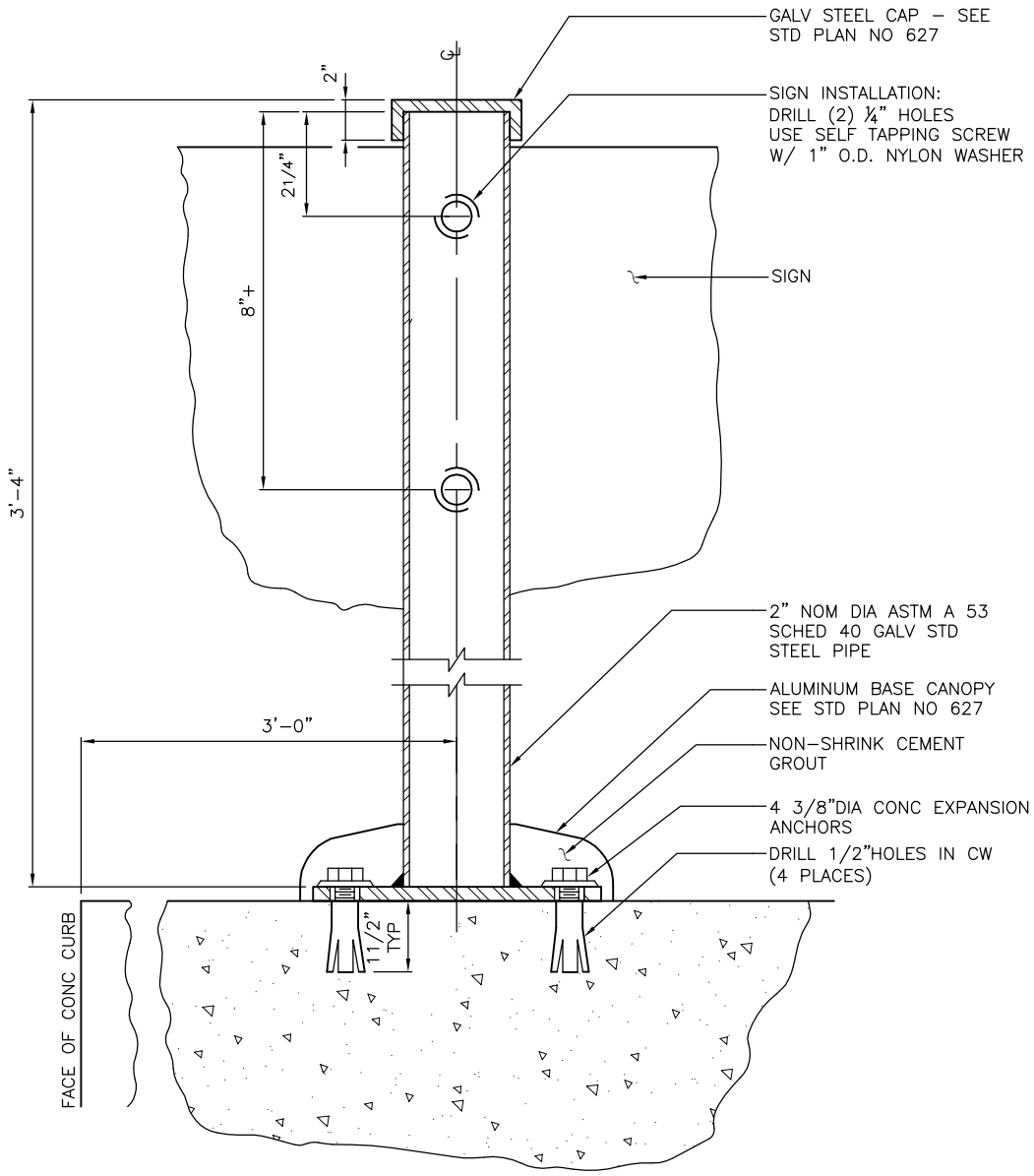


SECTION A–A

REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	PARKING METER POST & ACCESSORIES

REV DATE: 2003

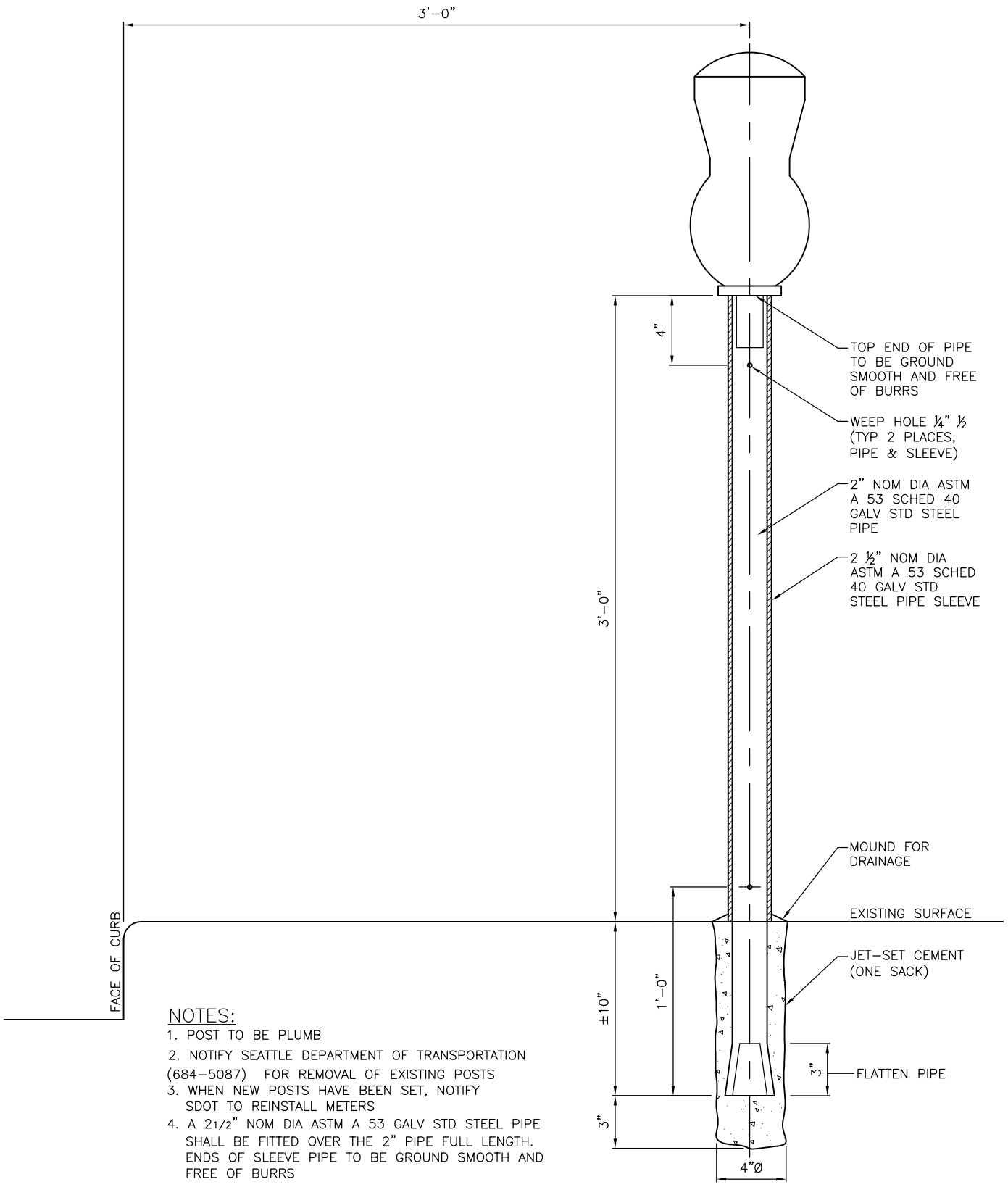


REF STD SPEC SEC 8-21

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

STANDARD PLAN NO 629

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 2 1/2" NOM DIA ASTM A 53 GALV STD STEEL PIPE SHALL BE FITTED OVER THE 2" PIPE FULL LENGTH. ENDS OF SLEEVE PIPE TO BE GROUND SMOOTH AND FREE OF BURRS

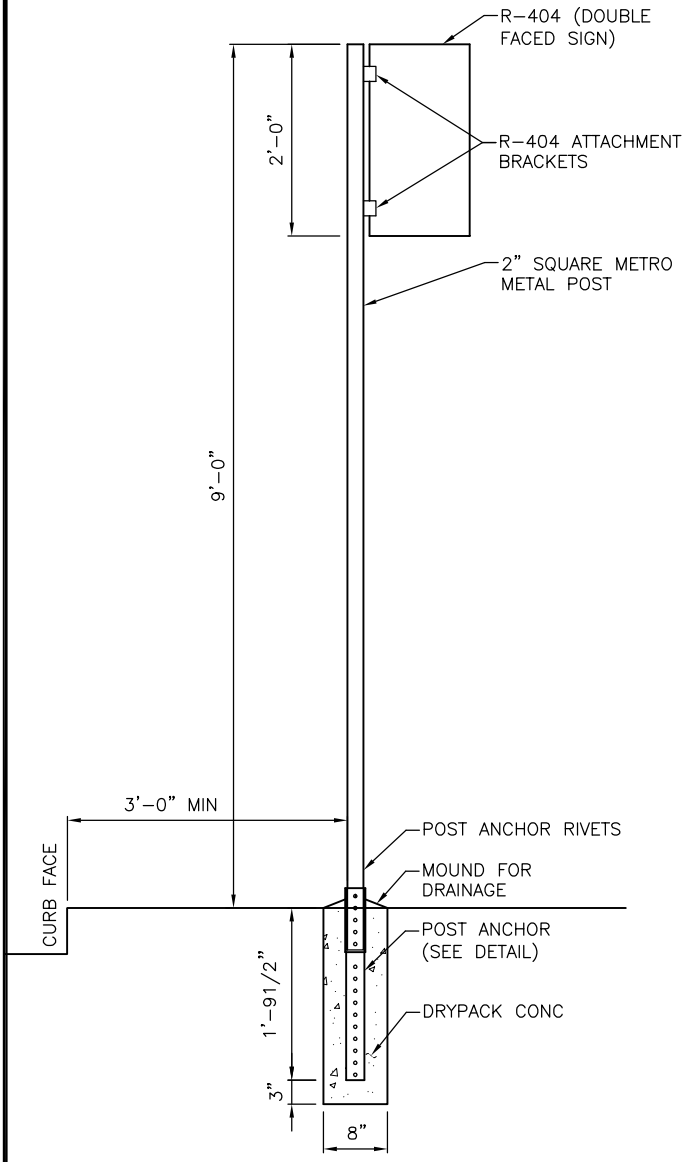
REF STD SPEC SEC 8-21

City of Seattle

NOT TO SCALE

DIRECT BURIAL METER POST INSTALLATION DETAIL

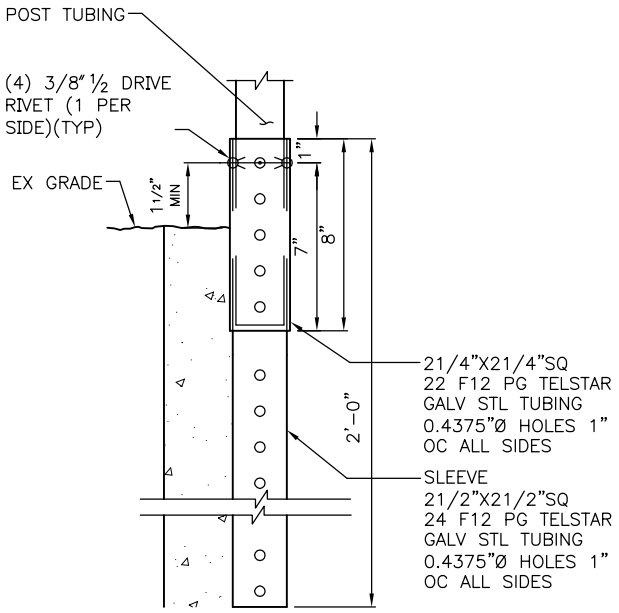
REV DATE: 2005



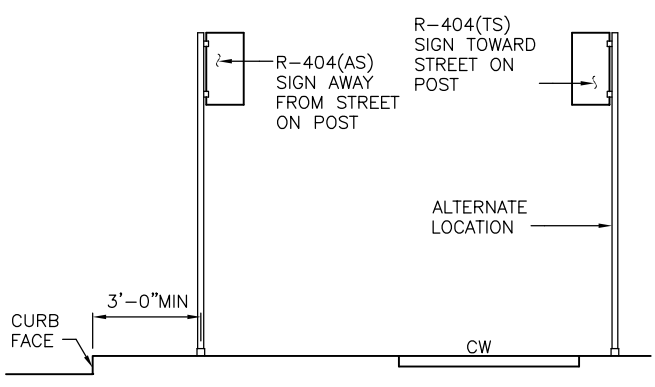
DIRECT BURIAL INSTALLATION

NOTES:

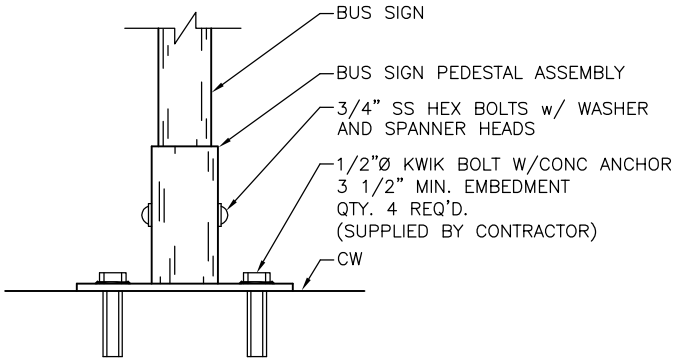
1. POST ANCHOR RIVETS SHALL BE 1 1/2"ABOVE GROUND LEVEL
2. ATTACHMENT BRACKETS SHALL FACE AWAY FROM STREET AS WHEN POST IS LOCATED 3'-0" FROM EDGE OF CURB. ATTACHMENT BRACKETS SHALL FACE TOWARDS STREET (TS) WHEN POST IS LOCATED AT BACK SIDE OF SIDEWALK
3. FOR POST RELOCATIONS, OLD CONCRETE SHALL BE REMOVED 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 3 1/2 INCH EMBEDMENT THROUGH THE GROUT INTO THE EXISTING CONCRETE.



POST ANCHOR DETAIL



SIGN LOCATION DETAIL



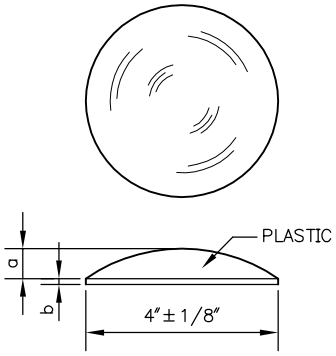
SURFACE MOUNT INSTALLATION

REF STD SPEC SEC 8-21

City of Seattle	NOT TO SCALE	METRO BUS ZONE SIGN INSTALLATION

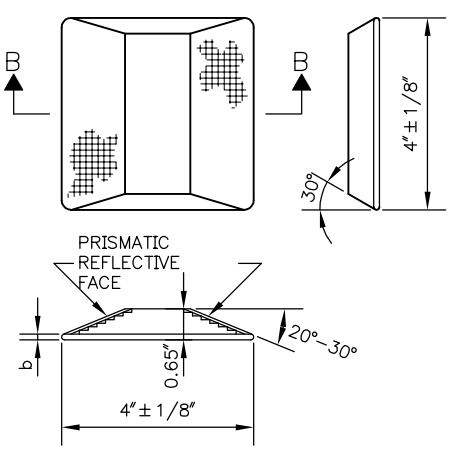
REV DATE: 2003

a=5/8″ ± 1/8″
b=1/8″ ± 1/16″



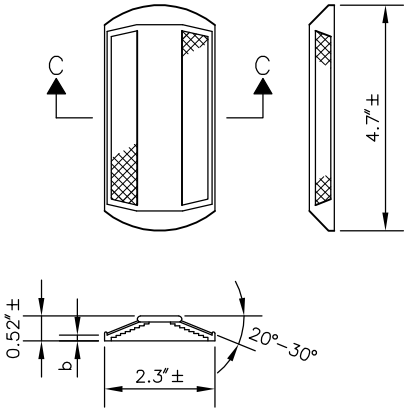
LANE MARKER–TYPE 1

DIRECTION OF TRAFFIC



SECTION B–B

LANE MARKER–TYPE 2A
4″ PRISMATIC REFLECTIVE MARKER



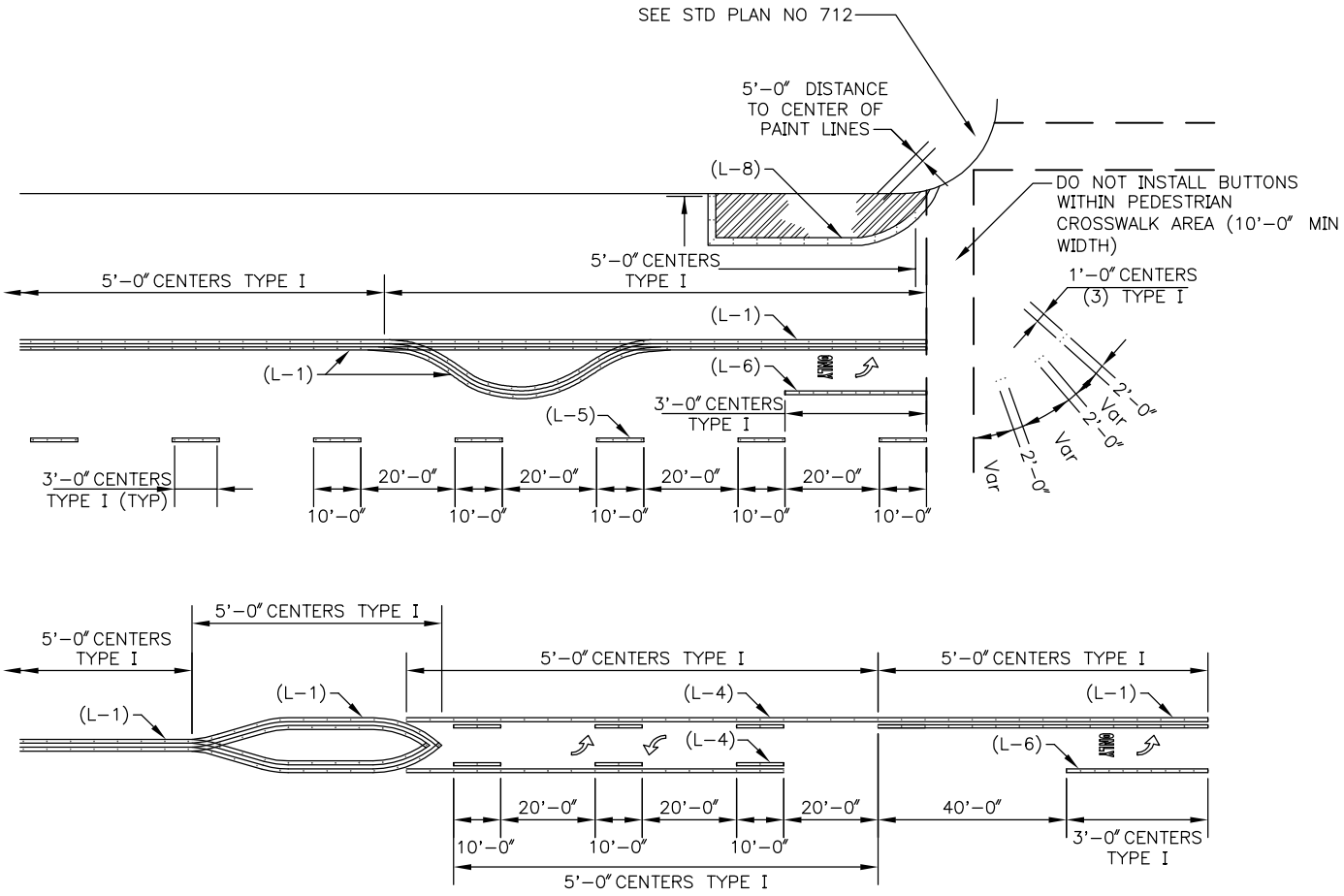
SECTION C–C

LANE MARKER–TYPE 2B

REF STD SPEC SEC 9-21

City of Seattle	NOT TO SCALE	TRAFFIC BUTTONS & LANE MARKERS

REV DATE: 2003



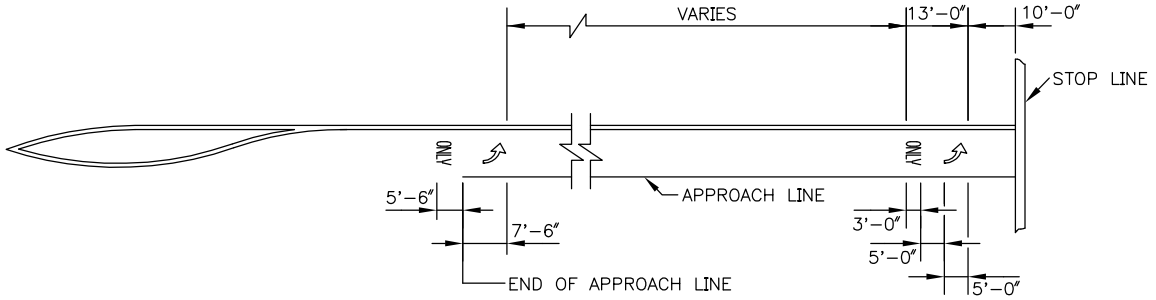
TYPICAL TYPE 1 TRAFFIC BUTTON (4") INSTALLATION DETAILS

TRAFFIC BUTTONS SHALL BE INSTALLED TO CONFORM WITH TYPE OF PAVEMENT MARKING (DESIGNATED AS L–1, L–4, L–5, ETC) AND ARE TO BE ARRANGED AND SPACED AS SHOWN ON THIS DRAWING. COLOR OF TRAFFIC BUTTONS IS TO MATCH COLOR OR PAVEMENT MARKINGS. TRAFFIC BUTTONS SHALL BE INSTALLED PRIOR TO ANY PAINT LINE INSTALLATION, EXISTING CHANNELIZATION IN CONFLICT WITH NEW OR REVISED CHANNELIZATION SHALL BE REMOVED (SEE STD SPEC SEC 2–02.3(3)J)

REF STD SPEC SEC 8-22

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

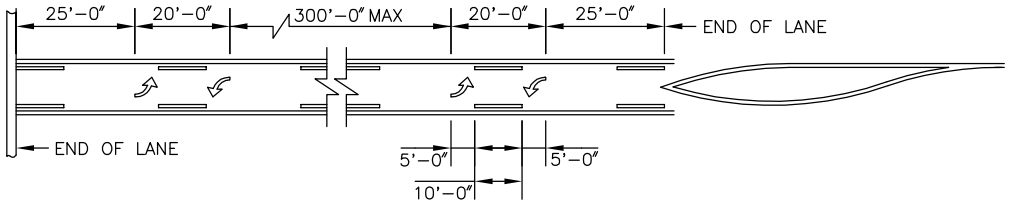
REV DATE: 2003



TYPICAL LEFT TURN CHANNELIZATION

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

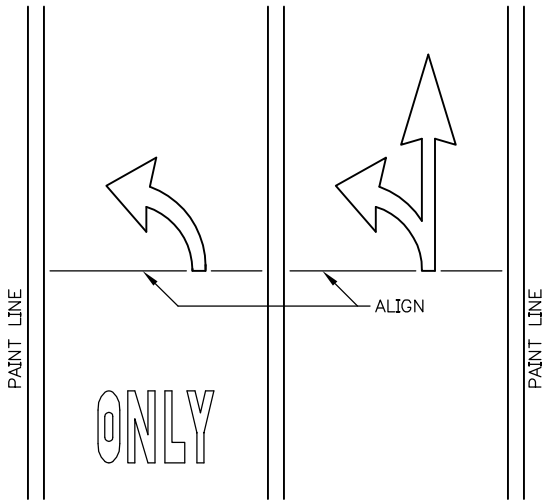
APPROACH LINE LENGTH	LEGEND SETS
LESS THAN 50 FEET	1 SET AT X-WALK END OF POCKET
50 FEET-120 FEET	2 SETS
125 FEET-300 FEET	3 SETS (SECOND LEGEND LOCATED MIDWAY BETWEEN FIRST AND LAST LEGENDS)
OVER 300 FEET	ADDITIONAL SETS SPACED AT APPROX 100 FT INTERVALS BETWEEN FIRST AND LAST SETS



TYPICAL TWO WAY LEFT TURN LANES

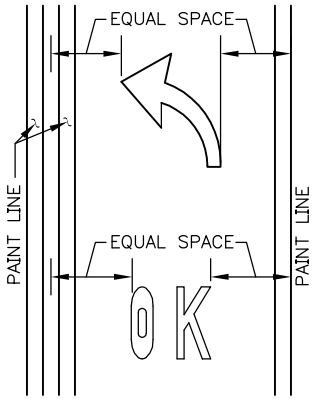
NUMBER OF LEGEND SETS REQUIRED BASED ON THE LENGTH OF TYPICAL TWO WAY LEFT TURN LANES

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

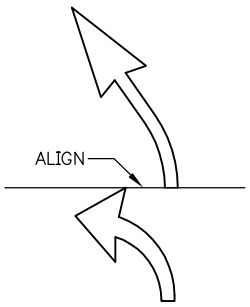


LEGEND PLACEMENT

LEGENDS IN ADJACENT LANES SHALL BE ALIGNED AS SHOWN



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



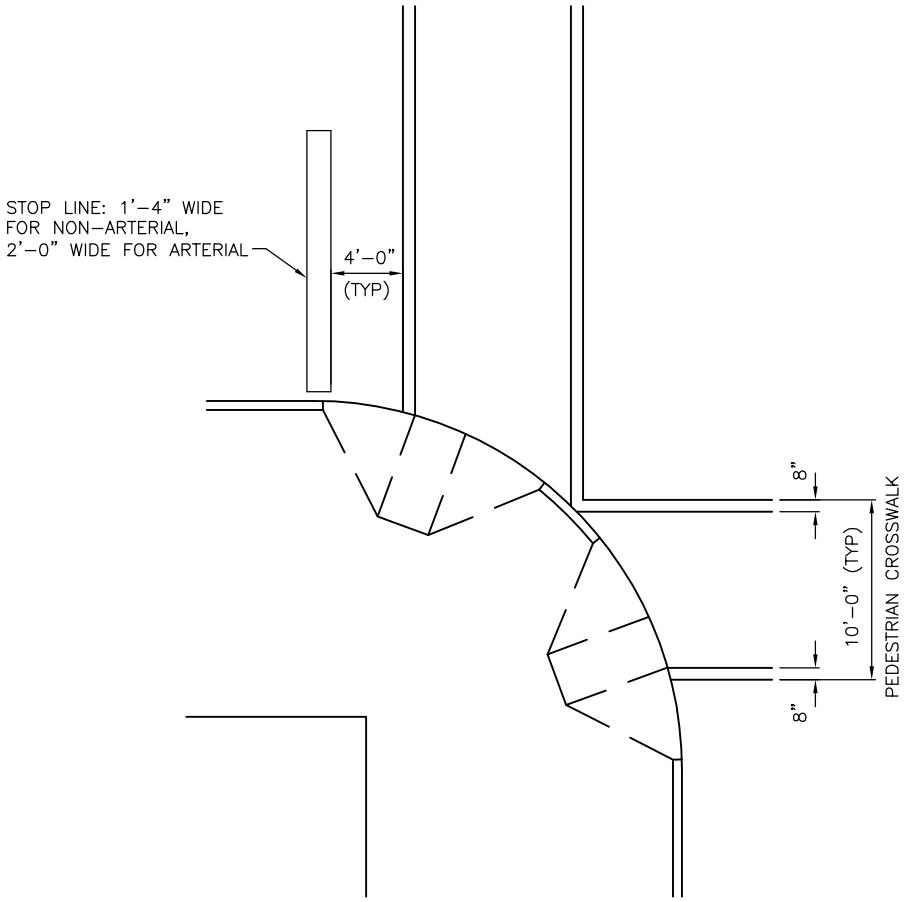
LEGEND COMBINATIONS

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

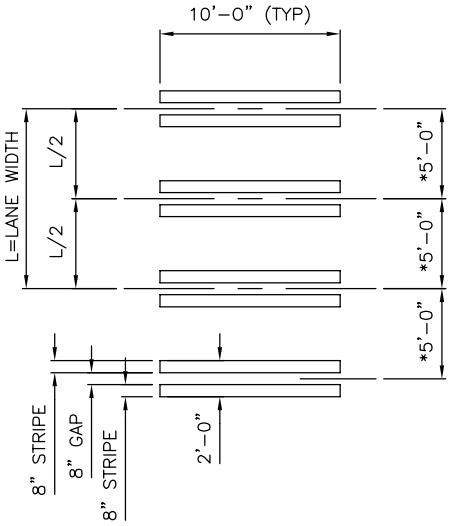
REF STD SPEC SEC 8-22

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

REV DATE: DEC 2010



TYPICAL TRANSVERSE LINE CROSSWALK
(SHOWING CURB RAMPS & STOP LINE PLACEMENT



TYPICAL "LADDER STYLE" PEDESTRIAN CROSSWALK

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

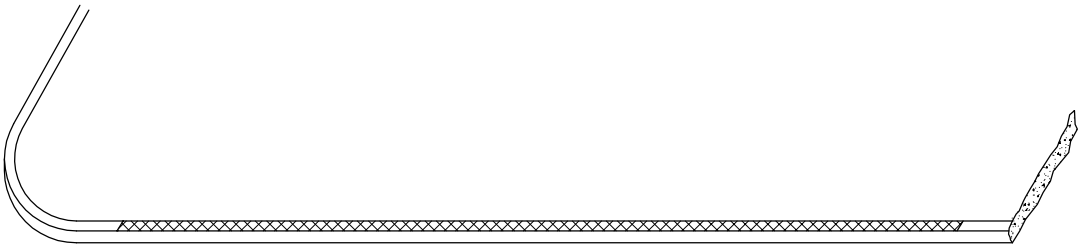
NOTES:

1. "LADDER STYLE" CROSSWALK SHALL BE USED IN MOST APPLICATIONS. "TRANSVERSE LINE" CROSSWALK MAY ONLY BE USED WITH APPROVAL OF ENGINEER.
2. LOWER LANDING OF CURB RAMP SHALL FALL WHOLLY WITHIN CROSSWALK LINES. SEE STANDARD PLAN NO 422a.
3. WHERE EXISTING TRAFFIC LOOP LOCATIONS ARE BETWEEN 4'–0" AND 2'–0" FROM THE EDGE OF CROSSWALK, STOP LINE MAY BE PLACED UP TO 2'–0" FROM THE CROSSWALK.
4. EXACT LOCATION OF CROSSWALK AND STOP LINES SHALL BE APPROVED BY SDOT.
5. COLORED OR TEXTURED PAVEMENT CROSSWALKS SHALL BE SUPPLEMENTED WITH EITHER "LADDER STYLE" OR "TRANSVERSE LINE" CROSSWALK MARKINGS.
6. EXISTING CROSSWALK MARKINGS THAT CONFLICT WITH NEW CROSSWALK MARKINGS SHALL BE REMOVED BY GRINDING.

REF STD SPEC SEC 8-22

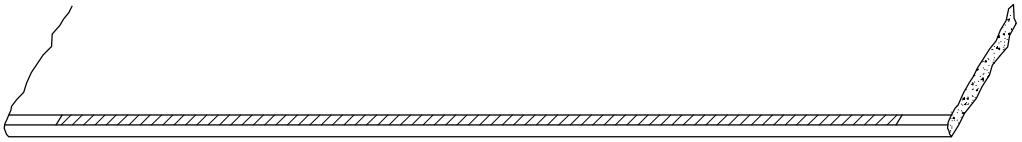
City of Seattle	NOT TO SCALE	TYPICAL CROSSWALK & STOP LINE INSTALLATION DETAILS

REV DATE: 2003

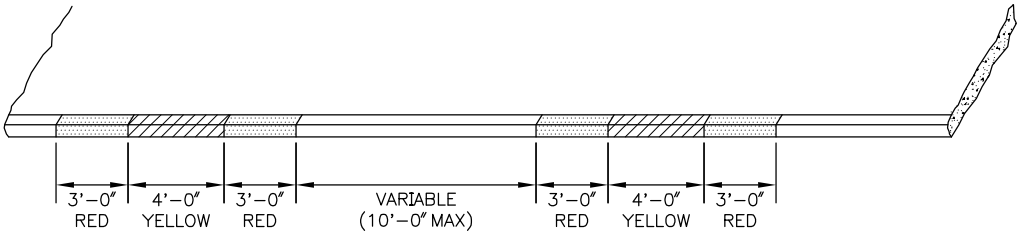


L–10
PASSENGER LOAD ZONE, ETC
(WHITE)

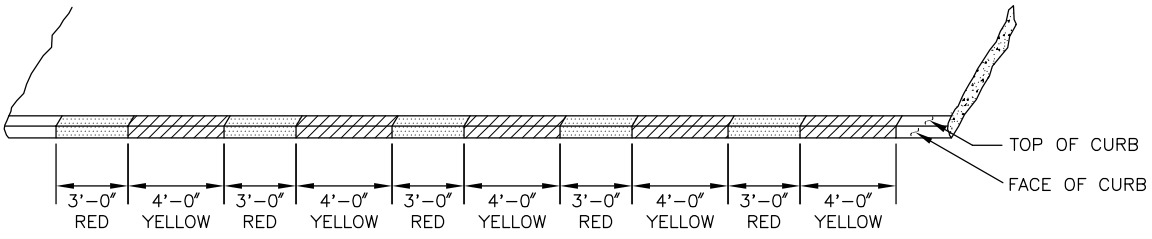
L–11
TOW–AWAY ZONE
(RED)



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



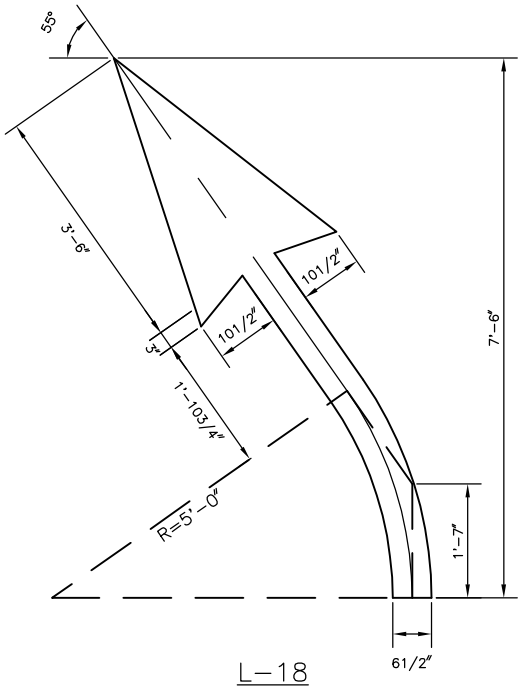
L–13
BUS ZONE (PARKING METERED AREAS)
BUS ZONES ARE PAINTED ON TOP & FACE OF CURB

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

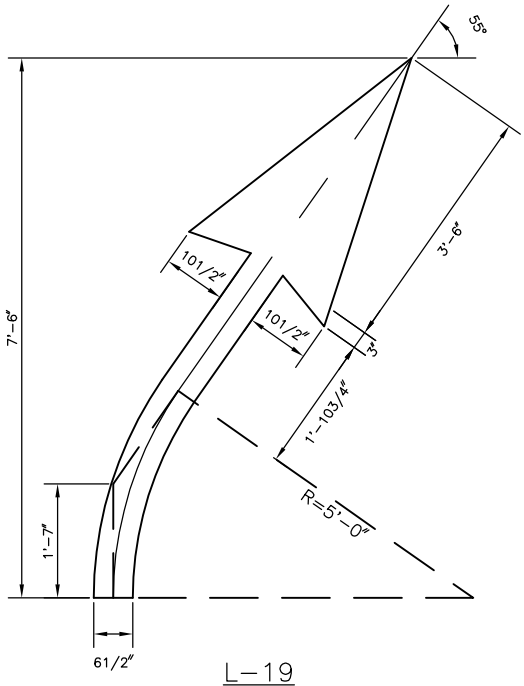
REF STD SPEC SEC 8-22

City of Seattle	NOT TO SCALE	CURB SPACE MARKING DETAILS

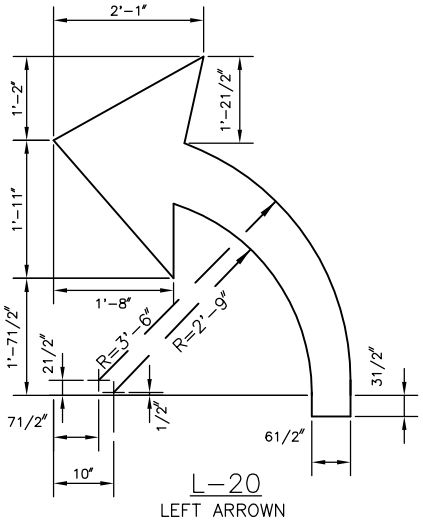
REV DATE: 2003



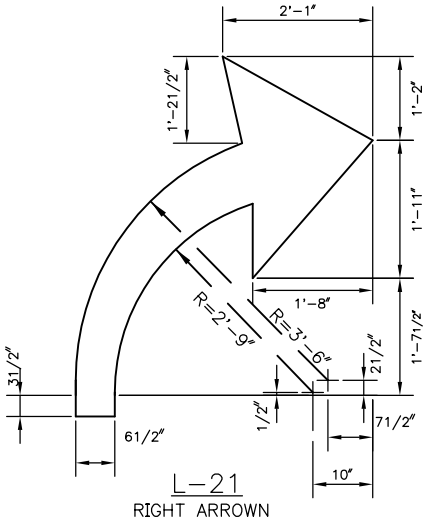
L-18
OBLIQUE LEFT ARROW



L-19
OBLIQUE RIGHT ARROW



L-20
LEFT ARROWN

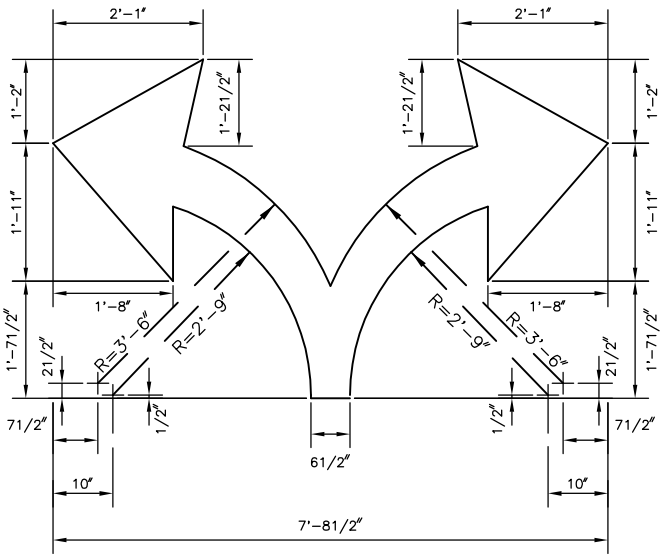


L-21
RIGHT ARROWN

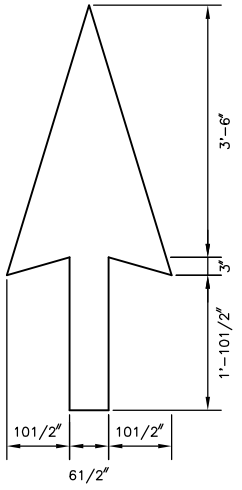
REF STD SPEC SEC 8-22

City of Seattle	NOT TO SCALE	PAVEMENT MARKINGS LEGENDS\SYMBOLS

REV DATE: 2005

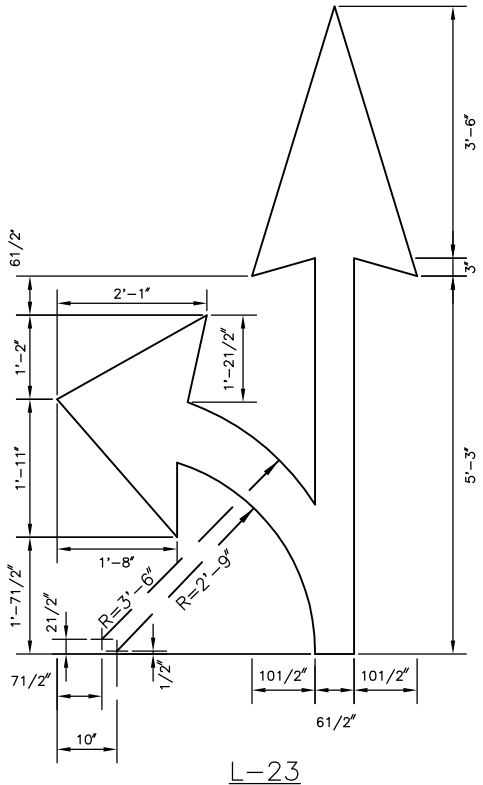


L-17, L-17T
LEFT & RIGHT ARROWS

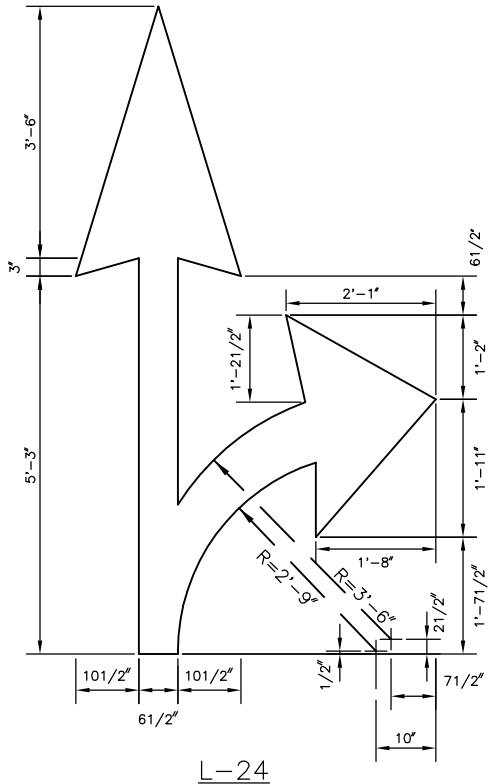


L-22, L-22T
THROUGH ARROW

NOTE:
"T" = THERMOPLASTIC



L-23
LEFT & THROUGH ARROWS

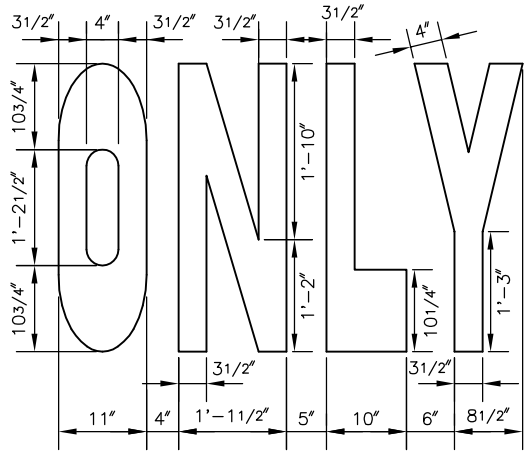


L-24
RIGHT & THROUGH ARROWS

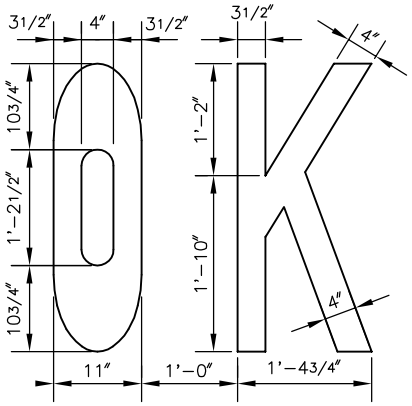
REF STD SPEC SEC 8-22

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

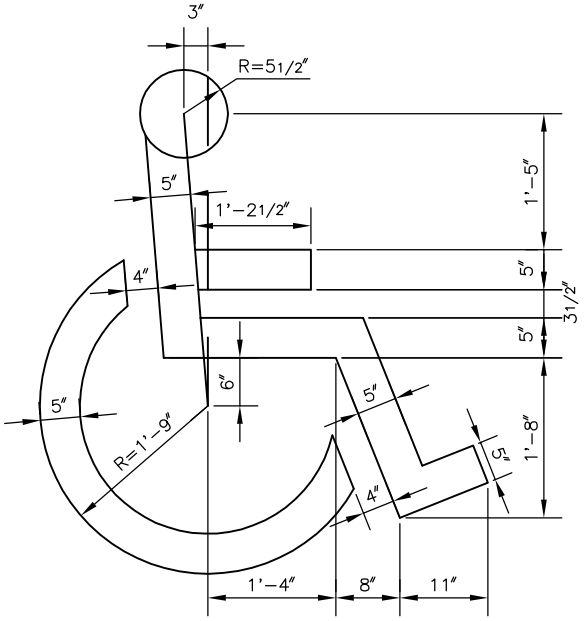
REV DATE: 2005



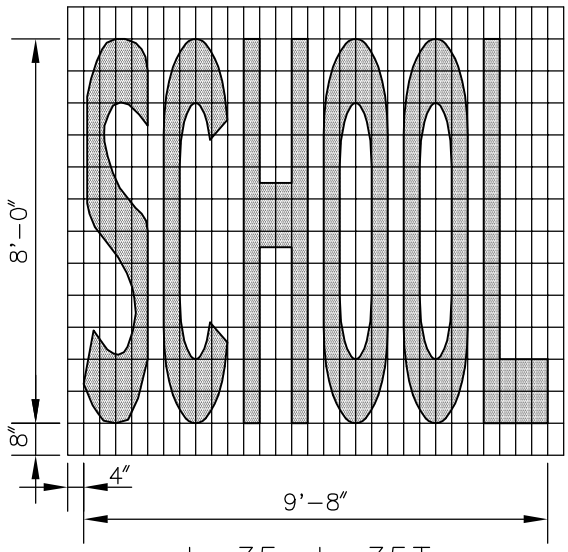
L–25, L–25T
″ONLY″ LEGEND



L–26, L–26T
″OK″ LEGEND



L–29, L–29T
DISABLED PERSON SYMBOL



L–35, L–35T
″SCHOOL″ LEGEND

NOTE:
″T″ = THERMOPLASTIC

REF STD SPEC SEC 8-22

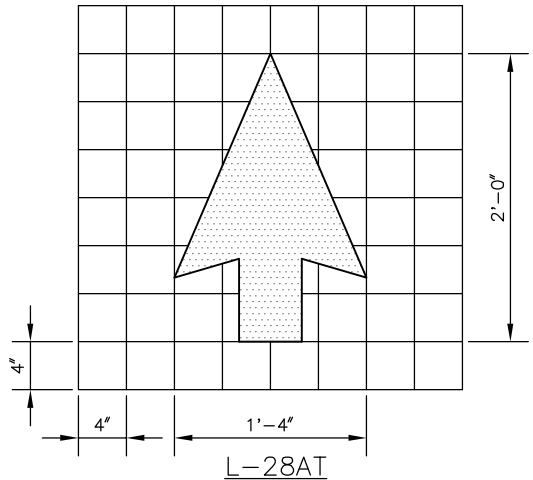
City of Seattle

NOT TO SCALE

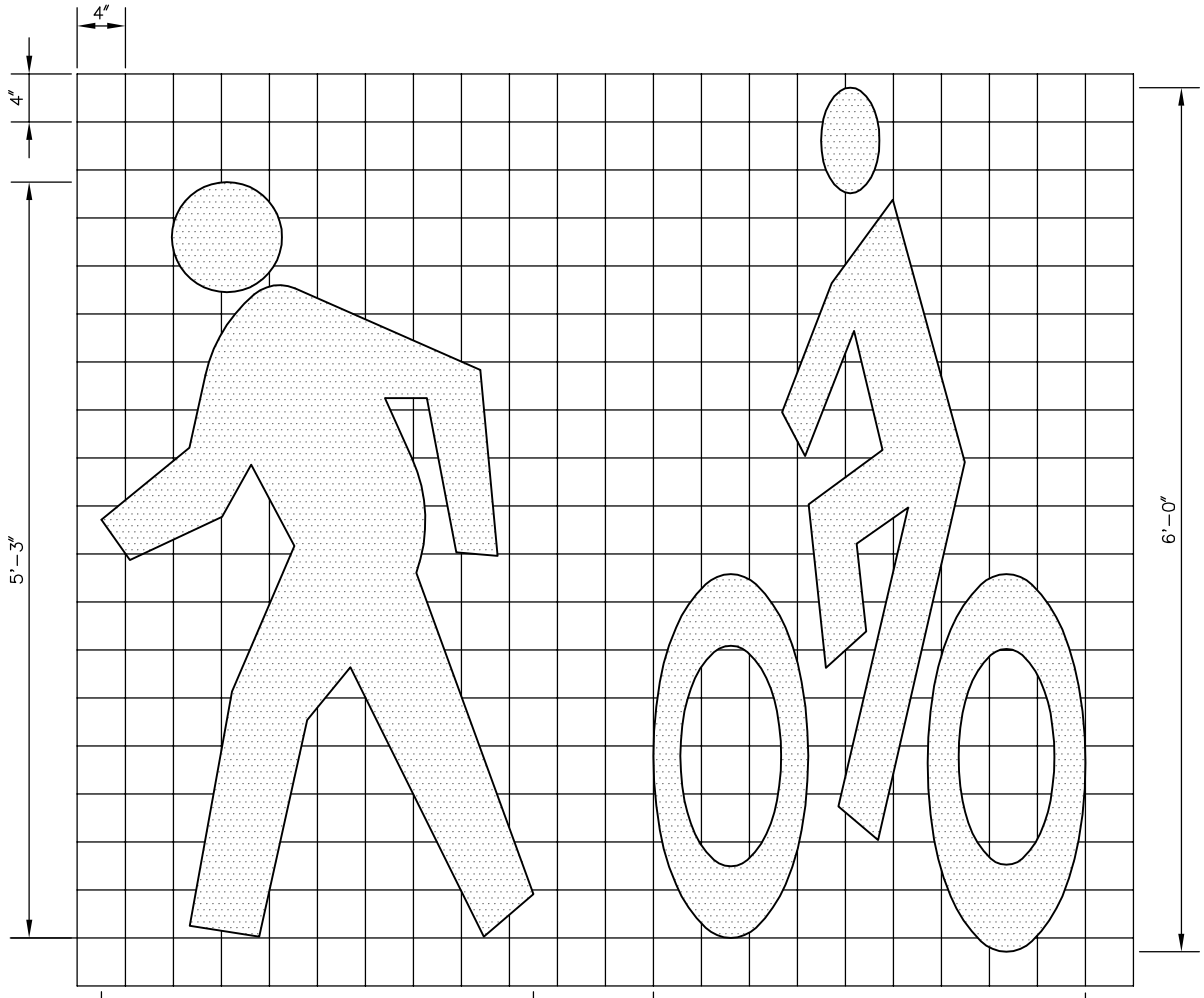
PAVEMENT MARKINGS
LEGENDS\SYMBOLS

REV DATE: 2005

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



L-28AT



L-27T
PEDESTRIAN STYLE

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

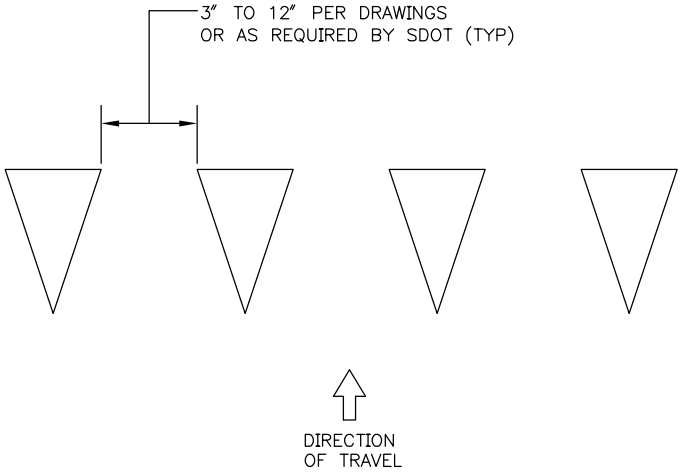
REF STD SPEC SEC 8-22

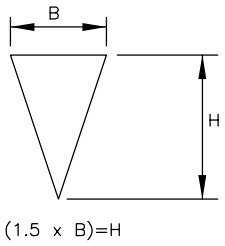
City of Seattle

NOT TO SCALE

BICYCLIST & PEDESTRIAN SYMBOLS

REV DATE: 2005





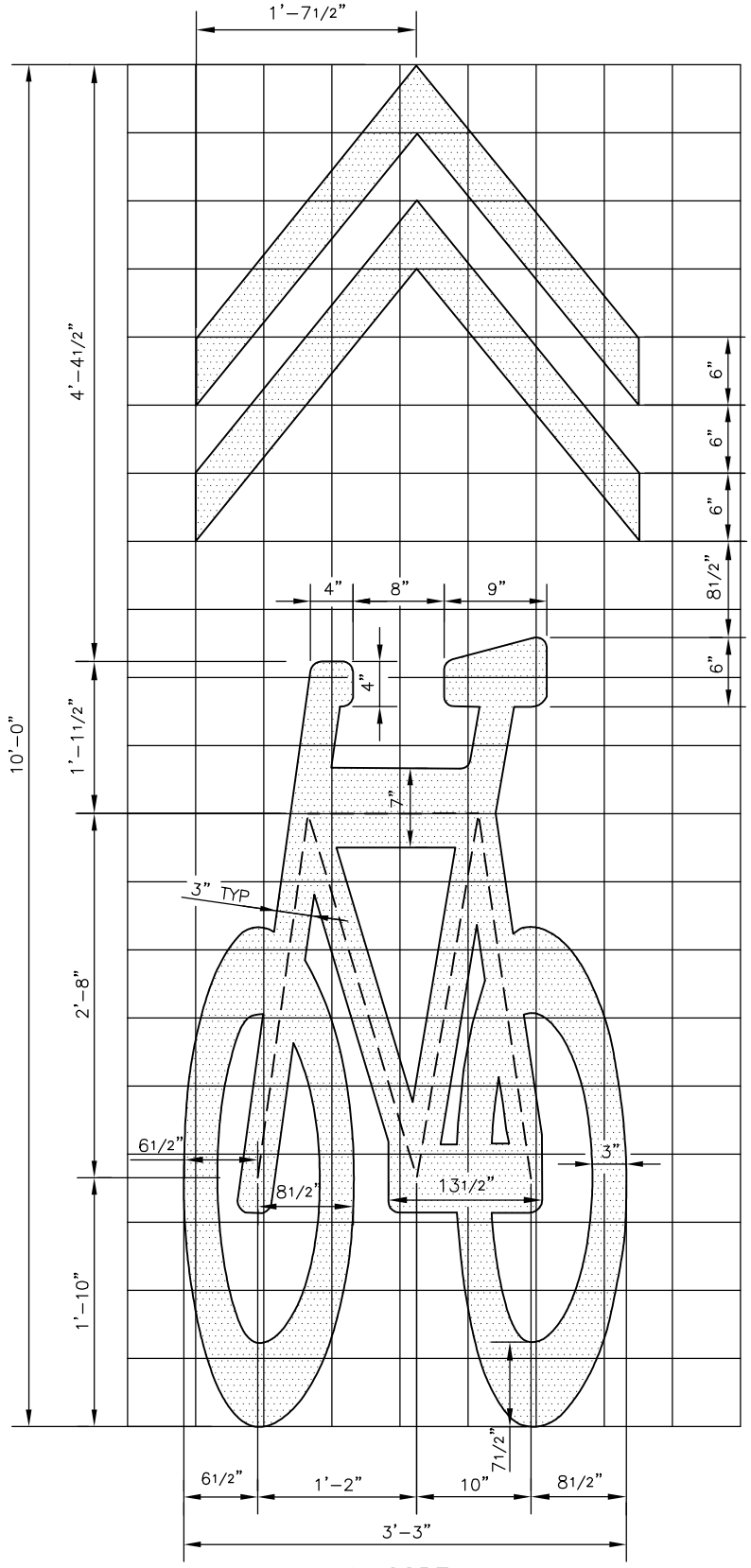
B= BASE WIDTH (12″ OR 24″ TYPICALLY)
H= HEIGHT (18″ OR 36″ TYPICALLY)

L−9A, L−9AT
YIELD LINE

REF STD SPEC SEC 8-22

City of Seattle	NOT TO SCALE	PAVEMENT MARKINGS LEGENDS\SYMBOLS

REV DATE: 2008



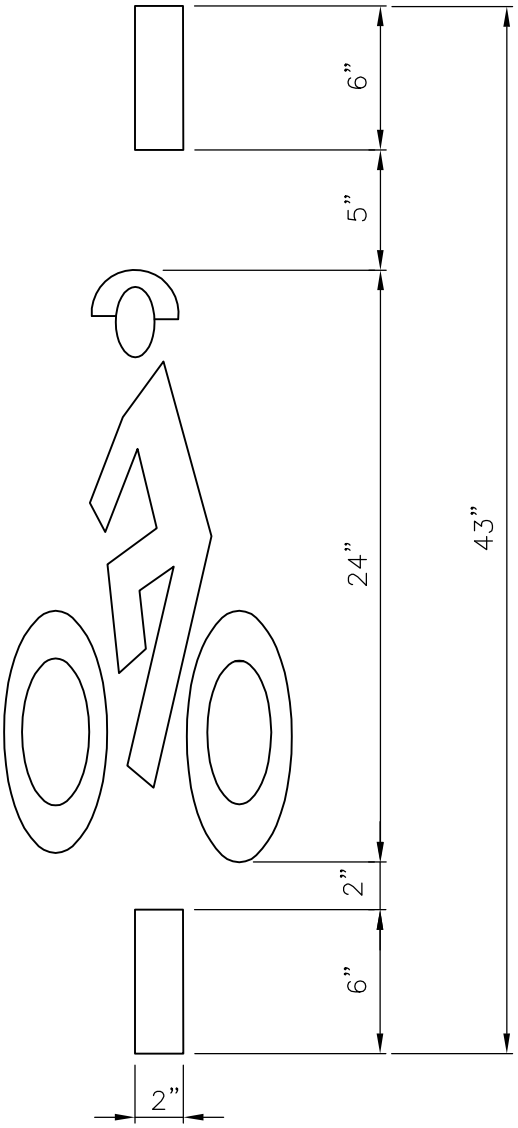
L-28BT
SHARROW

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

REF STD SPEC SEC 8-22

City of Seattle	NOT TO SCALE	BICYCLE SYMBOL

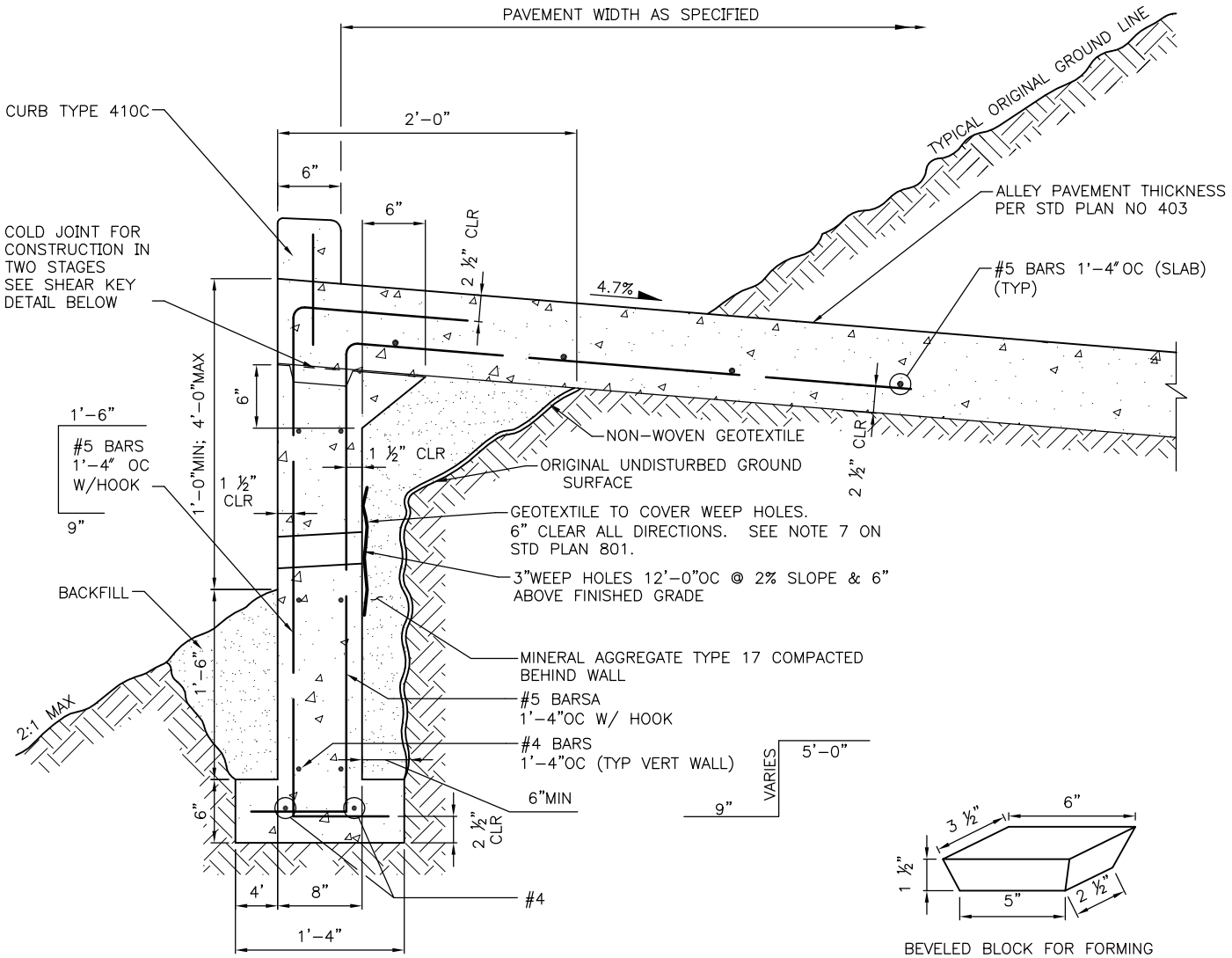
REV DATE: DEC 2010



REF STD SPEC SEC 8-22

City of Seattle	NOT TO SCALE	BICYCLE DETECTOR PAVEMENT MARKING

REV DATE: 2008



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

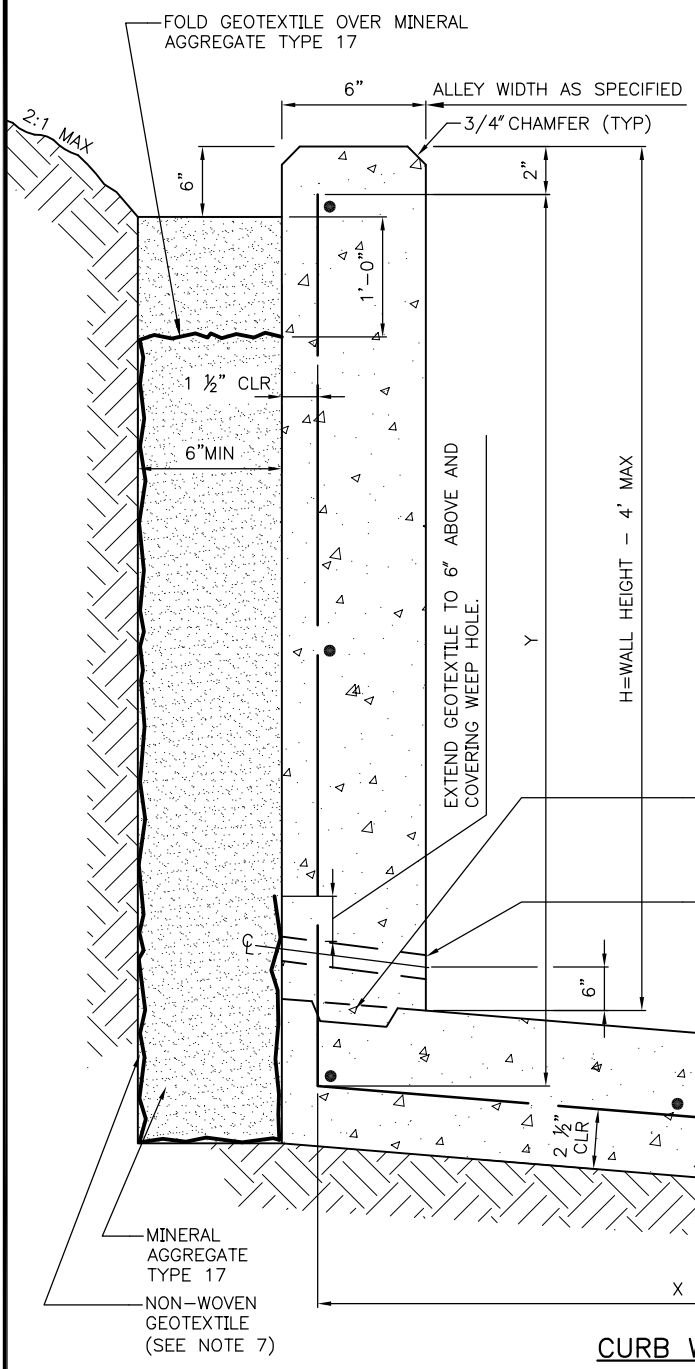
NOTES:

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 SHALL BE 2½"
3. WHEN CONSTRUCTION OF ALLEY PAVEMENT IS NOT PLACED INTEGRAL WITH SUPPORT WALL, SHEAR KEYS SHALL BE INSTALLED 1'-6"ON CENTERS
4. CONCRETE FOR SUPPORT WALL SHALL BE CLASS 4000
5. REINFORCING STEEL ASTM A615 GR 60
6. VEHICULAR & PEDESTRIAN RAILING PER RIGHT OF WAY IMPROVEMENT MANUAL

REF STD SPEC SEC 5-05

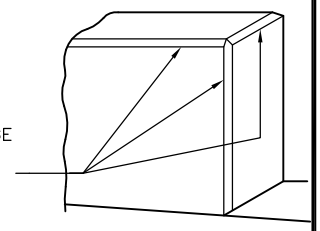
City of Seattle	NOT TO SCALE	SUPPORT WALL

REV DATE: 2008

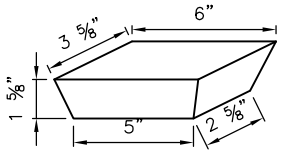


CURB WALL

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

REF STD SPEC SEC 5-05

City of Seattle	NOT TO SCALE	CURB WALL