

STANDARD PLANS
for
MUNICIPAL CONSTRUCTION
PROPOSED 2017 EDITION



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2017 Edition City of Seattle Standard Plans for Municipal Construction

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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.

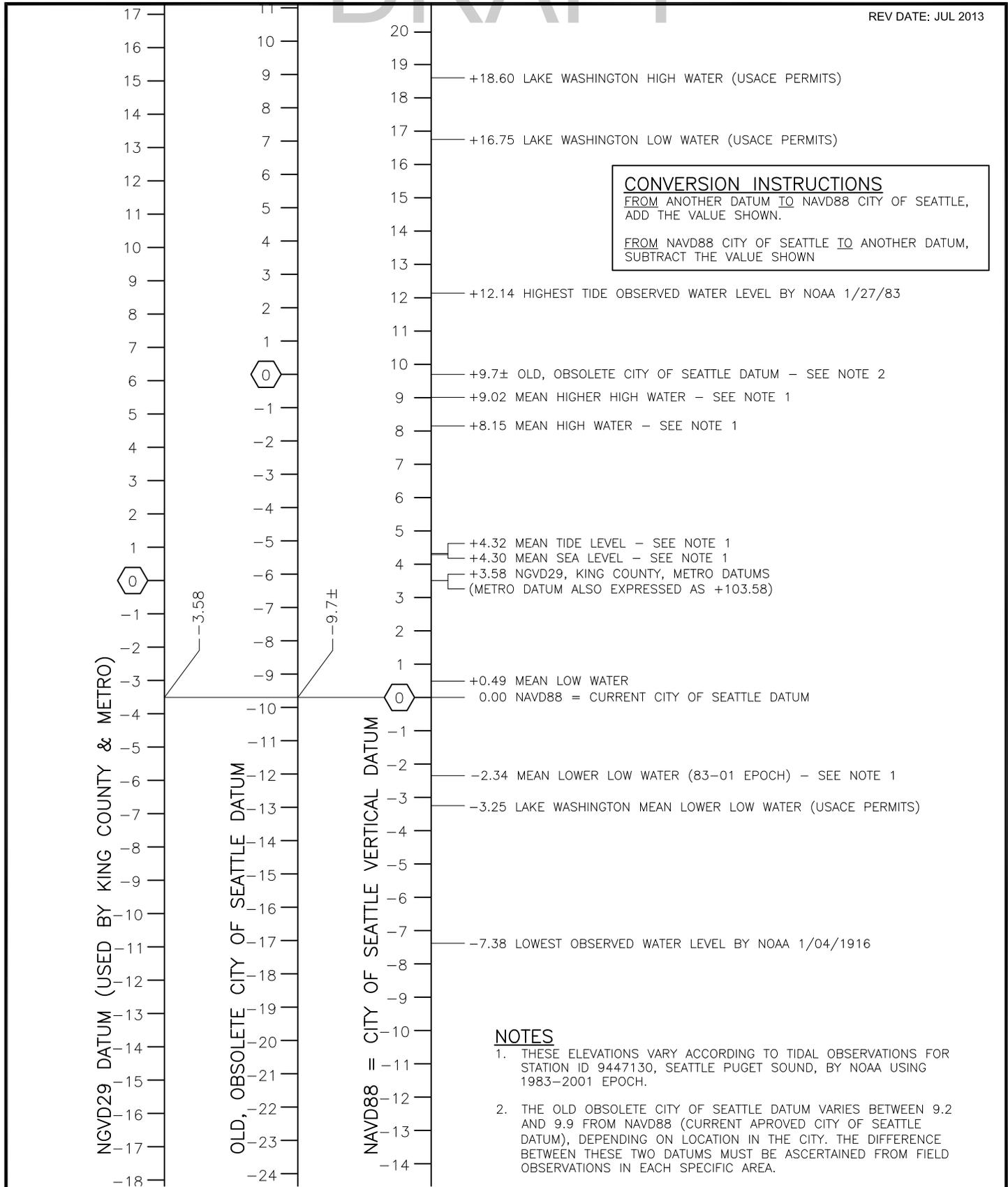
REF STD SPEC SEC 1-07.16(1)A, 1-07.28



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ELEVATIONS & DATUMS



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

	<p>City of Seattle</p>	<p>NOT TO SCALE</p>	<p>ELEVATIONS & DATUMS</p>
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ABAN	Abandon(ed)
ABW	Asphalt Bike Way
ACV	Automatic Control Valve
ACP	Asphalt Concrete Pavement
ADA	Americans with Disabilities Act
ADJ	Adjust
AHD	Ahead
AIC	Aerial Interconnect Cable
AL	Aluminum
AP	Angle Point
APP	Approved
APPROX	Approximate
APWA	American Public Works Association
ASPH	Asphalt
ATB	Asphalt Treated Base
AV	Air Valve
AVB	Automatic Vacuum Breaker
AVE	Avenue
AVG	Average
AW	Asphalt Walk
AWG	American Wire Gage
AWWA	American Water Works Assoc.
BAT	Backflow Assembly Tester
B&B	Ball & Burlap
BC	Bolt Circle, Back of Curb
BF	Bottom Face
BFV	Butterfly Valve
BK	Back
BLDG	Building
BLK	Block
BLKG	Blocking
BLKHD	Bulkhead
BLRD	Bollard

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

REF STD SPEC SEC 1-01.2



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ABBREVIATIONS

COND	Condition
CONN	Connect/Connection
CONSTR	Construction
CONT	Continuous
CORP	Corporation
COS	City of Seattle
CPEP	Corrugated Polyethylene Pipe
CR	Cross, Curb Radius
CSB	Chief Seattle Base
CSECP	Construction Stormwater & Erosion Control Plan
CULV	Culvert
CW	Concrete Walk
CY	Cubic Yard
DB	Direct Burial Cable
DC	Direct Current
DCVA	Double Check Valve Assembly
DEPT	Department
DGV	District Gate Valve
DIA 0	Diameter
DIP or DI	Ductile Iron Pipe
DIPRA	Ductile Iron Pipe Research Assoc.
DR	Drive
DS	Downspout
DWG	Drawing
DWY	Driveway
E	East
EA	Each
ECB	Electrical Cable
ECC	Eccentric
ECD	Electrical Conduit
ED	Electrical Duct
EL/ELEV	Elevation
ELEC	Electric/Electrical

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

REF STD SPEC SEC 1-01.2



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ABBREVIATIONS

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

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

REF STD SPEC SEC 1-01.2



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ABBREVIATIONS

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 \overline{M}	Monument Line
MNRL AGG	Mineral Aggregate
MOD	Modify/Modified
MON	Monument
MW	Monitor Well
N	North
NAD	North American Datum
NAVD	North American Vertical Datum
NF	Near Face
NGVD	National Geodetic Vertical Datum
NIC	Not in Contract
NO	Number
NOM	Nominal
NS	Near Side
NTS	Not To Scale
OC	On Center
OD	Outside Diameter/Dimension
OF	Outside Face
OH	Overhead
PAV	Pavement
PC	Point of Curvature
PCC	Point of Compound Curve
PCW	Pervious Concrete Walk

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

REF STD SPEC SEC 1-01.2



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ABBREVIATIONS

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

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

REF STD SPEC SEC 1-01.2



City of Seattle

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ABBREVIATIONS

ITEM

EXISTING

PROPOSED

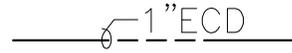
Signal Controller Cabinet



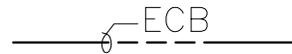
Electrical Vault



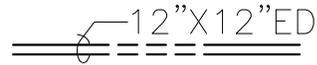
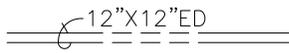
Electrical Conduit



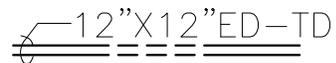
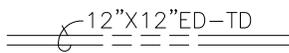
Electrical Cable (direct burial)



Electrical Duct



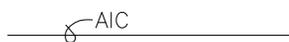
Combined Electrical & Telephone Duct



Span Wire



Aerial Interconnect Cable



Transmission Pole (steel w/ conc base)

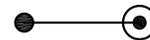


City Wood Pole

OEPP



City Wood Pole w/ HPS



REF STD SPEC SEC



City of Seattle

NOT TO SCALE

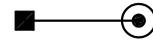
STANDARD SYMBOLS
ELECTRICAL

ITEM

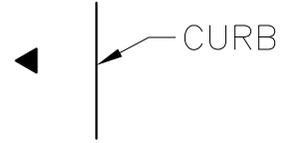
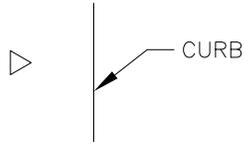
EXISTING

PROPOSED

Light Pole
(metal) w/ HPS



Strain Pole
(metal)



Combined
Lighting Strain
Pole HPS



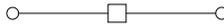
Luminaire



Mercury Vapor
Luminaire



Double Light
Pole



Utility Wood Pole



Utility Guy Pole



Anchor



Ground



REF STD SPEC SEC



City of Seattle

NOT TO SCALE

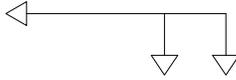
STANDARD SYMBOLS
ELECTRICAL

ITEM

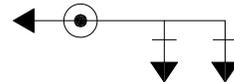
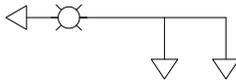
EXISTING

PROPOSED

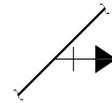
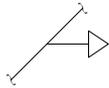
Traffic Signal Mast Arm Pole



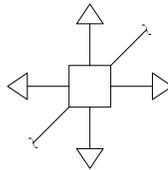
Traffic Signal Mast Arm Pole w/ Luminaire



Traffic Signal on Span Wire



Multi-Directional Traffic Signal on Span Wire



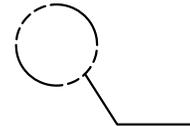
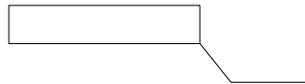
Traffic Signal Conduit



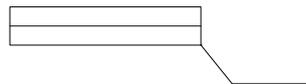
Traffic Signal Cable



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

ITEM	EXISTING	PROPOSED
Signal Pedestal		
Vehicle Signal		
Vehicle Signal w/ Backplate		
Vehicle Signal (optically programmed)		
Pedestrian Signal		
Pedestrian Signal (optically programmed)		
Pedestrian Push Button Post		
Pedestrian Push Button		
Illuminated Sign		
Junction Box		
Handhole		
Traffic Control Handhole		
Street 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
(?=Identification Number)



Cable Runs
(?=Run Number per Wiring Schedule)

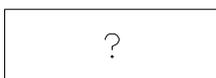


Removal/Relocation Item
(?=Identification Number per Removal/Relocation Plan)



Construction Item
(?=Identification Number per Signalization Plan)

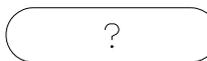
Signal Poles, Signal Pedestals, Push Button Pedestals &
Push Buttons Identified by Number on Signalization Plan.

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

ITEM	EXISTING	PROPOSED
Cement Concrete Pavement		
Asphalt Concrete Pavement		
Asphalt Concrete Surfacing		
Curb		<p>TYPE 410C CURB</p>
Cement Concrete Walk		
Pervious Concrete Walk		

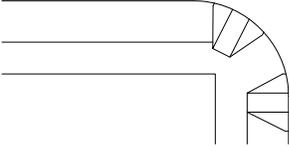
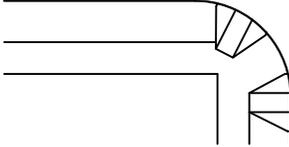
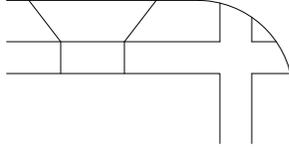
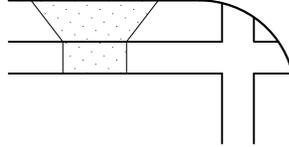
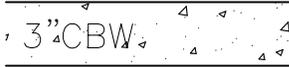
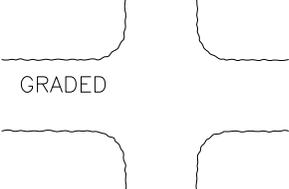
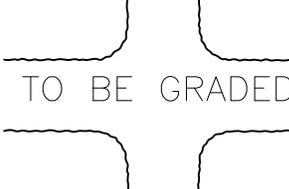
REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS
PAVING

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

REF STD SPEC SEC



City of Seattle

NOT TO SCALE

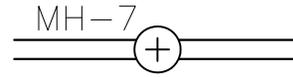
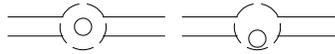
STANDARD SYMBOLS
PAVING

ITEM

EXISTING

PROPOSED

Maintenance Holes



Inlet Type 250A



Inlet Type 250B



Inlet Type 252



Inlet Type 268



Catch Basin round inlet top



Private CB & Inlet



Catch Basin Type 151
(pre 1985)



Catch Basin Type 240A



Catch Basin Type 240B



Catch Basin Type 240C



Catch Basin Type 240D



Catch Basin Type 241



Catch Basin Type 242A



Catch Basin Type 242B



Junction Box Type 277A



Junction Box Type 277B



Area Drain



REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS
SEWER & DRAINAGE

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

REF STD SPEC SEC



City of Seattle

NOT TO SCALE

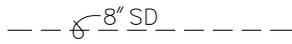
STANDARD SYMBOLS
SEWER & DRAINAGE

ITEM

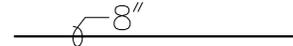
EXISTING

PROPOSED

Service Drain



Inlet & CB Connection



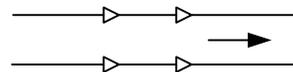
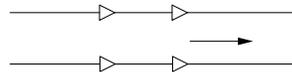
Open Ended Pipe



Ditch



Stream



REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS
SEWER & DRAINAGE

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

REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS
TOPOGRAPHIC & MISC

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

REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS
TOPOGRAPHIC & MISC

ITEM	EXISTING	PROPOSED
Shrub or Bush		
Ground, Grade Line		
Grade (arrow downhill)	5.6%	5.6%
Rail Road Tracks		
City Limits		
Slope Line		
Contours		
Slope Angle Horiz:Vert	v c	H:V
Vertical Curve	v c	v c
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

ITEM

EXISTING

PROPOSED

Monitor Well



Street Name Sign



US Mail Box



Private Mail Box



Bollard



Posts



Parking Meter & Pay Station



Rectangular Casting



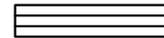
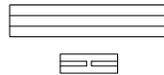
Circular Casting



Column



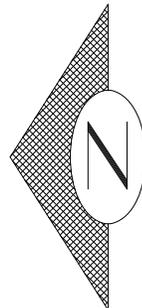
Jersey Barrier & Eco Block



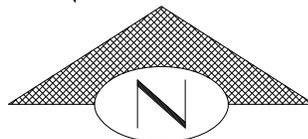
Tree Pit



North Arrow horizontal



North Arrow vertical



REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS
TOPOGRAPHIC & MISC

ITEM

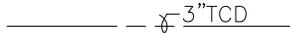
EXISTING

PROPOSED

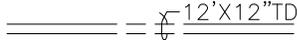
Telephone Cable
(direct burial)



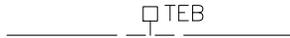
Telephone Conduit



Telephone Duct



Telephone Enclosure



Telephone Maintenance
Hole



Telephone Pole



Telephone Handhole



Television Cable
(direct Burial)



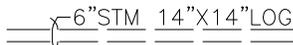
Television Handhole



Telegraph Maintenance
Hole



Steam Log



Steam Vault



Gas Main



Gas Valve



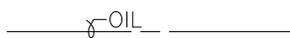
Gas Meter



Gas Regulator



Petroleum or Oil



Abandon(ed)



REF STD SPEC SEC



City of Seattle

NOT TO SCALE

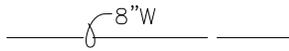
STANDARD SYMBOLS
PRIVATE UTILITIES

ITEM

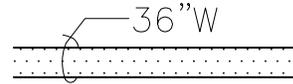
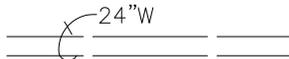
EXISTING

PROPOSED

Watermain
<1'-0"Dia



Watermain
≥1'-0"Dia



11 1/4° Bend w/
Conc Blocking



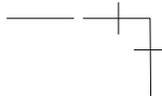
22 1/2° Bend



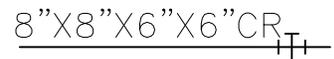
45° Bend



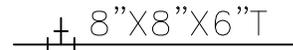
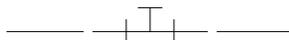
90° Bend



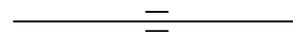
Cross



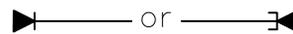
Tee



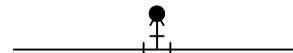
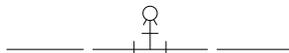
Pipe Sleeve



Plug w/ Conc
Blocking



Hydrant



Water Meter



Valve Box



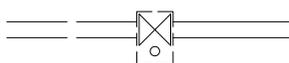
Gate Valve



Gate Valve
w/ Chamber



Gate Valve
w/ Vault Chamber



Reducer



REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS
WATER

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

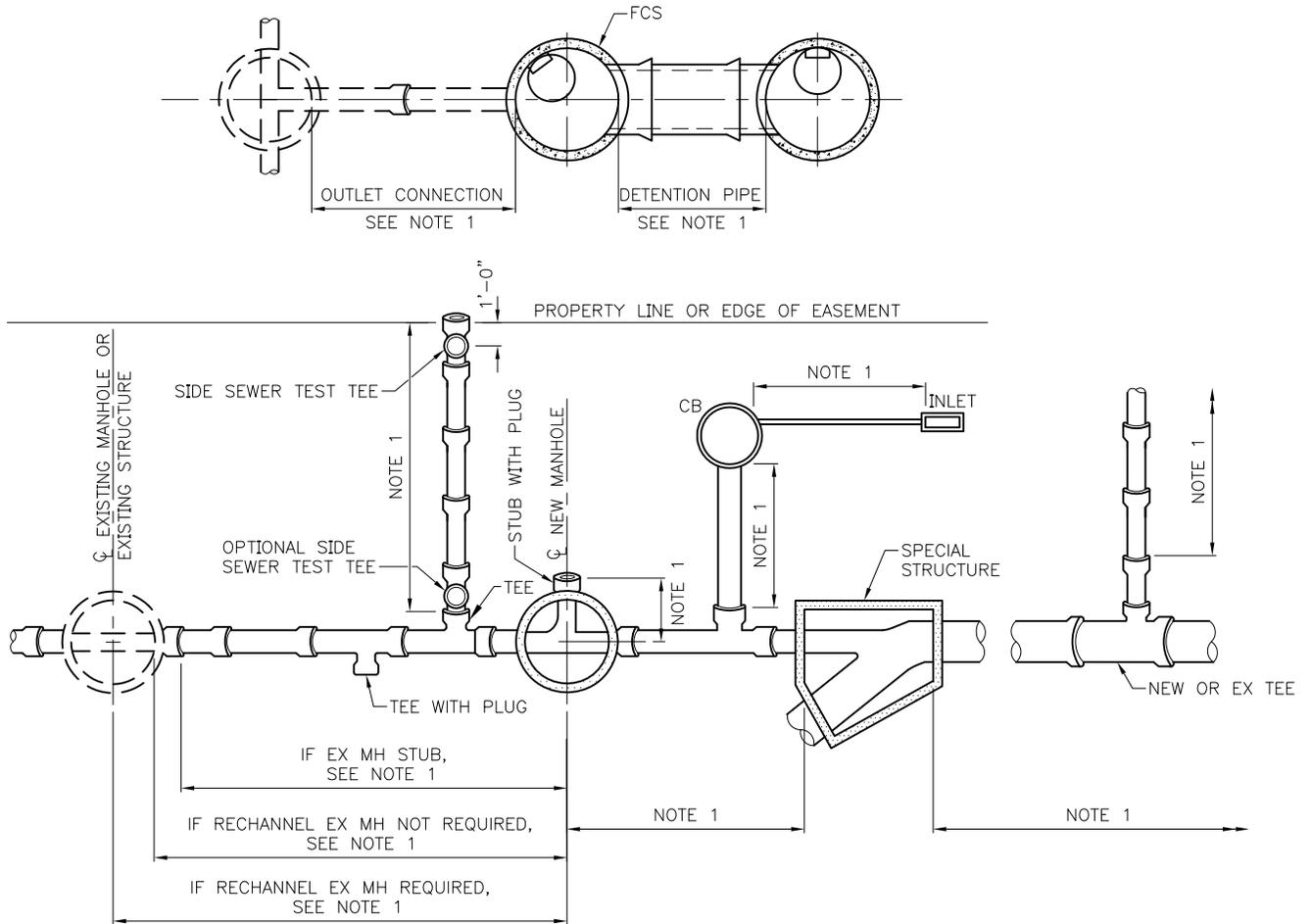
REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS
WATER



NOTES:

1. MEASUREMENT PER LINEAR FOOT. PIPE ENDING IN STRUCTURE MEASURED TO EITHER INSIDE FACE OR TO CENTERLINE OF STRUCTURE AS INDICATED, OR TO TEE OR WYE AS INDICATED.
2. TEE OR WYE INCLUDING PLUG - UNIT PRICE EACH
3. ALL PIPE SHALL BE MEASURED ON THE SLOPE ALONG THE CENTERLINE OF PIPE TO NEAREST 0.10 LF.

REF STD SPEC SEC 7



City of Seattle

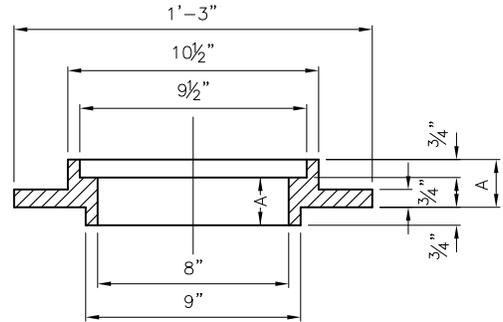
NOT TO SCALE

SEWER/DRAINAGE
MEASUREMENT DIAGRAM

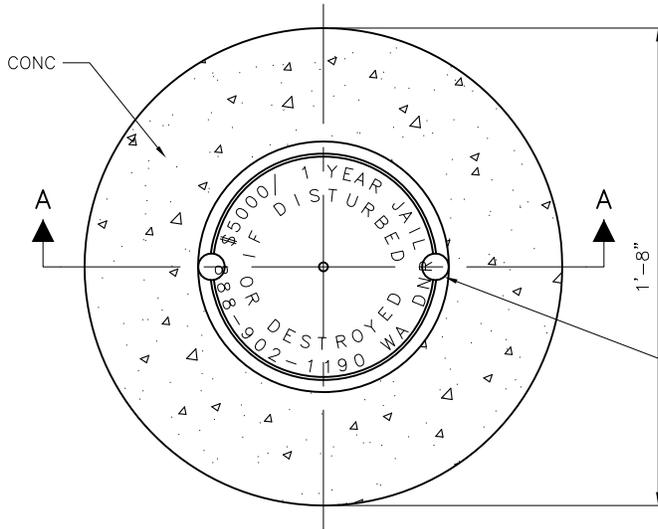
NOTES:

1. MONUMENT CASE TO BE INSTALLED BY CONTRACTOR.
2. BASE TO BE PLACED ON A WELL COMPACTED FOUNDATION.
3. FRAME AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS FOR DELIVERY.
4. FRAME AND COVER SHALL BE CAST IRON AND HAVE COATING APPLIED TO ALL FACES.
5. CASTINGS IN RIGID PAVEMENT SHALL HAVE REINFORCING STEEL IN THE PAVEMENT.
6. USE LOCKING COVER IN R/W. DRILL AND TAP, APPLY ANTI-SEIZE COATING AND BOLT DOWN WITH 3/8" S.S. ALLEN-HEAD BOLTS -2 PLACES.

RISER RING DIMENSIONS			
A (SIZE)	1 1/2"	2"	3"

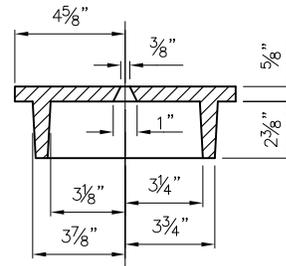


RISER RING SECTION

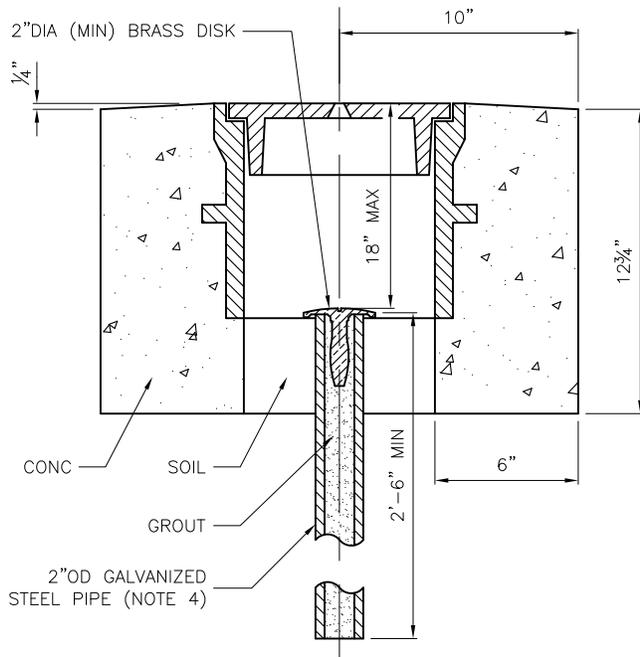


PLAN

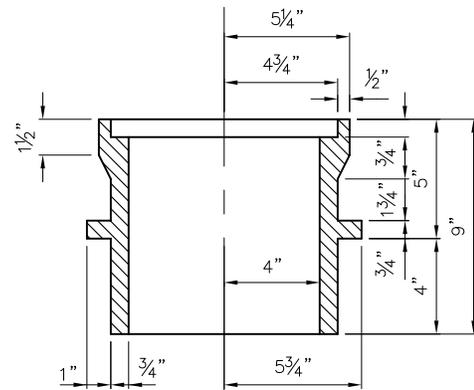
DRILL & TAP FOR LOCKING AS REQUIRED. SEE NOTE 6.



COVER SECTION



SECTION A-A



CASE SECTION

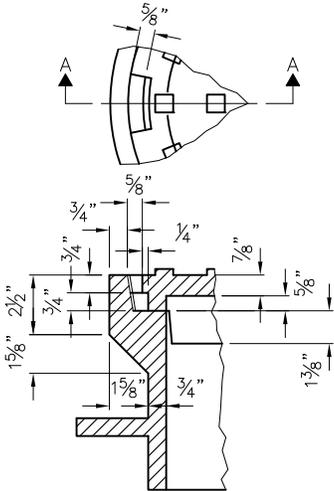
REF STD SPEC SEC 8-13



City of Seattle

NOT TO SCALE

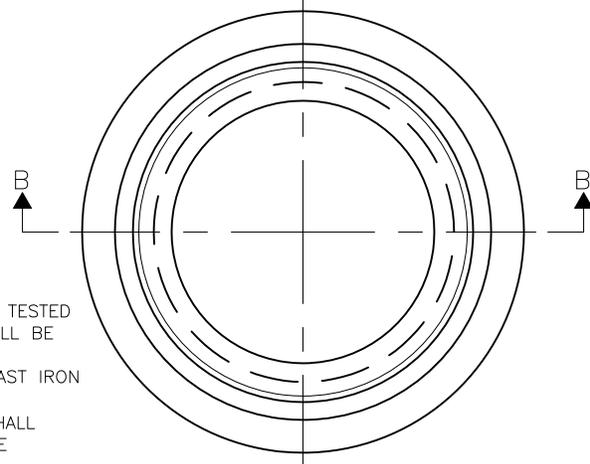
MONUMENT FRAME & COVER



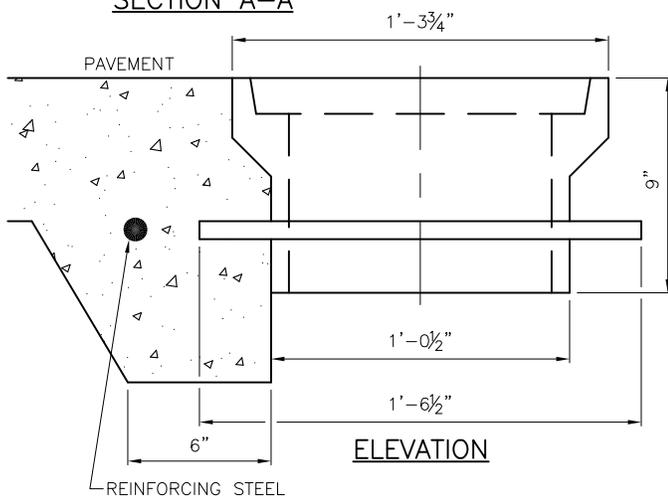
SECTION A-A

NOTES:

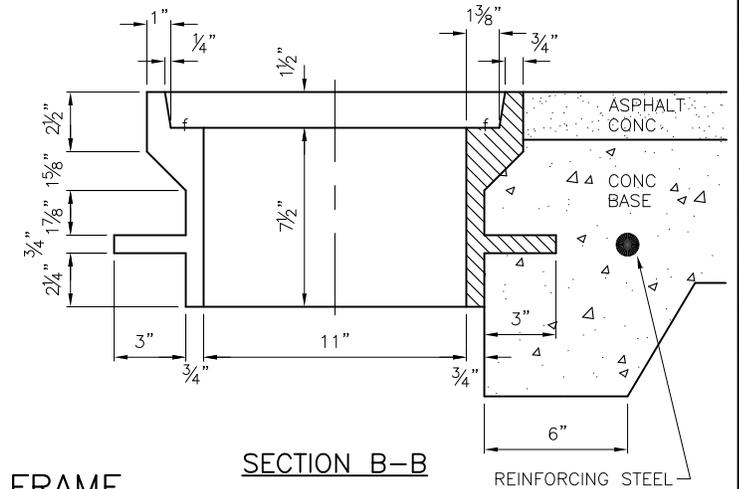
1. FRAME AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS FOR DELIVERY
2. FRAME AND COVER SHALL BE CAST IRON
3. "f"=FINISH
4. CASTINGS IN RIGID PAVEMENT SHALL HAVE REINFORCING STEEL IN THE PAVEMENT.



TOP VIEW

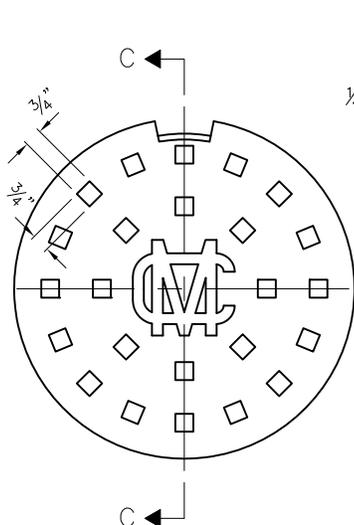


ELEVATION

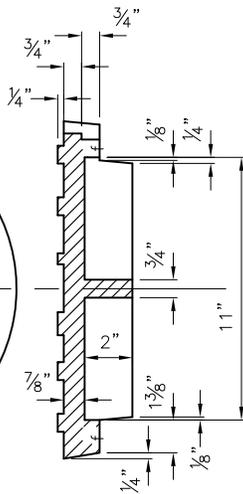


SECTION B-B

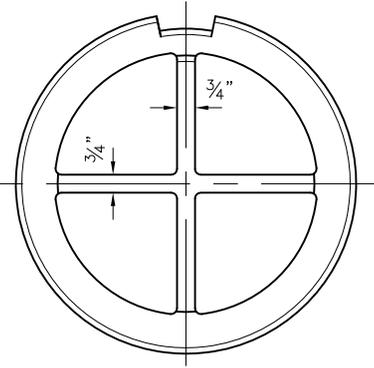
FRAME



TOP VIEW



SECTION C-C



BOTTOM VIEW

COVER

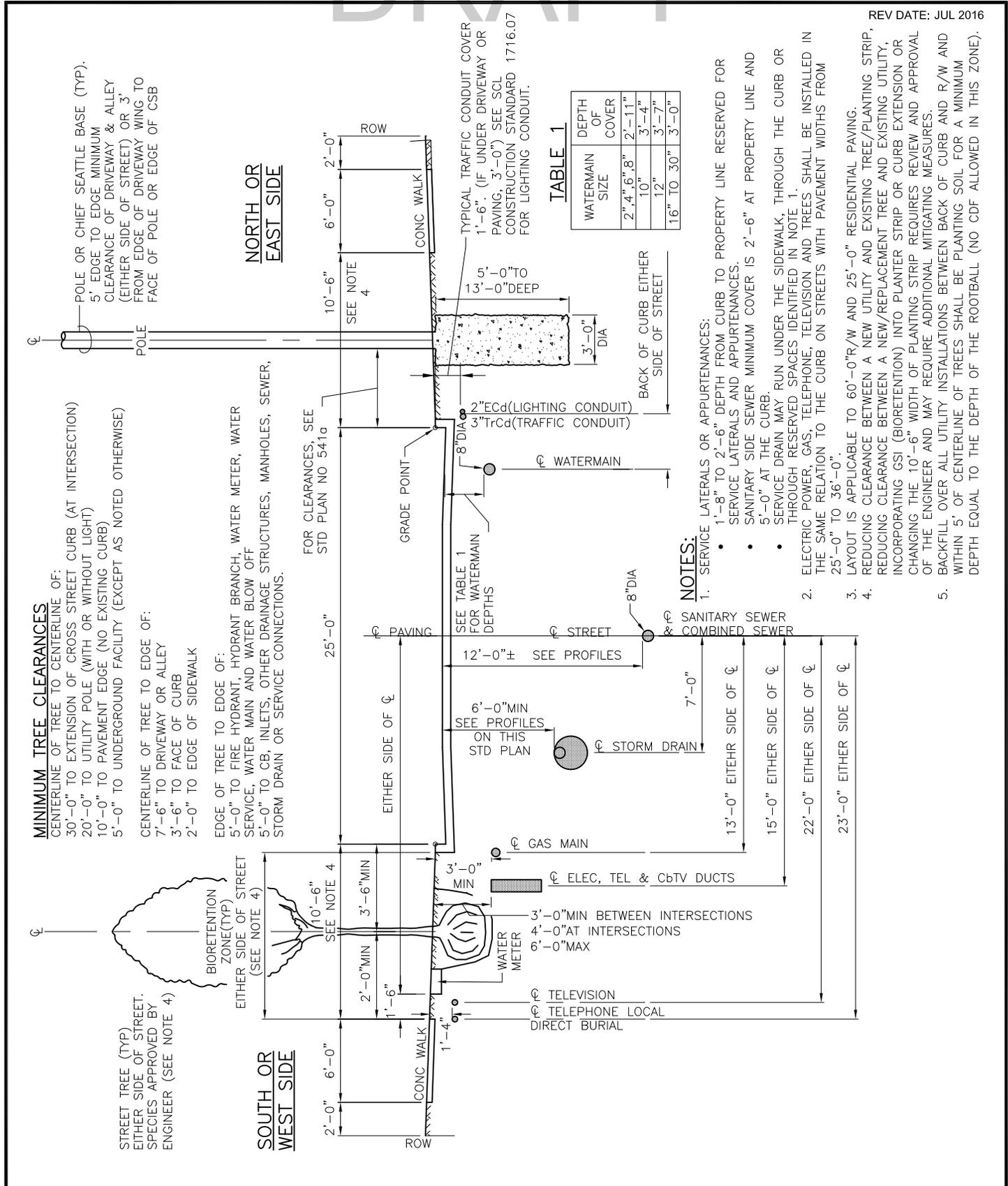
REF STD SPEC SEC 8-13



City of Seattle

NOT TO SCALE

MONUMENT FRAME & COVER



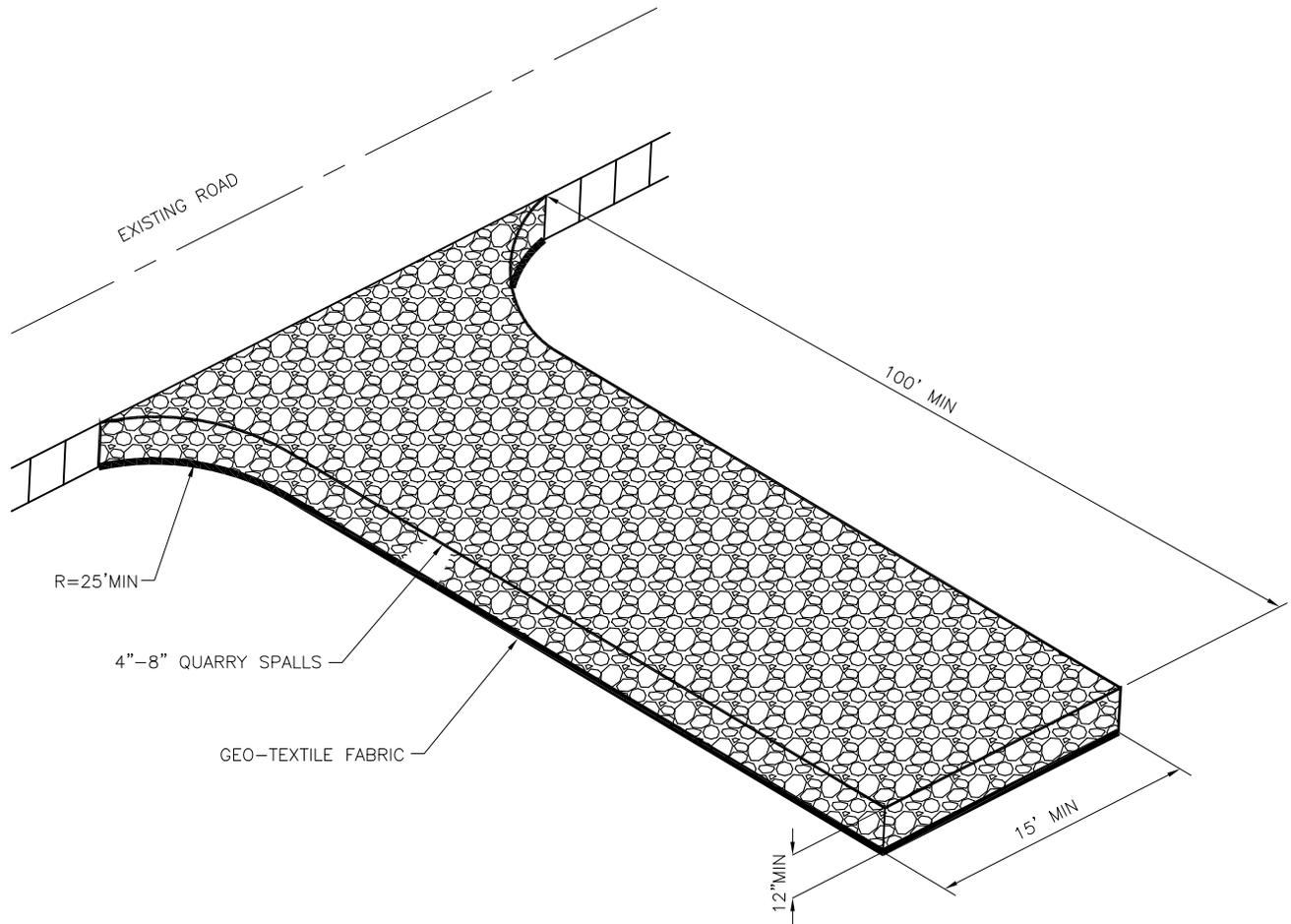
REF STD SPEC SEC 1-07.16, 1-07.17 & 1-07.28



City of Seattle

NOT TO SCALE

DESIRABLE LOCATIONS FOR UTILITIES (RESIDENTIAL STREET)



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

NOTES:

1. PLANTING INCLUDES REMOVAL OF STAKES ONE YEAR AFTER INSTALLATION.
2. SHAPE SOIL SURFACE TO PROVIDE 4" DIA WATERING RING.
3. TREE CLEARANCE MUST BE PER STD PLAN NO 030.
4. SEE STD PLAN NO 424 FOR TREE PIT DETAIL.
5. ADJUST TREE TIES DURING ESTABLISHMENT TO ALLOW ROOM FOR GROWTH (@1" SLACK).
6. ROOT BARRIER REQUIRED ALONG EDGE OF ROADWAY, CURB, DRIVEWAY, TRAIL, SIDEWALK, OR OTHER STRUCTURES WHERE ROOTBALL IS WITHIN TWO FEET; PLACE VERTICAL ROOTBARRIER AS SHOWN IN STANDARD PLANS NO 424a OR 424b. INSTALL ROOT BARRIERS FOR NEWLY PLANTED TREES ONLY.

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

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

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

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

SIDEWALK

18" ROOTBARRIER AT SIDEWALK.

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

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

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

REMOVE ALL WIRE, STRINGS, AND OTHER NON-BURLAP MATERIAL; AND REMOVE BURLAP FROM TOP 2/3 OF ROOTBALL MINIMUM. REMOVE ENTIRELY WHEN DIRECTED BY THE ENGINEER.

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

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

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

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

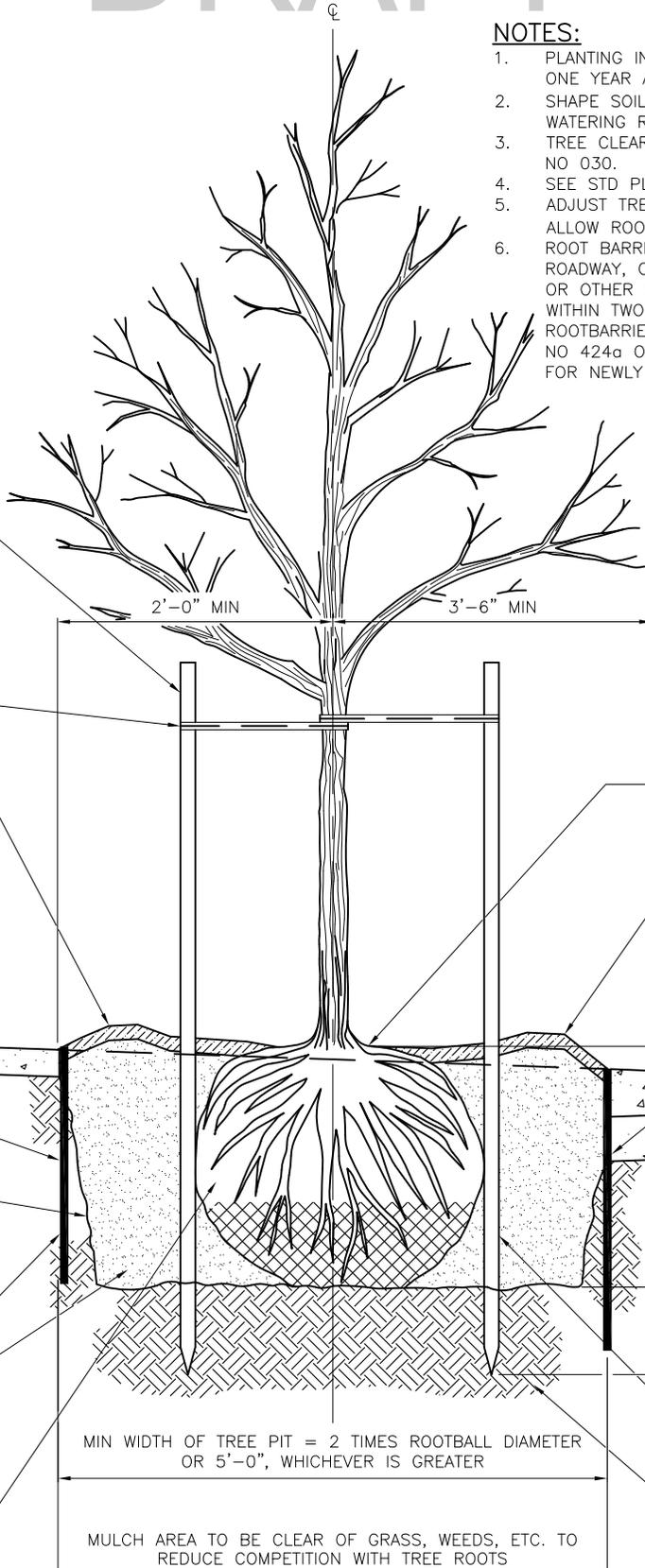
24" ROOTBARRIER AT CURB WHEN SHOWN ON THE DRAWINGS.

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

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

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

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



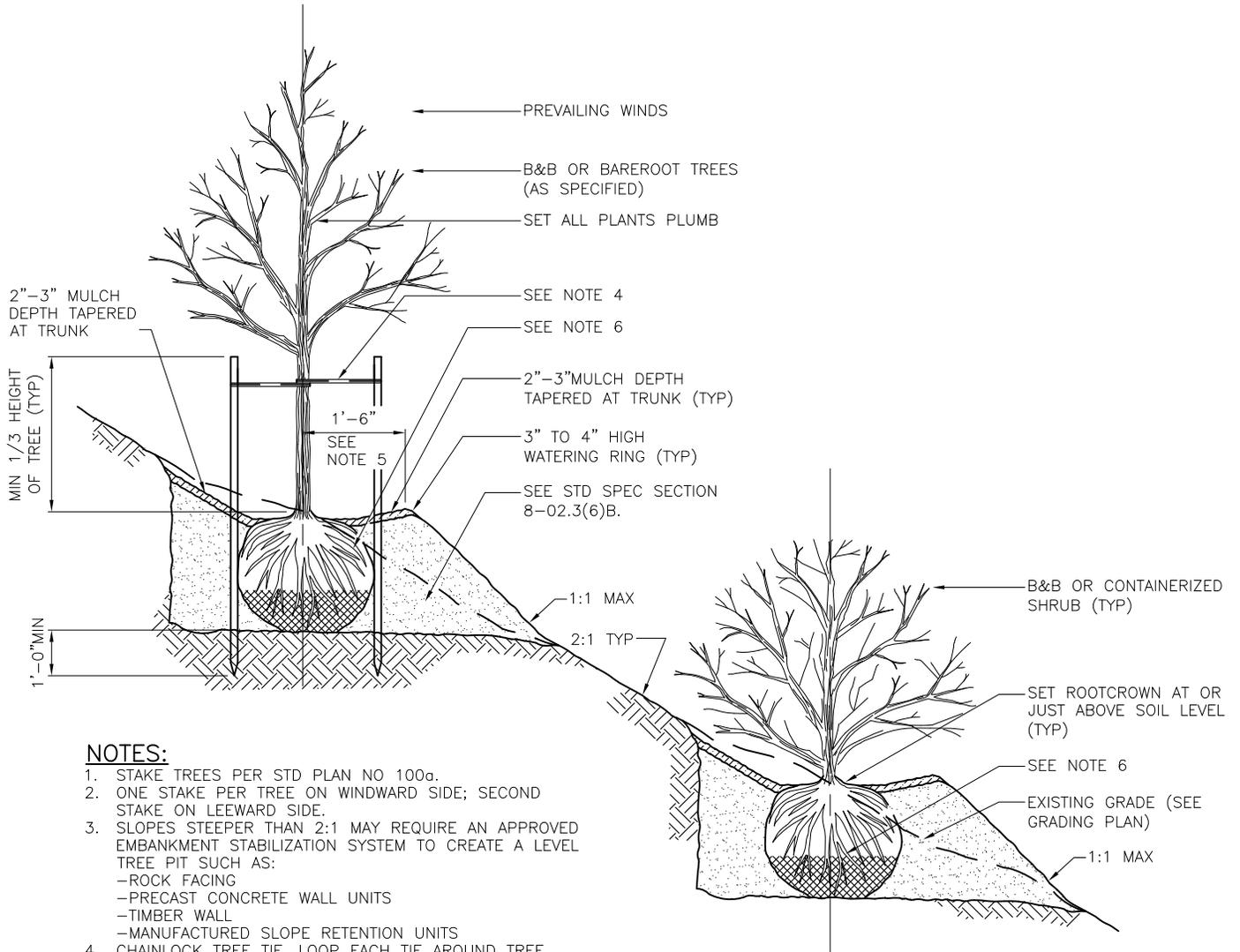
REF STD SPEC SEC 8-02



City of Seattle

NOT TO SCALE

**DECIDUOUS TREE PLANTING
IN PLANTING STRIP**



NOTES:

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

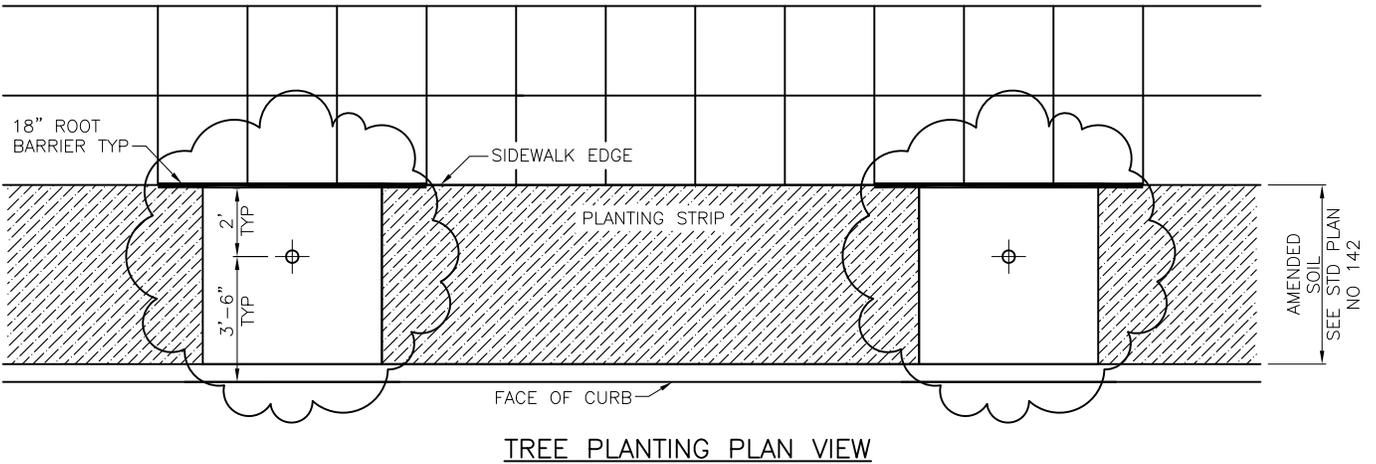
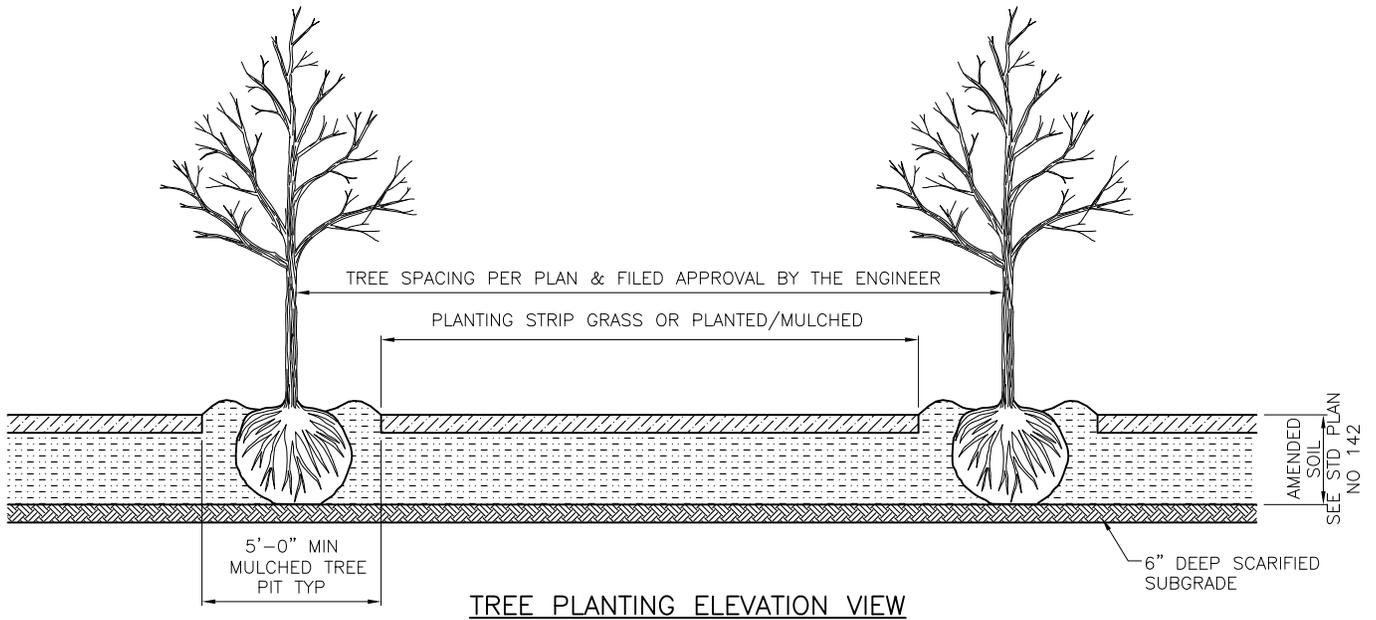
REF STD SPEC SEC 8-02



City of Seattle

NOT TO SCALE

TREE & SHRUB PLANTING
ON SLOPES



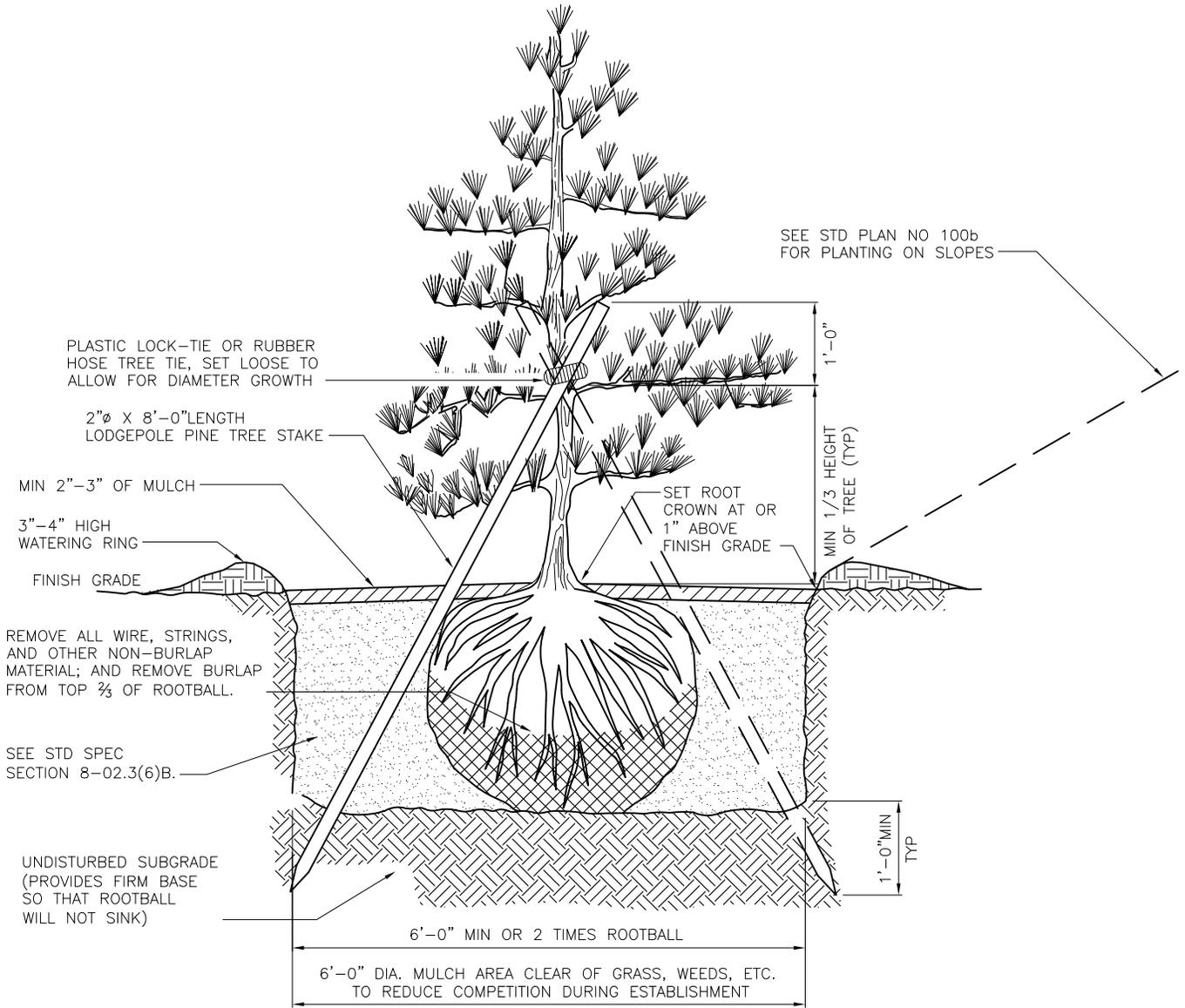
REF STD SPEC SEC 8-02



City of Seattle

NOT TO SCALE

TREE PLANTING IN AMENDED TRENCH



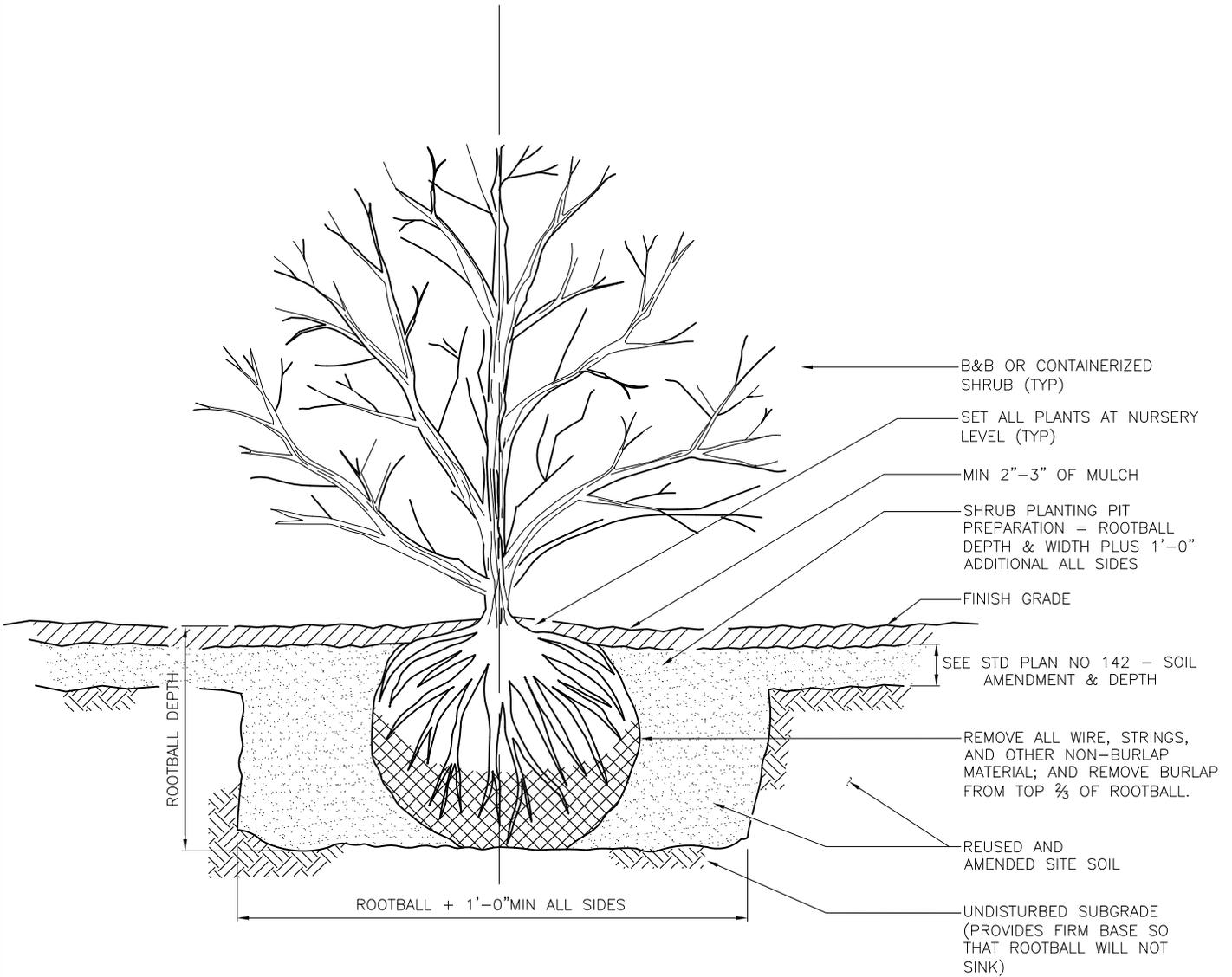
REF STD SPEC SEC 8-02



City of Seattle

NOT TO SCALE

CONIFEROUS TREE PLANTING



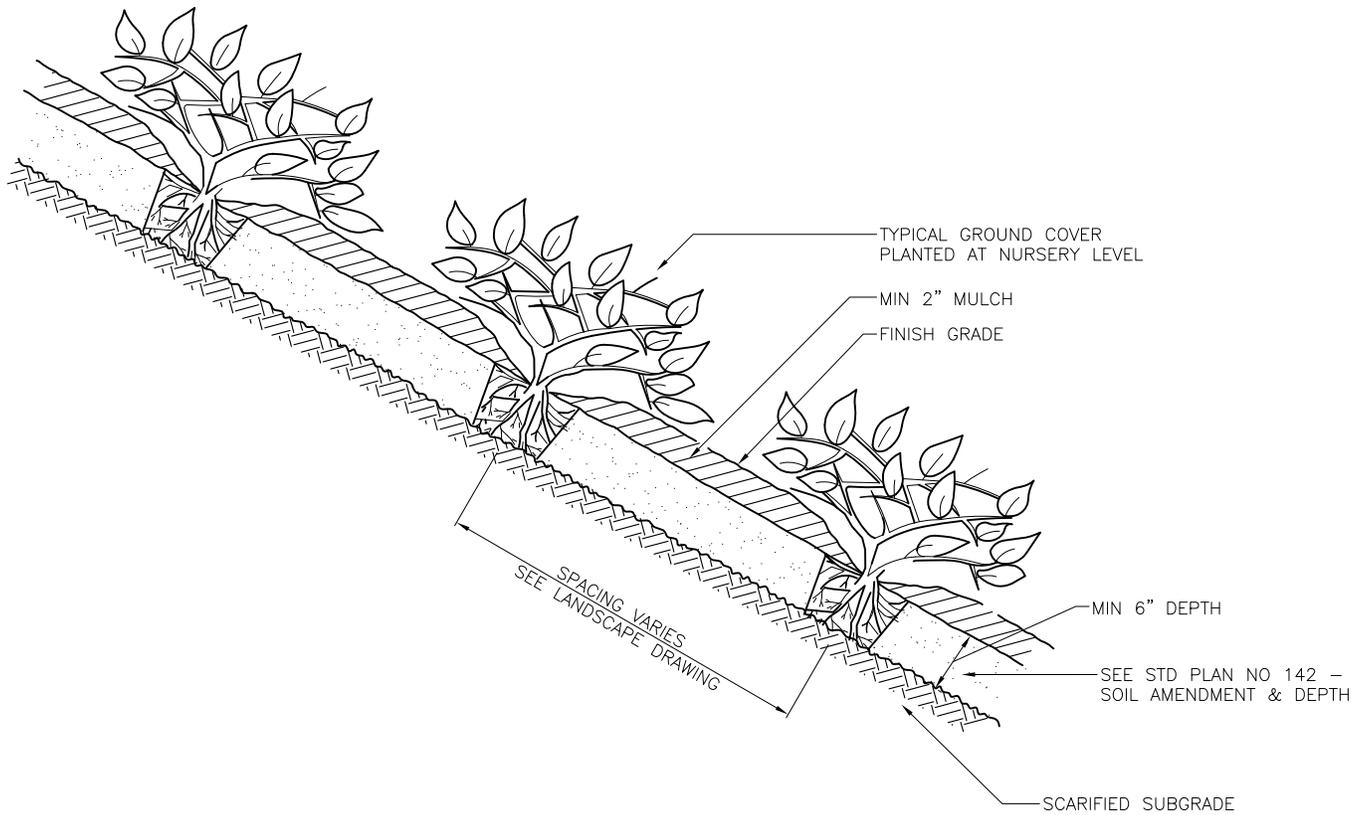
REF STD SPEC SEC 8-02



City of Seattle

NOT TO SCALE

SHRUB PLANTING



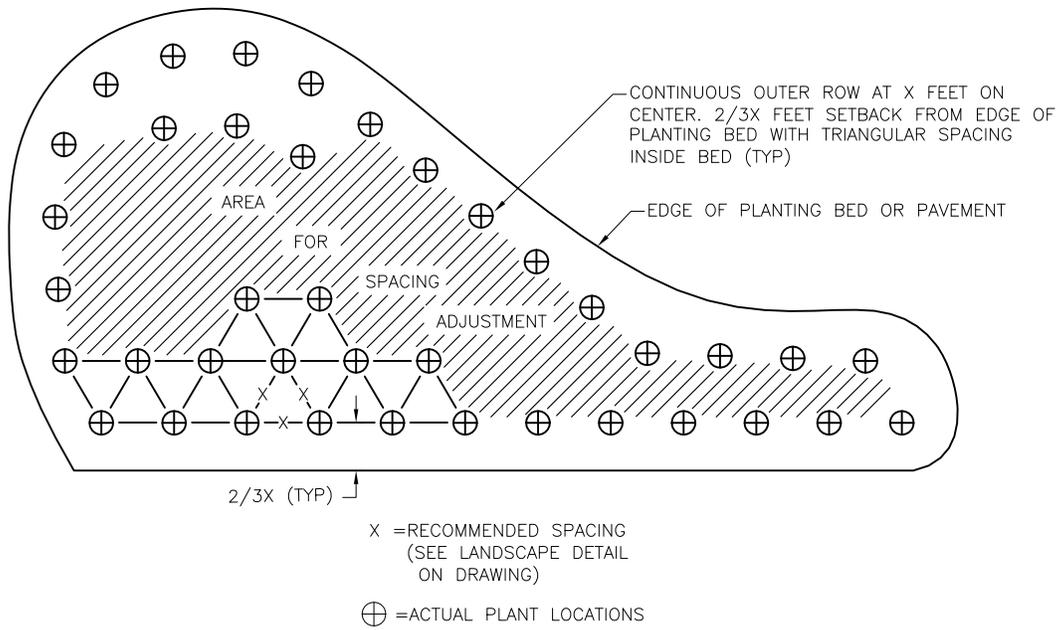
REF STD SPEC SEC 8-02



City of Seattle

NOT TO SCALE

GROUND COVER PLANTING



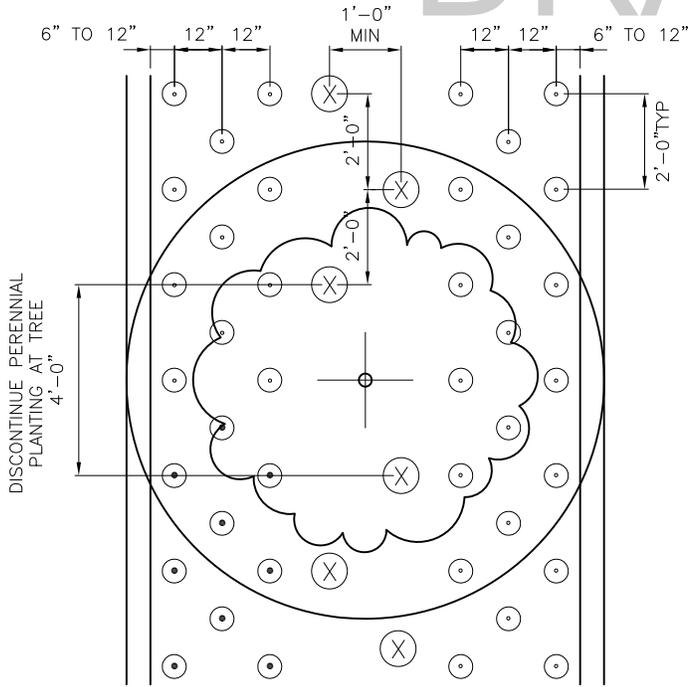
REF STD SPEC SEC 9-14



City of Seattle

NOT TO SCALE

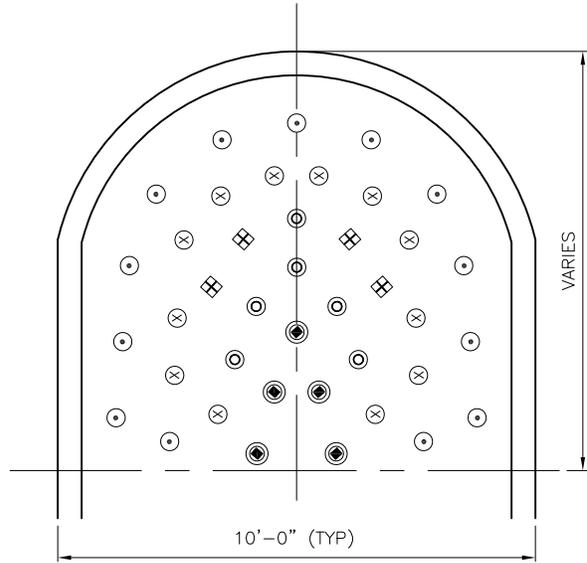
PLANTING PATTERN



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

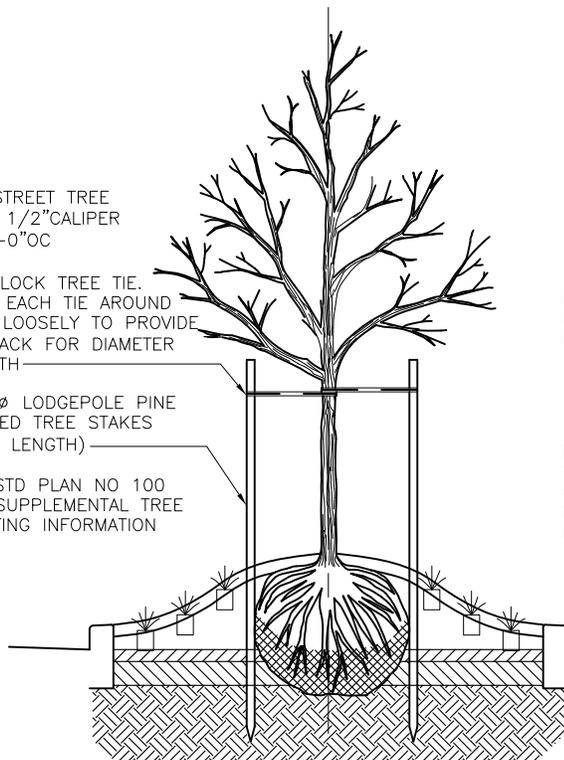
END CAP DETAIL

TYP STREET TREE
2"-2 1/2" CALIPER
@30'-0" OC

CHAINLOCK TREE TIE.
LOOP EACH TIE AROUND
TREE LOOSELY TO PROVIDE
1" SLACK FOR DIAMETER
GROWTH

(2) 2" Ø LODGEPOLE PINE
DOWELED TREE STAKES
(8'-0" LENGTH)

SEE STD PLAN NO 100
FOR SUPPLEMENTAL TREE
PLANTING INFORMATION



ELEVATION

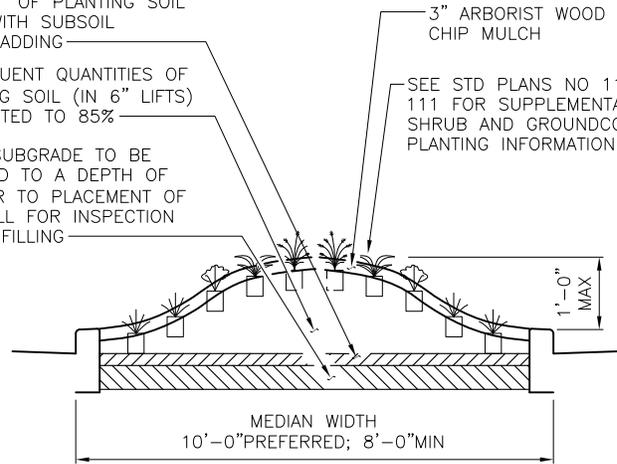
PLACE 3" OF PLANTING SOIL
& MIX WITH SUBSOIL
BEFORE ADDING

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

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

3" ARBORIST WOOD
CHIP MULCH

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



SOIL PREPARATION DETAIL

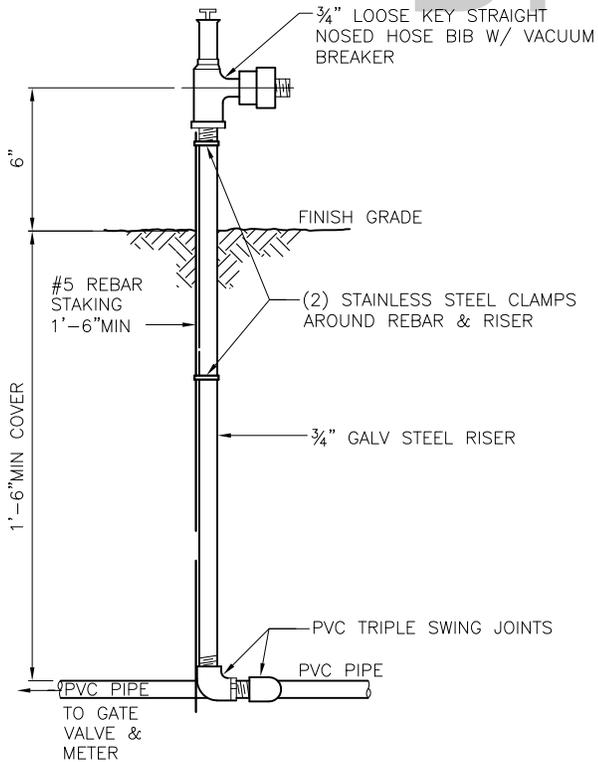
REF STD SPEC SEC 8-02



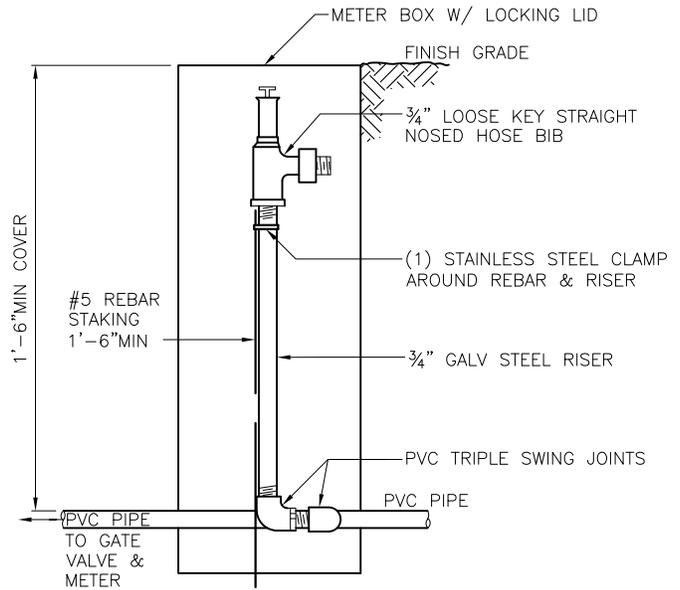
City of Seattle

NOT TO SCALE

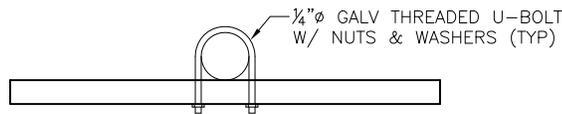
MEDIAN PLANTING



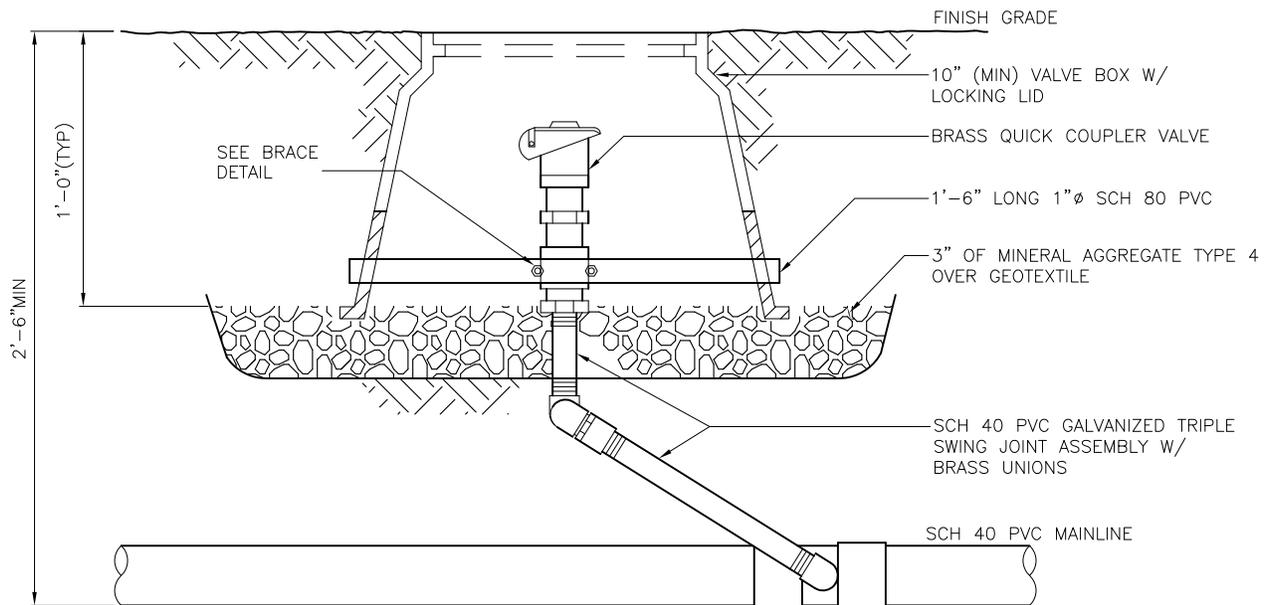
ABOVE GROUND HOSE BIB



BELOW GROUND HOSE BIB



BRACE DETAIL - PLAN VIEW



ELEVATION VIEW

QUICK COUPLER VALVE
TURF OR BED AREAS

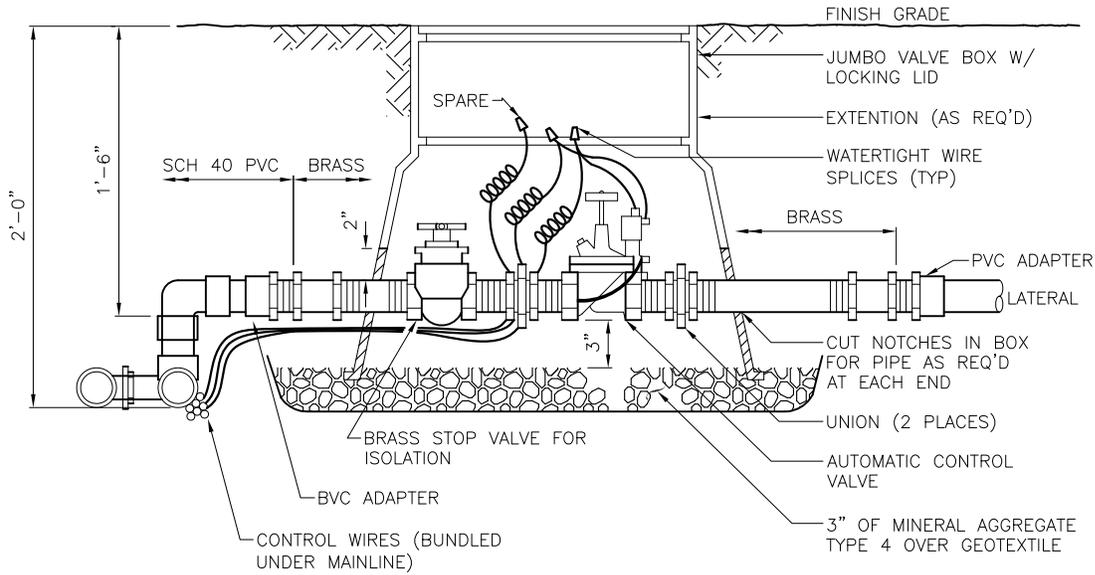
REF STD SPEC SEC 8-03



City of Seattle

NOT TO SCALE

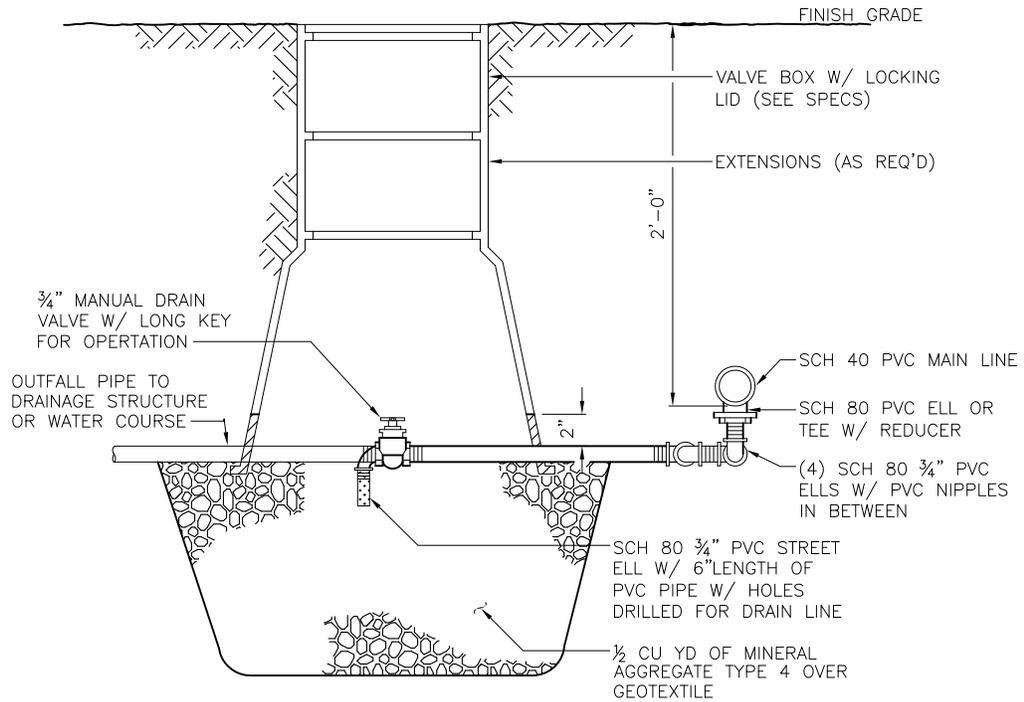
HOSE BIB ASSEMBLY AND
QUICK COUPLER VALVE



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

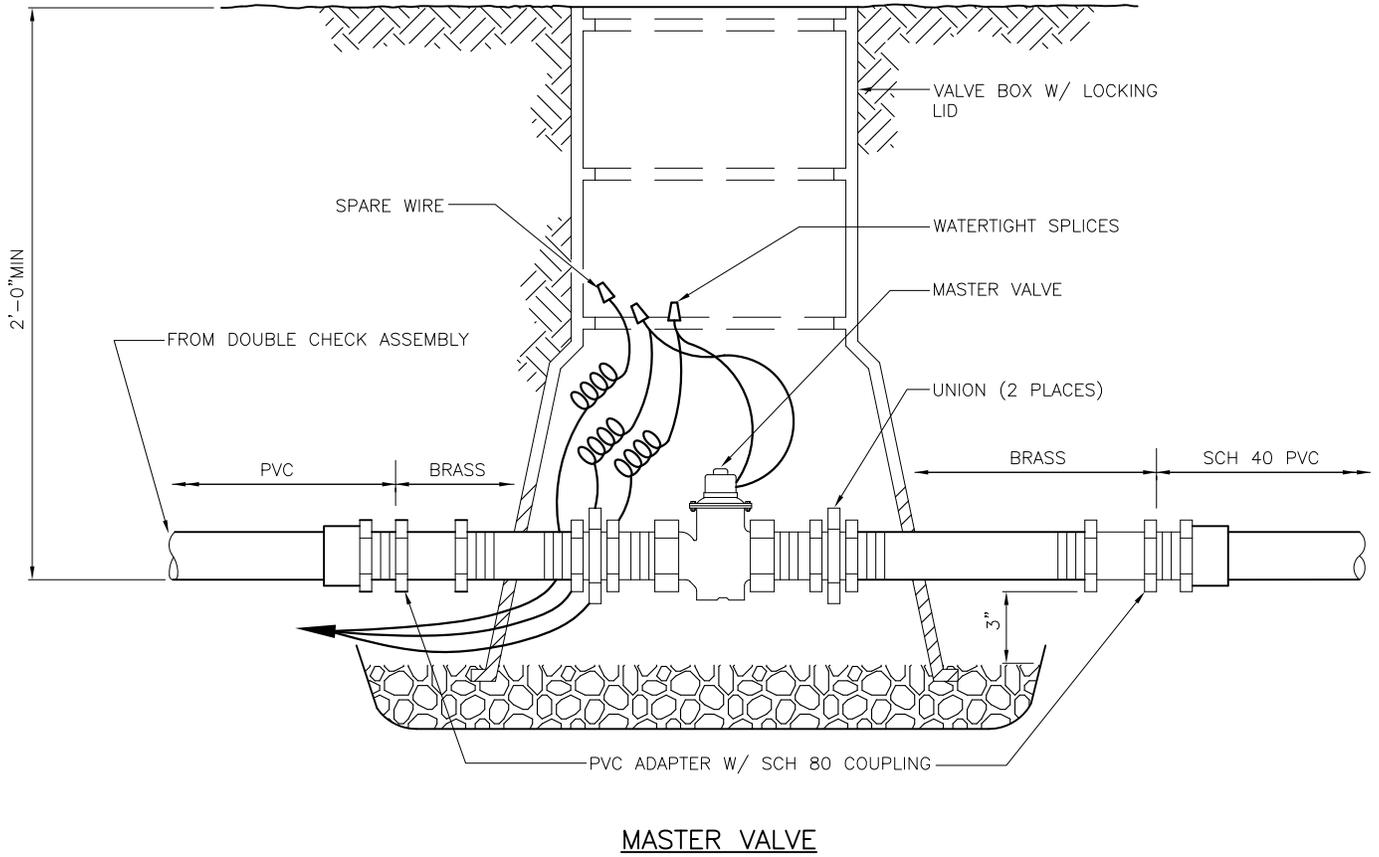
REF STD SPEC SEC 8-03



City of Seattle

NOT TO SCALE

IRRIGATION VALVES



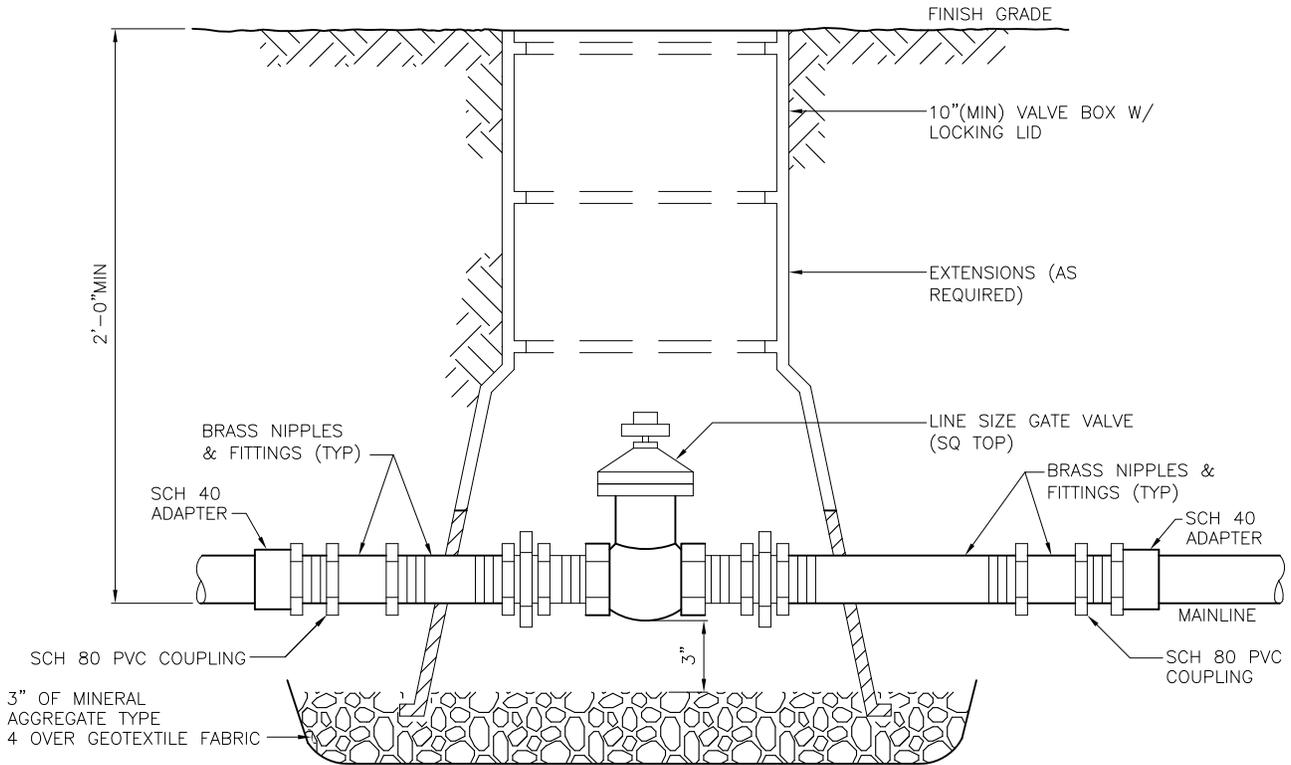
REF STD SPEC SEC 8-03



City of Seattle

NOT TO SCALE

IRRIGATION VALVES



GATE VALVE - 2 1/2" & LARGER

NOTES:
USE TEFLON TAPE ON ALL THREADED FITTINGS

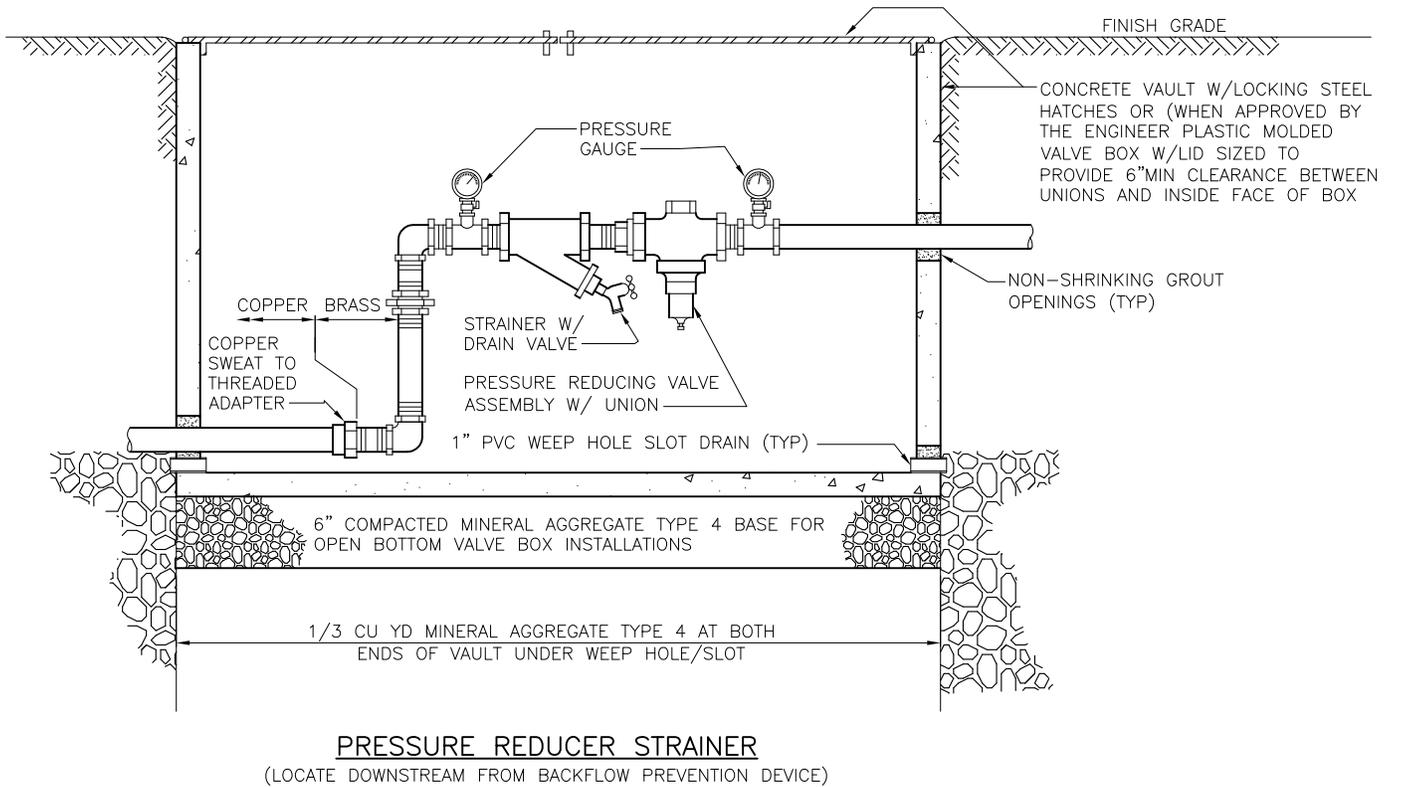
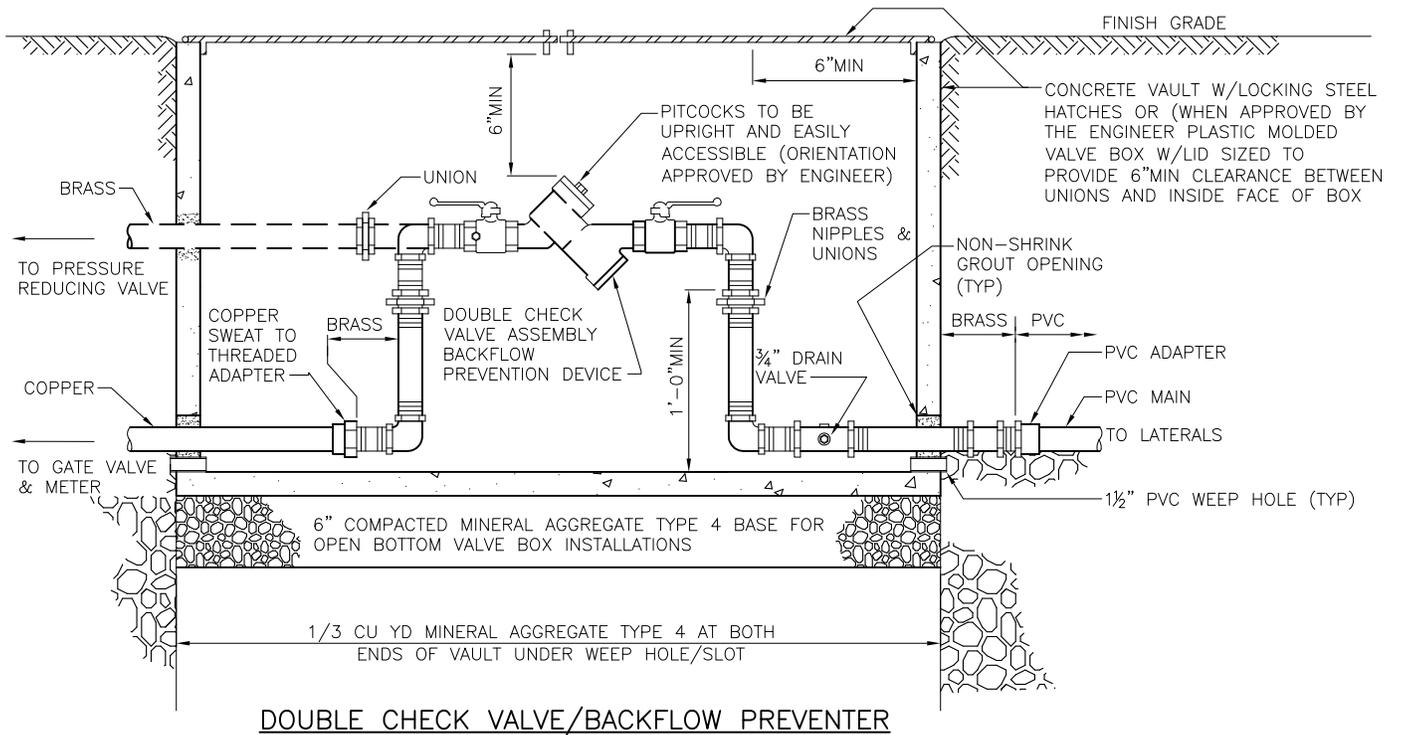
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City of Seattle

NOT TO SCALE

IRRIGATION VALVES



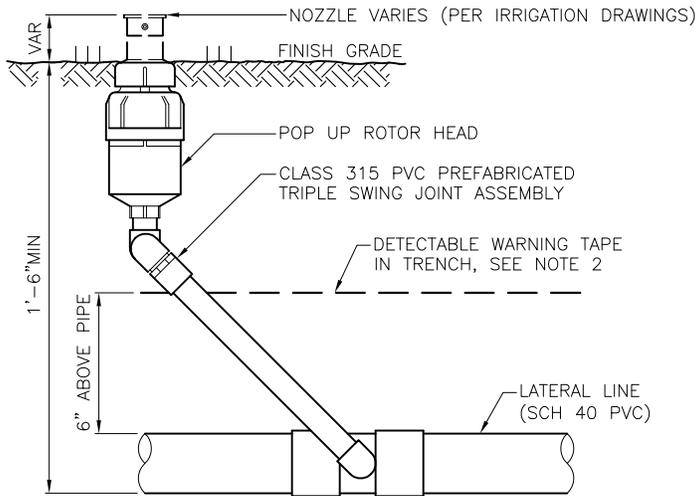
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City of Seattle

NOT TO SCALE

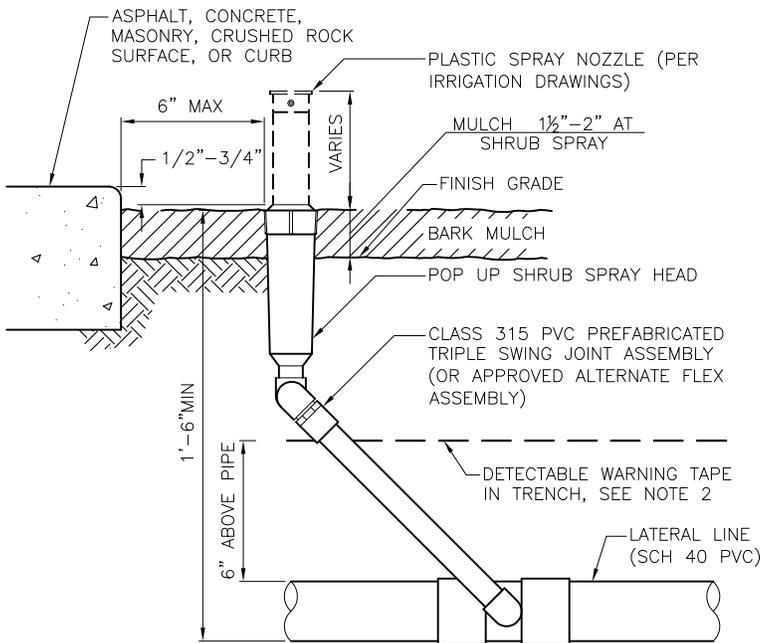
IRRIGATION VALVES



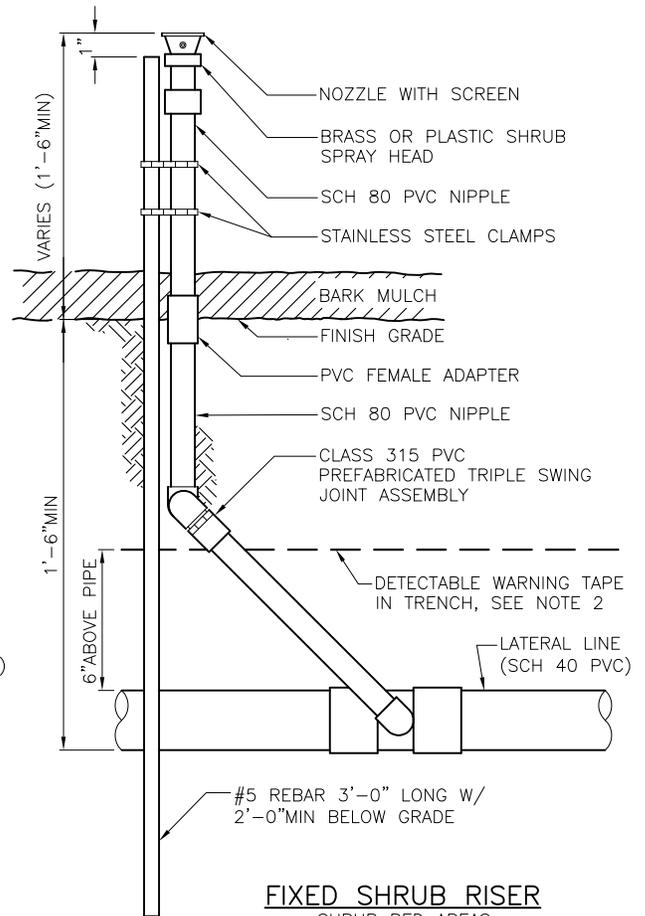
POP UP ROTOR HEAD
TURF AREAS

NOTE:

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



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



FIXED SHRUB RISER
SHRUB BED AREAS

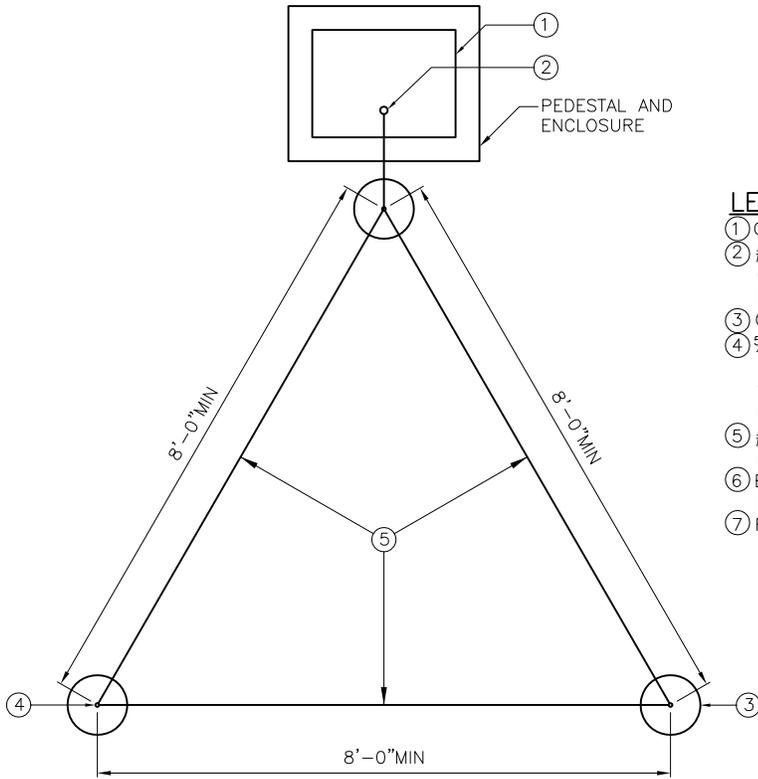
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City of Seattle

NOT TO SCALE

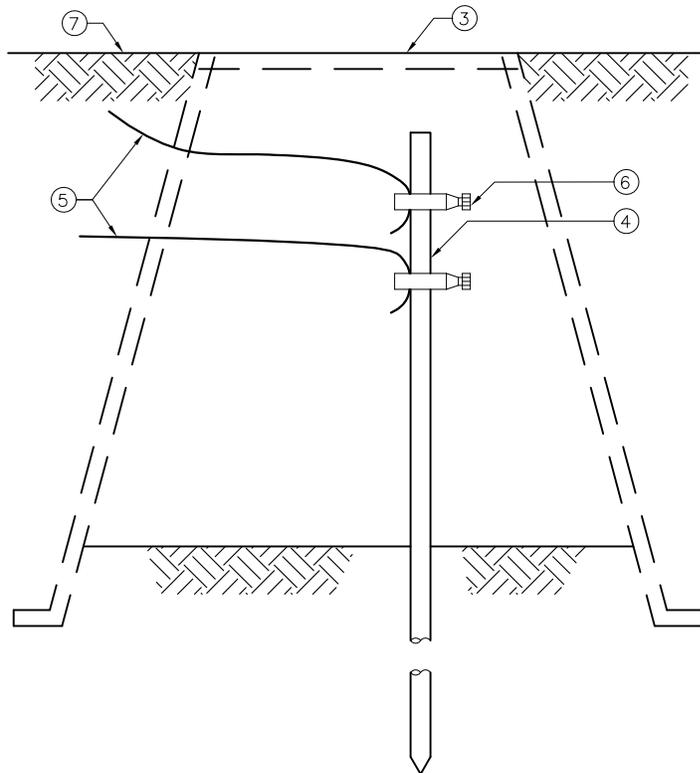
POP UP & FIXED
IRRIGATION HEADS



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" X 10'-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

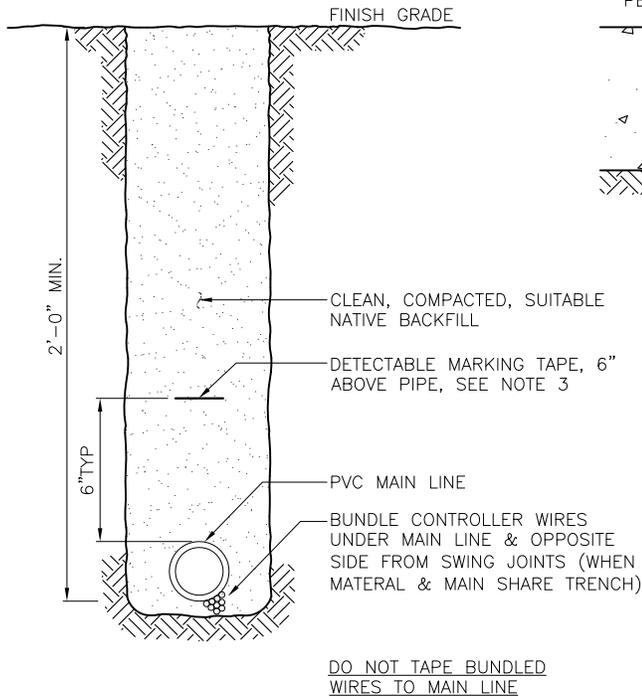
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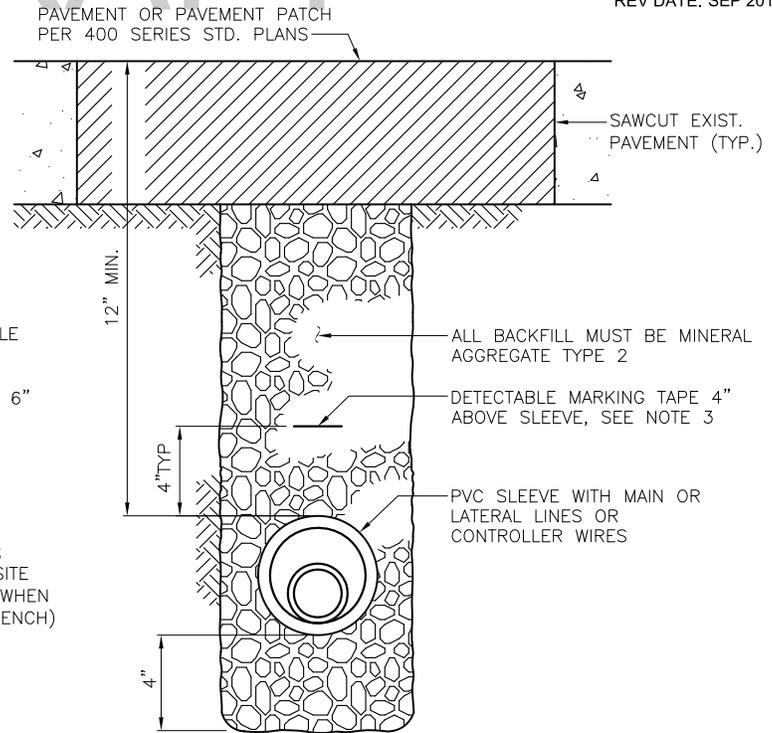
City of Seattle

NOT TO SCALE

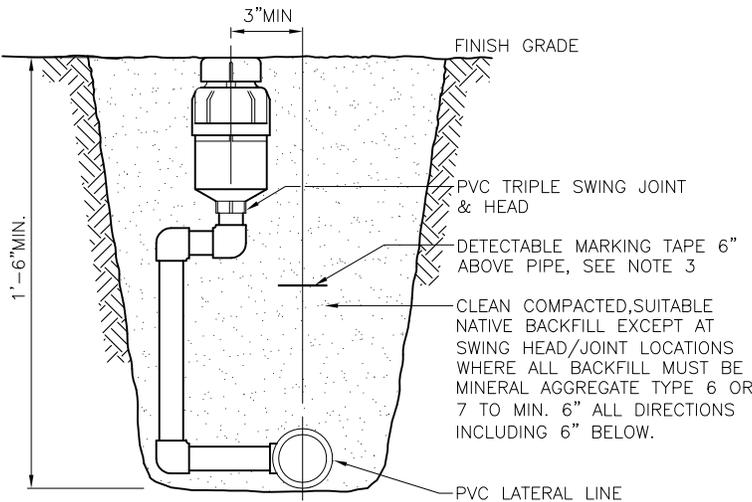
**IRRIGATION CONTROLLER
PEDESTAL AND ENCLOSURE
GROUNDING**



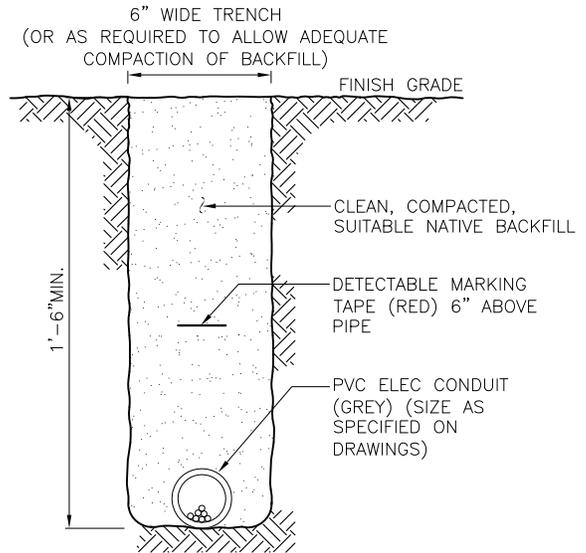
MAIN LINE



SLEEVE TRENCHING



LATERAL LINE



POWER SUPPLY TRENCH

NOTES:

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

REF STD SPEC SEC 8-03



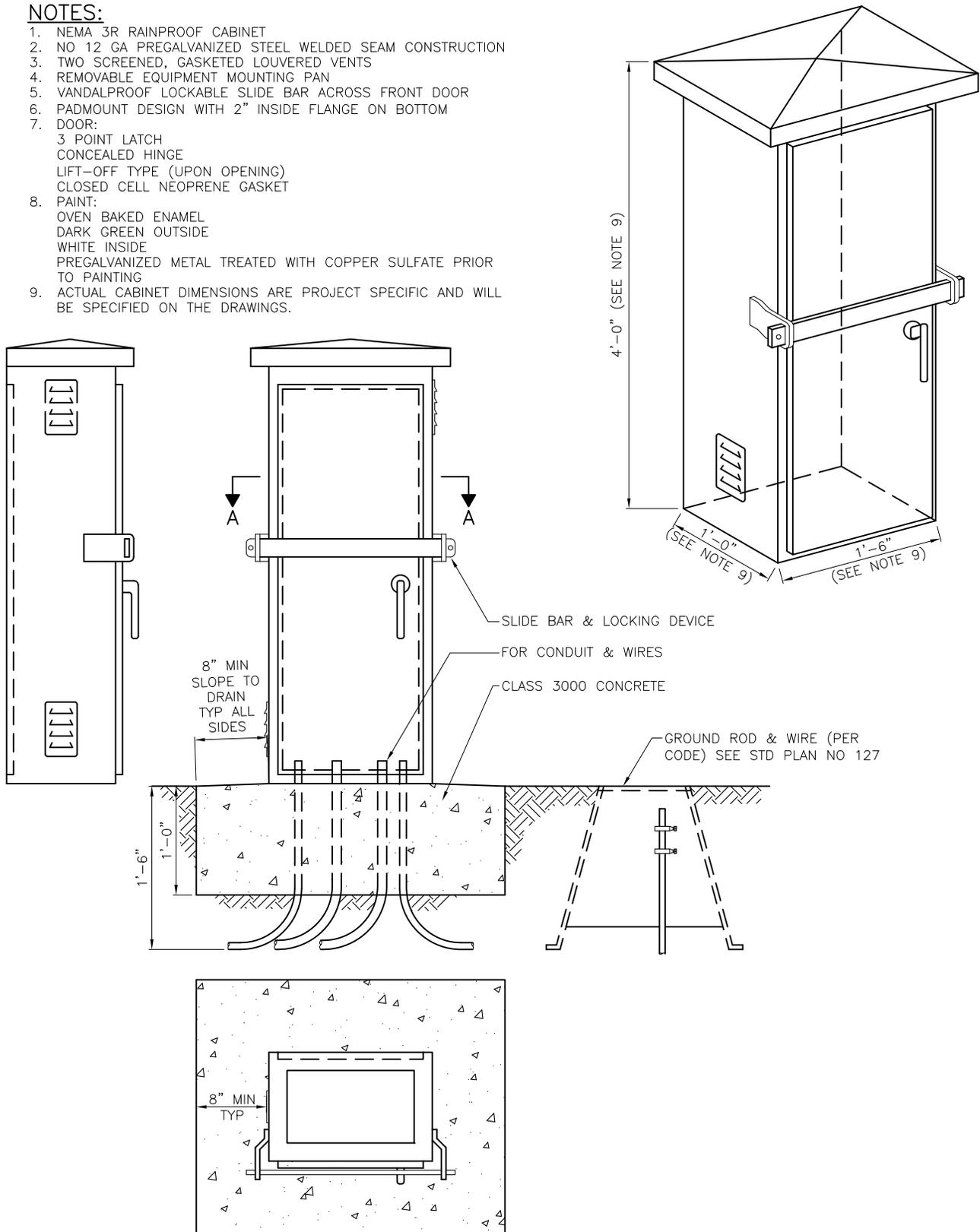
City of Seattle

NOT TO SCALE

IRRIGATION TRENCHES

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



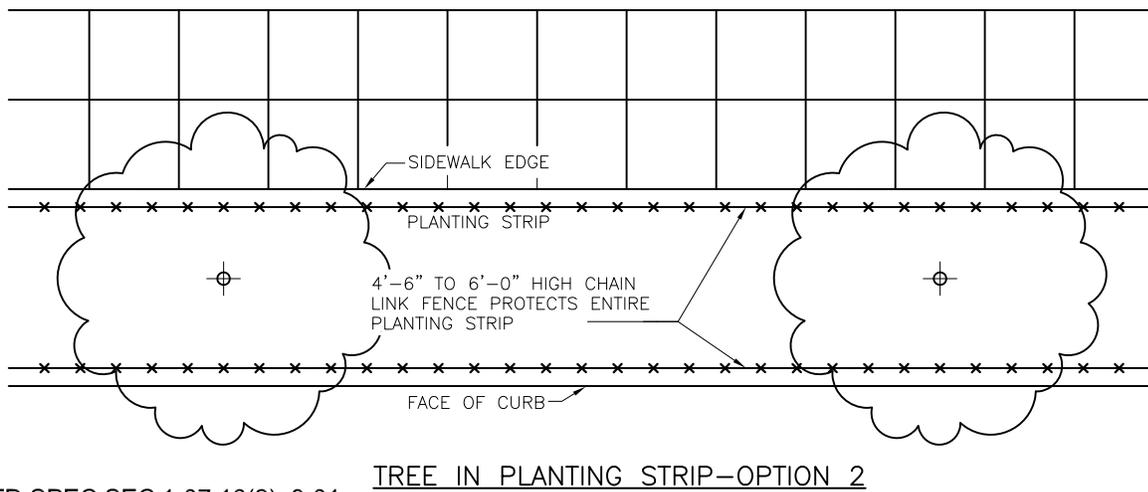
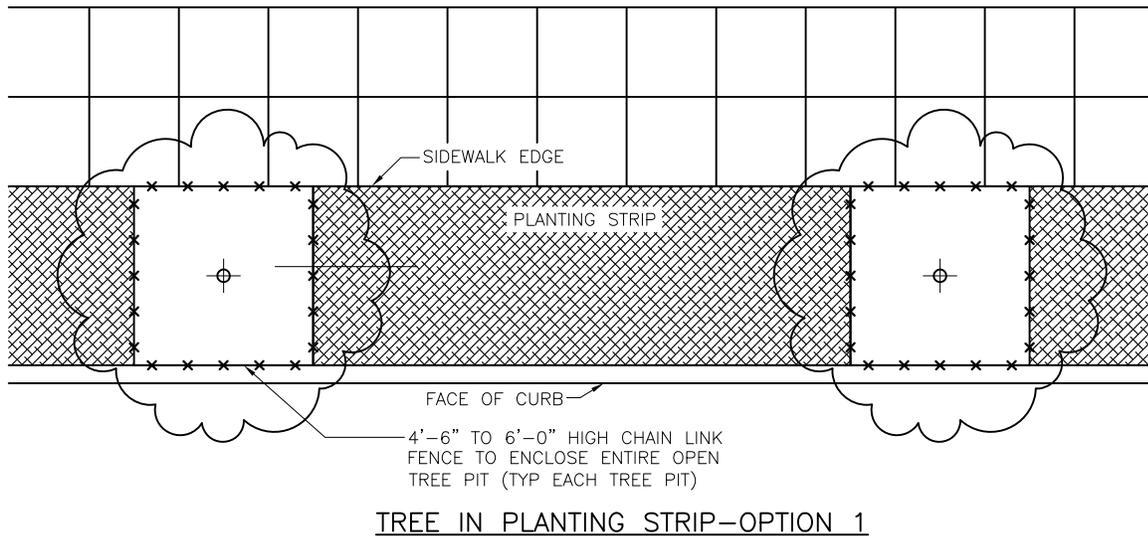
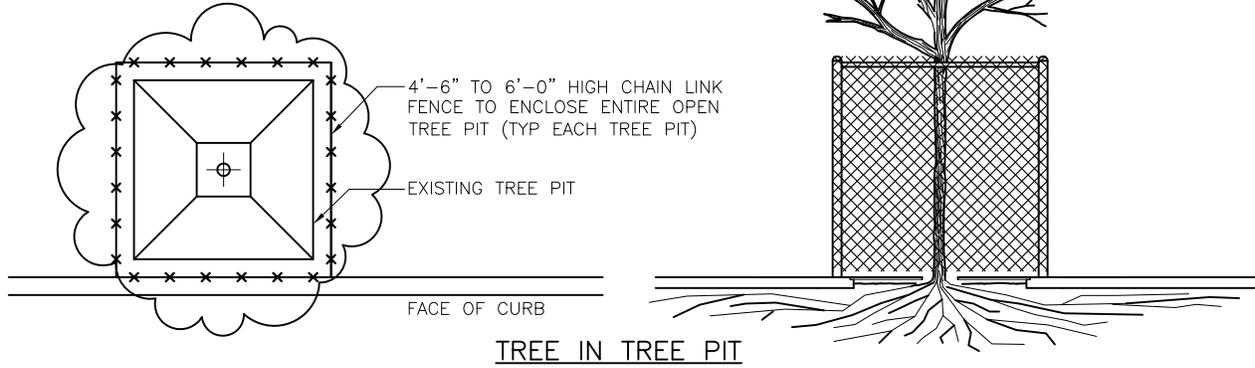
City of Seattle

NOT TO SCALE

IRRIGATION
CONTROLLER CABINET

NOTE:

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



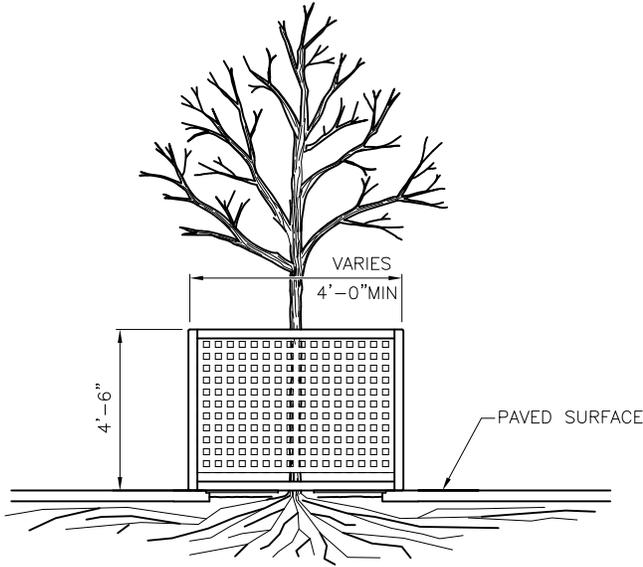
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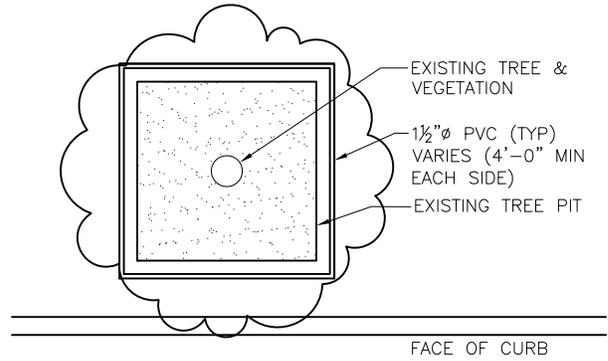
City of Seattle

NOT TO SCALE

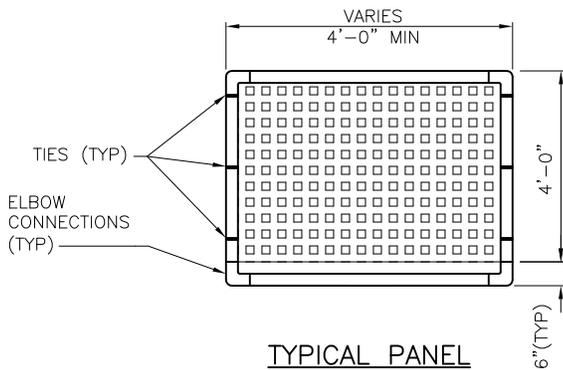
TREE PROTECTION DURING CONSTRUCTION



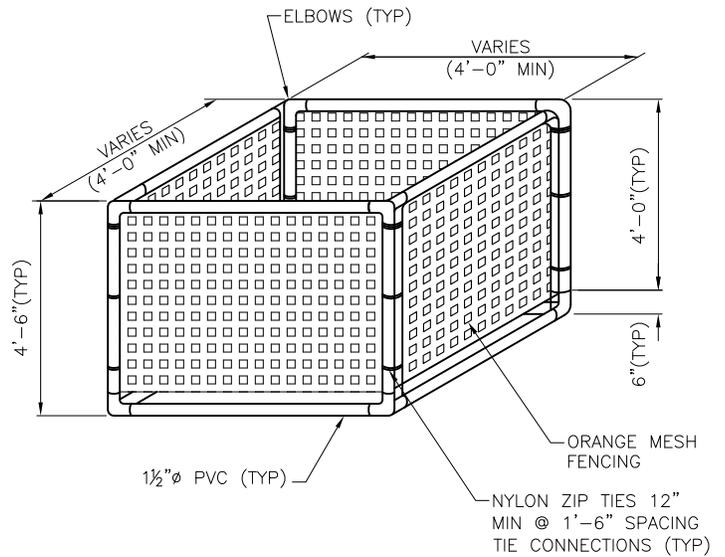
TYPICAL TREE GUARD RAIL



PLAN VIEW



TYPICAL PANEL



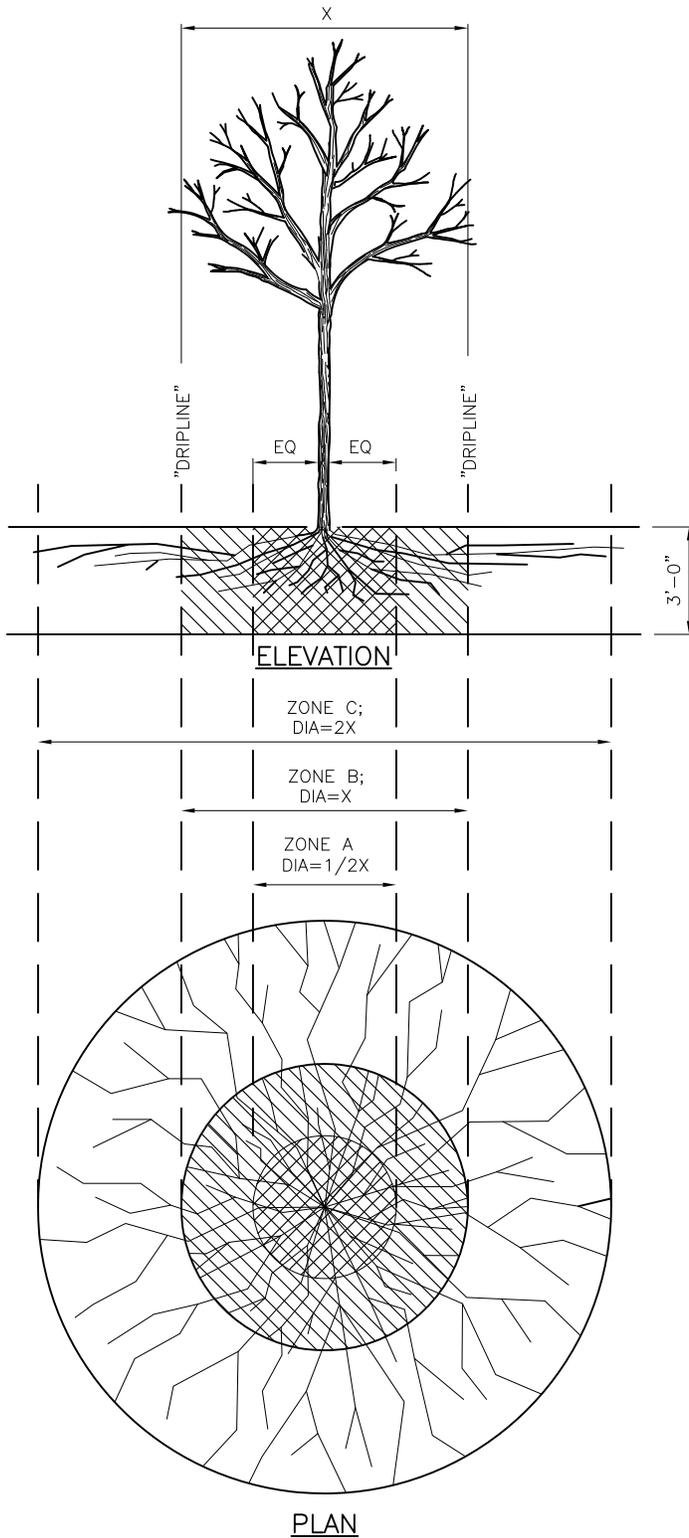
REF STD SPEC SEC 1-07.16(2) & 8-01



City of Seattle

NOT TO SCALE

REUSABLE TEMPORARY TREE & LANDSCAPE PROTECTION FENCE



TRENCHING/EXCAVATION

ZONE A (CRITICAL ROOT ZONE)

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

ZONE B (DRIPLINE)

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

NOTE:

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

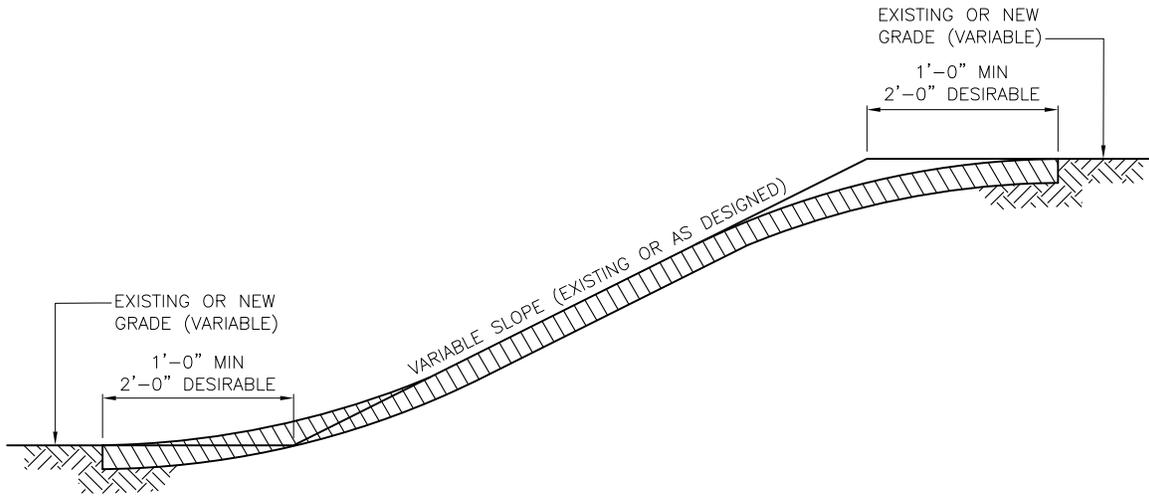
REF STD SPEC SEC 1-07.16(2) & 8-01



City of Seattle

NOT TO SCALE

**TREE PROTECTION DURING
TRENCHING, TUNNELING OR
EXCAVATION**



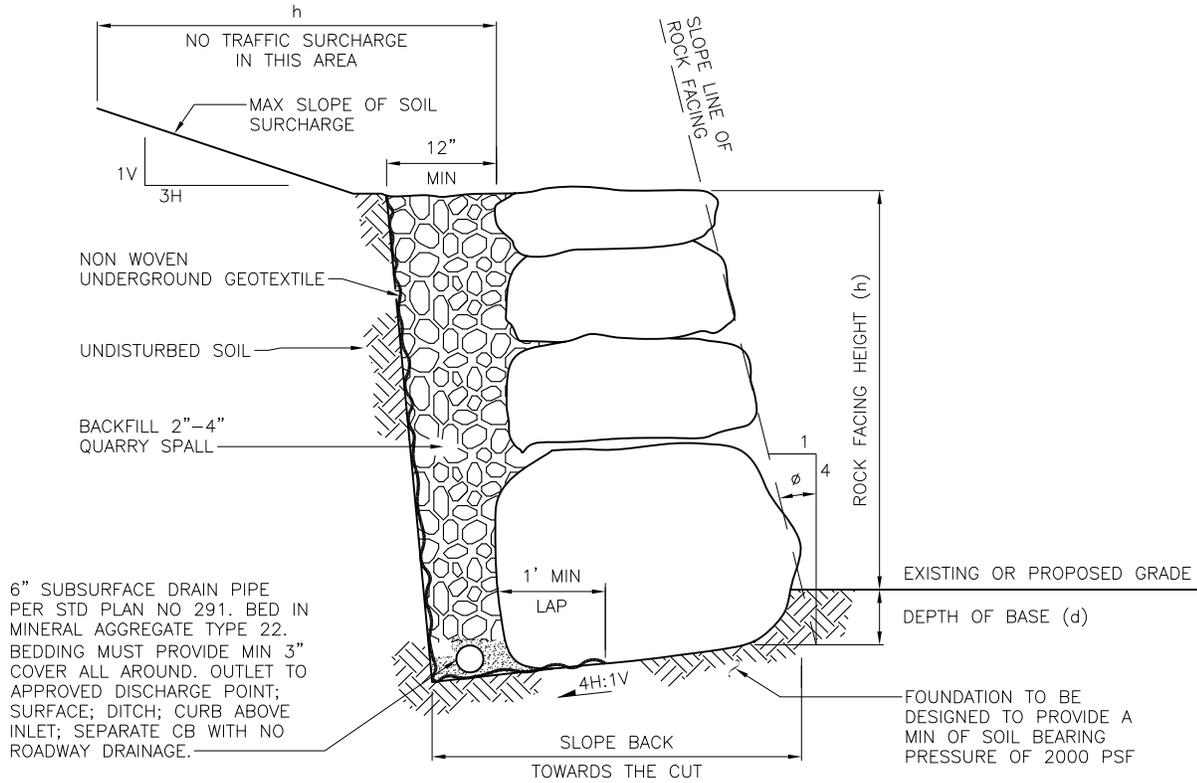
REF STD SPEC SEC 2-04



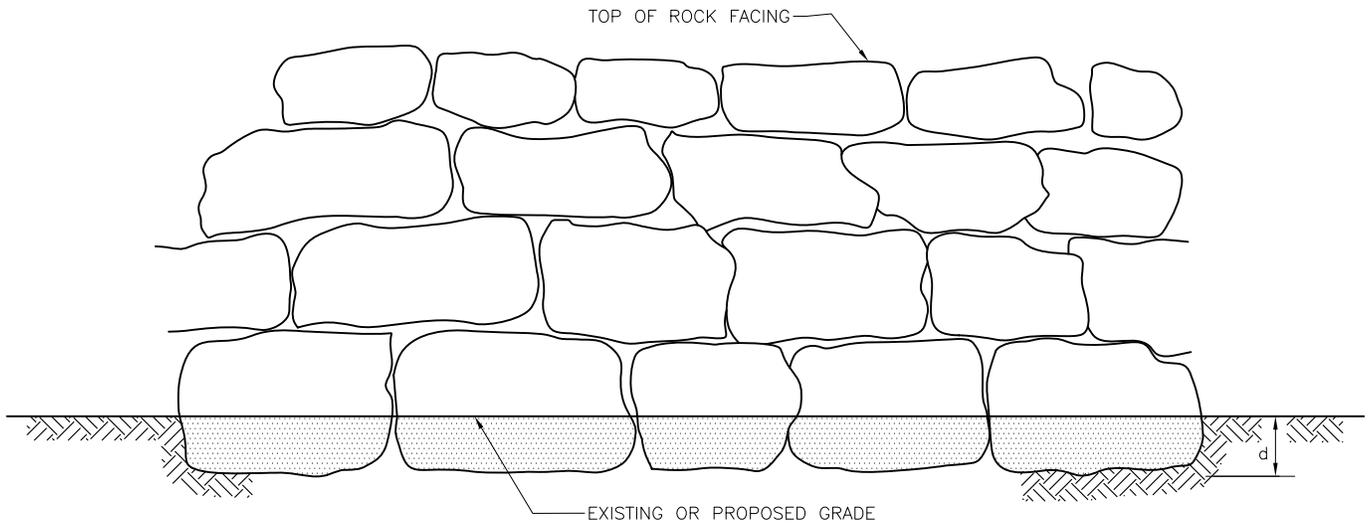
City of Seattle

NOT TO SCALE

SLOPE ROUNDING



SECTION



ELEVATION

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

∅ = 14' ±1'

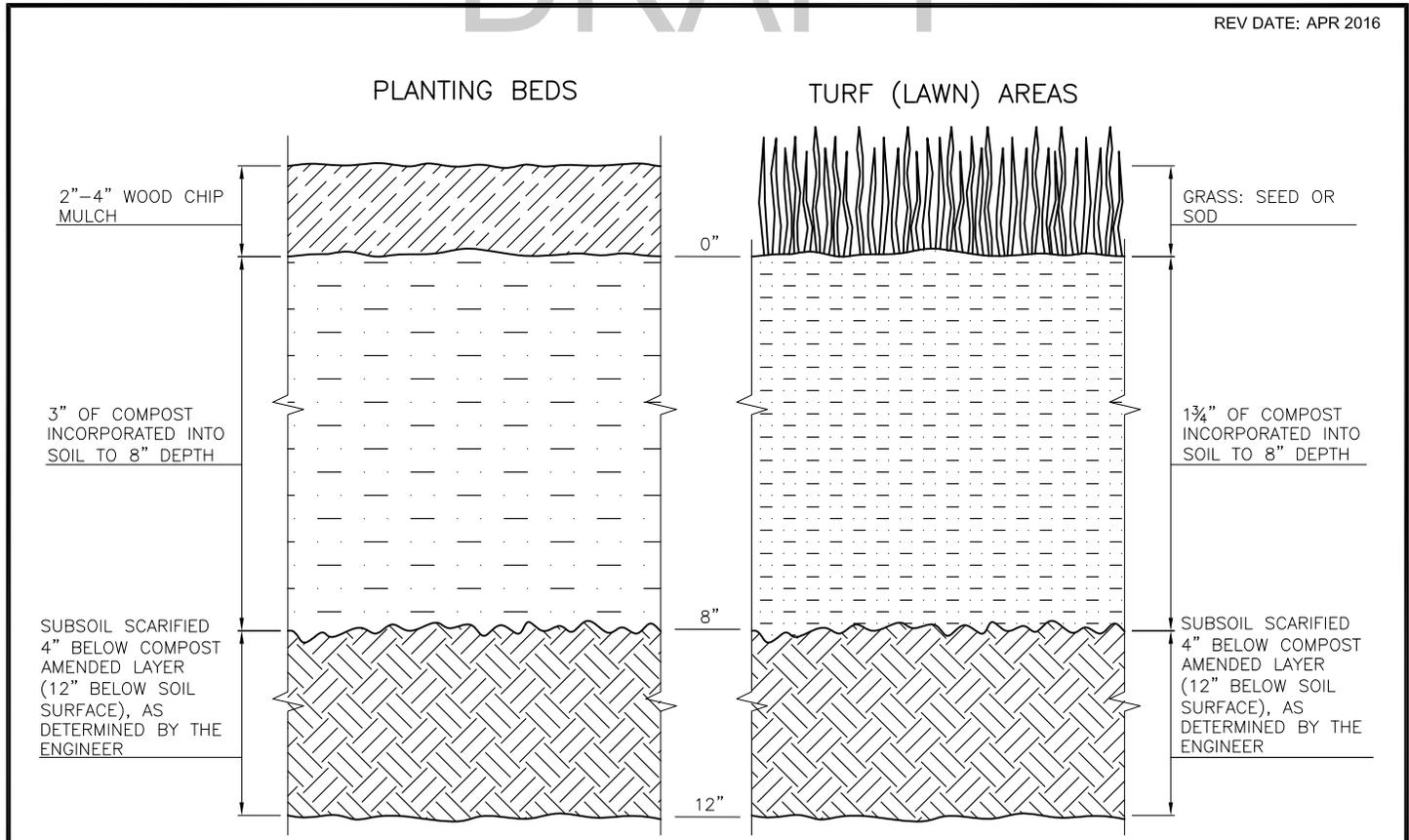
REF STD SPEC SEC 2-13



City of Seattle

NOT TO SCALE

ROCK FACING



NOTES:

1. ALL SOIL AREAS DISTURBED OR COMPACTED DURING CONSTRUCTION, AND NOT COVERED BY BUILDINGS OR PAVEMENT, MUST BE AMENDED WITH COMPOST AS DESCRIBED BELOW.
2. SUBSOIL SHOULD BE SCARIFIED (LOOSENEED) 4 INCHES BELOW AMENDED LAYER, TO PRODUCE 12-INCH DEPTH OF UN-COMPACTED SOIL, EXCEPT WHERE SCARIFICATION WOULD DAMAGE TREE ROOTS OR AS DETERMINED BY THE ENGINEER.
3. COMPOST MUST BE TILLED IN TO 8 INCH DEPTH INTO EXISTING SOIL, OR PLACE 8 INCHES OF COMPOST-AMENDED SOIL, PER SOIL SPECIFICATION.
4. TURF AREAS MUST RECEIVE 1.75 INCHES OF COMPOST TILLED IN TO 8-INCH DEPTH, OR MAY SUBSTITUTE 8" OF IMPORTED SOIL CONTAINING 20-25% COMPOST BY VOLUME. THEN PLANT GRASS SEED OR SOD PER SPECIFICATION.
5. PLANTING BEDS MUST RECEIVE 3 INCHES OF COMPOST TILLED IN TO 8-INCH DEPTH, OR MAY SUBSTITUTE 8" OF IMPORTED SOIL CONTAINING 35-40% COMPOST BY VOLUME. MULCH AFTER PLANTING, WITH 2-4 INCHES OF ARBORIST WOOD CHIP MULCH OR APPROVED EQUAL.
6. SETBACKS: TO PREVENT UNEVEN SETTLING, DO NOT COMPOST-AMEND SOILS WITHIN 3 FEET OF UTILITY INFRASTRUCTURES (POLES, VAULTS, METERS ETC.). WITHIN ONE FOOT OF PAVEMENT EDGE, CURBS AND SIDEWALKS SOIL SHOULD BE COMPACTED TO APPROXIMATELY 90% PROCTOR TO ENSURE A FIRM SURFACE.

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

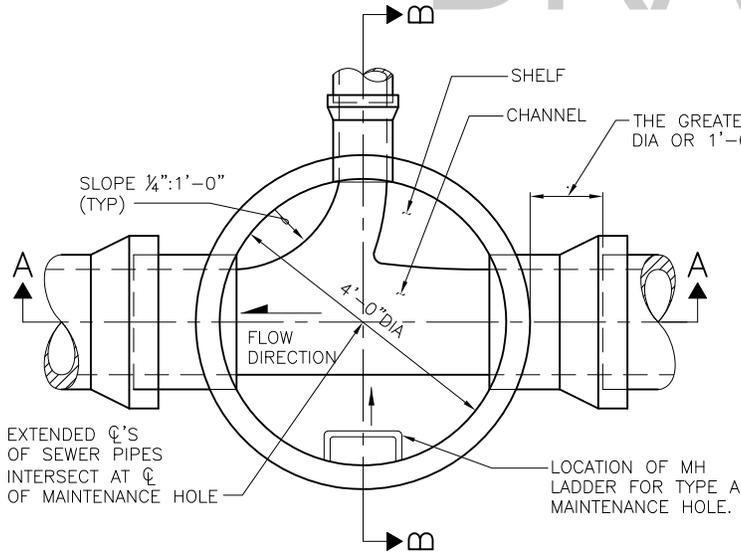


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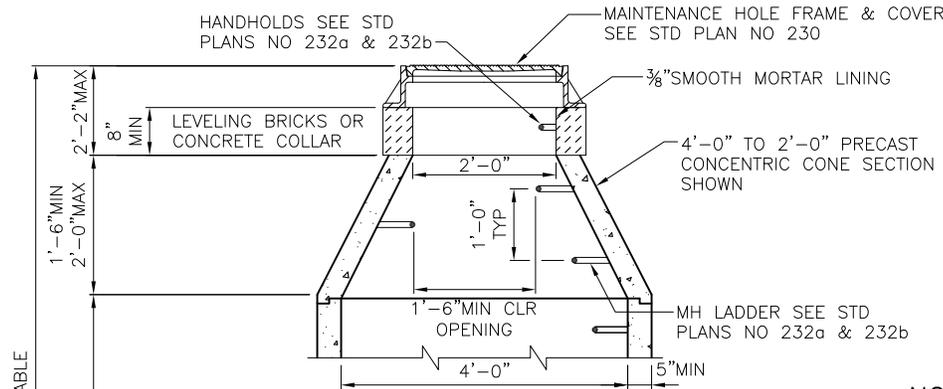
SOIL AMENDMENT AND DEPTH

DRAFT

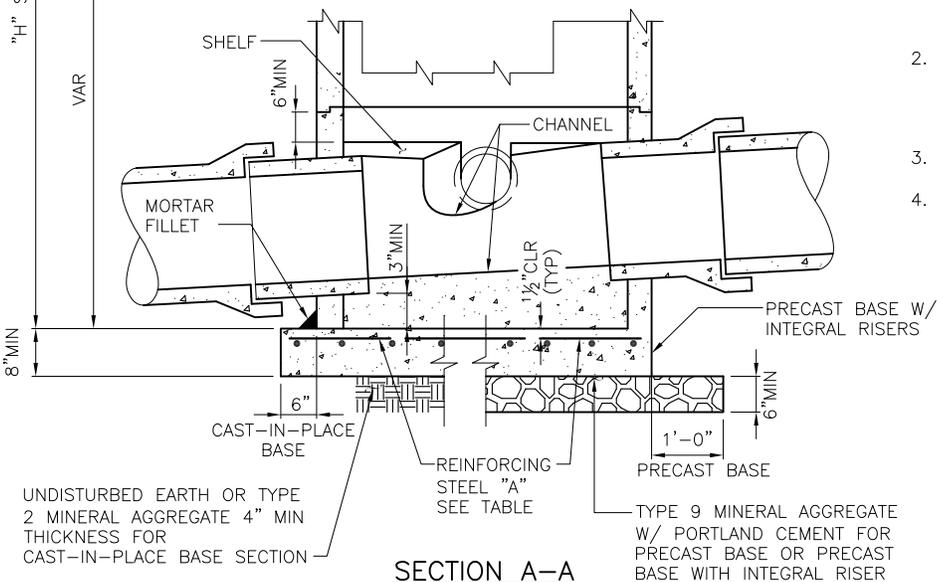


PLAN VIEW
(TOP REMOVED)

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



SECTION B-B



SECTION A-A

NOTES:

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

REF STD SPEC SEC 7-05

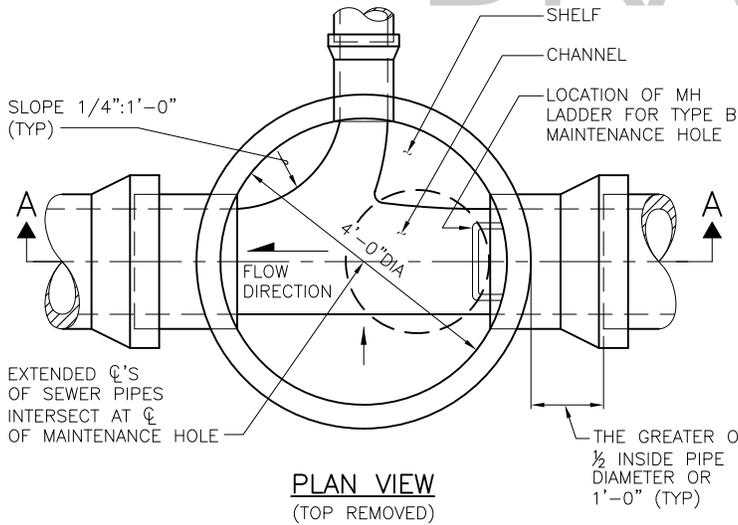


City of Seattle

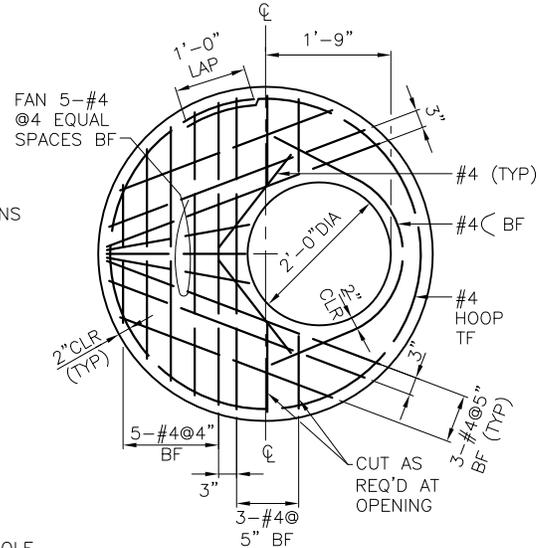
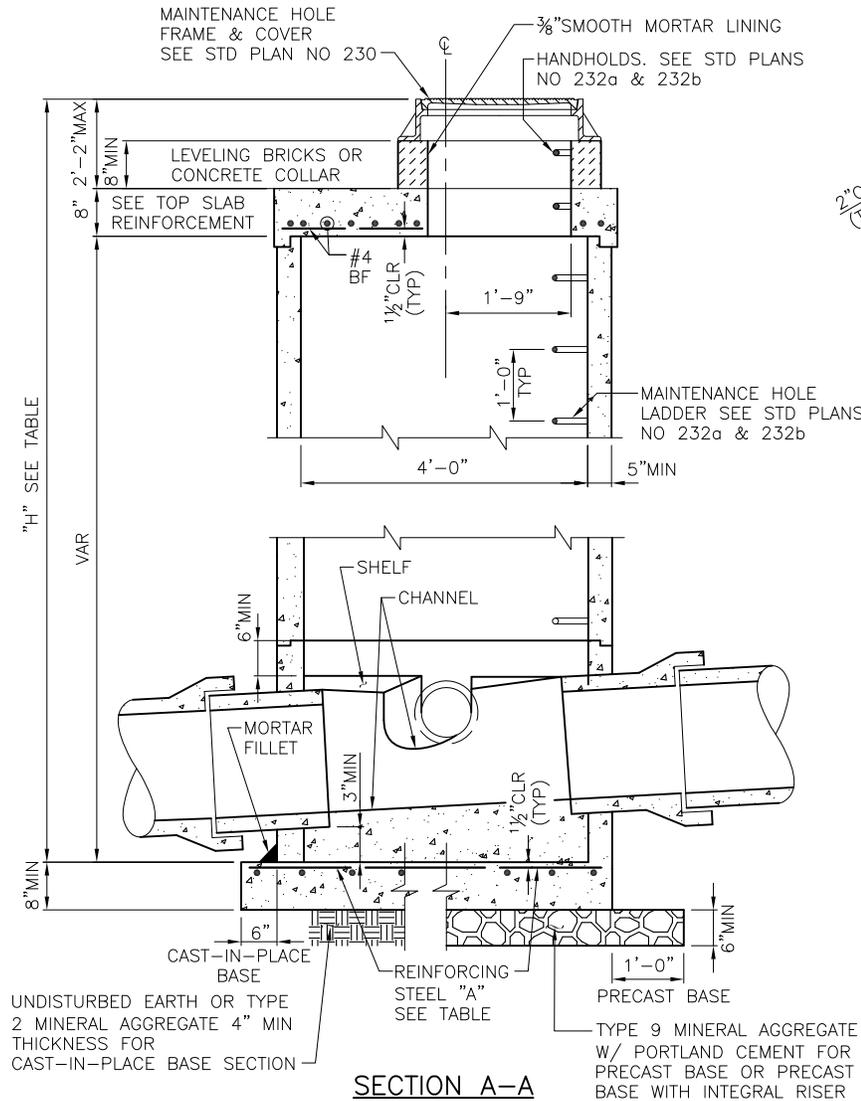
NOT TO SCALE

TYPE 204a MAINTENANCE HOLE

DRAFT



"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



NOTES:

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

REF STD SPEC SEC 7-05

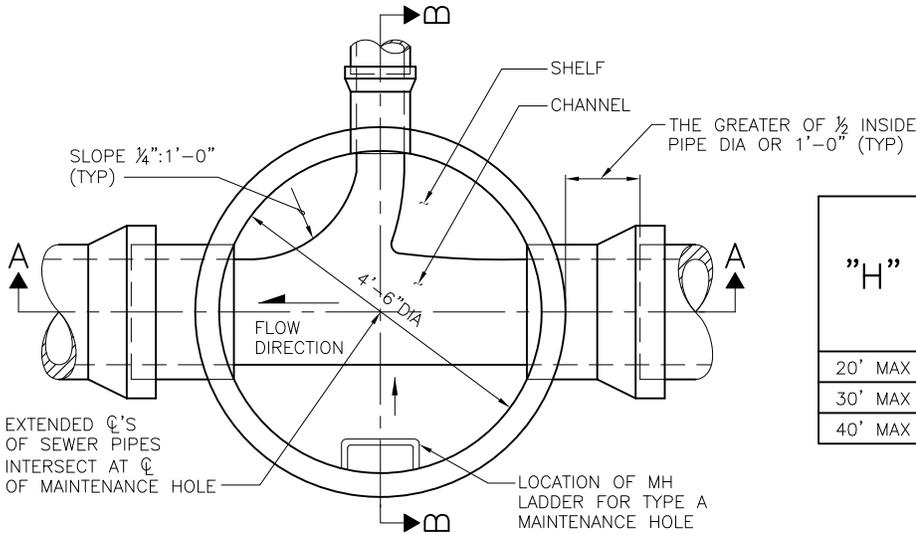


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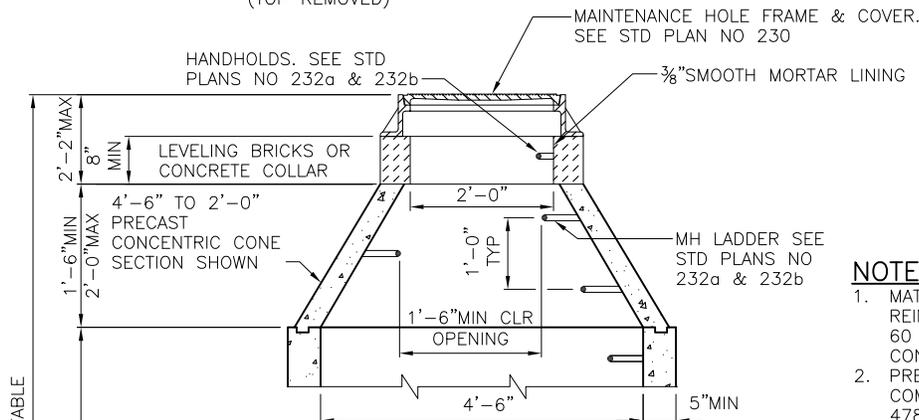
TYPE 204b MAINTENANCE HOLE

DRAFT

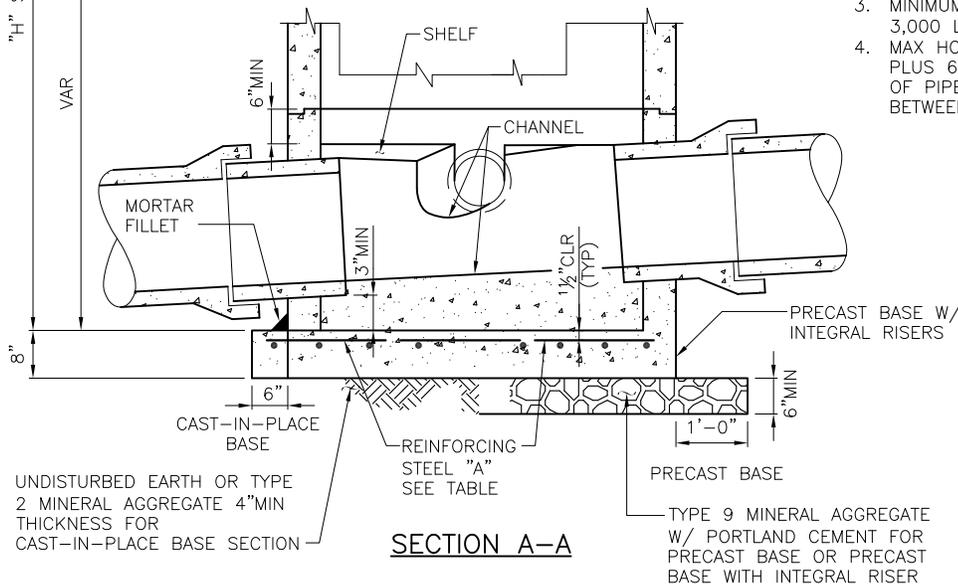


PLAN VIEW
(TOP REMOVED)

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



SECTION B-B



SECTION A-A

NOTES:

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

REF STD SPEC SEC 7-05

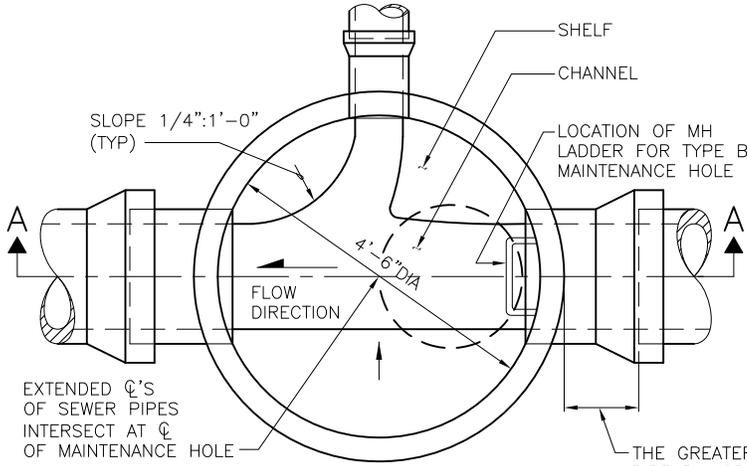


City of Seattle

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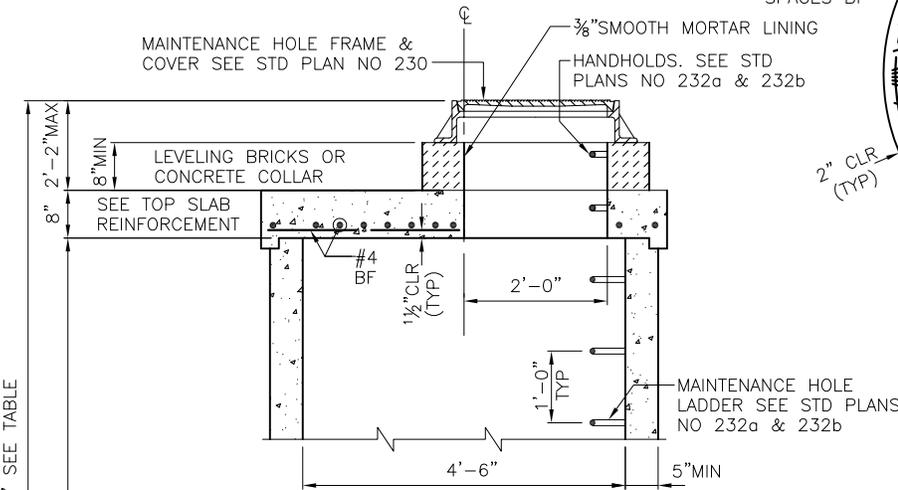
TYPE 204.5a MAINTENANCE HOLE

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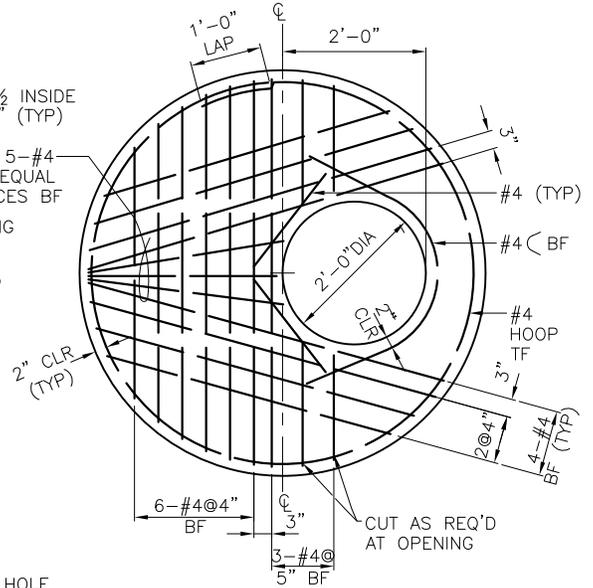


PLAN VIEW
(TOP REMOVED)

"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 A-A



TOP SLAB REINFORCEMENT

NOTES:

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

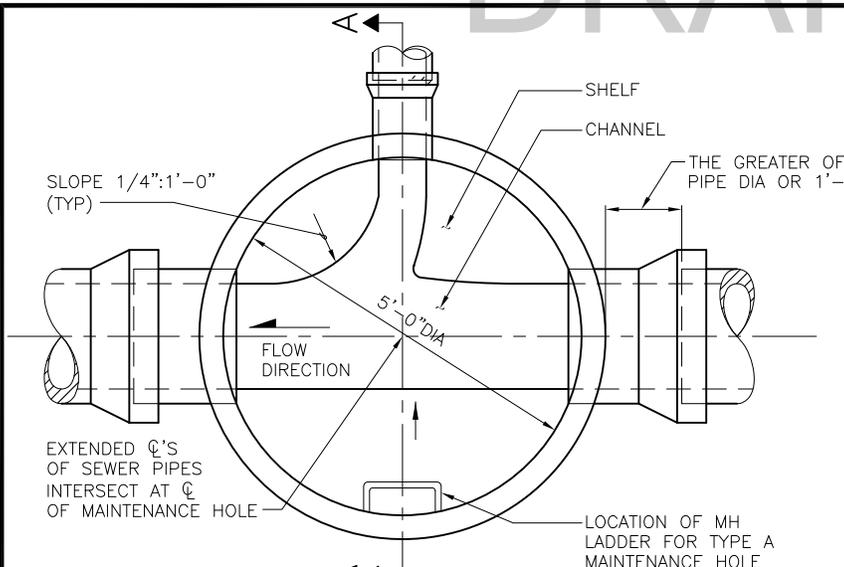
REF STD SPEC SEC 7-05



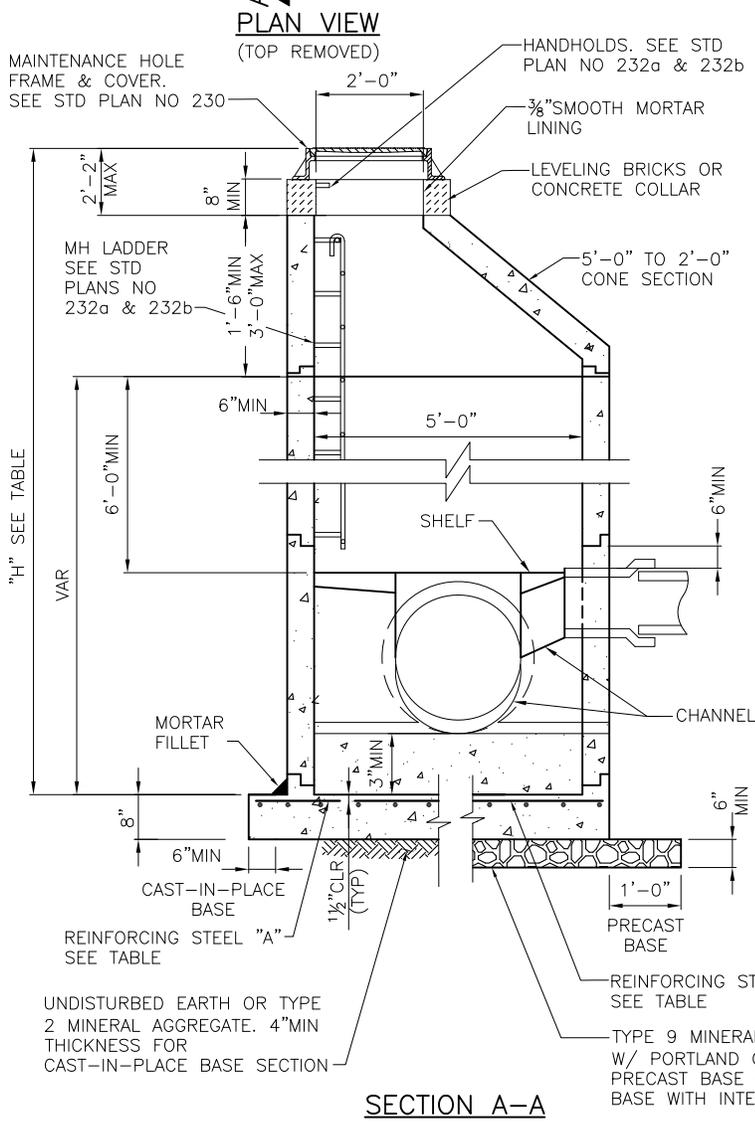
City of Seattle

NOT TO SCALE

TYPE 204.5b MAINTENANCE HOLE



"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



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

REF STD SPEC SEC 7-05

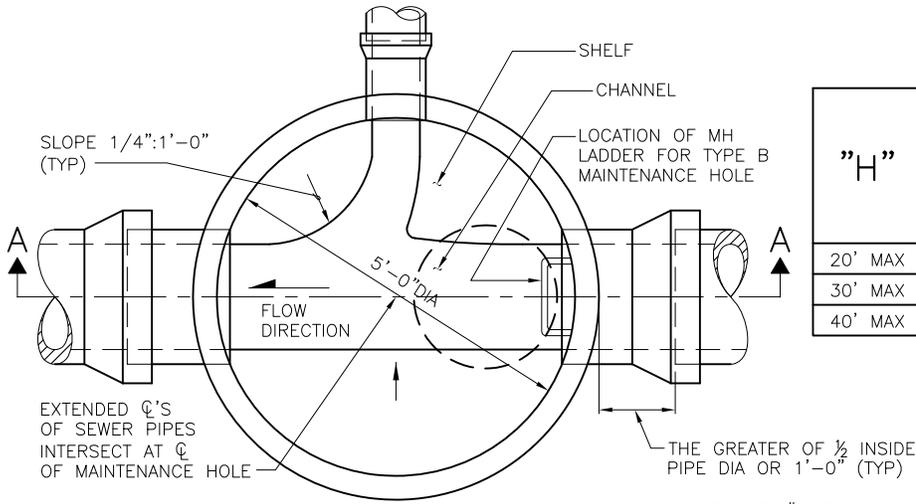


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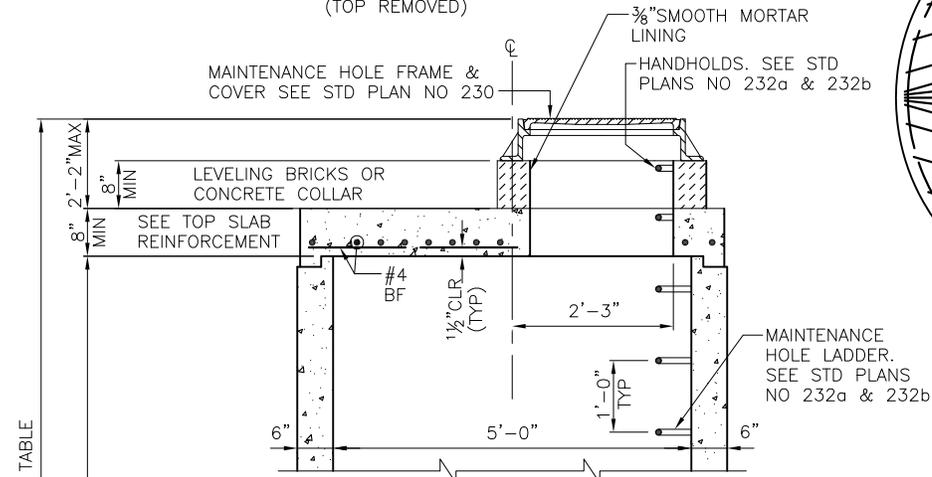
TYPE 205a MAINTENANCE HOLE

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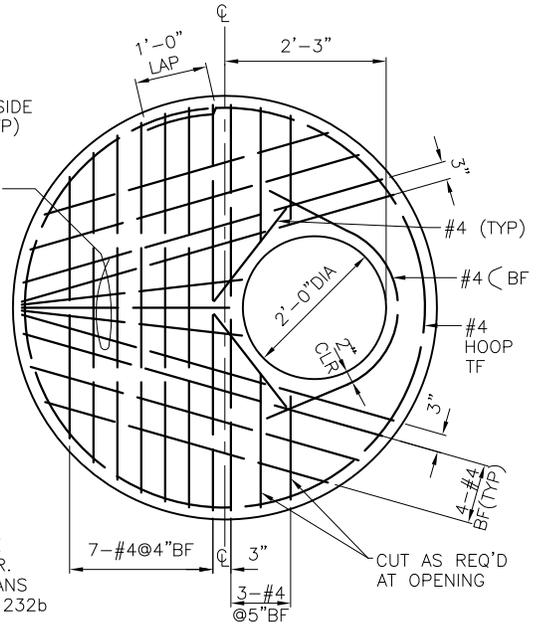


PLAN VIEW
(TOP REMOVED)

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

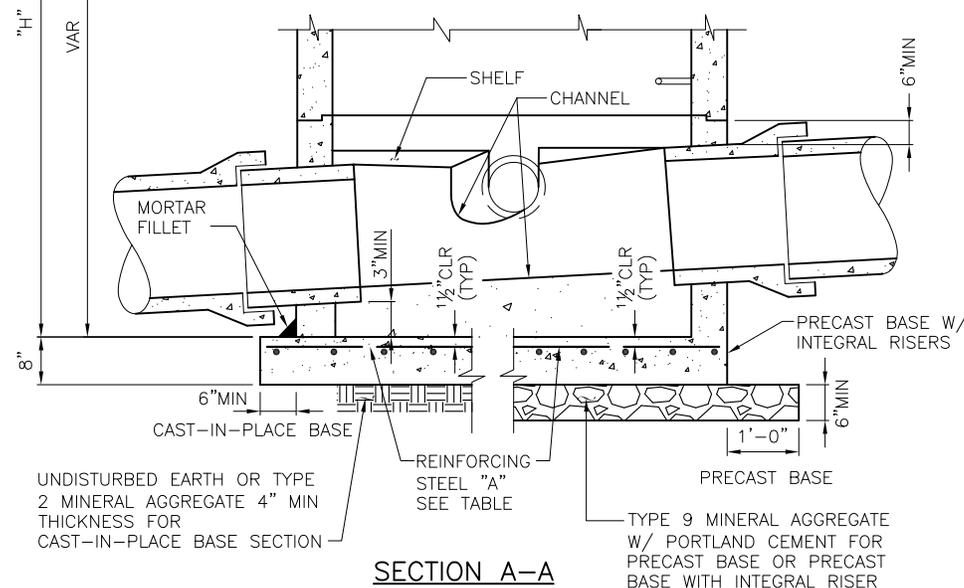


SECTION A-A



TOP SLAB REINFORCEMENT

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



REF STD SPEC SEC 7-05

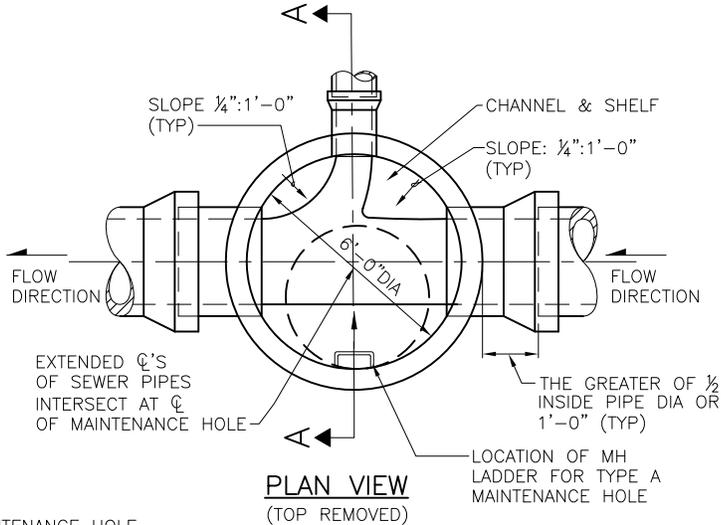


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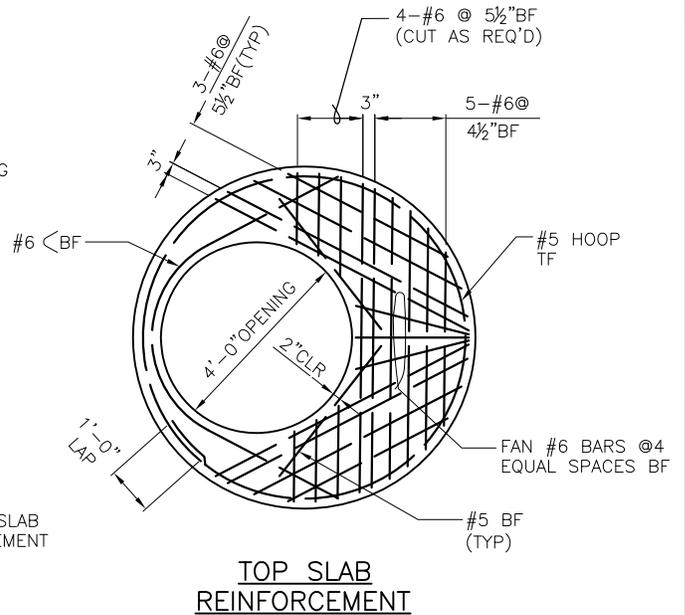
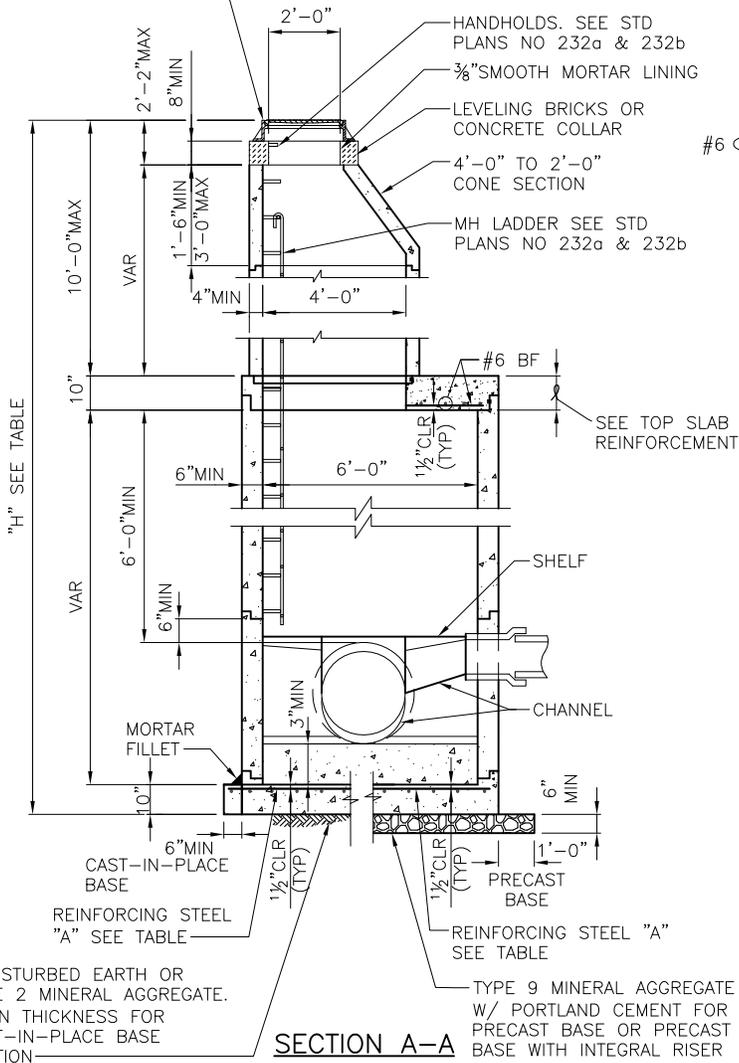
TYPE 205b MAINTENANCE HOLE

DRAFT



"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

MAINTENANCE HOLE FRAME & COVER. SEE STD PLAN NO 230



NOTES:

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

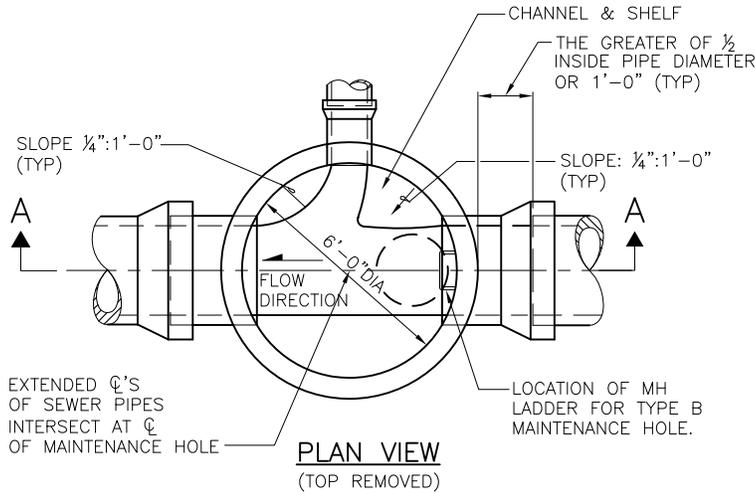
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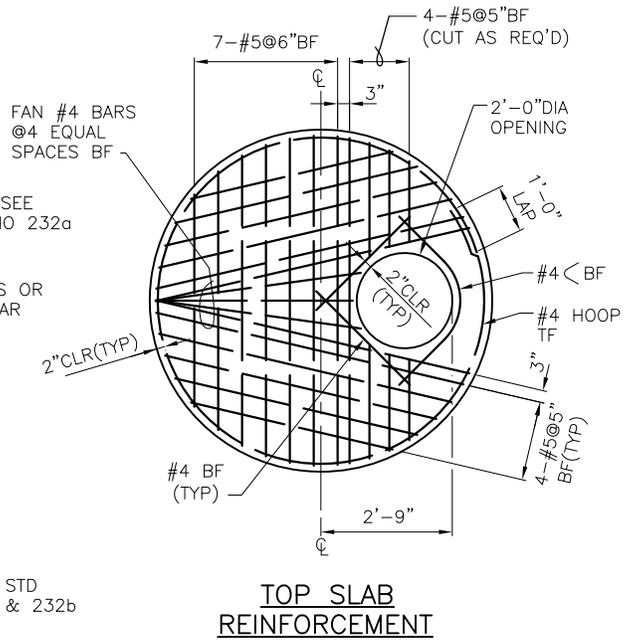
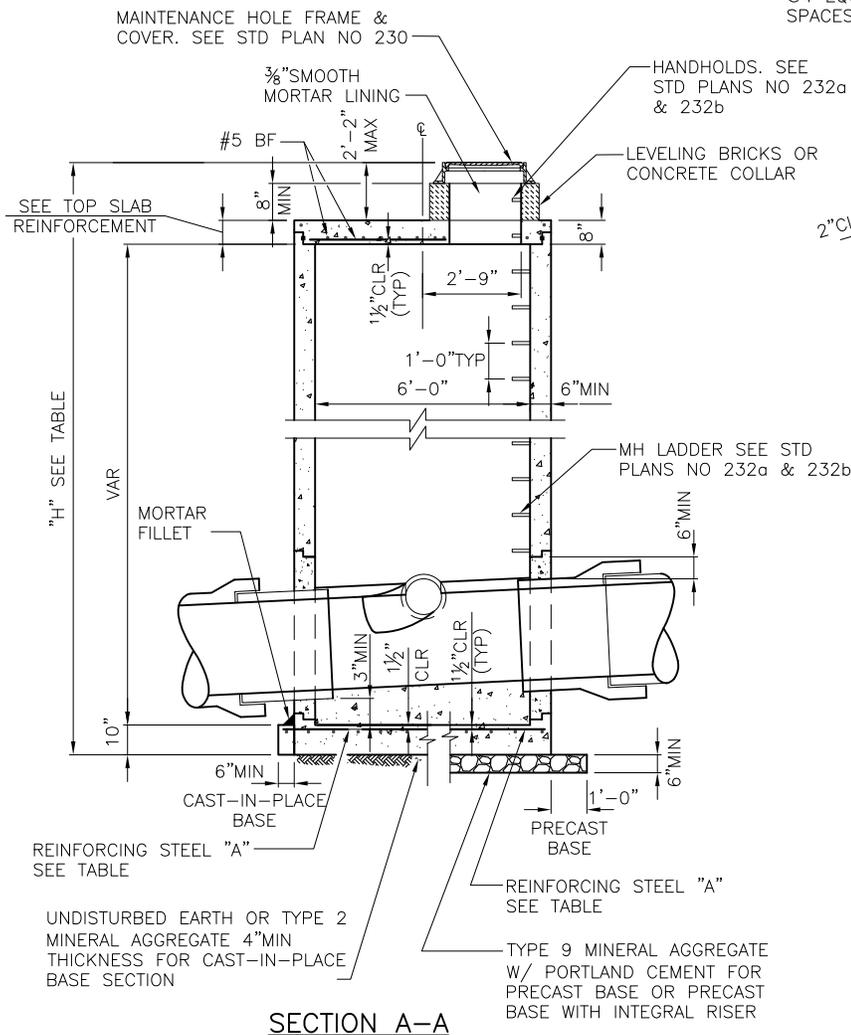
City of Seattle

NOT TO SCALE

TYPE 206a MAINTENANCE HOLE



"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



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

REF STD SPEC SEC 7-05

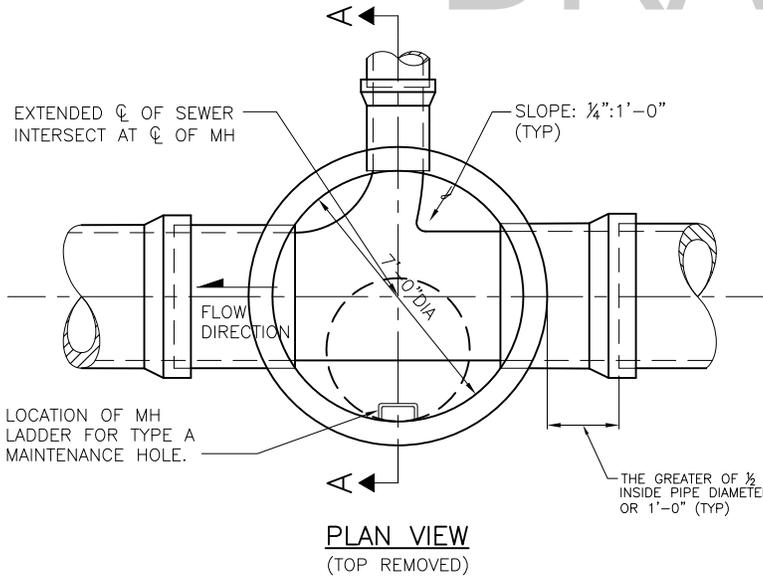


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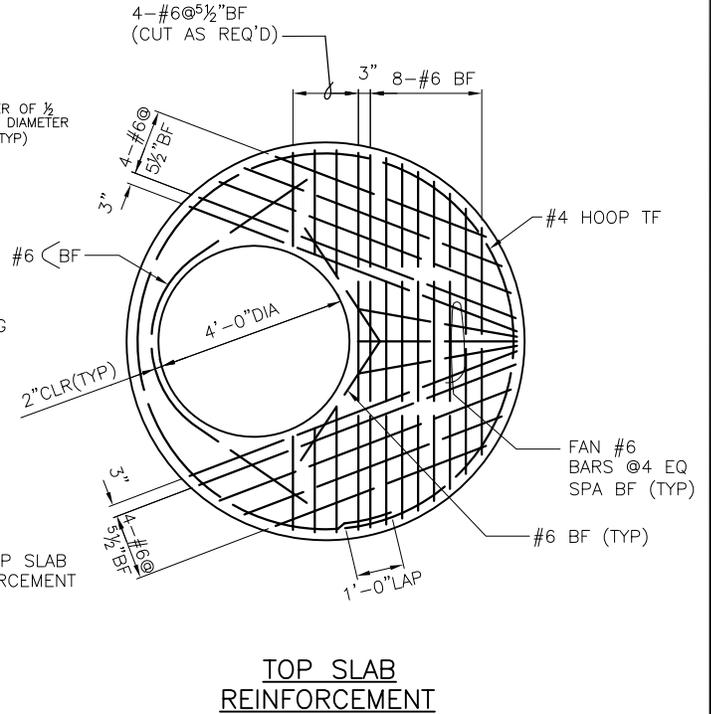
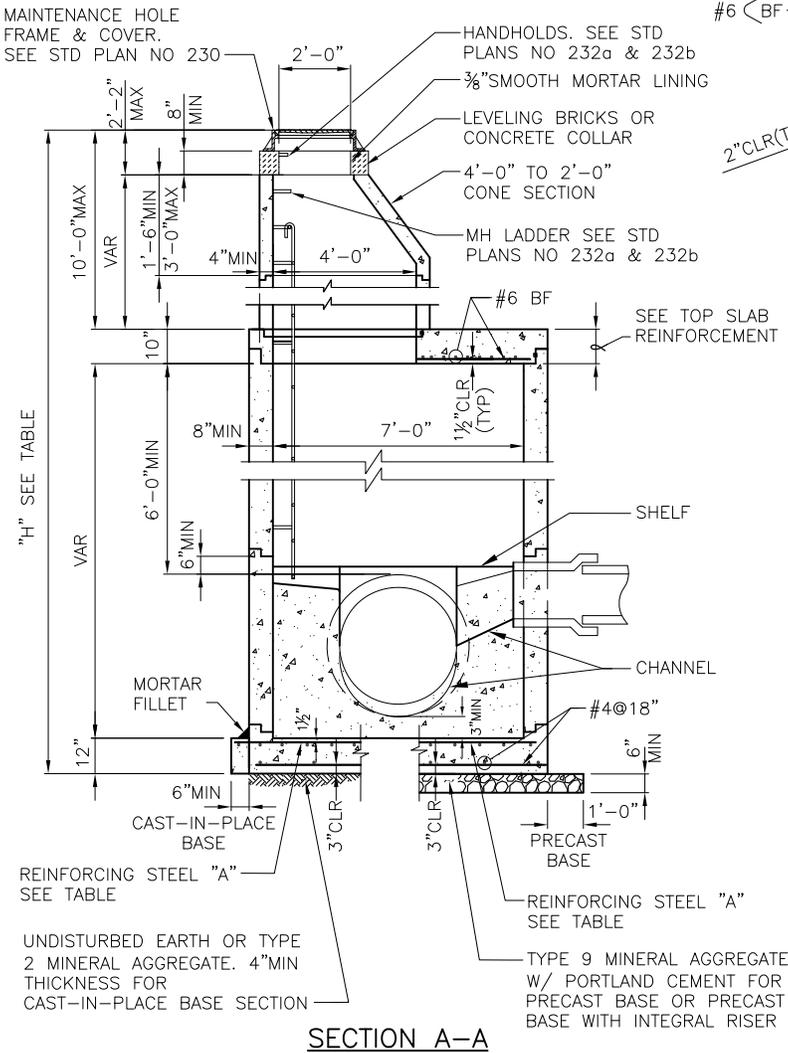
NOT TO SCALE

TYPE 206b MAINTENANCE HOLE

DRAFT



"H"	REINFORCING STEEL "A"	
	MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST-IN-PLACE BASE
20' MAX	0.42	0.34
30' MAX	0.51	0.41
40' MAX	0.60	0.48



NOTES:

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

REF STD SPEC SEC 7-05

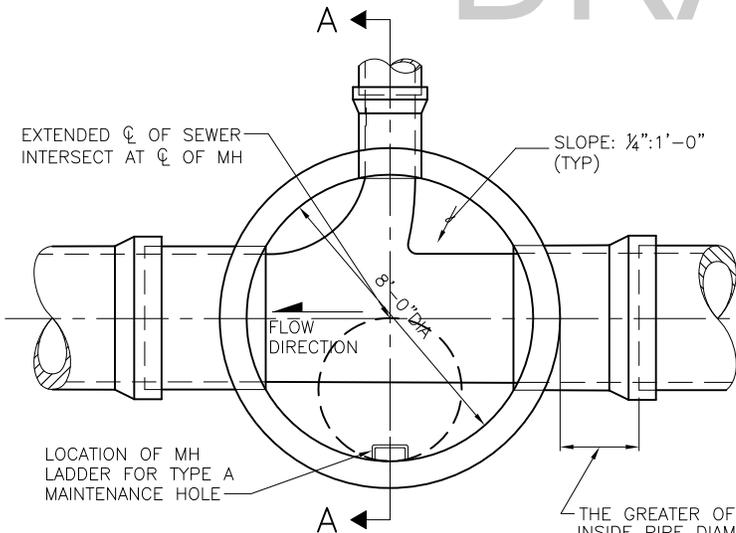


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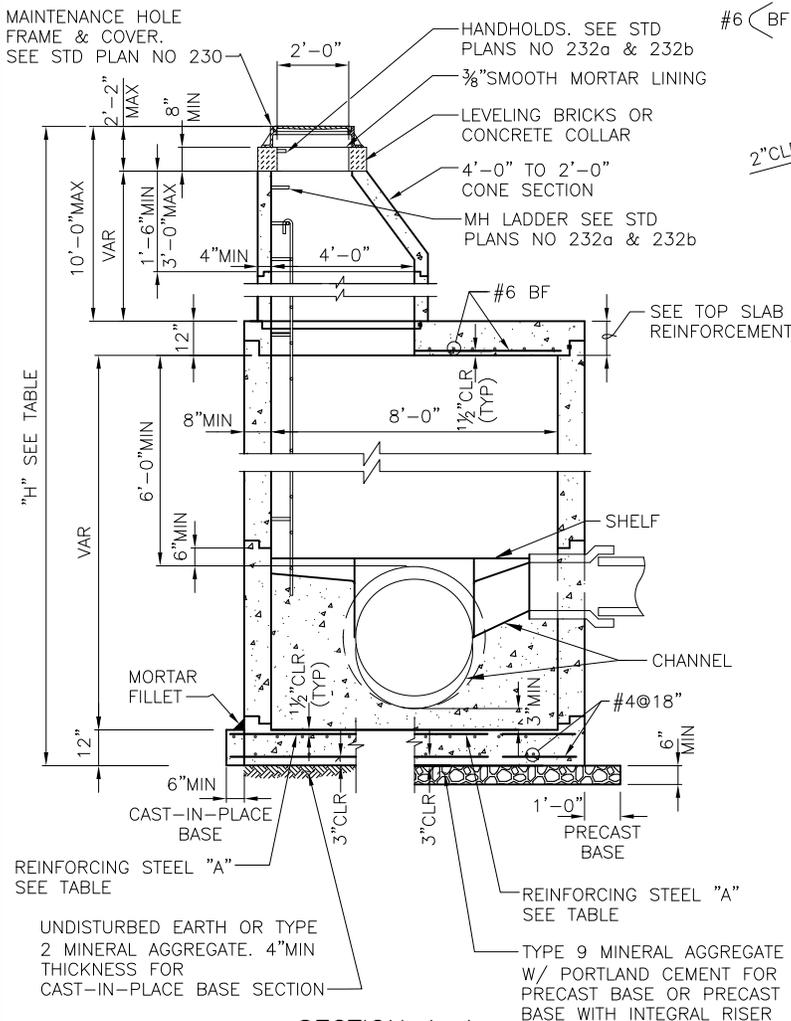
TYPE 207a MAINTENANCE HOLE

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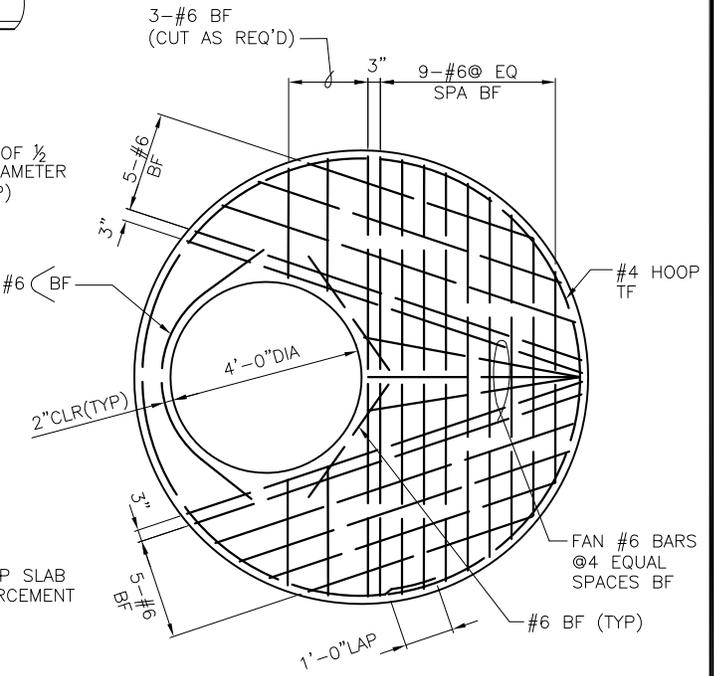


"H"	REINFORCING STEEL "A"	
	MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST-IN-PLACE BASE
20' MAX	0.54	0.45
30' MAX	0.66	0.55
40' MAX	0.78	0.64

PLAN VIEW
(TOP REMOVED)



SECTION A-A



TOP SLAB REINFORCEMENT

NOTES:

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

REF STD SPEC SEC 7-05

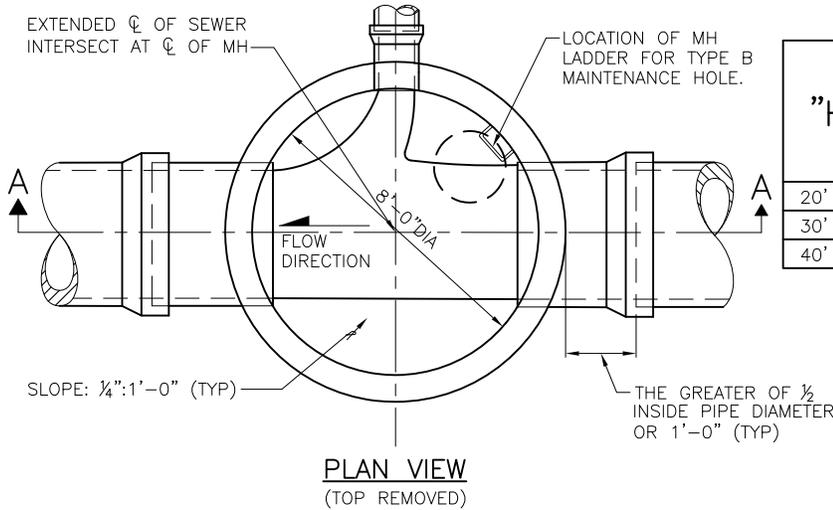


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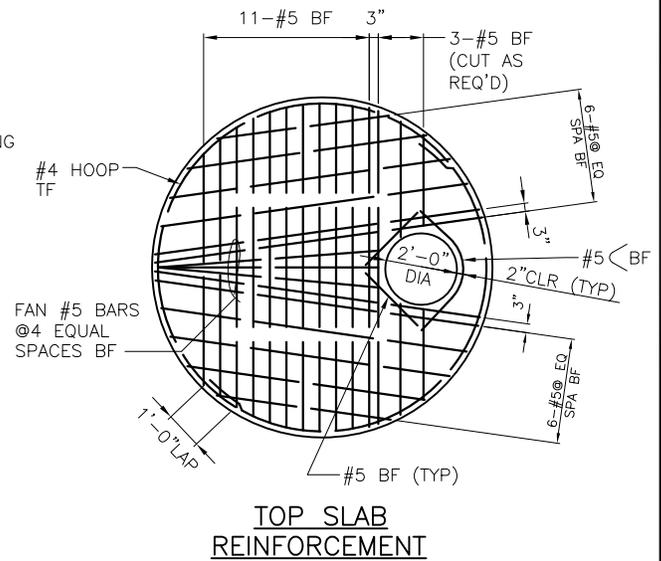
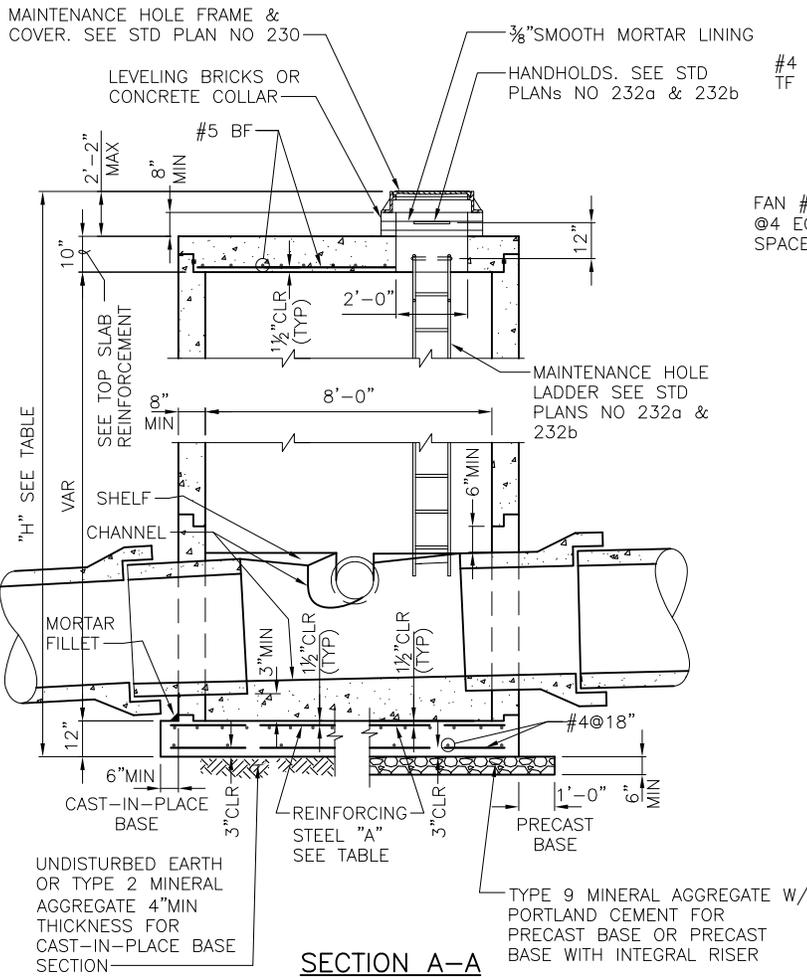
NOT TO SCALE

TYPE 208a MAINTENANCE HOLE

DRAFT



"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



NOTES:

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

REF STD SPEC SEC 7-05

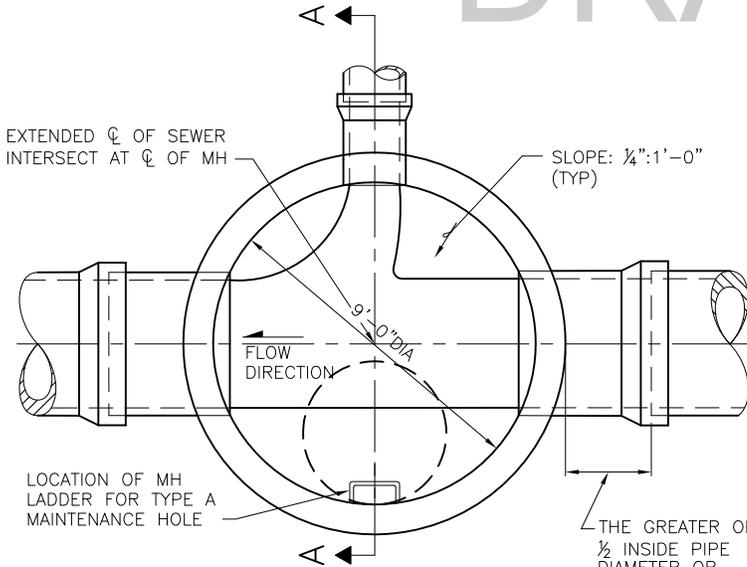


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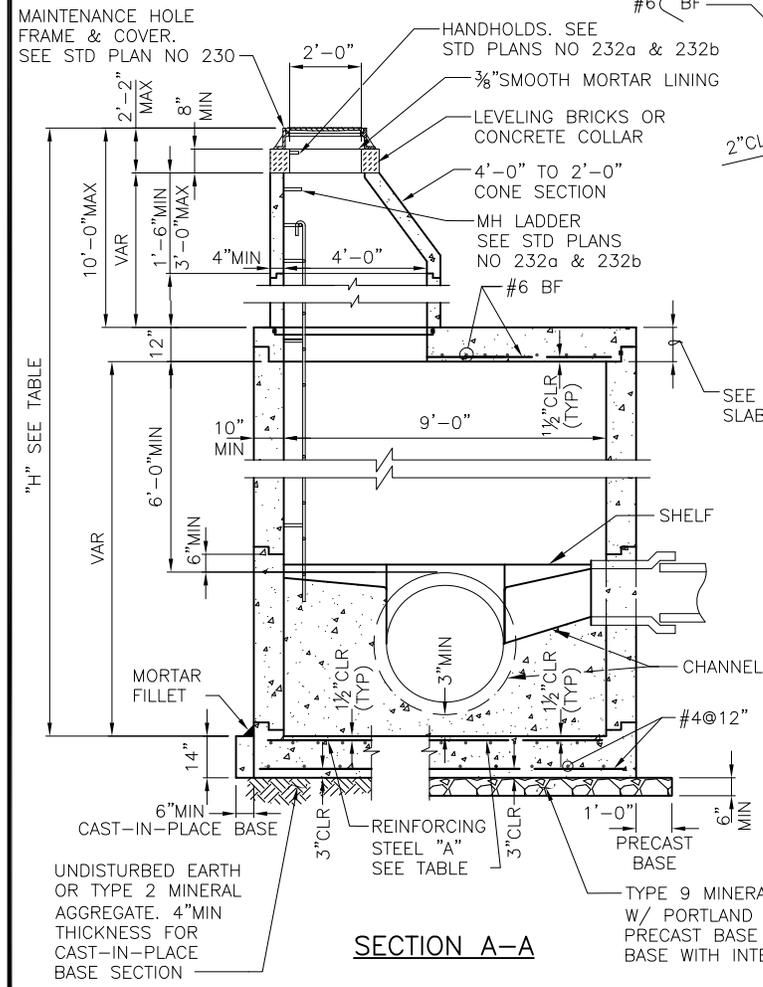
TYPE 208b MAINTENANCE HOLE

DRAFT

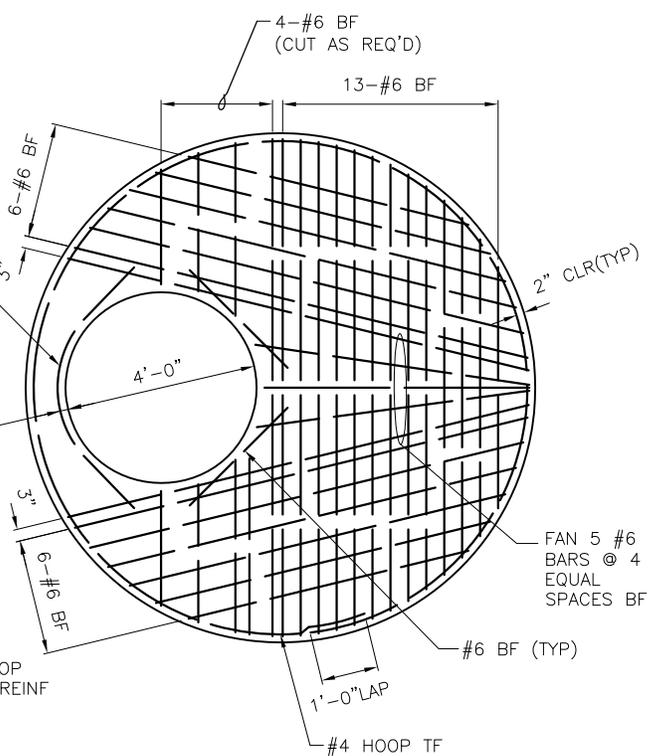


PLAN VIEW
(TOP REMOVED)

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



SECTION A-A



TOP SLAB REINFORCEMENT

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

REF STD SPEC SEC 7-05

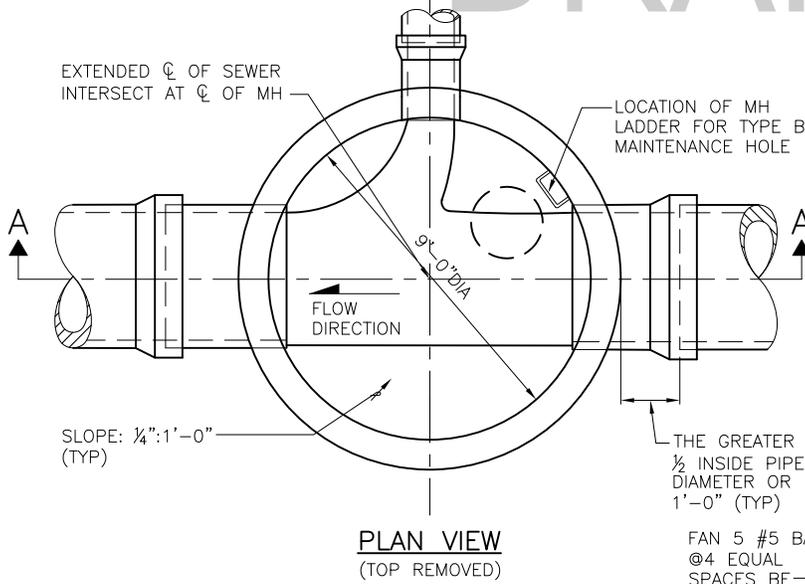


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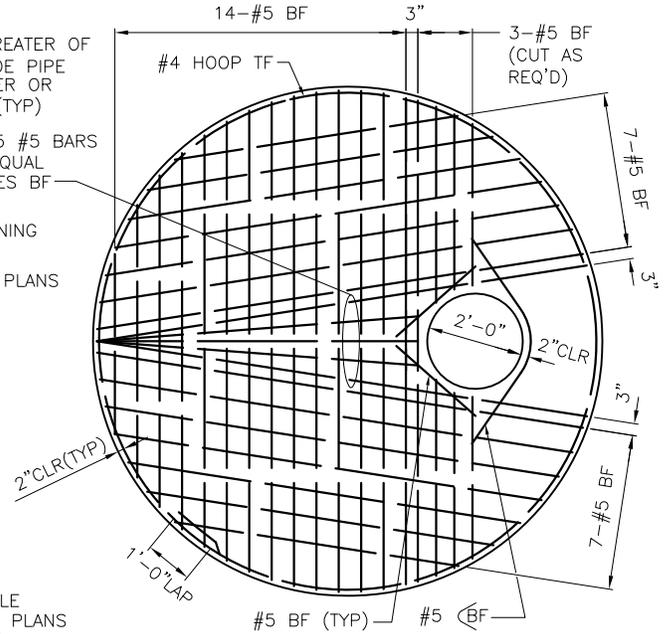
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TYPE 209a MAINTENANCE HOLE

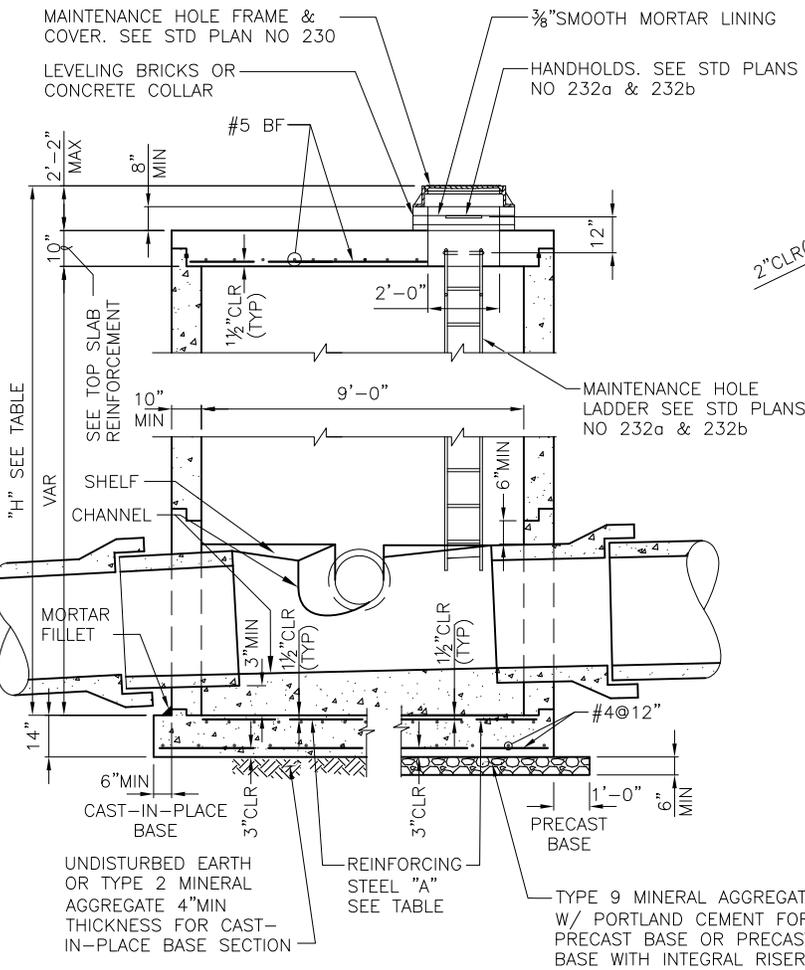
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"H"	REINFORCING STEEL "A"	
	MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST-IN-PLACE BASE
20' MAX	0.44	0.37
30' MAX	0.56	0.48
40' MAX	0.68	0.58



TOP SLAB REINFORCEMENT



SECTION A-A

NOTES:

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

REF STD SPEC SEC 7-05

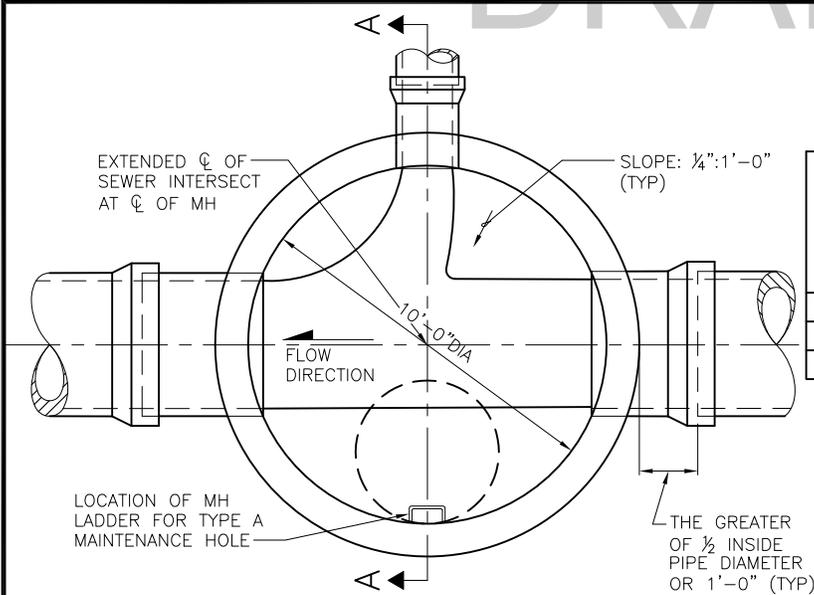


City of Seattle

NOT TO SCALE

TYPE 209b MAINTENANCE HOLE

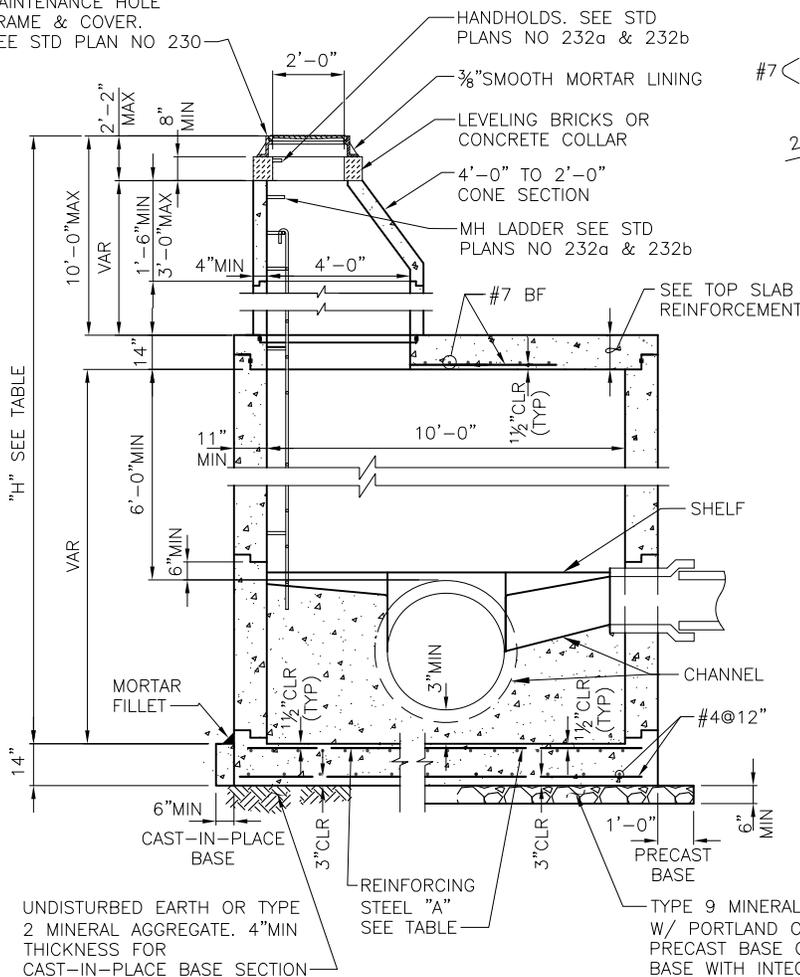
DRAFT



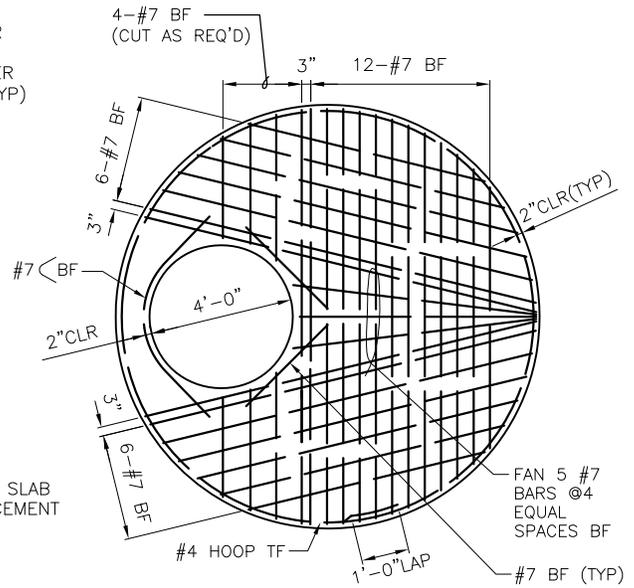
PLAN VIEW
(TOP REMOVED)

"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

MAINTENANCE HOLE FRAME & COVER. SEE STD PLAN NO 230



SECTION A-A



TOP SLAB REINFORCEMENT

NOTES:

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

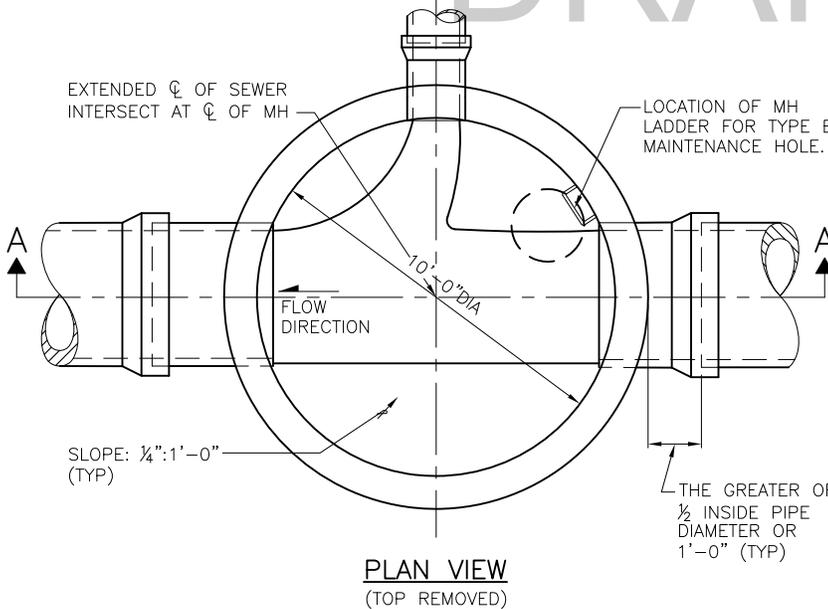
REF STD SPEC SEC 7-05



City of Seattle

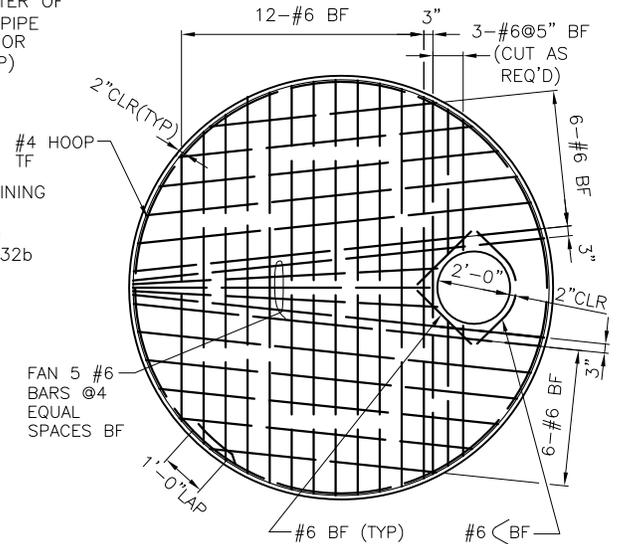
NOT TO SCALE

TYPE 210a MAINTENANCE HOLE



"H"	REINFORCING STEEL "A"	
	MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST-IN-PLACE BASE
20' MAX	0.52	0.45
30' MAX	0.66	0.57
40' MAX	0.81	0.70

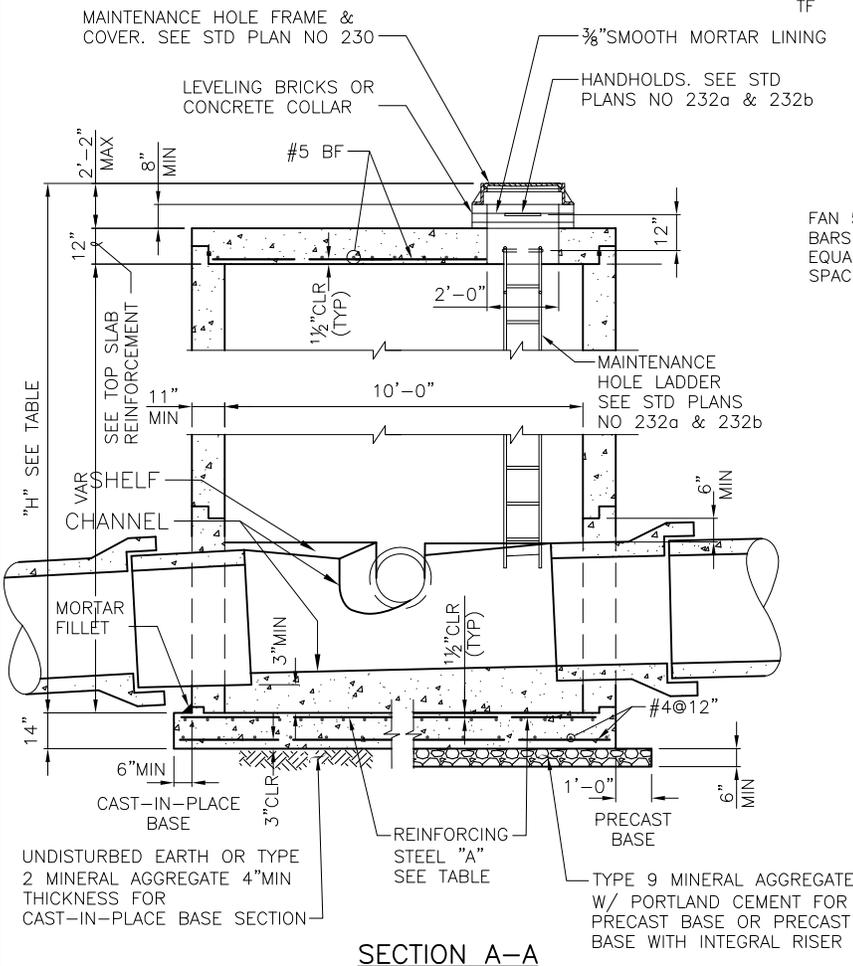
PLAN VIEW
(TOP REMOVED)



TOP SLAB
REINFORCEMENT

NOTES:

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



SECTION A-A

REF STD SPEC SEC 7-05

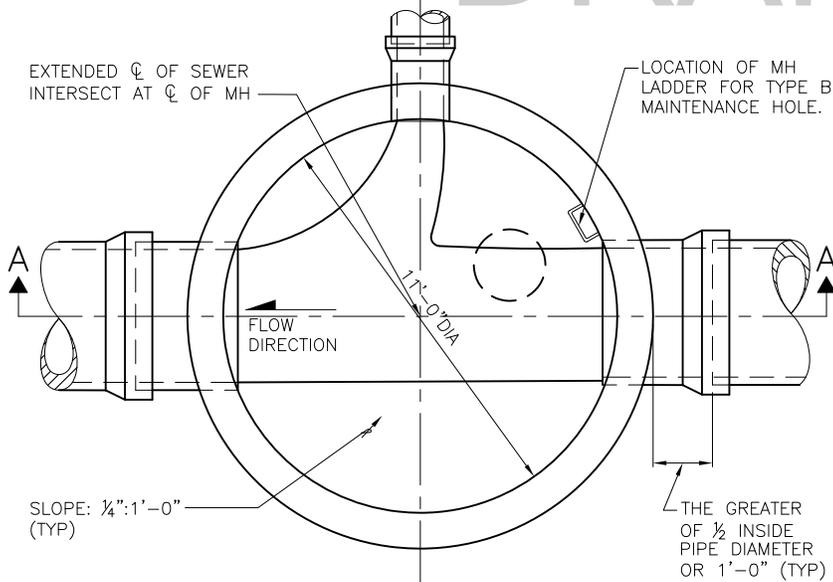


City of Seattle

NOT TO SCALE

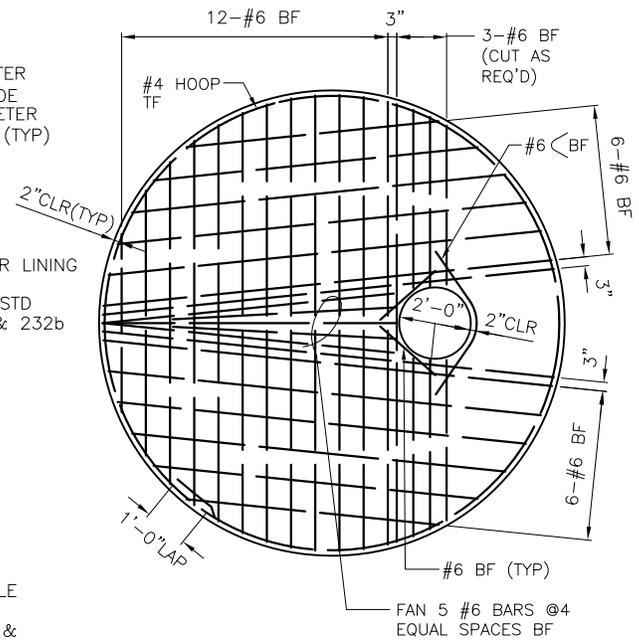
TYPE 210b MAINTENANCE HOLE

DRAFT

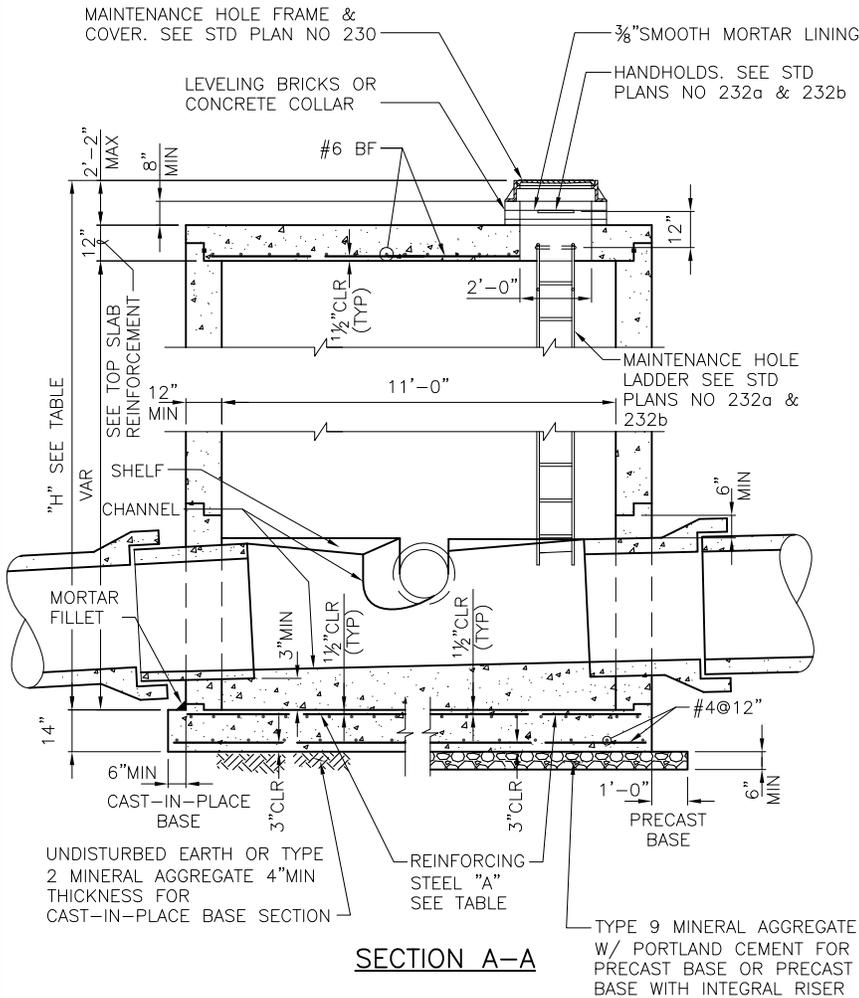


PLAN VIEW
(TOP REMOVED)

"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



TOP SLAB REINFORCEMENT



SECTION A-A

NOTES:

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

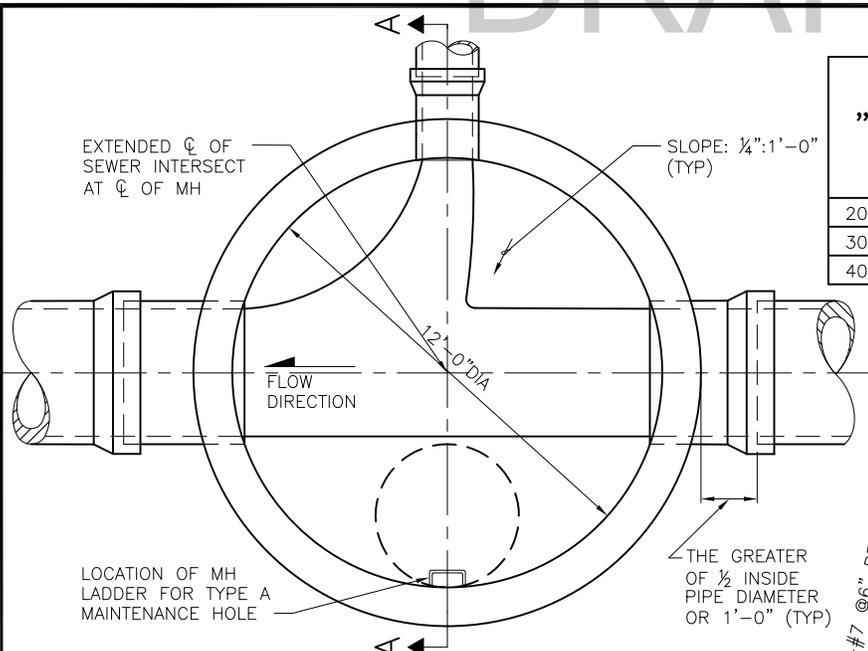
REF STD SPEC SEC 7-05



City of Seattle

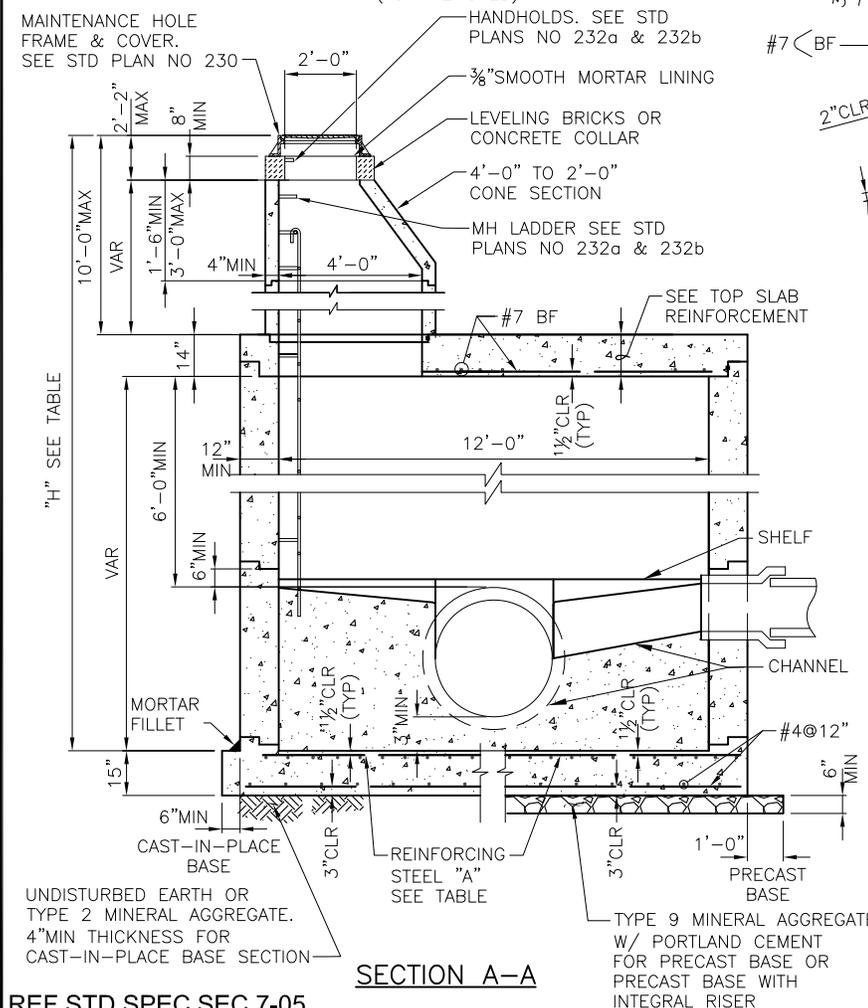
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TYPE 211b MAINTENANCE HOLE

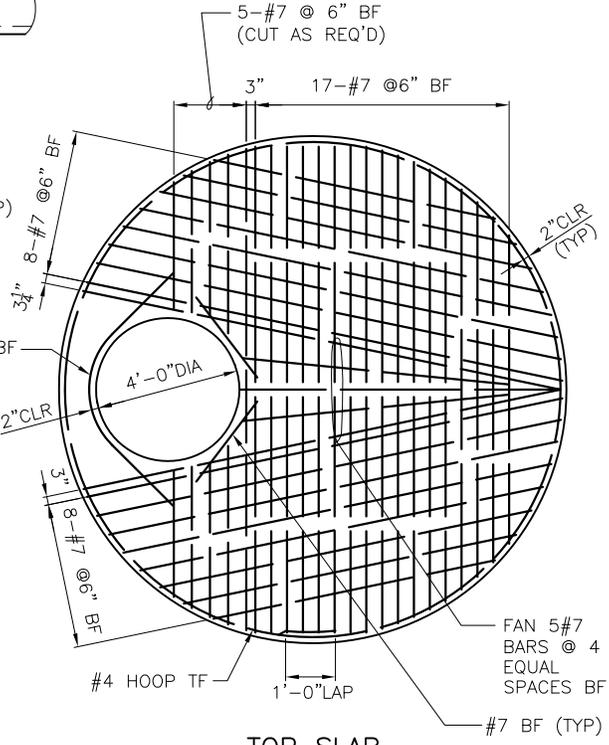


"H"	REINFORCING STEEL "A"	
	MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST-IN-PLACE BASE
20' MAX	1.01	0.89
30' MAX	1.28	1.13
40' MAX	1.56	1.37

PLAN VIEW
(TOP REMOVED)



SECTION A-A



TOP SLAB REINFORCEMENT

NOTES:

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

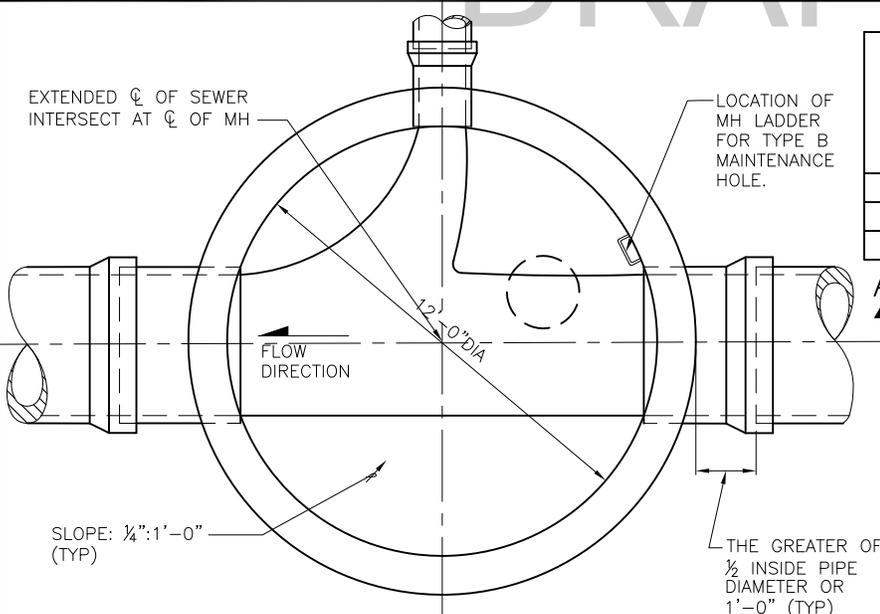
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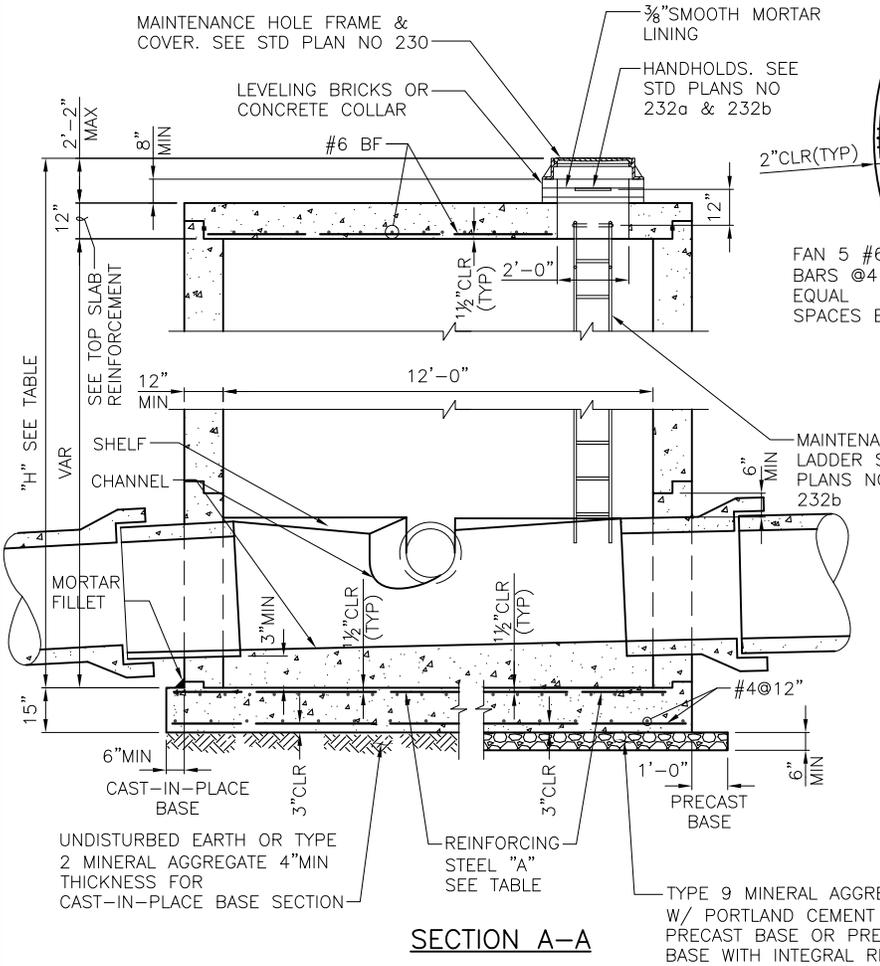
City of Seattle

NOT TO SCALE

TYPE 212a MAINTENANCE HOLE

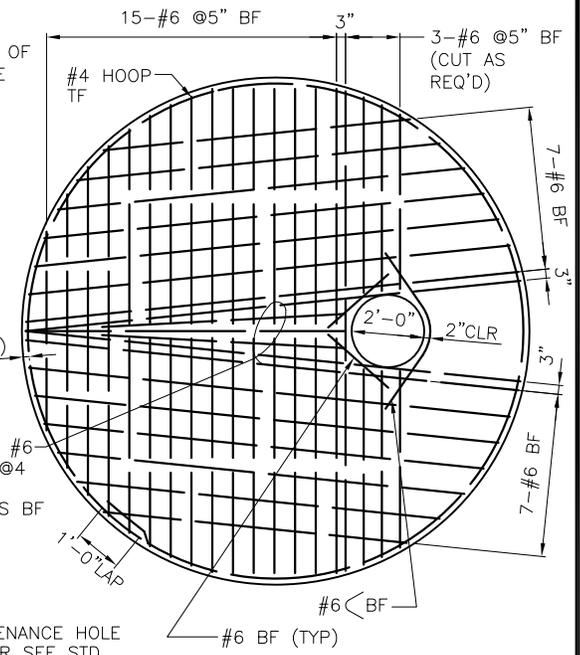


PLAN VIEW
(TOP REMOVED)



SECTION A-A

"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

NOTES:

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

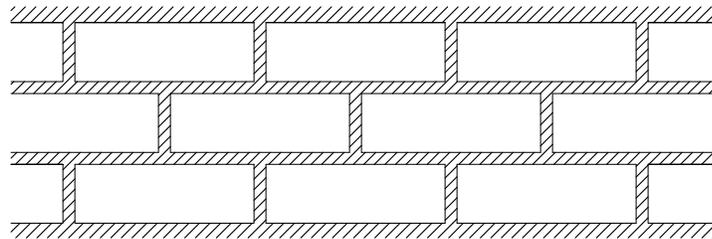
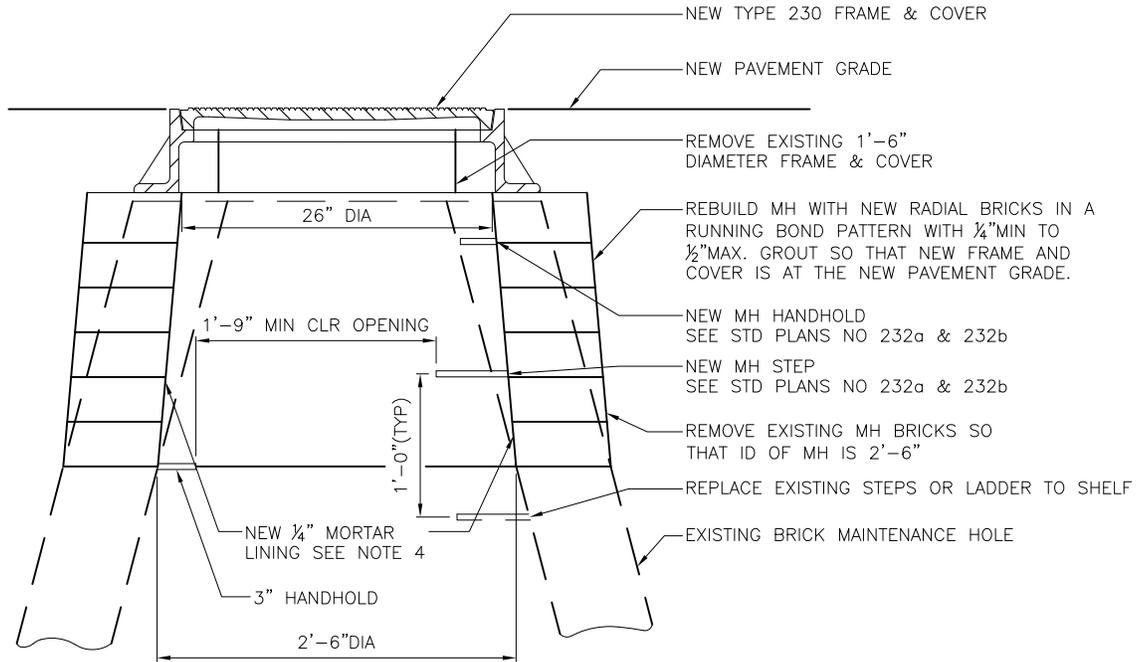
REF STD SPEC SEC 7-05



City of Seattle

NOT TO SCALE

TYPE 212b MAINTENANCE HOLE



RUNNING BOND PATTERN
GROUT BETWEEN ALL BRICKS

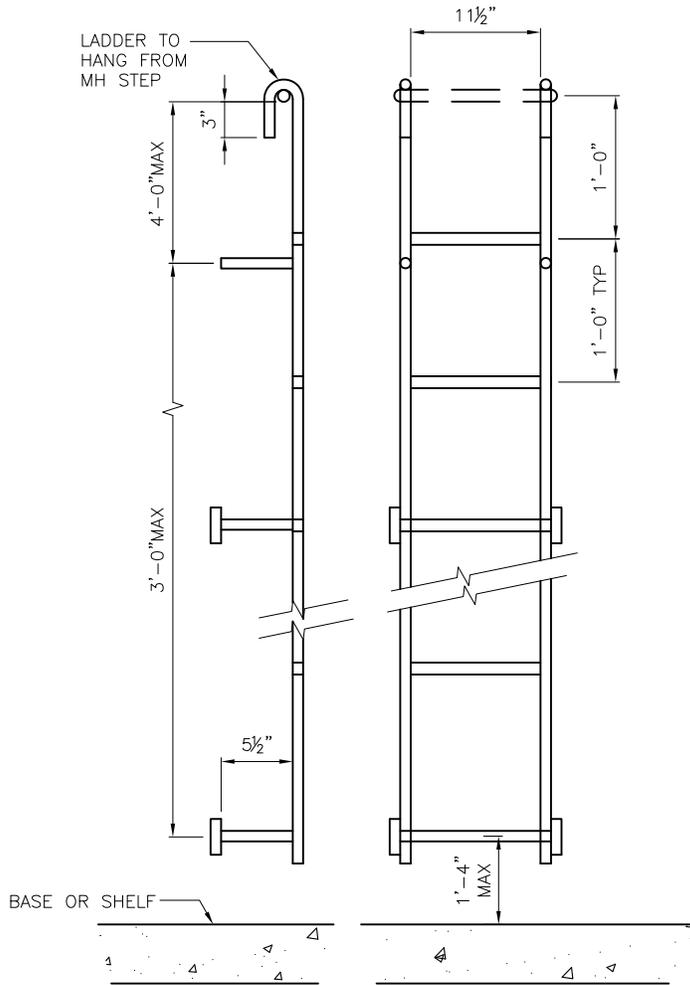
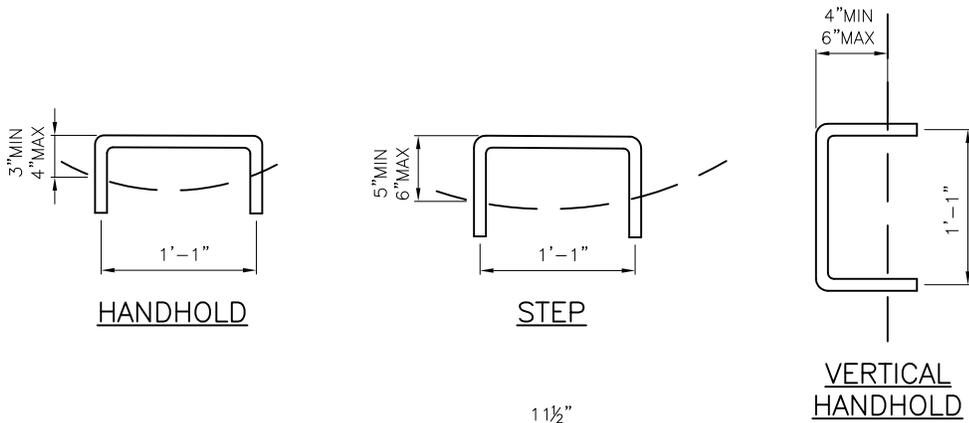
REF STD SPEC SEC 7-05



City of Seattle

NOT TO SCALE

**REBUILD EXISTING
BRICK MAINTENANCE HOLE**



LADDER

NOTES:

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

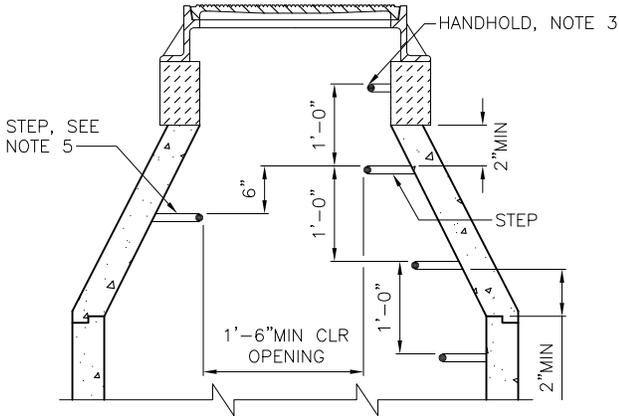
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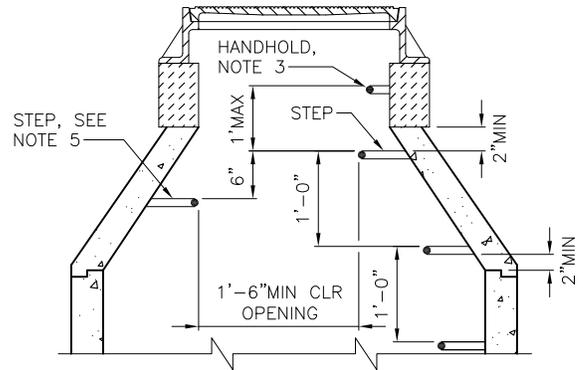
City of Seattle

NOT TO SCALE

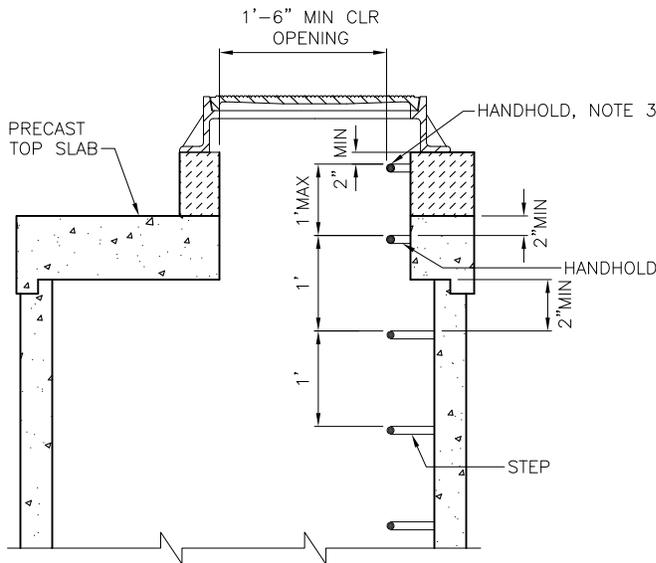
MAINTENANCE HOLE LADDER,
STEP AND HANDHOLD



24" HIGH CONCENTRIC CONE



18" HIGH CONCENTRIC CONE



MH WITH PRECAST TOP SLAB

NOTES:

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

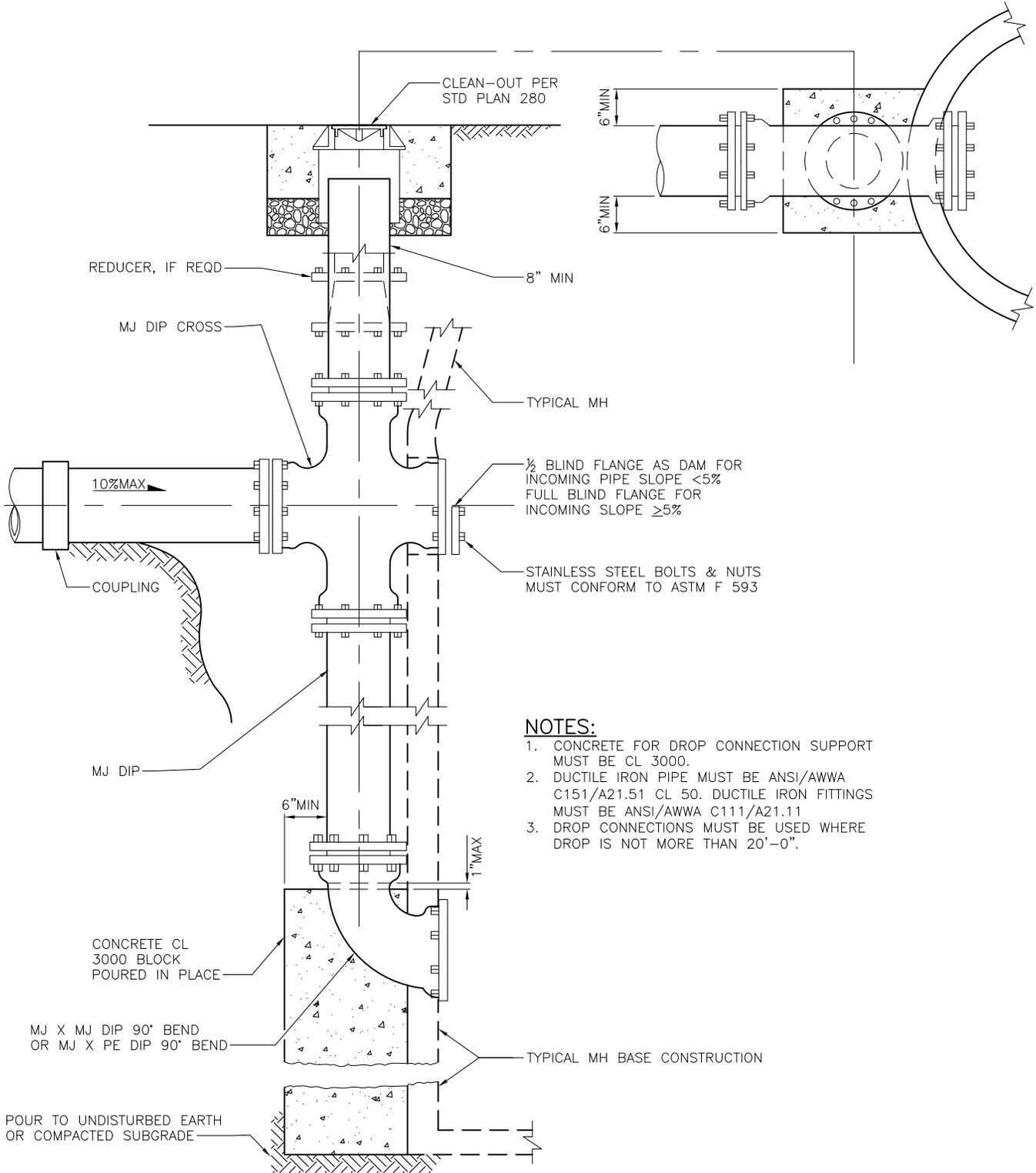
REF STD SPEC SEC 7-05



City of Seattle

NOT TO SCALE

MAINTENANCE HOLE LADDER,
STEP AND HANDHOLD



NOTES:

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

DUCTILE IRON OUTSIDE DROP CONNECTION

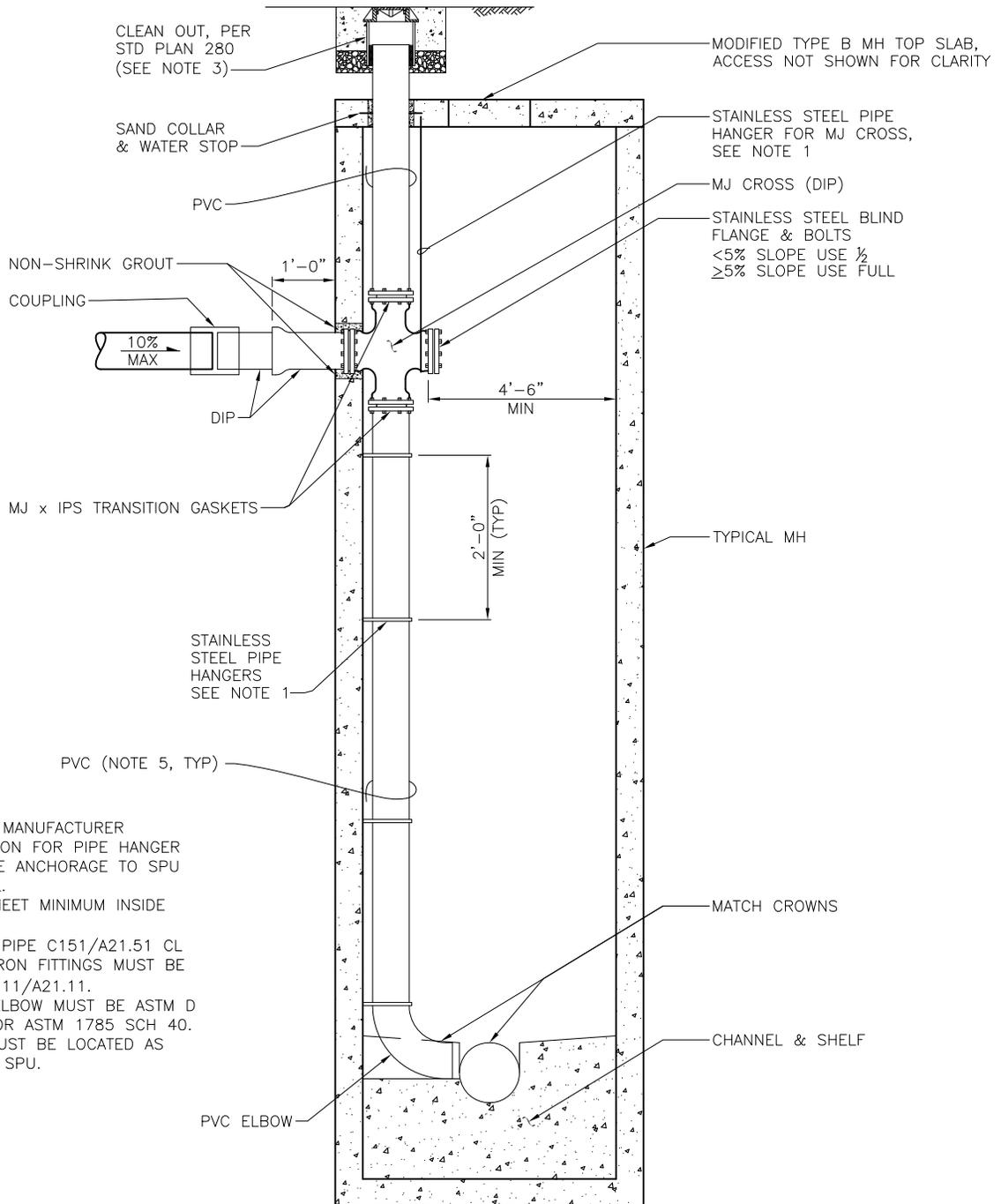
REF STD SPEC SEC 7-08



City of Seattle

NOT TO SCALE

OUTSIDE DROP CONNECTION



NOTES:

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

INSIDE DROP
(18" DIAMETER PIPE MAXIMUM)

REF STD SPEC SEC 7-08

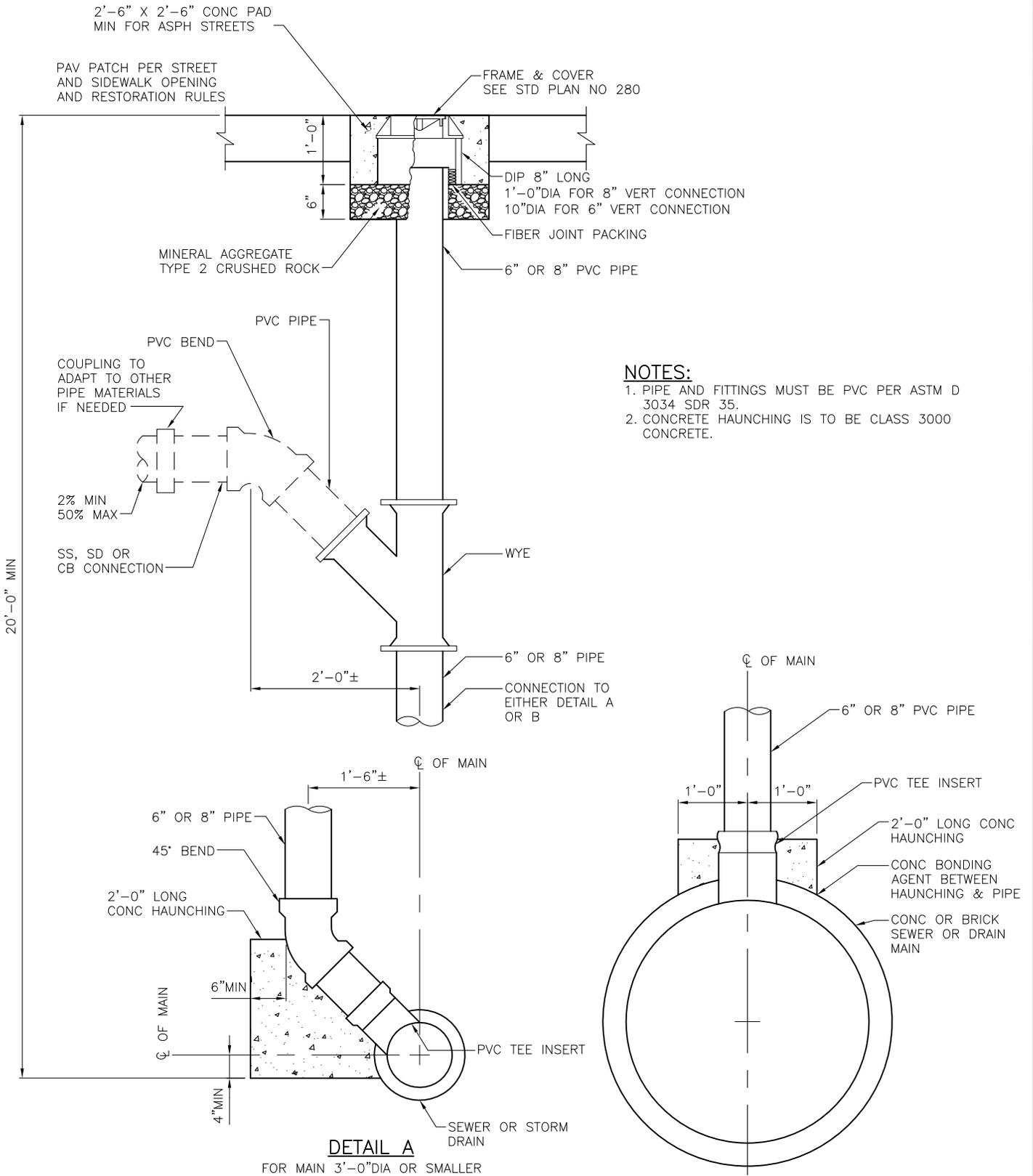


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NOT TO SCALE

INSIDE DROP CONNECTION

DRAFT



NOTES:

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

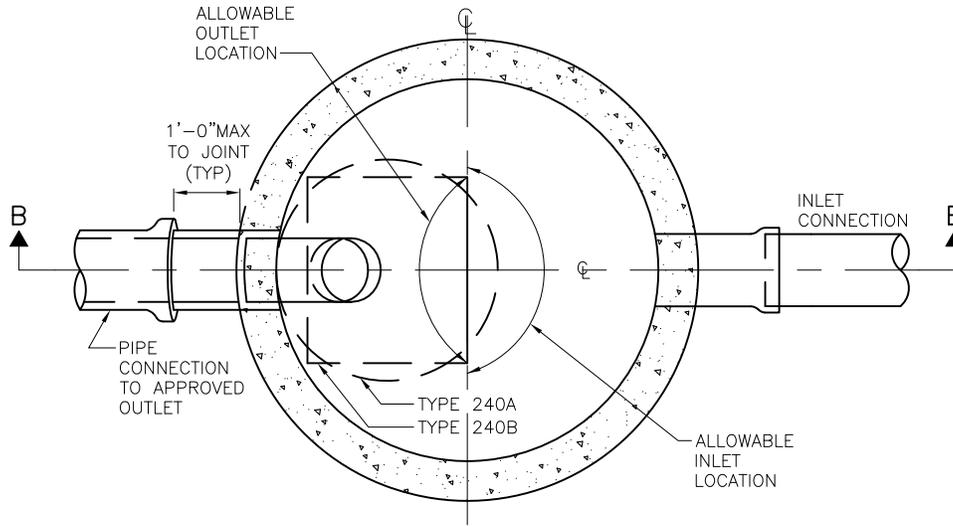
REF STD SPEC SEC 7-08 & 7-17



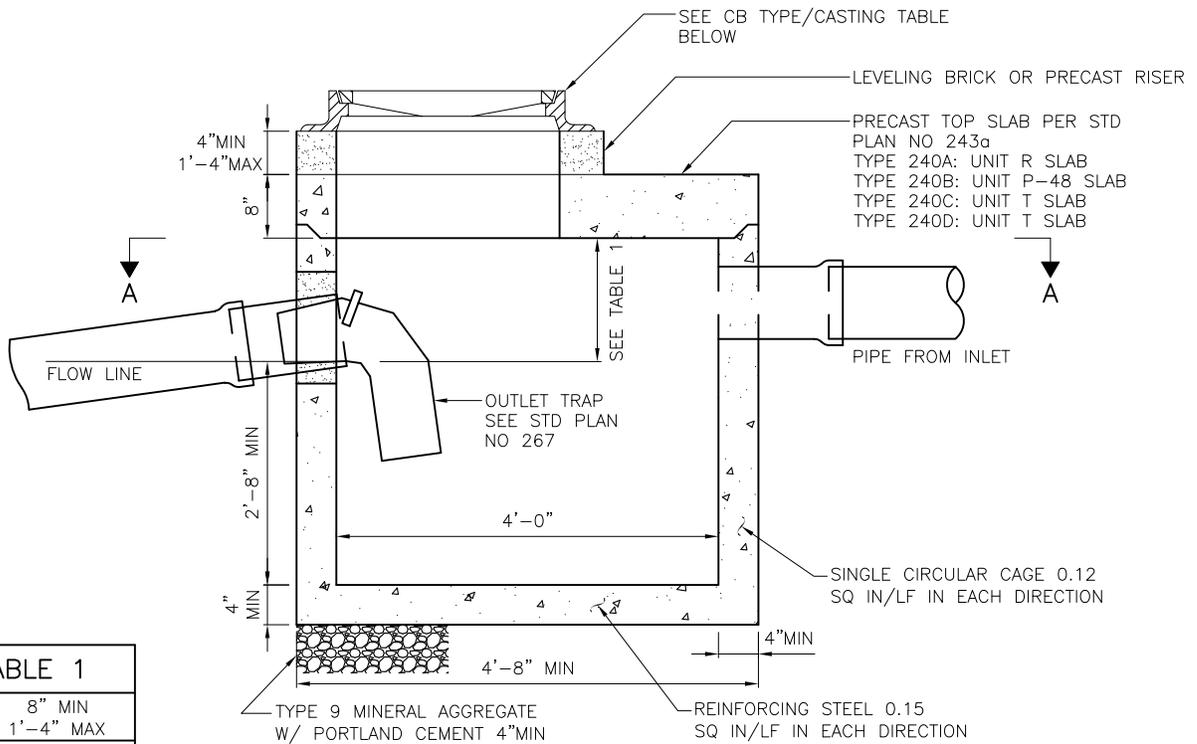
City of Seattle

NOT TO SCALE

6" OR 8" VERTICAL CONNECTION



SECTION A-A



SECTION B-B

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

NOTES:

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

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

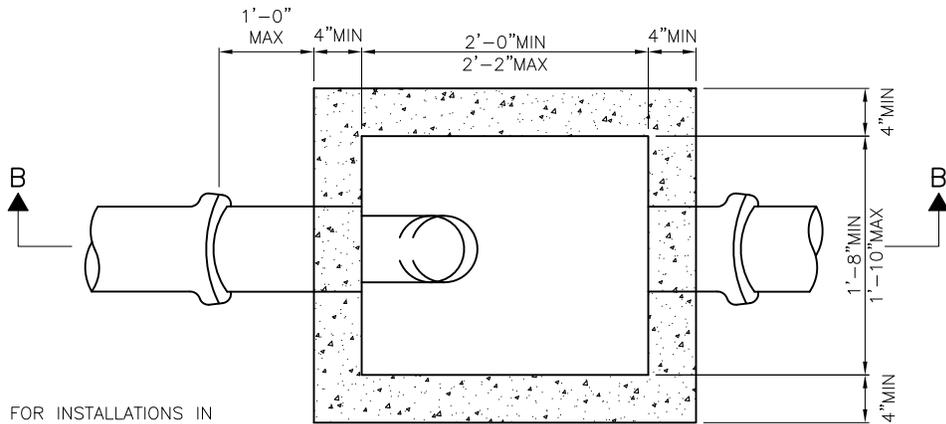
REF STD SPEC SEC 7-05



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NOT TO SCALE

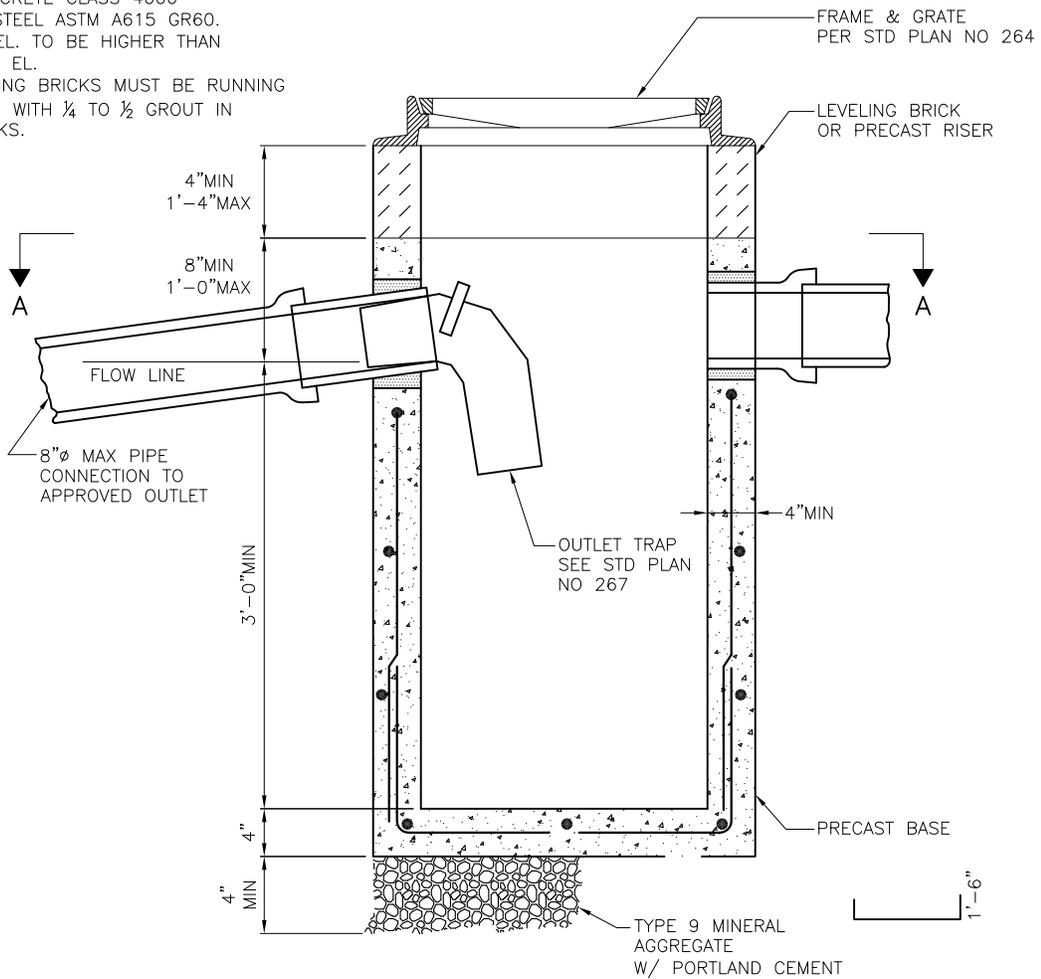
TYPE 240 CATCH BASIN



SECTION A-A

NOTES:

1. THIS CATCH BASIN IS FOR INSTALLATIONS IN ALLEYS AND UNPAVED AREAS IN THE RIGHT-OF-WAY. ANY OTHER USE IN THE R/W WILL REQUIRE THE APPROVAL OF SPU.
2. FOR CURB DISCHARGE INSTALLATION SEE STD PLAN NO 241b.
3. INSTALL PER STD PLAN NO 261.
4. MATERIAL: CONCRETE CLASS 4000 REINFORCING STEEL ASTM A615 GR60.
5. INLET INVERT EL. TO BE HIGHER THAN OUTLET INVERT EL.
6. USE OF LEVELING BRICKS MUST BE RUNNING BOND PATTERN WITH ¼ TO ½ GROUT IN BETWEEN BRICKS.



SECTION B-B

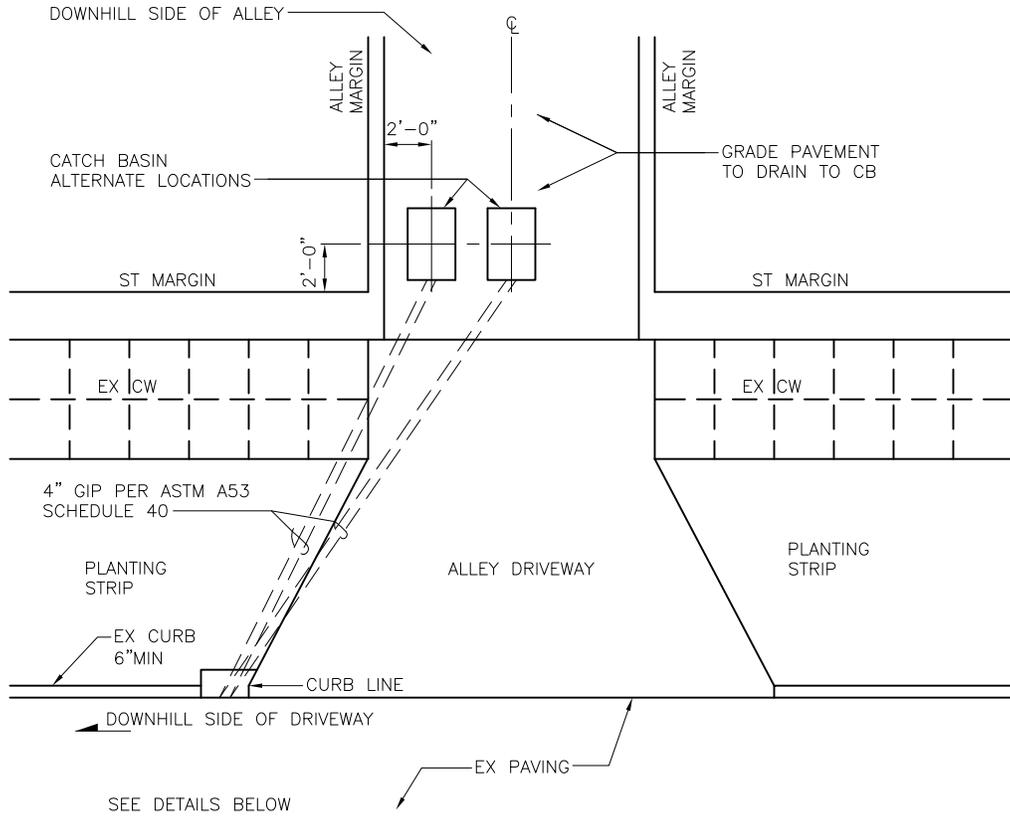
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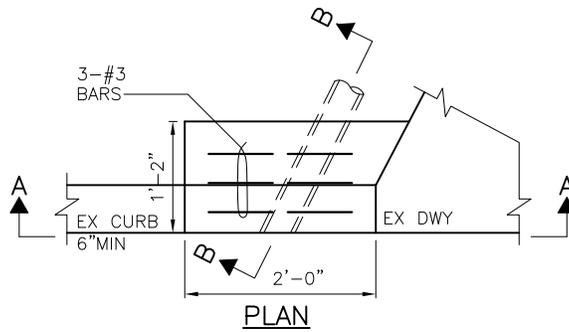
City of Seattle

NOT TO SCALE

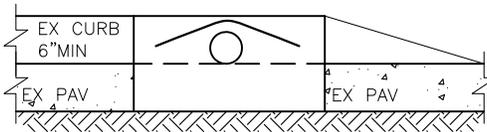
TYPE 241 CATCH BASIN



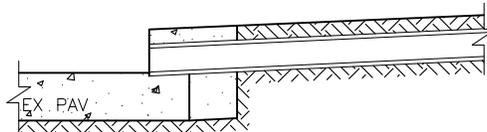
PLAN



PLAN



SECTION A-A



SECTION B-B

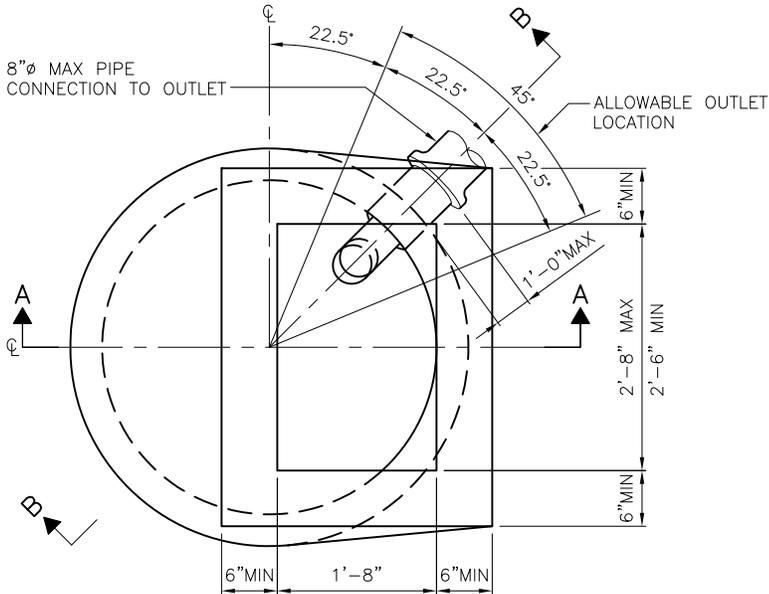
REF STD SPEC SEC 7-05 & 7-08



City of Seattle

NOT TO SCALE

TYPE 241 CATCH BASIN INSTALLATIONS

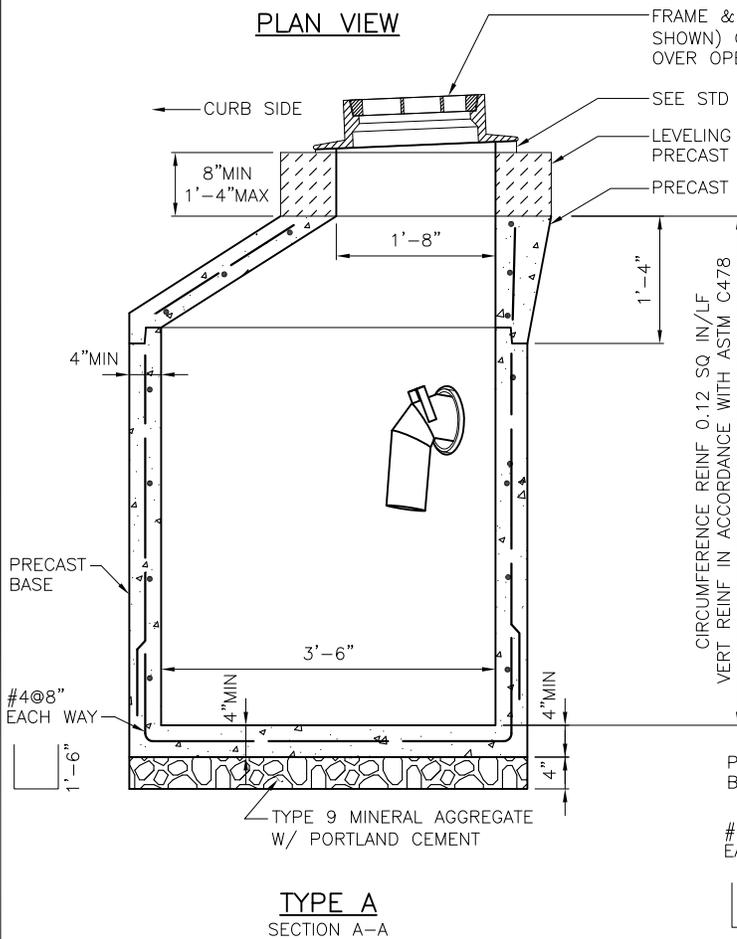


CB TYPE	CASTING		
	FRAME	GRATE	HOOD
A	NO 262	NO 265	NONE
B	NO 263A	NO 265	NO 263A
C	NO 263A	NO 265	NO 263B

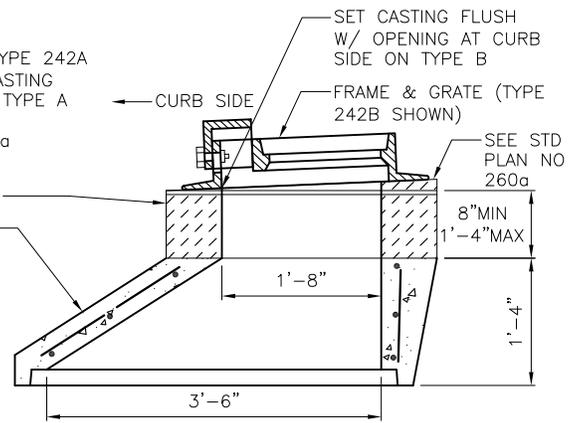
NOTES:

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

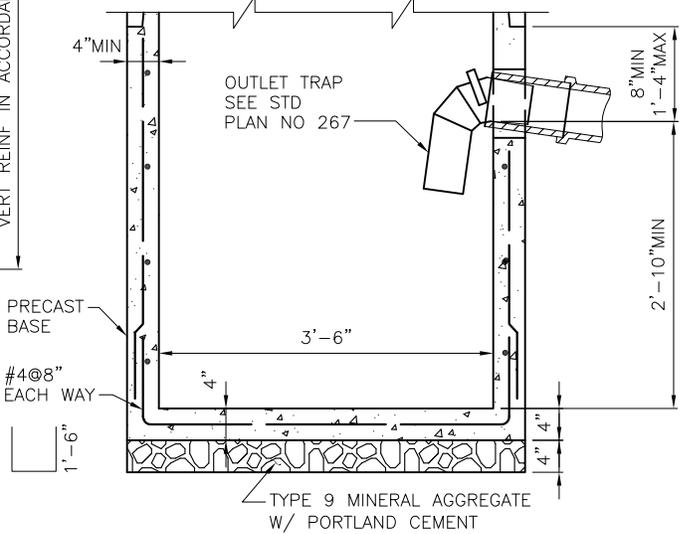
PLAN VIEW



TYPE A
SECTION A-A



TYPE B
SECTION A-A



TYPE A & B
SECTION B-B

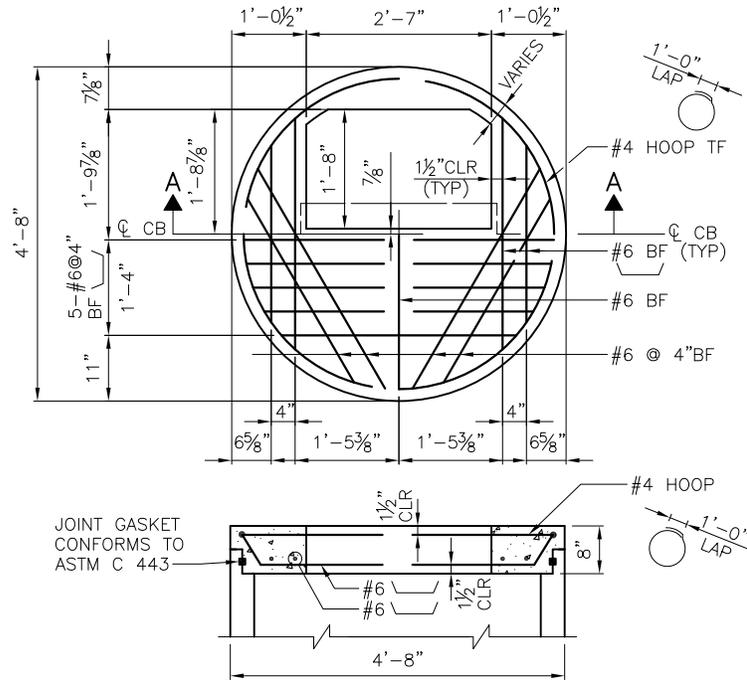
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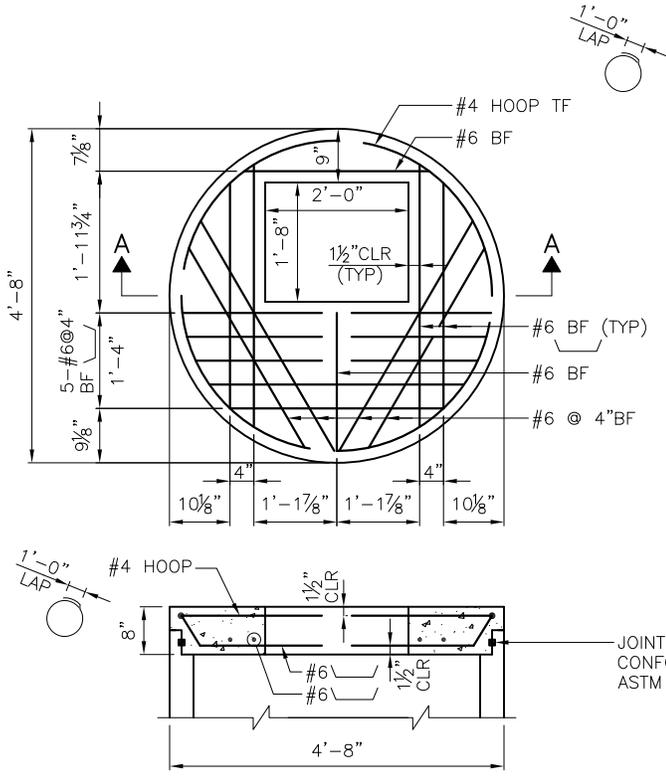
City of Seattle

NOT TO SCALE

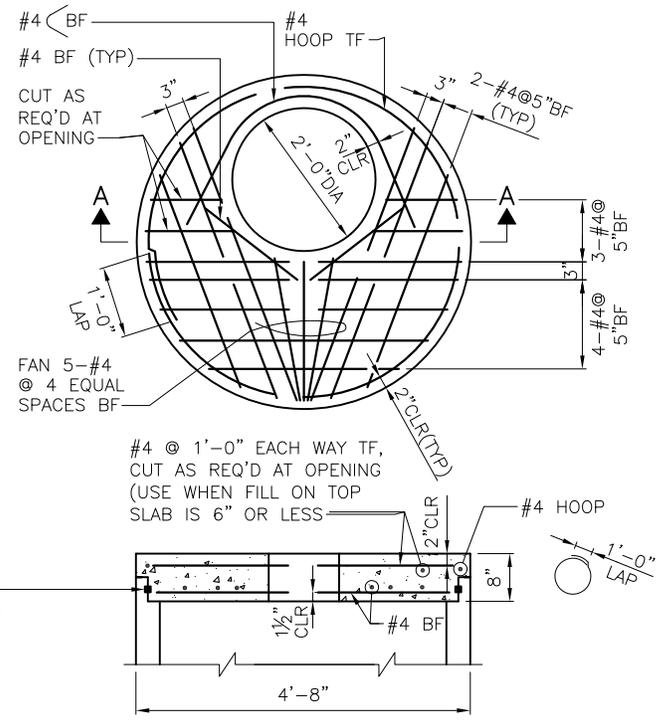
TYPE 242 CATCH BASIN



UNIT T
SECTION A-A



UNIT P-48
SECTION A-A



UNIT R
SECTION A-A

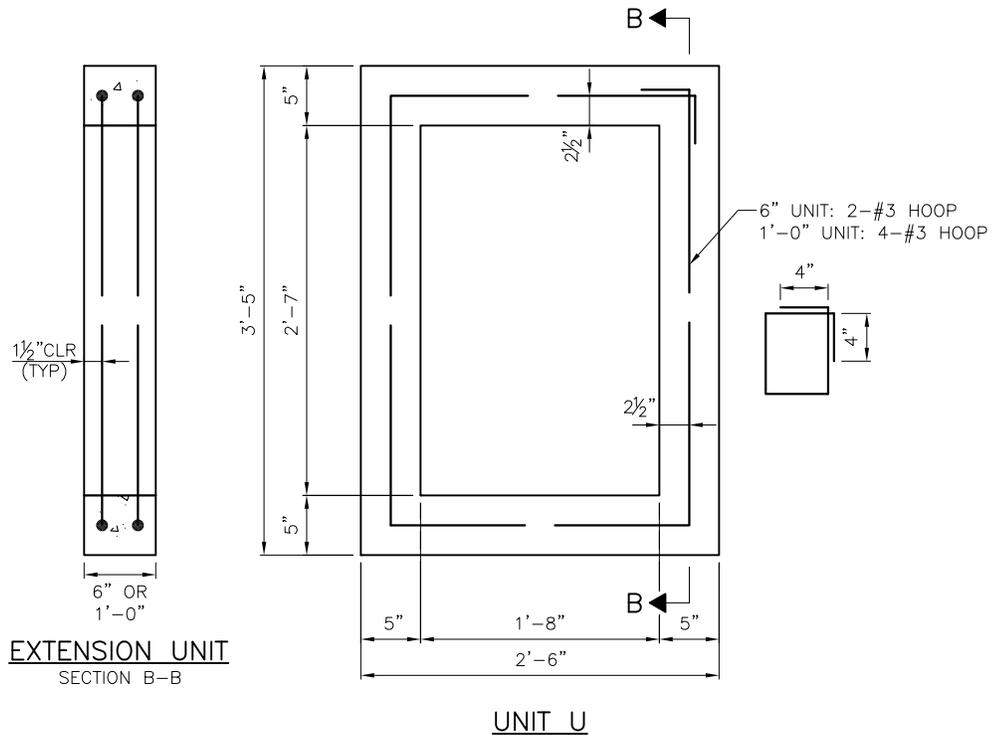
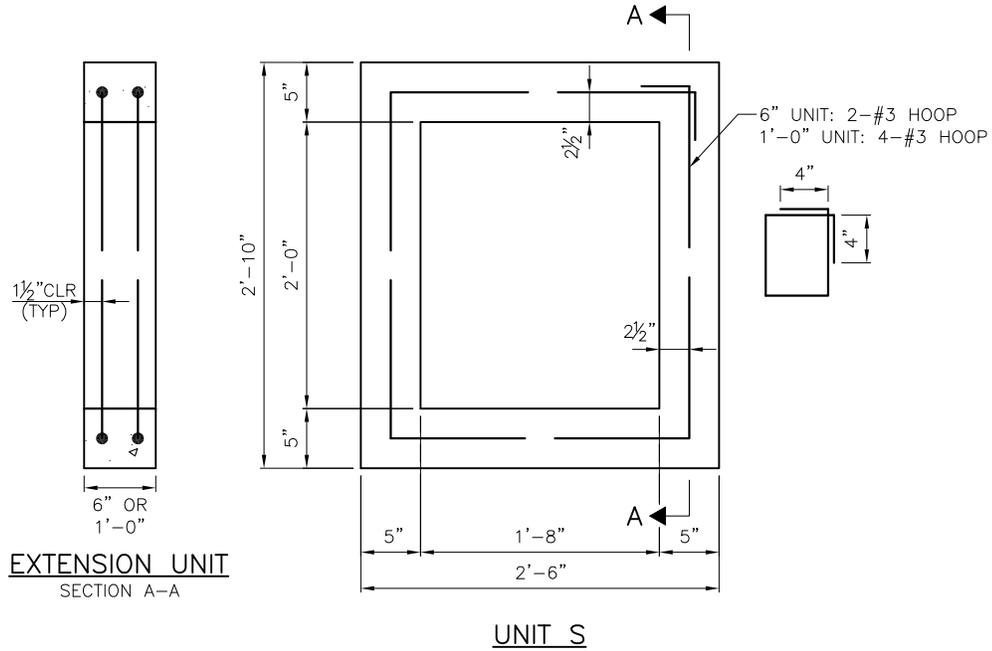
REF STD SPEC SEC 7-05



City of Seattle

NOT TO SCALE

**PRECAST CATCH BASIN
TOP SLAB**



NOTES:

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

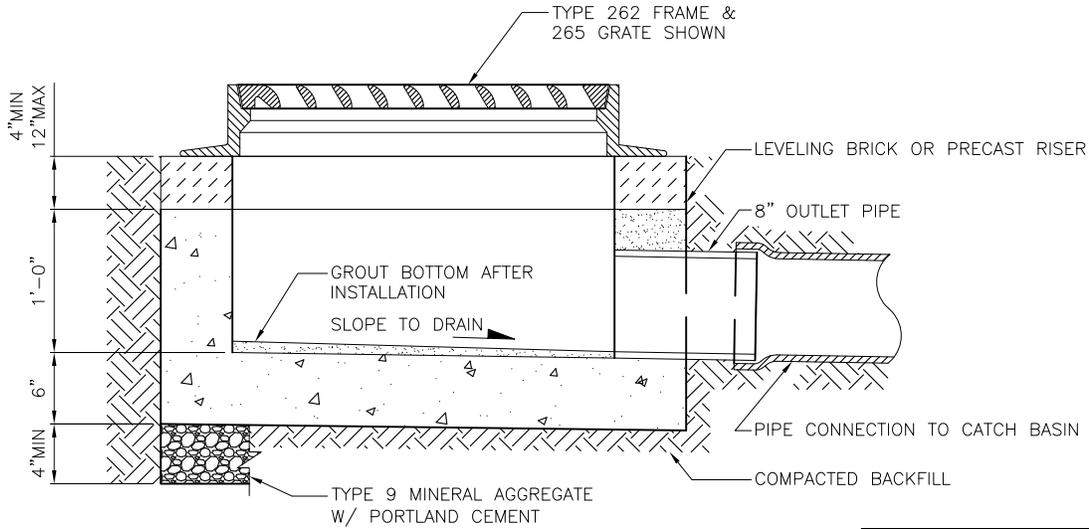
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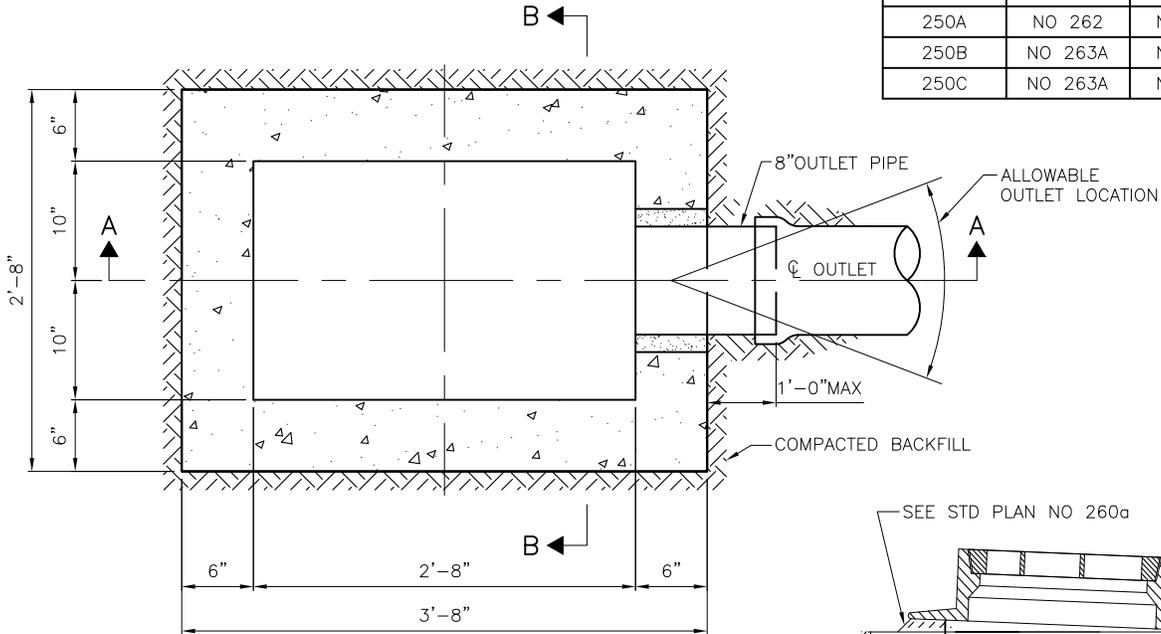
NOT TO SCALE

**PRECAST CATCH BASIN
EXTENSION RISERS**

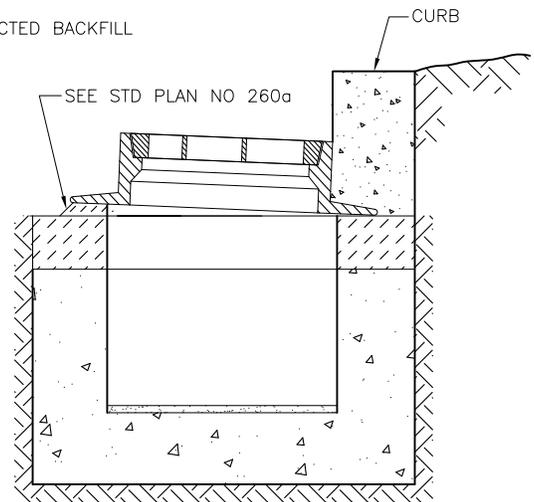


SECTION A-A

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



PLAN VIEW



SECTION B-B
TYPE A ONLY

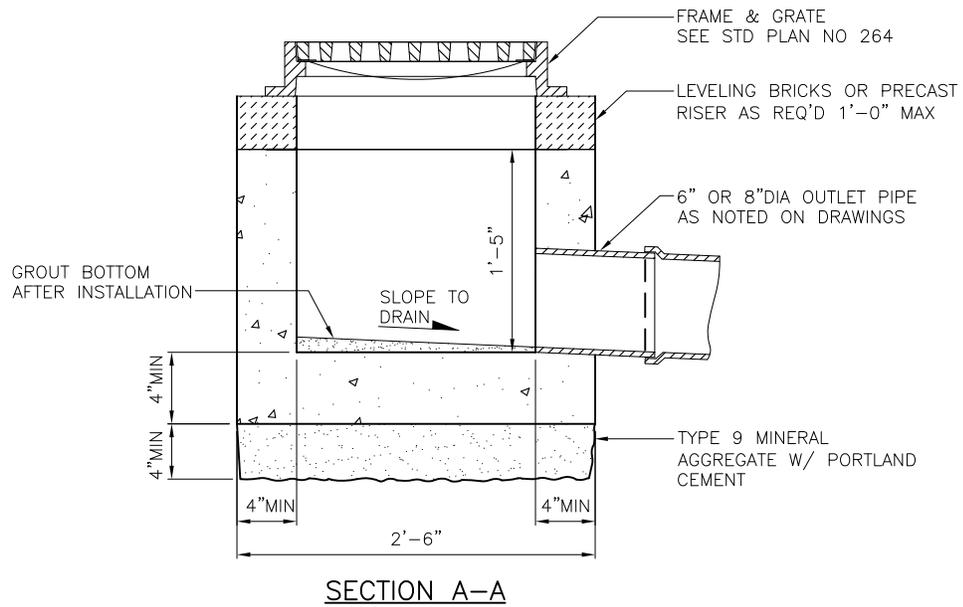
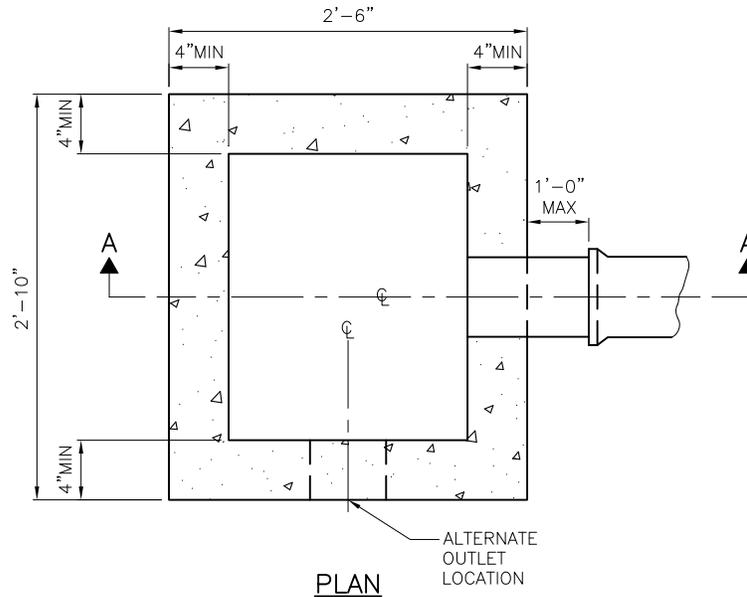
REF STD SPEC SEC 7-05



City of Seattle

NOT TO SCALE

TYPE 250 INLET



REF STD SPEC SEC 7-05

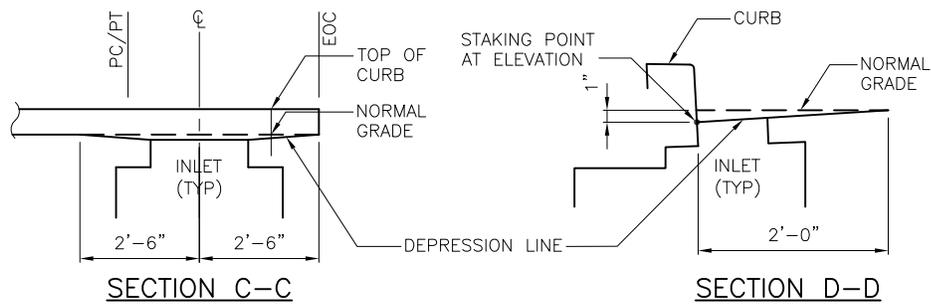
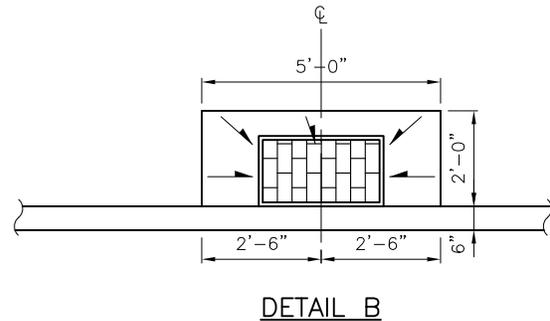
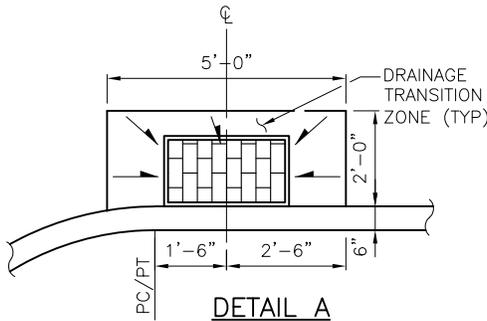
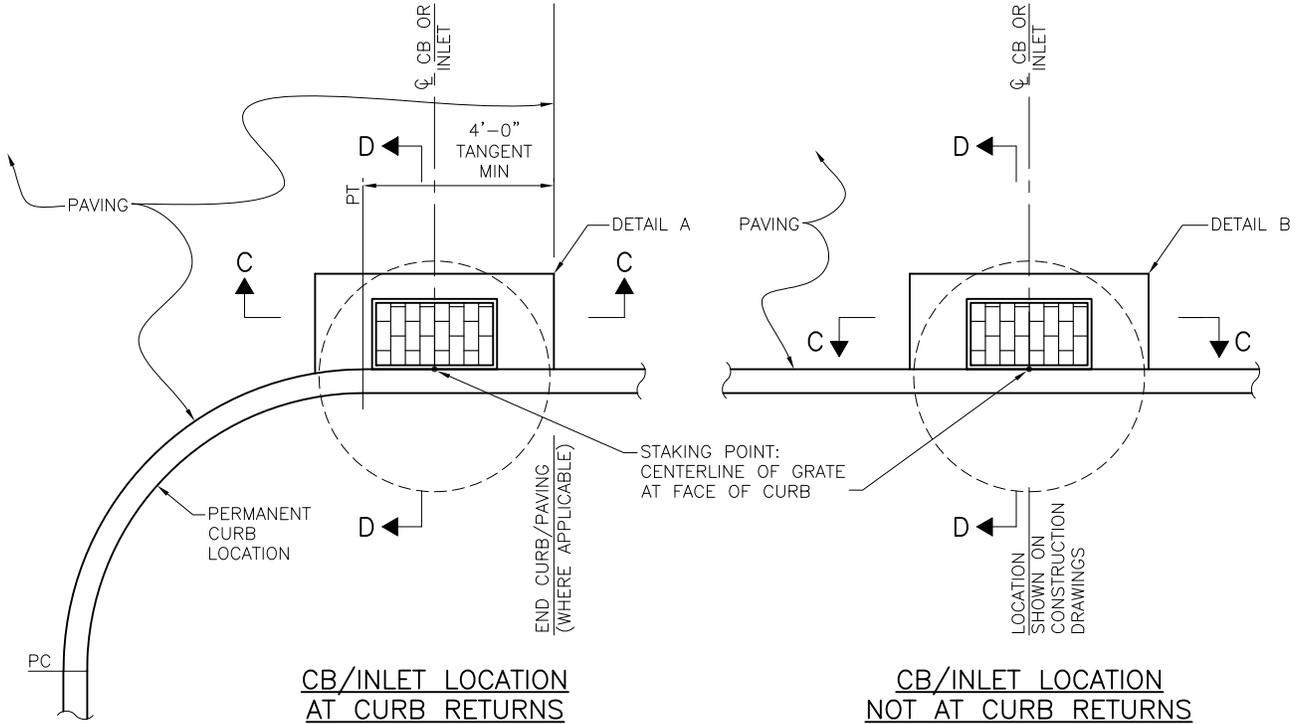


City of Seattle

NOT TO SCALE

TYPE 252 INLET

DRAFT



NOTES:

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

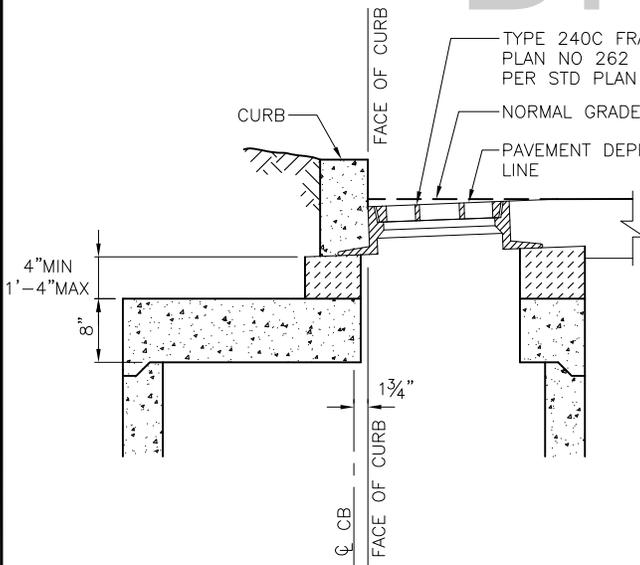
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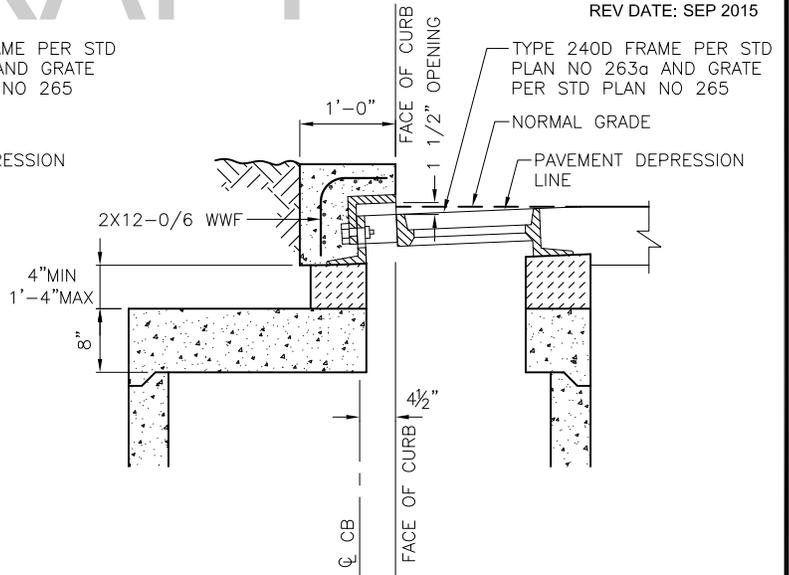
City of Seattle

NOT TO SCALE

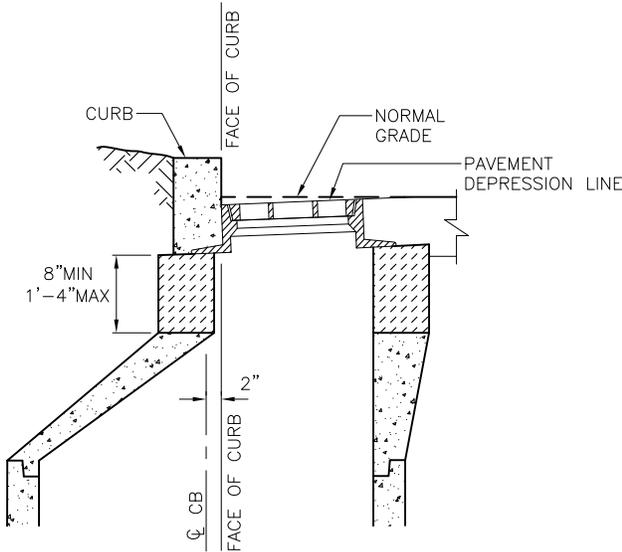
INLET / CATCH BASIN LOCATION & INSTALLATION



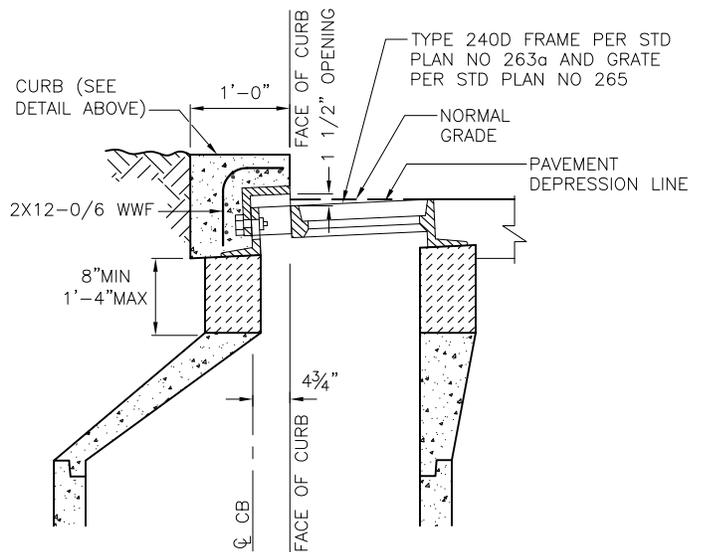
TYPE 240C CB



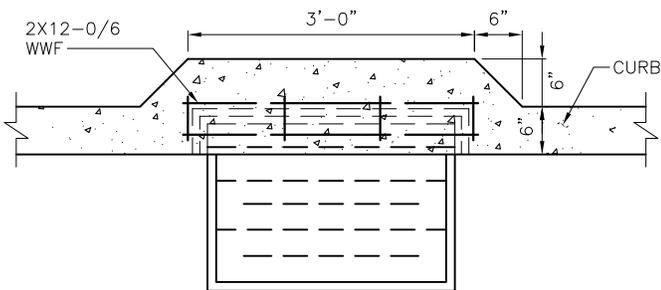
TYPE 240D CB



TYPE 242A CB
(TYPE 250A INLET SIMILAR)



TYPE 242B CB
(TYPE 250B INLET SIMILAR)



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

REF STD SPEC SEC 7-05

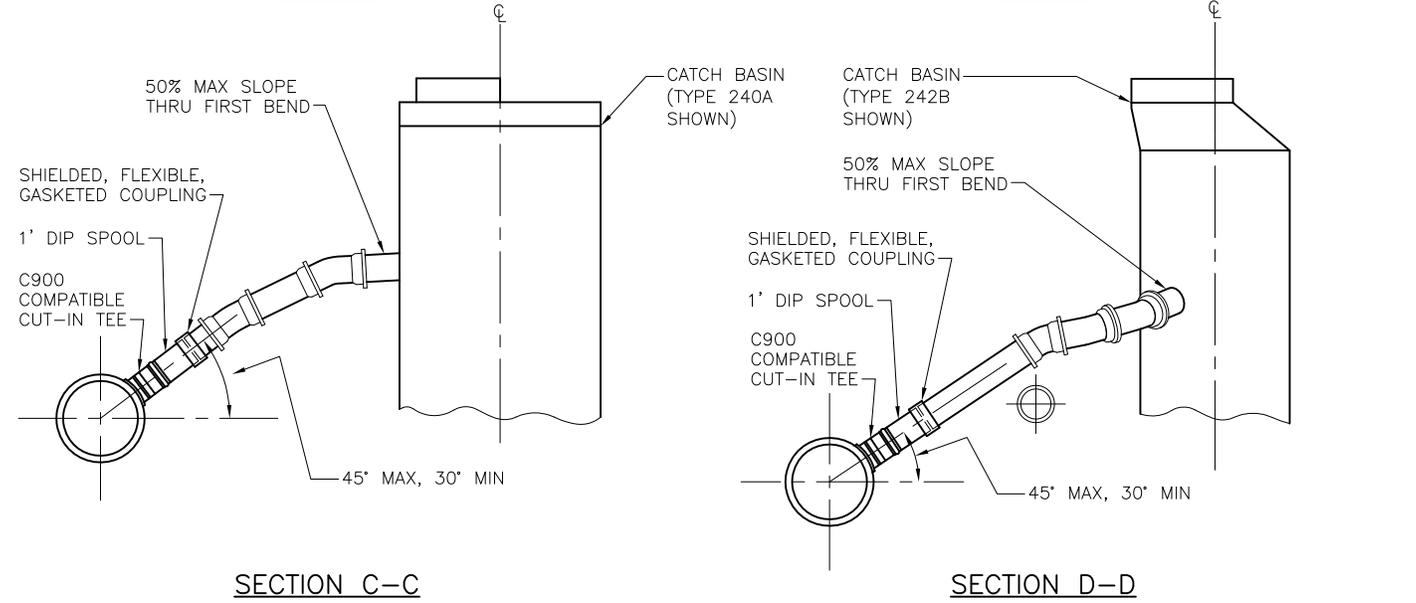
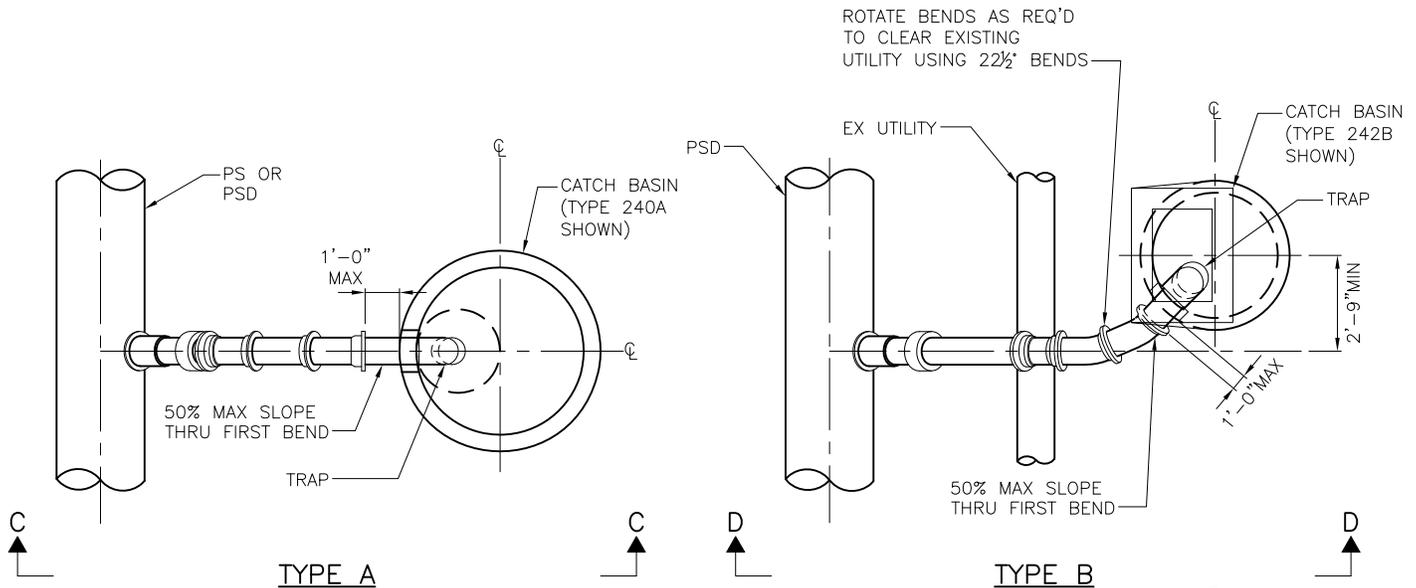


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CATCH BASIN &
INLET INSTALLATION

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NOTES:

1. TYPE A CONNECTIONS MUST BE USED WITH CB TYPES 240A, 240B AND 241.
2. TYPE B CONNECTIONS MUST BE USED WITH CB TYPES 240C, 240D, 242A AND 242B.
3. CONNECTIONS MUST MAINTAIN A MINIMUM OF 2% AND A MAXIMUM OF 100% GRADE.
4. MAX BEND MUST BE 22½° OR ¼ BEND. USE OF ¼ BEND REQUIRES APPROVAL BY SPU.
5. 1' DI SPOOL AND COUPLING REQUIRED WITH CUT-IN TEE.

REF STD SPEC SEC 7-08

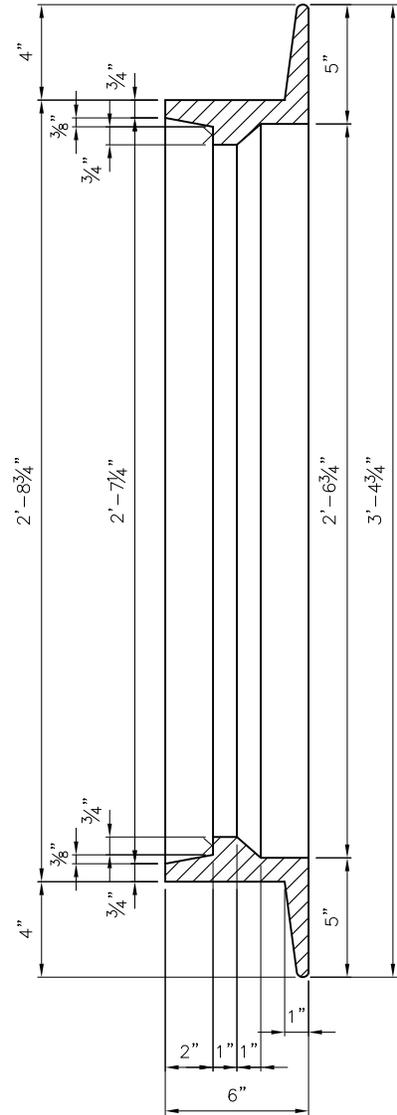
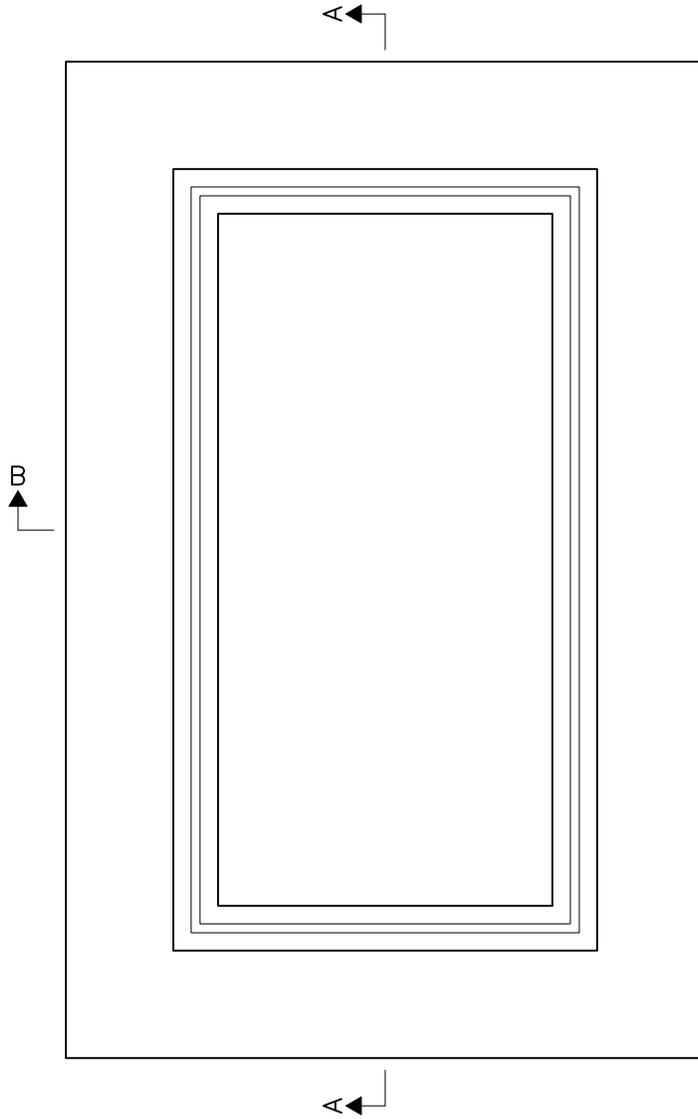


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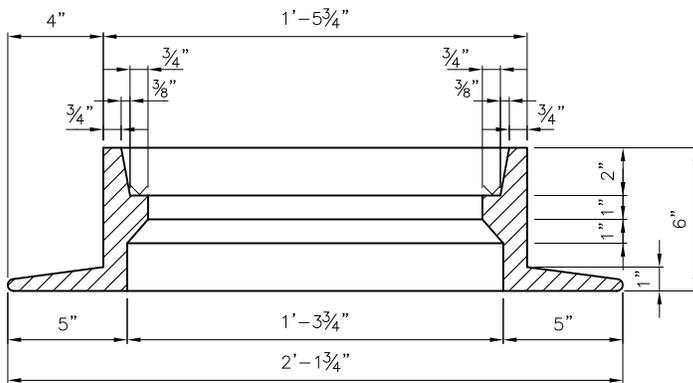
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TYPICAL CATCH BASIN CONNECTION

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SECTION A-A



SECTION B-B

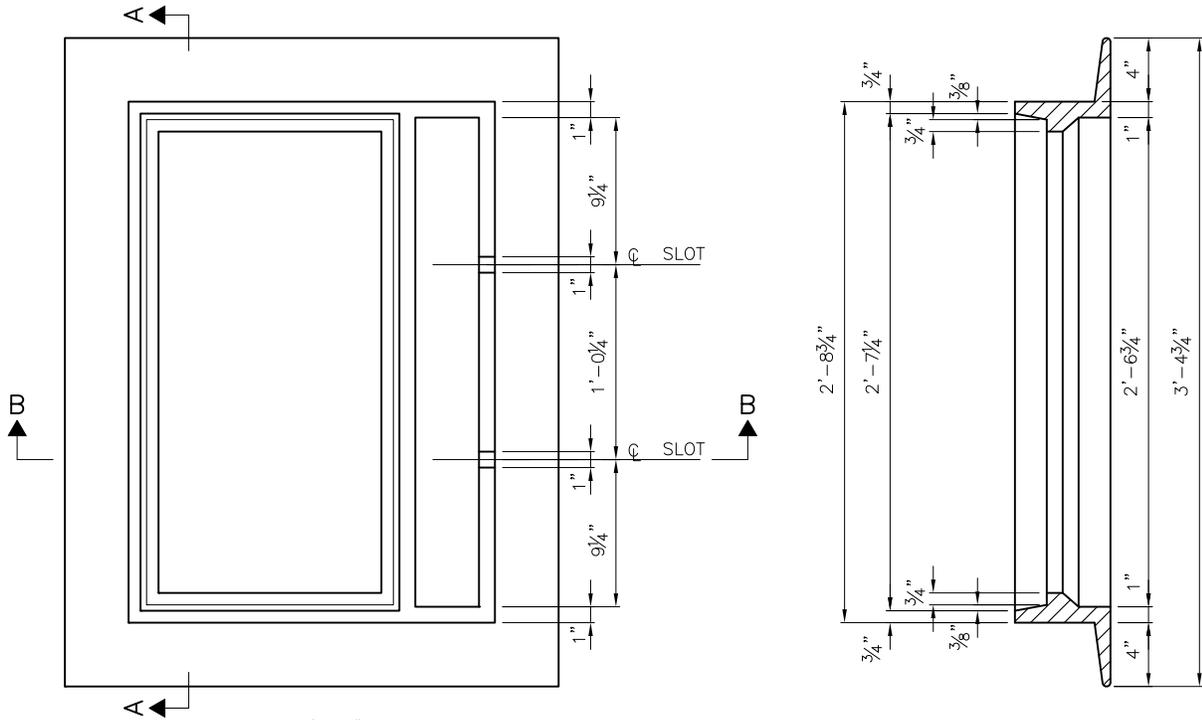
REF STD SPEC SEC 9-12



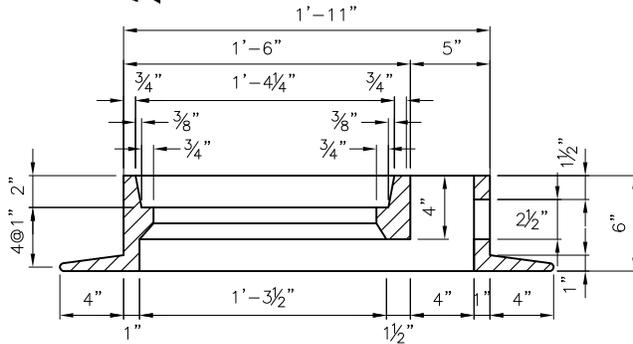
City of Seattle

NOT TO SCALE

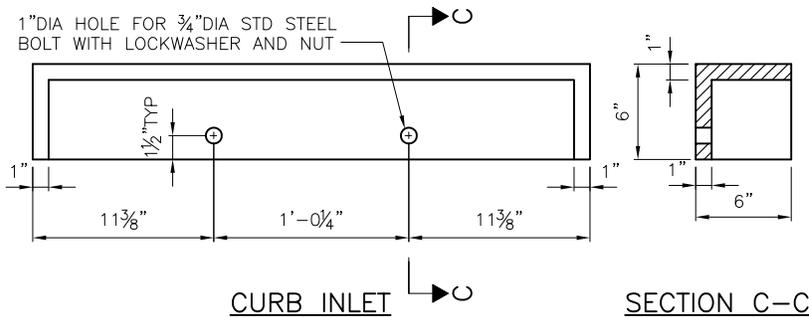
TYPE 262 INLET FRAME



SECTION A-A



SECTION B-B



CURB INLET

SECTION C-C

REF STD SPEC SEC 9-12

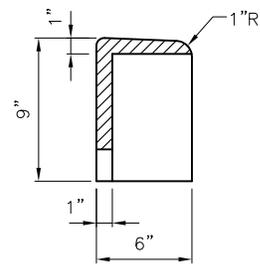
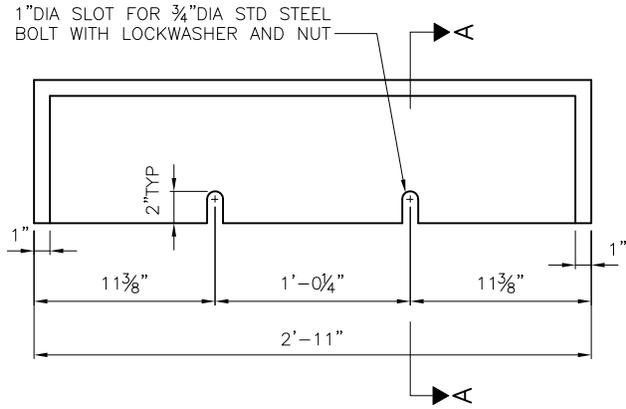


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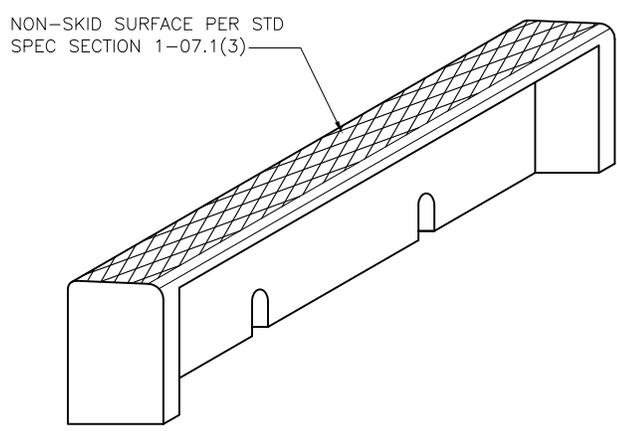
TYPE 263 INLET FRAME AND HOOD

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SECTION A-A

CURB INLET



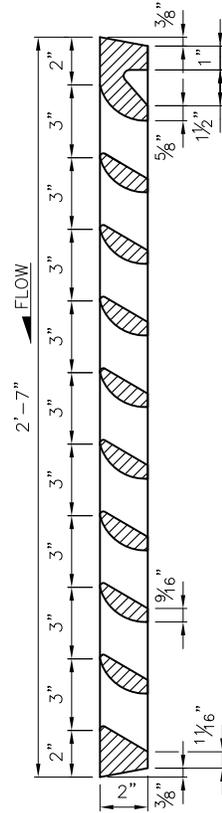
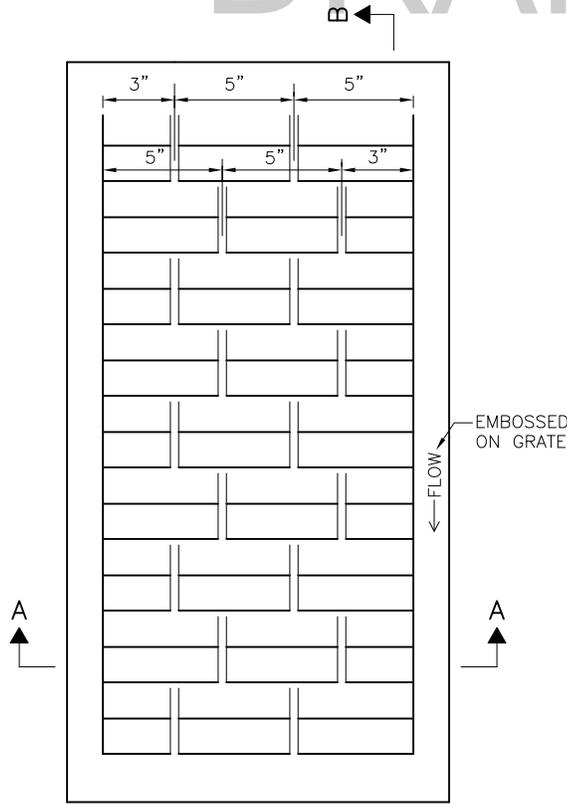
REF STD SPEC SEC 9-12



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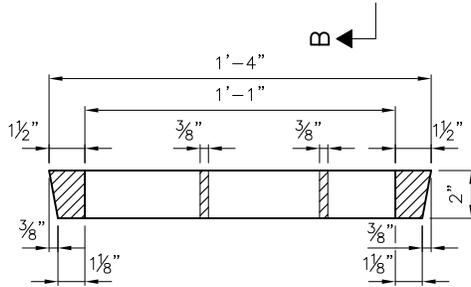
NOT TO SCALE

TYPE 263 ALTERNATIVE INLET HOOD

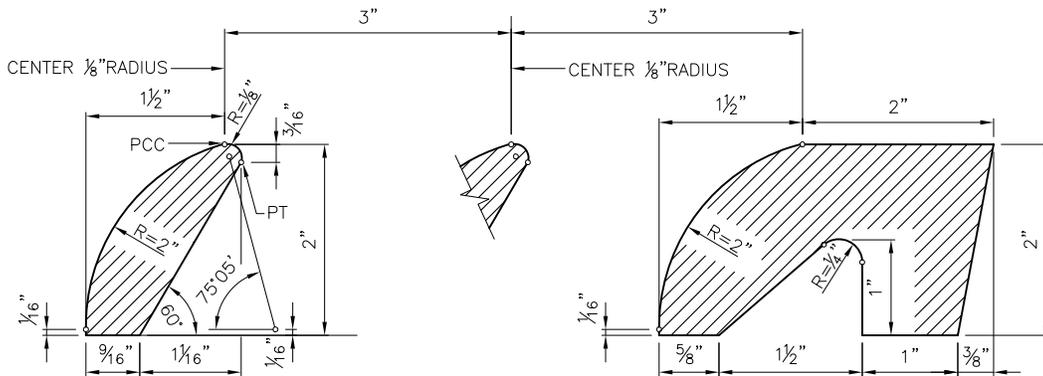


SECTION B-B

GRATE MATERIAL:
DUCTILE IRON



SECTION A-A



VANE DETAIL

END DETAIL

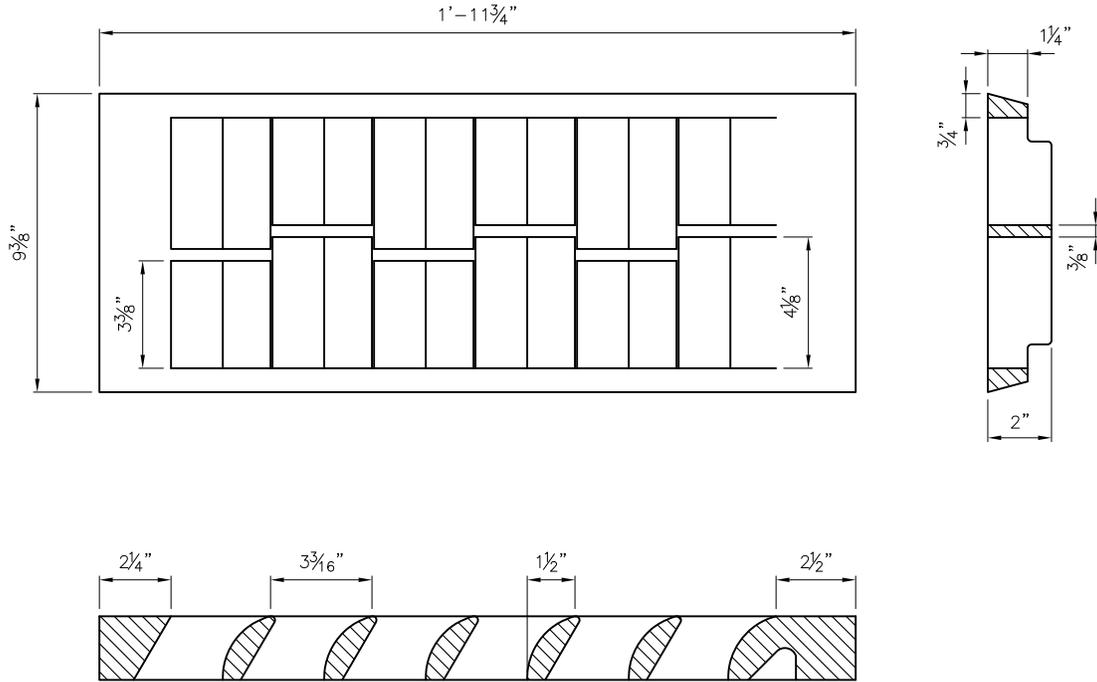
REF STD SPEC SEC 7-05



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VANED GRATE



NOTES:

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

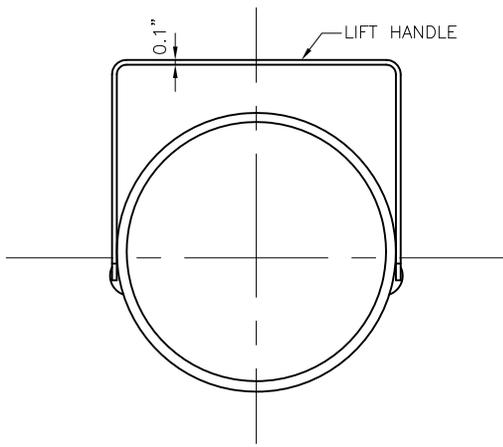
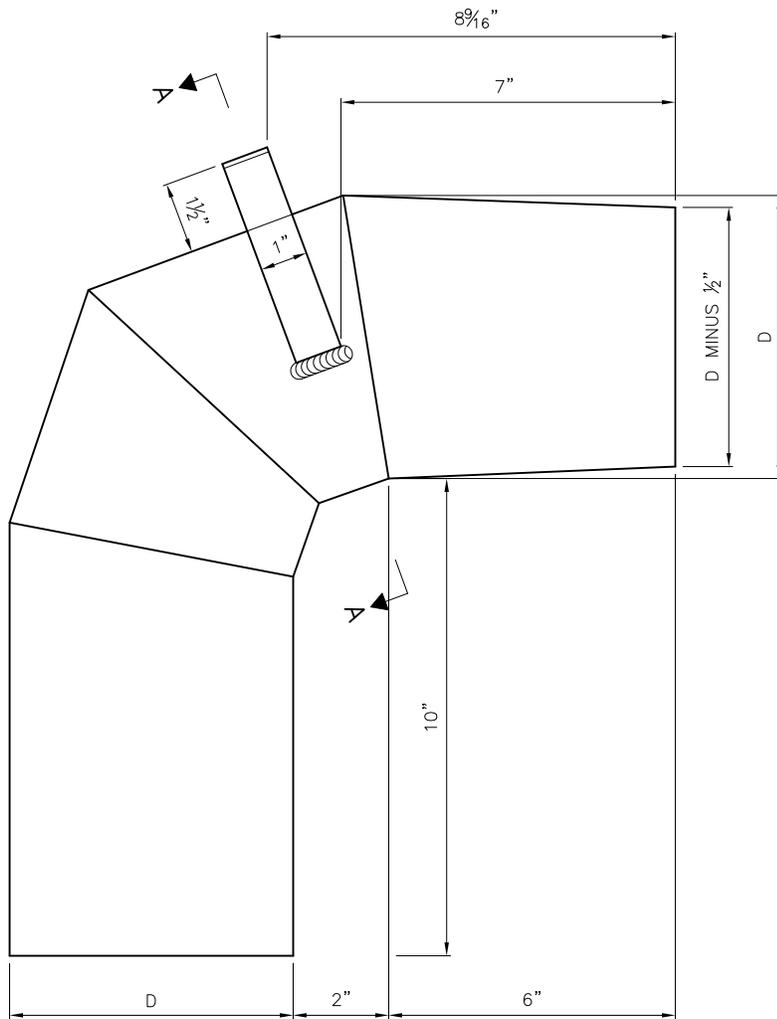
REF STD SPEC SEC 7-20.3(7), 9-12



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**TYPE 266 REPLACEMENT
VANED GRATE**



SECTION A-A
NTS

NOTES:

1. TRAP TO BE MADE OF 22 GA SHEET METAL OR 16 GA ALUMINUM
2. ALL JOINTS TO BE SEAMED AND SOLDERED, OR WELDED
3. ALL LONGITUDINAL JOINTS TO BE RIVETED OR WELDED
4. DIAMETER "D" IS NOMINAL DIAMETER OF OUTLET PIPE
5. LIFT HANDLE MUST BE WELDED TO OUTSIDE OF TRAP (1" WIDE X 0.1" THICK)

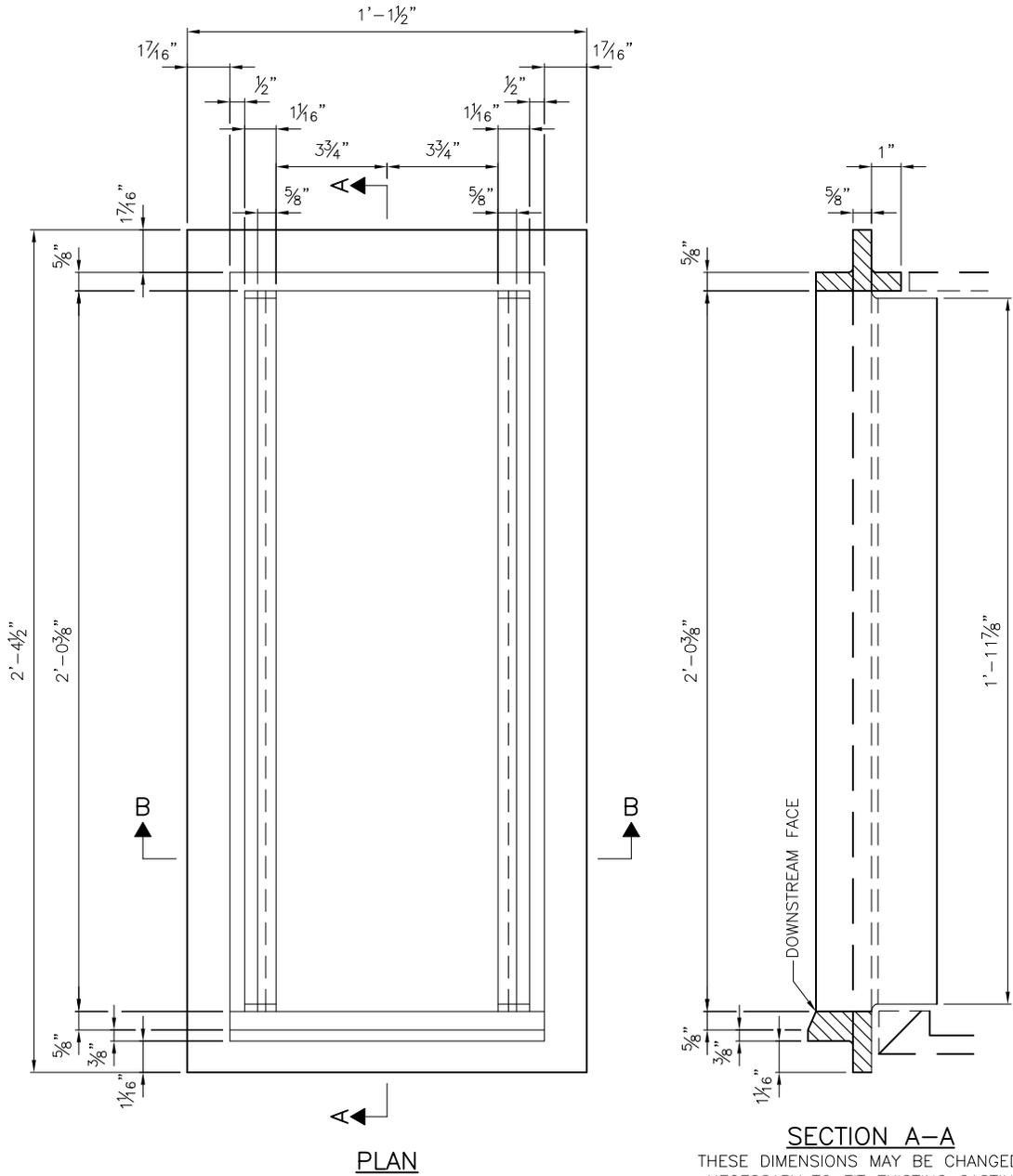
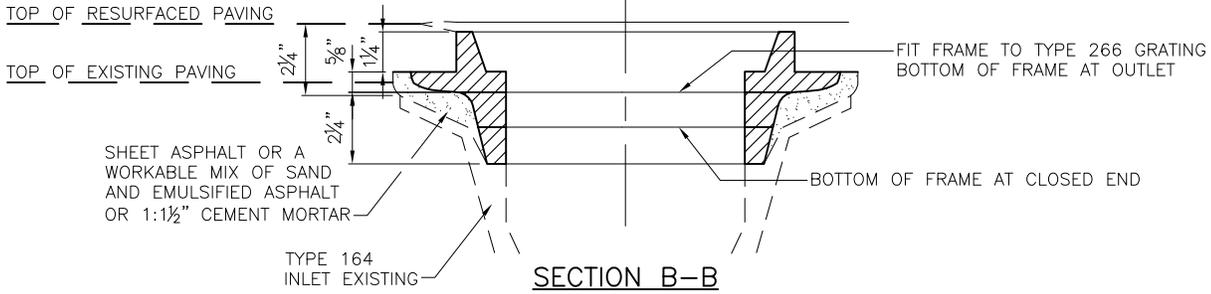
REF STD SPEC SEC 9-12



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OUTLET TRAP



THESE DIMENSIONS MAY BE CHANGED IF NECESSARY TO FIT EXISTING CASTINGS

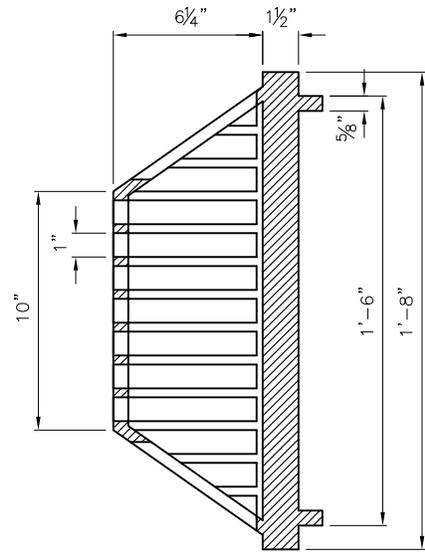
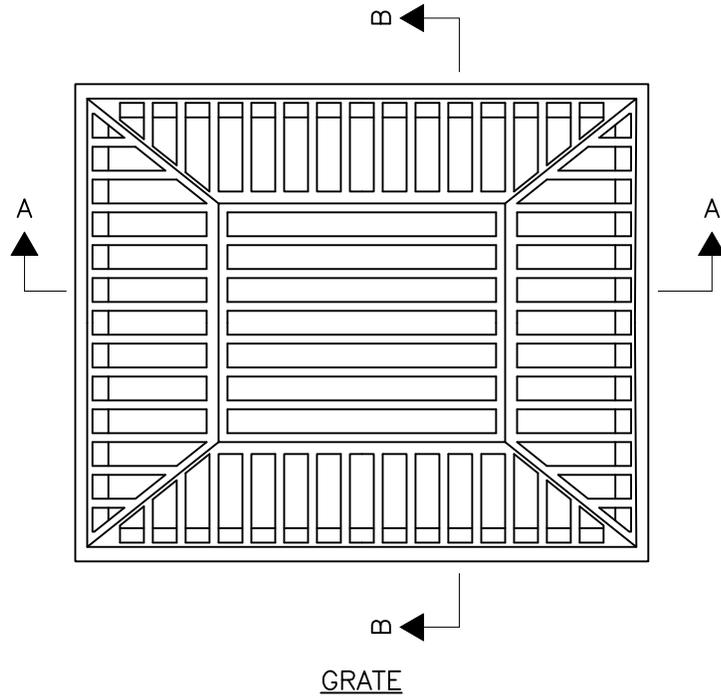
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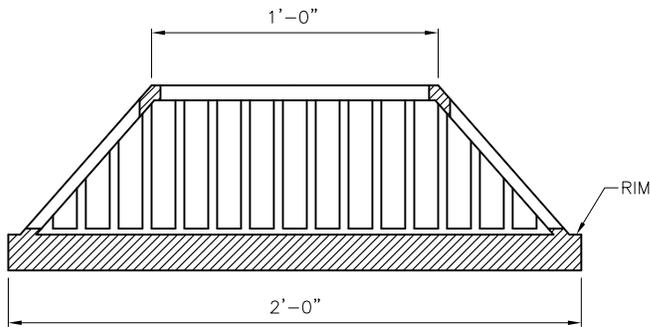
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NOT TO SCALE

EXTENSION FOR INLET



SECTION B-B



SECTION A-A

NOTES:

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

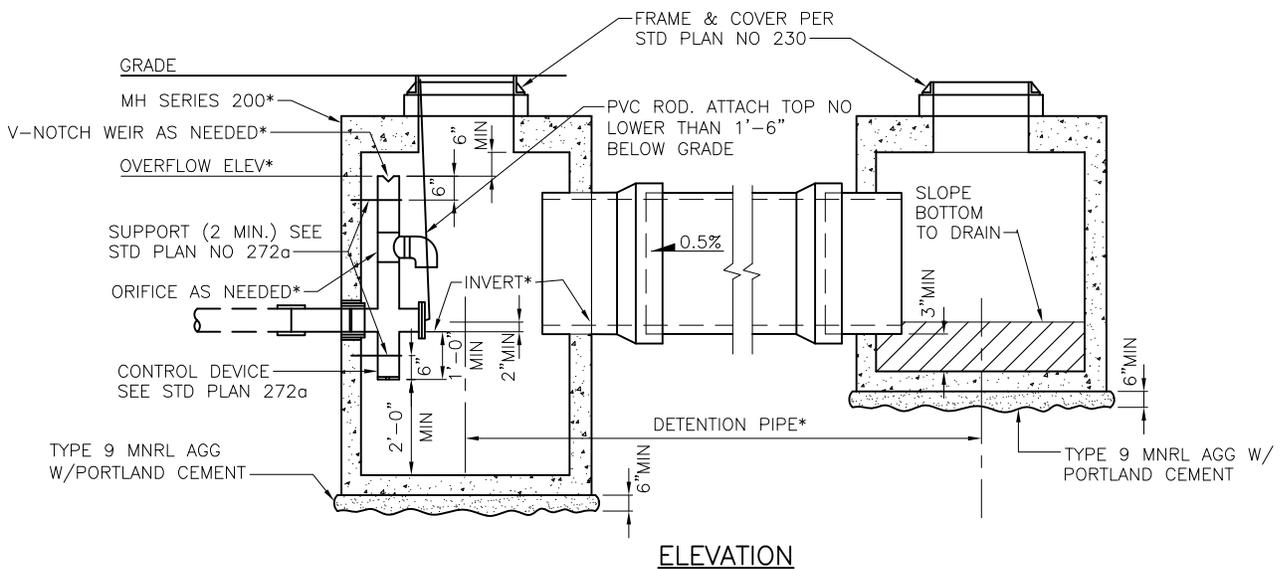
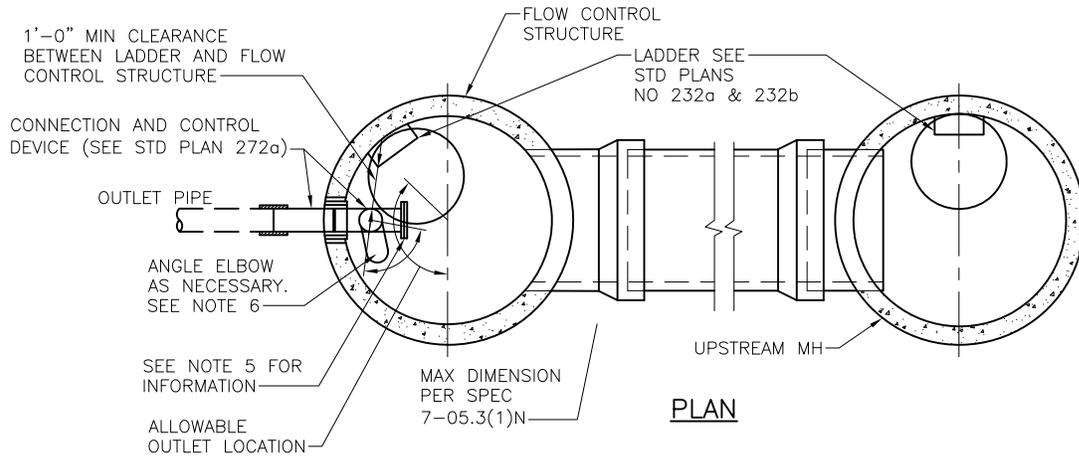
REF STD SPEC SEC 9-12



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BEEHIVE GRATE FOR
BIORETENTION



NOTES:

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

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

*SPECIFIC DESIGN INFORMATION AS INDICATED ON CONSTRUCTION DRAWINGS

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

REF STD SPEC SEC 7-16

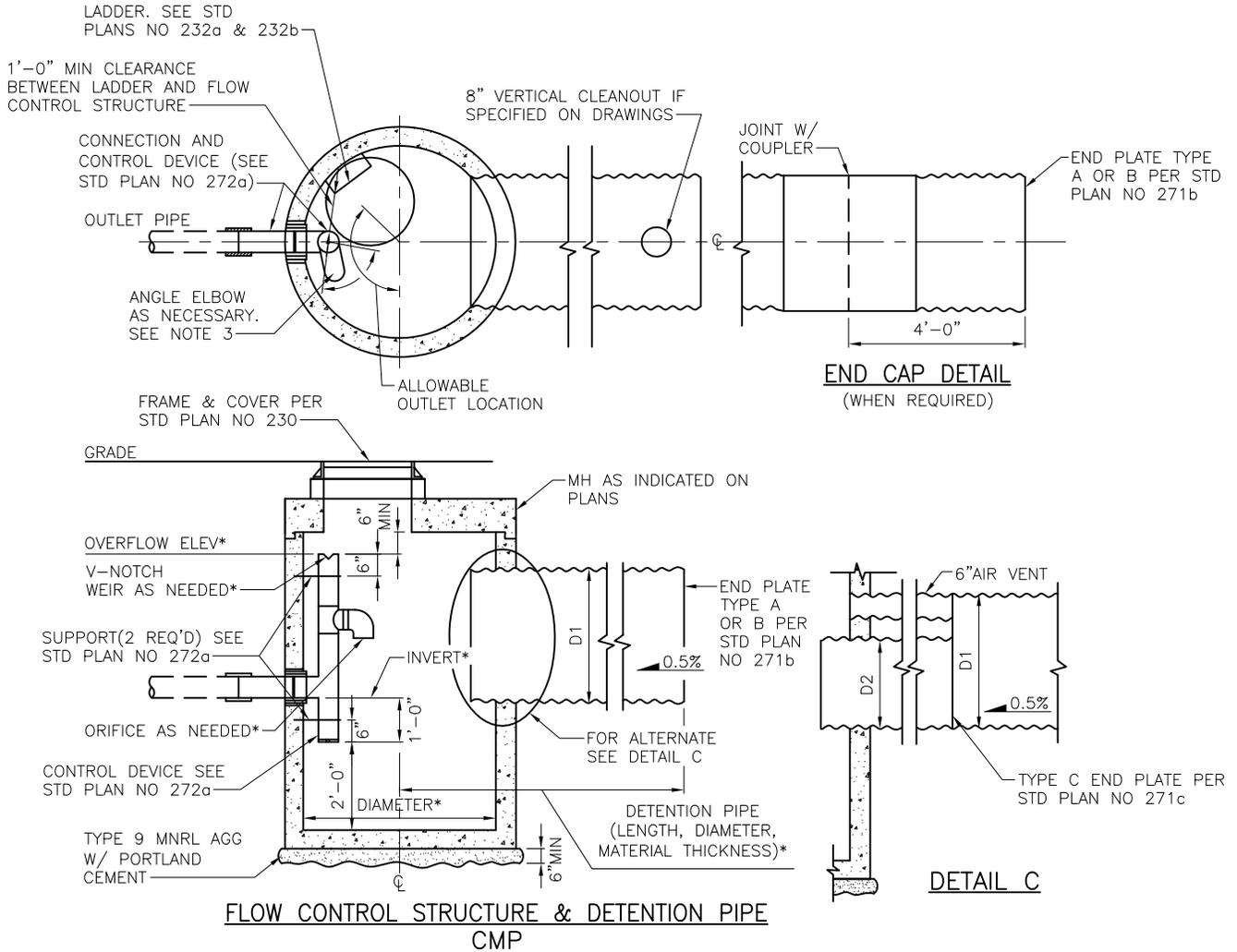


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FLOW CONTROL STRUCTURE WITH DETENTION PIPE

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NOTES:

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

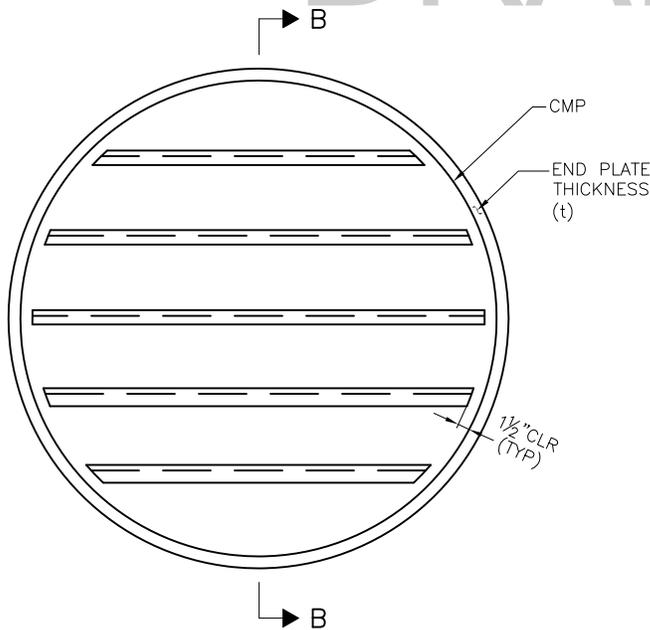
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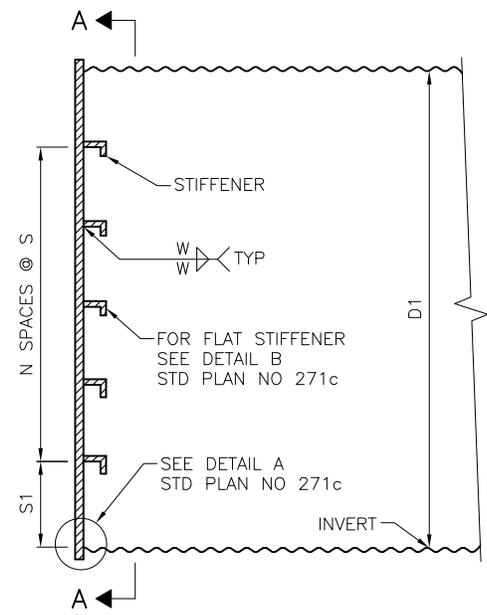
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**CMP DETENTION PIPE
PRIVATE SYSTEM ONLY**

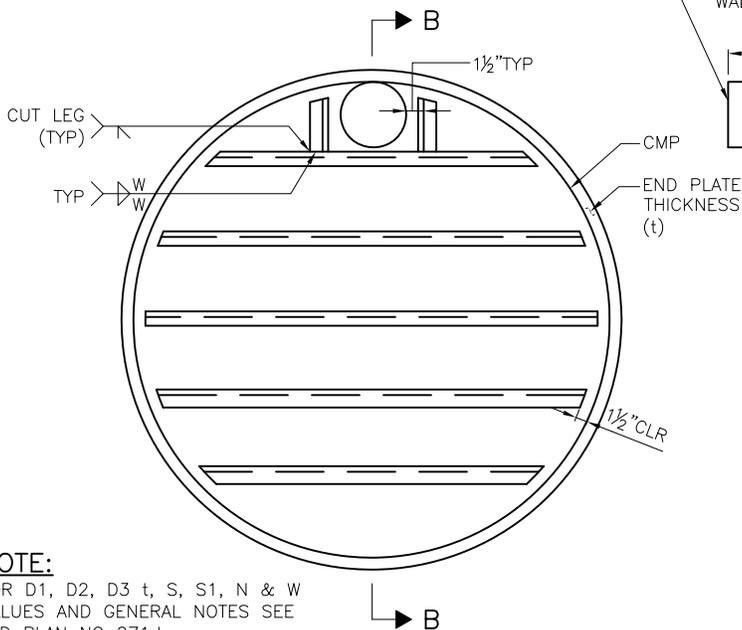


SECTION A-A

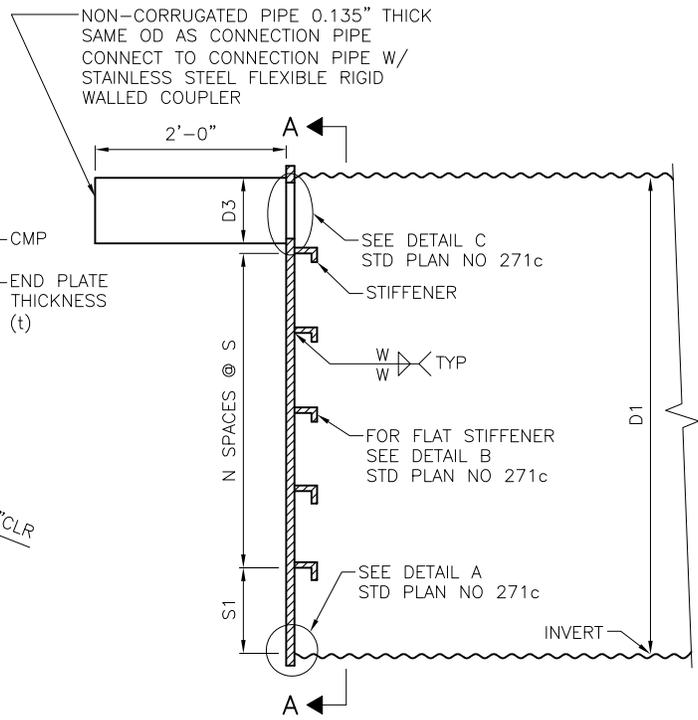


SECTION B-B

TYPE A



SECTION A-A



SECTION B-B

TYPE B

NOTE:

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

REF STD SPEC SEC 7-16

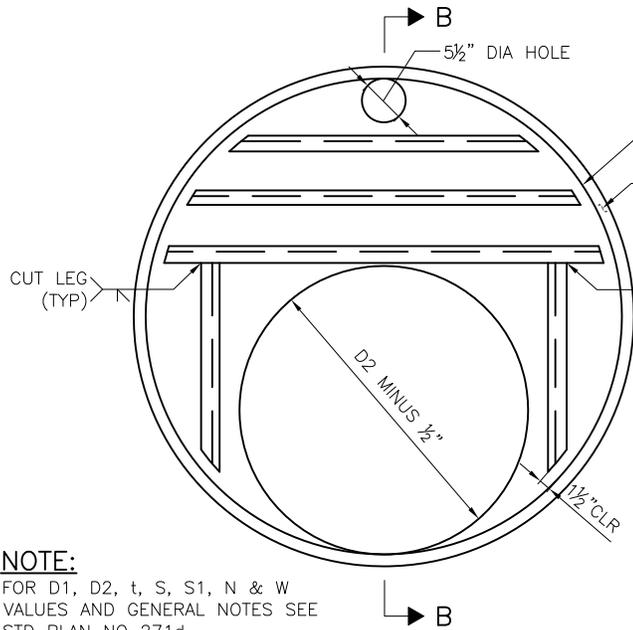


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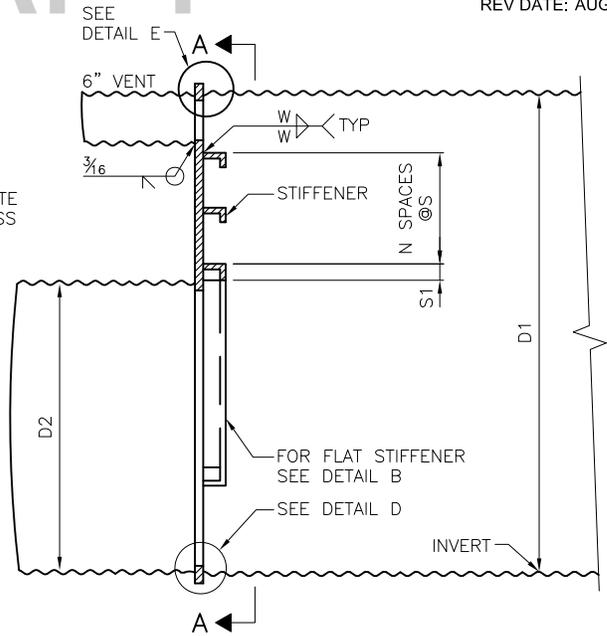
NOT TO SCALE

**CMP DETENTION STRUCTURE
END PLATE DETAILS
TYPES A & B**

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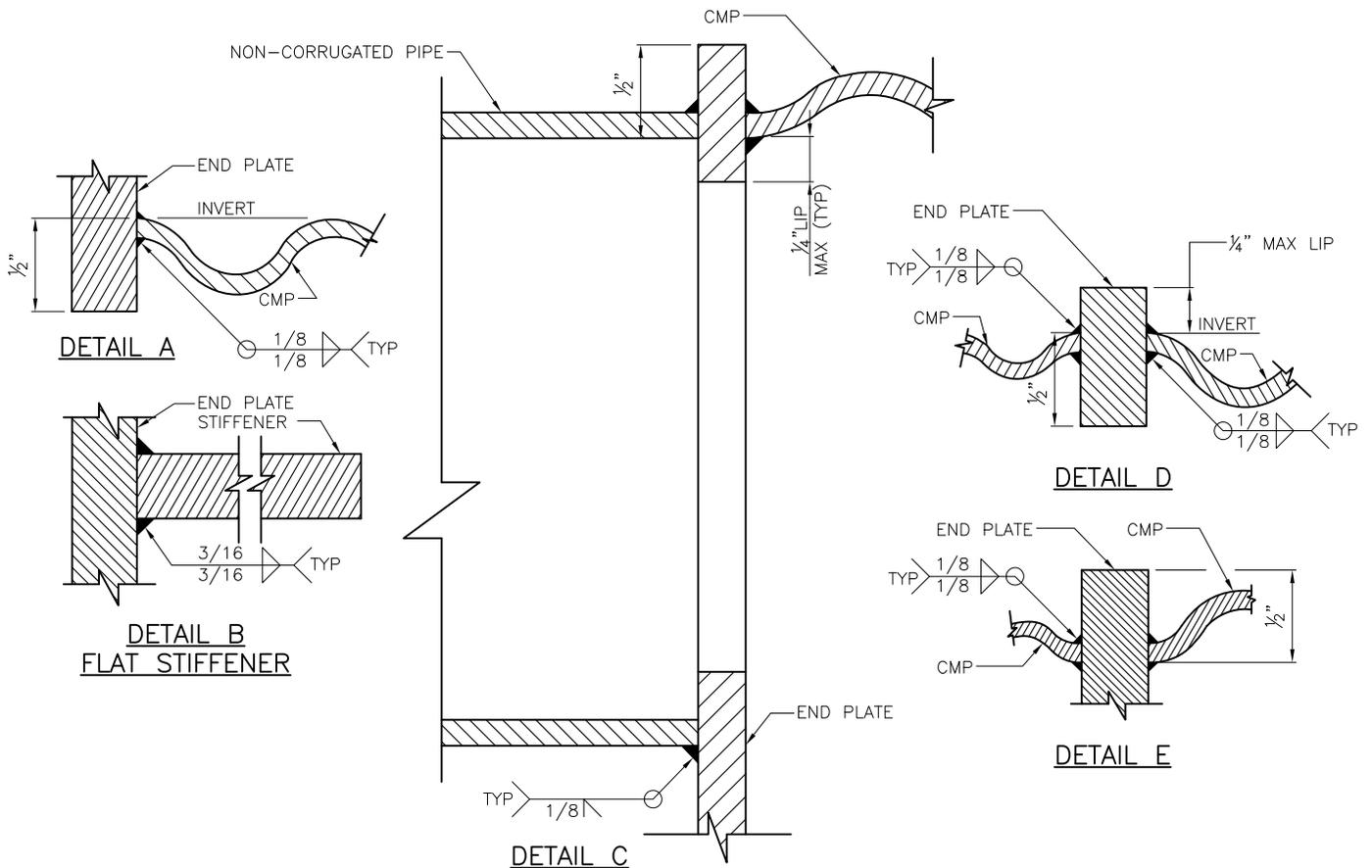
SECTION A-A



SECTION B-B

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

TYPE C



REF STD SPEC SEC 7-16



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**CMP DETENTION STRUCTURE
END PLATE DETAILS
TYPE C**

PIPE DIAMETER			END PLATE THICKNESS t	STIFFENER TYPE & SIZE	STIFFENER SPACING			SIZE W
D1	D2	D3			S1	S	N	
TYPE A								
30"	-	-	¼"	FLAT 2½" X ¼"	6"	6"	3	⅜"
36"	-	-	¼"	FLAT 3" X ¼"	6"	6"	4	⅜"
48"	-	-	¼"	FLAT 4¼" X ¼"	8"	8"	4	⅜"
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	⅜"
	-	8"			5"	5"	3	
	-	12"			4"	6"	2	
36"	-	6"	¼"	FLAT 3" X ¼"	6"	5½"	4	⅜"
	-	8"			6"	5"	4	
	-	12"			5½"	5½"	3	
48"	-	6"	¼"	FLAT 4¼" X ¼"	8"	8"	4	⅜"
	-	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	⅜"
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:

- 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
- END PLATE MATERIAL: ALUMINUM 6061-T6
- DESIGNS MUST BE USED ONLY FOR ALUMINUM CMP

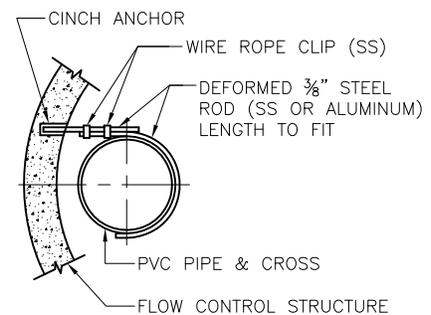
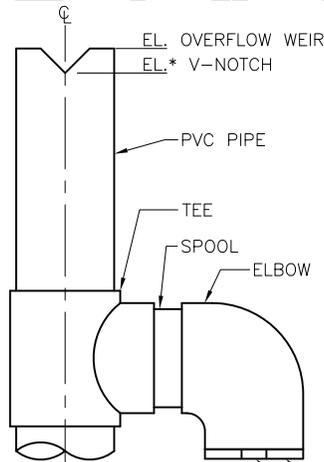
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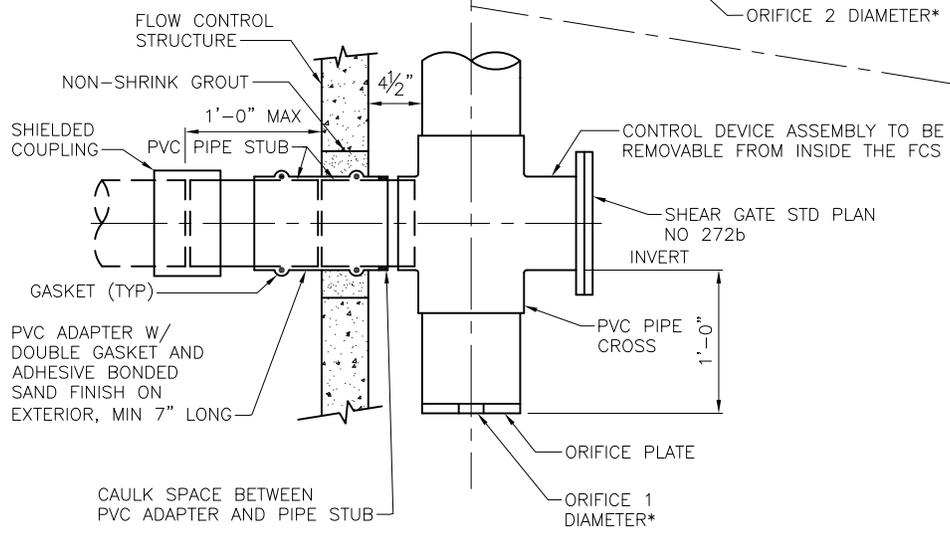
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CMP DETENTION STRUCTURE
END PLATE DIMENSIONS



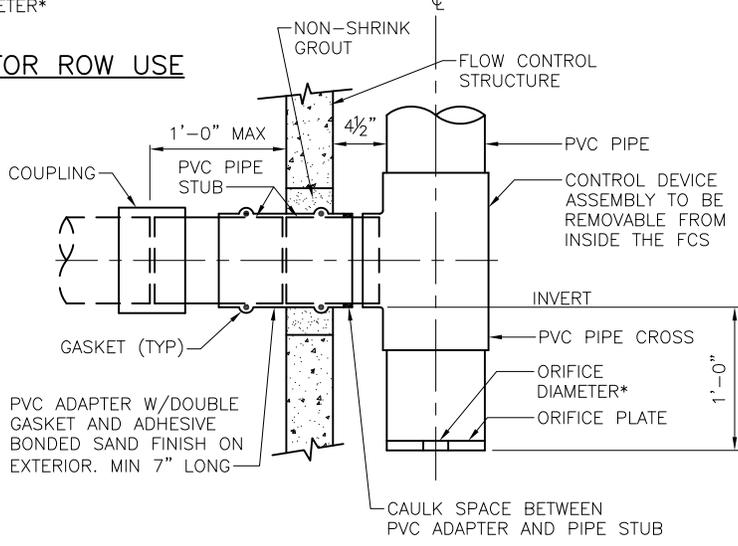
PIPE SUPPORT DETAIL



CONNECTION & CONTROL DEVICE FOR ROW USE

NOTES:

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



CONNECTION & CONTROL DEVICE FOR PRIVATE SYSTEM

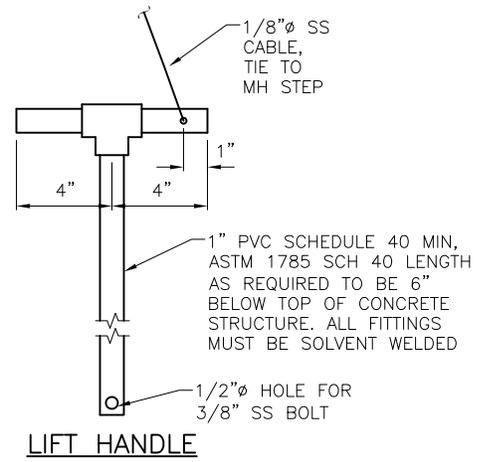
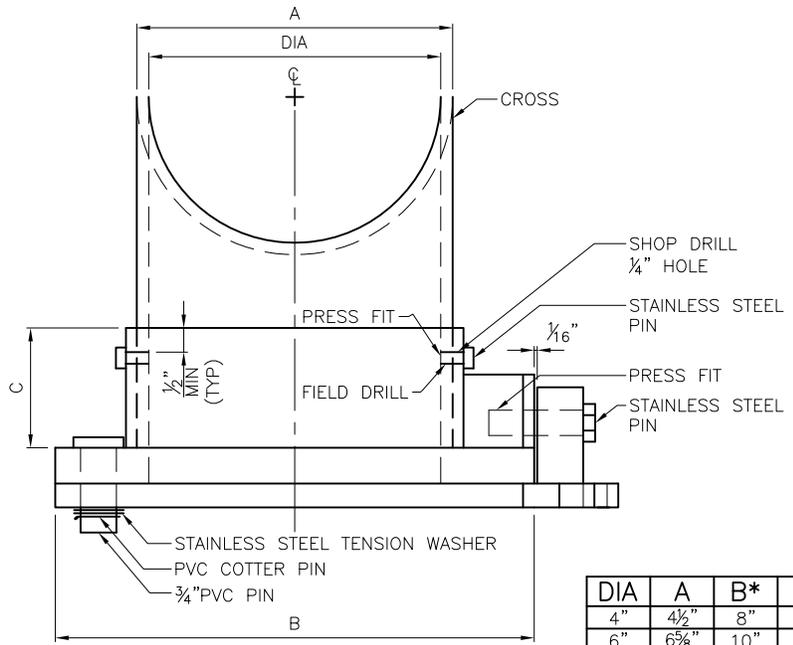
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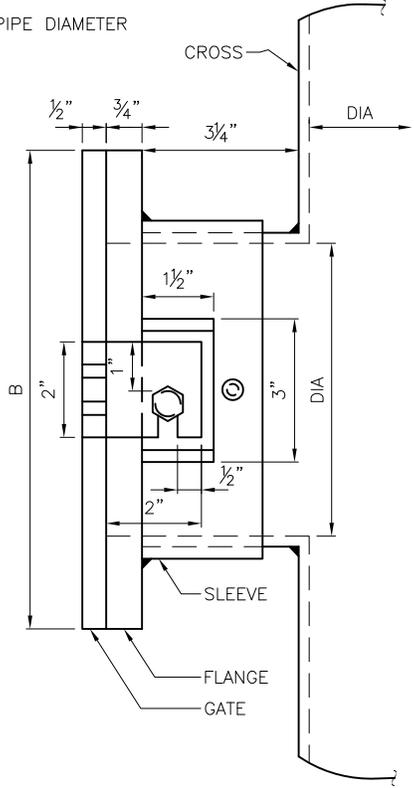
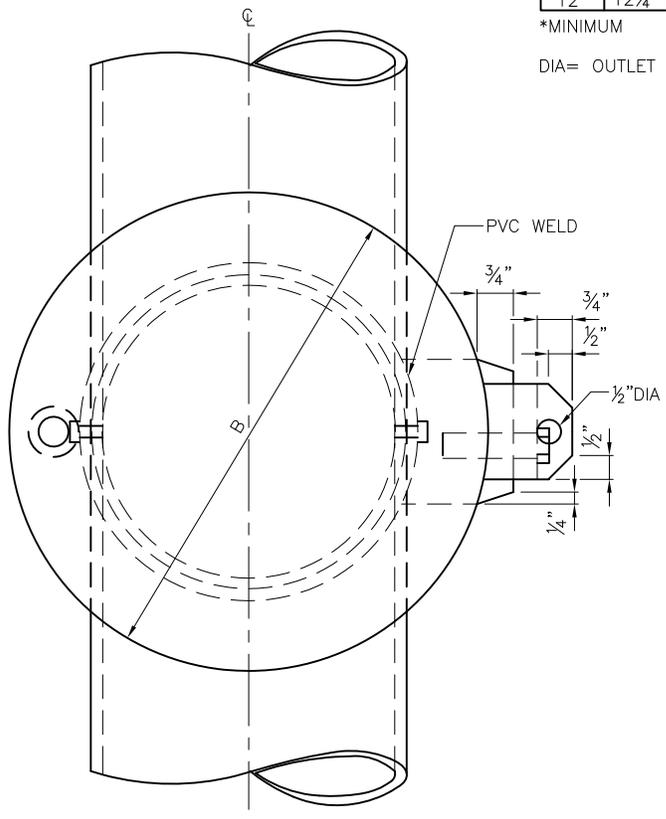
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FLOW CONTROL DEVICE ASSEMBLY



DIA	A	B*	C*
4"	4 1/2"	8"	2"
6"	6 5/8"	10"	2 1/2"
8"	8 3/8"	12"	3"
10"	10 3/4"	14"	3"
12"	12 3/4"	16"	3"

*MINIMUM
DIA= OUTLET PIPE DIAMETER



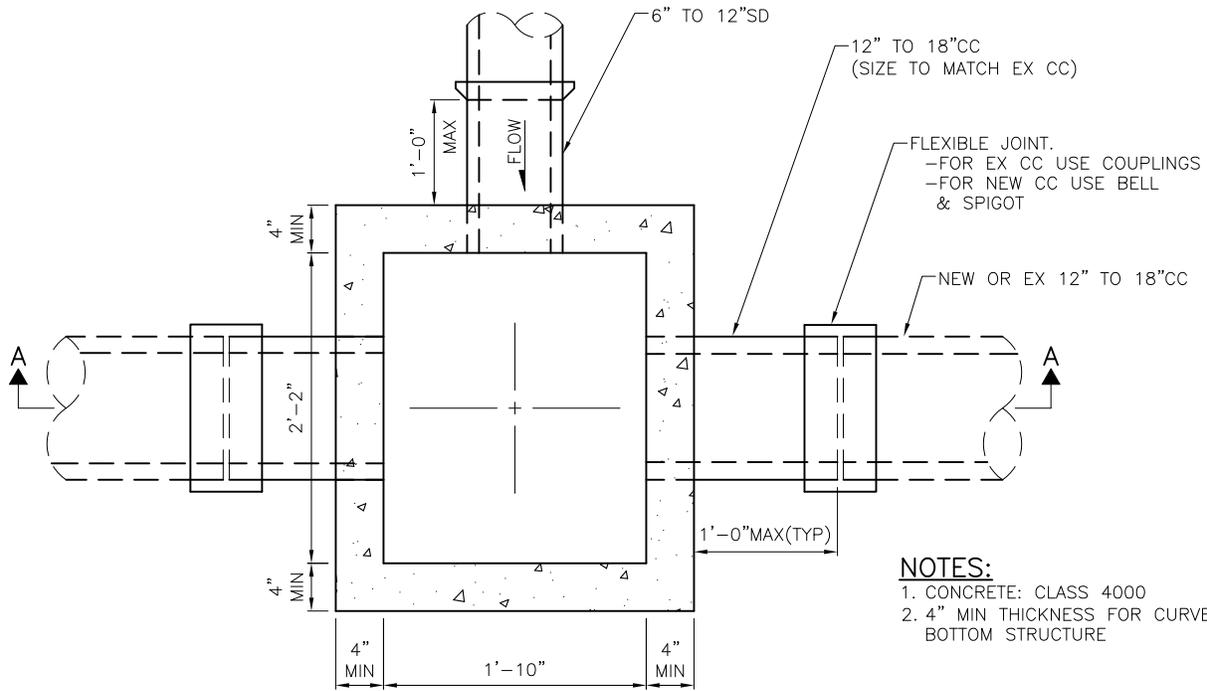
REF STD SPEC SEC 7-16



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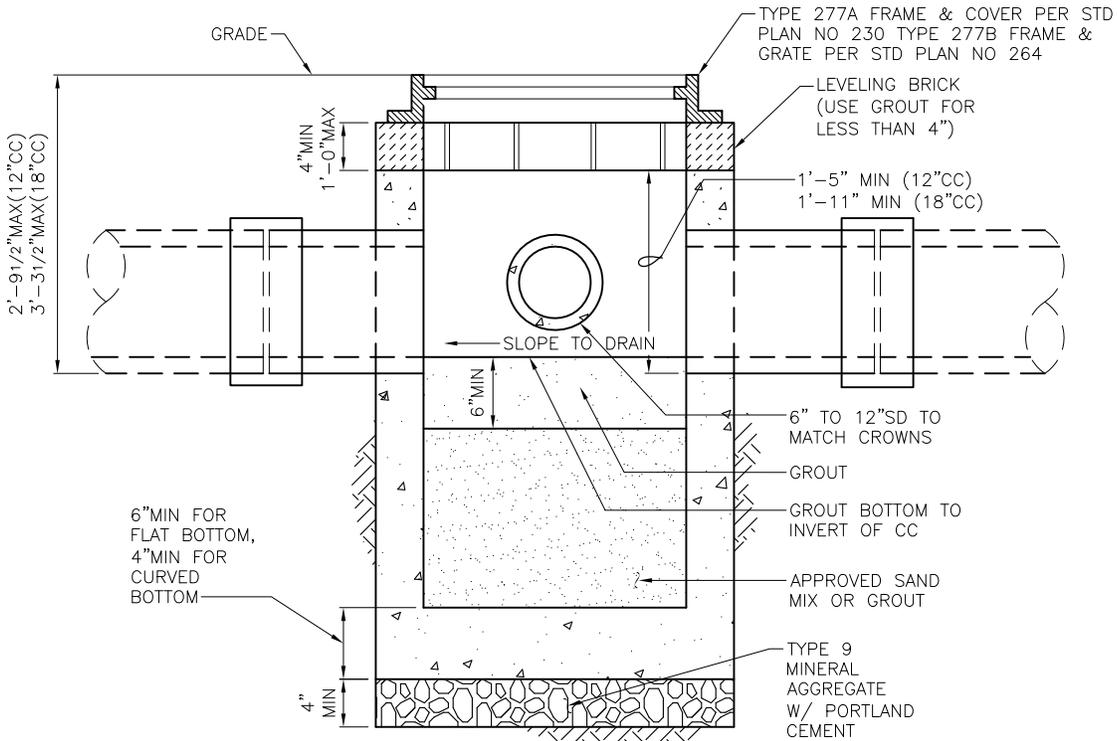
NOT TO SCALE

**PVC SHEAR GATE
FOR USE IN ROW ONLY**



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

PLAN



SECTION A-A

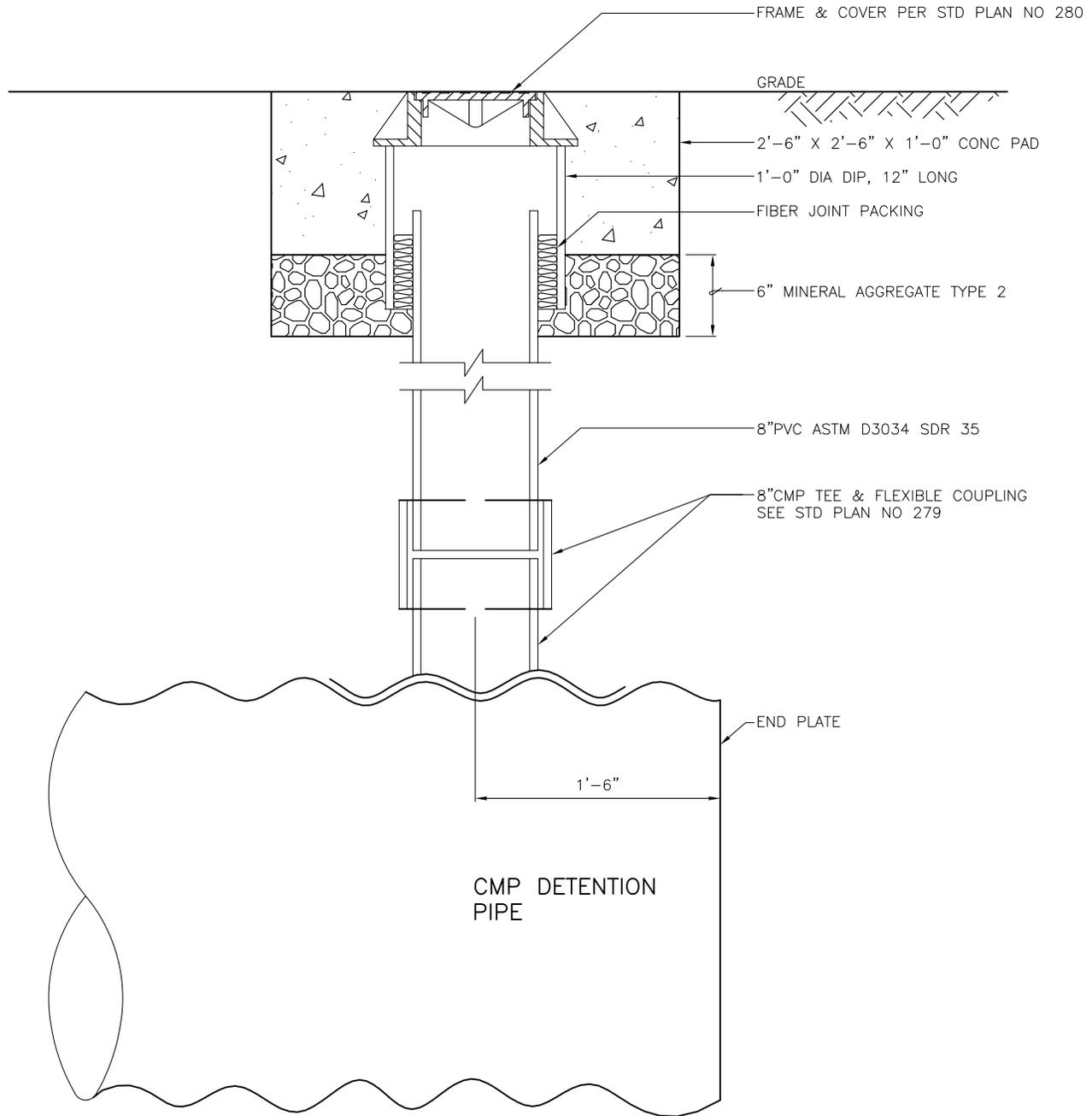
REF STD SPEC SEC 7-02 & 9-12.9



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**TYPE 277 JUNCTION
BOX & INSTALLATION**



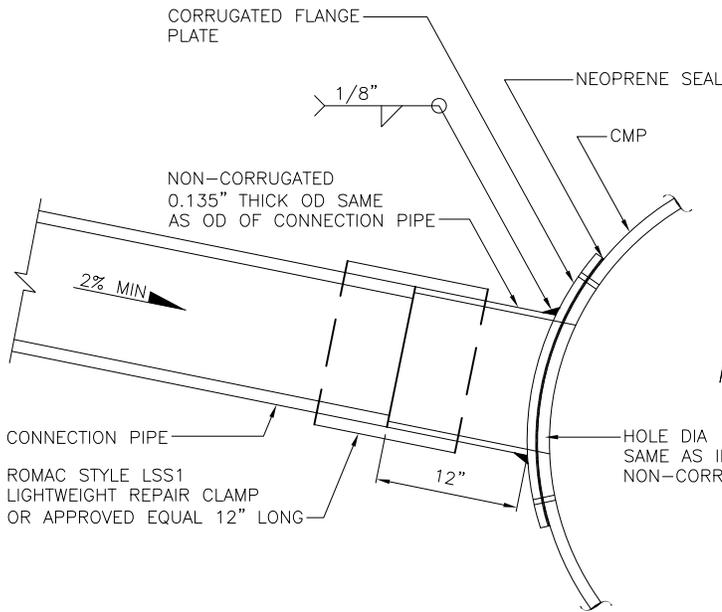
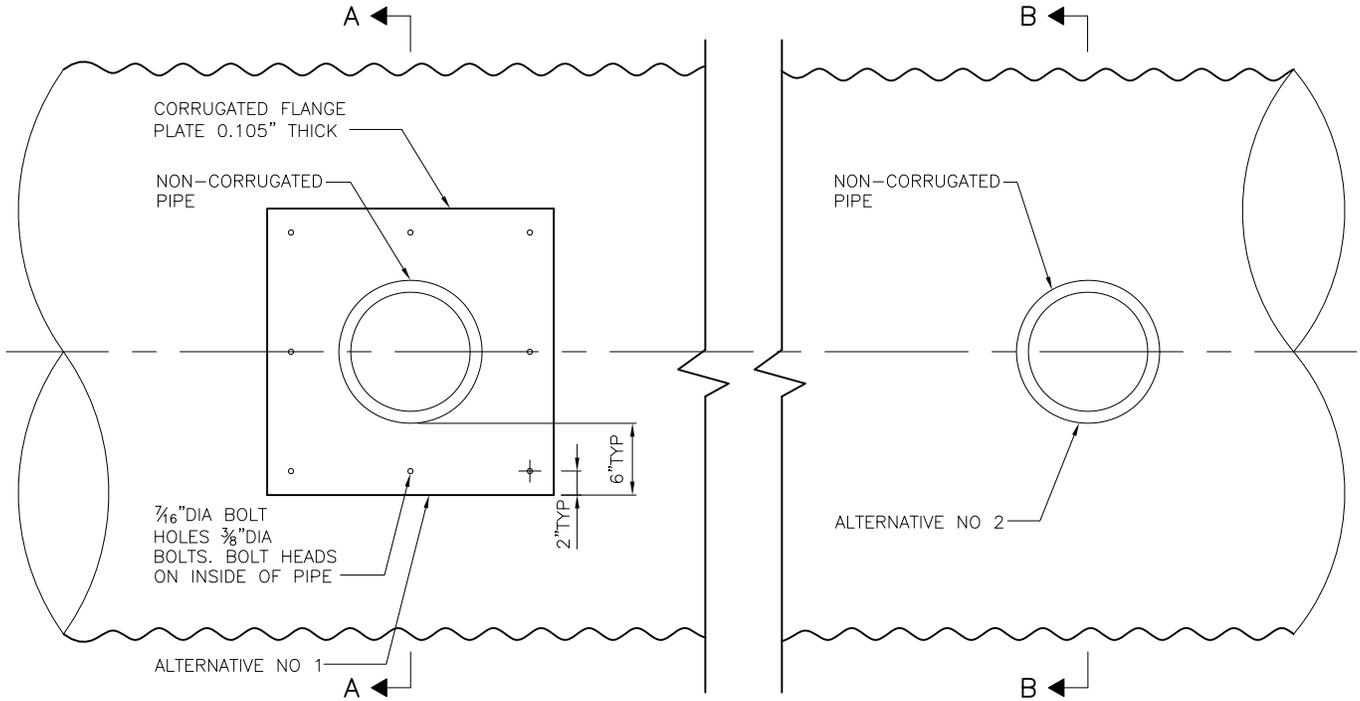
REF STD SPEC SEC 7-19 & 7-16.2



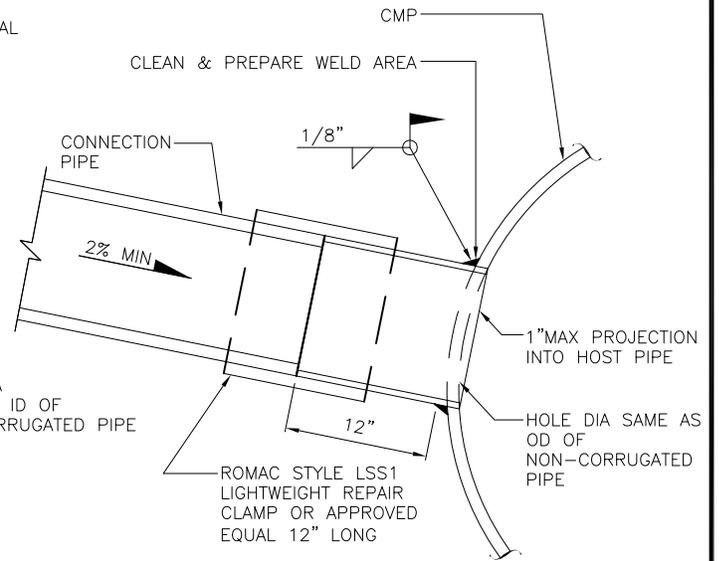
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VERTICAL CLEAN OUT/
CORRUGATED METAL PIPE



SECTION A-A



SECTION B-B

NOTES:

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

NOTE:

USE ALTERNATIVE NO 1 IF PIPE CONDITION PROHIBITS WELDING

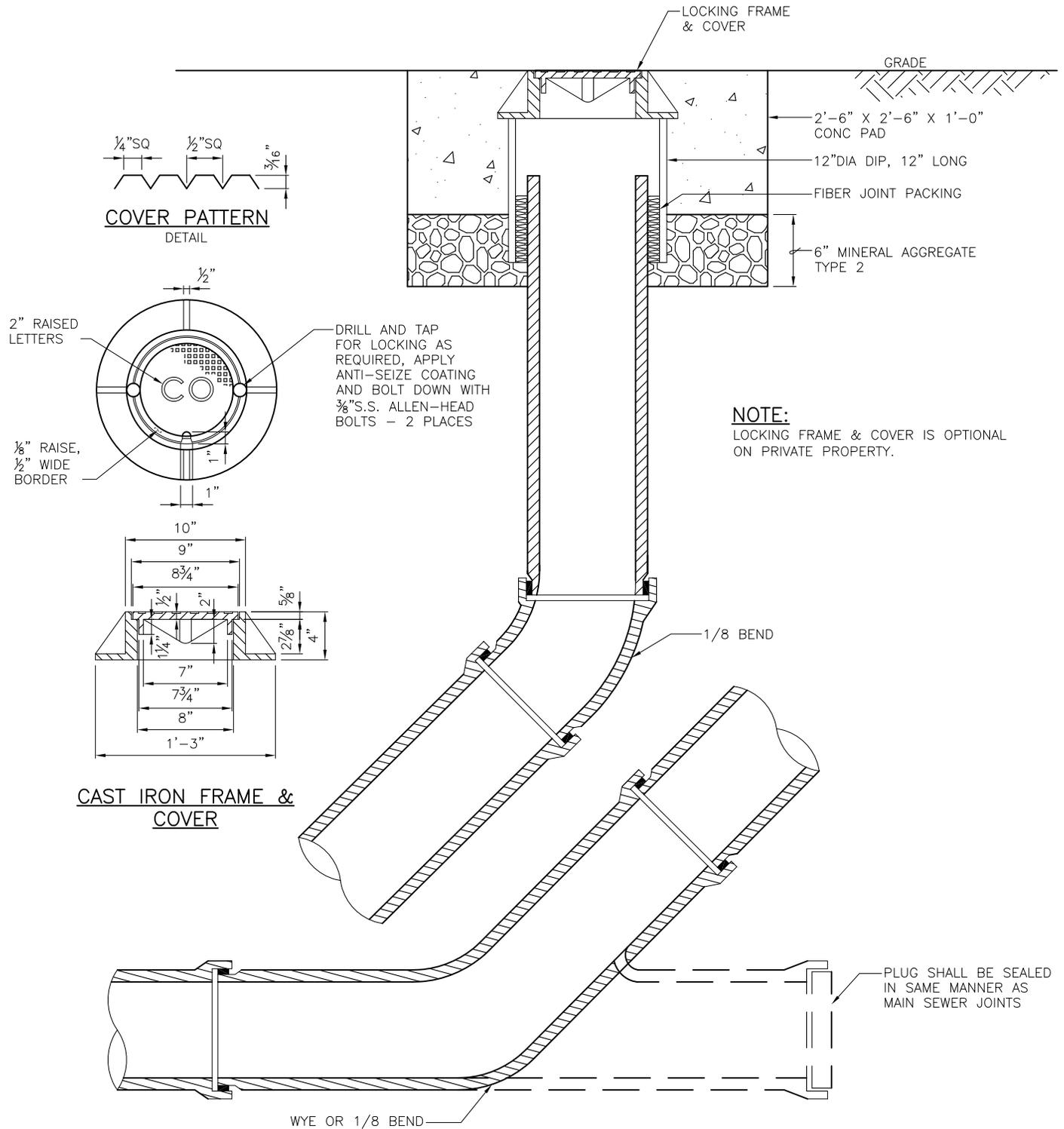
REF STD SPEC SEC 7-17 & 7-16.2



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TEE INSTALLATION
CORRUGATED METAL PIPE



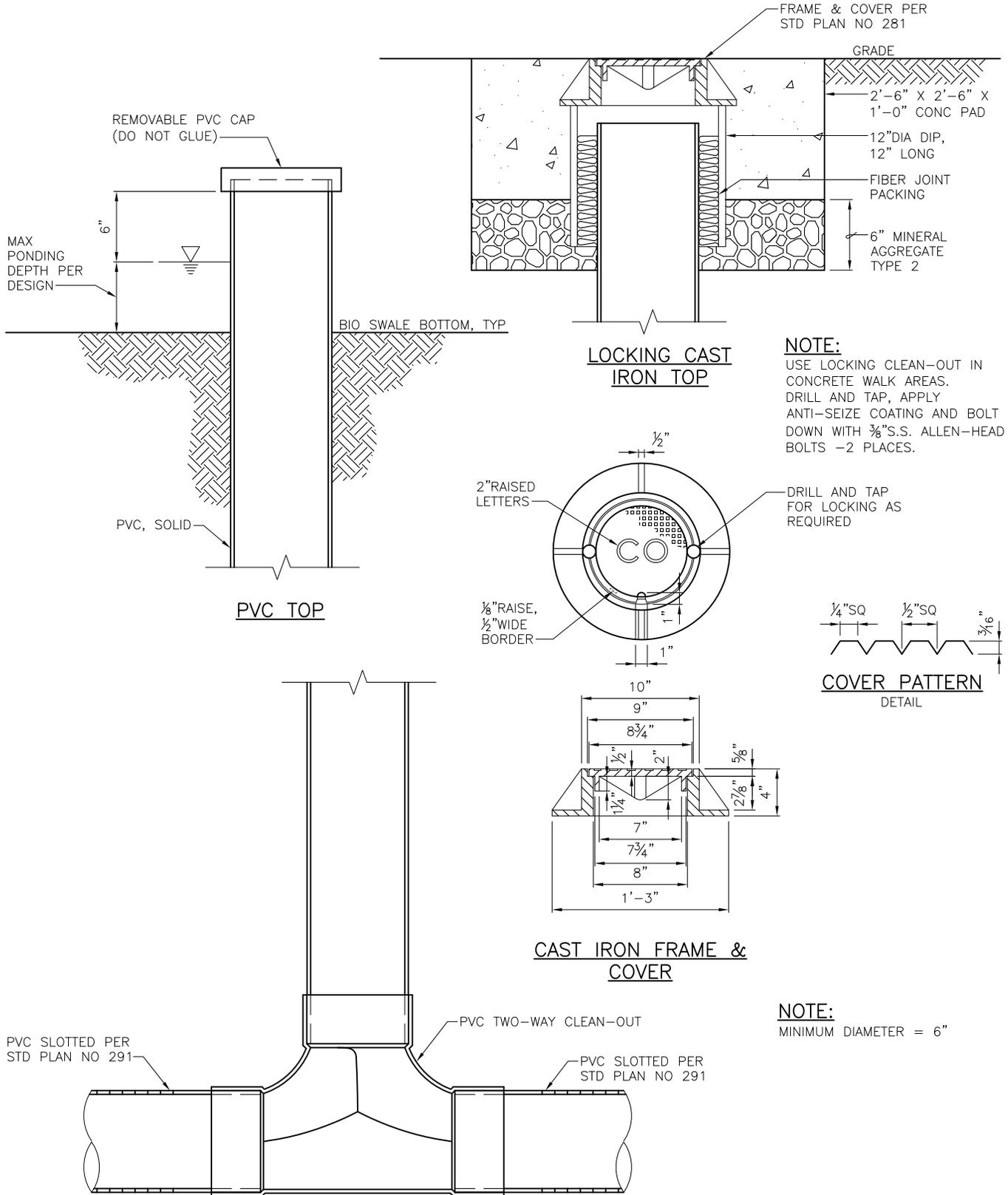
REF STD SPEC SEC 7-19



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NOT TO SCALE

8" CLEAN-OUT



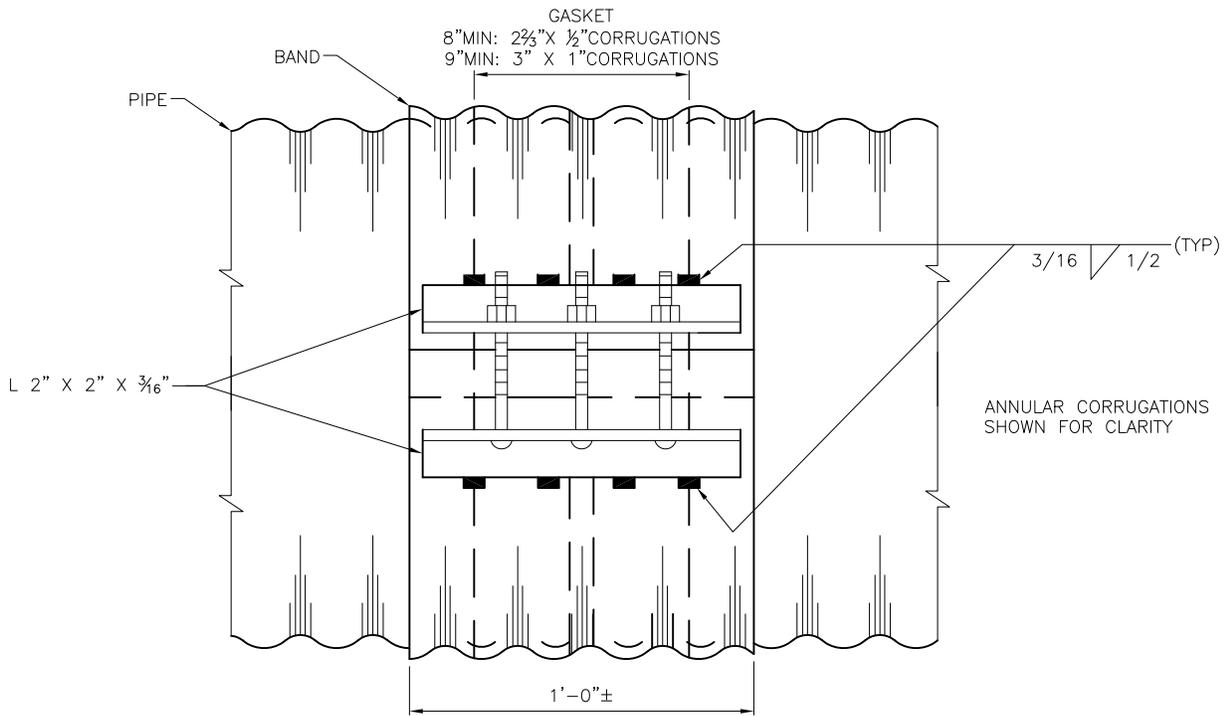
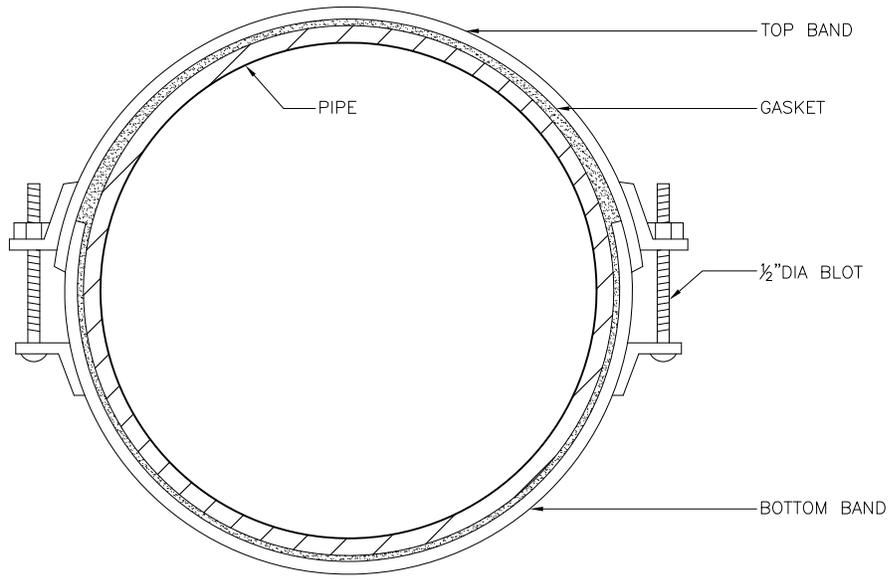
REF STD SPEC SEC 7-19



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NOT TO SCALE

BIORETENTION UNDER DRAIN
CLEAN-OUT AND
OBSERVATION PORT



FOR PIPES LESS THAN 48" DIAMETER
 (HELICAL OR ANNULAR)

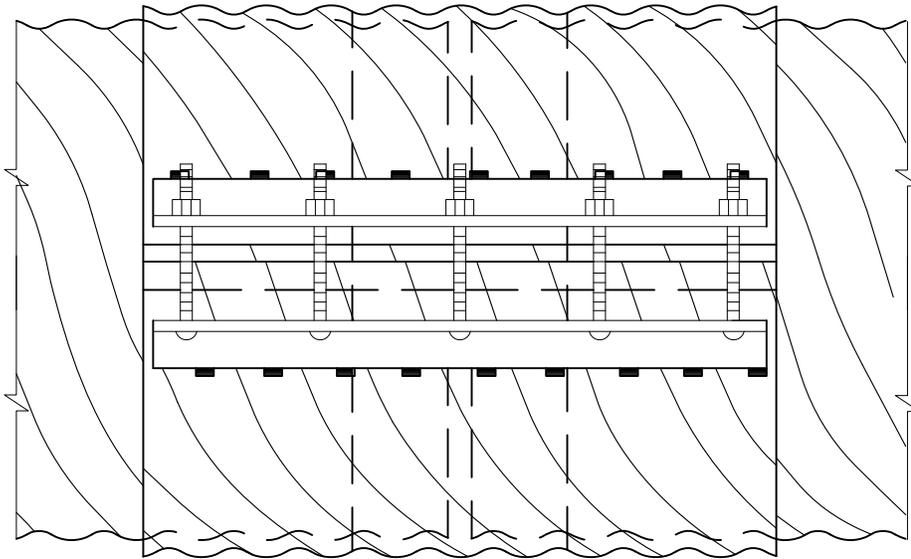
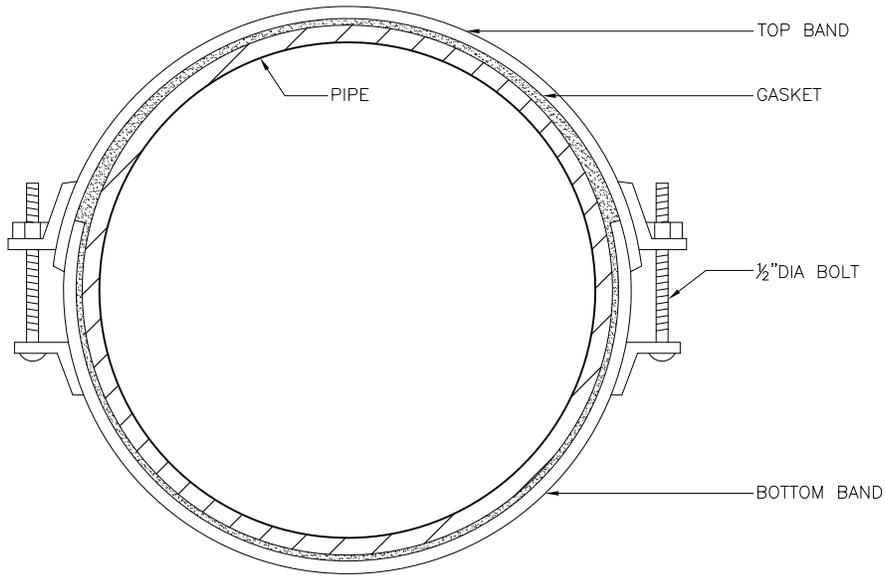
REF STD SPEC SEC 7-16.2 & 9-05



City of Seattle

NOT TO SCALE

CORRUGATED METAL
 PIPE COUPLING BANDS



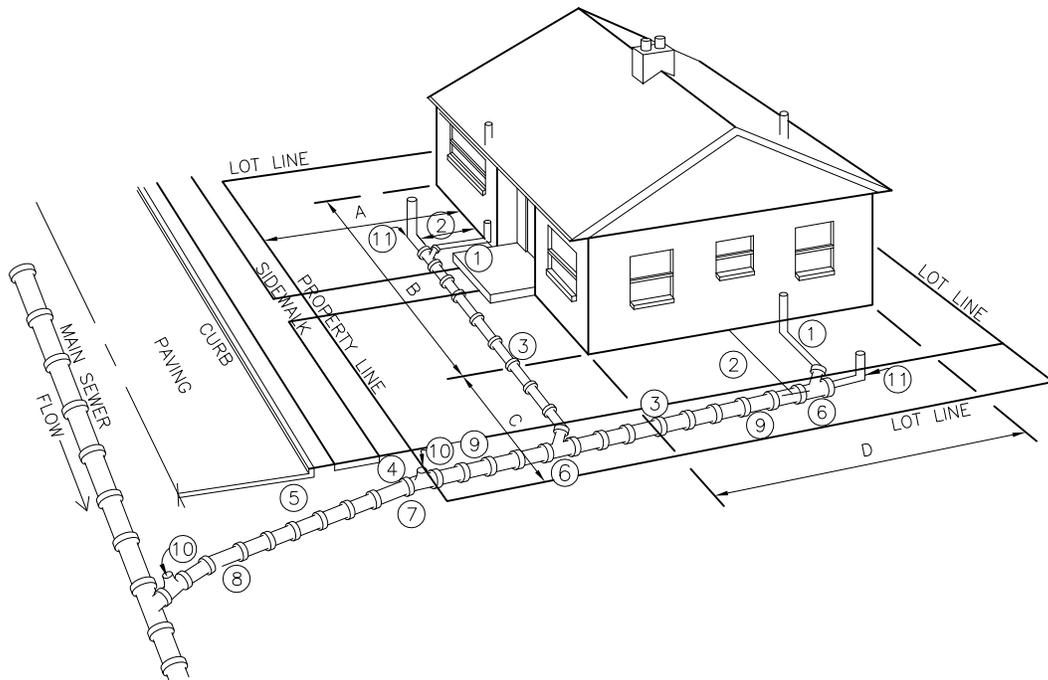
REF STD SPEC SEC 7-16.2 & 9-05



City of Seattle

NOT TO SCALE

CORRUGATED METAL
PIPE COUPLING BANDS



NOTES:

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

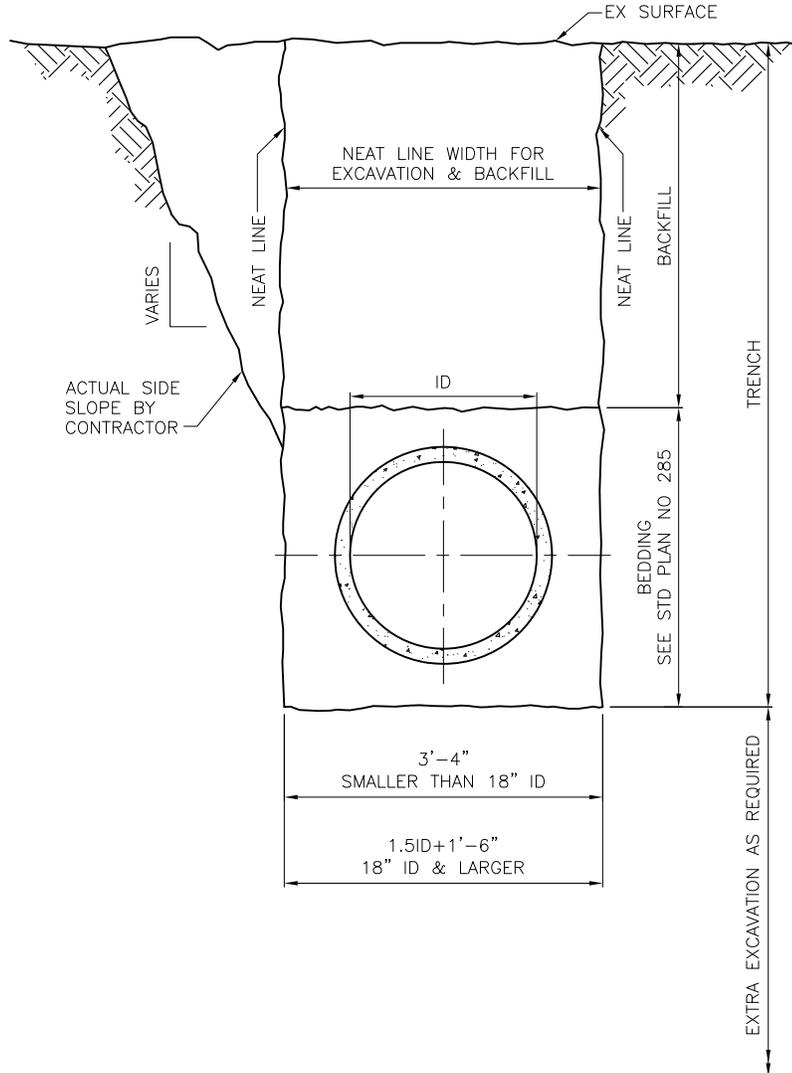
REF STD SPEC SEC 7-18



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NOT TO SCALE

SIDE SEWER INSTALLATION



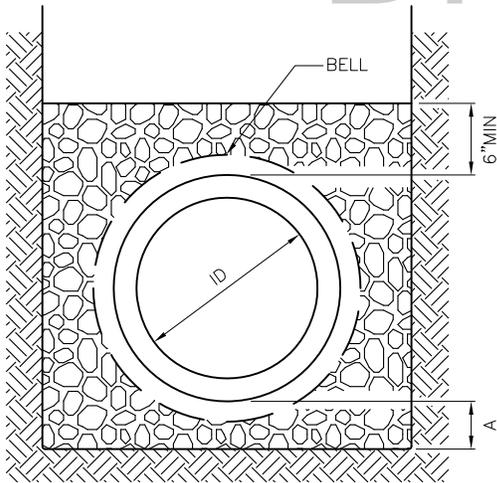
REF STD SPEC SEC 2-07 & 7-17



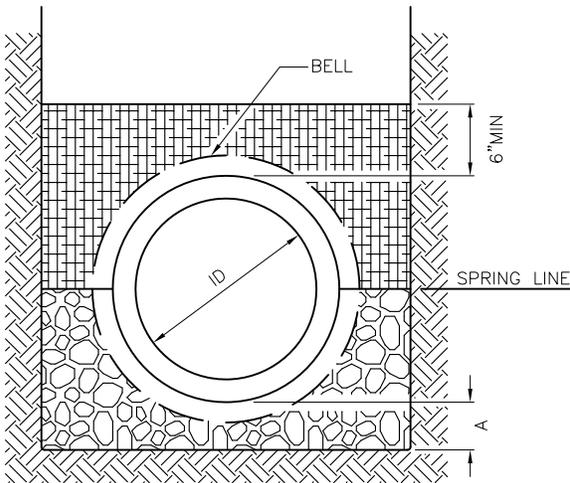
City of Seattle

NOT TO SCALE

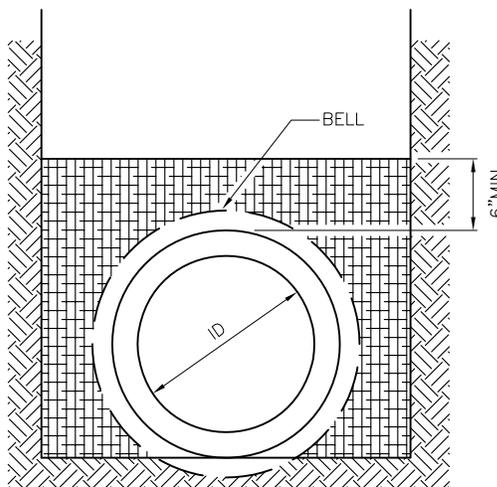
TYPICAL TRENCH DETAIL FOR SEWER & STORM DRAIN



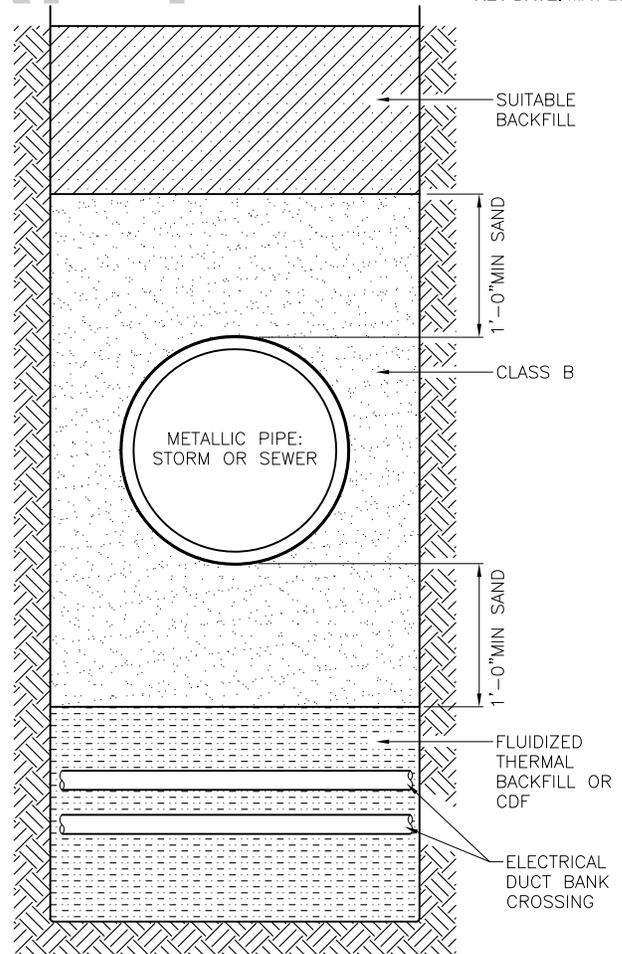
CLASS B BEDDING



CLASS C BEDDING



CLASS D BEDDING



SAND BEDDING AT TRENCH CROSSING OF METAL PIPE

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

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

NOTES:

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

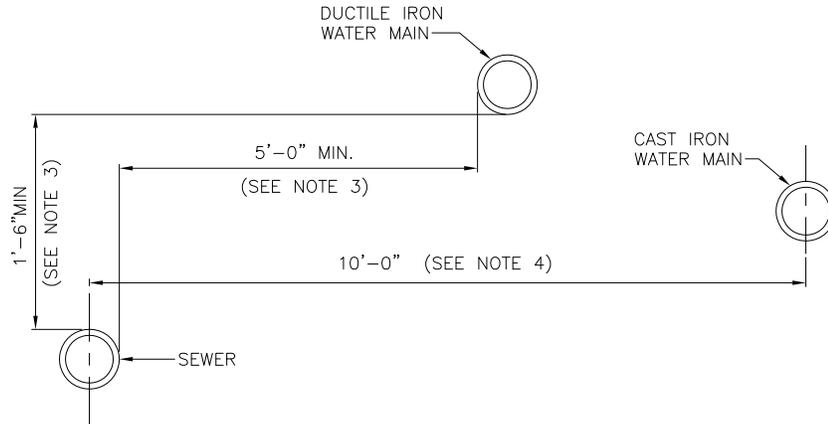
REF STD SPEC SEC 2-10.2, 7-11, 7-17, 9-03.16



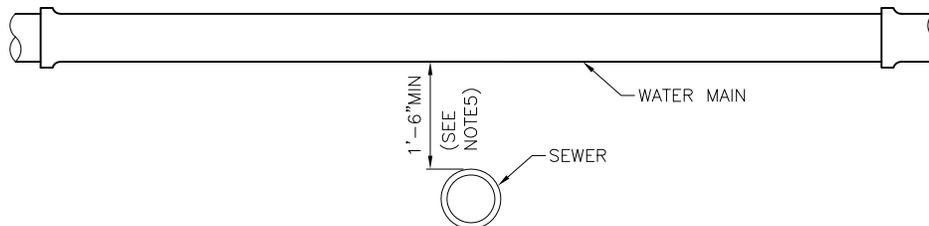
City of Seattle

NOT TO SCALE

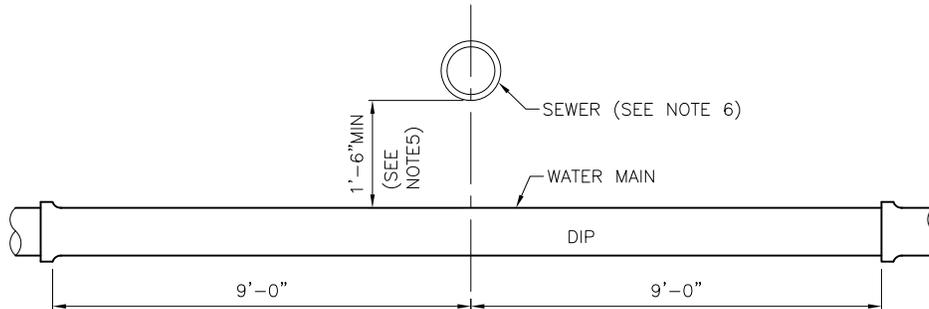
**PIPE BEDDING
SEWER/STORM DRAIN**



PARALLEL INSTALLATION



CROSSING WATER OVER SEWER



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

CROSSING WATER UNDER SEWER

NOTES:

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

REF STD SPEC SEC 1-07.17 & 7-11

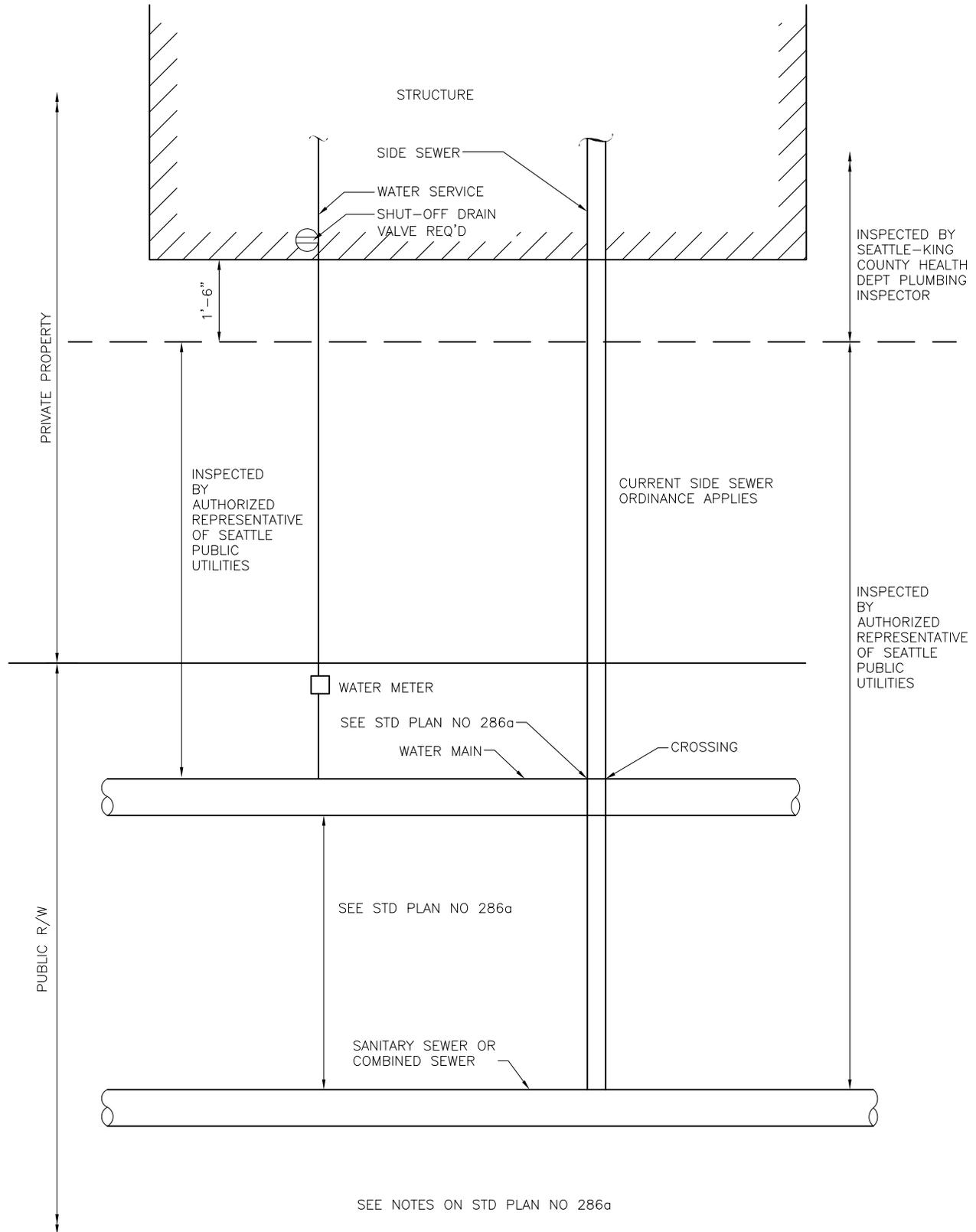


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NOT TO SCALE

SEWER & WATER
SPACING & CLEARANCES

DRAFT



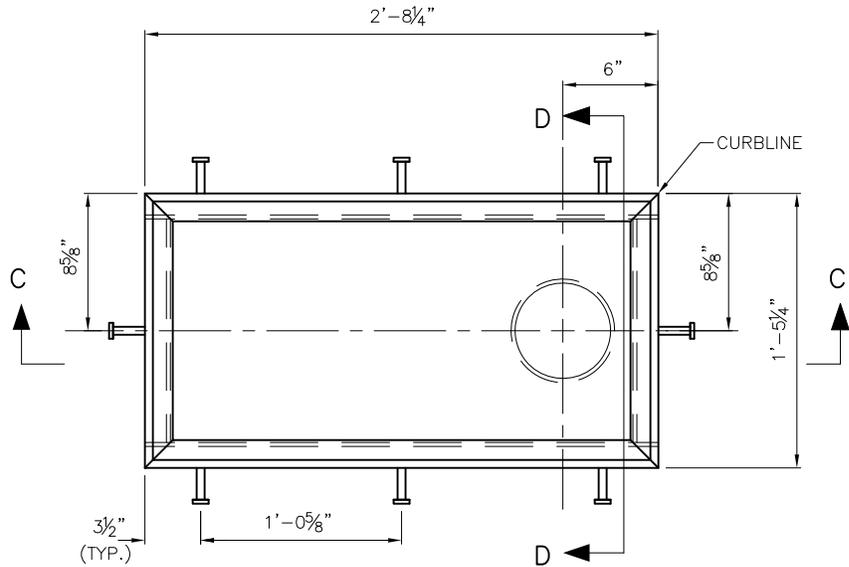
REF STD SPEC SEC 1-07.17 & DIV 7



City of Seattle

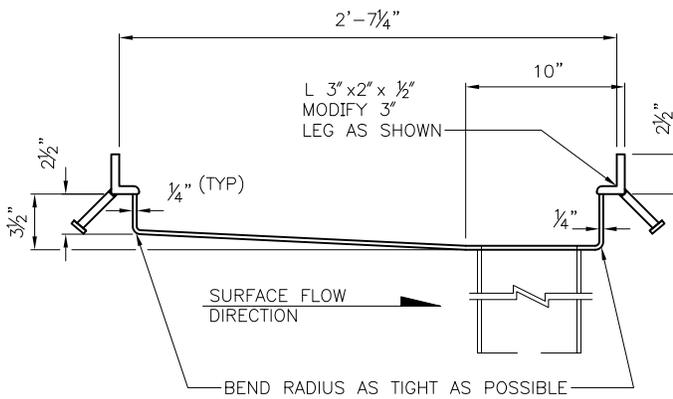
NOT TO SCALE

SEWER & WATER
SPACING & CLEARANCES

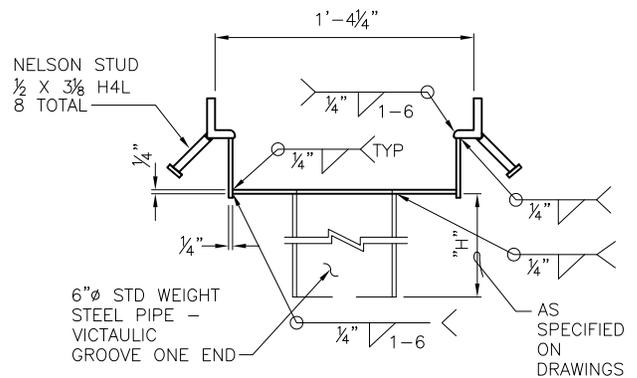


PLAN VIEW - BRIDGE DRAIN

SURFACE FLOW DIRECTION



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.

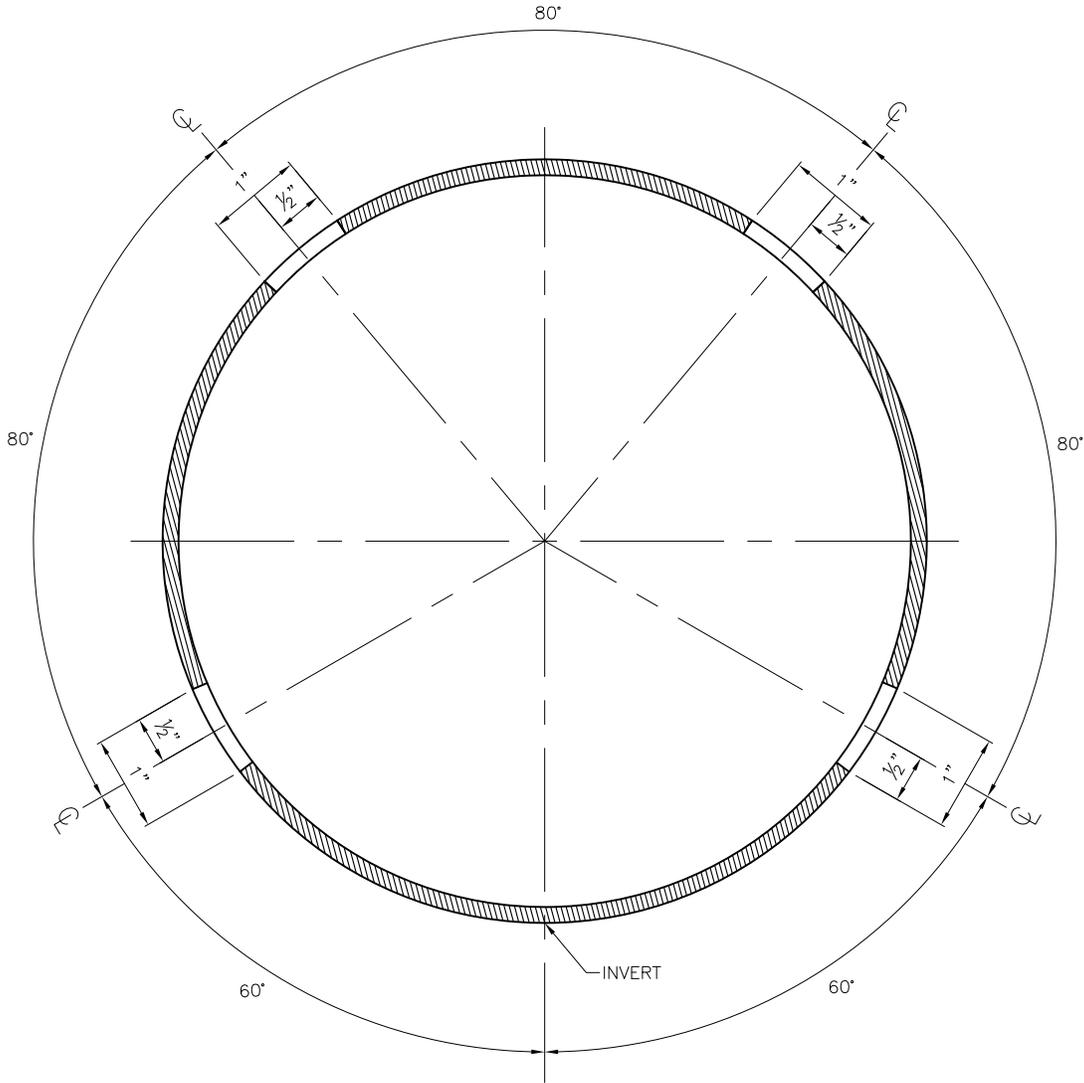
REF STD SPEC SEC 6-01 & 6-02



City of Seattle

NOT TO SCALE

BRIDGE DRAIN



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.

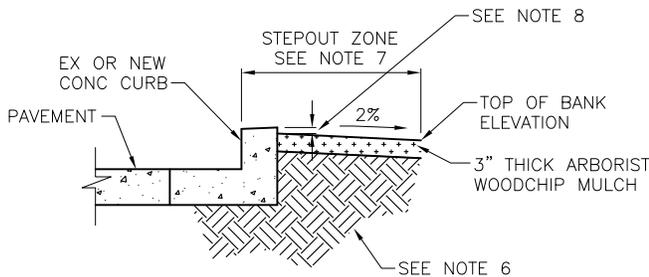
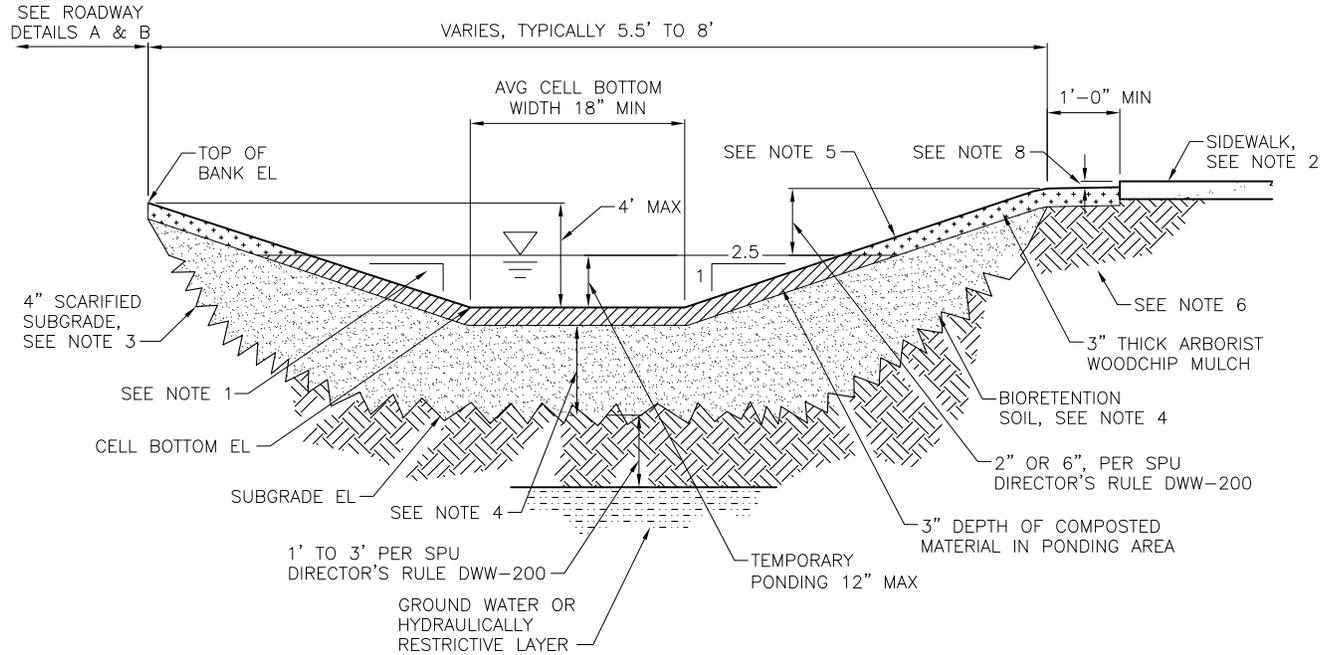
REF STD SPEC SEC 9-05, 3(1)



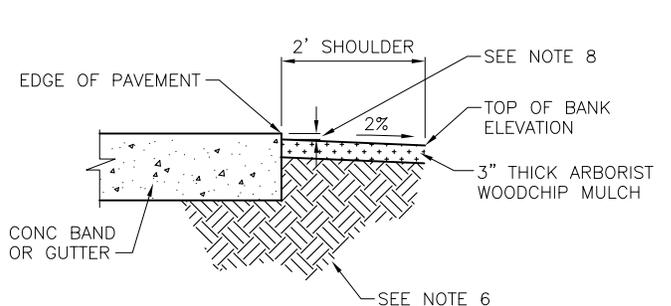
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NOT TO SCALE

PVC SUBSURFACE DRAIN PIPE



DETAIL A
CURBED ROADWAY
 (ADJACENT TO PARKING ZONE)



DETAIL B
CURBLESS ROADWAY

NOTES:

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

REF STD SPEC SEC 7-21

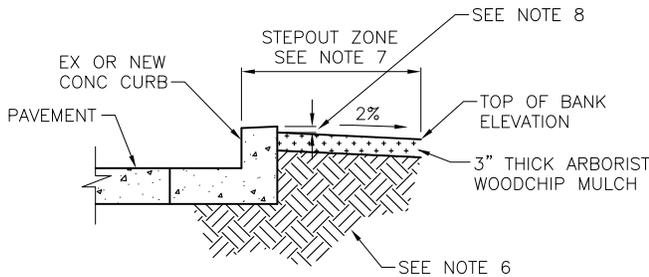
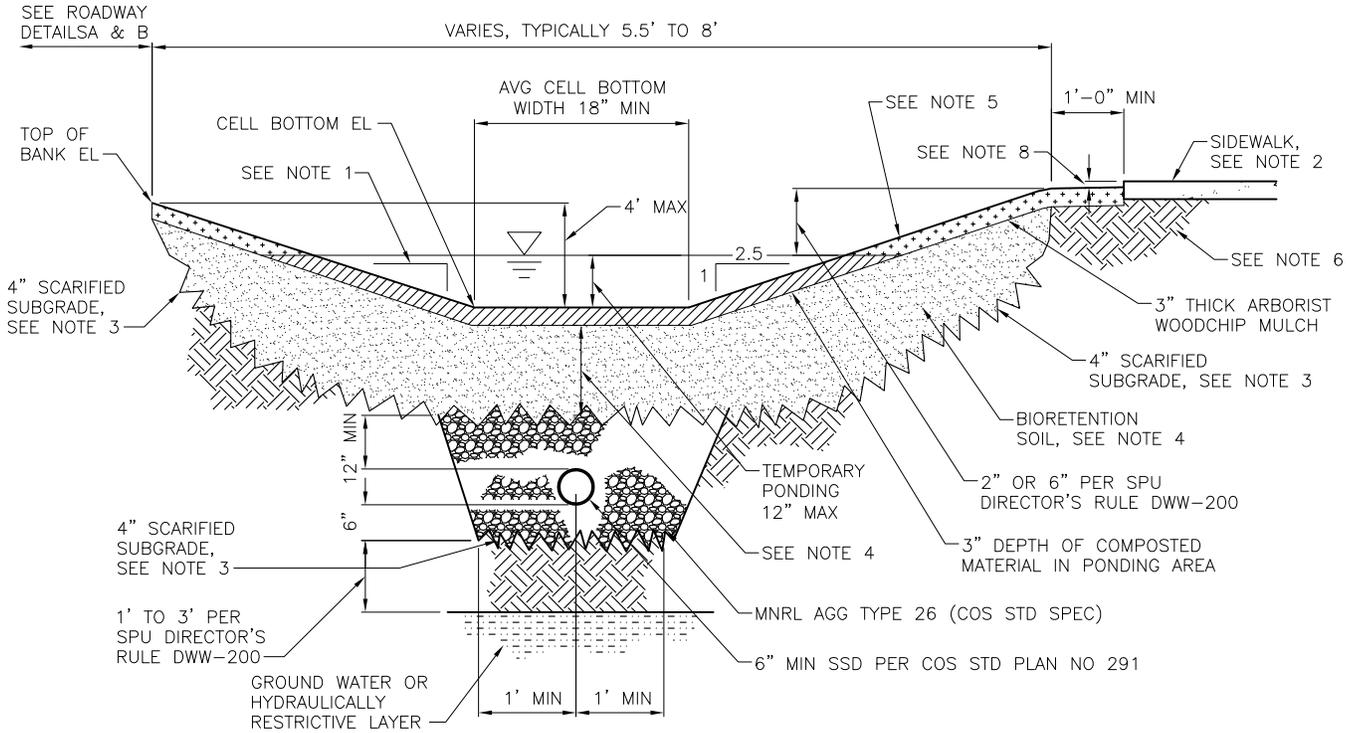


City of Seattle

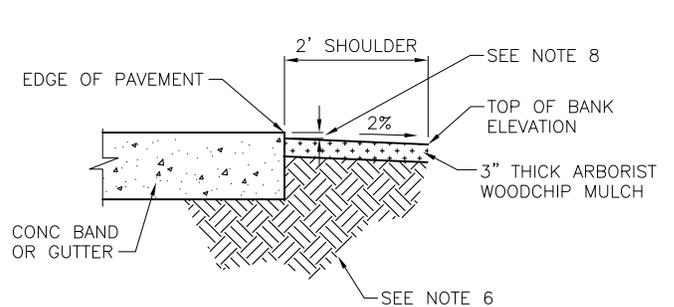
NOT TO SCALE

**INFILTRATING BIORETENTION
 WITH SLOPED SIDES**

DRAFT



DETAIL A
CURBED ROADWAY
(ADJACENT TO PARKING ZONE)



DETAIL B
CURBLESS ROADWAY

NOTES:

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

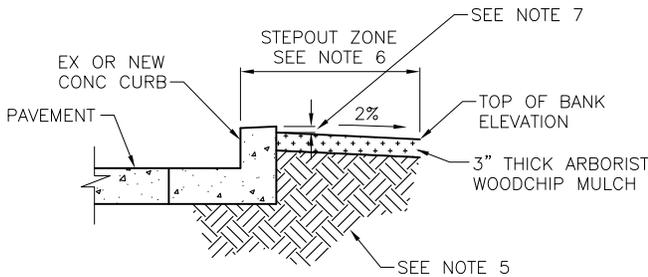
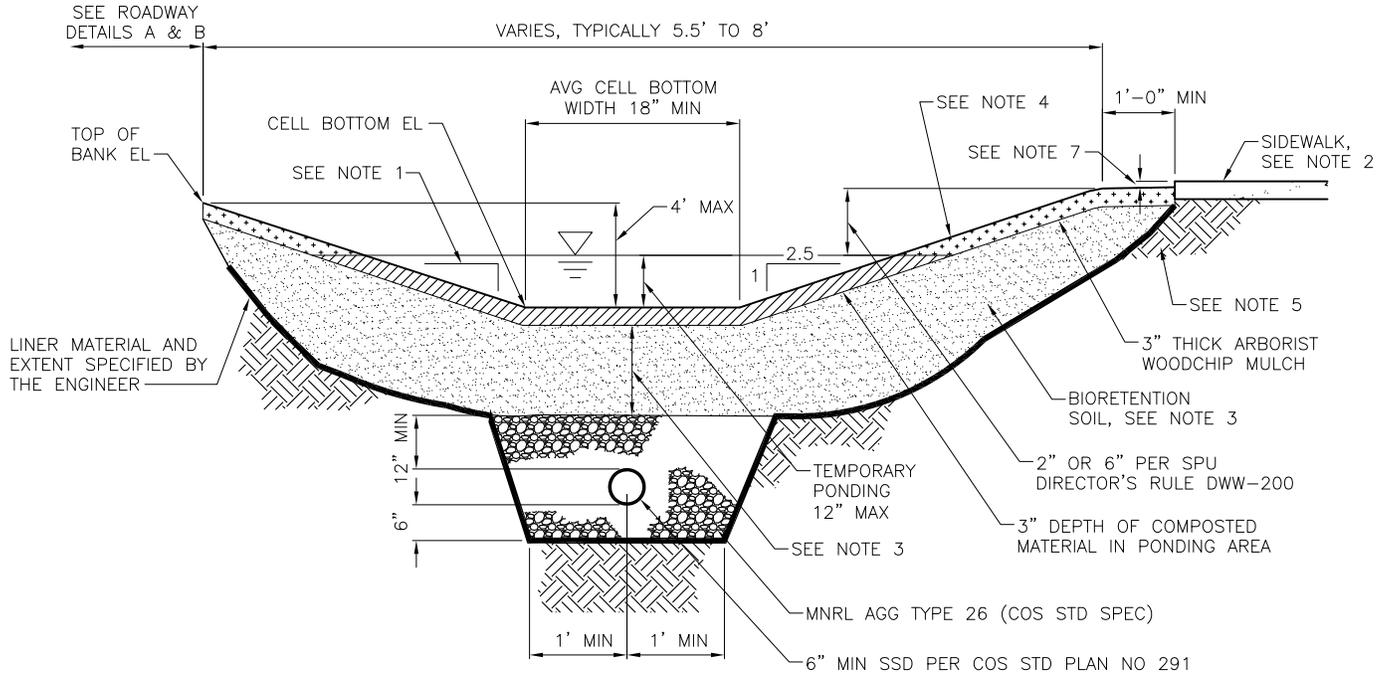
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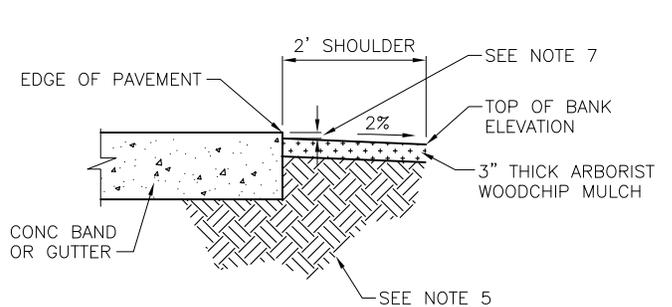
City of Seattle

NOT TO SCALE

**INFILTRATING BIORETENTION
WITH SLOPED SIDES
& UNDER DRAIN**



DETAIL A
CURBED ROADWAY
 (ADJACENT TO PARKING ZONE)



DETAIL B
CURBLESS ROADWAY

NOTES:

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

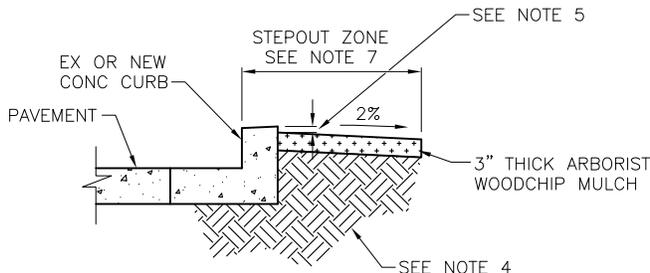
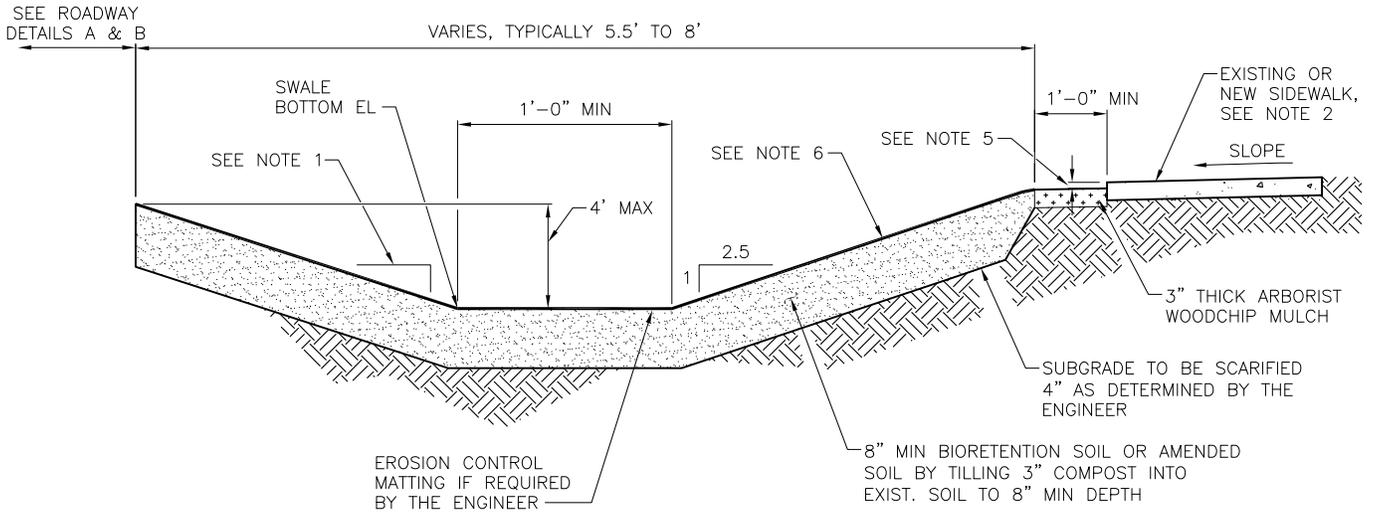
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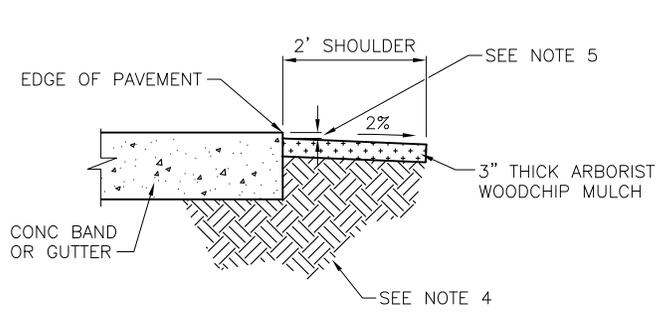
City of Seattle

NOT TO SCALE

**NON-INFILTRATING BIORETENTION
 WITH SLOPED SLIDES
 & UNDER DRAIN**



DETAIL A
CURBED ROADWAY
 (ADJACENT TO PARKING ZONE)



DETAIL B
CURBLESS ROADWAY

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

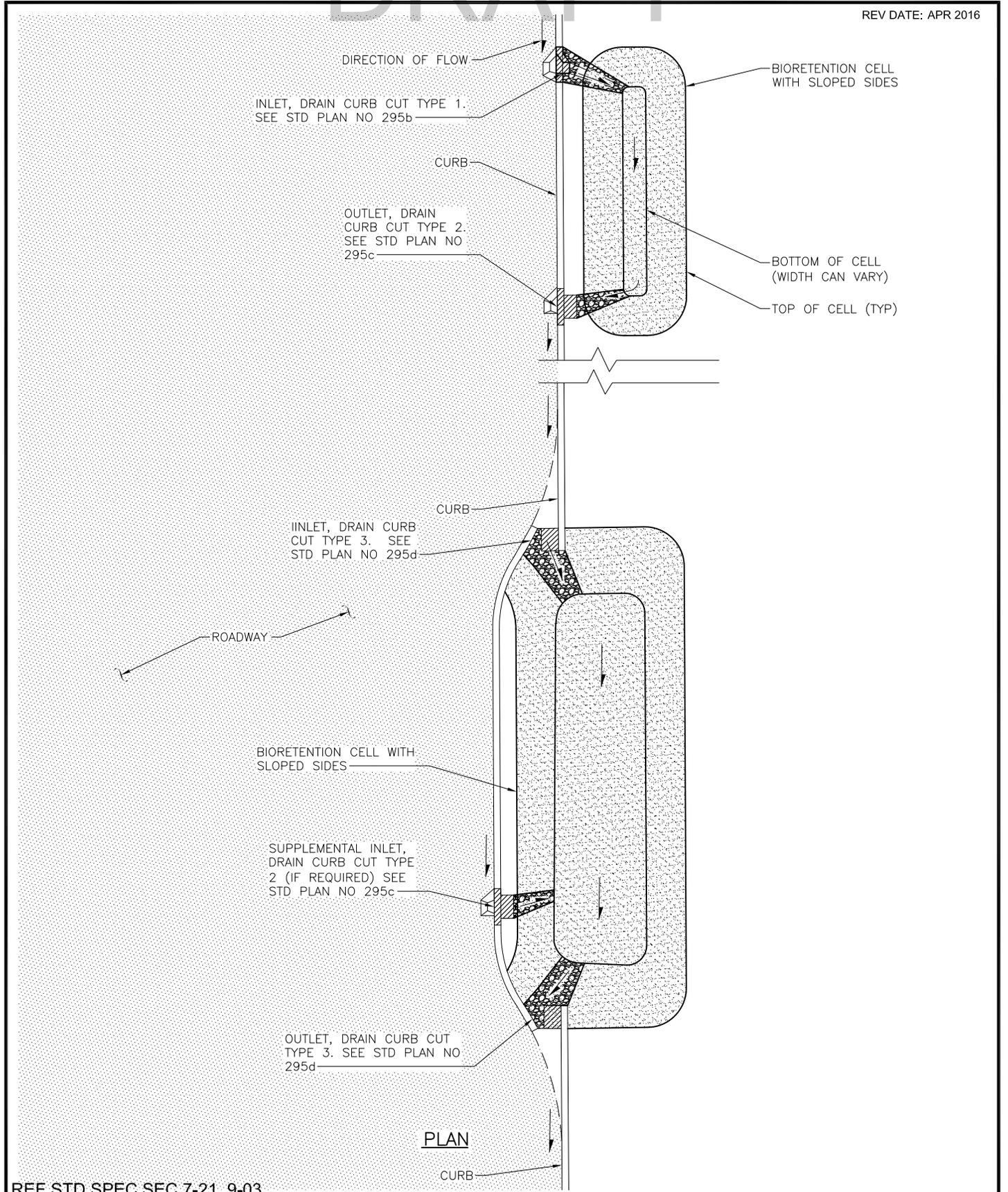
REF STD SPEC SEC 7-21



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NOT TO SCALE

VEGETATED CONVEYANCE SWALE
 (NOT FOR WATER QUALITY TREATMENT)



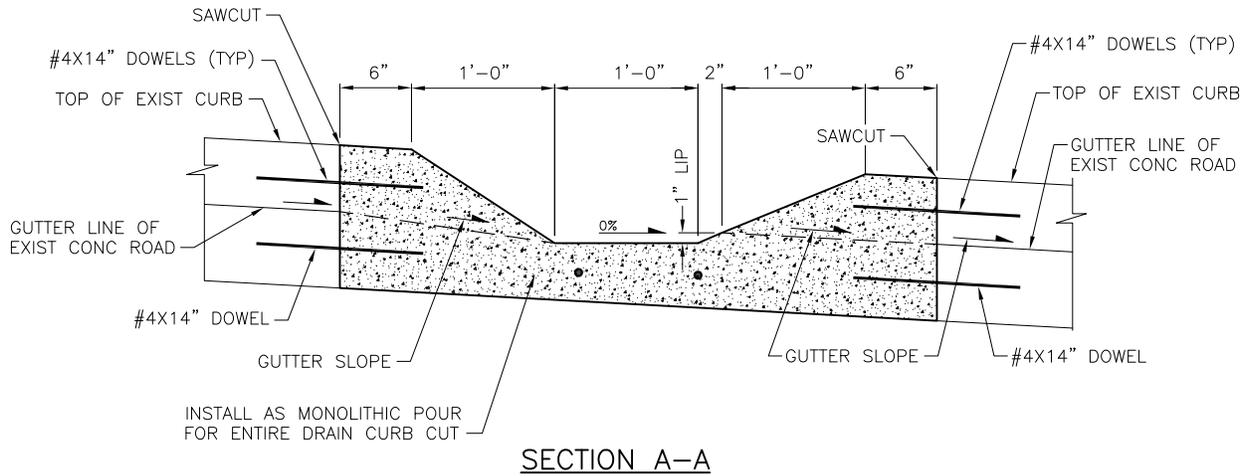
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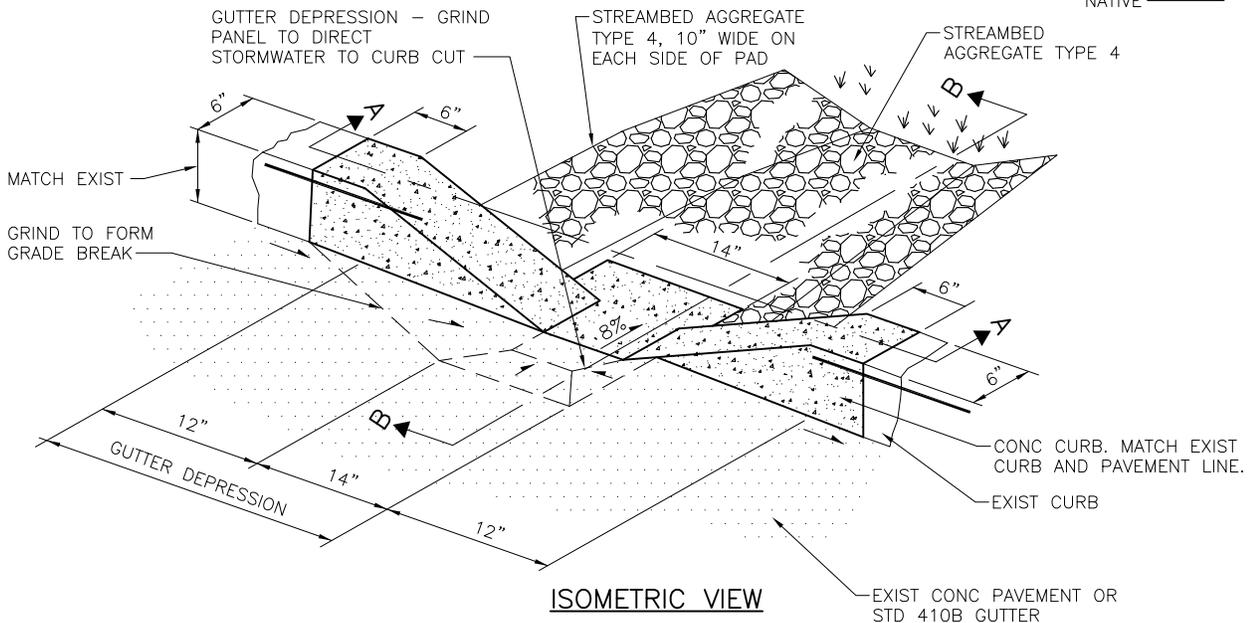
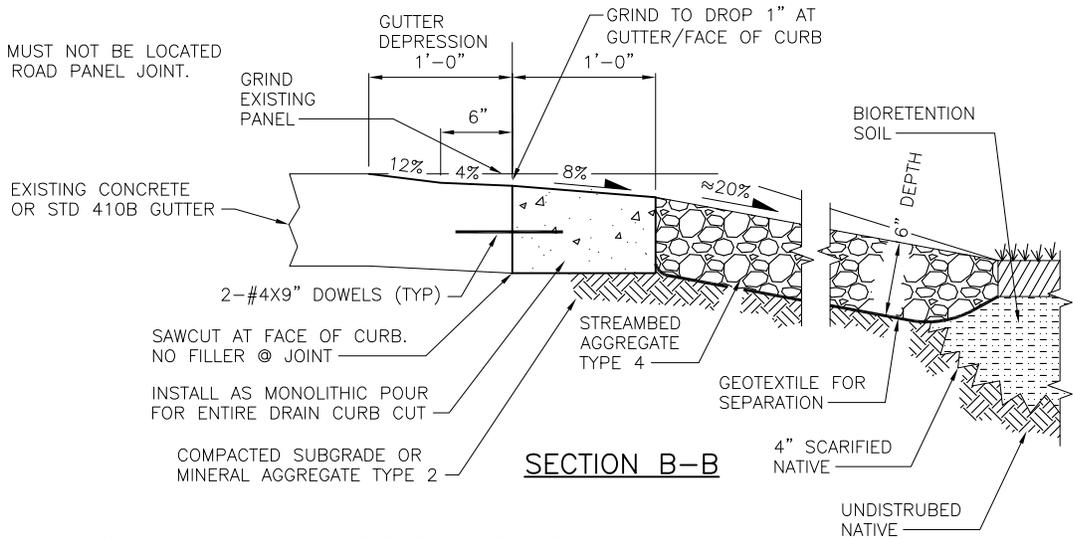
NOT TO SCALE

TYPICAL DRAIN CURB CUT LOCATION FOR BIORETENTION WITH SLOPED SIDES



NOTES:

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



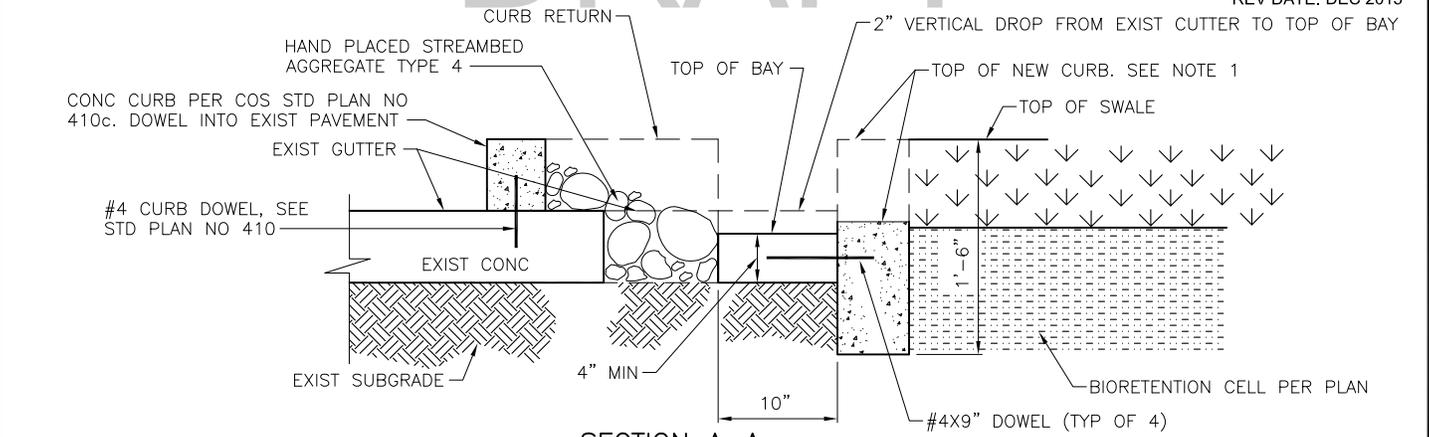
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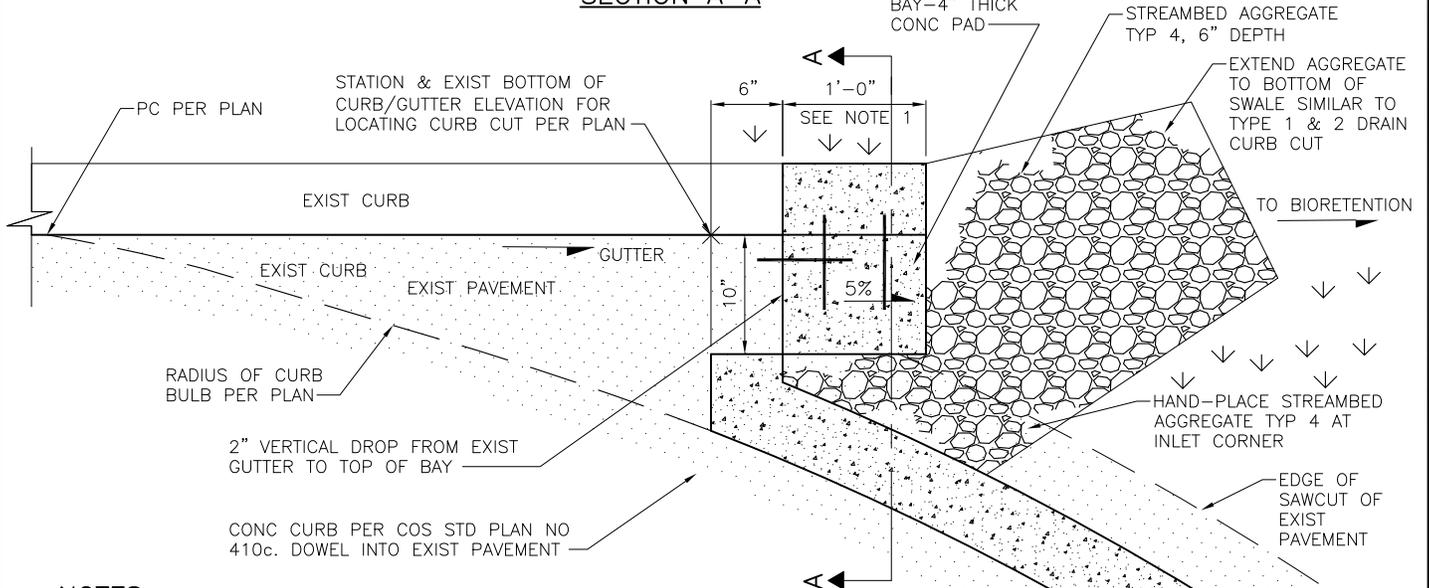
City of Seattle

NOT TO SCALE

DRAIN CURB CUT TYPE 2



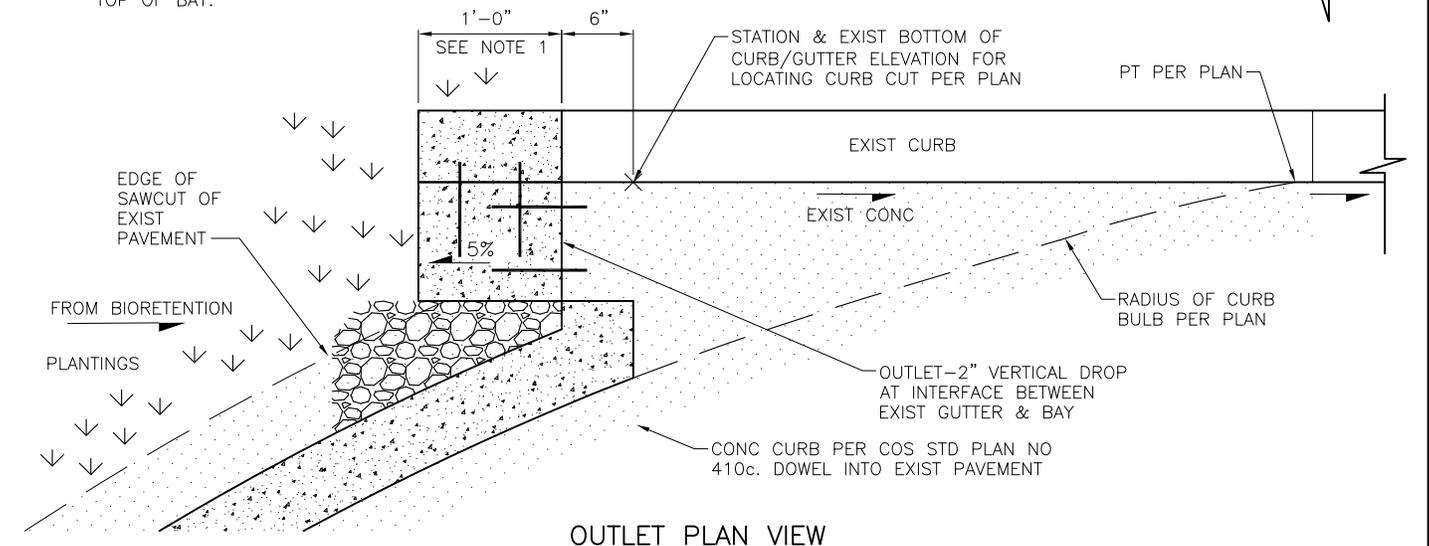
SECTION A-A



INLET PLAN VIEW

NOTES:

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



OUTLET PLAN VIEW

REF STD SPEC SEC 7-21, 9-03

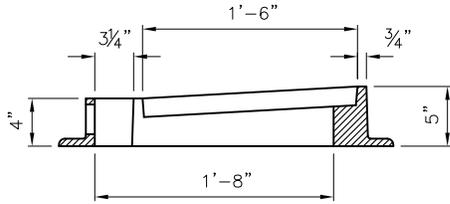


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NOT TO SCALE

DRAIN CURB CUT TYPE 3

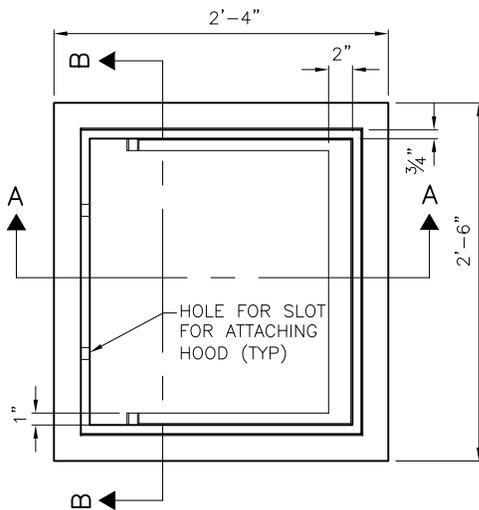
DRAFT



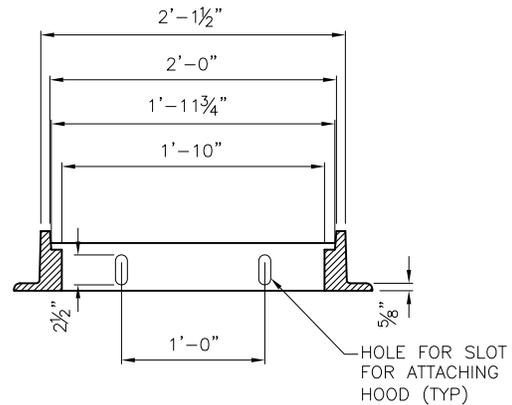
SECTION A-A

NOTES:

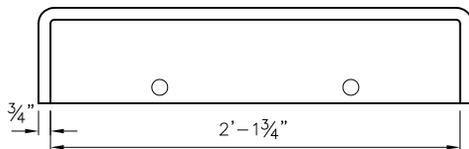
1. ATTACH THE HOOD TO THE FRAME WITH TWO 3/4" X 2" HEX HEAD BOLTS, NUTS, AND OVERSIZE WASHERS. THE WASHERS MUST HAVE DIAMETERS ADEQUATE TO ENSURE FULL BEARING ACROSS THE SLOTS.
2. ONLY DUCTILE IRON VANED GRATES MUST BE USED.



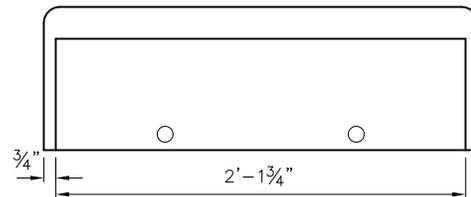
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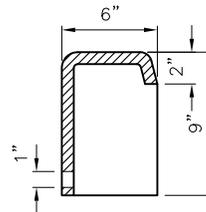
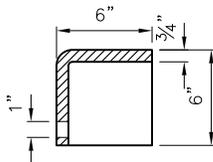
SECTION B-B



6" HOOD



9" HOOD



REF STD SPEC SEC 7-05

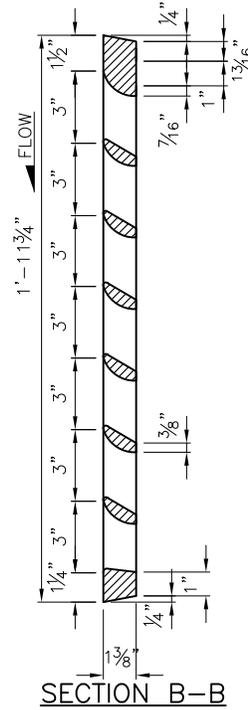
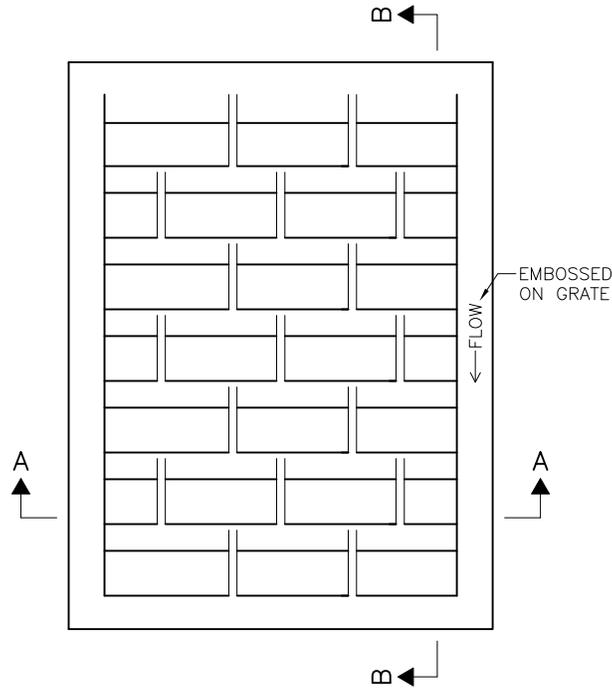


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NOT TO SCALE

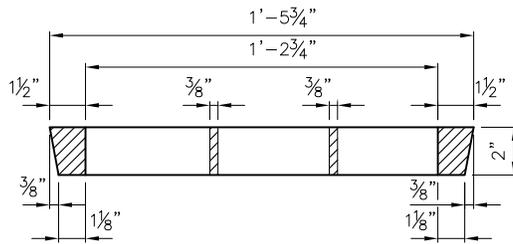
CURB INLET FRAME

DRAFT



SECTION B-B

GRATE MATERIAL:
DUCTILE IRON



SECTION A-A

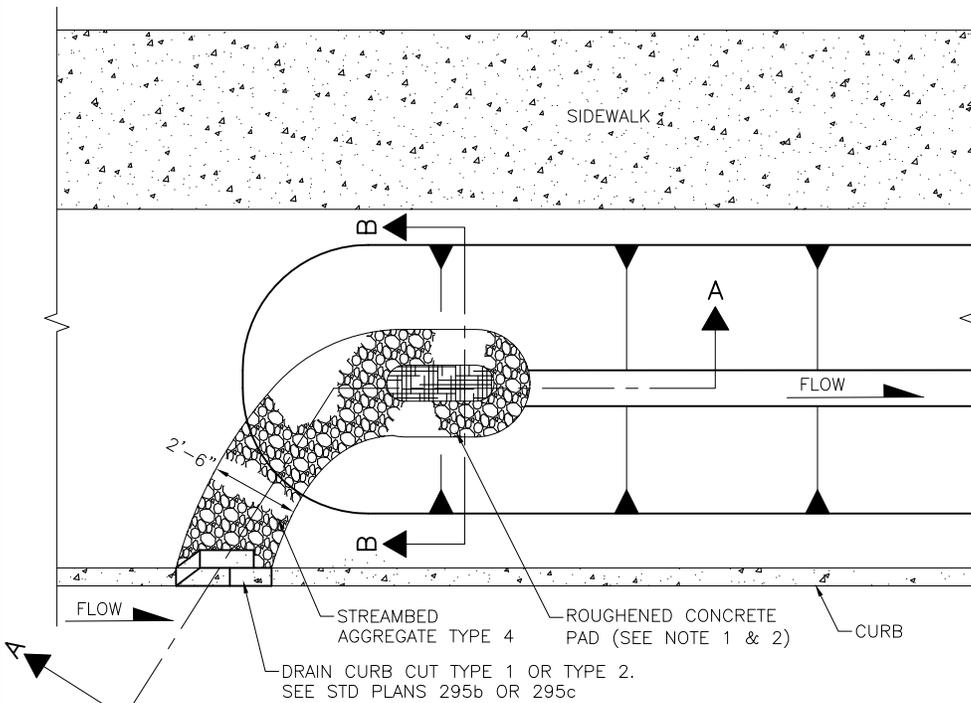
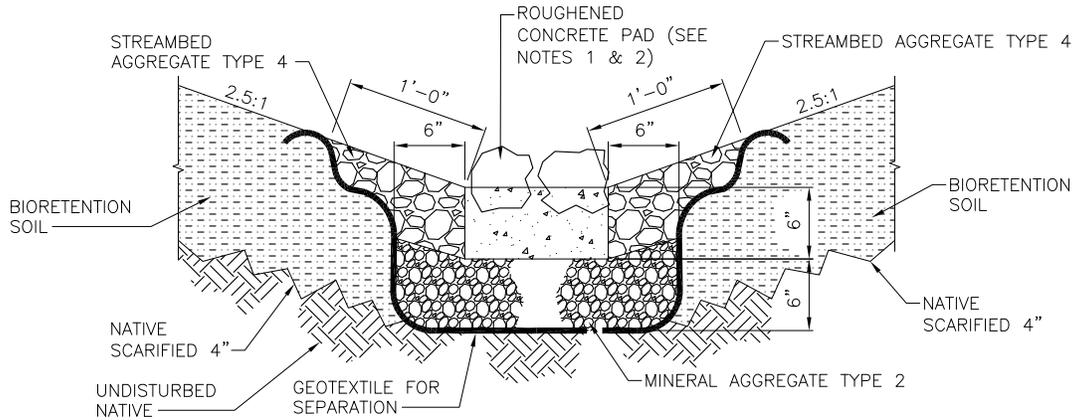
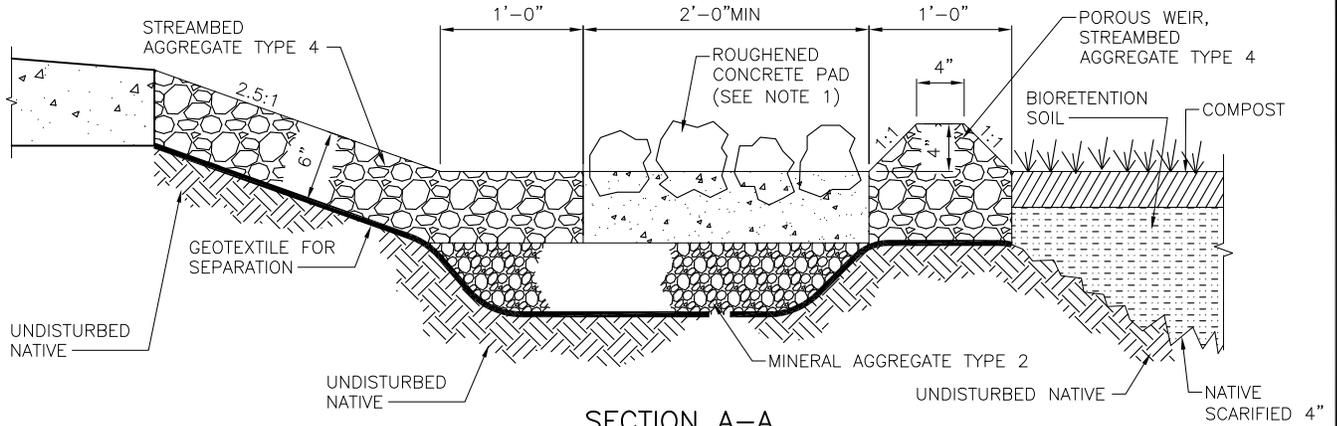
REF STD SPEC SEC



City of Seattle

NOT TO SCALE

CURB INLET VANED GRATE



NOTES:

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

PRESETTLING ZONE

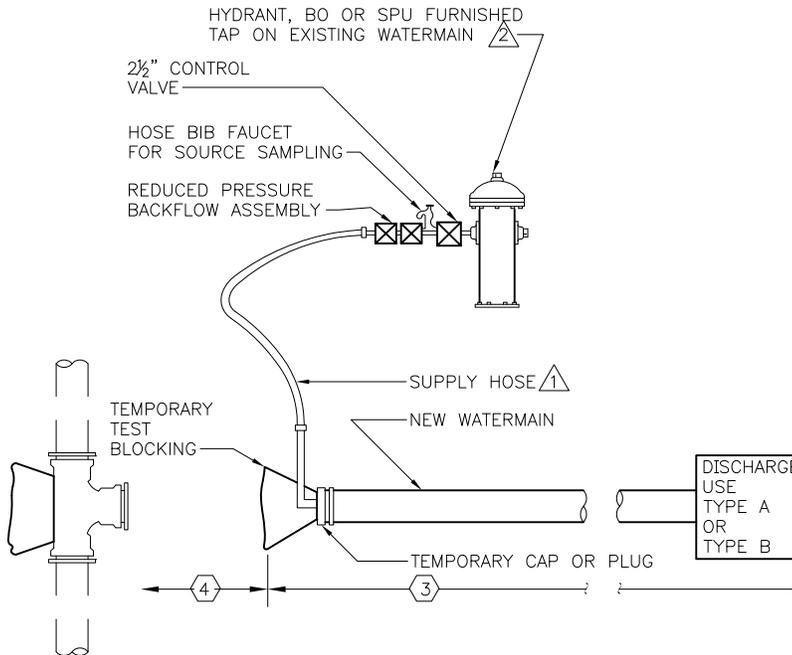
REF STD SPEC SEC 7-21, 9-03



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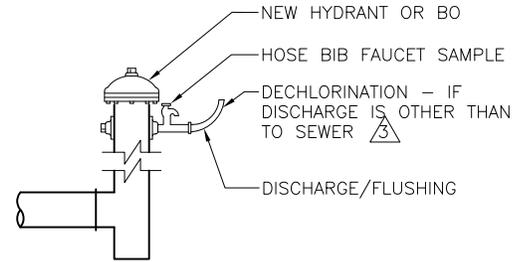
NOT TO SCALE

PRESETTLING ZONE



DETAIL 1

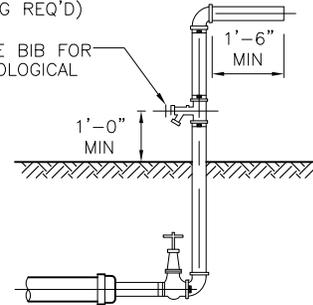
TEMPORARY FLUSHING/TESTING CONN



TYPE A

TEMP SAMPLE TAP AND FLUSHING ASSEMBLY (RESTRAINT OR BLOCKING REQ'D)

1/2" HOSE BIB FOR BACTERIOLOGICAL SAMPLE



TYPE B

NOTES:

1. ALL FITTINGS MUST BE DUCTILE IRON
2. ALL EXCAVATION MUST PROVIDE A MINIMUM OF 1'-0" CLEAR AROUND PIPE AND FITTINGS.
3. THESE PLANS ARE FOR DIP AND CIP WATERMAINS 12" OR SMALLER DIA OTHER SIZES AND TYPES SEE PROJECT DRAWINGS
4. REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) MUST BE INSTALLED AS A UNIT (TWO SHUT-OFF VALVES, RELIEF PORT, TWO CHECK VALVES AND FOUR TEST COCKS). WHEN RPBA IS CONNECTED TO HYDRANT AND THE HOSE BIB FAUCET SAMPLE THEY MUST BE CAPPED WHEN NOT IN USE. ASSEMBLY MUST BE TESTED WHEN INSTALLED BY A WASHINGTON STATE CERTIFIED BACKFLOW ASSEMBLY TESTER (BAT) AND A CURRENT TEST REPORT MUST BE ON SITE. FOR INSTALLATION PROCEDURES CALL 684-3536.
5. ALL FITTINGS AND MATERIALS FURNISHED BY CONTRACTOR AND TO BE INSTALLED BY SPU MUST BE VERIFIED, INSPECTED AND ON THE JOB SITE PRIOR TO SHUTDOWN OF EXISTING MAIN. FAILURE TO MEET THIS REQUIREMENT COULD RESULT IN DELAYS.

LEGEND

- ① CLEAN & DISINFECTED POTABLE WATER HOSE ONLY. SIZE FLUSHING RISER PER TABLE IN STD SPEC SEC 7-11.3(12)
- ② HYDRANT PERMIT REQUIRED
- ③ CHECK WITH SEWER UTILITY BEFORE DISCHARGE TO SEWERS
- ④ CONTRACTOR TO DETERMINE ALIGNMENT, GRADE AND OUTSIDE DIAMETER OF EXISTING PIPE PRIOR TO INSTALLING NEW WATERMAIN. ENGINEER TO DETERMINE OUTSIDE DIAMETER OF EXISTING PIPE WHEN CONTRACTOR EXCAVATES TO DETERMINE ALIGNMENT & GRADE.
- ⑤ ALL EXCAVATION, PIPE, FITTINGS (EXCEPT AS NOTED BELOW), OTHER MATERIAL, BEDDING, BACKFILL, COMPACTION & STREET RESTORATION BY CONTRACTOR. ALL MATERIALS MUST BE ON JOB SITE PRIOR TO SHUTDOWN OF EXISTING MAIN.
- ⑥ INSTALLED BY CONTRACTOR
- ⑦ CONNECTION PIPE: CONTRACTOR FURNISHED, INSTALLED BY SPU
- ⑧ WATERMAIN WITH PLAIN ENDS
- ⑨ MECHANICAL JOINT SLEEVE WITH SPACER CUT TO FIT GAP, FURNISHED AND INSERTED AT TIME OF CONNECTION BY SPU
- ⑩ TAPPING SLEEVE & TAPPING VALVE FURNISHED AND INSTALLED BY SPU
- ⑪ APPLIES TO PIPES 4" THROUGH 12". ALL LARGER SIZES TO BE ADDRESSED ON DRAWINGS
- ⑫ 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

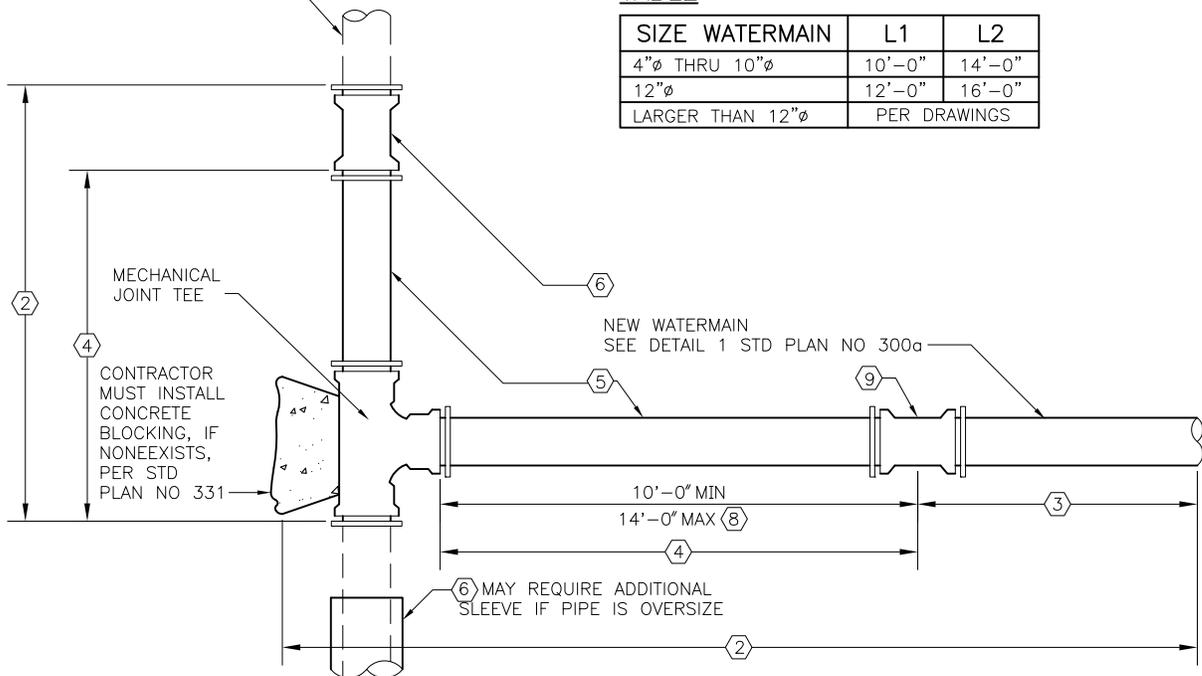
ELEVATION



TABLE

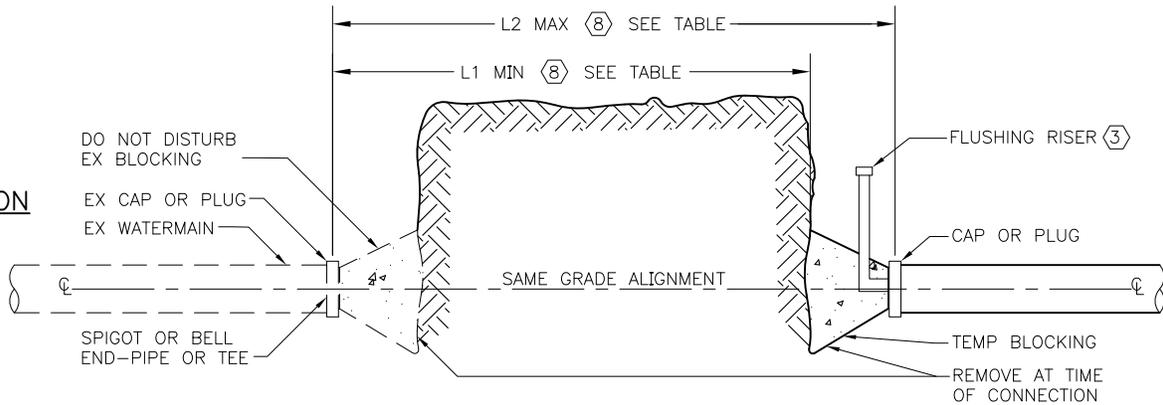
SIZE WATERMAIN	L1	L2
4"φ THRU 10"φ	10'-0"	14'-0"
12"φ	12'-0"	16'-0"
LARGER THAN 12"φ	PER DRAWINGS	

PLAN

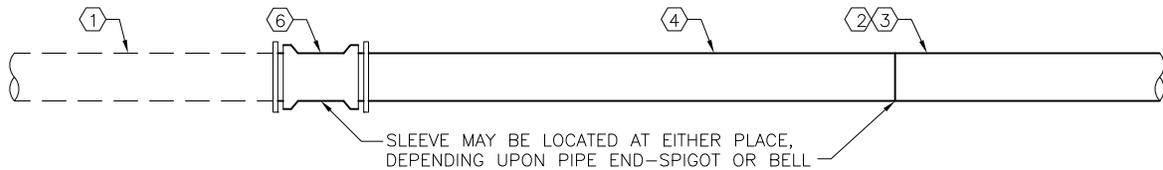


CONNECTIONS TO EXISTING MAIN, WITH A NEW TEE OR CROSS
(CUT IN NEW TEE)

ELEVATION



PLAN



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

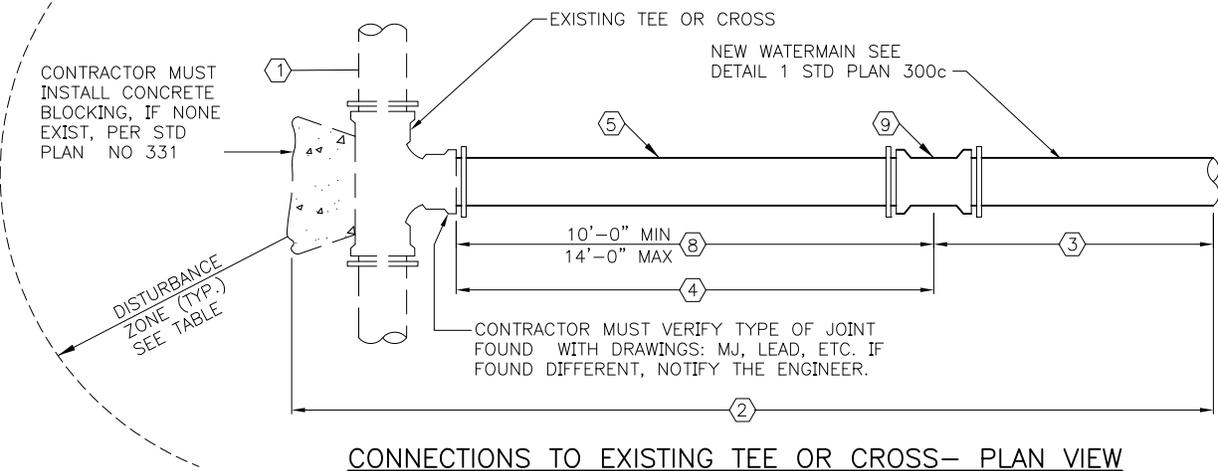
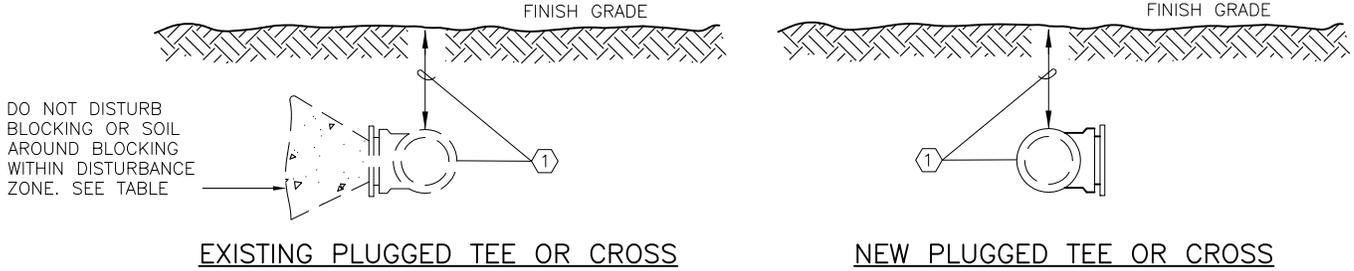
REF STD SPEC SEC 7-11



City of Seattle

NOT TO SCALE

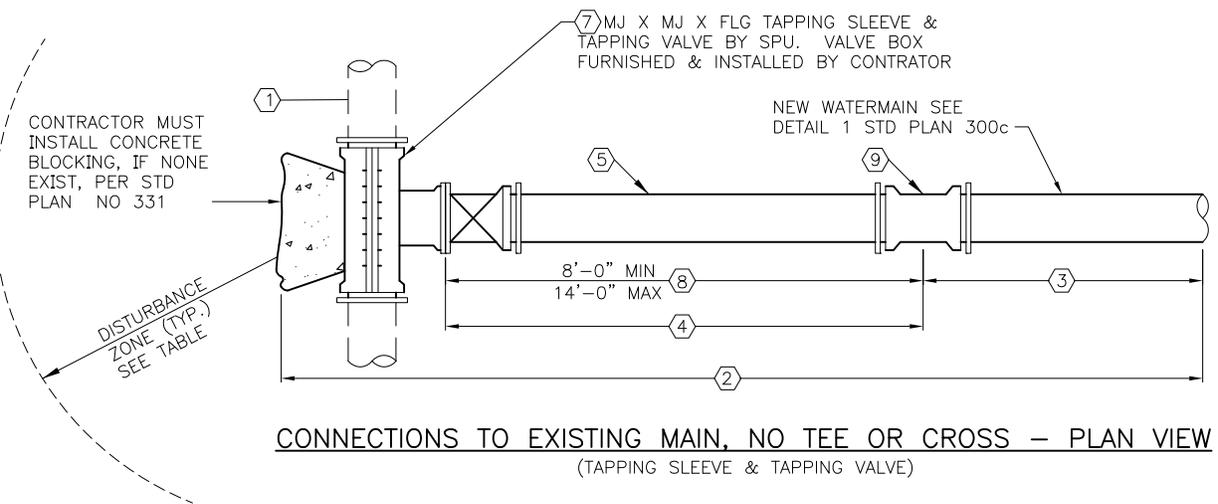
CONNECTIONS TO EXISTING WATERMANS



TABLE

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

* SPU MAY INCREASE DISTURBANCE ZONE. SEE CONTRACT DOCUMENTS



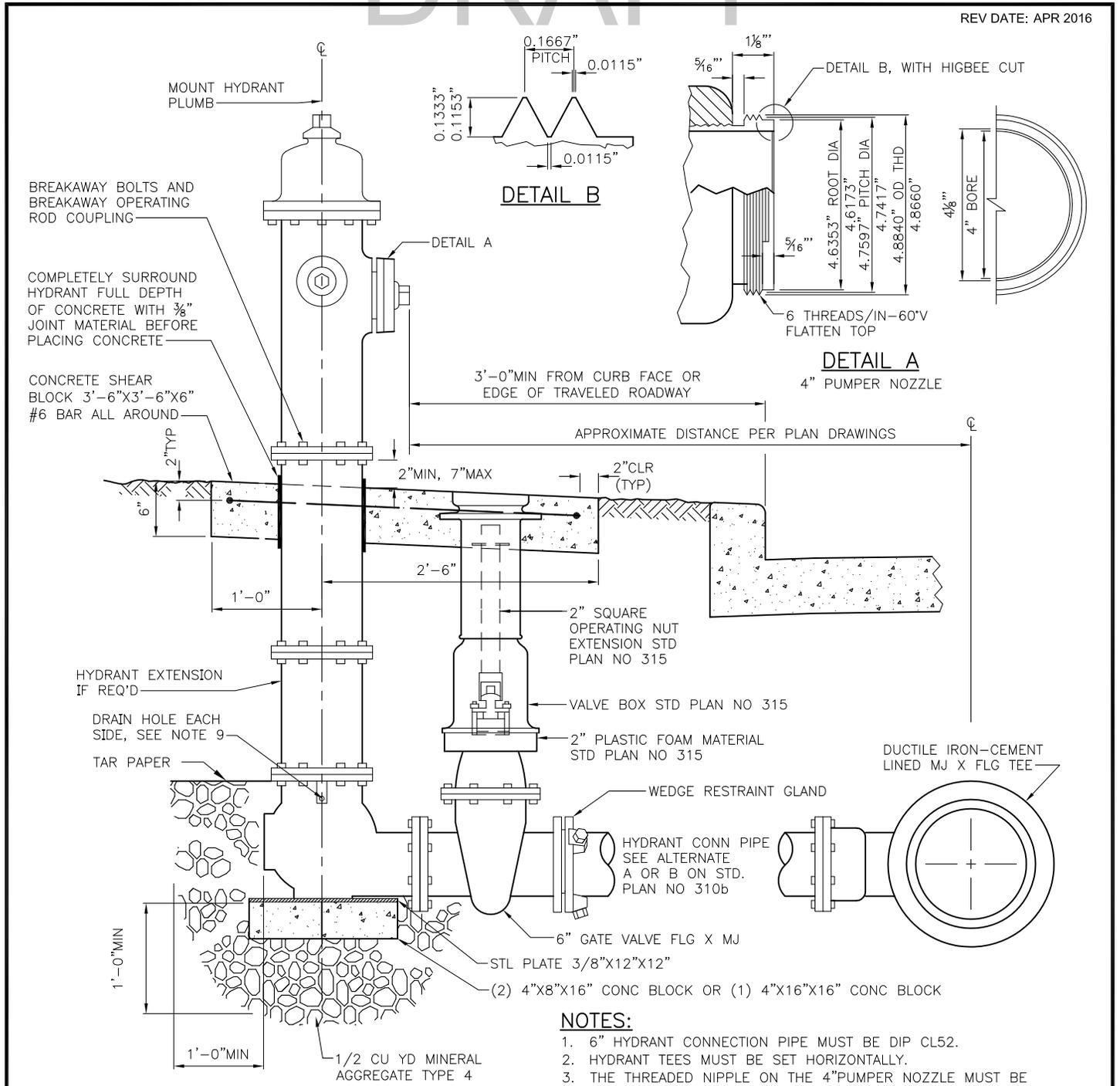
REF STD SPEC SEC 7-11



City of Seattle

NOT TO SCALE

CONNECTIONS TO EXISTING WATERMAINS



NOTES:

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

REF STD SPEC SEC 7-14

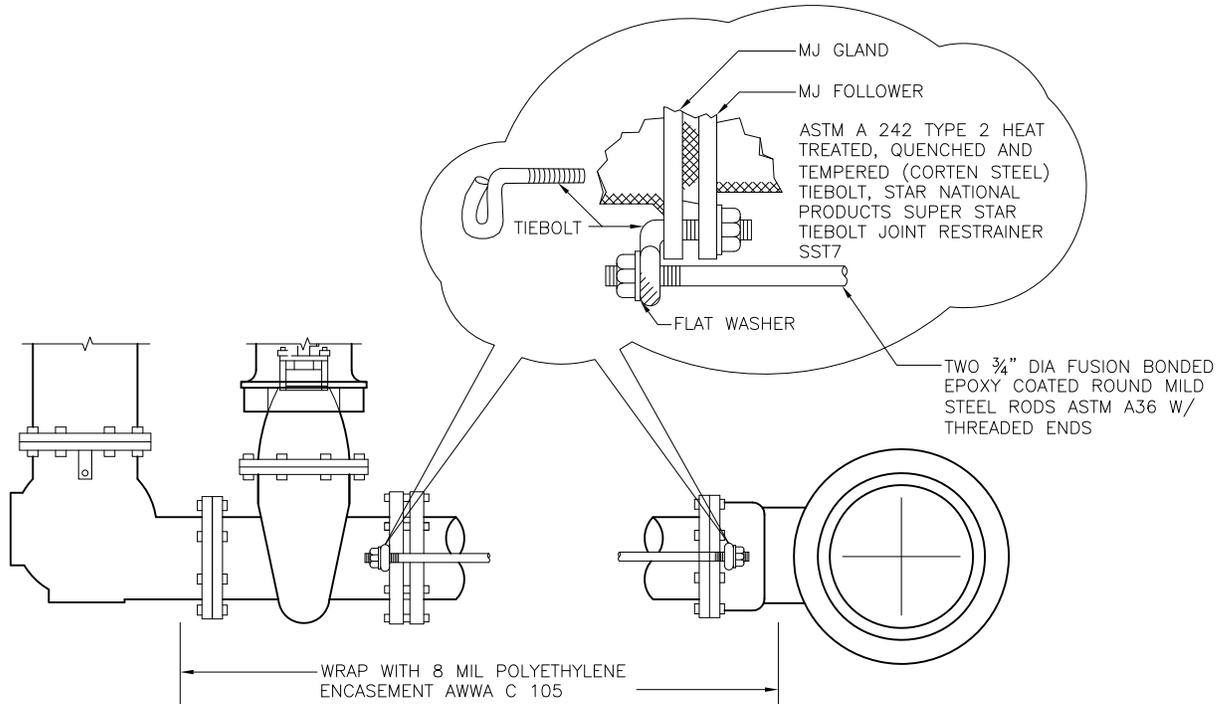


City of Seattle

NOT TO SCALE

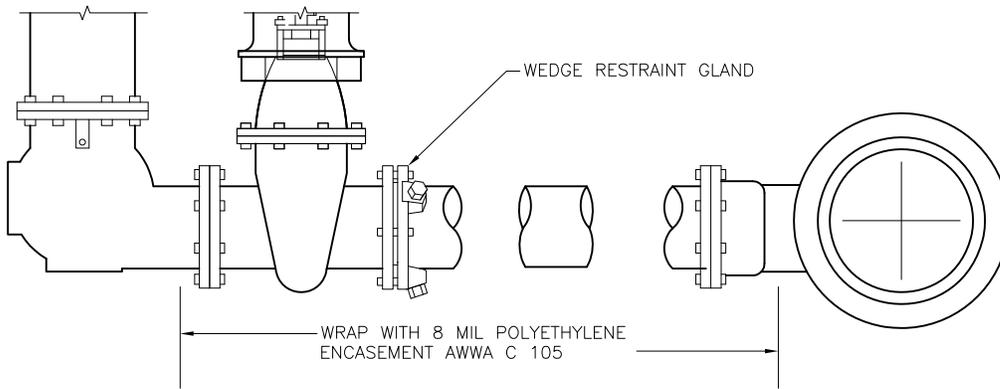
**TYPE 310 HYDRANT SETTING
DETAIL**

SEE GENERAL NOTES
BELOW



ALTERNATE A
TIEBOLT RESTRAINT

SEE GENERAL NOTES
BELOW



ALTERNATE B
MECHANICAL JOINT W/ WEDGE RESTRAINT GLANDS

NOTES:

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

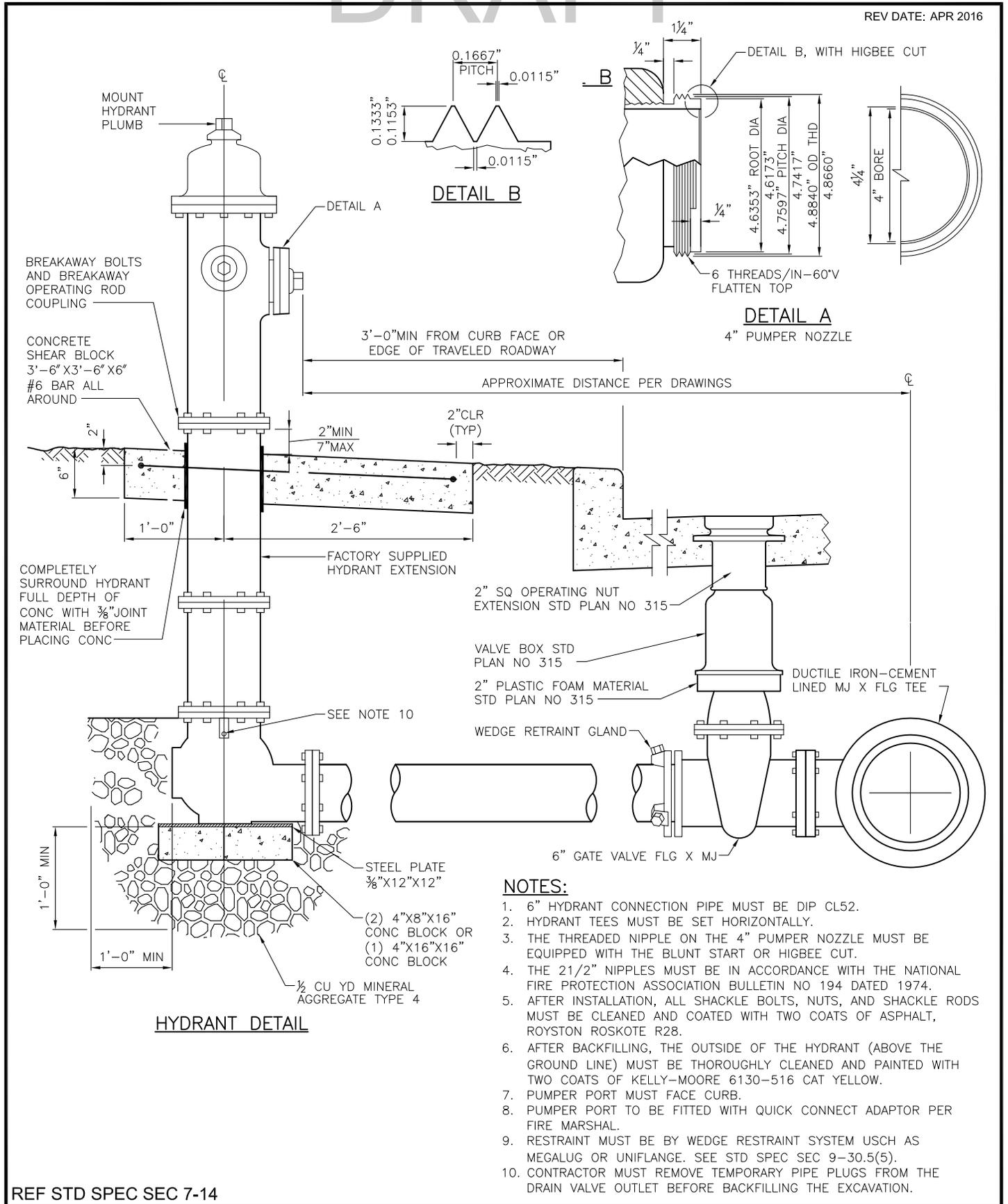
REF STD SPEC SEC 7-14



City of Seattle

NOT TO SCALE

**TYPE 310 HYDRANT SETTING
DETAIL**



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

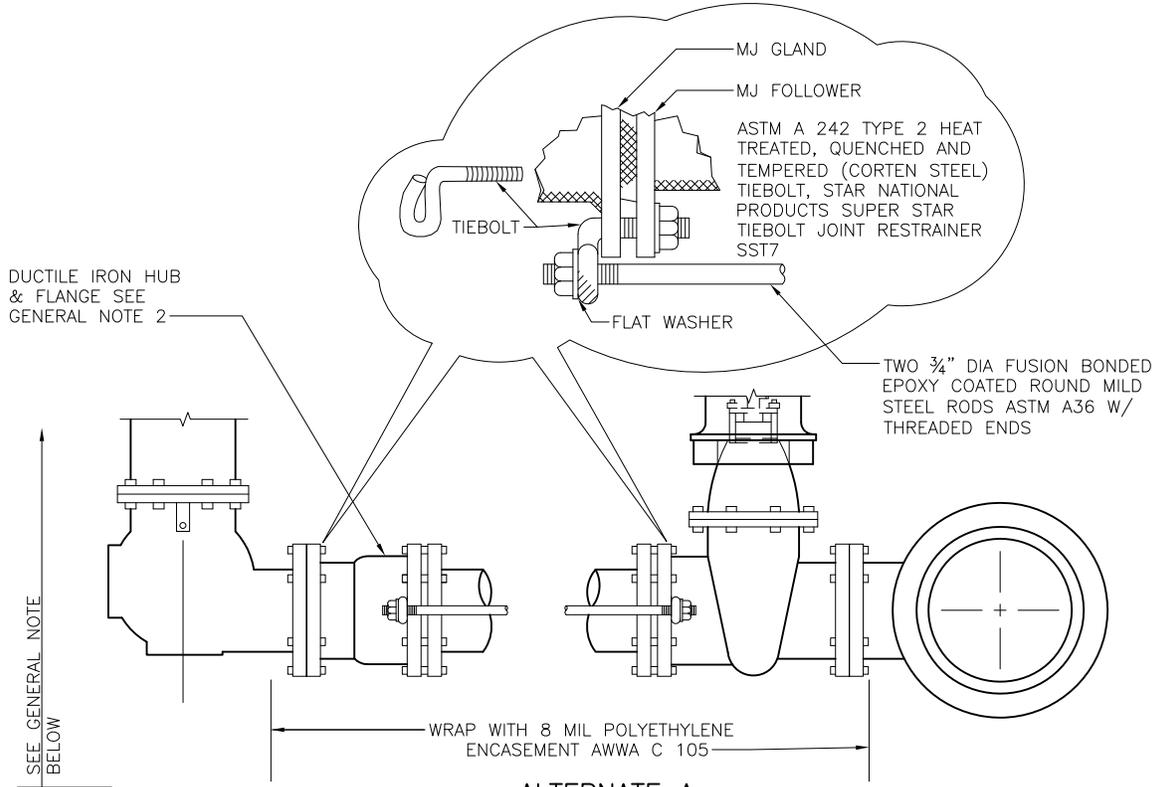
REF STD SPEC SEC 7-14



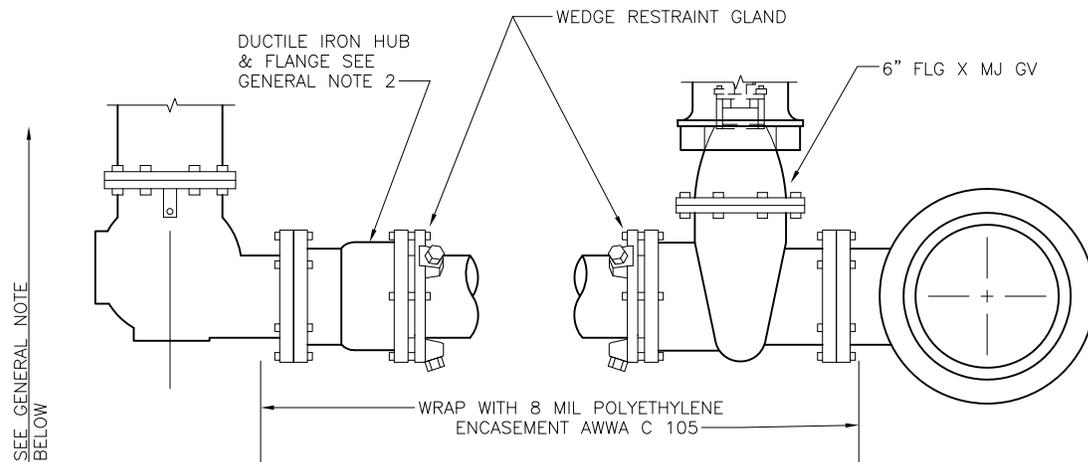
City of Seattle

NOT TO SCALE

TYPE 311 HYDRANT SETTING
 DETAIL



ALTERNATE A
TIEBOLT RESTRAINT



ALTERNATE B
MECHANICAL JOINT W/ WEDGE RESTRAINT GLANDS

GENERAL NOTES:

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

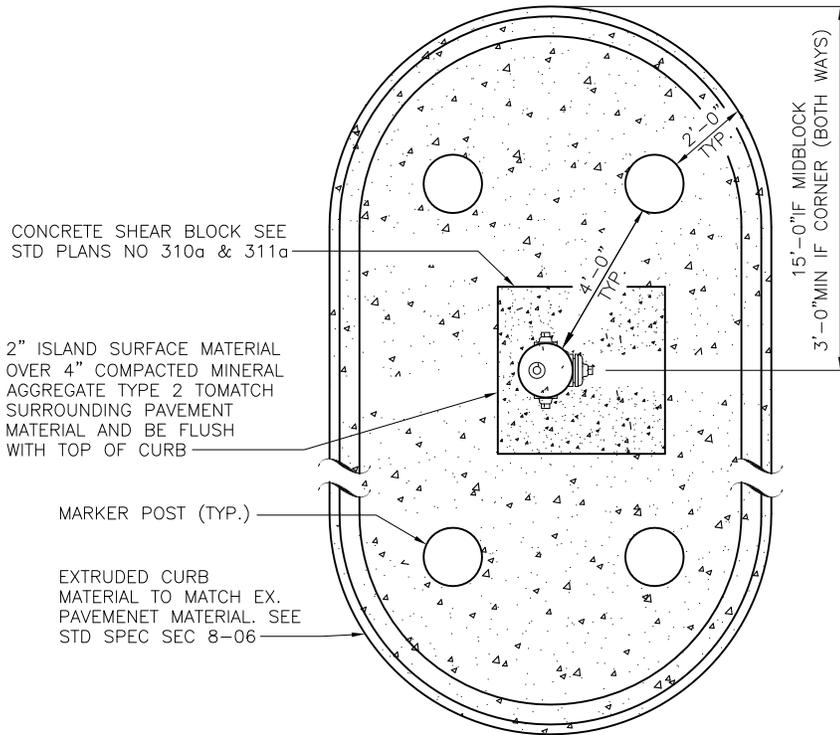
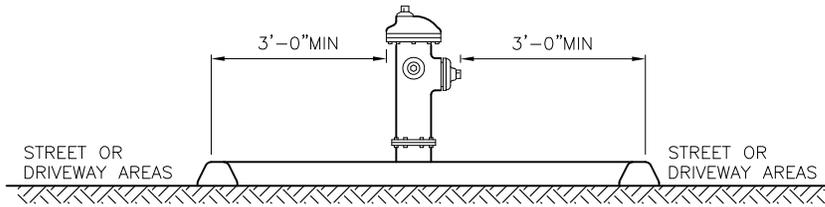
REF STD SPEC SEC 7-14



City of Seattle

NOT TO SCALE

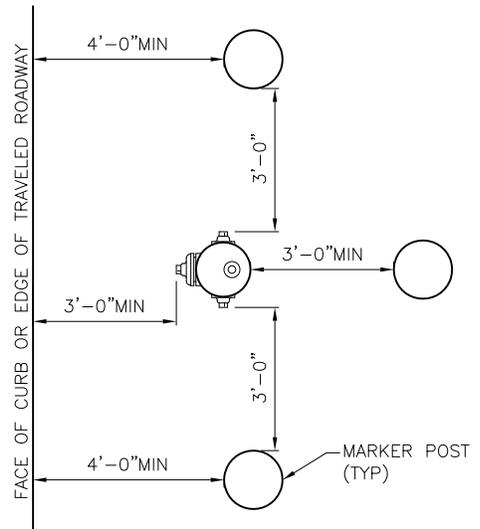
**TYPE 311 HYDRANT SETTING
DETAIL**



TRAFFIC ISLAND MARKER POST LAYOUT FOR FIRE HYDRANTS IN PARKING AREAS

NOTES:

- LAYOUT OF MARKER POST MUST BE VERIFIED FIRST WITH SPU AND SDOT
- 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

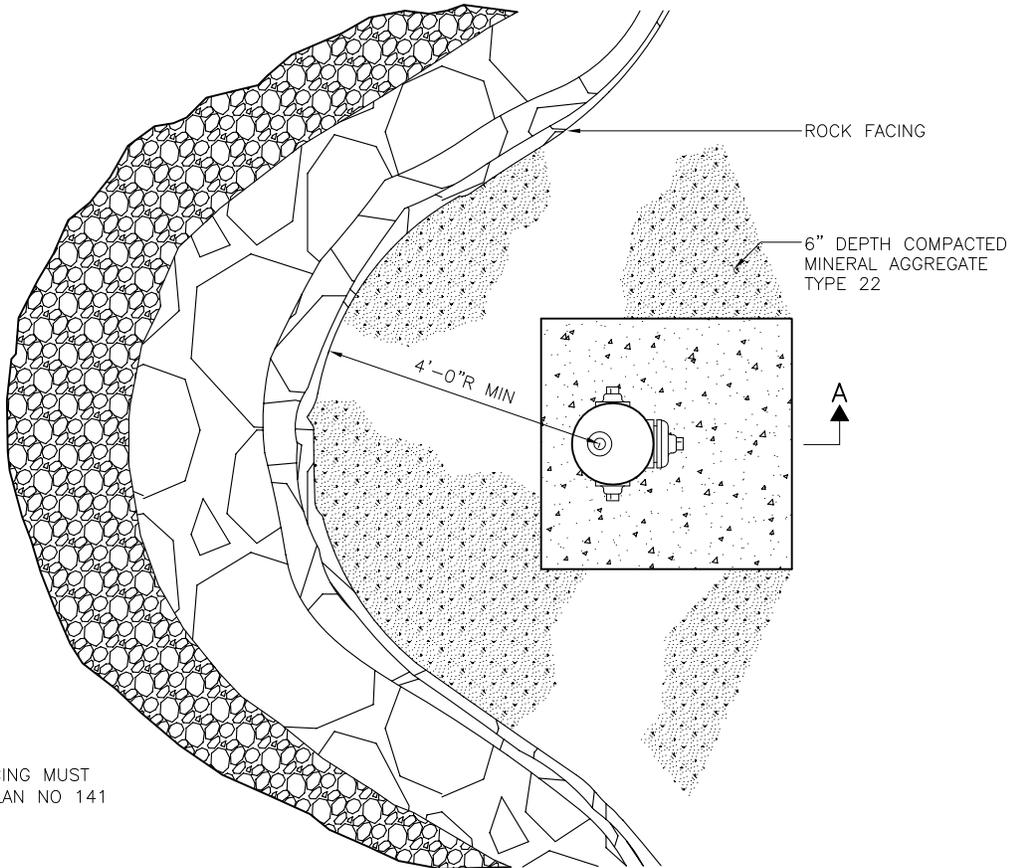


City of Seattle

NOT TO SCALE

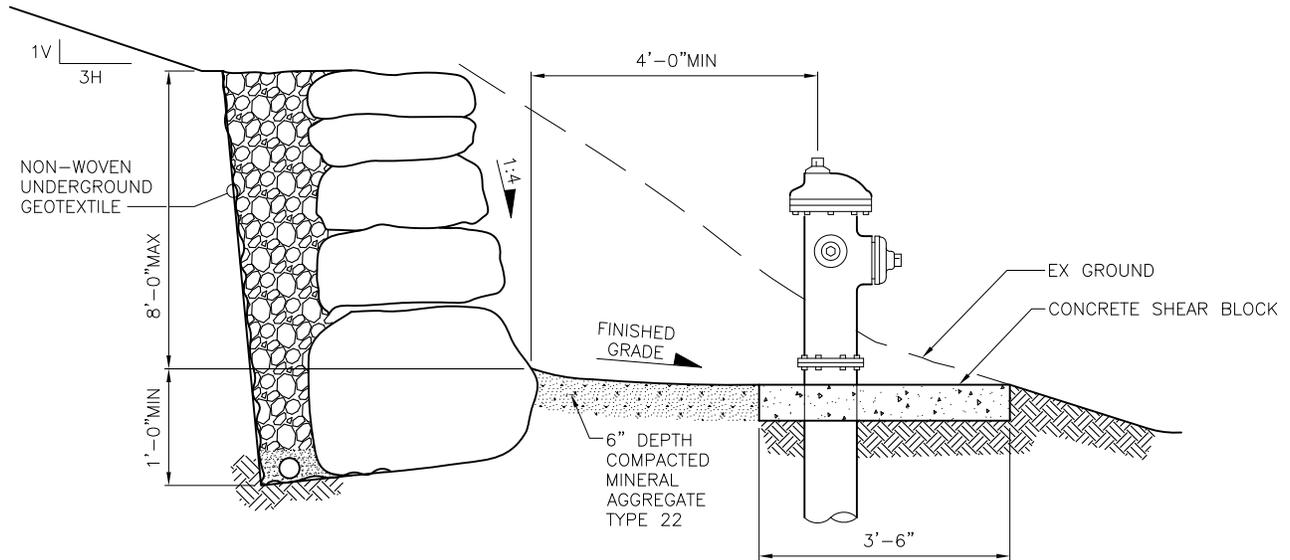
FIRE HYDRANT MARKER LAYOUT

PLAN



NOTE:

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



SECTION A-A

REF STD SPEC SEC 2-13



City of Seattle

NOT TO SCALE

WALL REQUIREMENTS FOR HYDRANTS

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

CURB OR EDGE OF
TRAVELED PORTION
OF ROADWAY



R/W MARGIN

5'-0" 5'-0" STD
MIN

NOTES:

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

R/W MARGIN

TREE



5'-0" MIN

LOT LINE

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

10'-0" MIN

SIDE SEWER

10'-0"STD N OR E

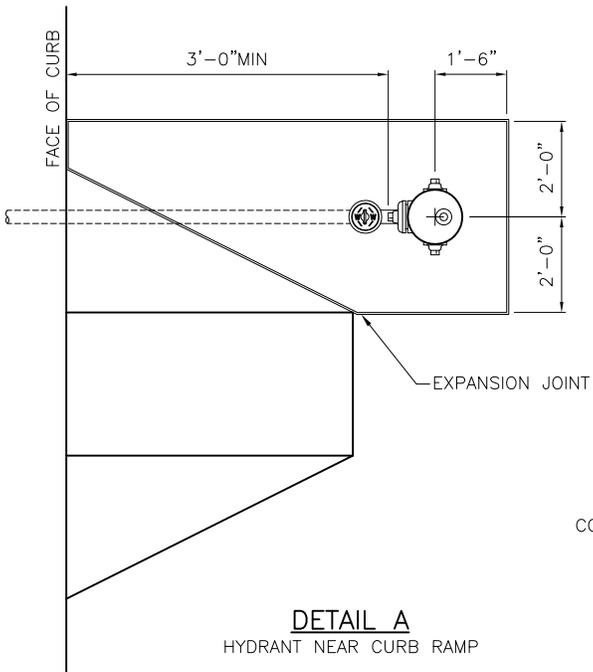
UTILITY POLE, GUARD POST, BUILDING WALL OR ANY OTHER FIXED STRUCTURE



5'-0" STD

R/W MARGIN

SEE DETAIL A



DETAIL A
HYDRANT NEAR CURB RAMP

REF STD SPEC SEC 7-14



City of Seattle

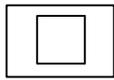
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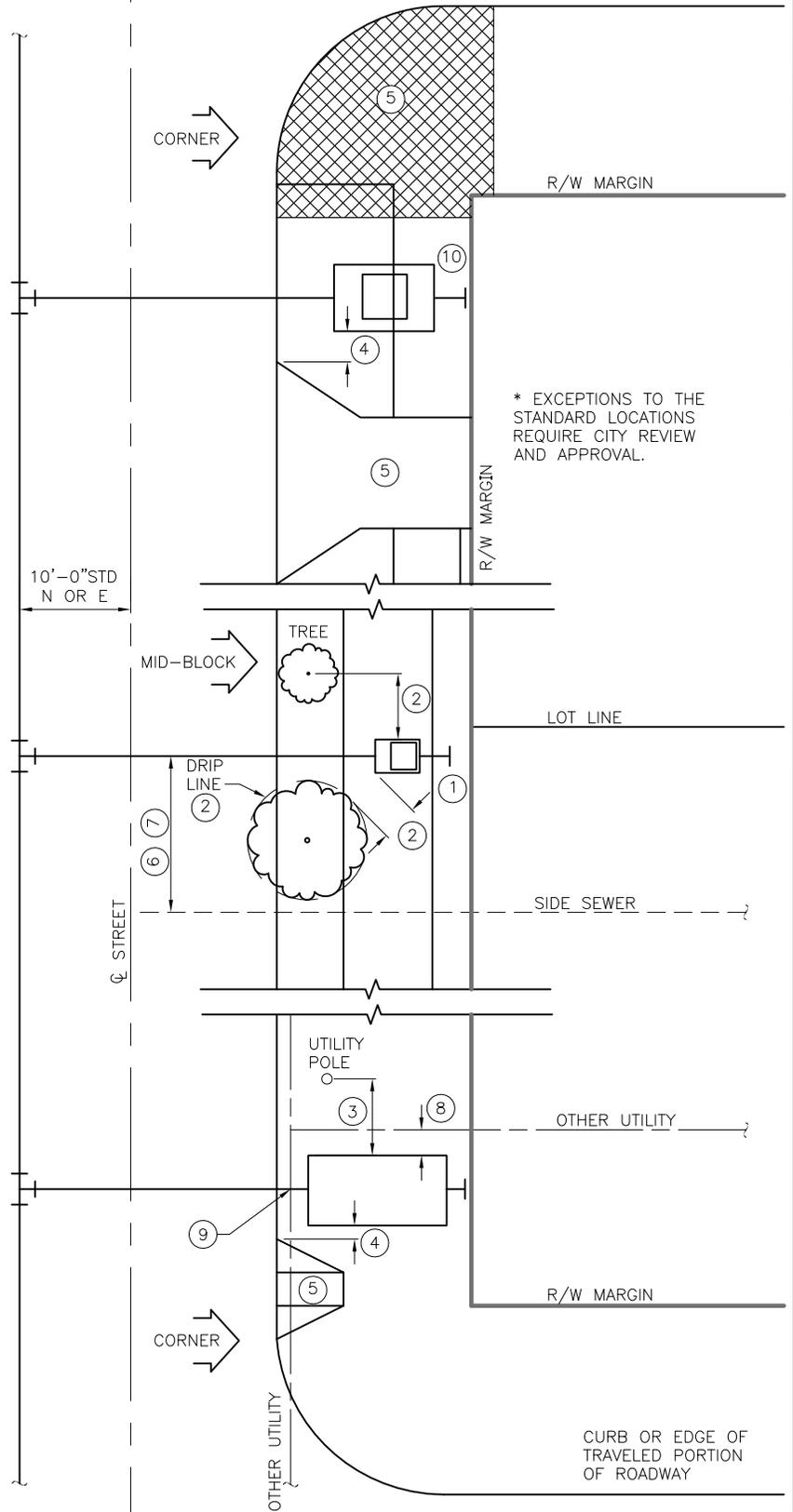
**FIRE HYDRANT
LOCATIONS & CLEARANCES**

NOTES:

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

TYPES OF WATER SERVICES

-  6" & LARGER DOMESTIC SERVICE (DS) 6'X9' VAULT NCVP#
-  3" & 4" DOMESTIC SERVICE (DS) 5'X7' VAULT NCVP#
-  4" & LARGER FIRE SERVICES (DC DETECTOR CHECK) 4'X4' AREA (TYP DIRECT BURY) NCVP#
-  2" & SMALLER WATER SERVICE INSTALLED IN 1.5'X2' METER BOX MB#



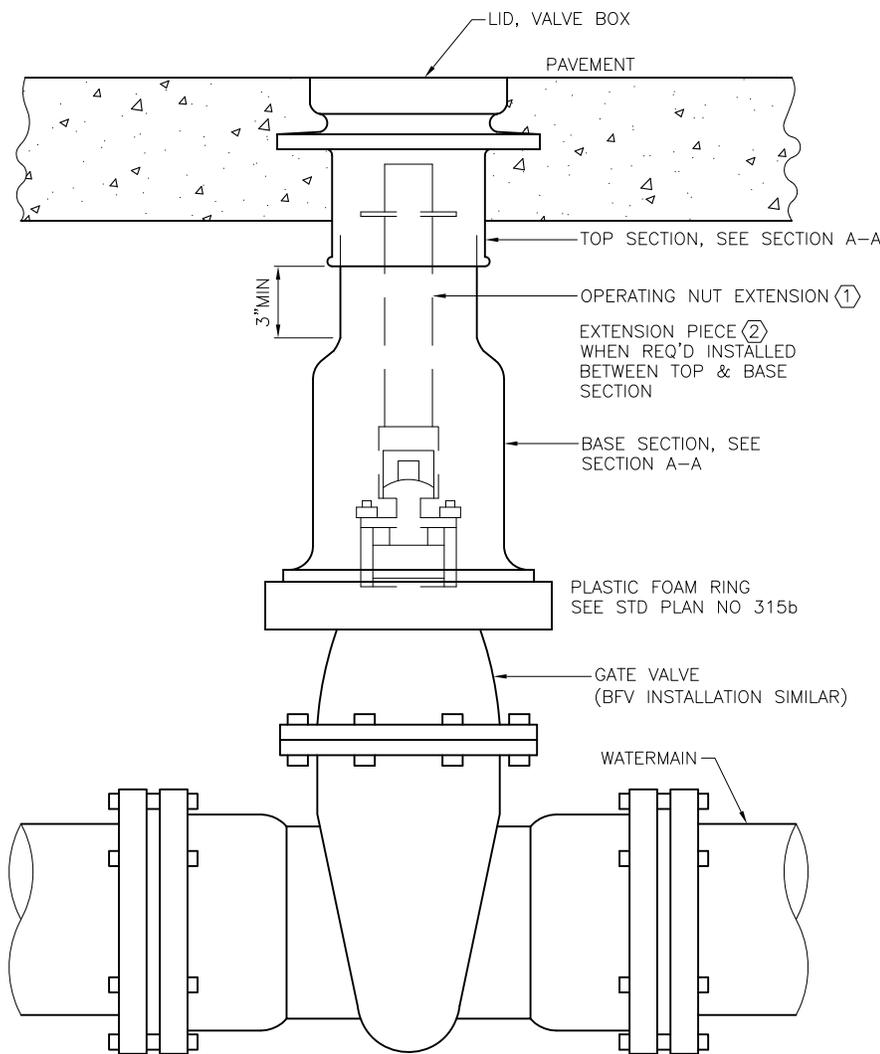
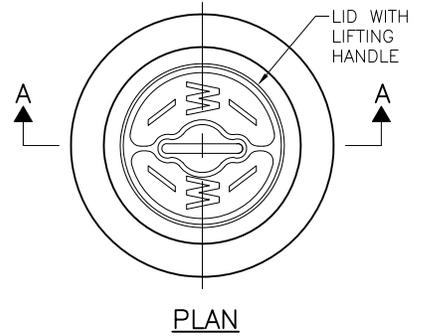
REF STD SPEC SEC 1-07.17(2)



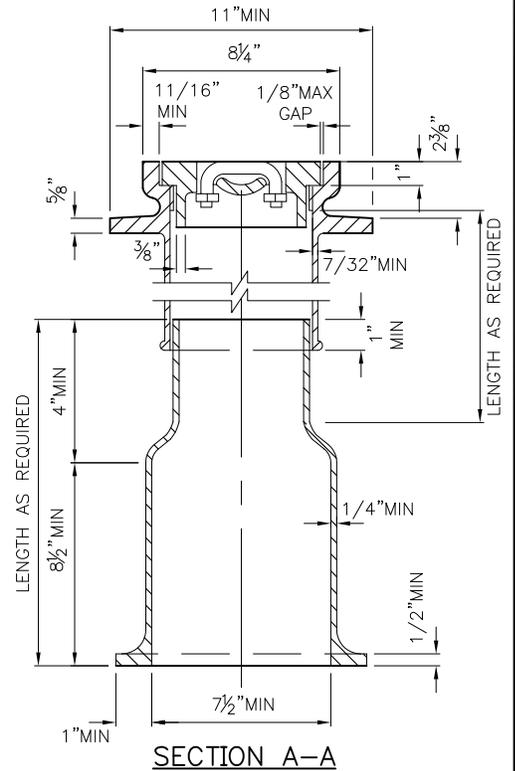
City of Seattle

NOT TO SCALE

WATER SERVICE VAULT LOCATION CLEARANCES



VALVE BOX ASSEMBLY
TYPICAL SETTING DETAIL



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

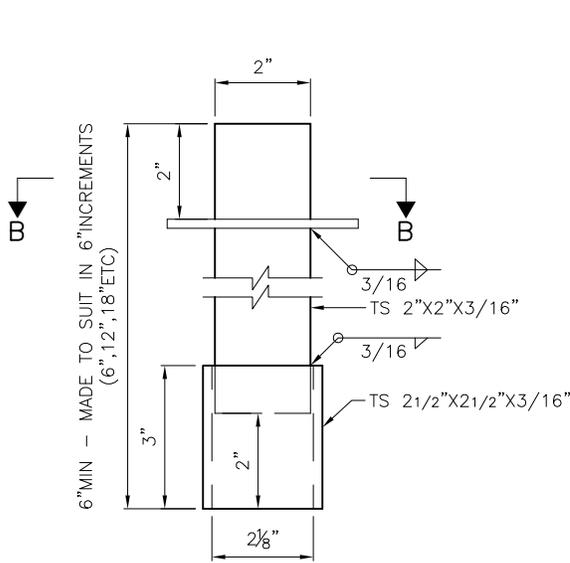
REF STD SPEC SEC 7-12



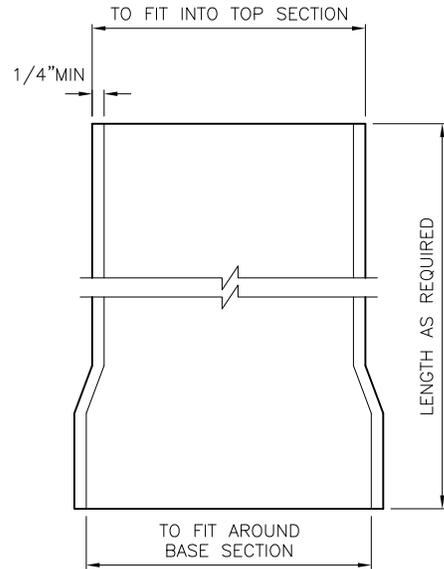
City of Seattle

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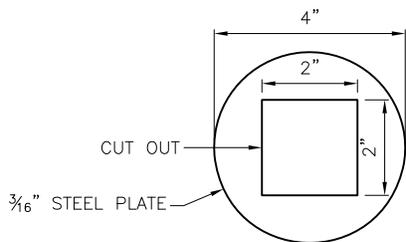
CAST IRON VALVE BOX & OPERATING NUT EXTENSION



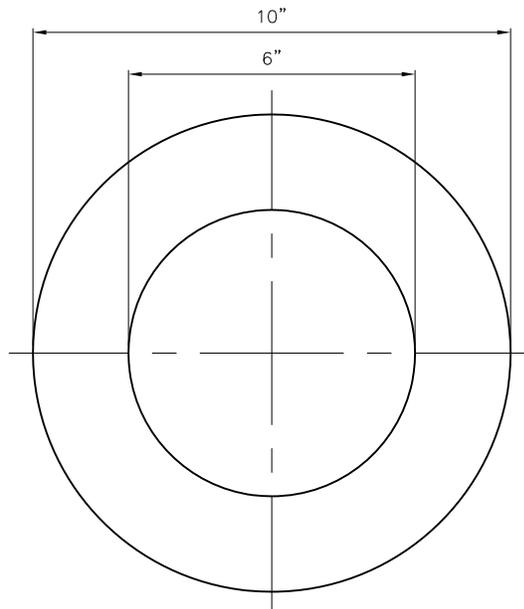
OPERATING NUT EXTENSION DETAIL 1



EXTENSION PIECE 2 WHEN REQUIRED



SECTION B-B



PLASTIC FOAM RING DETAIL

NOTES:

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

LEGEND:

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

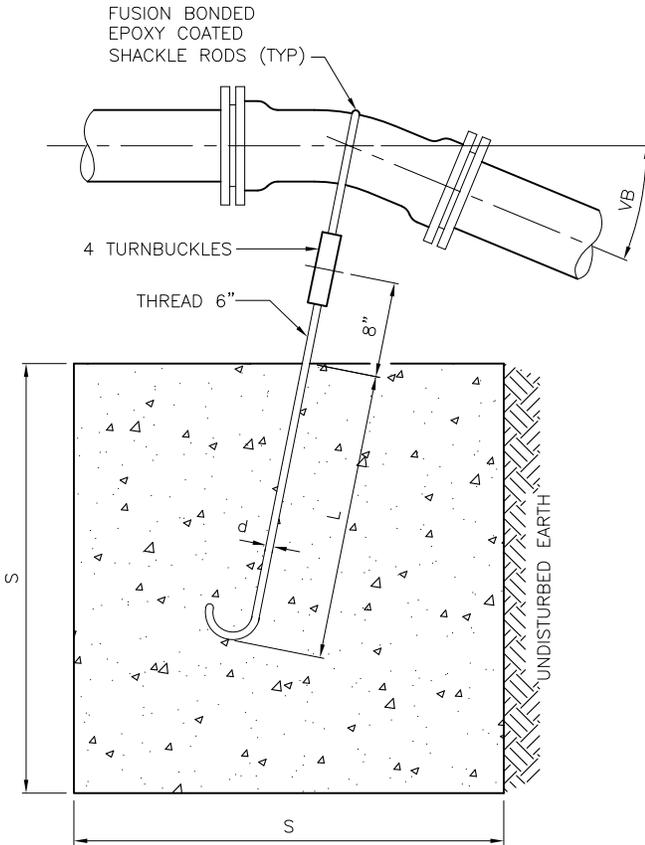
REF STD SPEC SEC 7-12 & 9-30



City of Seattle

NOT TO SCALE

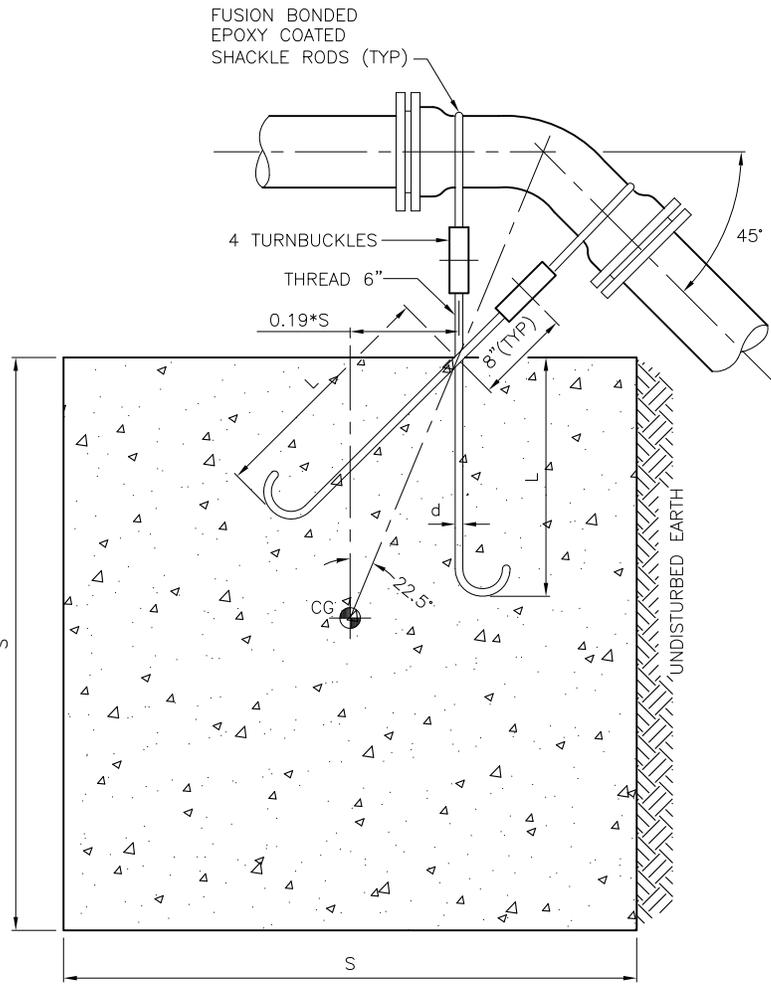
CAST IRON VALVE BOX & OPERATING NUT EXTENSIONS



TYPE A

TYPE A BLOCKING FOR 11 1/4° & 22 1/2° VERTICAL BENDS

PIPE SIZE NOM DIA INCHES	TEST PRESSURE PSI	VB VERTICAL BEND DEGREES	NO OF CU FT OF CONC BLOCKING	S SIDE OF CUBE FEET	d DIA OF SHACKLE RODS (2) INCHES	L 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		24
8"	300	11 1/4	16	2 1/2	3/4	24
		22 1/2	43	3 1/2		24
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

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

FOR NOTES SEE STD PLAN NO 330b

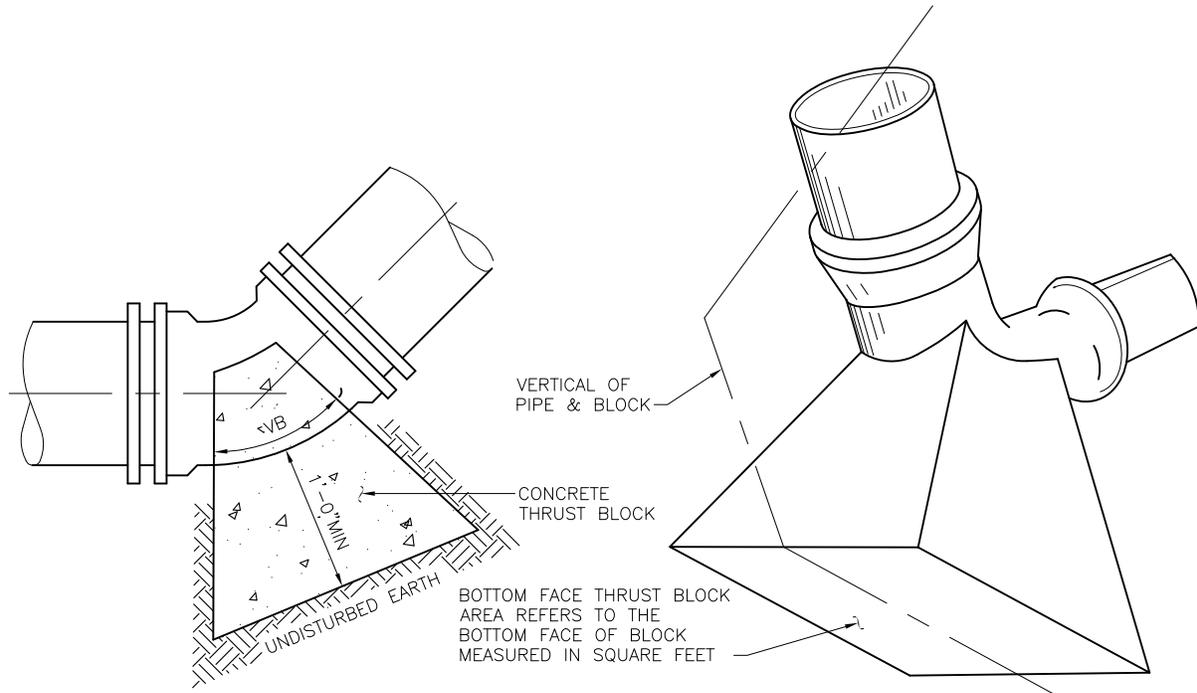
REF STD SPEC SEC 7-11



City of Seattle

NOT TO SCALE

WATERMAIN THRUST BLOCKING VERTICAL FITTINGS



TYPE C

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

NOTES:

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

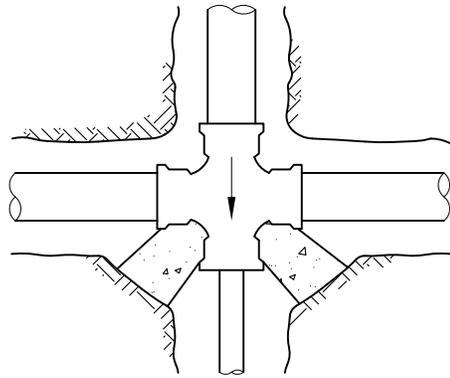
REF STD SPEC SEC 7-11



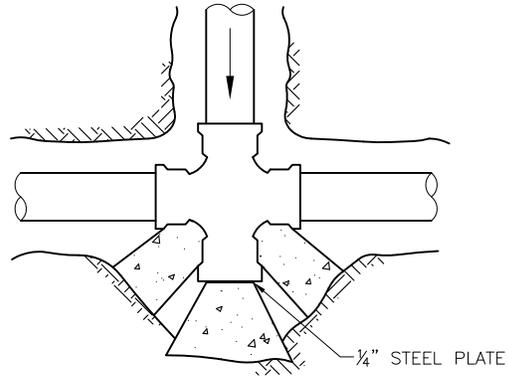
City of Seattle

NOT TO SCALE

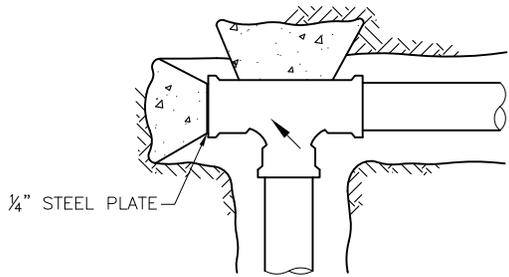
WATERMAIN THRUST BLOCKING
VERTICAL FITTINGS



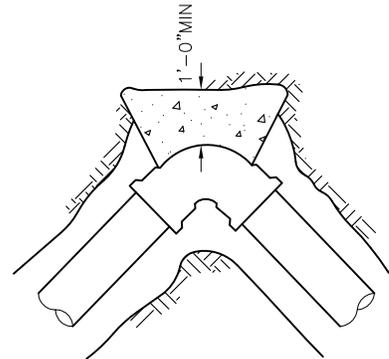
UNBALANCED CROSS



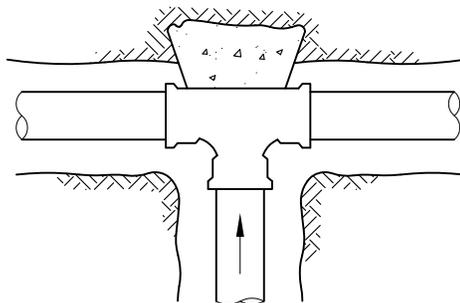
CROSS WITH PLUG



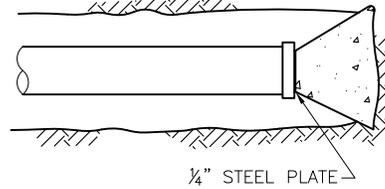
PLUGGED TEE



HORIZONTAL BEND



TEE



PIPE & CAP

THRUST BLOCK AREA IN SQUARE FEET (SEE STD PLAN NO 331B)													
PIPE SIZE	FIRM SILT OR FIRM SILTY SAND				COMPACT SAND				COMPACT SAND & GRAVEL				
	90° BEND	TEE	45° BEND CAP OR PLUG	11¼° & 22½° BEND	90° BEND	TEE	45° BEND CAP OR PLUG	11¼° & 22½° BEND	90° BEND	TEE	45° BEND CAP OR PLUG	11¼° & 22½° BEND	
4"	7.0	4.2	4.2	1.7	2.9	2.1	2.1	1.0	2.2	1.6	1.6	1.0	
6"	13.3	9.4	9.4	3.8	6.7	4.7	4.7	1.9	5.0	3.5	3.5	1.4	
8"	23.3	16.7	16.7	6.7	11.7	8.4	8.4	3.4	8.8	6.3	6.3	2.5	
12"	53.0	37.5	37.5	15.0	26.5	18.8	18.8	7.5	20.0	14.0	14.0	5.6	

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

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

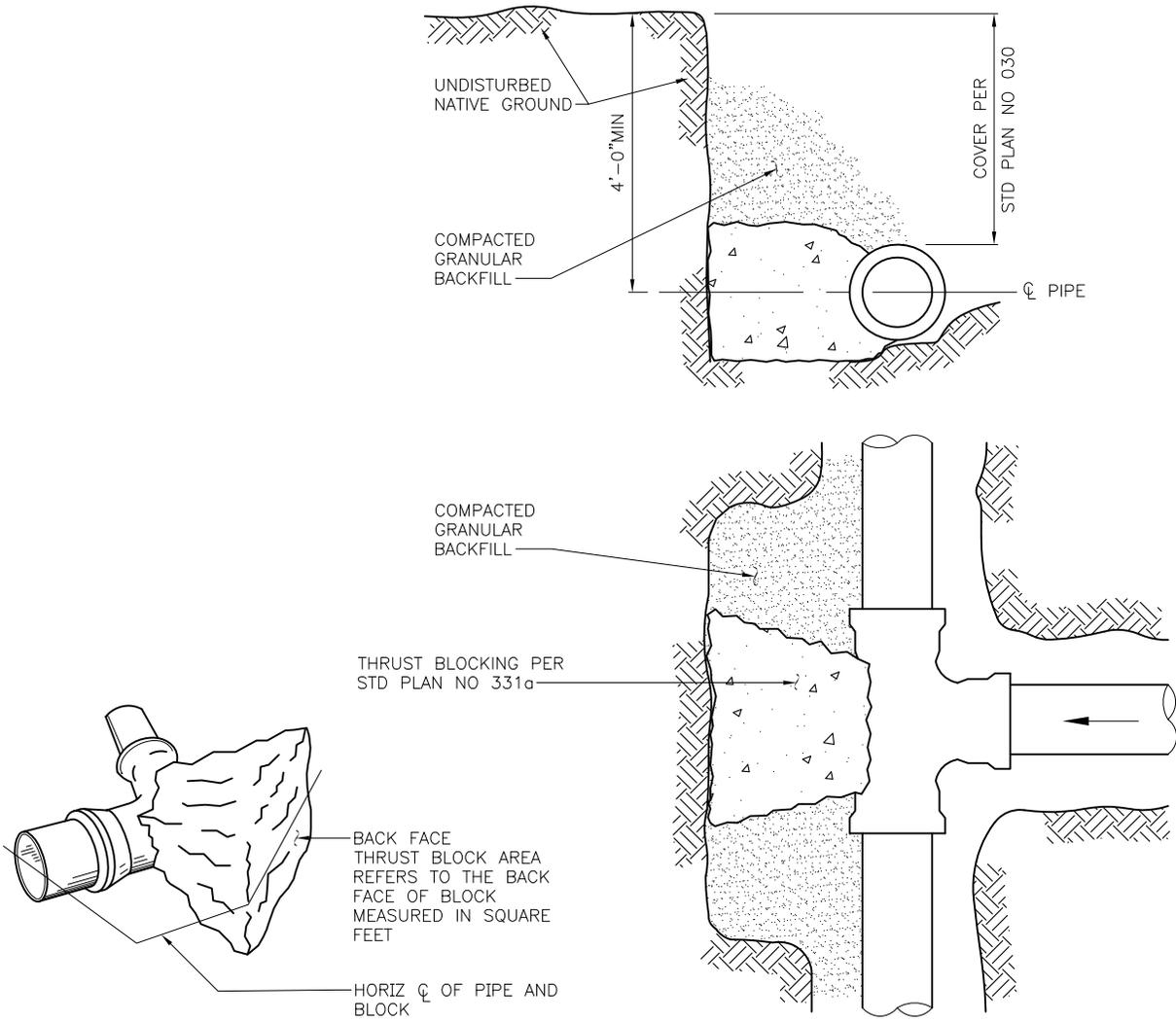
REF STD SPEC SEC 7-11



City of Seattle

NOT TO SCALE

WATERMAIN THRUST BLOCKING HORIZONTAL FITTINGS



THRUST BLOCK DETAIL

NOTES:

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

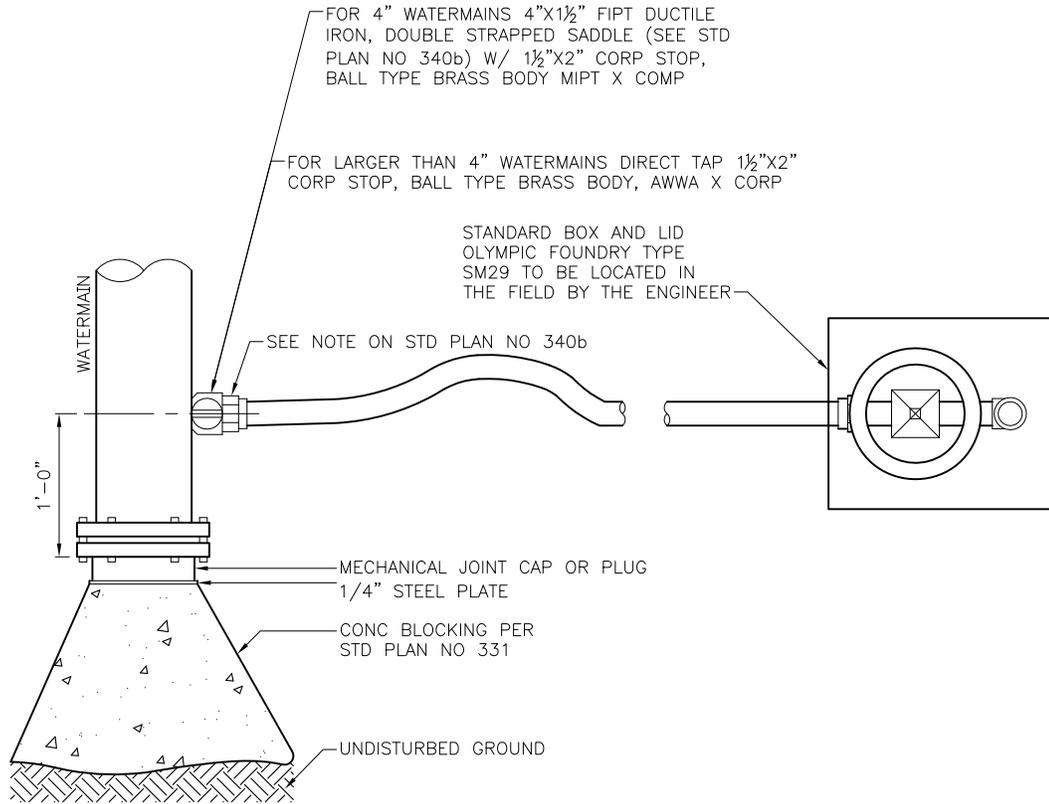
REF STD SPEC SEC 7-11



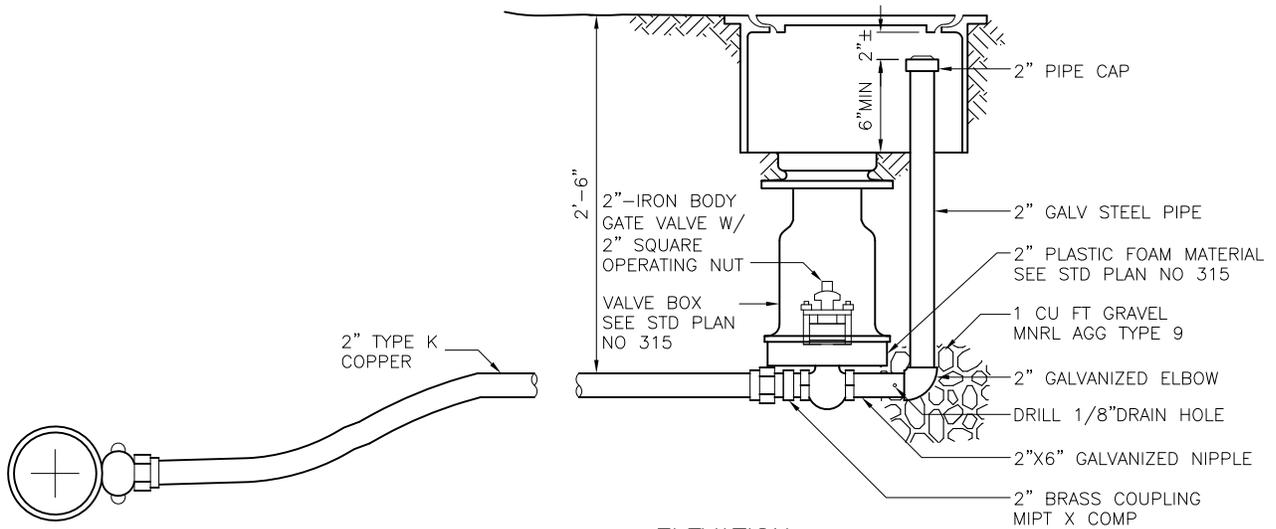
City of Seattle

NOT TO SCALE

**WATERMAIN THRUST BLOCKING
HORIZONTAL FITTINGS**



PLAN



ELEVATION

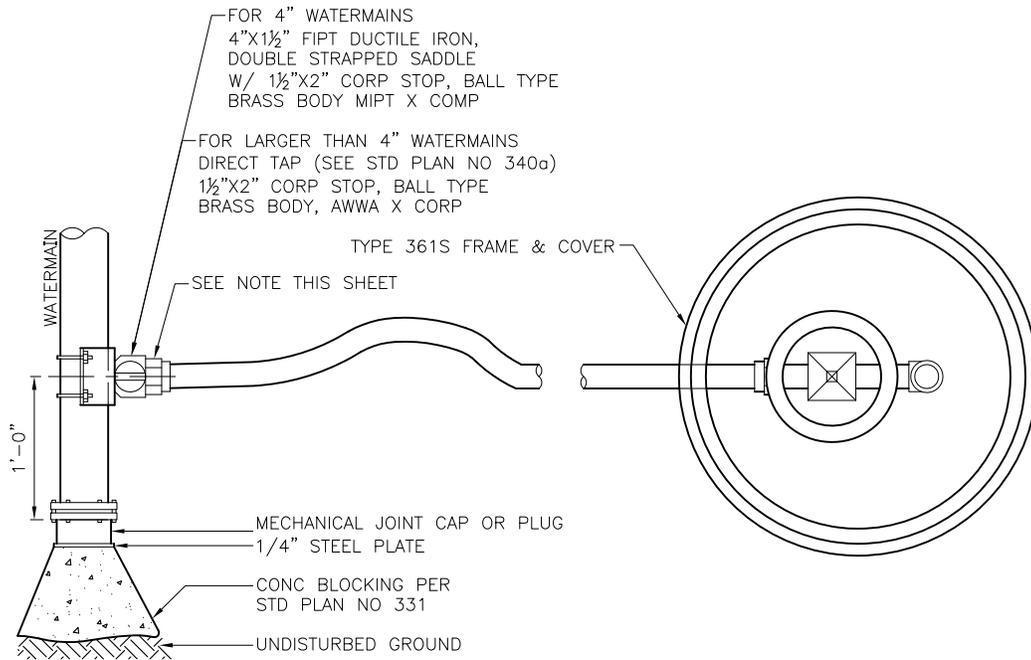
REF STD SPEC SEC 7-11



City of Seattle

NOT TO SCALE

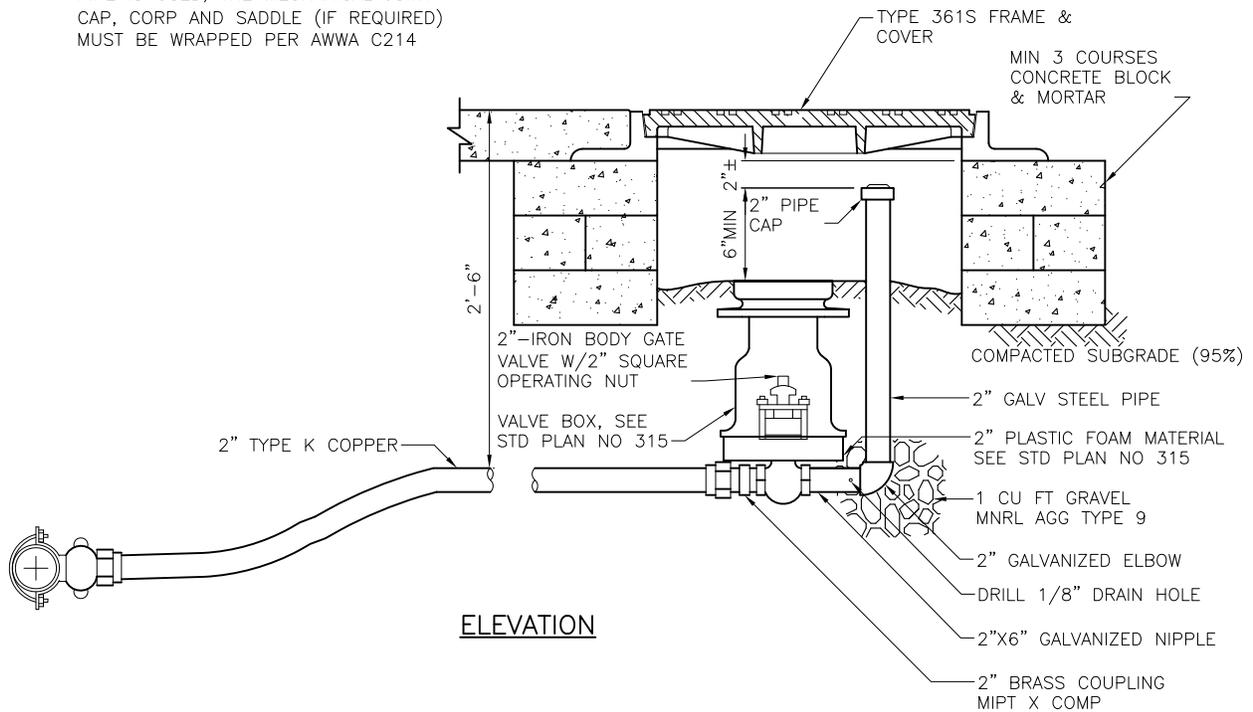
2" BLOW OFF TYPE A
NON TRAFFIC INSTALLATION



NOTE:

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

PLAN



ELEVATION

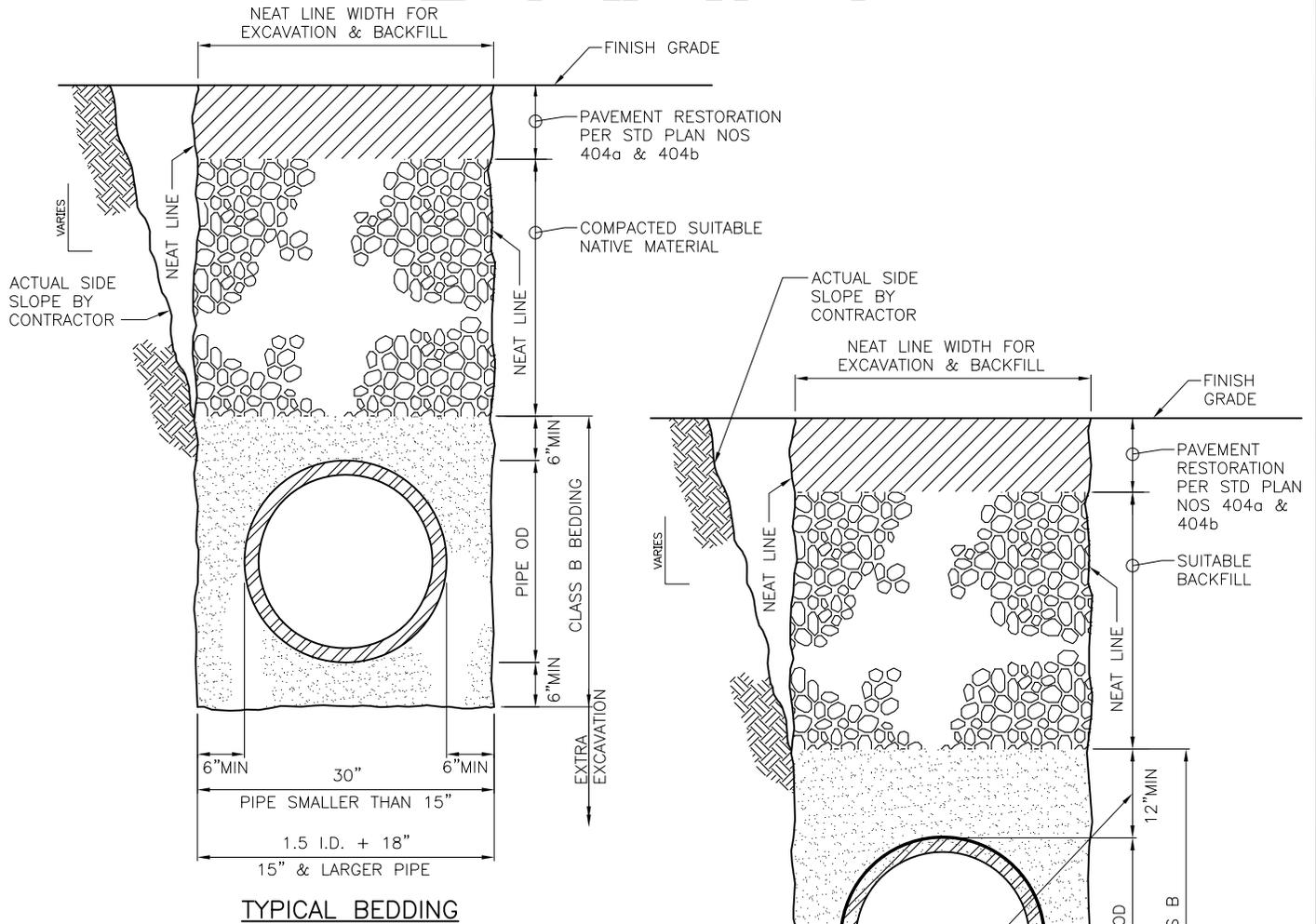
REF STD SPEC SEC 7-11



City of Seattle

NOT TO SCALE

2" BLOW OFF DETAIL TYPE B TRAFFIC INSTALLATION



TYPICAL BEDDING

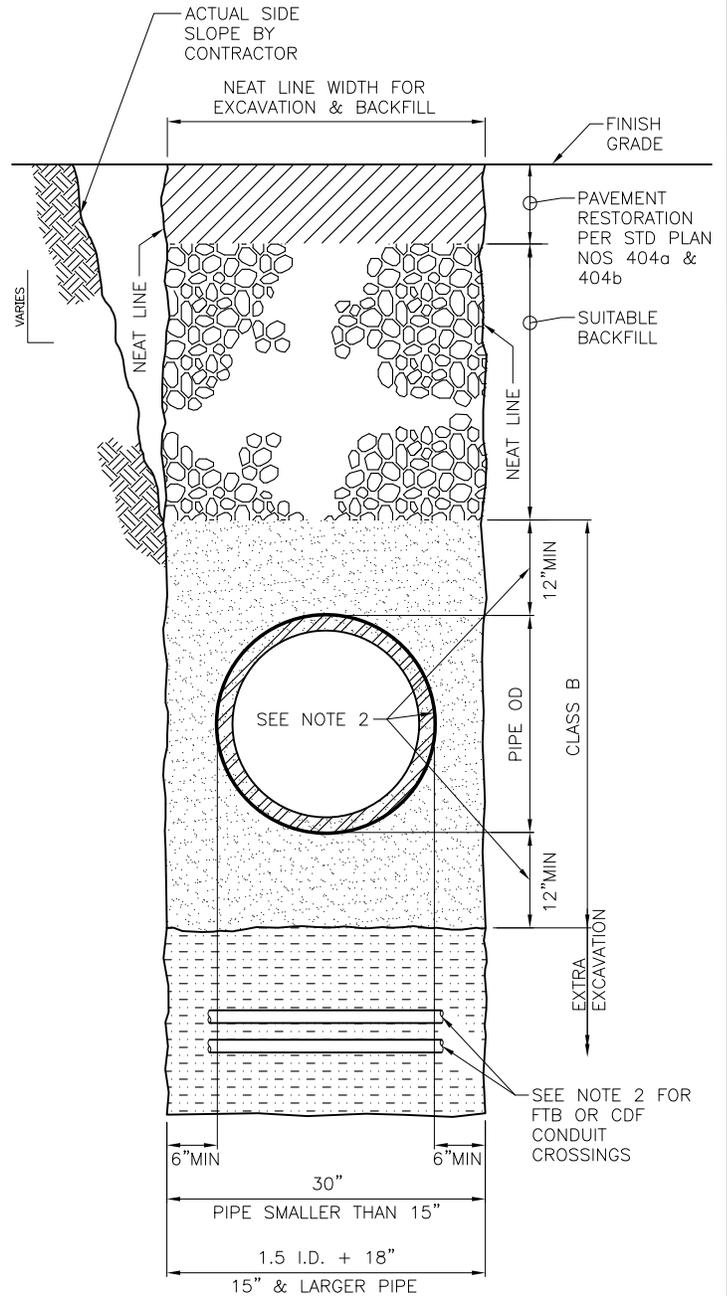
BEDDING MATERIAL

CLASS B:

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

NOTES:

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



BEDDING AT TRENCH CROSSING

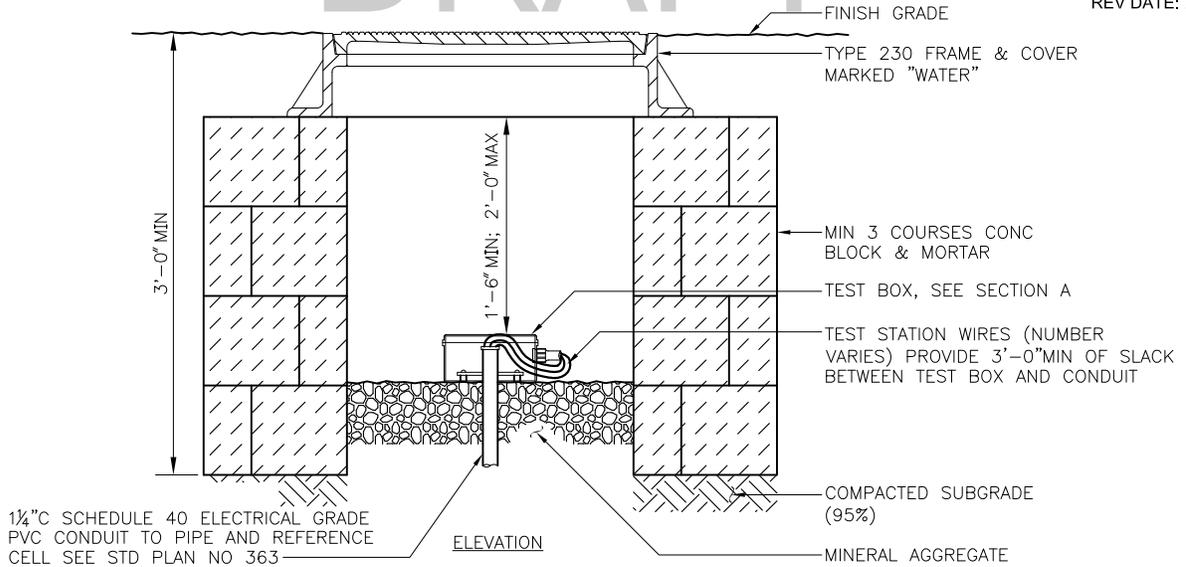
REF STD SPEC SEC 7-11, 7-17, 9-03.16



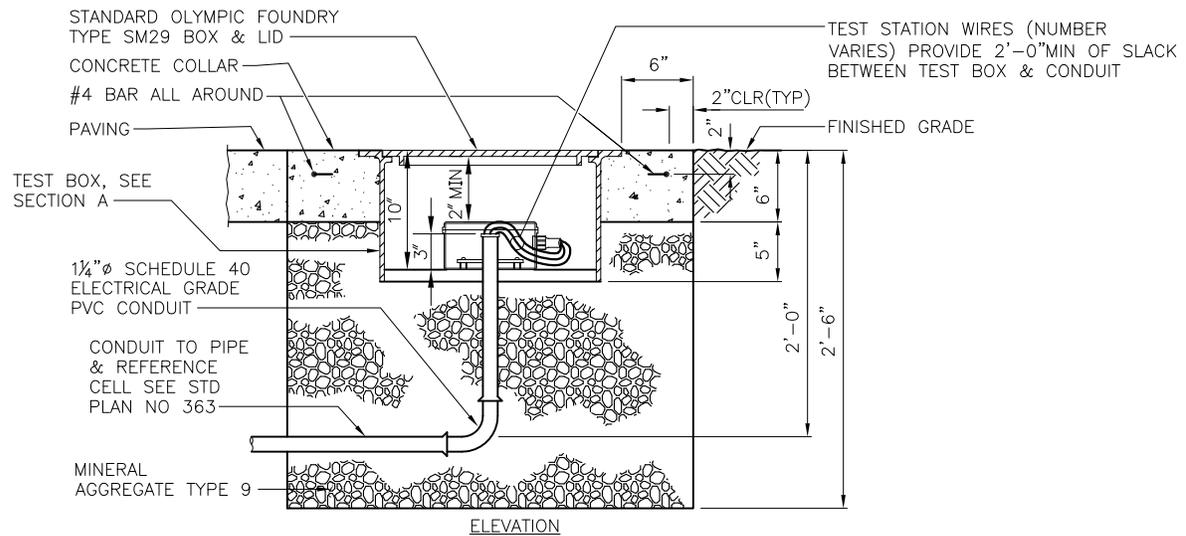
City of Seattle

NOT TO SCALE

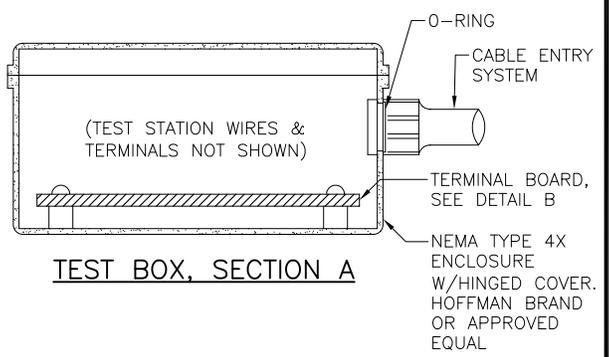
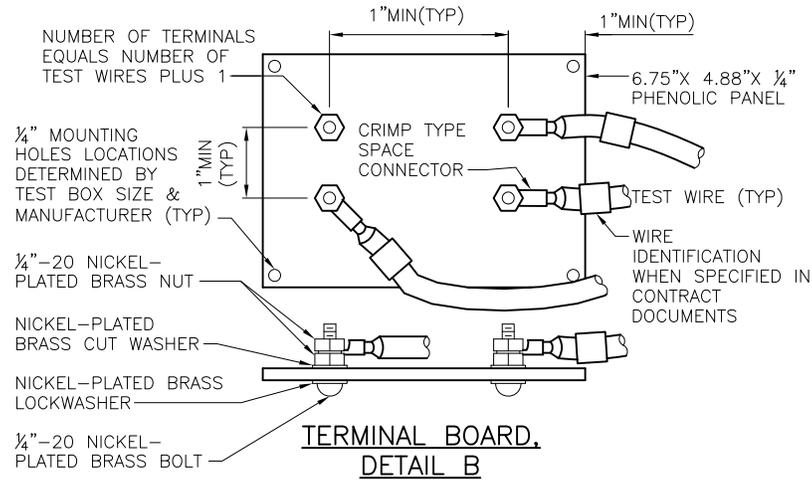
WATERMAIN TRENCH AND BEDDING



ELECTROLYSIS TEST STATION – TRAFFIC AREA



ELECTROLYSIS TEST STATION – NON-TRAFFIC AREA



REF STD SPEC SEC 7-11

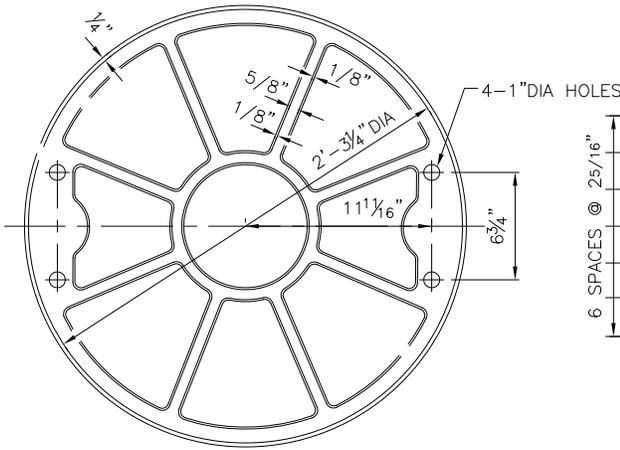


City of Seattle

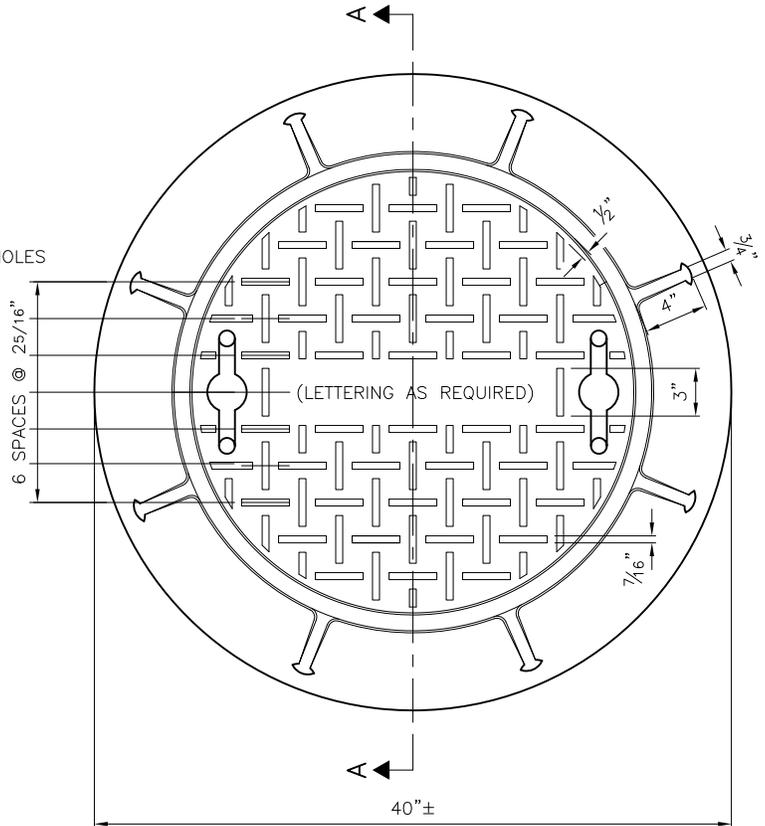
NOT TO SCALE

WATERMAIN ELECTROLYSIS TEST STATION

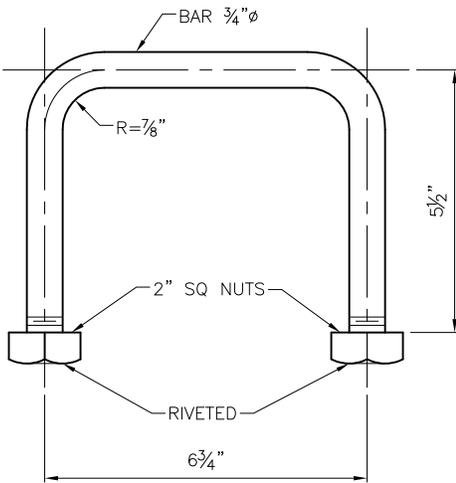
FRAME & COVER MUST BE TESTED FOR ACCURACY OF FIT AND MUST BE MARKED IN SETS FOR DELIVERY



BOTTOM VIEW

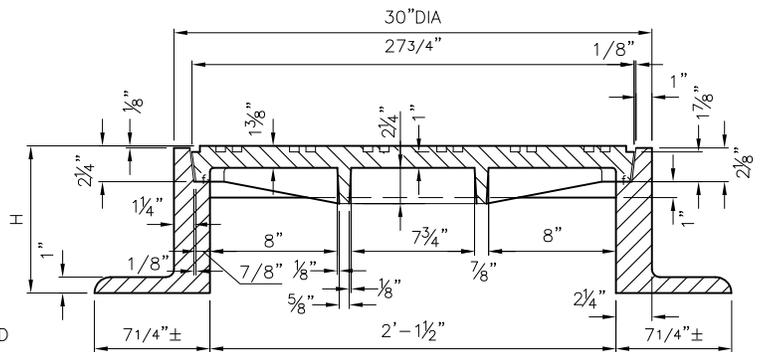


TOP VIEW



LIFTING HANDLE
(2 REQUIRED)

TYPE 361
H=9 1/4"
DESIGNATE SHALLOW FRAME AS TYPE 361S
H=4 1/4"
f=MACHINED FINISH



SECTION A-A

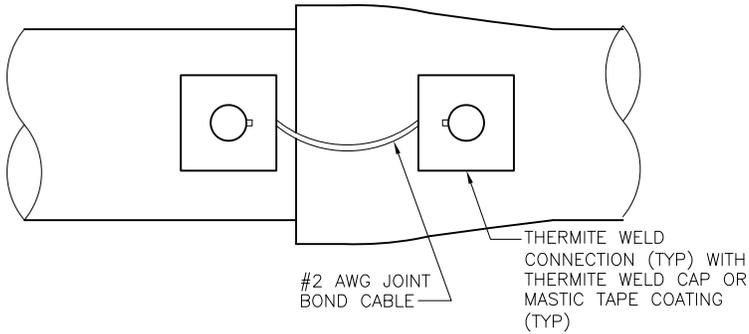
REF STD SPEC SEC 7-12



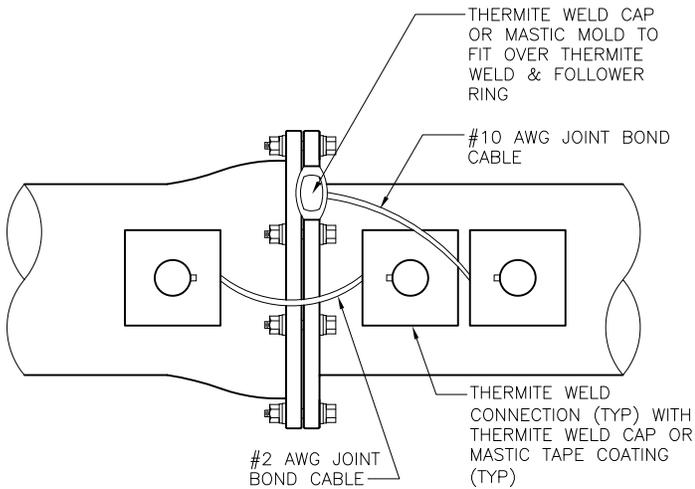
City of Seattle

NOT TO SCALE

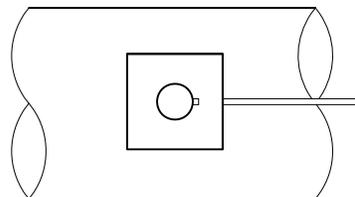
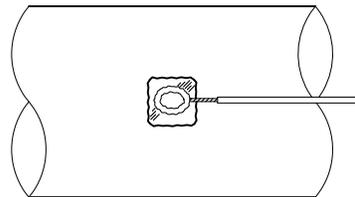
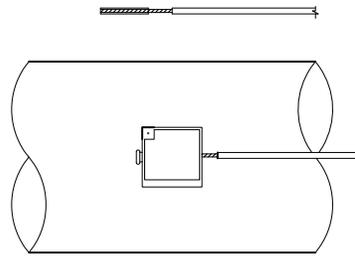
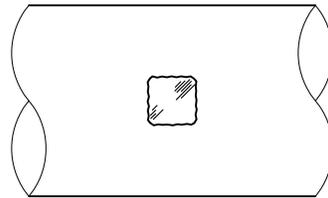
**TYPE 361 VALVE CHAMBER
FRAME & COVER**



SLIP JOINT BOND CONNECTION



MECHANICAL JOINT BOND CONNECTION



CONNECTION SEQUENCE:

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

THERMITE WELD CONNECTION

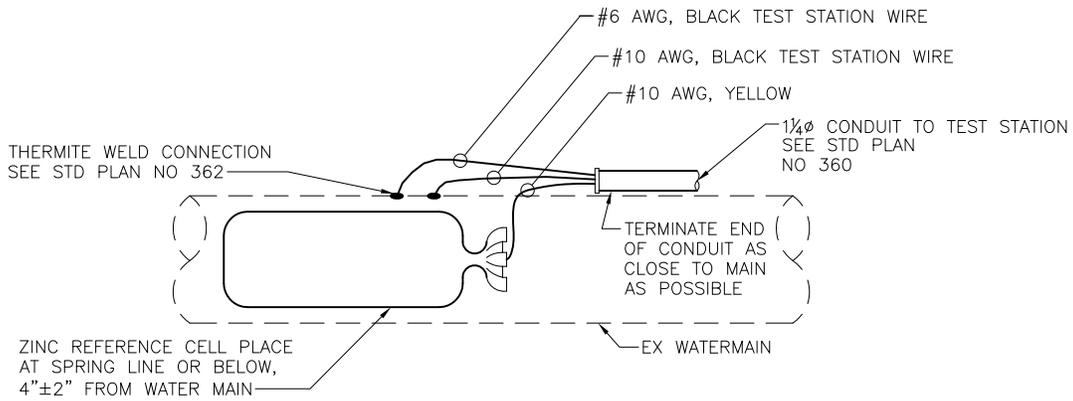
REF STD SPEC SEC 7-11



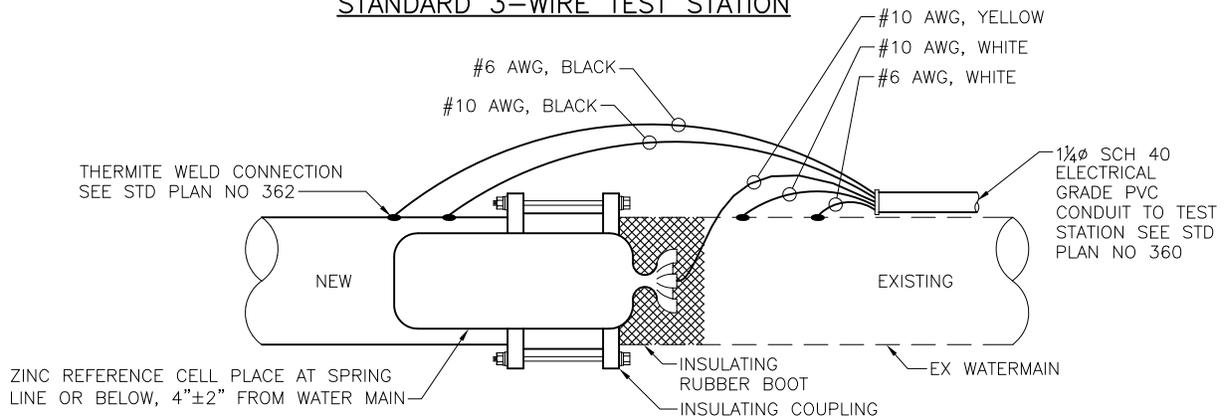
City of Seattle

NOT TO SCALE

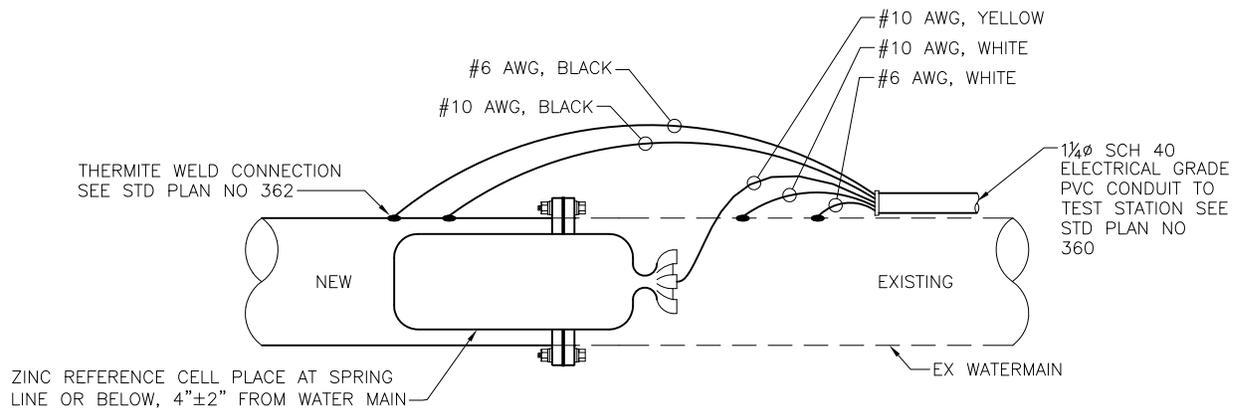
JOINT BONDING FOR DIP WATERMAINS & JOINTS BONDING DETAIL



STANDARD 3-WIRE TEST STATION



INSULATING COUPLING 5-WIRE TEST STATION



INSULATING FLANGE 5-WIRE TEST STATION

NOTE:

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

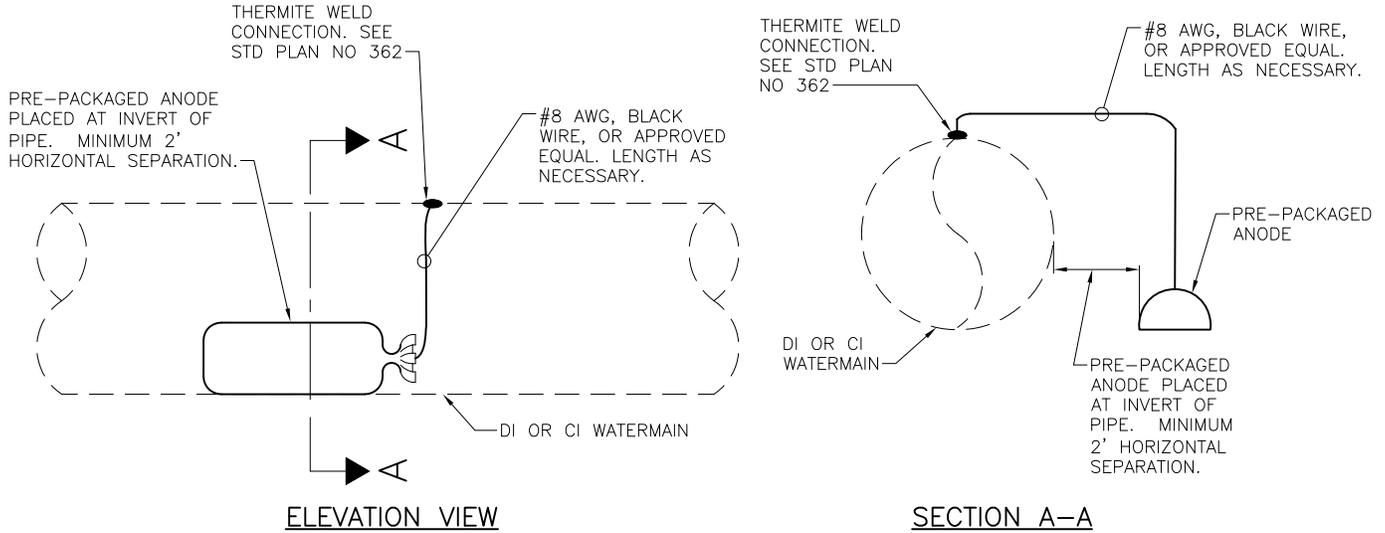
REF STD SPEC SEC 7-11.3(15) & 9-30.12



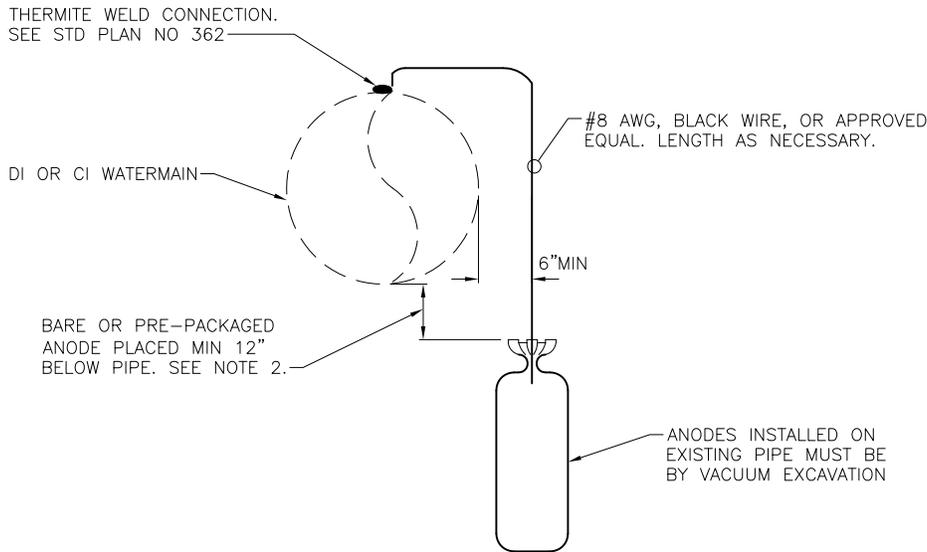
City of Seattle

NOT TO SCALE

**ELECTROLYSIS TEST STATION
 WIRE INSTALLATION DETAILS**



TYPICAL SINGLE HORIZONTAL ANODE INSTALLATION



TYPICAL SINGLE VERTICAL ANODE INSTALLATION

NOTES:

1. SPU CATHODIC PROTECTION MAY SPECIFY TYPE AND REQUIRED SPACING OF ANODE(S) LONGITUDINALLY ALONG WATER MAIN TO BE SHOWN IN DESIGN DRAWINGS. MAXIMUM SPACING MUST BE 36' UNLESS OTHERWISE NOTED ON PLANS.
2. FOR VERTICAL ANODE INSTALLATION, IF ANODE IS NOT PRE-PACKAGED, BARE ANODE MUST BE INSTALLED W/MIN 6" SACRIFICIAL ANODE BACKFILL PER SPEC SECTION 9-30.12(6), AROUND ALL SIDES OF ANODE.
3. ANODE SIZE MUST BE 17LB HIGH POTENTIAL MAGNESIUM ANODE, UNLESS OTHERWISE NOTED ON THE PLANS.
4. PLACE RED "CAUTION" OR "DANGER" TAPE 6" OVER ANODE WIRES. TAPE MUST BE MIN 3" WIDE.
5. BACKFILL OVER ANODE WITH SUITABLE NATIVE MATERIAL OR APPROVED EQUAL.

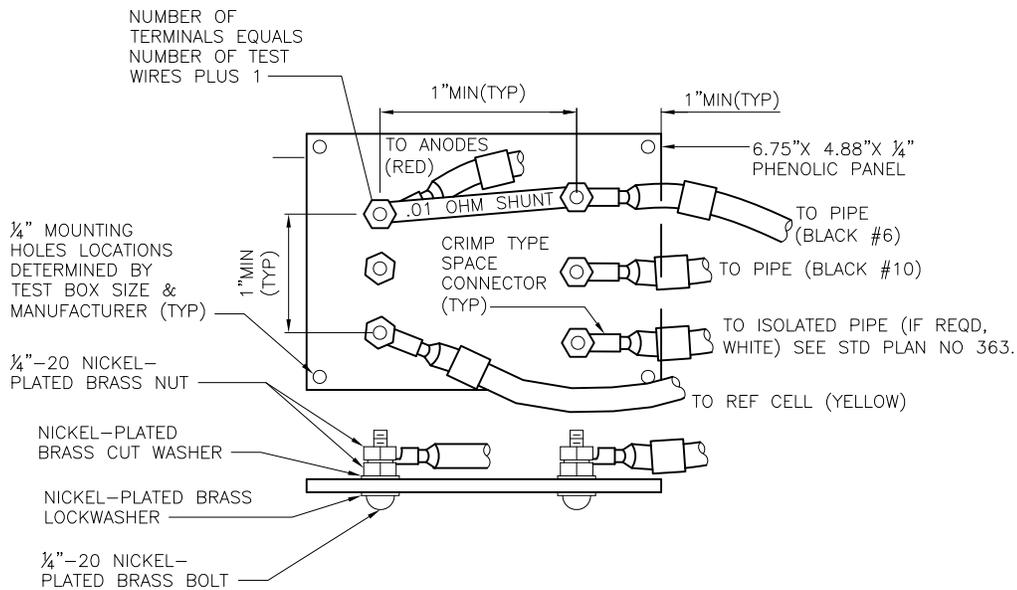
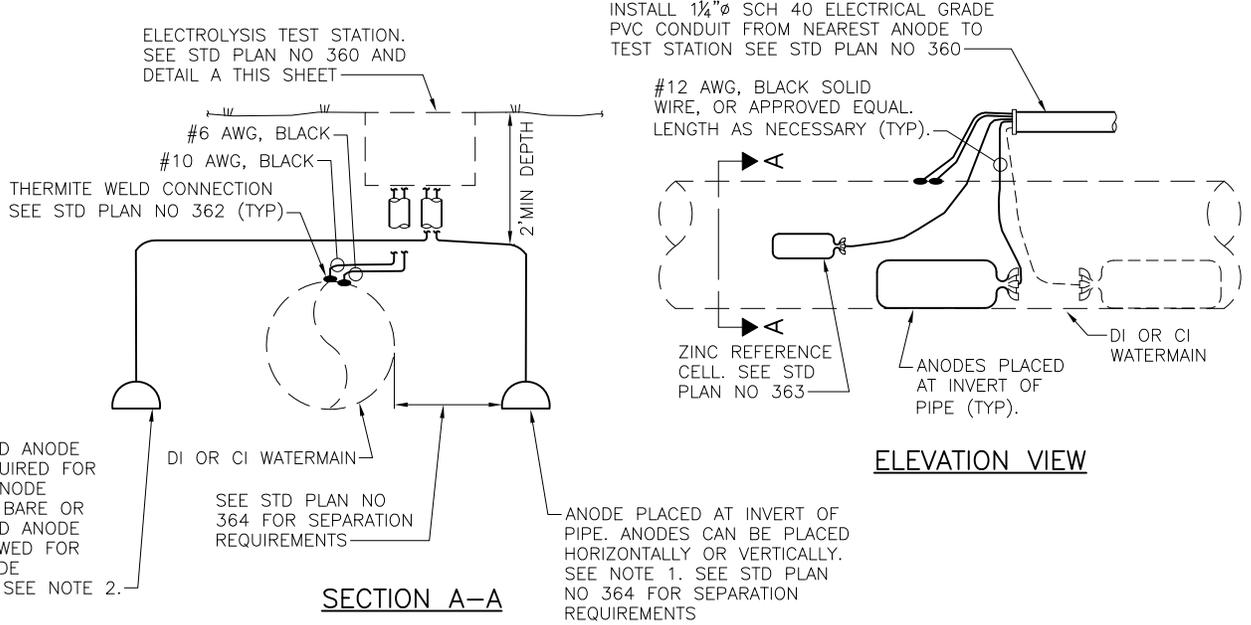
REF STD SPEC SEC 7-11, 9-30



City of Seattle

NOT TO SCALE

SACRIFICIAL ANODE BONDED TO PIPE INSTALLATION DETAILS



NOTES:

1. REQUIRED SPACING OF ANODE(S) TO BE SHOWN IN DESIGN DRAWINGS.
2. FOR VERTICAL INSTALLATION, IF ANODE IS NOT PRE-PACKAGED, BARE ANODE MUST BE INSTALLED W/ MIN 6" SACRIFICIAL ANODE BACKFILL PER SPEC SECTION 9-30.12(6), AROUND ALL SIDES OF ANODE.
3. ANODE SIZE MUST BE 17LB HIGH POTENTIAL MAGNESIUM ANODE, UNLESS OTHERWISE NOTED ON THE PLANS.
4. PLACE RED "CAUTION" OR "DANGER" TAPE 6" OVER ANODE WIRES AND CONDUIT. TAPE SHALL BE MIN 3" WIDE.
5. BACKFILL OVER ANODE WITH SUITABLE NATIVE MATERIAL OR APPROVED EQUAL.

REF STD SPEC SEC 7-11, 9-30

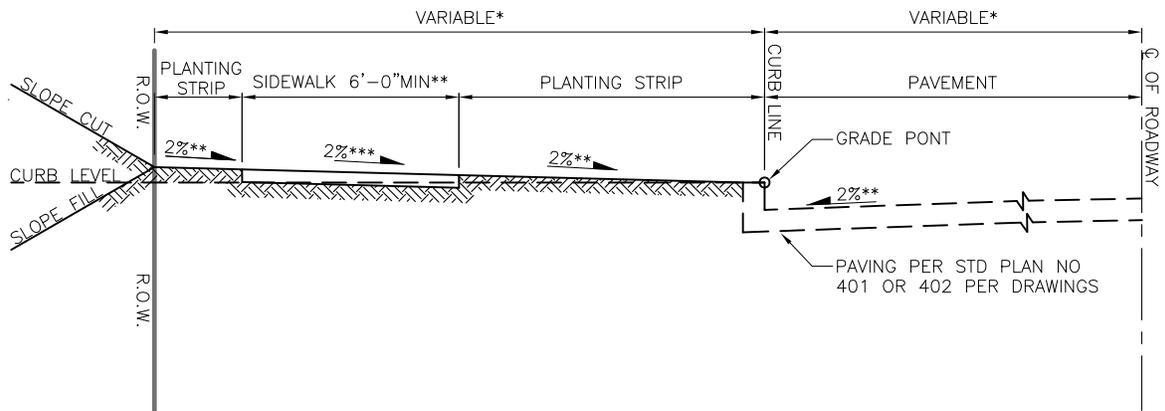


City of Seattle

NOT TO SCALE

**SACRIFICIAL ANODE
INSTALLATION DETAILS**

MULTIPLE ANODES CONNECTED AT TEST STATION



* 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.

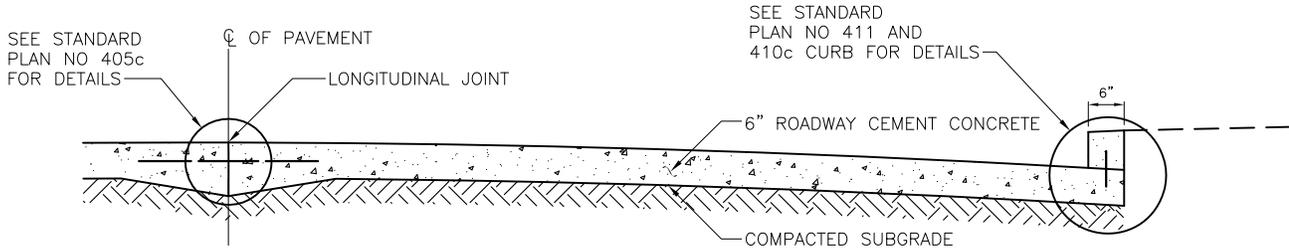
REF STD SPEC SEC 2-04



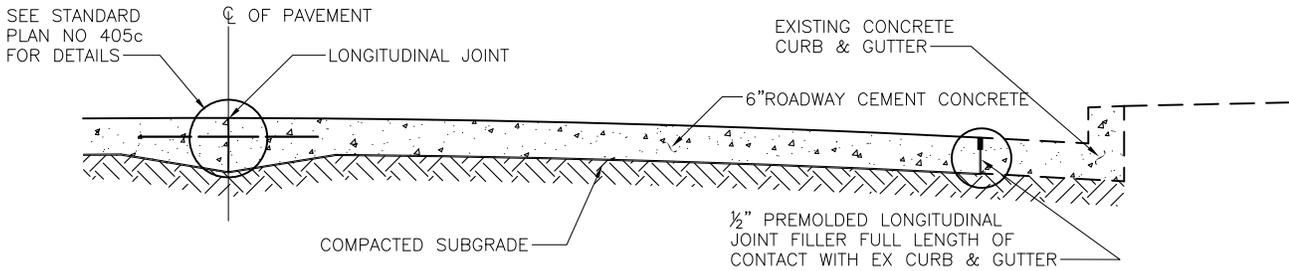
City of Seattle

NOT TO SCALE

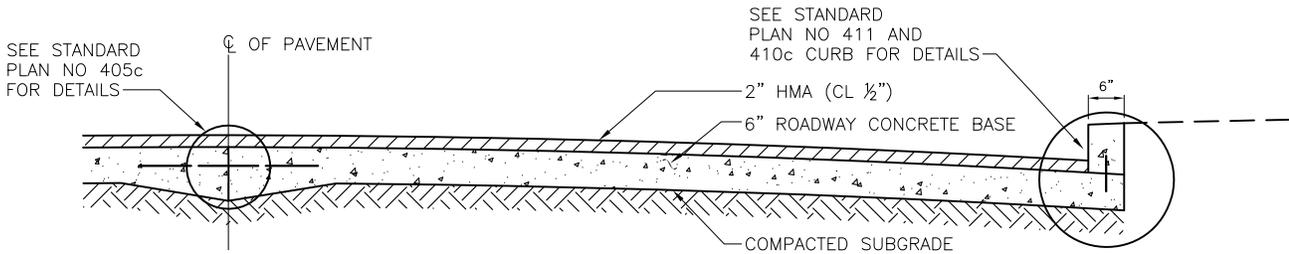
HALF SECTION, GRADING



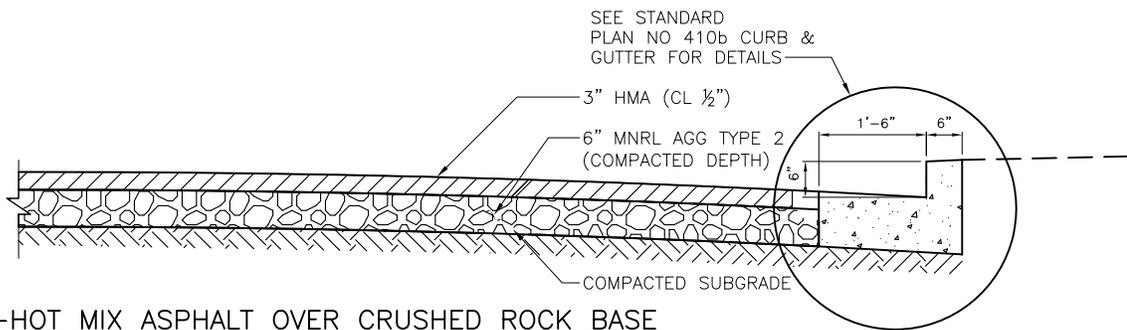
401A-CEMENT CONCRETE PAVEMENT WITH INTEGRAL CURB



401B-CEMENT CONCRETE PAVEMENT WITH EXISTING CURB & GUTTER



401C-HOT MIX ASPHALT ON CEMENT CONCRETE BASE



401D-HOT MIX ASPHALT OVER CRUSHED ROCK BASE

HMA DESIGN CRITERIA:

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

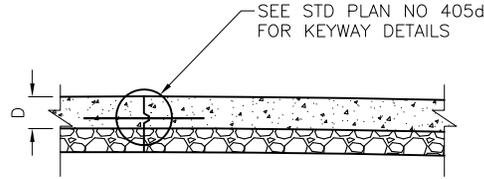
REF STD SPEC SEC 4-04, 5-04, 5-05, 8-04



City of Seattle

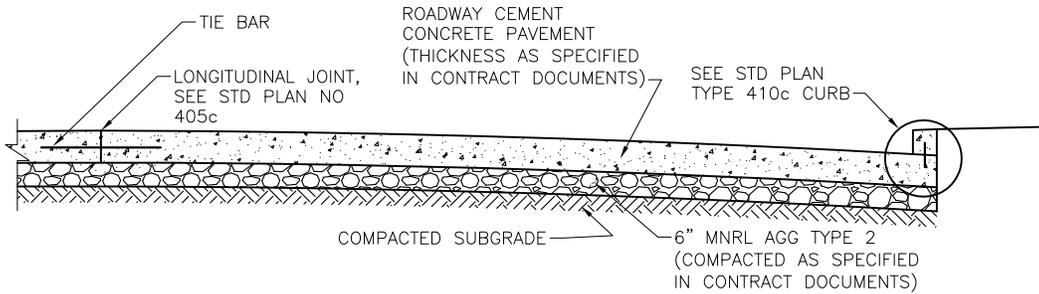
NOT TO SCALE

RESIDENTIAL PAVEMENT
SECTIONS

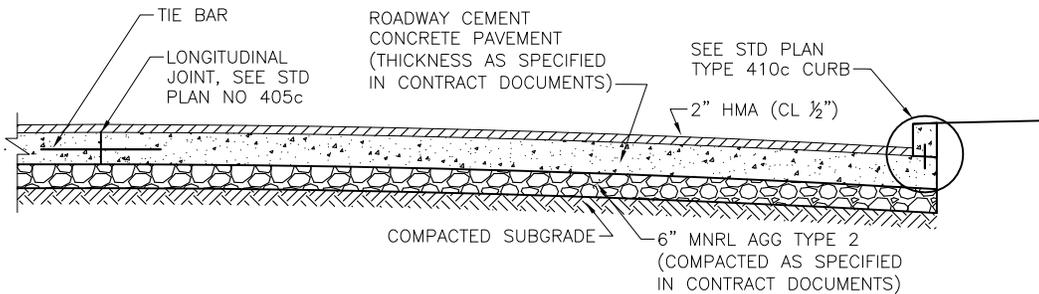


NOTES:
 IF CONC THICKNESS IS 9 INCH OR GREATER
 OPTIONAL KEYWAY MAY BE USED
 SEE STD PLANS NO 405c & 405d FOR DETAILS

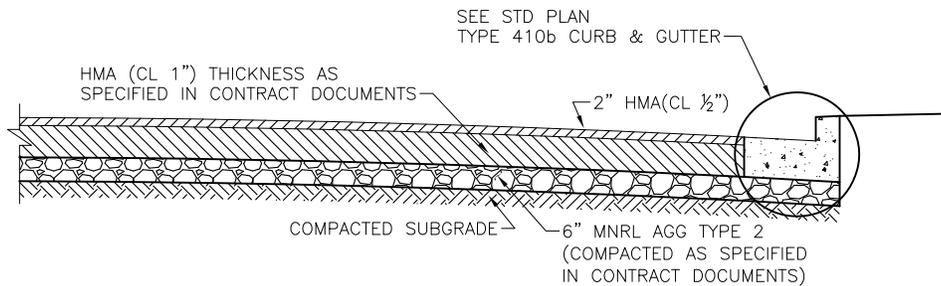
OPTIONAL KEYWAY
 FOR LONGITUDINAL JOINT



402A—ROADWAY CEMENT CONCRETE PAVEMENT ON CRUSHED ROCK



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



402C—HOT MIX ASPHALT ON CRUSHED ROCK BASE

HMA DESIGN CRITERIA:

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

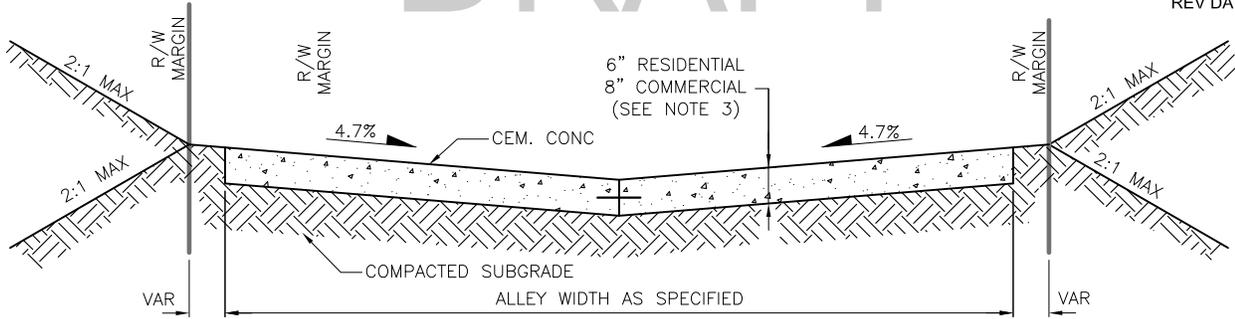
REF STD SPEC SEC 4-04, 5-04, 5-05 & 8-04



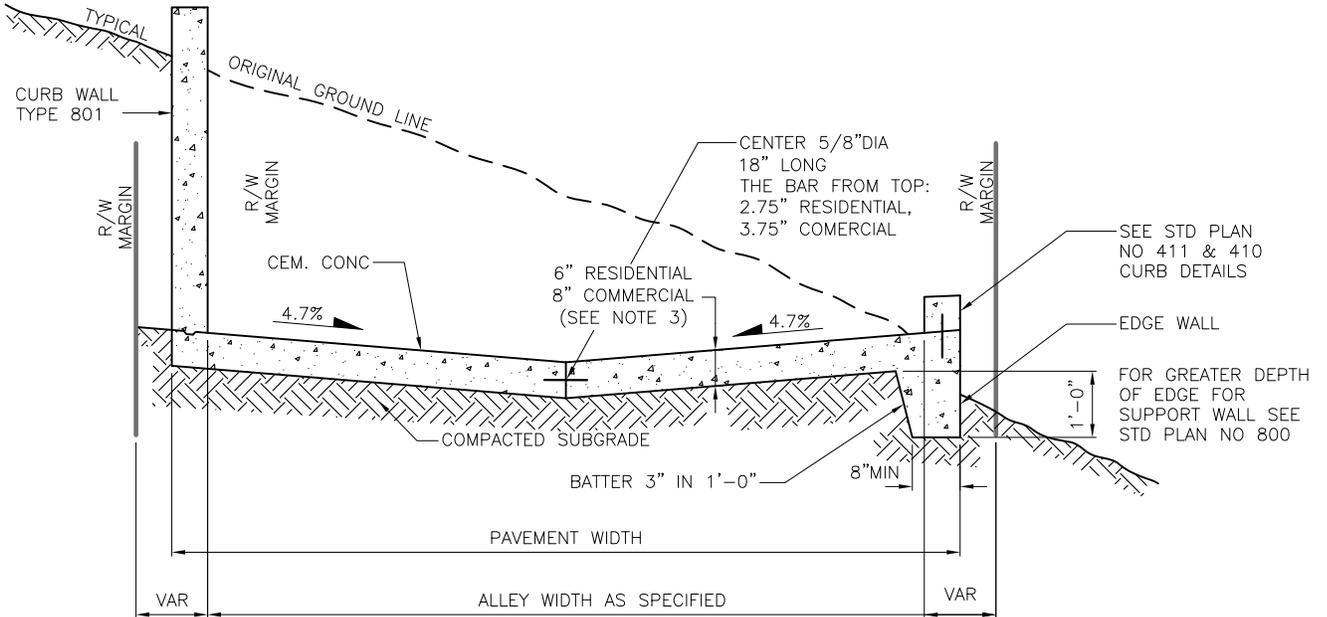
City of Seattle

NOT TO SCALE

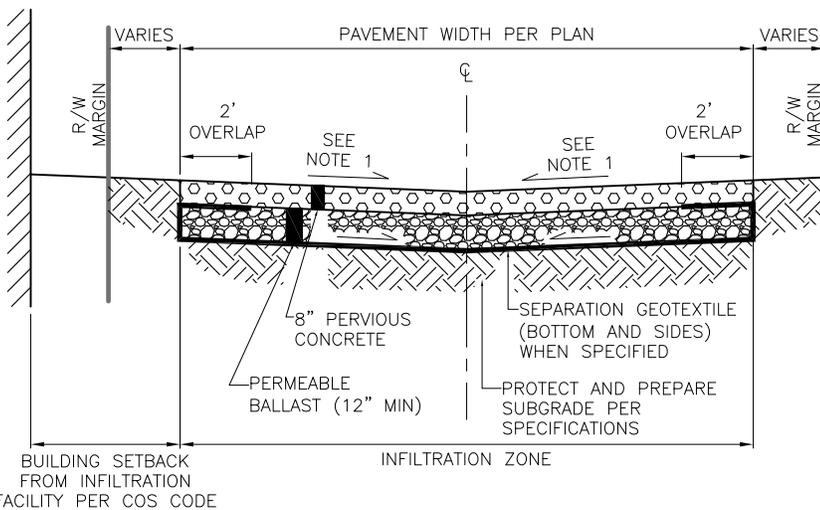
**COMMERCIAL AND
 ARTERIAL PAVEMENT
 SECTIONS**



CONCRETE ALLEY PAVEMENT



CEMENT CONCRETE ALLEY PAVEMENT 403B-FOR SHALLOW EMBANKMENT AREA



PERVIOUS CONCRETE PAVEMENT

NOTES:

1. WHEN ALLEY PAVEMENT IS 16'-0" OR WIDER PLACE CONSTRUCTION JOINT WITH TIE BAR PER STD PLAN NO 405 ALONG CENTERLINE OF ALLEY.
2. FOR ADA ACCESSIBLE ACCESS TO ENTRY IN ALLEY CONSIDER ALTERNATIVE DESIGN; SUBJECT TO APPROVAL BY THE ENGINEER.
3. 8" OR AS SHOWN IN CONTRACT OR APPROVAL BY THE ENGINEER.
4. MIN CROSS SLOPE IS 1%
5. PERMEABLE BALLAST MUST BE MINERAL AGGREGATE TYPE 13, UNLESS DETERMINED OTHERWISE BY ENGINEER.

REF STD SPEC SEC 8-17, 8-19



City of Seattle

NOT TO SCALE

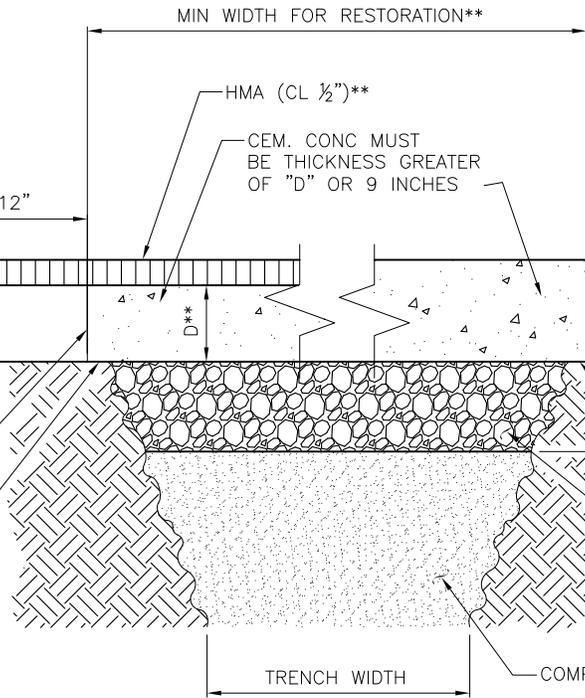
ROADWAY CEMENT CONCRETE ALLEY PAVEMENTS

HALF SECTION

RIGID PAVEMENT WITH ASPHALT CONCRETE SURFACE

REMOVE ASPHALT OVERLAY
SAWCUT ASPHALT CONC (REMOVE LOOSENEED AREAS)
EXISTING ASPHALT CONCRETE PAVEMENT

TACK COAT
EXISTING RIGID BASE
SAWCUT CONCRETE FULL DEPTH
STEP EXCAVATION TO AVOID UNDERMINING EX PAVEMENT (TYP)



HALF SECTION
CEMENT CONCRETE PAVEMENT

SAWCUT CONCRETE FULL DEPTH
EXISTING CONCRETE PAVEMENT

STEP EXCAVATION TO AVOID UNDERMINING EX PAVEMENT (TYP)
COMPACT MINERAL AGGREGATE TYPE 2

TYPICAL PATCH FOR RIGID PAVEMENT

HALF SECTION

FLEXIBLE PAVEMENT (≤ 3' TYP)

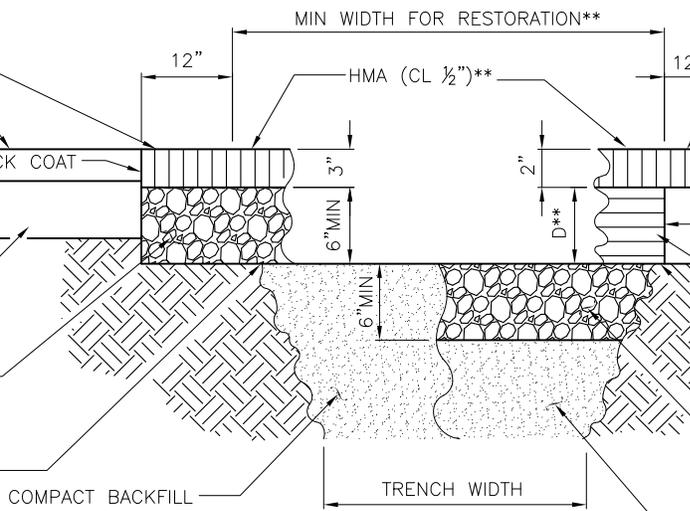
PLANE ASPHALT PRIOR TO PLACING FINAL LIFT

EXISTING OIL MAT
TACK COAT

EXISTING EARTH OR GRANULAR BASE

COMPACT MINERAL AGGREGATE TYPE 2

STEP EXCAVATION TO AVOID UNDERMINING EX PAVEMENT (TYP)



HALF SECTION

FLEXIBLE PAVEMENT (≥ 3' TYP)

PLANE ASPHALT PRIOR TO PLACING FINAL LIFT

SAWCUT ASPHALT CONC
EXISTING ASPHALT CONCRETE SURFACE

TACK COAT

EXISTING FLEXIBLE BASE

HMA (CL 1/2" OR 1")**

STEP EXCAVATION TO AVOID UNDERMINING EX PAVEMENT (TYP)

COMPACT MINERAL AGGREGATE TYPE 2

COMPACT BACKFILL

TYPICAL PATCH FOR FLEXIBLE PAVEMENT

- ** DEPTH OF RESTORATION MUST MEET THE REQUIREMENTS OF "STREET AND SIDEWALK PAVEMENT OPENING AND RESTORATION RULES".
- WIDTH OF RESTORATION MUST MEET REQUIREMENTS OF STANDARD PLAN 404c.

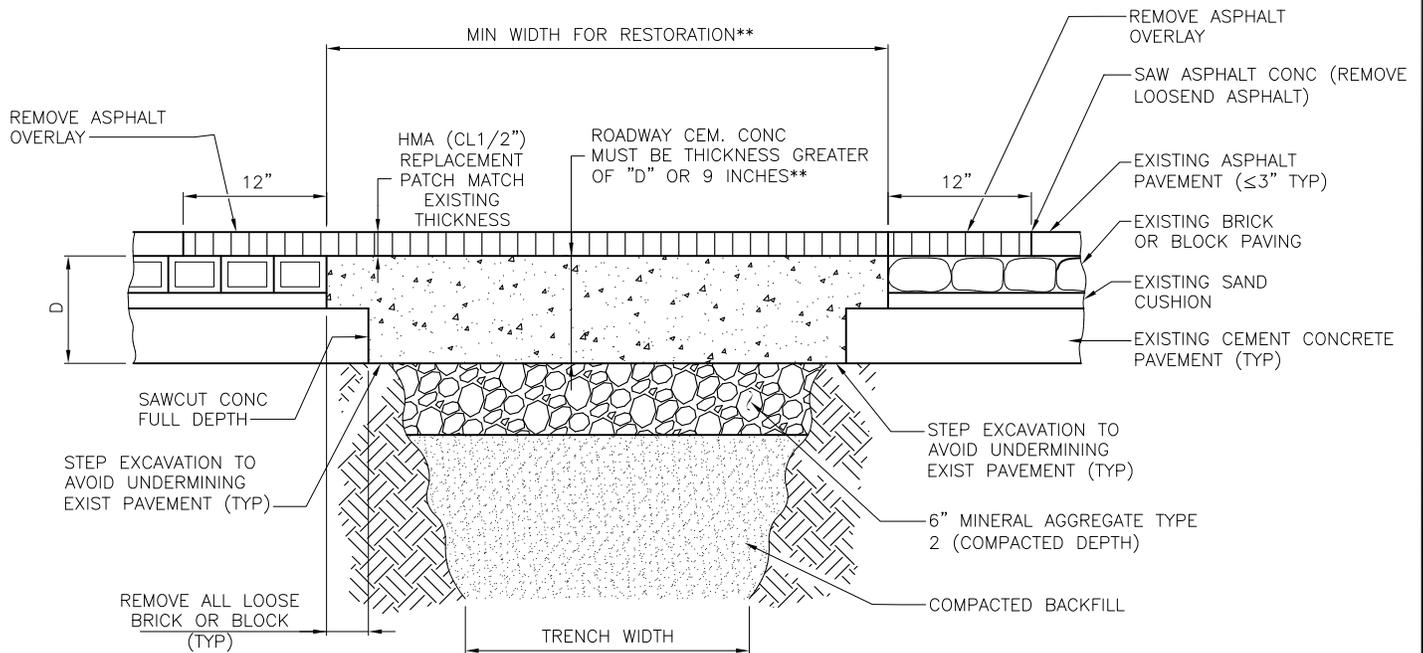
REF STD SPEC SEC 2-02, 5-04 & 5-05



City of Seattle

NOT TO SCALE

PAVEMENT PATCHING



ASPHALT OVER RIGID BASE OF BRICK OR STONE BLOCK PAVEMENT

HALF SECTION

- ** WIDTH OF RESTORATION MUST MEET REQUIREMENTS OF STANDARD PLAN 404c.
- DEPTH OF RESTORATION MUST MEET THE REQUIREMENTS OF "STREET AND SIDEWALK PAVEMENT OPENING AND RESTORATION RULES".

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



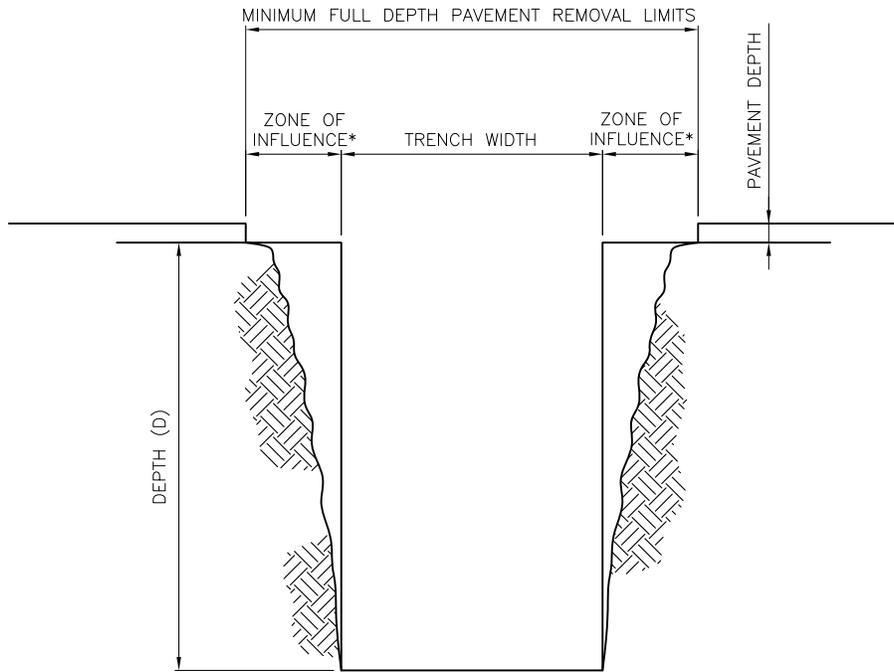
City of Seattle

NOT TO SCALE

PAVEMENT PATCHING

NOTES:

1. DUE TO POTENTIAL LOSS OF SOIL STRENGTH IN AREAS ADJACENT TO TRENCH OPENINGS, PAVEMENT REMOVAL MUST BE WIDENED TO INCLUDE THE ZONE OF INFLUENCE.
2. SEE STREET AND SIDEWALK PAVEMENT OPENING AND RESTORATION RULES FOR MORE INFORMATION ON PAVEMENT OPENINGS ZONE OF INFLUENCE.
[HTTP://WWW.SEATTLE.GOV/TRANSPORTATION/STUSE_PAVEMENTOPEN.HTM](http://www.seattle.gov/transportation/stuse_pavementopen.htm)



*TYPICALLY D/4

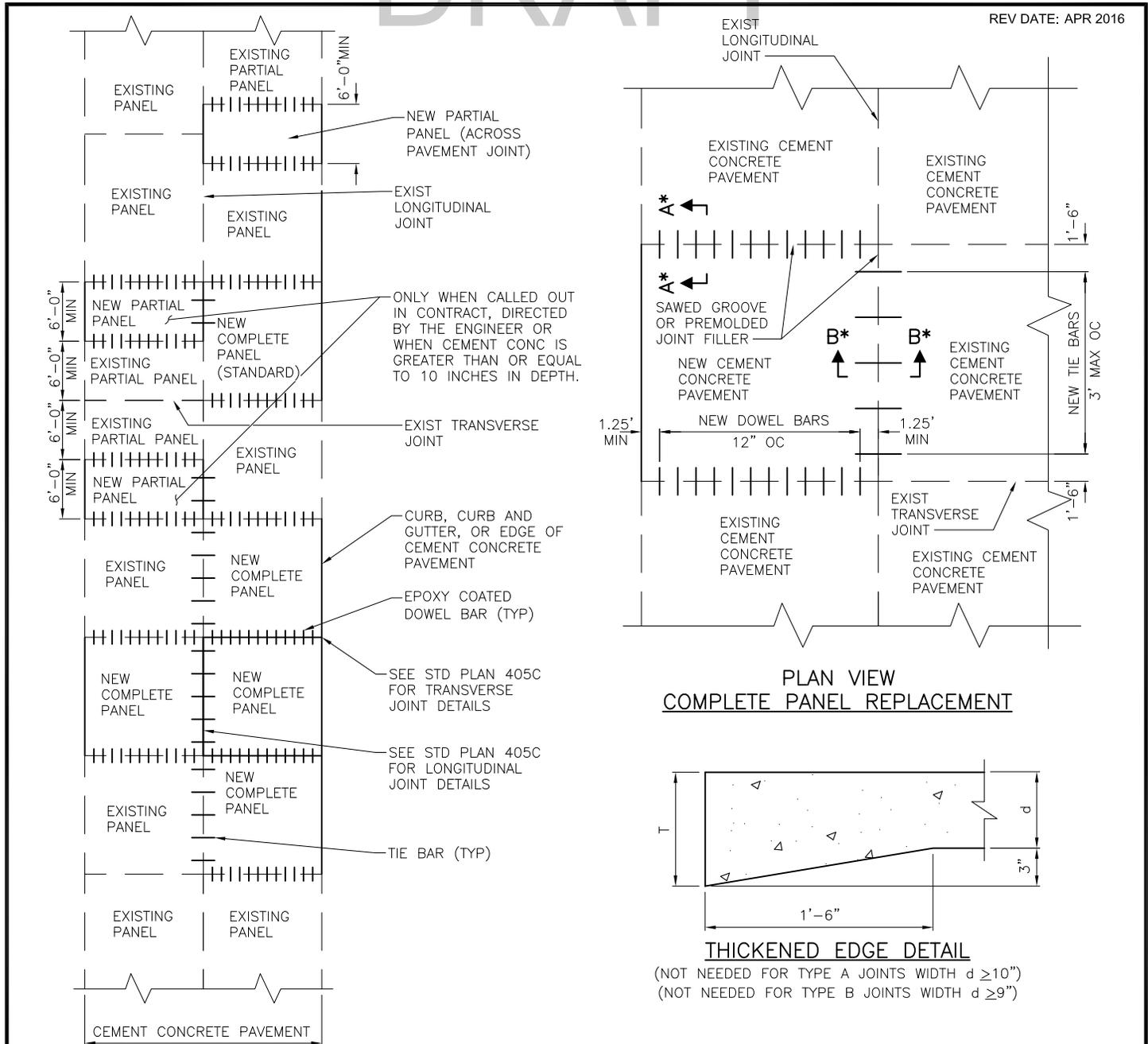
REF STD SPEC SEC 2-02, 2-04



City of Seattle

NOT TO SCALE

PAVEMENT OPENING
ZONE OF INFLUENCE



NOTES

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

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

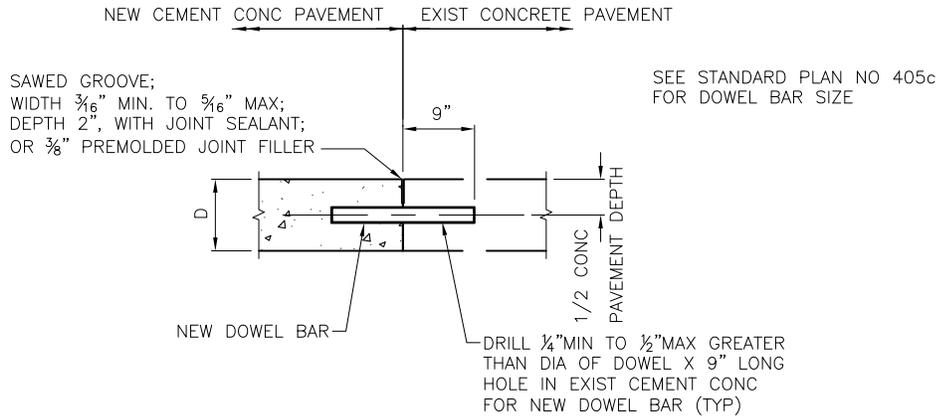
REF STD SPEC SEC 5-05



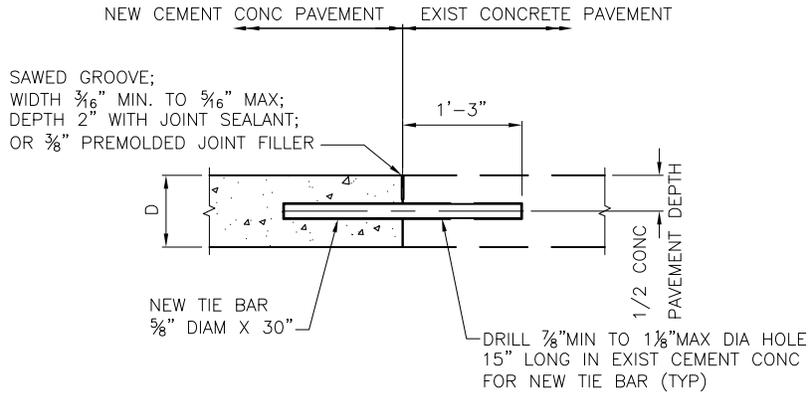
City of Seattle

NOT TO SCALE

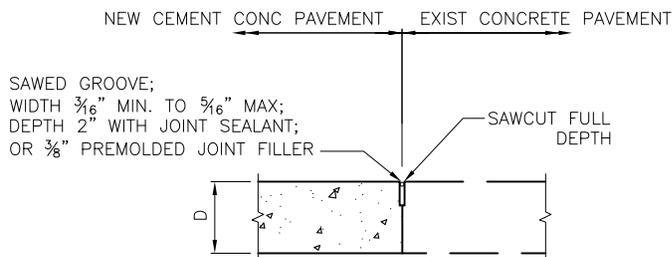
ROADWAY CONCRETE PAVEMENT REPAIR



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

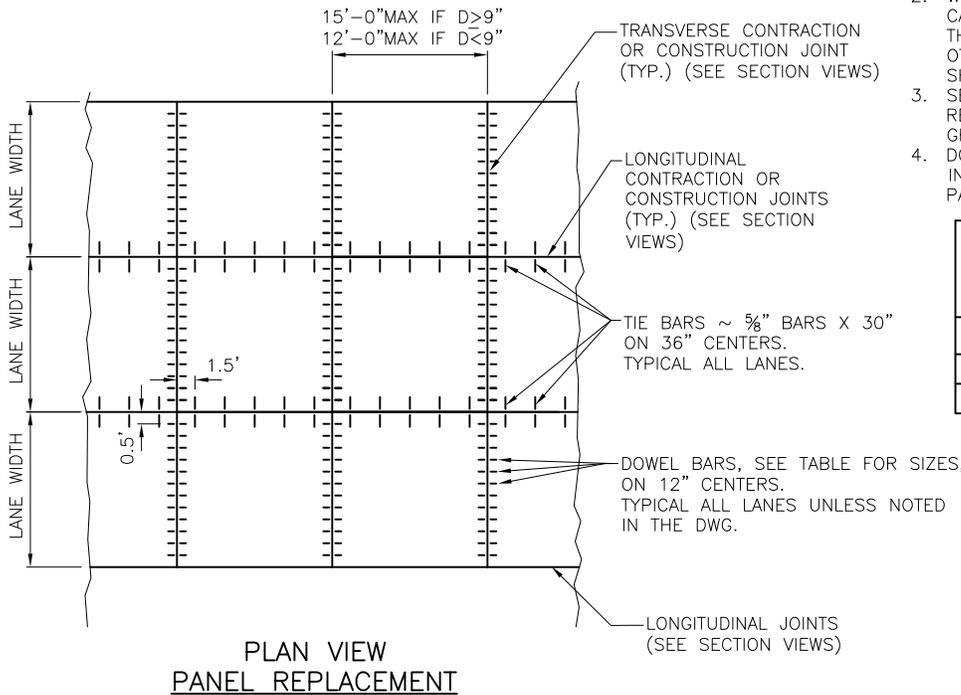
NOT TO SCALE

PAVEMENT REPAIR
DOWEL BAR AND
TIE BAR DETAILS

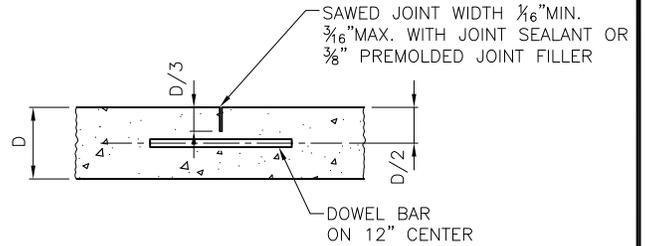
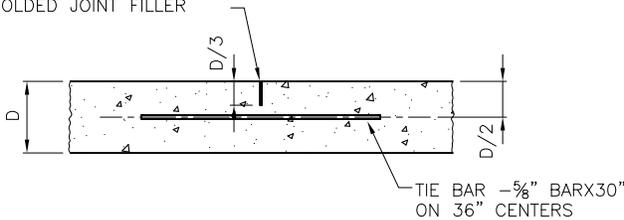
NOTES:

- DO NOT PLACE LONGITUDINAL JOINTS OR SKEWED JOINTS WITHIN BIKE LANES.
- 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.
- SEE STD PLAN NO 406 OR DRAWINGS FOR REBAR DETAIL AROUND CASTING 18 INCHES OR GREATER FROM JOINTS.
- DOWEL BARS MUST NOT BE PLACED WITHIN 15 INCHES OF THE EDGE OF PAVEMENT OR A PARALLEL JOINT.

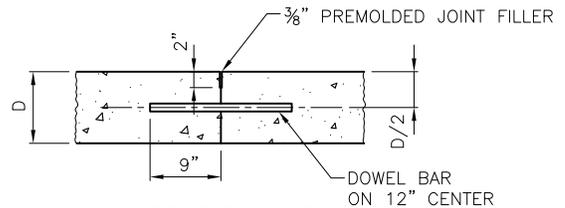
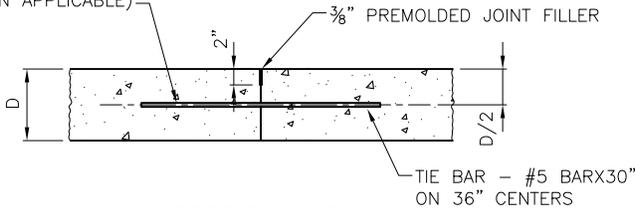
DEPTH (D) OF RDWY CEM. CONC	DOWEL BAR SIZE (DIA ϕ)
$6" \leq D < 9"$	1"X18"
$9" \leq D < 11"$	1 1/4"X18"
$11" \leq D$	1 1/2"X18"



SAWED JOINT WIDTH 1/16" MIN.
3/16" MAX. WITH JOINT SEALANT OR
3/8" PREMOLDED JOINT FILLER



DRILL AND GROUT (WHEN APPLICABLE)



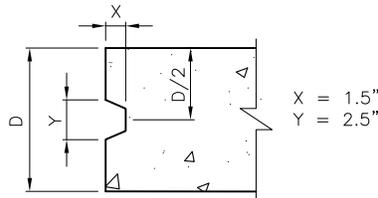
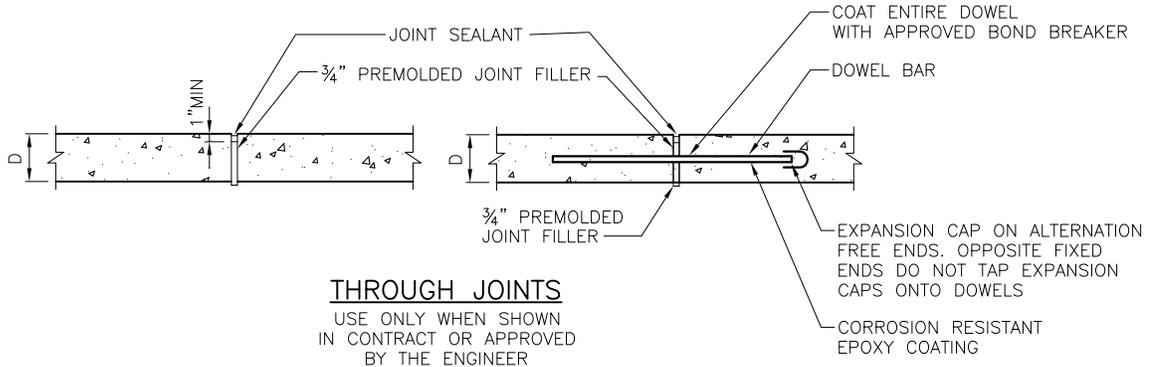
REF STD SPEC SEC 5-05



City of Seattle

NOT TO SCALE

ROADWAY CONCRETE PAVEMENT JOINTS



(TIE BAR OMITTED FOR CLARITY)

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

NOTE:
 USE OF OPTIONAL KEYWAY MAY BE REVOKED BY
 THE ENGINEER AT ANYTIME DUE TO QUALITY
 CONTROL ISSUES WITH MAINTAINING PLACEMENT
 REQUIREMENTS WITHIN ± 3/8 INCH VERTICALLY.

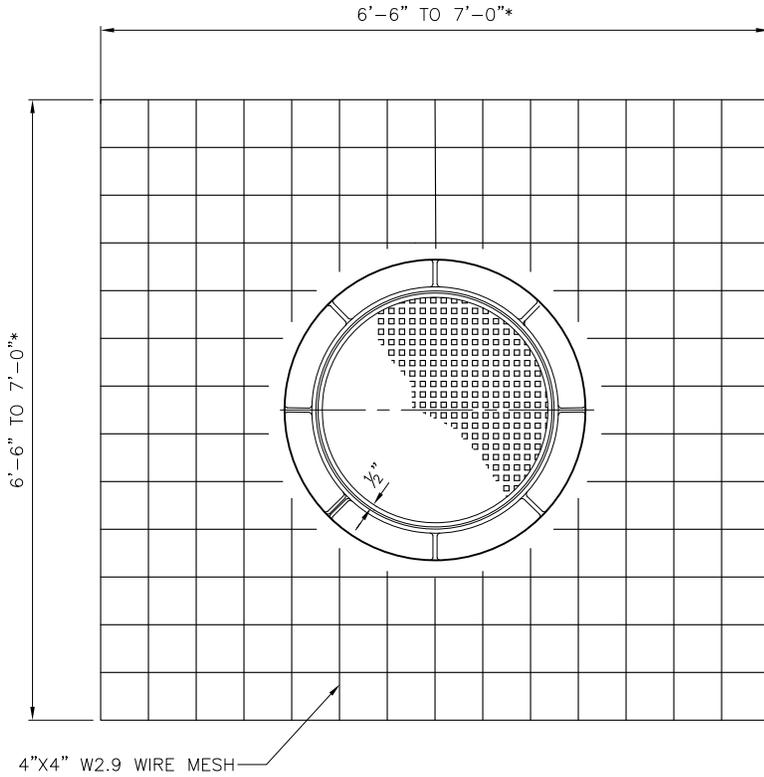
REF STD SPEC SEC 5-05



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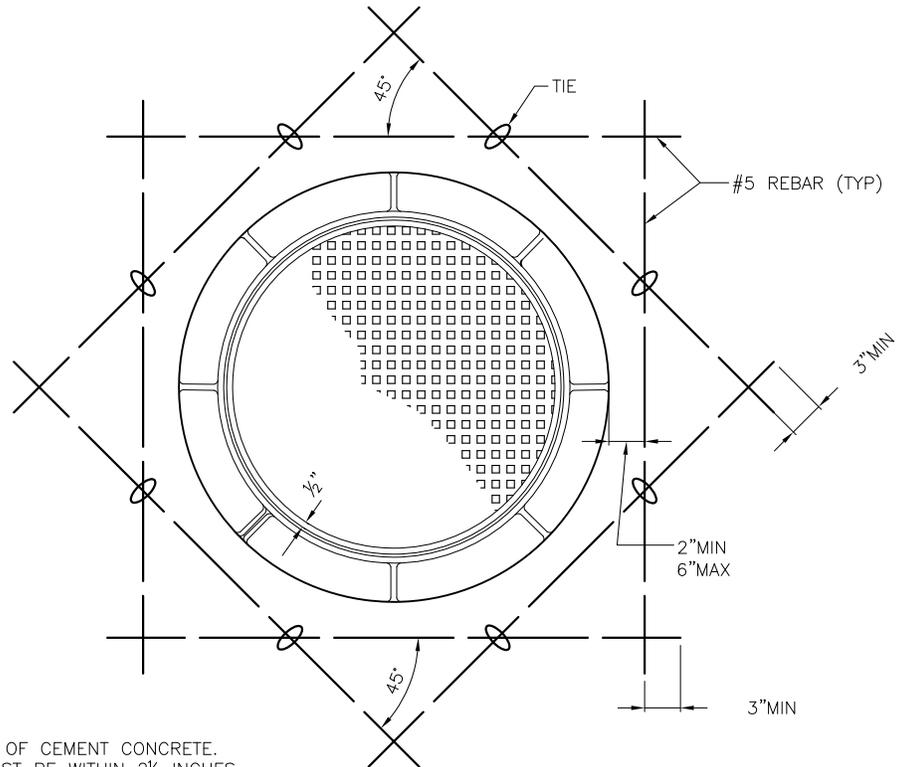
NOT TO SCALE

**THROUGH JOINTS AND
 OPTIONAL KEYWAYS FOR
 CEMENT CONCRETE ROADWAY**



NOTES:

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



NOTES:

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

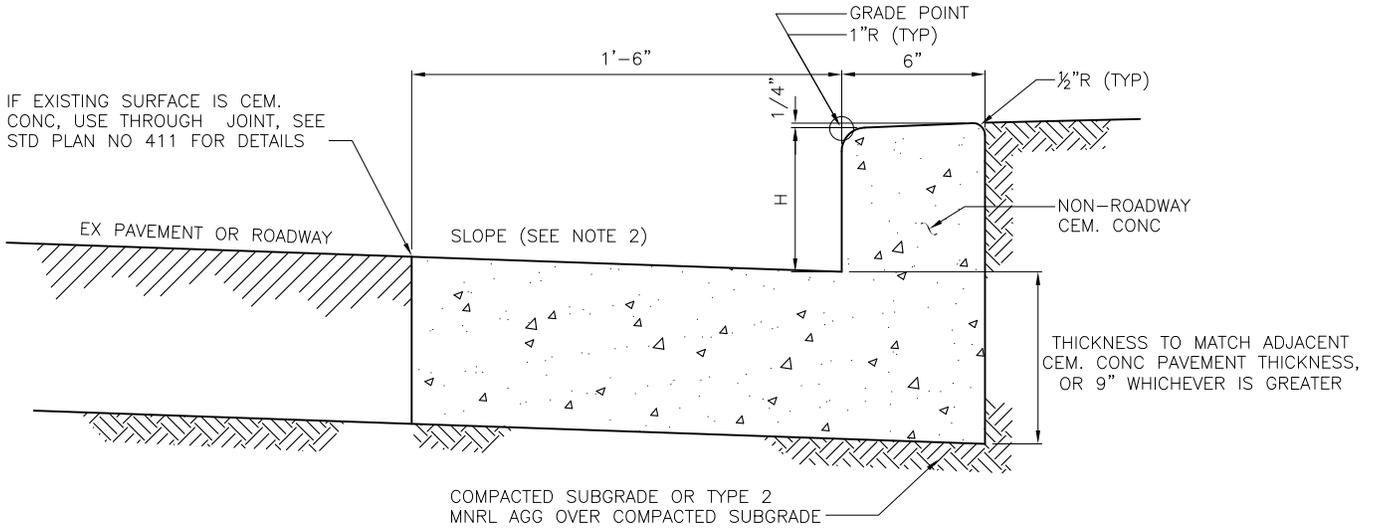
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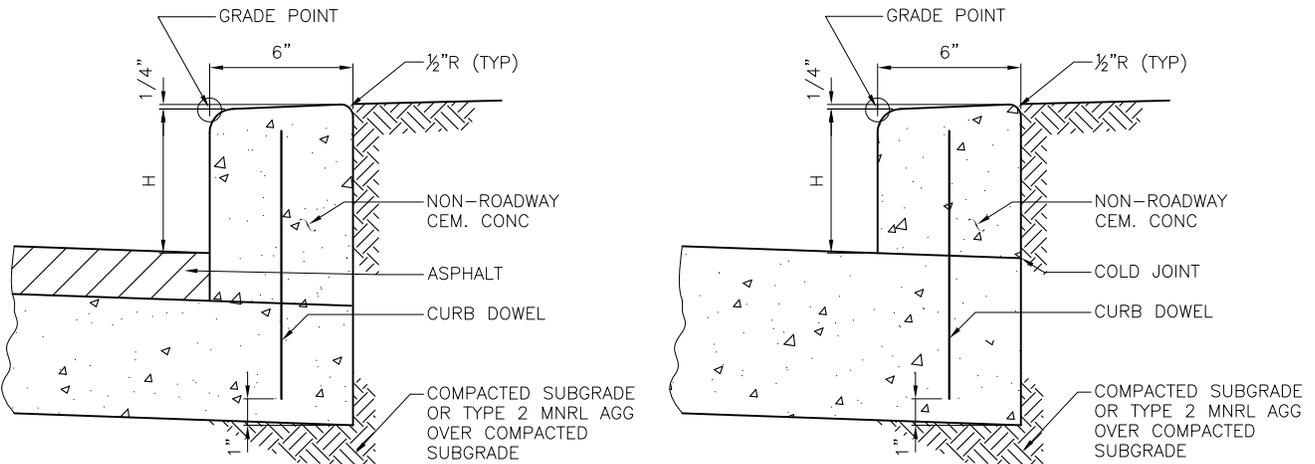
City of Seattle

NOT TO SCALE

**FRAME & COVER CEMENT
CONCRETE REINFORCEMENT
DETAIL**



410B CURB & GUTTER



410C CURB

NOTES:

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

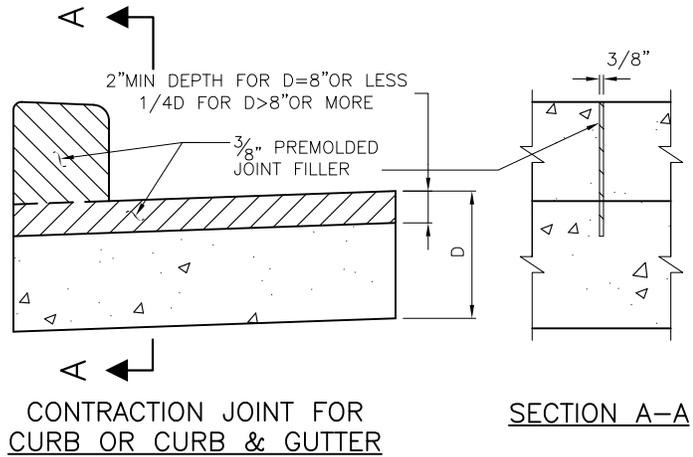
REF STD SPEC SEC 8-04



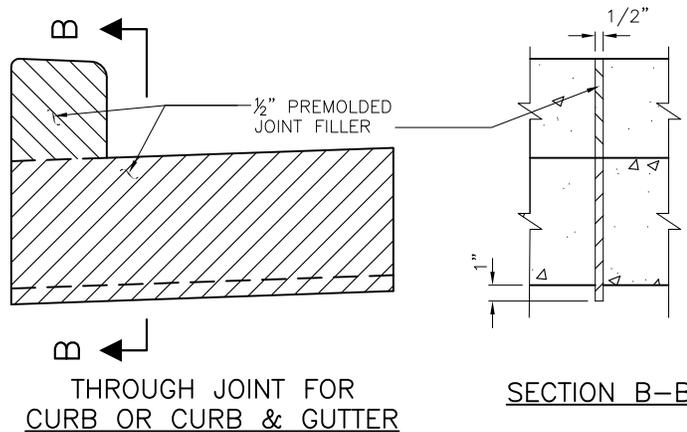
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NOT TO SCALE

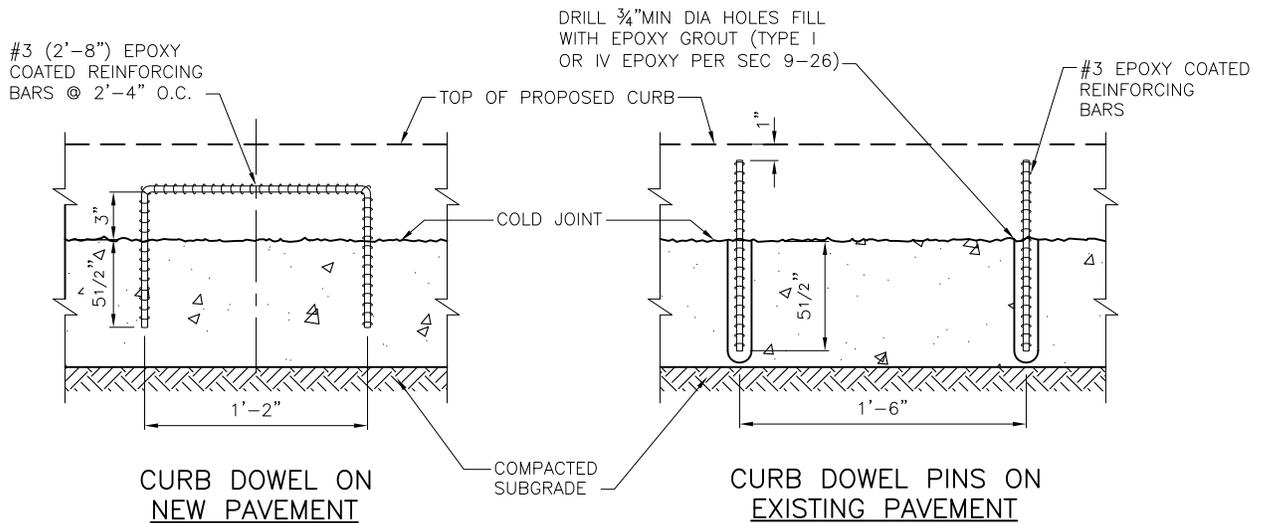
TYPE 410 CURB



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



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



DOWELS FOR DOWELLED CURB CONSTRUCTION

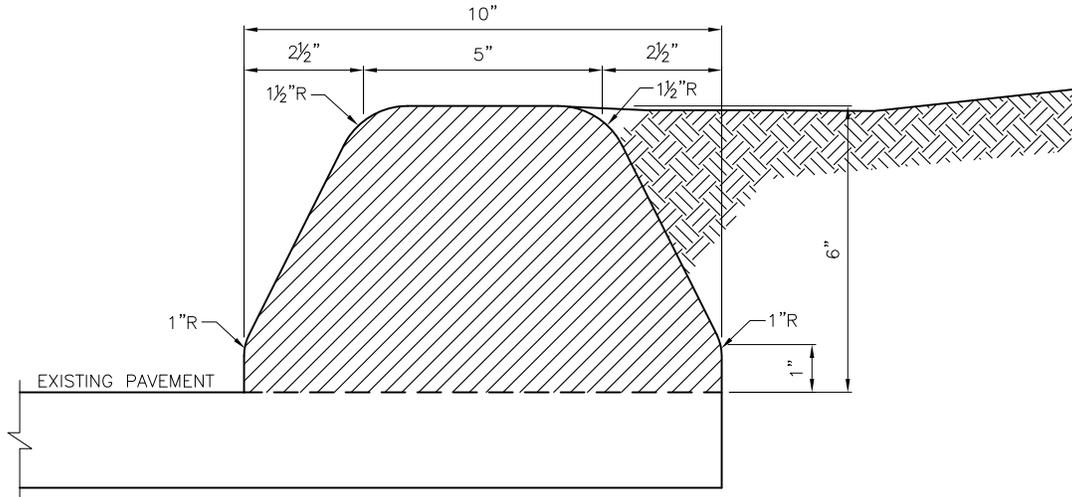
REF STD SPEC SEC 8-04



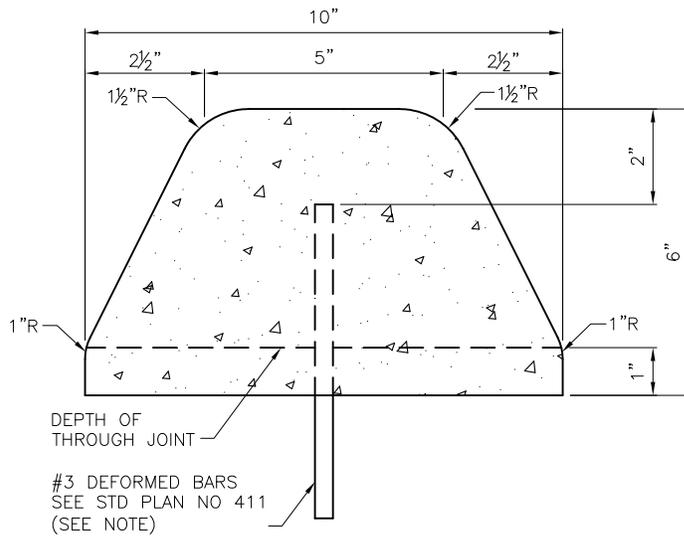
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NOT TO SCALE

CURB JOINTS & DOWELS



EXTRUDED ASPHALT CONCRETE CURB



EXTRUDED CEMENT CONCRETE CURB

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

REF STD SPEC SEC 8-06

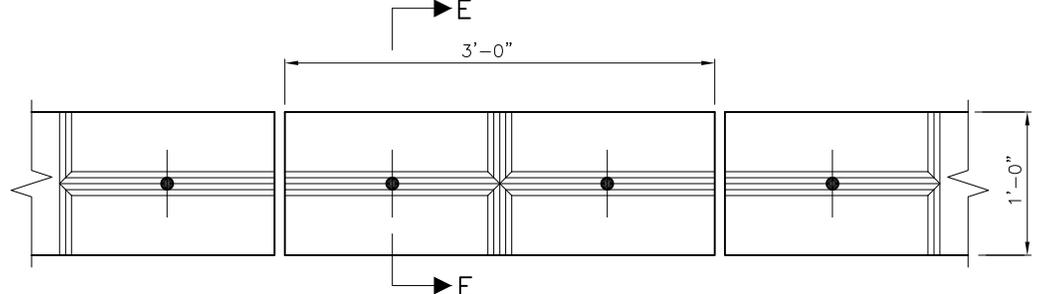
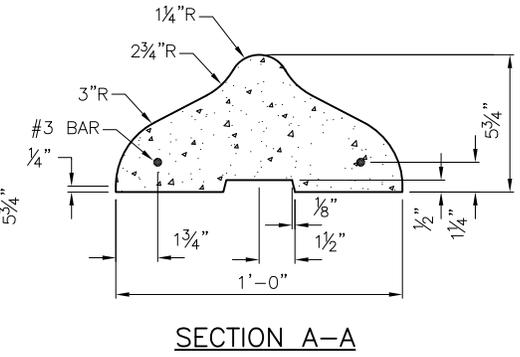
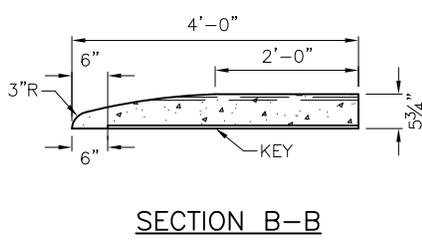
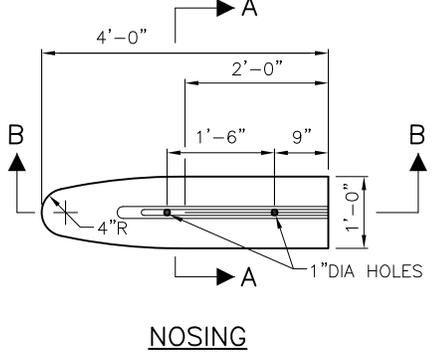
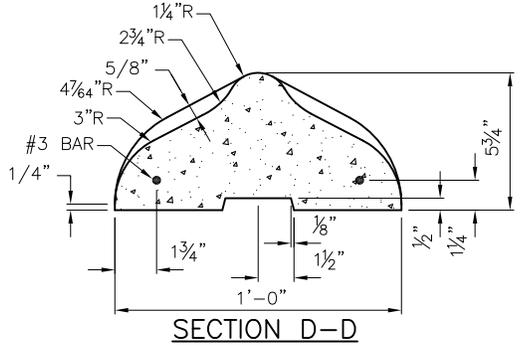
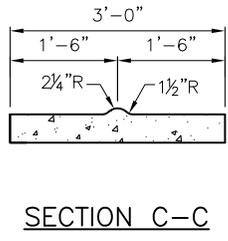
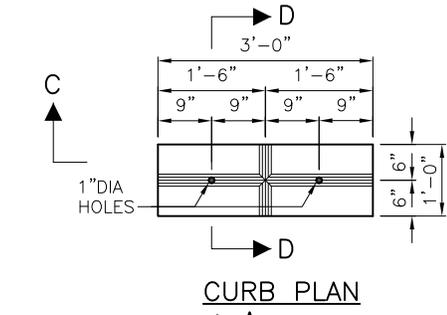


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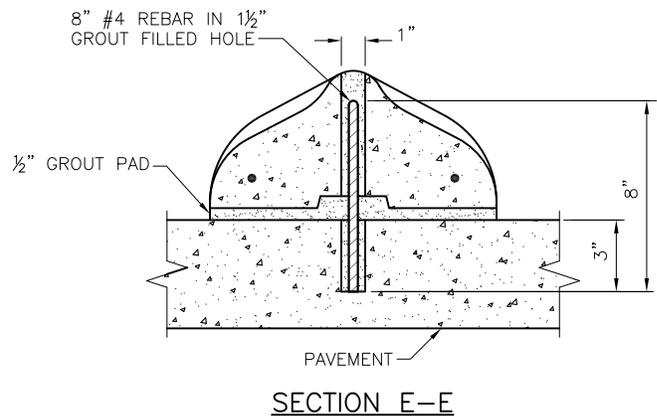
EXTRUDED CURB

DRAFT



INSTALLATION DETAIL FOR STRAIGHT PRECAST TRAFFIC CURB

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



SECTION E-E

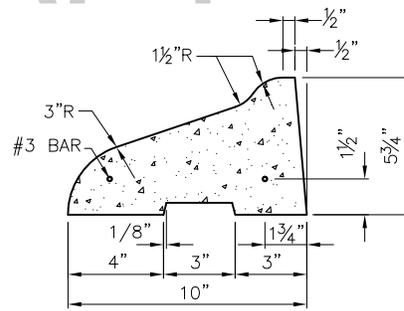
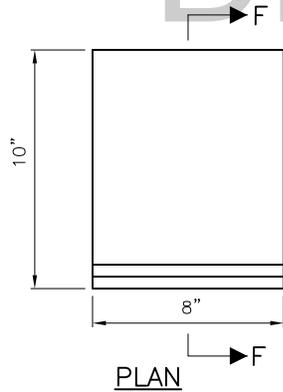
REF STD SPEC SEC 8-07



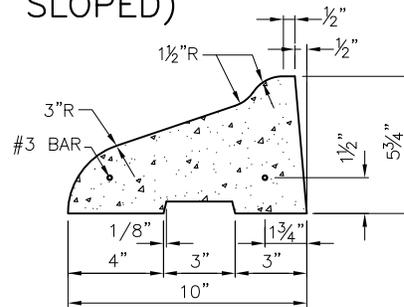
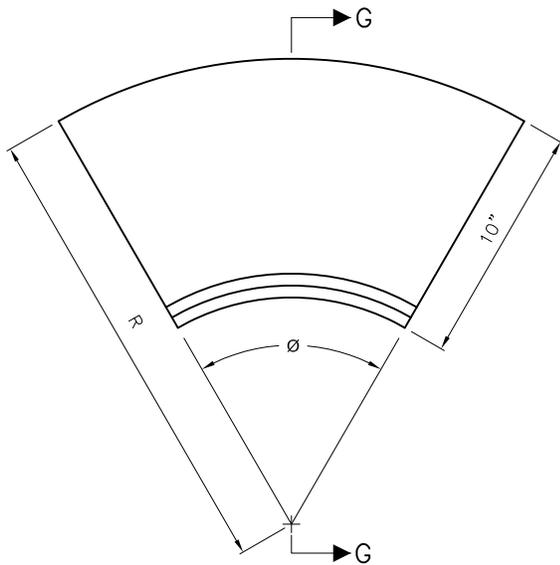
City of Seattle

NOT TO SCALE

3' PRECAST TRAFFIC CURB (DUAL SLOPED)



**8" STRAIGHT BLOCK CURB
(SINGLE SLOPED)**



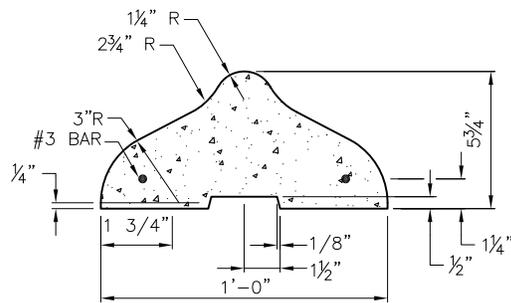
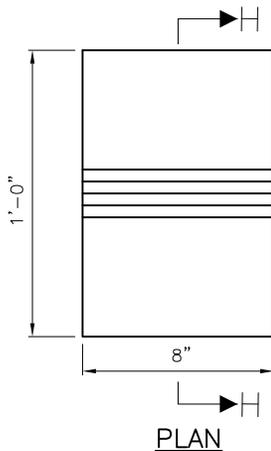
SECTION G-G

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



SECTION H-H

**8" STRAIGHT BLOCK CURB
(DUAL SLOPED)**

REF STD SPEC SEC 8-07



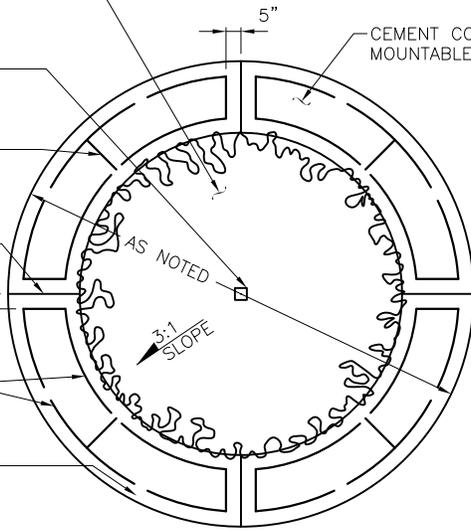
City of Seattle

NOT TO SCALE

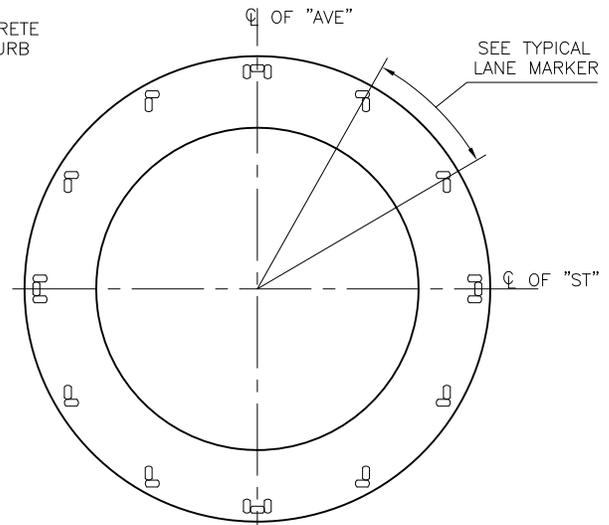
**8" BLOCK AND RADIAL
TRAFFIC CURB**

DRAFT

- PLANT MATERIAL
- OBJECT MARKER, SIGN CODE, W-81 (P4-10) SEE STD PLAN NO 626
- (3) #3 CURB DOWELS (TYP BETWEEN JOINTS)
- THROUGH JOINTS USE 4 FOR <20'-0" DIA USE 8 FOR ≥20'-0" DIA
- (2) #3 BARS (TYP BETWEEN JOINTS)
- LANE MARKERS, TYPE 2B SEE REFLECTOR LAYOUT DIAGRAM RIGHT



TYPICAL TRAFFIC CIRCLE

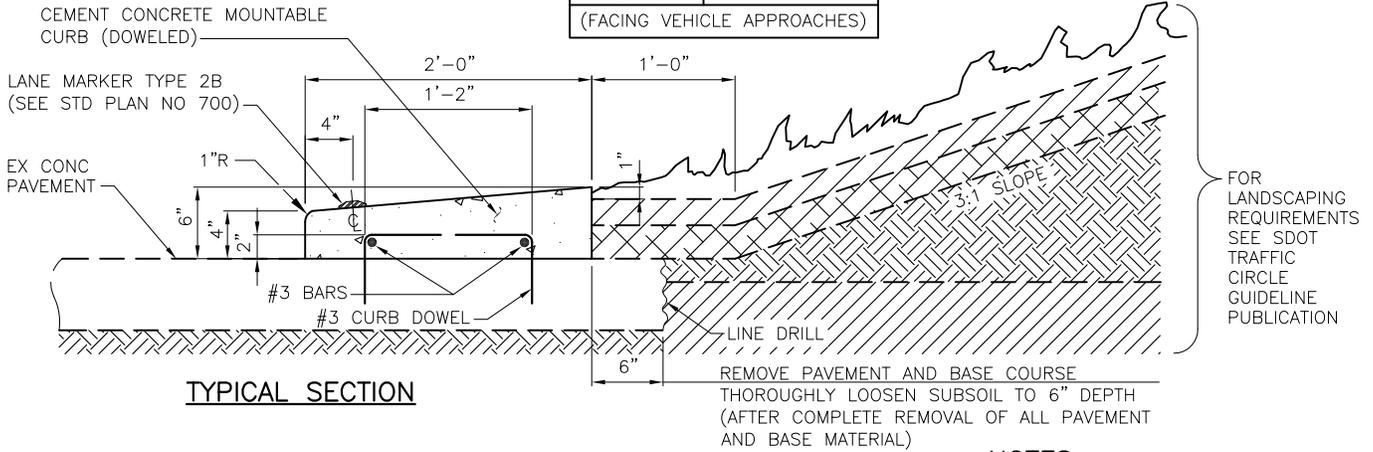


TRAFFIC CIRCLE REFLECTOR LAYOUT

SPACING CHART

DIAMETER OF CIRCLE	DEGREE OF SPACING
≤12'-0"	EVERY 45°
<20'-0"	EVERY 30°
>20'-0"	EVERY 22 1/2°

(FACING VEHICLE APPROACHES)

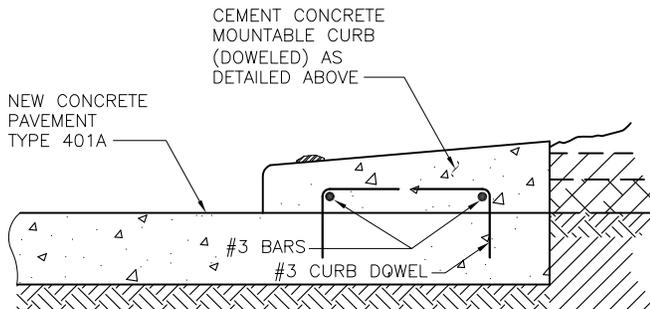


TYPICAL SECTION

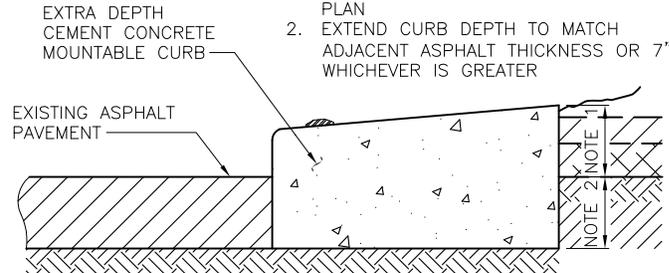
FOR LANDSCAPING REQUIREMENTS SEE SDOT TRAFFIC CIRCLE GUIDELINE PUBLICATION

NOTES:

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



SEE TYP SECTION ABOVE FOR DIMENSIONS



TYPICAL SECTIONS

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

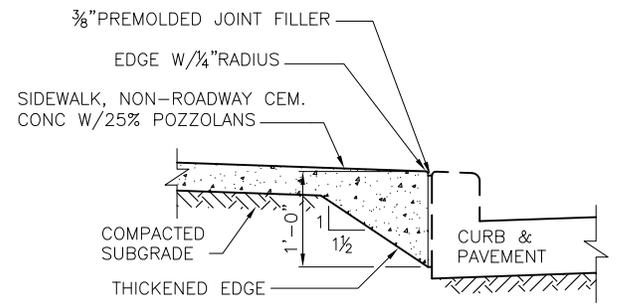
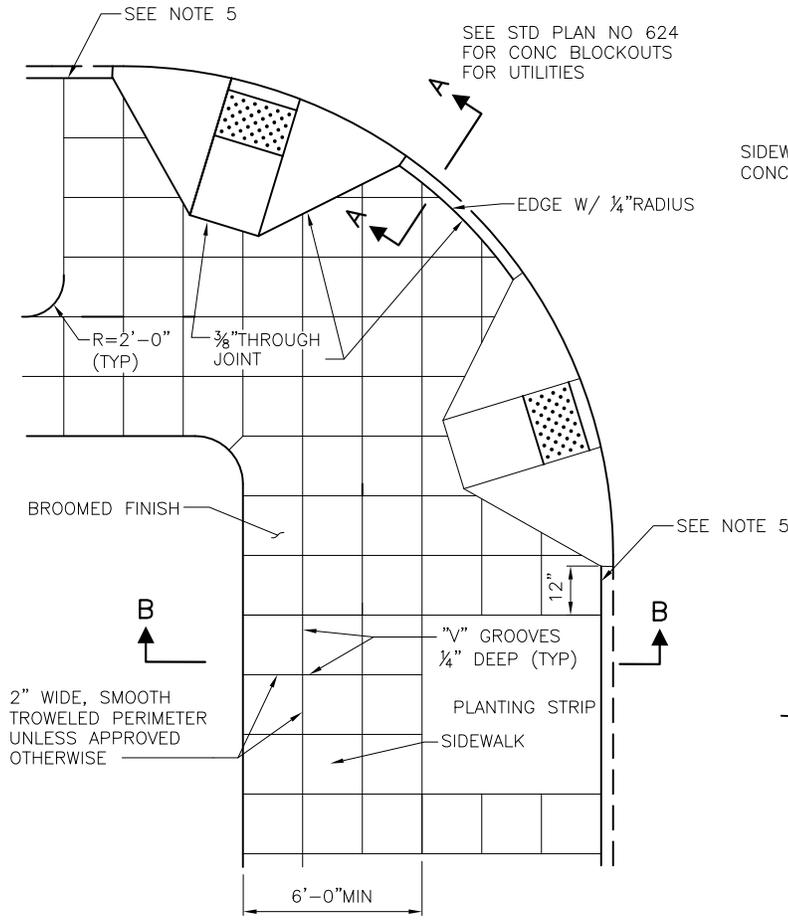


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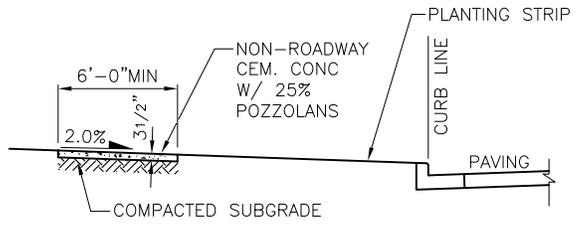
NOT TO SCALE

TRAFFIC CIRCLE DETAILS

DRAFT



THROUGH JOINT @ SECTION A-A
UNLESS CURB IS MONOLITHIC WITH SIDEWALK



SECTION B-B

TYPICAL SIDEWALK & CURB RAMP DETAIL

NOTES:

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

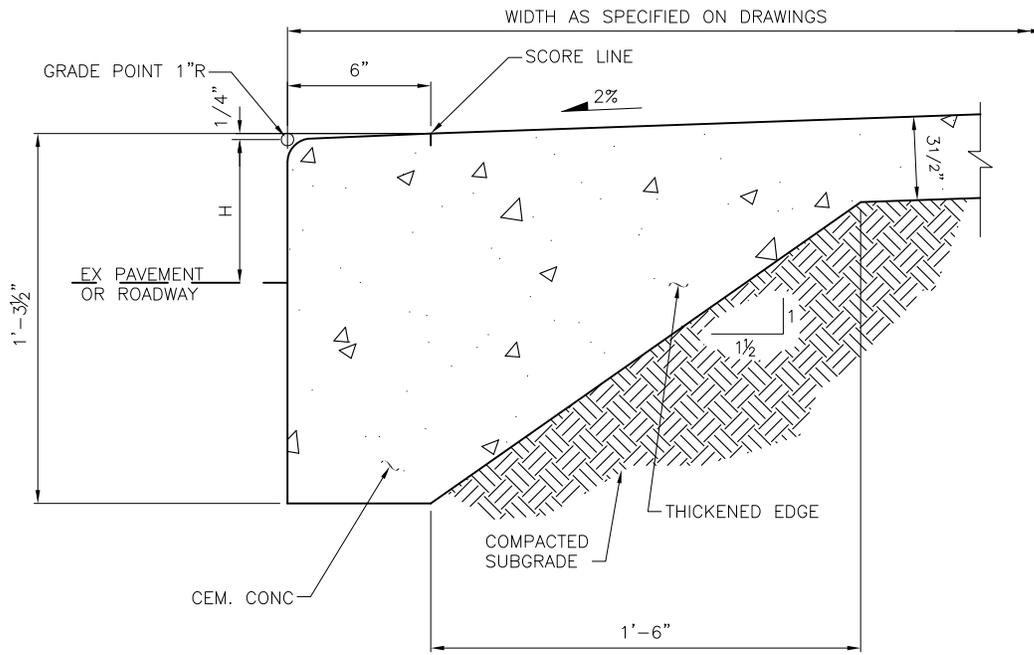
REF STD SPEC SEC 8-14



City of Seattle

NOT TO SCALE

CONCRETE SIDEWALK DETAILS



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

REF STD SPEC SEC 8-14



City of Seattle

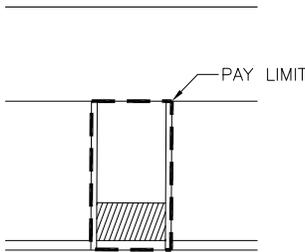
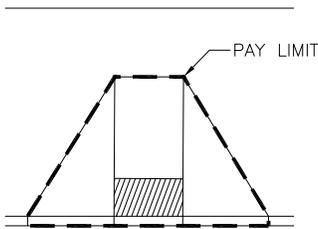
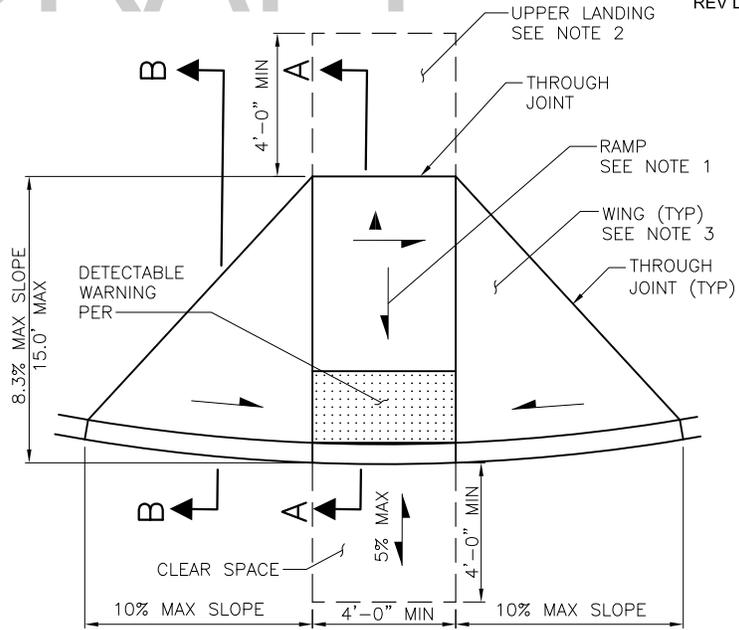
NOT TO SCALE

SIDEWALK WITH MONOLITHIC CURB

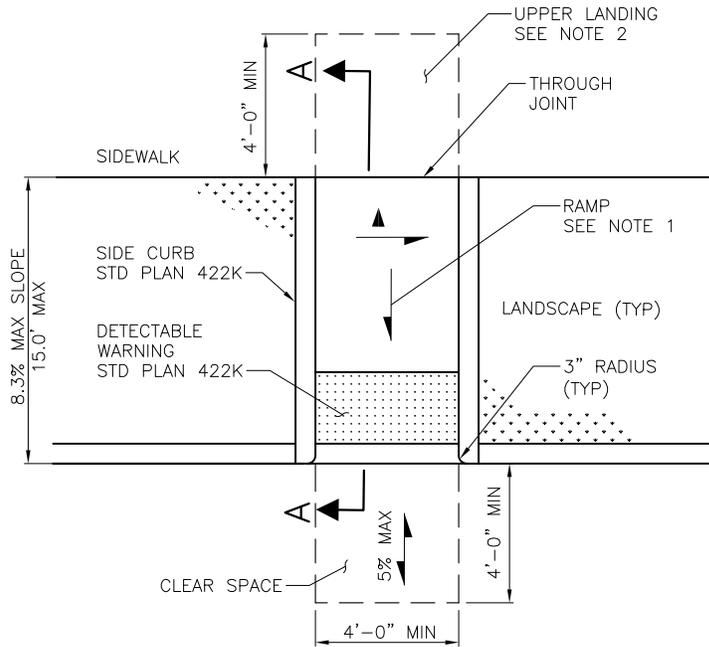
DRAFT

NOTES:

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



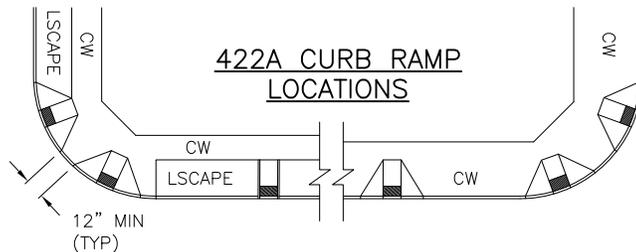
PAY LIMITS



PERPENDICULAR CURB RAMPS

(TYPE 422A)

▲ = CROSS-SLOPE BETWEEN 0.5% & 2%



REF STD SPEC SEC 8-14



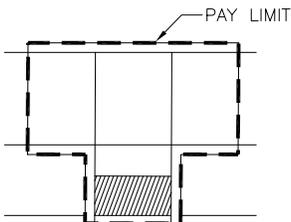
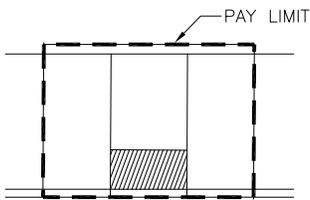
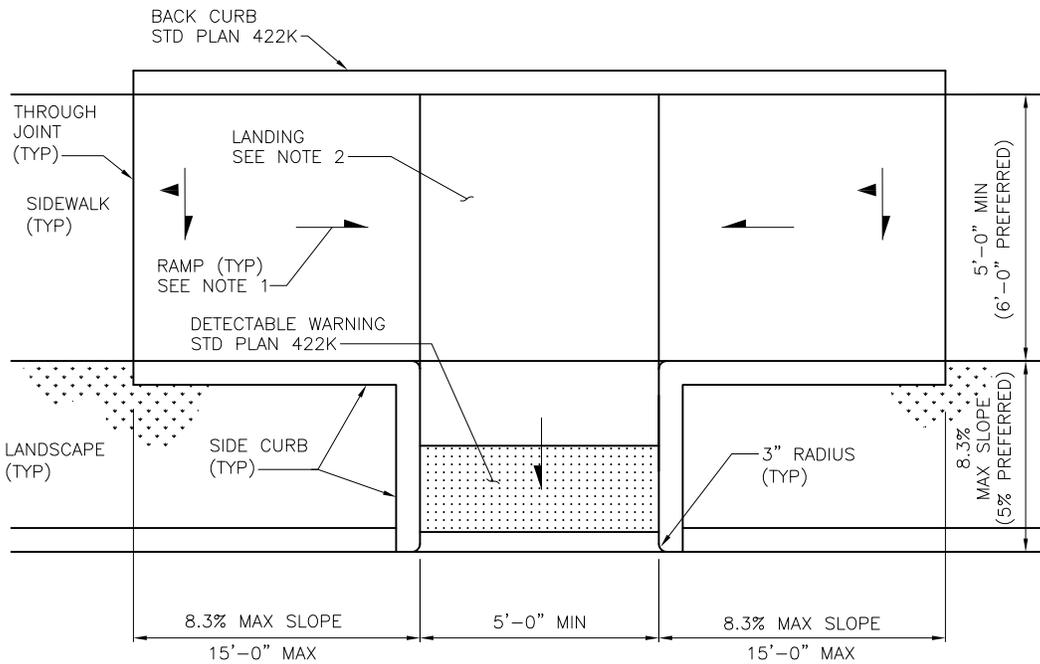
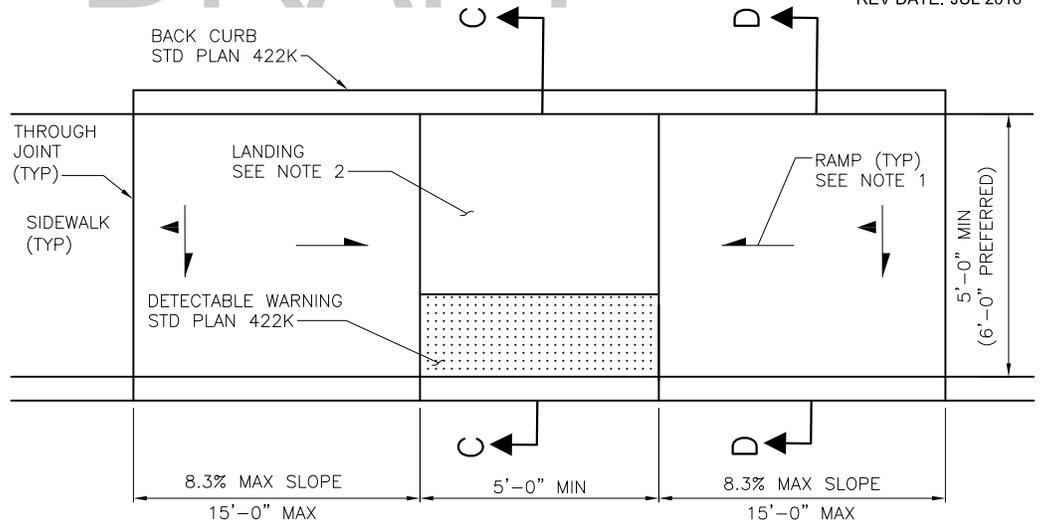
City of Seattle

NOT TO SCALE

CURB RAMP DETAILS

NOTES:

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

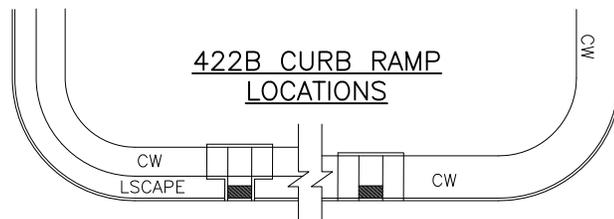


PAY LIMITS

PARALLEL CURB RAMPS

(TYPE 422B)

▲ = CROSS-SLOPE BETWEEN 0.5% & 2%



REF STD SPEC SEC 8-14



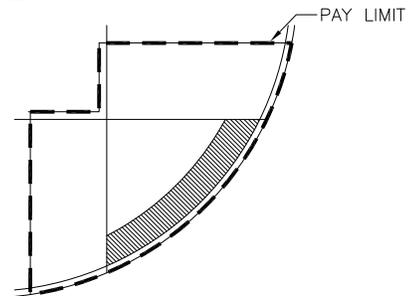
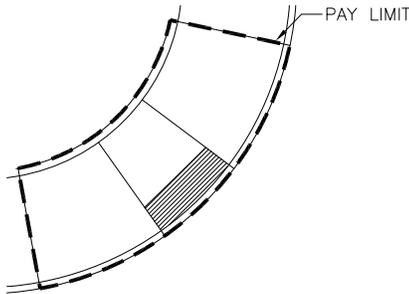
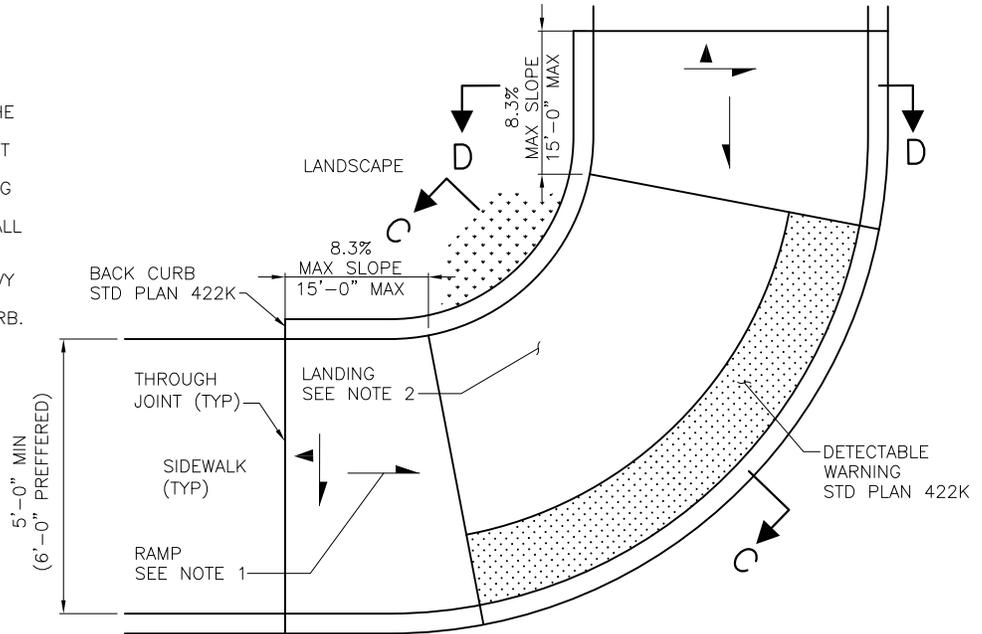
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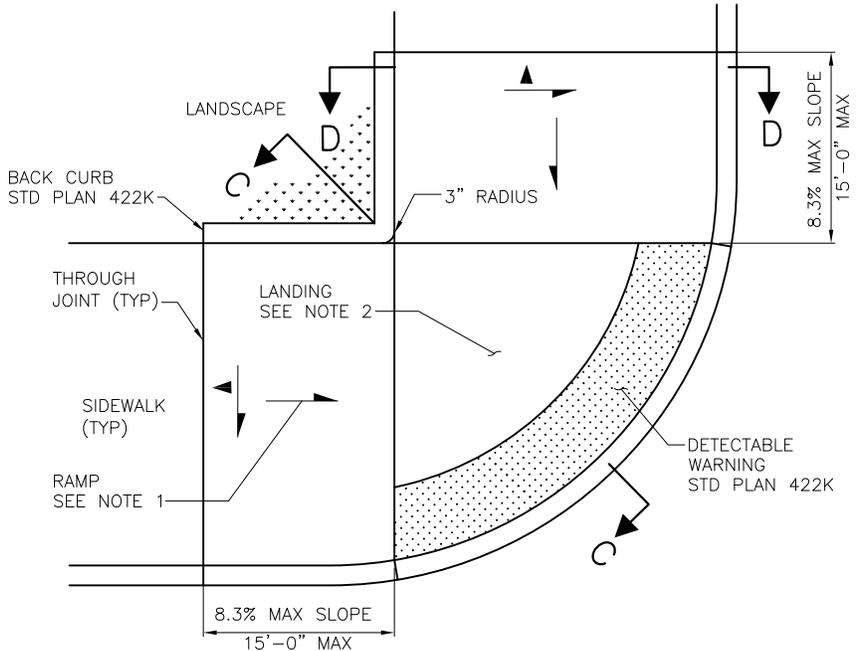
CURB RAMP DETAILS

NOTES:

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

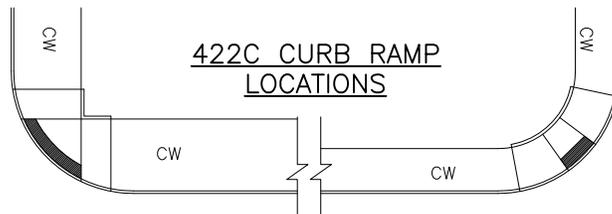


PAY LIMITS



PARALLEL CURB RAMPS (CORNER)
(TYPE 422C)

▲ = CROSS-SLOPE BETWEEN 0.5% & 2%



422C CURB RAMP LOCATIONS

REF STD SPEC SEC 8-14



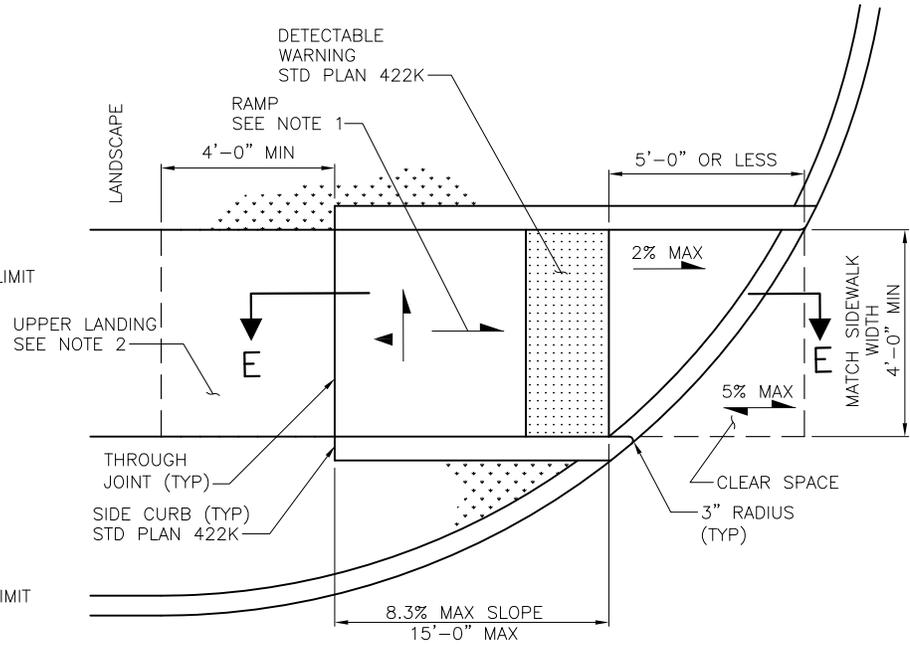
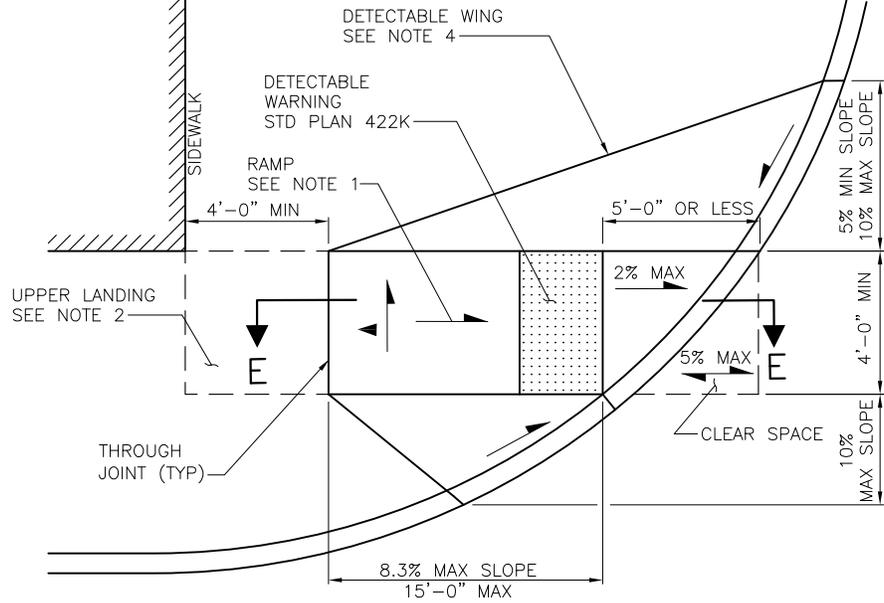
City of Seattle

NOT TO SCALE

CURB RAMP DETAILS

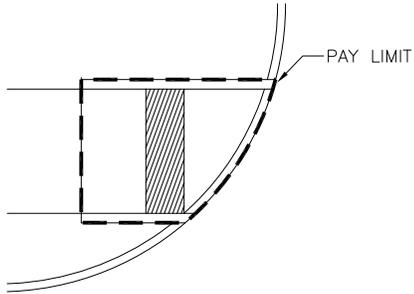
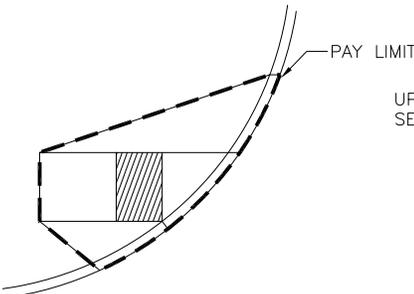
NOTES:

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

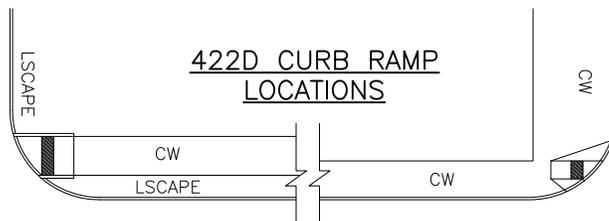


DIRECTIONAL CURB RAMPS
(TYPE 422D)

▲ = CROSS-SLOPE BETWEEN 0.5% & 2%



PAY LIMITS



REF STD SPEC SEC 8-14



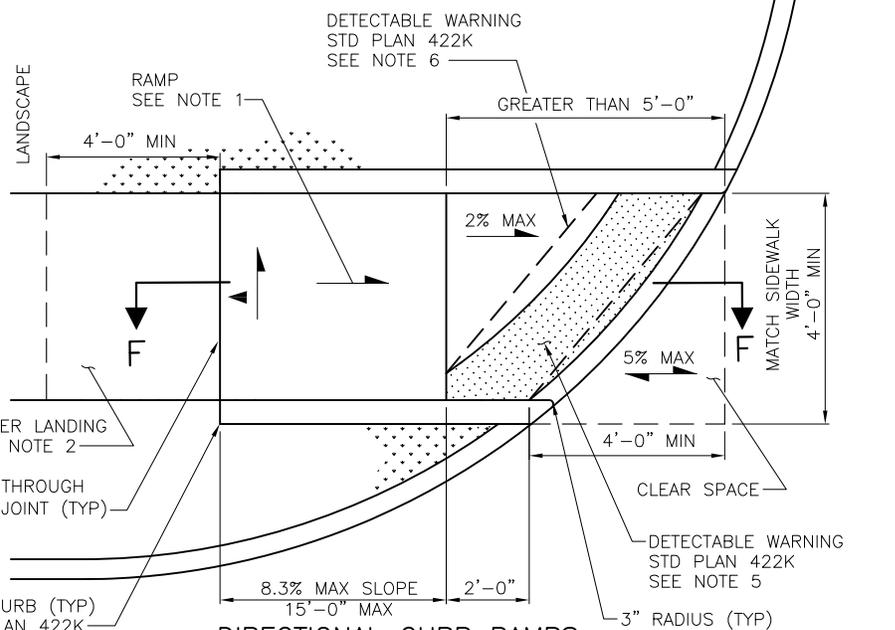
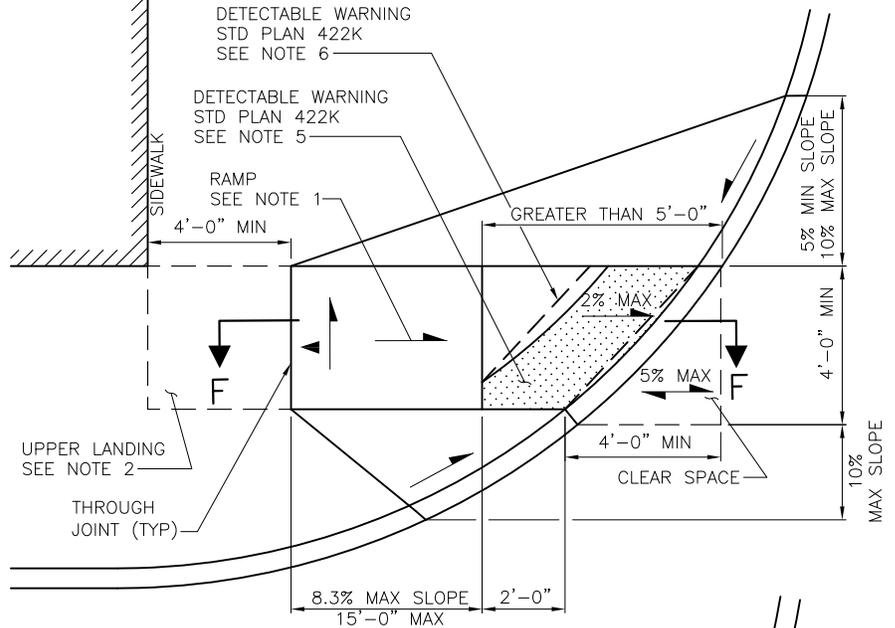
City of Seattle

NOT TO SCALE

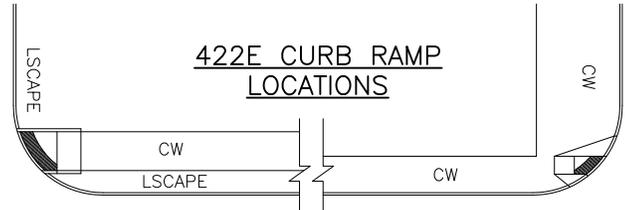
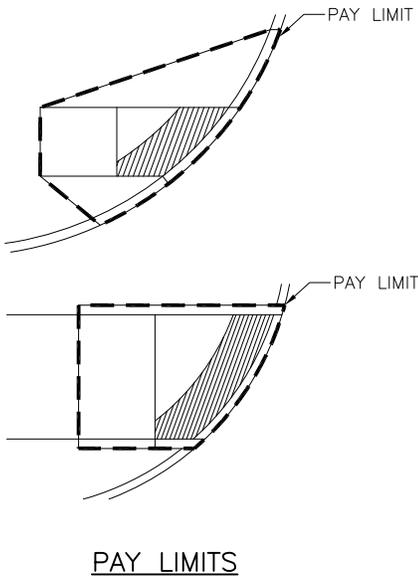
CURB RAMP DETAILS

NOTES:

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



▲ = CROSS-SLOPE BETWEEN 0.5% & 2%



REF STD SPEC SEC 8-14



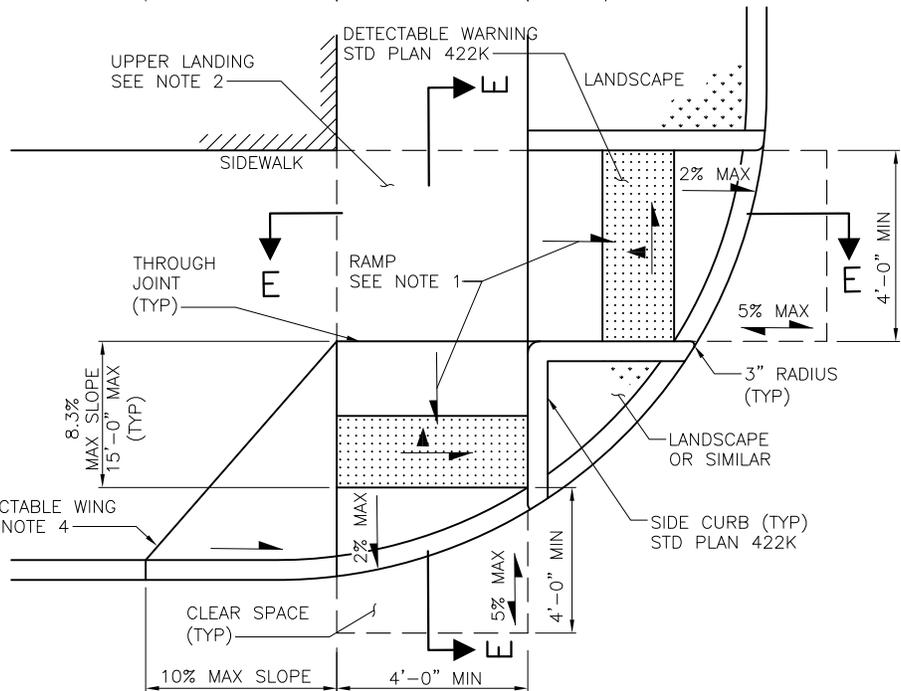
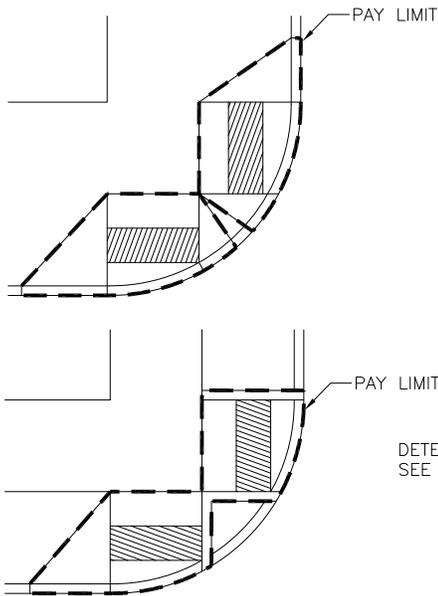
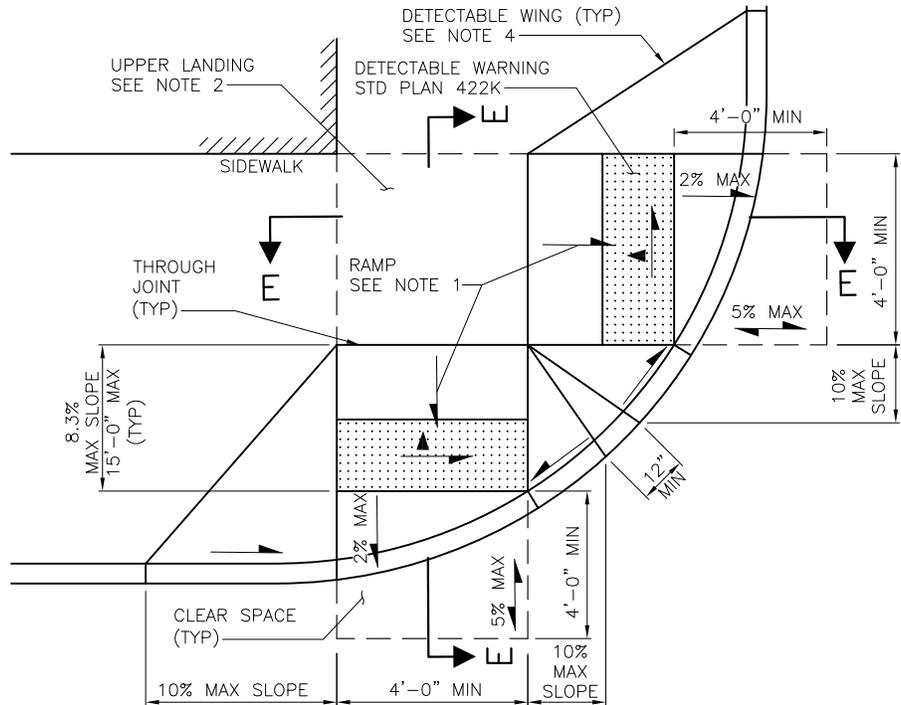
City of Seattle

NOT TO SCALE

CURB RAMP DETAILS

NOTES:

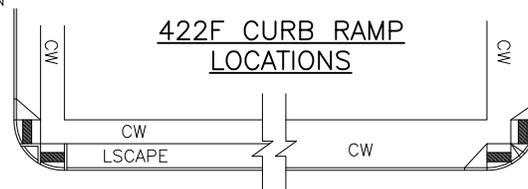
1. RAMP CENTERLINE SHALL BE PARALLEL TO CROSSWALK AND/OR THE SIDEWALK.
2. UPPER LANDING AT THE TOP OF THE CURB RAMP SHALL MATCH THE FULL WIDTH OF THE RAMP AND SHALL HAVE A MINIMUM DEPTH OF 4'-0". IF THE LANDING IS LIMITED AT THE BACK-OF-SIDEWALK BY A PERMANENT VERTICAL BARRIER, THE DEPTH OF THE TURNING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



PAY LIMITS



DIRECTIONAL CURB RAMPS W/ SHARED LANDING
(TYPE 422F)



REF STD SPEC SEC 8-14



City of Seattle

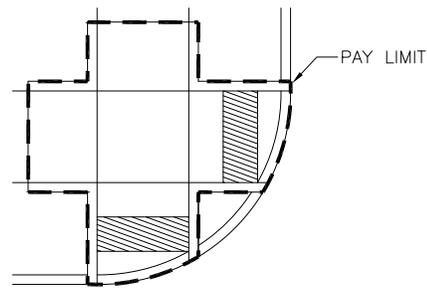
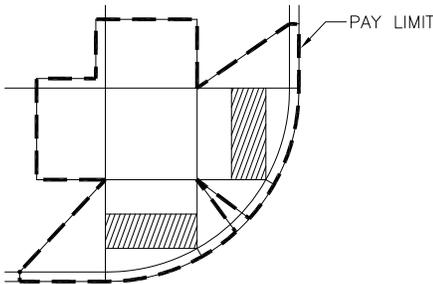
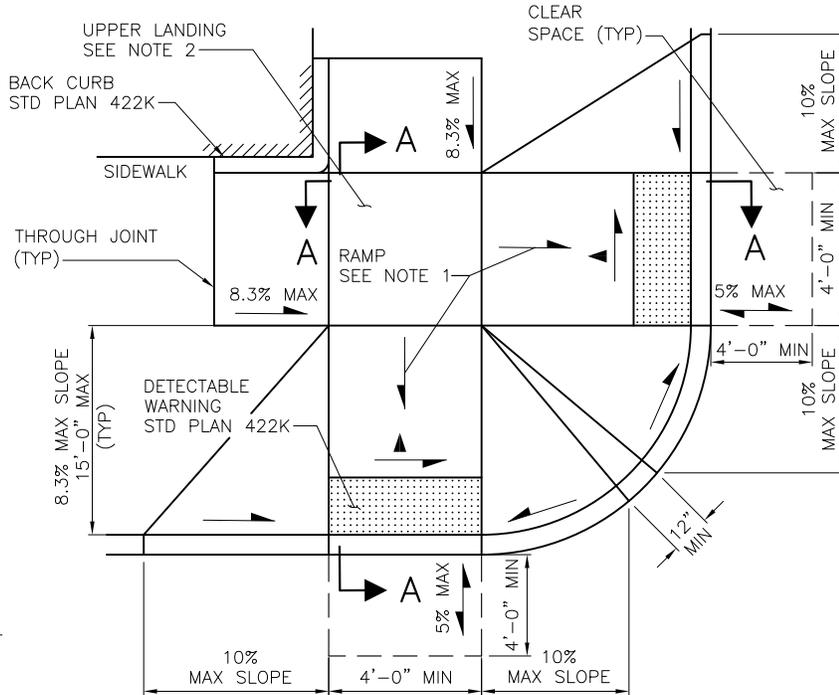
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CURB RAMP DETAILS

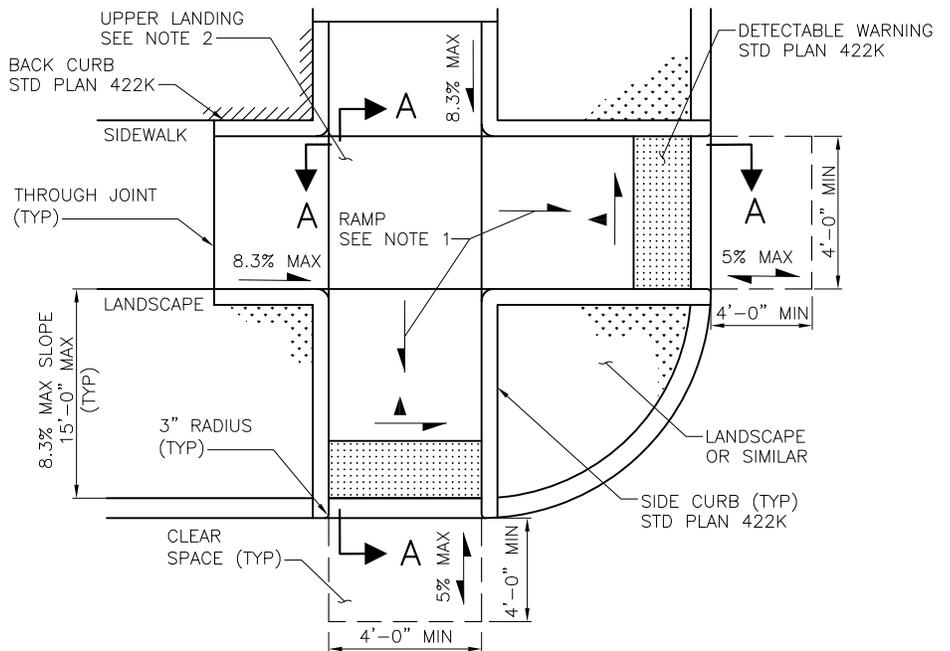
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NOTES:

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

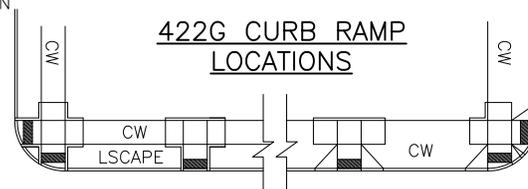


PAY LIMITS



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

▲ = CROSS-SLOPE BETWEEN 0.5% & 2%



REF STD SPEC SEC 8-14



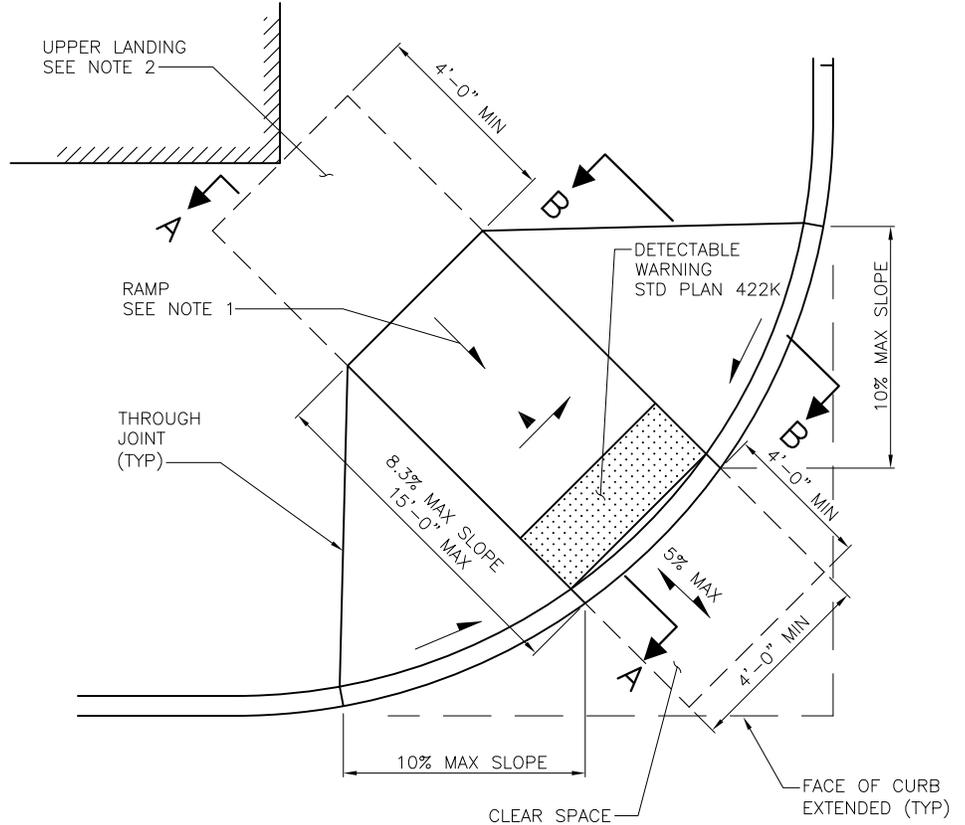
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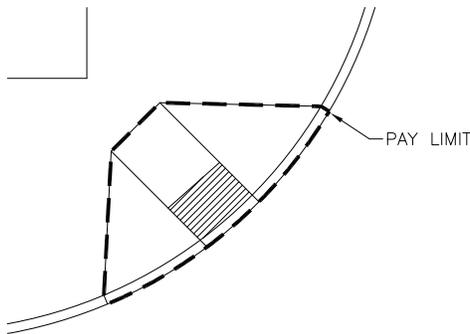
CURB RAMP DETAILS

NOTES:

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

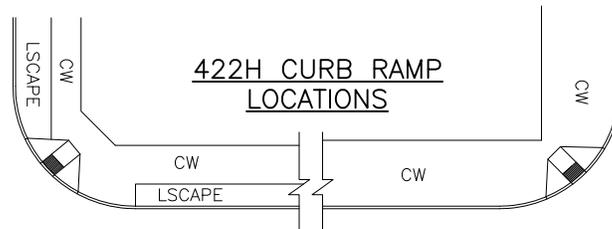


SHARED DIAGONAL PERPENDICULAR CURB RAMP
(TYPE 422H)



PAY LIMITS

▲ = CROSS-SLOPE BETWEEN 0.5% & 2%



REF STD SPEC SEC 8-14



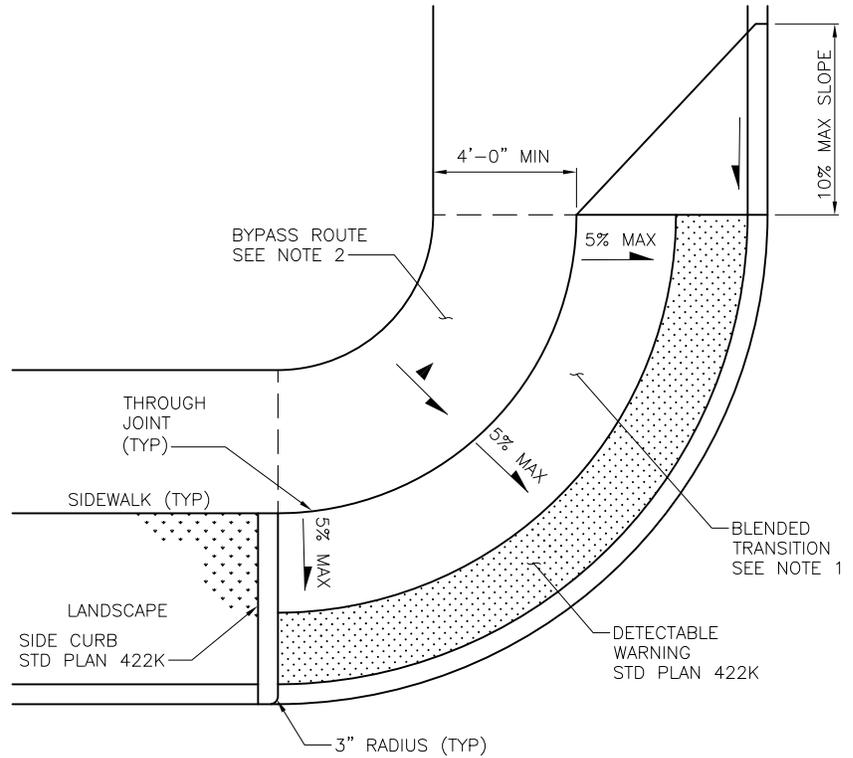
City of Seattle

NOT TO SCALE

CURB RAMP DETAILS

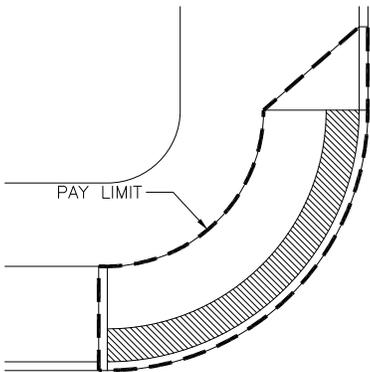
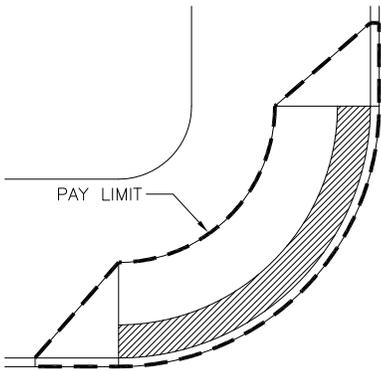
NOTES:

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

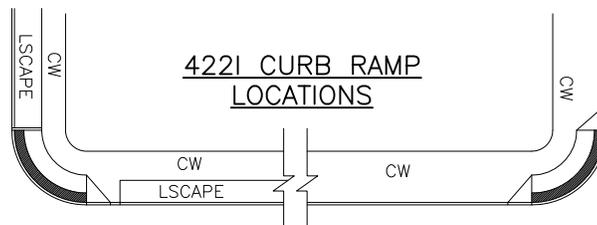


BLENDED TRANSITION
(TYPE 422i)

▲ = CROSS-SLOPE BETWEEN 0.5% & 2%



PAY LIMITS



REF STD SPEC SEC 8-14



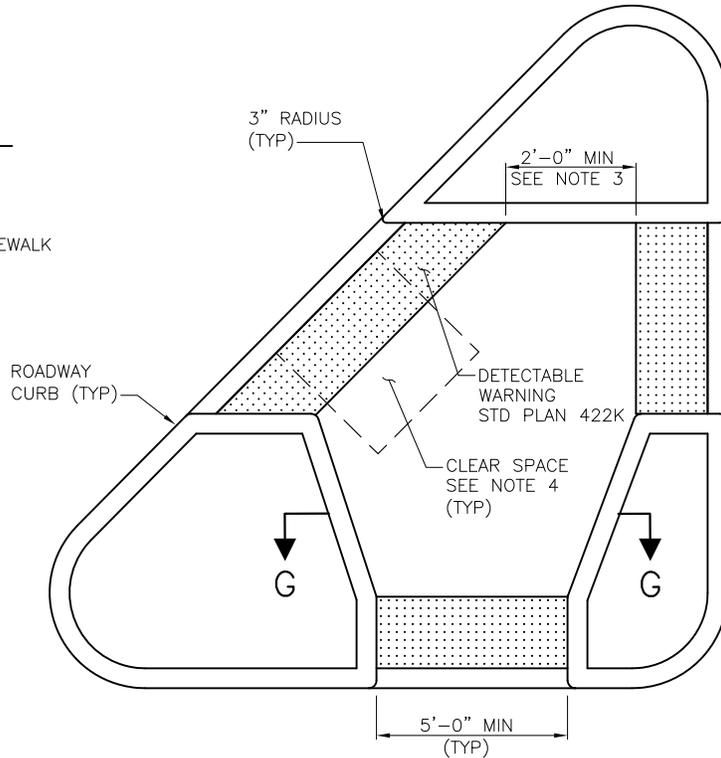
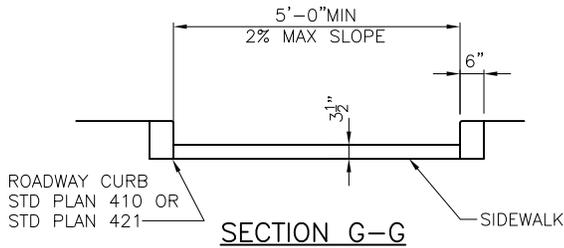
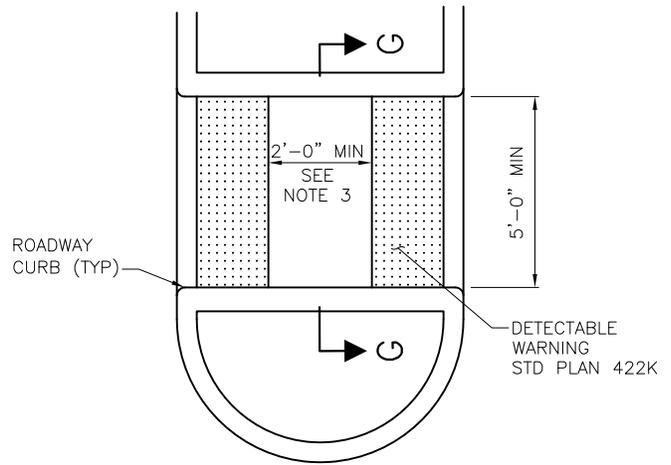
City of Seattle

NOT TO SCALE

CURB RAMP DETAILS

NOTES:

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



ISLAND CUT-THROUGHS
(TYPE 422J)

REF STD SPEC SEC 8-14



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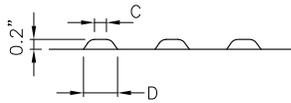
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CURB RAMP DETAILS

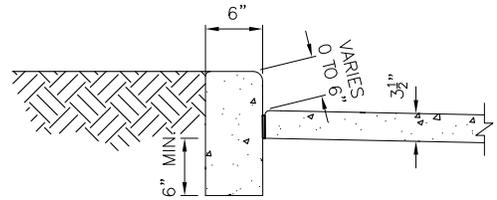
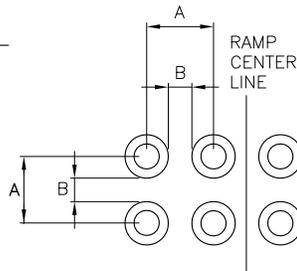
CURB RAMP GENERAL NOTES:

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

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

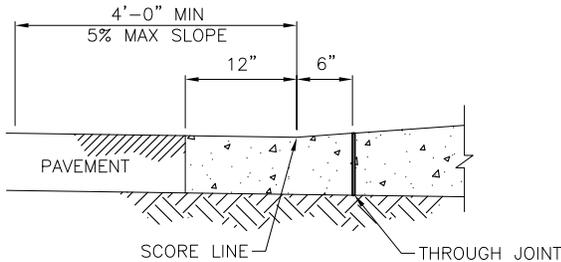


	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	50% TO 65% OF D	
D	0.9"	1.4"

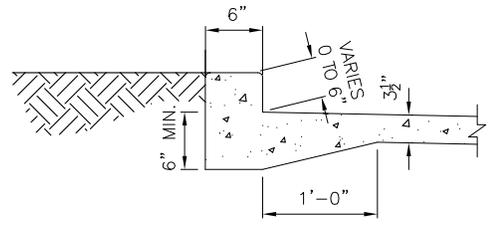


SIDE CURB DETAIL

DETECTABLE WARNING TRUNCATED DOMES PATTERN



DEPRESSED CURB AND GUTTER DETAIL



BACK CURB DETAIL

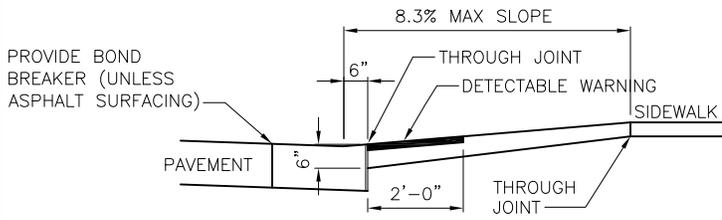
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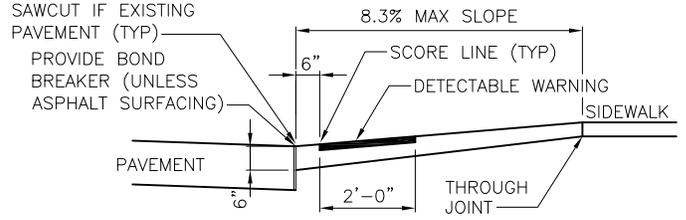
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CURB RAMP DETAILS



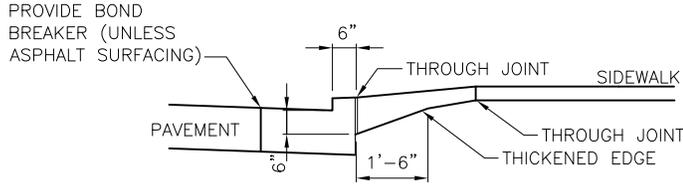
SECTION A-A

DEPRESSED CURB & GUTTER SEPARATE FROM RAMP.

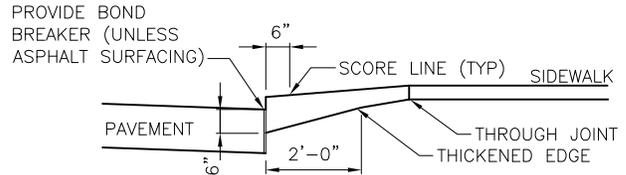


SECTION A-A

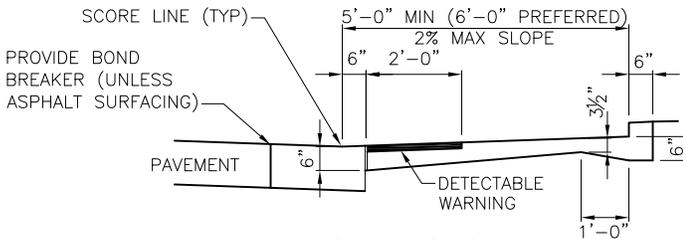
CURB MONOLITHIC WITH RAMP. NEW PAVEMENT BLOCKED OUT FULL DEPTH. EXISTING PAVEMENT REMOVED AT FACE OF CURB



SECTION B-B

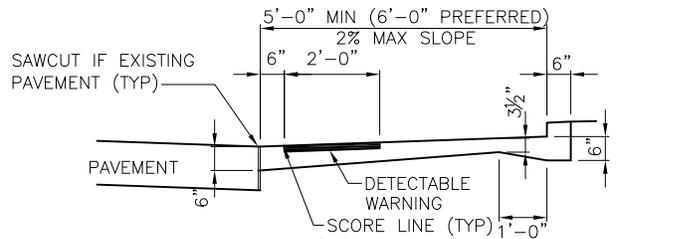


SECTION B-B



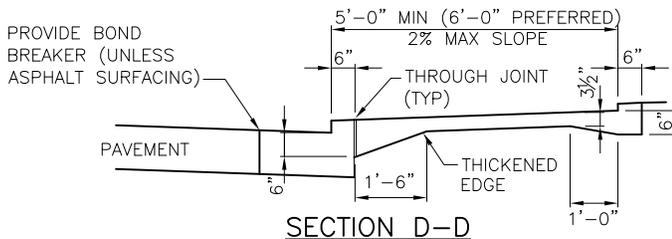
SECTION C-C

DEPRESSED CURB & GUTTER SEPARATE FROM RAMP.

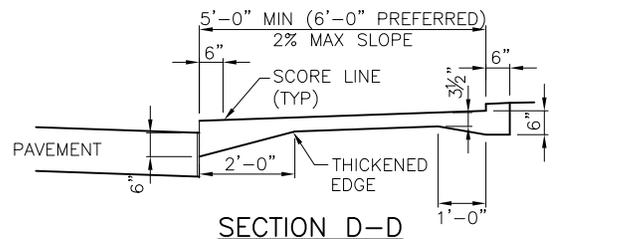


SECTION C-C

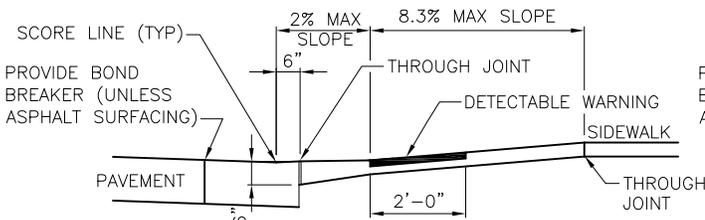
CURB MONOLITHIC WITH RAMP. NEW PAVEMENT BLOCKED OUT FULL DEPTH. EXISTING PAVEMENT REMOVED AT FACE OF CURB



SECTION D-D

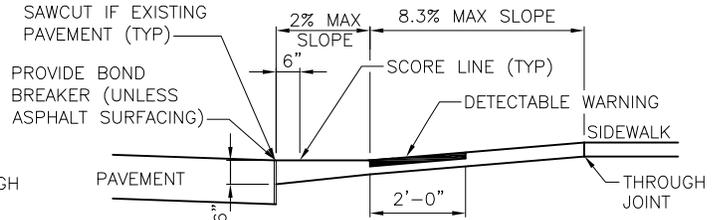


SECTION D-D



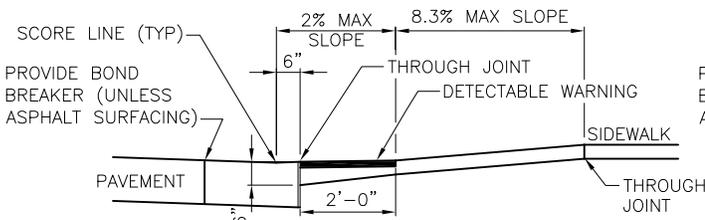
SECTION E-E

DEPRESSED CURB & GUTTER SEPARATE FROM RAMP.



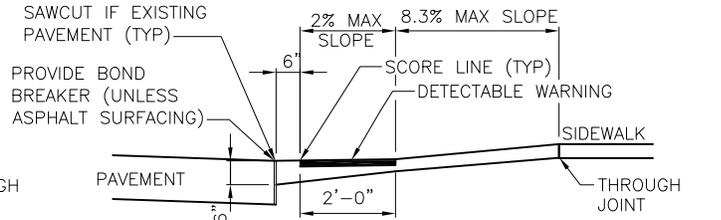
SECTION E-E

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



SECTION F-F

DEPRESSED CURB & GUTTER SEPARATE FROM RAMP



SECTION F-F

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

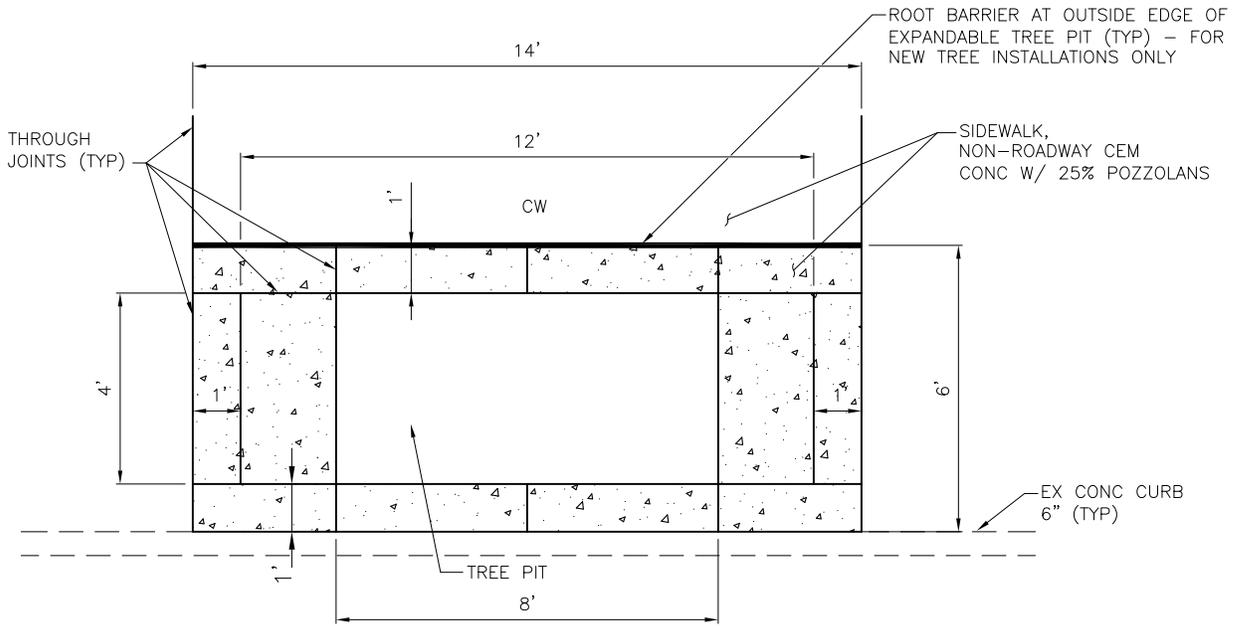
REF STD SPEC SEC 8-14



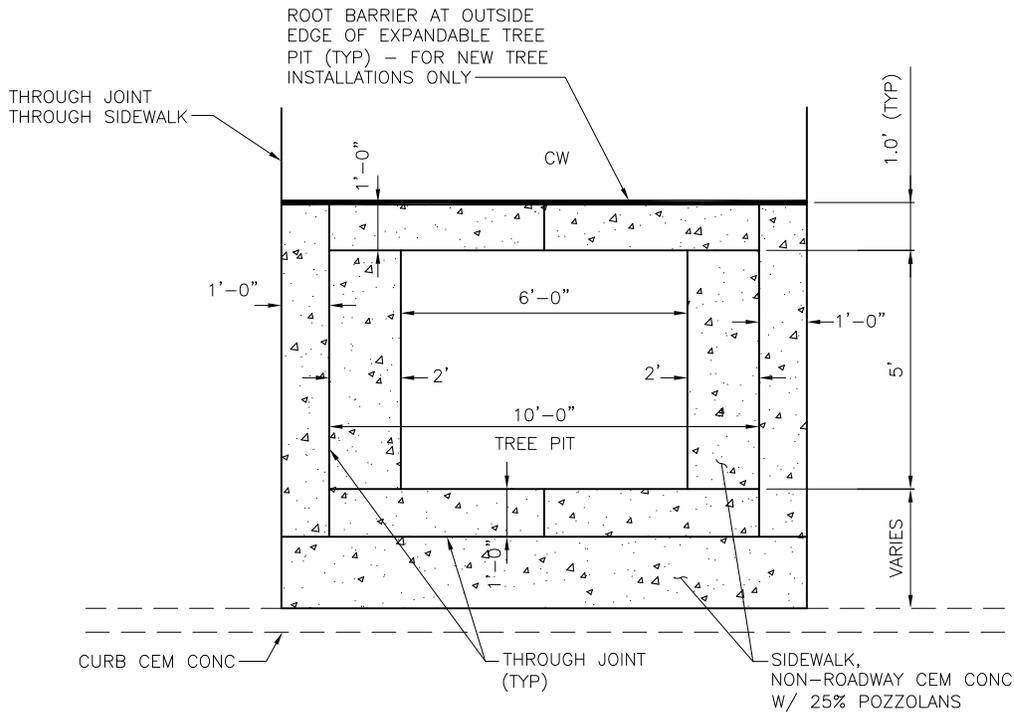
City of Seattle

NOT TO SCALE

CURB RAMP SECTIONS



TYPE A



TYPE B

NOTES:

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

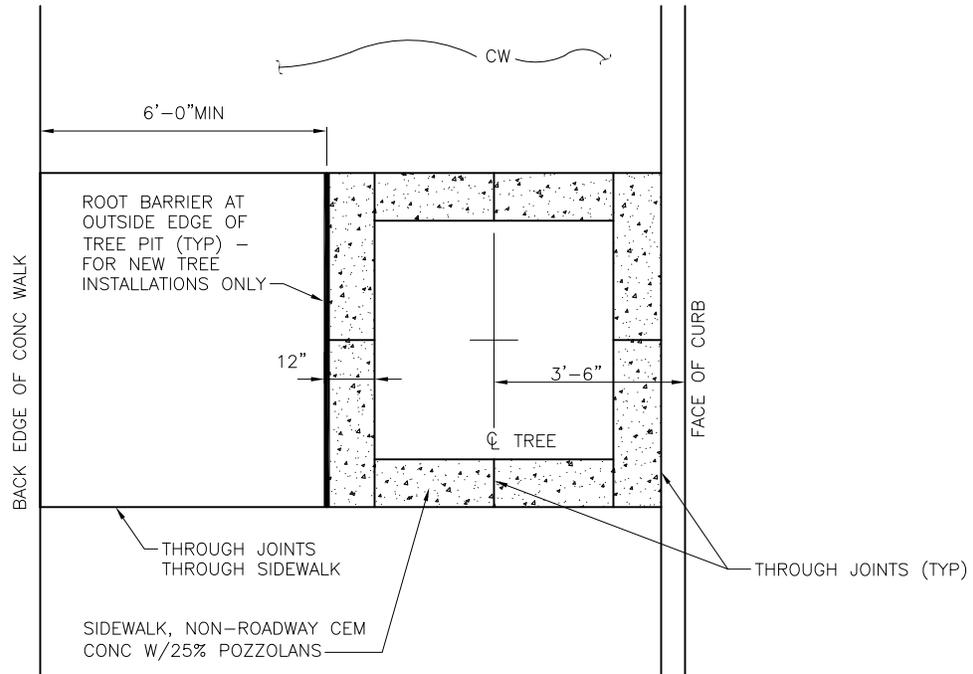
REF STD SPEC SEC 8-02 & 8-14



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EXPANDABLE TREE PIT DETAIL



FOR ADDITIONAL SIDEWALK SCORING REQUIREMENTS
SEE STD PLAN NO 420

TYPE C

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

NOTES:

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

REF STD SPEC SEC 8-02 & 8-14

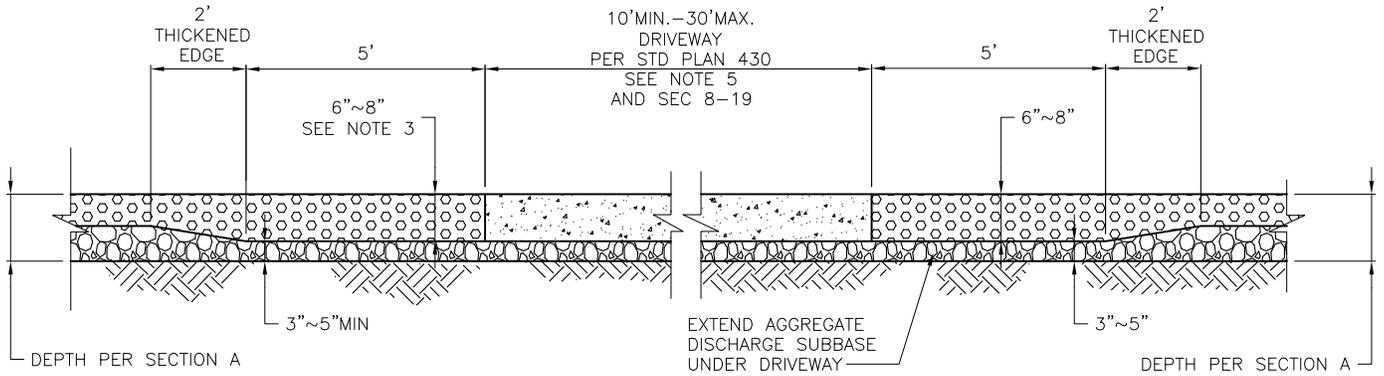


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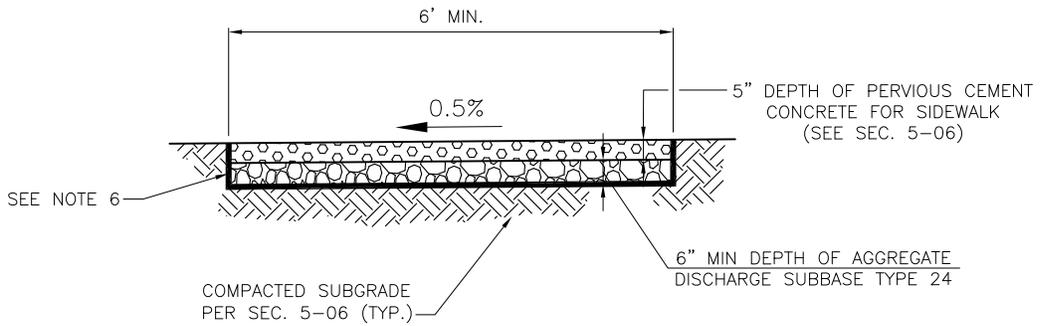
NOT TO SCALE

TREE PIT DETAIL

DRAFT



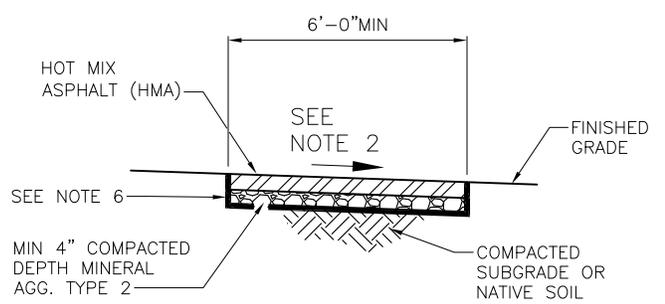
PERVIOUS CONC CEM SIDEWALK DEPTH TRANSITION AT DRIVEWAYS PROFILE VIEW



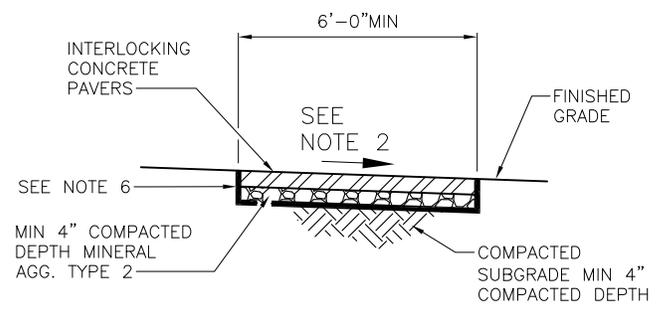
PERVIOUS CONC SECTION A

NOTES:

1. DEPTHS SHOWN FOR PAVEMENT SECTIONS ARE COMPACTED DEPTH.
2. SIDEWALK DEPTH AT DRIVEWAY TO MATCH DRIVEWAY PAVEMENT DEPTH.
3. DEPTH OF POROUS CEMENT CONCRETE FOR DRIVEWAYS MUST BE 8" MIN.
4. 6% MAX. PERVIOUS CEMENT CONCRETE PROFILE GRADE.
5. WHERE PERVIOUS CONCRETE IS SHOWN ON PLANS FOR ALLEY, PERVIOUS CONCRETE MUST BE 8" WITH 3" AGGREGATE DISCHARGE SUBBASE.
6. APPLY SEPARATION GEOTEXTILE SEC. 9-37, ON BOTTOM AND SIDES. EXTEND GEOTEXTILE ABOVE PERVIOUS CONCRETE FOR SIDEWALK PAVEMENT. AFTER PAVEMENT HAS CURED AND ADJACENT FINISHED GRADE HAS BEEN STABILIZED, CUT SEPARATION GEOTEXTILE AT FINISHED GRADE (TYP.)



HOT MIX ASPHALT PAVEMENT SIDEWALK SECTION



CONCRETE PAVER SIDEWALK SECTION

REF STD SPEC SEC 5-04, 5-06

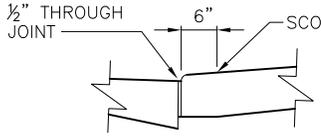


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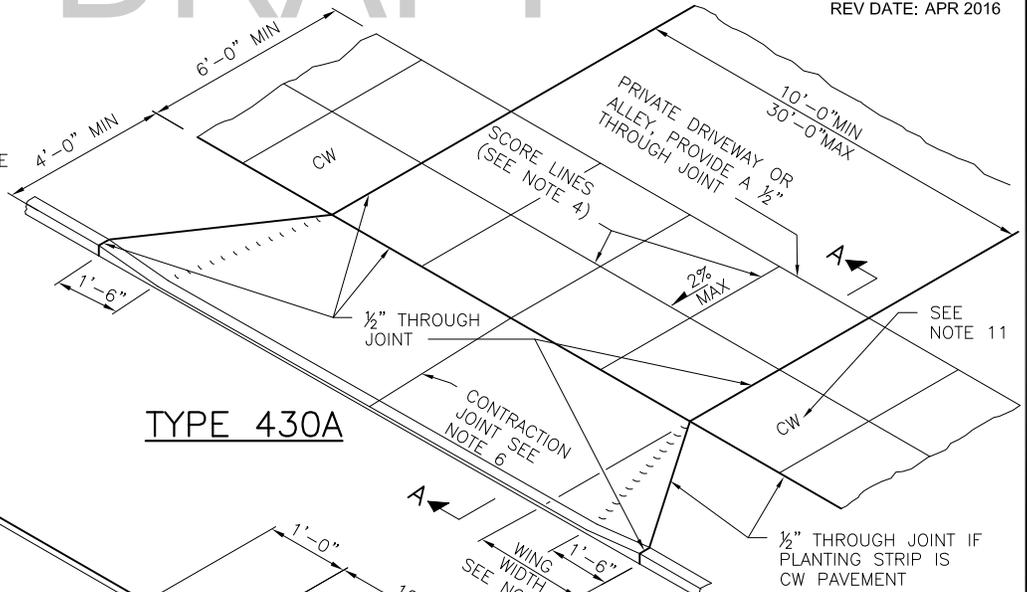
NOT TO SCALE

ALTERNATIVE WALKWAYS

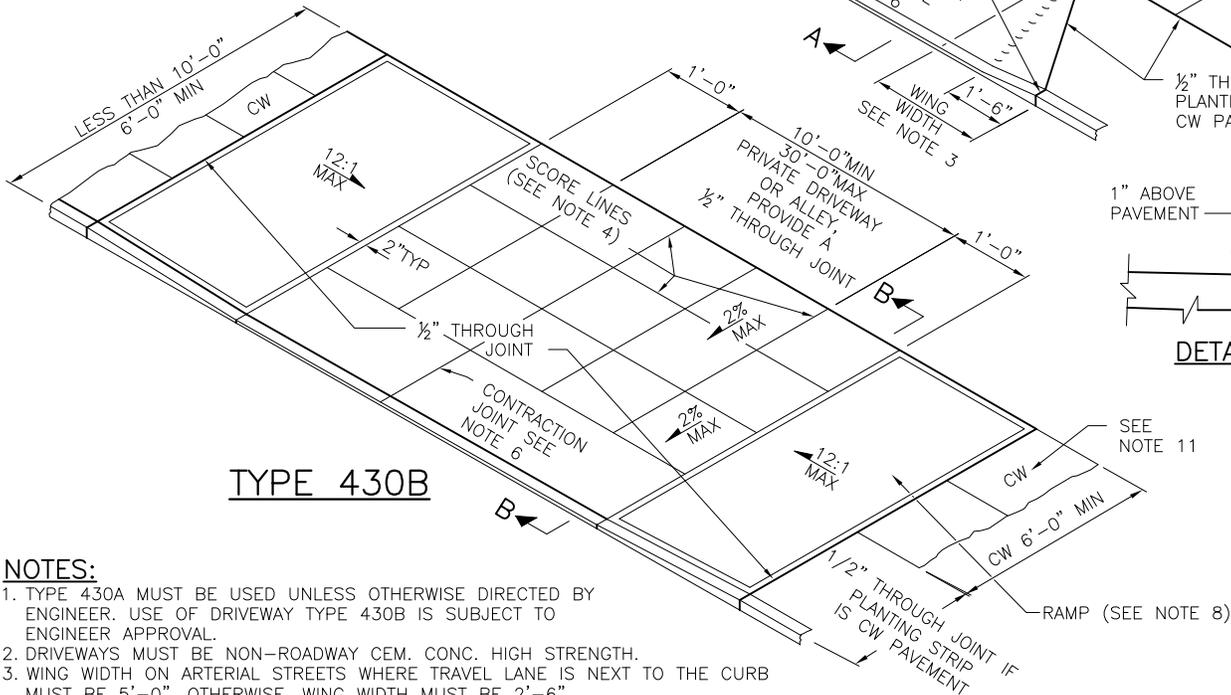
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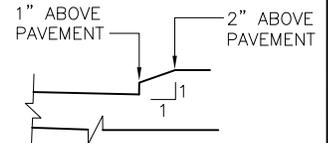
DETAIL B
DRIVEWAY W/ MONOLITHIC CURB & APPROACH



TYPE 430A



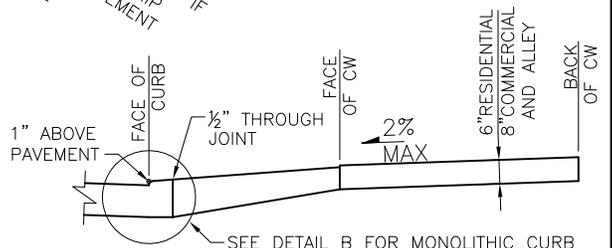
TYPE 430B



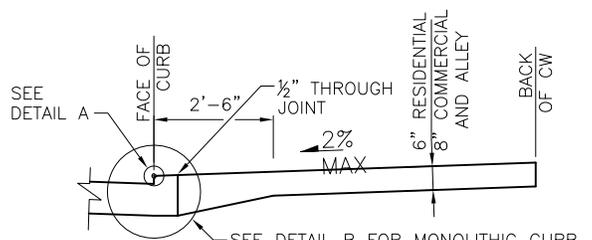
DETAIL A

NOTES:

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



SECTION A-A



SECTION B-B

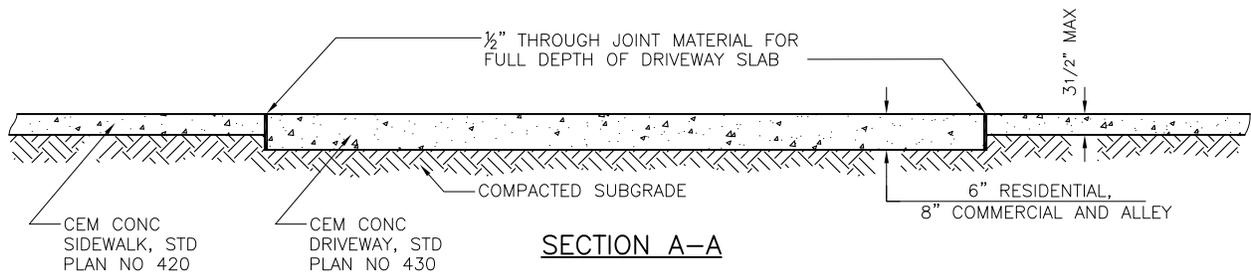
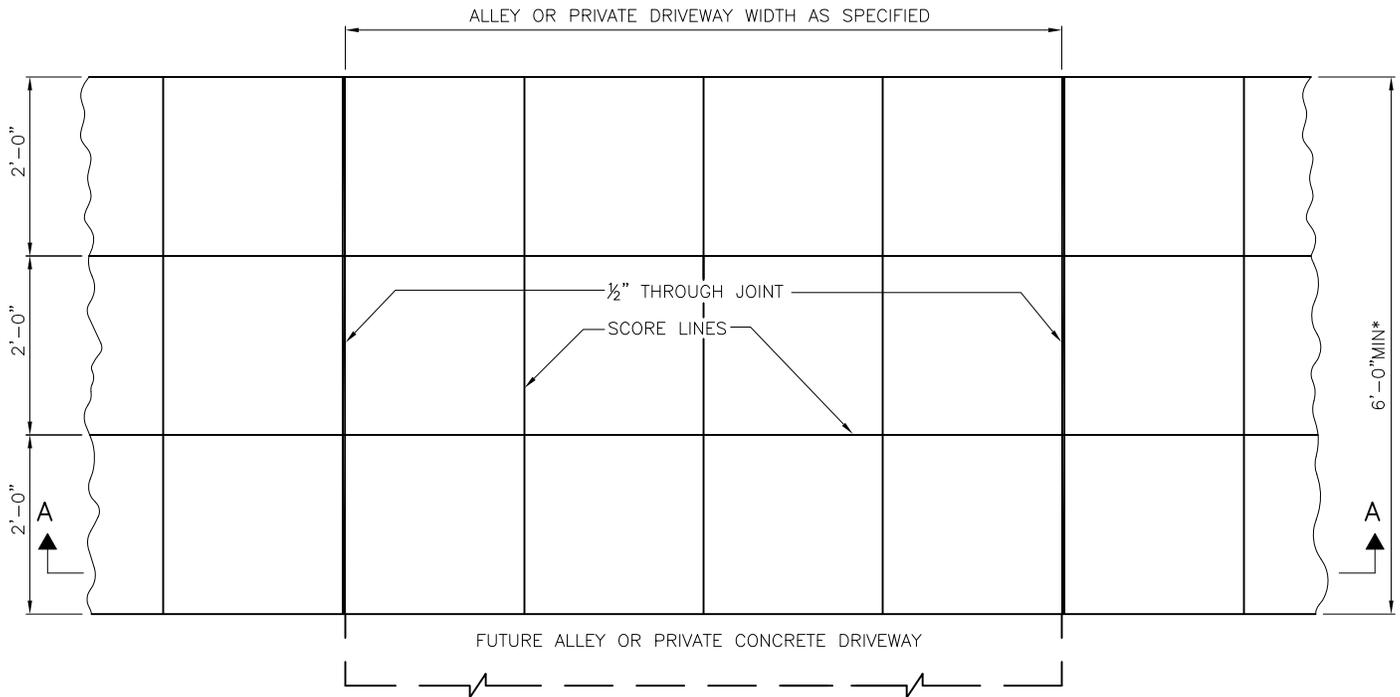


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TYPE 430A & 430B DRIVEWAYS

DRAFT



* UNLESS OTHERWISE APPROVED BY SDOT.

NOTES:

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

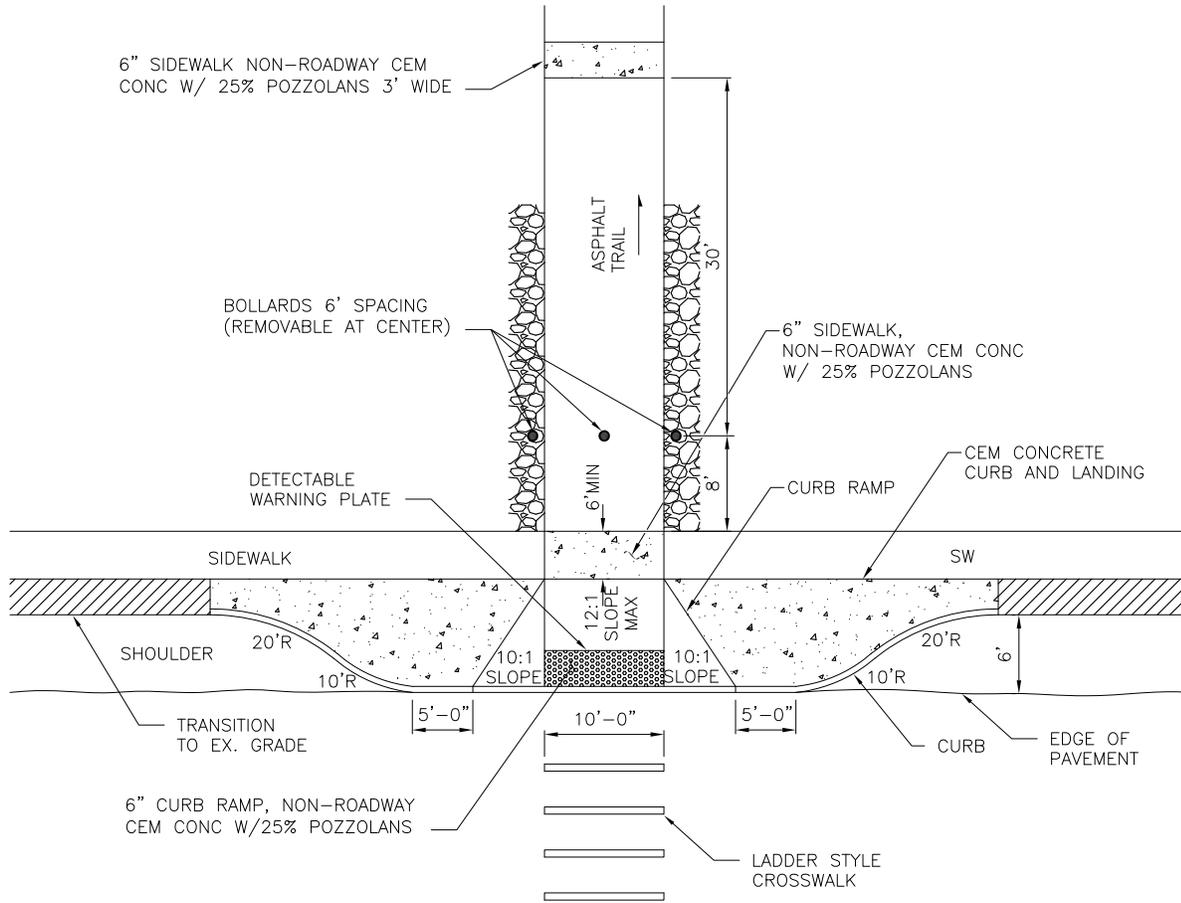
REF STD SPEC SEC 8-14 & 8-19



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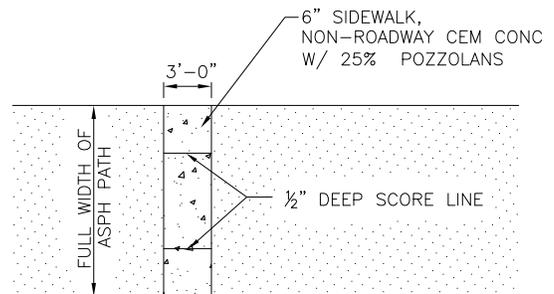
**CEMENT CONCRETE DRIVEWAY
PLACED WITH CEMENT
CONCRETE SIDEWALK**



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

NOTES:

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



CEM CONC WARNING PAD

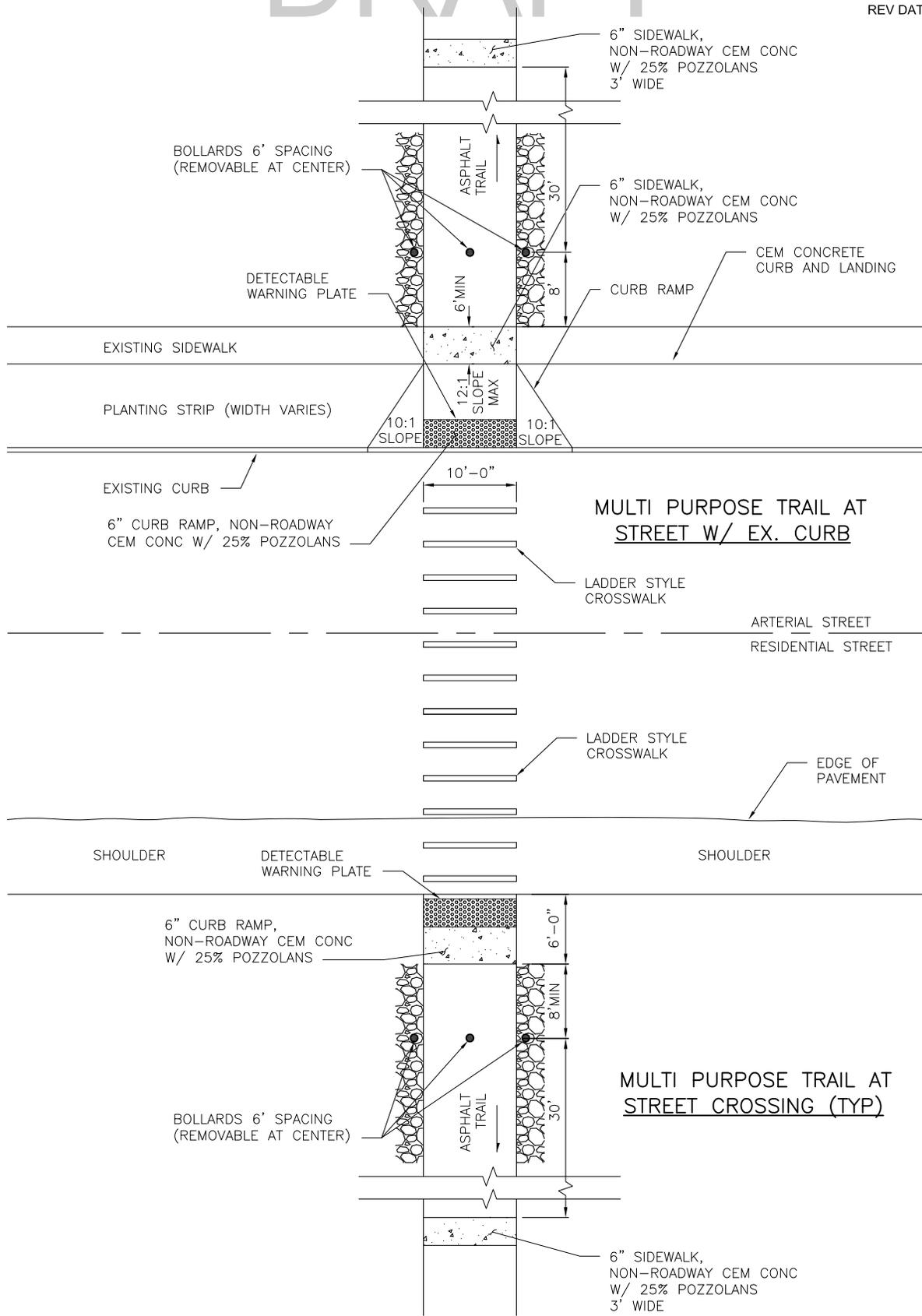
REF STD SPEC SEC



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NOT TO SCALE

**MULTI-PURPOSE TRAIL
AT STREET CROSSING**



REF STD SPEC SEC

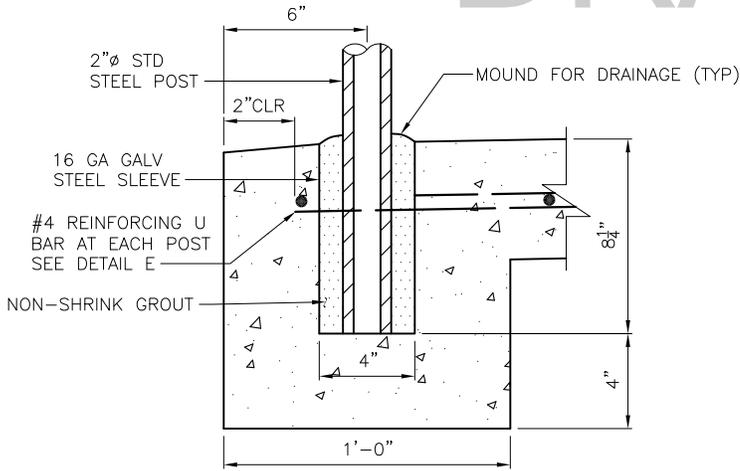


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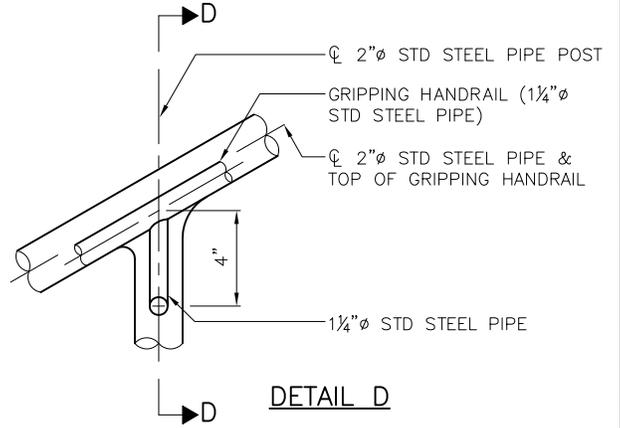
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MULTI-PURPOSE TRAIL AT STREET CROSSING

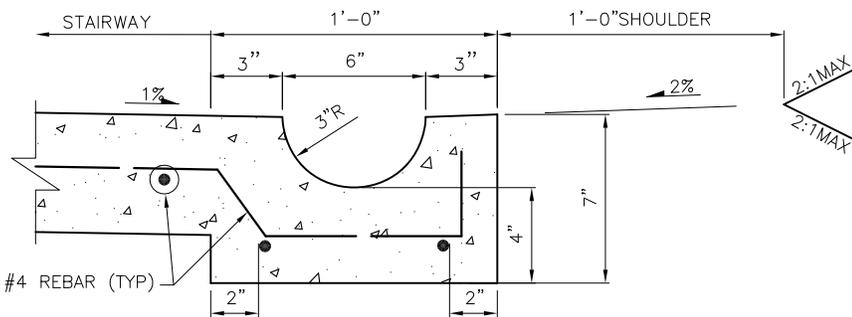
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DETAIL A

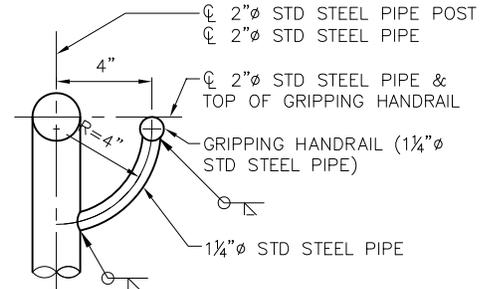


DETAIL D

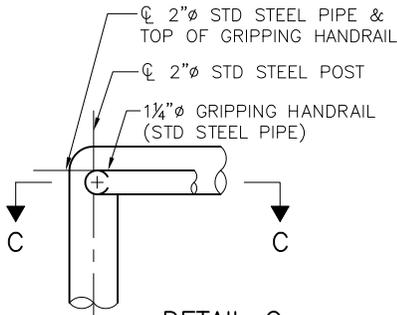


DETAIL B

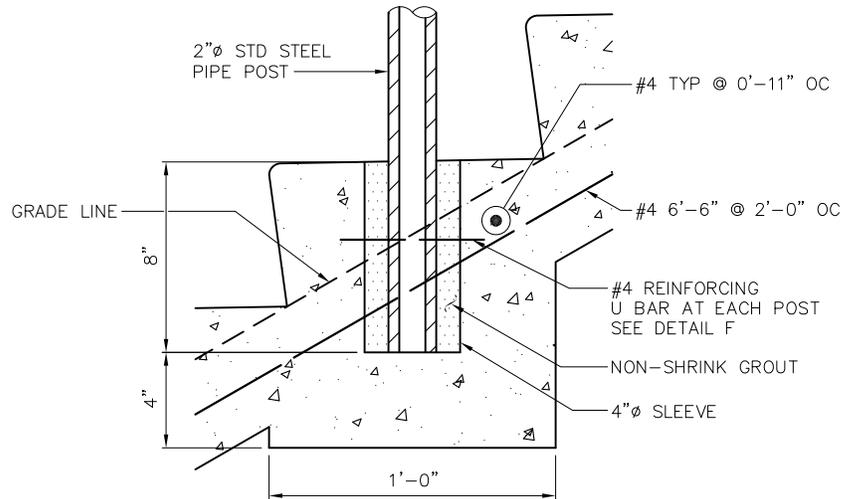
SEE NOTE 11 ON STD PLAN NO 440a



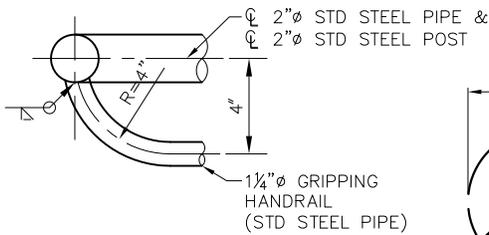
SECTION D-D



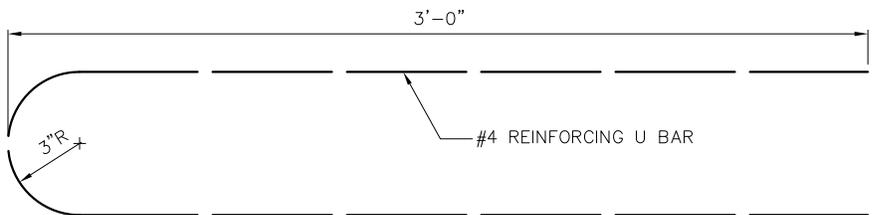
DETAIL C
HAND GRIP TERMINATION



DETAIL E



SECTION C-C



DETAIL F

REF STD SPEC SEC 8-18

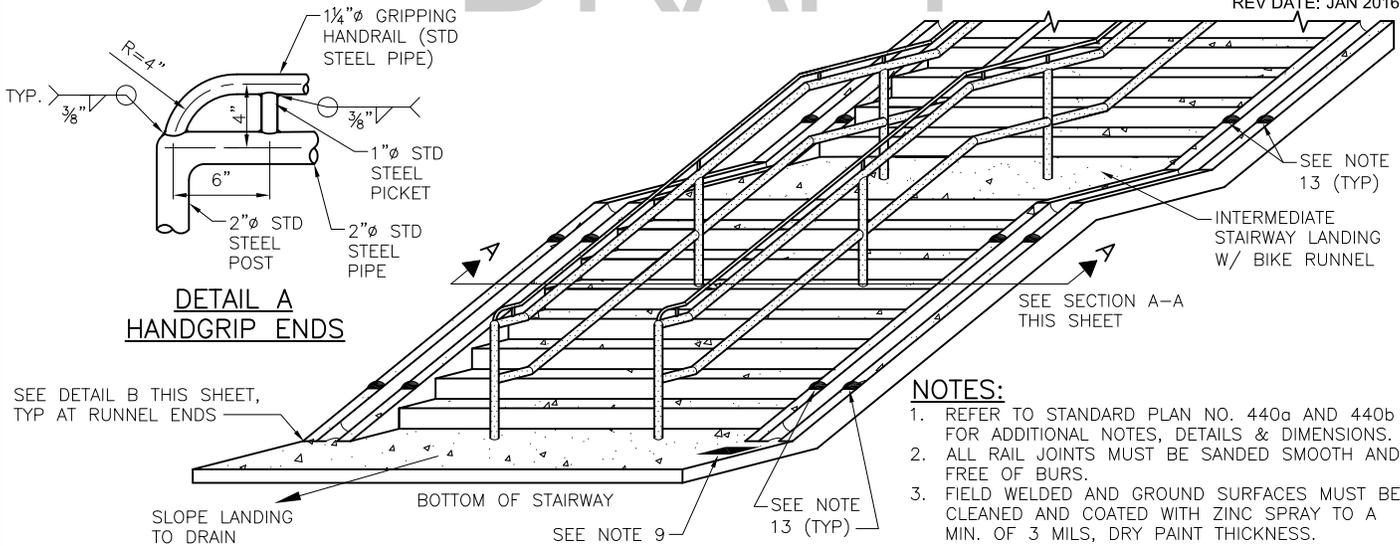


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CEMENT CONCRETE
STAIRWAY & HANDRAIL

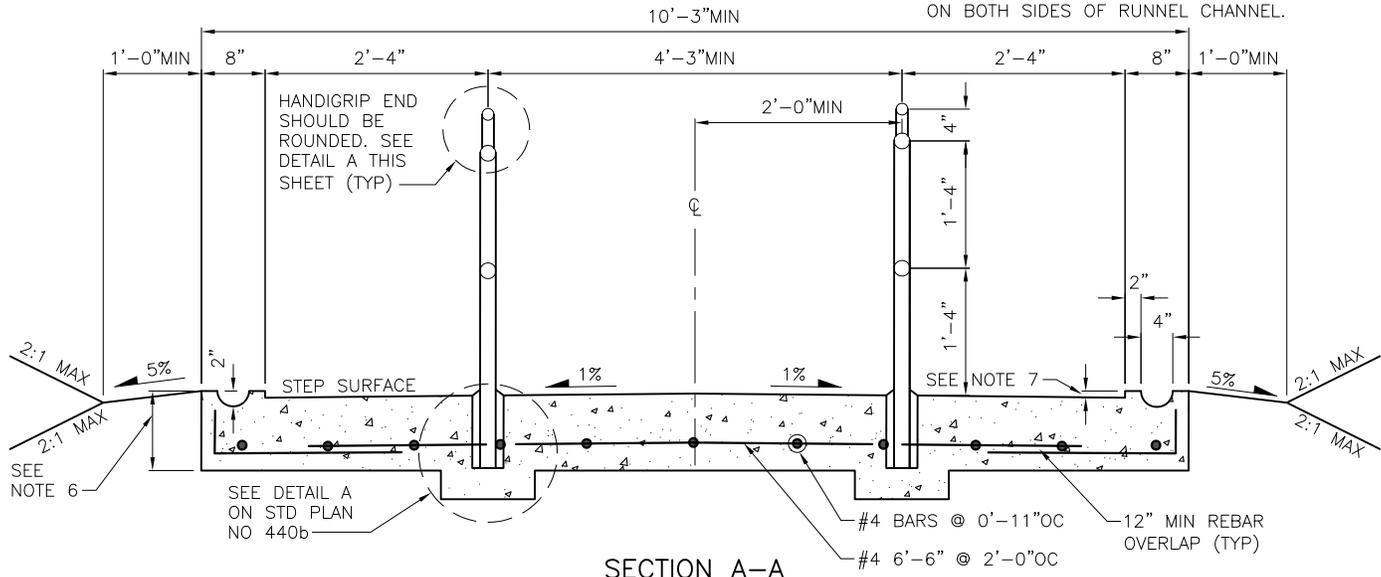
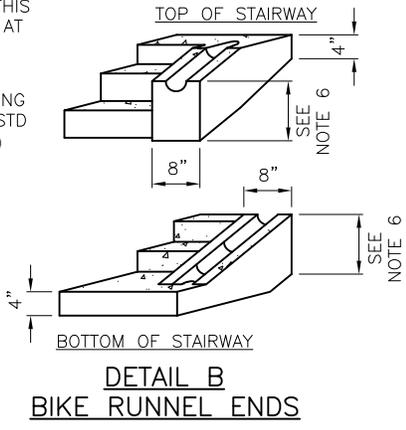
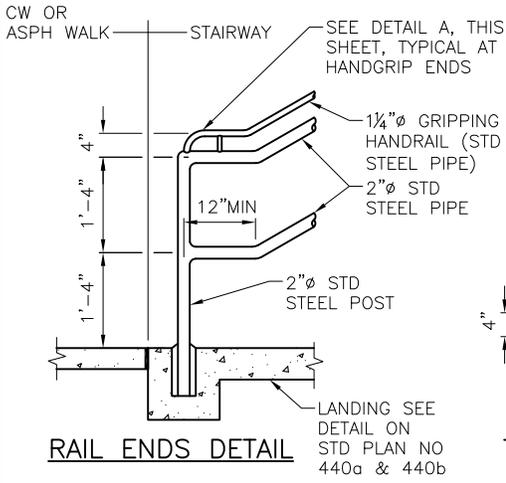
REV DATE: JAN 2016



**DETAIL A
HANDGRIP ENDS**

NOTES:

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



REF STD SPEC SEC 8-18

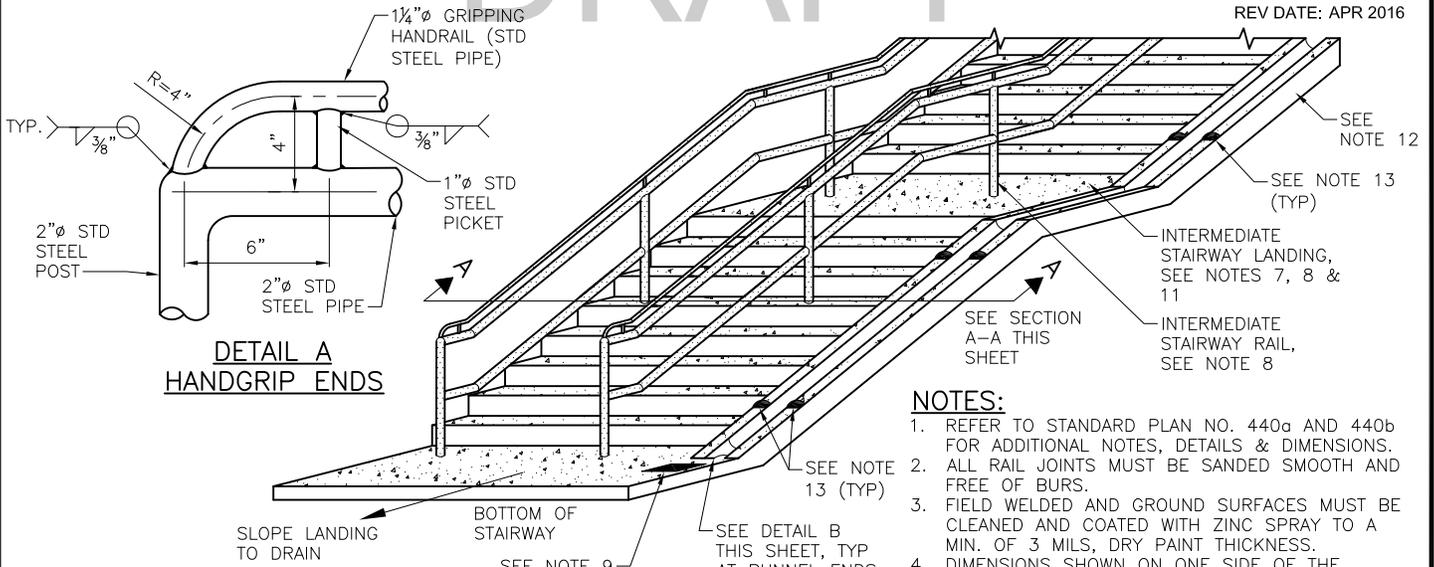


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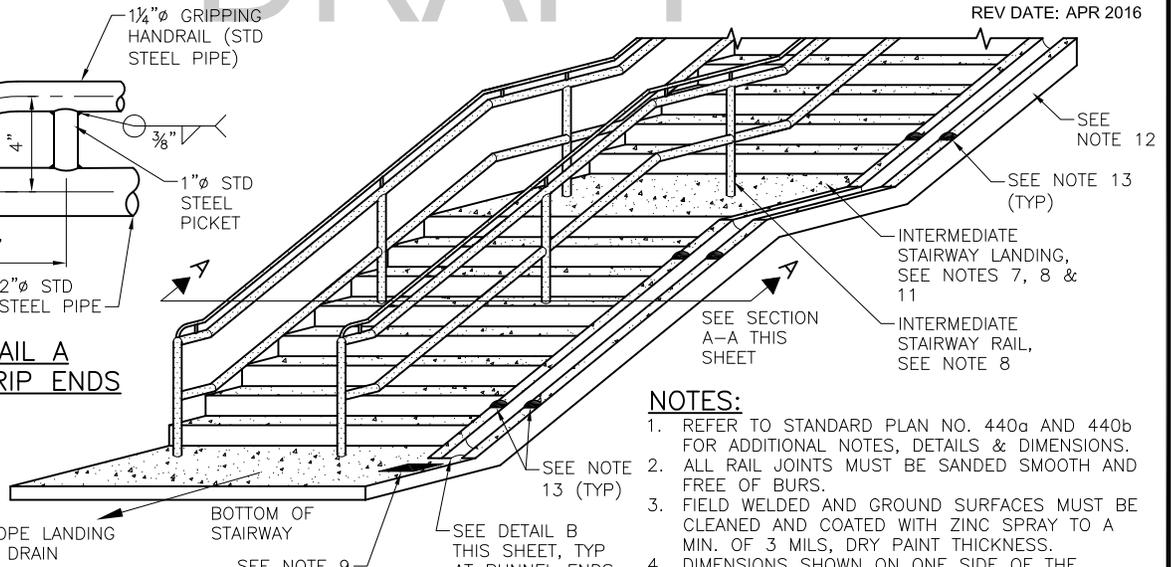
NOT TO SCALE

**CEMENT CONCRETE
STAIRWAY & BIKE RUNNEL**

REV DATE: APR 2016

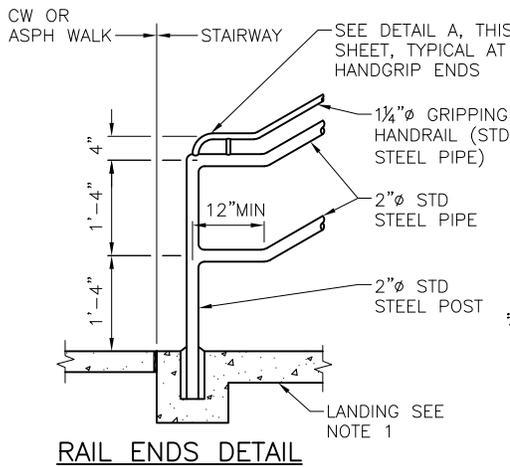


**DETAIL A
HANDGRIP ENDS**

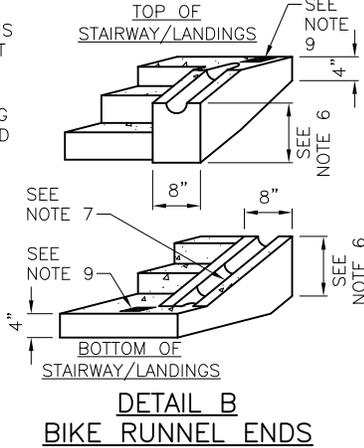


NOTES:

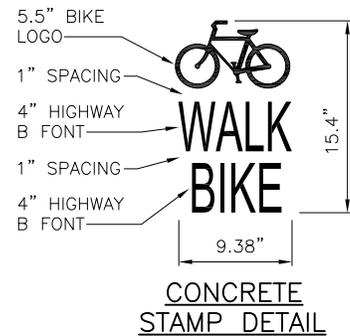
1. REFER TO STANDARD PLAN NO. 440a AND 440b FOR ADDITIONAL NOTES, DETAILS & DIMENSIONS.
2. ALL RAIL JOINTS MUST BE SANDED SMOOTH AND FREE OF BURS.
3. FIELD WELDED AND GROUND SURFACES MUST BE CLEANED AND COATED WITH ZINC SPRAY TO A MIN. OF 3 MILS, DRY PAINT THICKNESS.
4. DIMENSIONS SHOWN ON ONE SIDE OF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



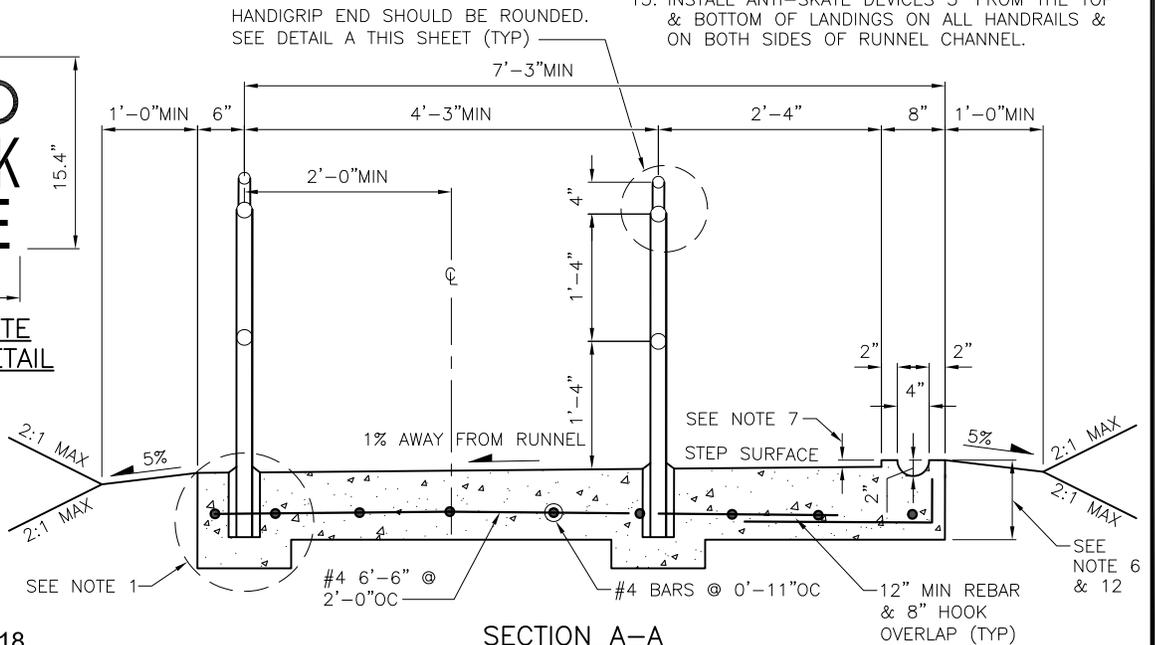
RAIL ENDS DETAIL



**DETAIL B
BIKE RUNNEL ENDS**



**CONCRETE
STAMP DETAIL**



SECTION A-A

REF STD SPEC SEC 8-18

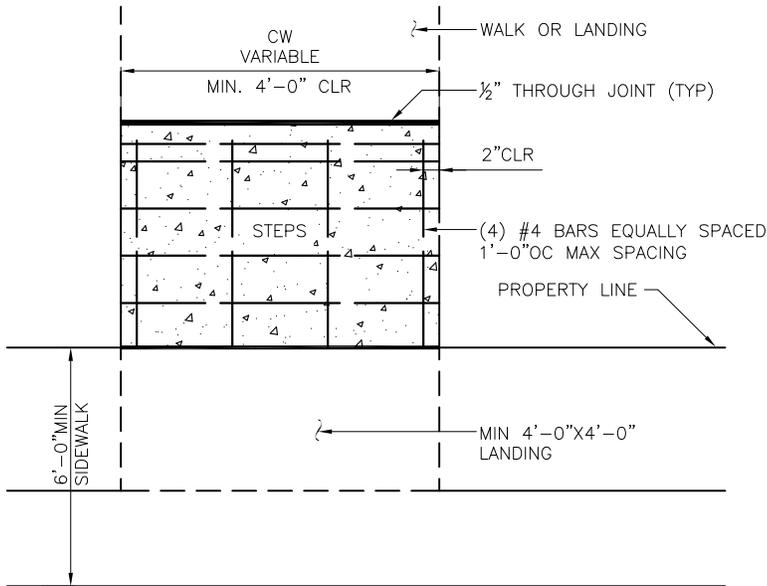
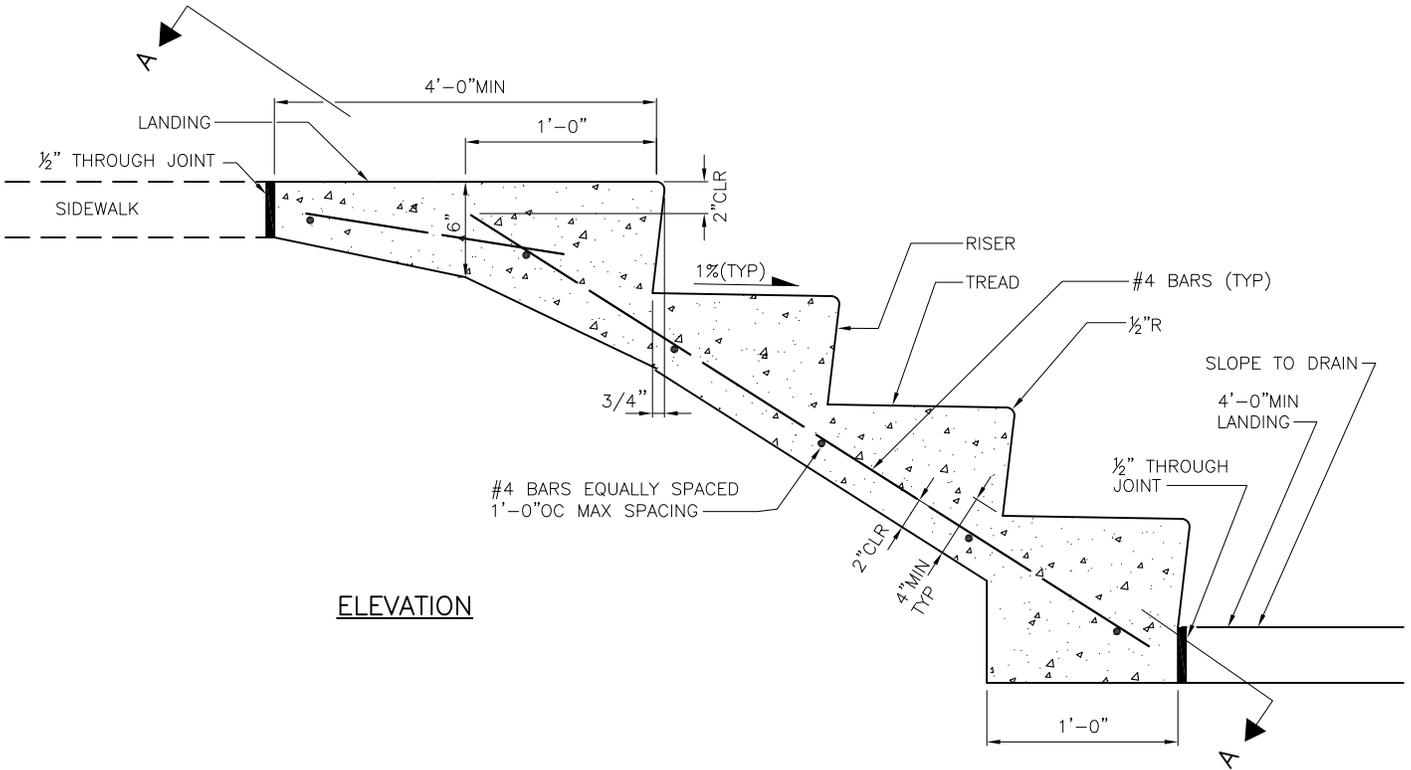


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**CEMENT CONCRETE
STAIRWAY & SINGLE BIKE RUNNEL**

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NOTES:

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

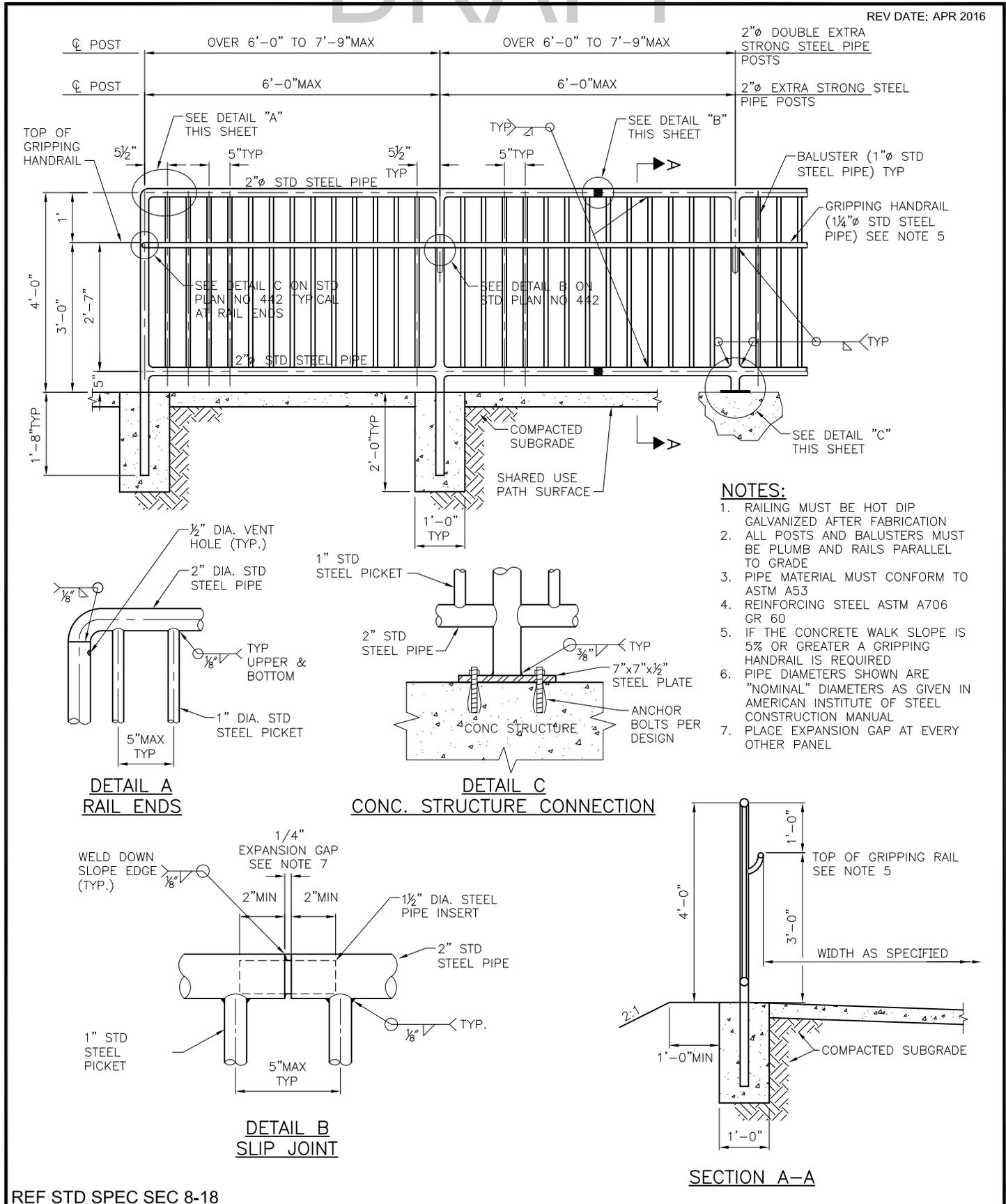
REF STD SPEC SEC 8-18



City of Seattle

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CEMENT CONCRETE STEPS



NOTES:

1. RAILING MUST BE HOT DIP GALVANIZED AFTER FABRICATION
2. ALL POSTS AND BALUSTERS MUST BE PLUMB AND RAILS PARALLEL TO GRADE
3. PIPE MATERIAL MUST CONFORM TO ASTM A53
4. REINFORCING STEEL ASTM A706 GR 60
5. IF THE CONCRETE WALK SLOPE IS 5% OR GREATER A GRIPPING HANDRAIL IS REQUIRED
6. PIPE DIAMETERS SHOWN ARE "NOMINAL" DIAMETERS AS GIVEN IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL
7. PLACE EXPANSION GAP AT EVERY OTHER PANEL

REF STD SPEC SEC 8-18

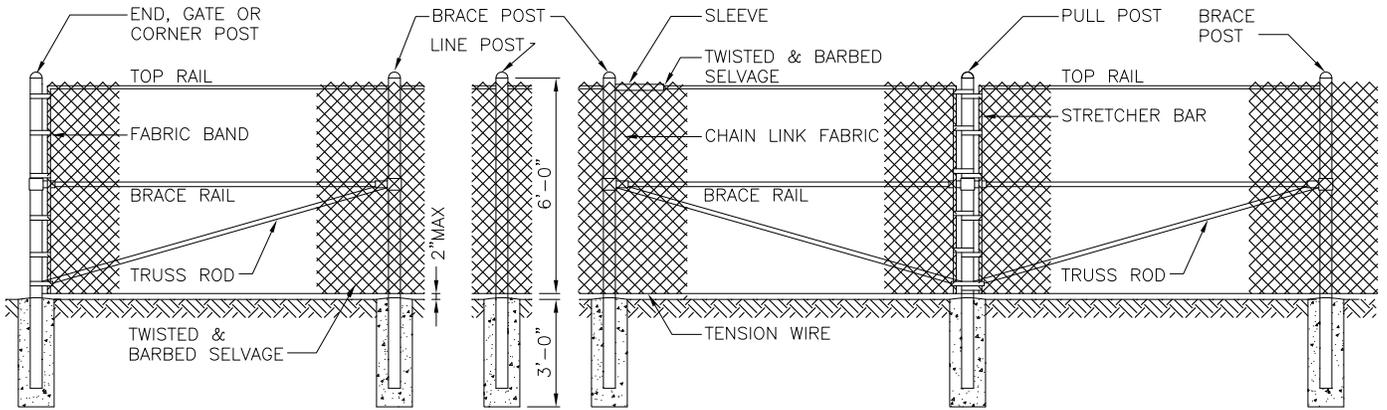


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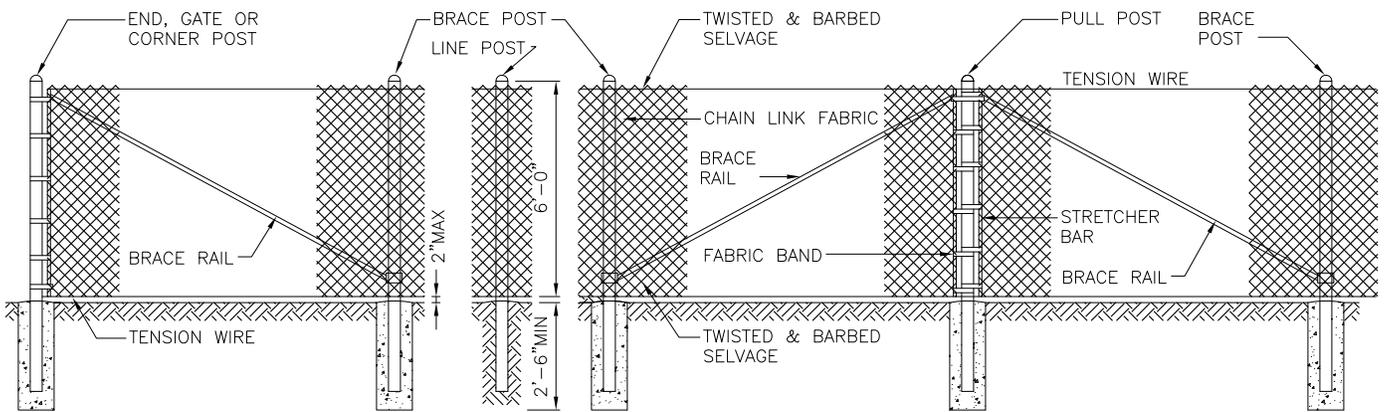
NOT TO SCALE

VERTICAL RAILING

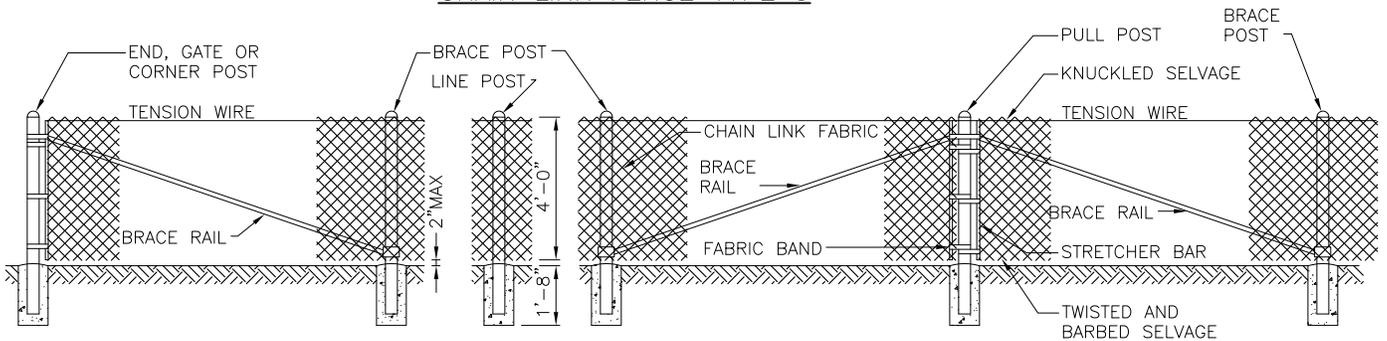
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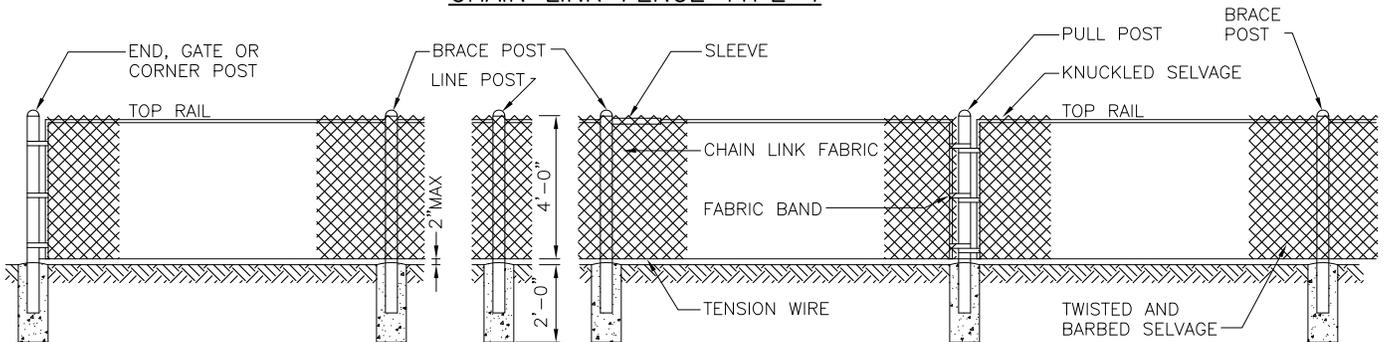
CHAIN LINK FENCE TYPE 1



CHAIN LINK FENCE TYPE 3



CHAIN LINK FENCE TYPE 4



CHAIN LINK FENCE TYPE 6

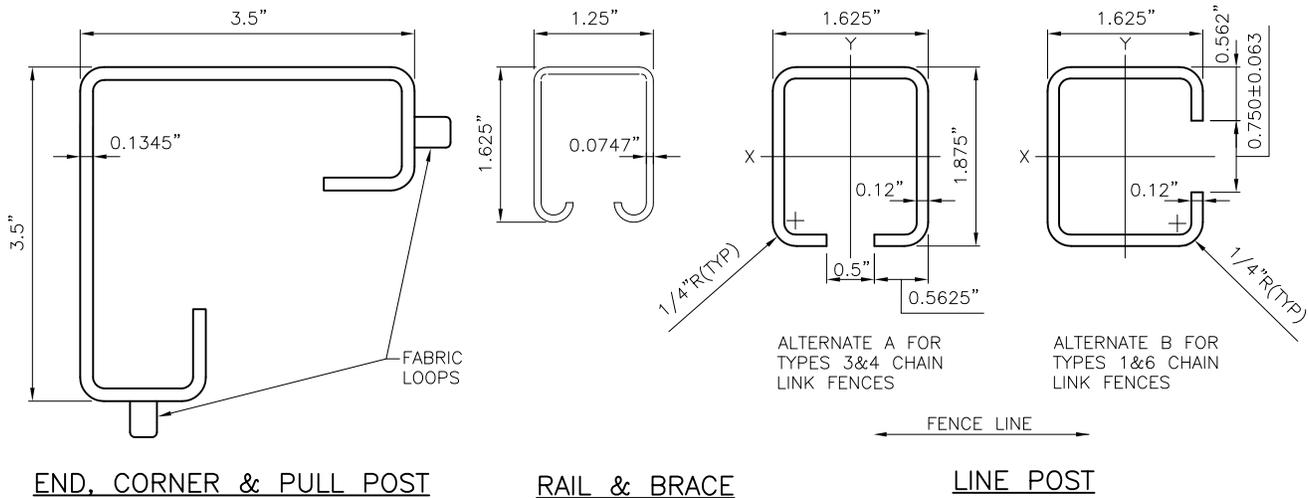
REF STD SPEC SEC 8-12



City of Seattle

NOT TO SCALE

CHAIN LINK FENCE



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	1½X1¼	1.35	2	3.65	2¼	4.0		
3							1½	2.72	1⅞	2.72	1⅞X1⅞	2.34
4							1½	2.72	1⅞	2.72	1⅞X1⅞	2.34
6							1.25X1.62	1.35	2	3.65	2¼	4.0

MEMBER

TYPE	END, CORNER & PULL POSTS				GATE POST ROUND		ALL POSTS
	ROUND		H-COLUMN		SIZE INCHES	WEIGHT PER FT POUNDS	
	ID PIPE 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:

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

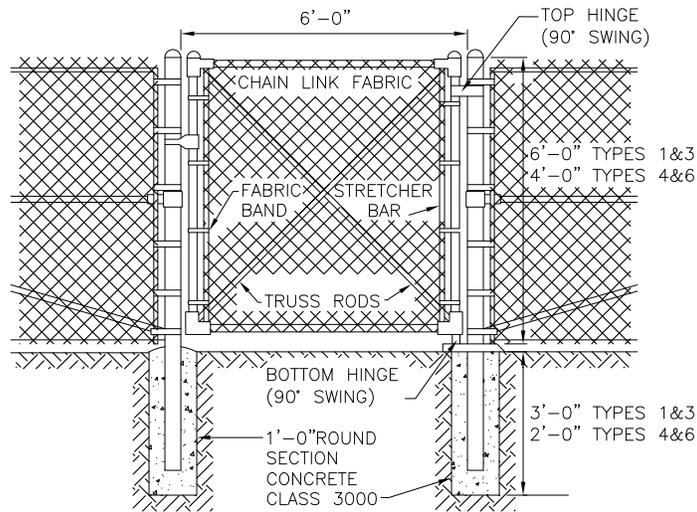
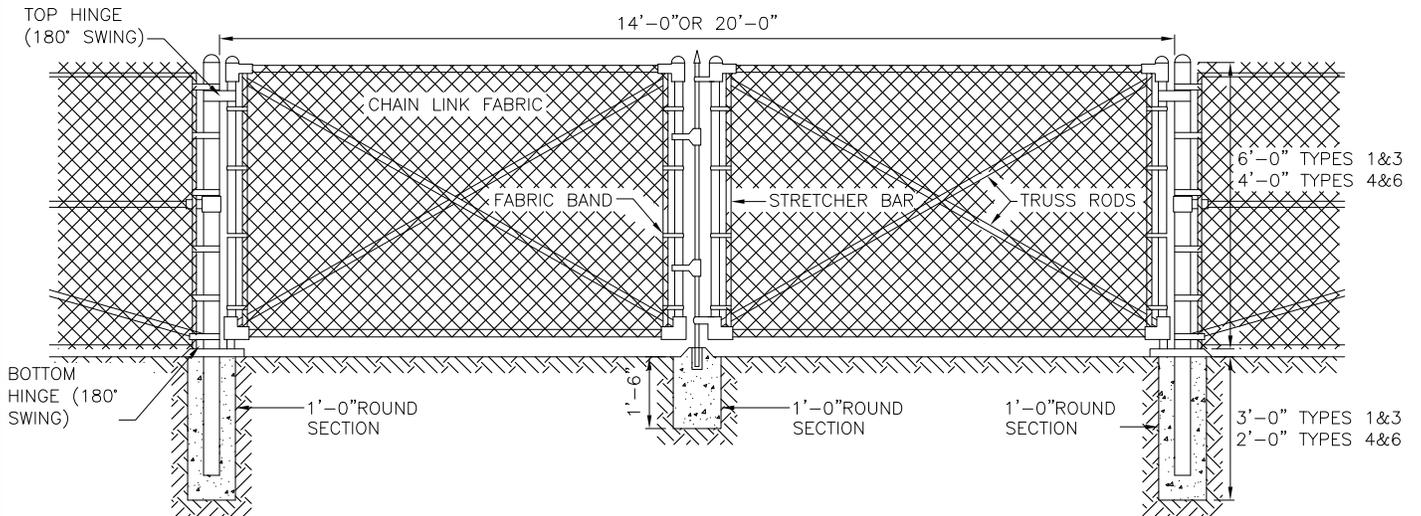
REF STD SPEC SEC 8-12



City of Seattle

NOT TO SCALE

CHAIN LINK FENCE



NOTES:

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

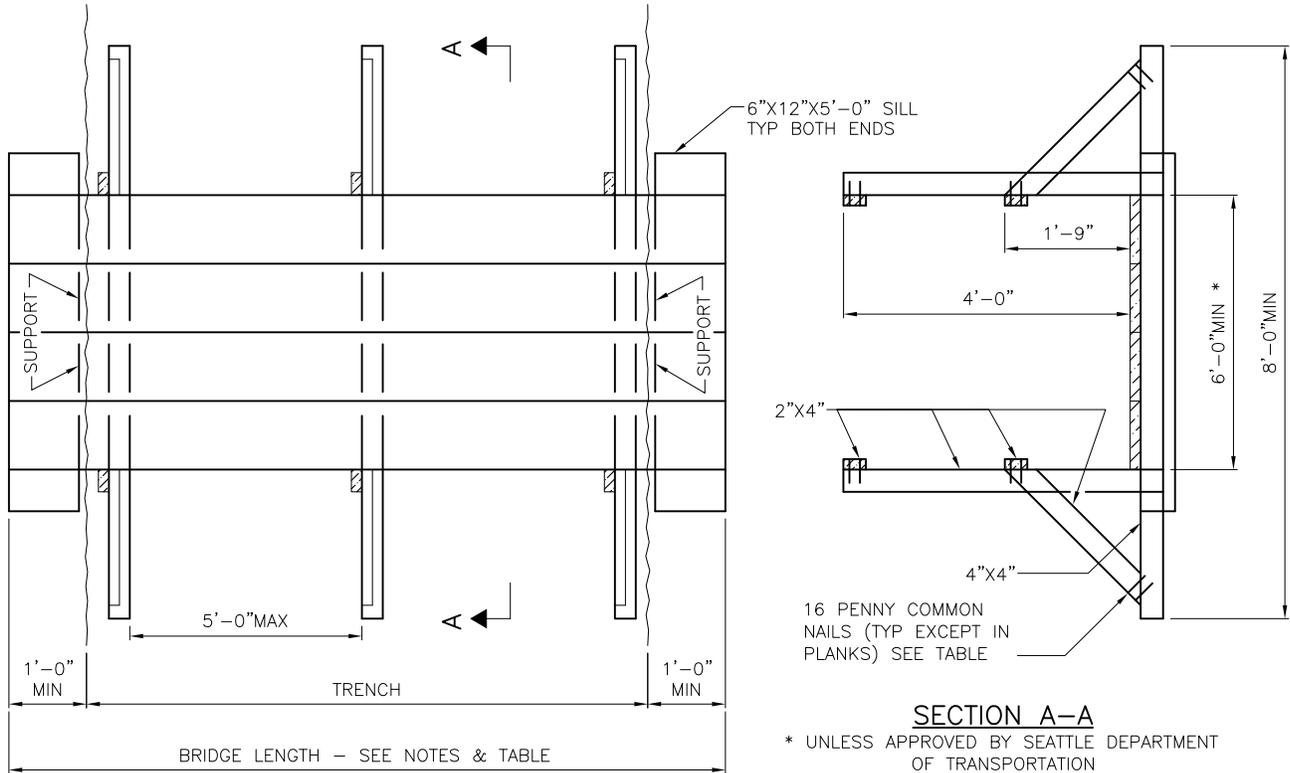
REF STD SPEC SEC 8-12



City of Seattle

NOT TO SCALE

CHAIN LINK GATES

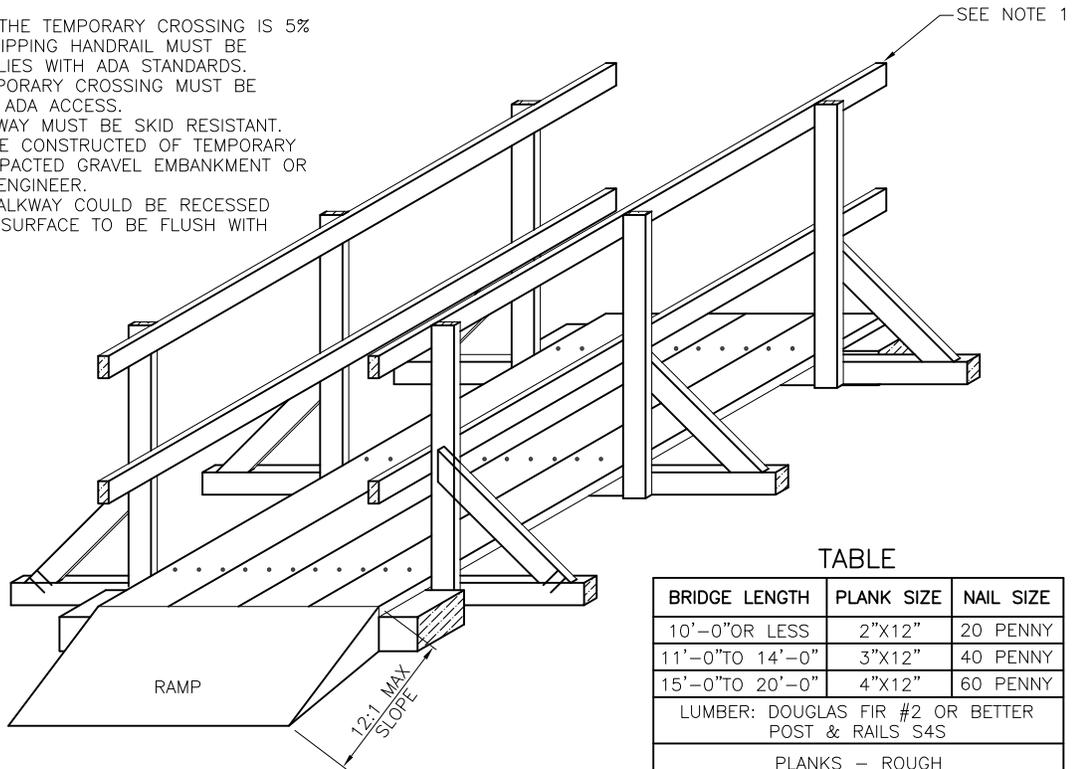


SECTION A-A

* UNLESS APPROVED BY SEATTLE DEPARTMENT OF TRANSPORTATION

NOTES:

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



TABLE

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

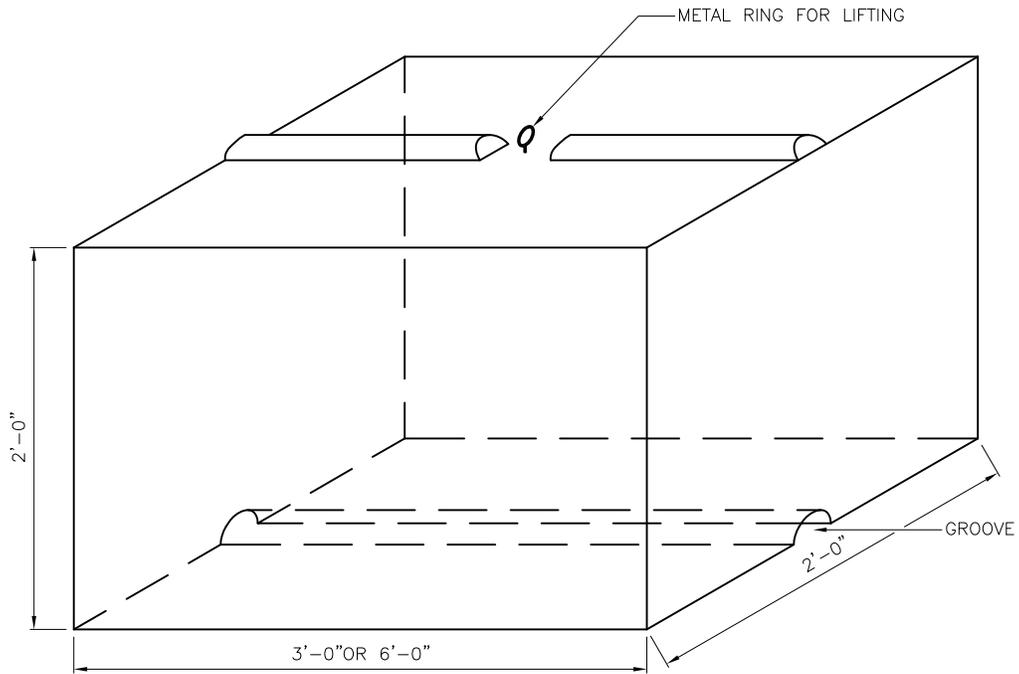
REF STD SPEC SEC 1-07.23



City of Seattle

NOT TO SCALE

TEMPORARY PEDESTRIAN WALKWAY



CONCRETE TONGUE & GROOVE BLOCK

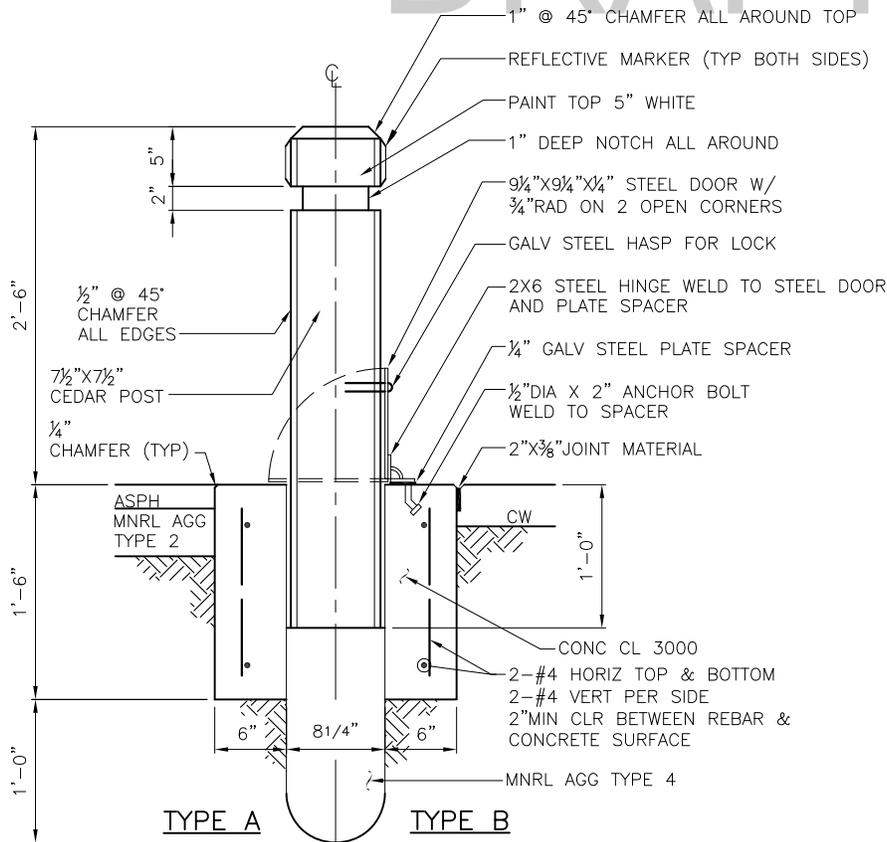
REF STD SPEC SEC



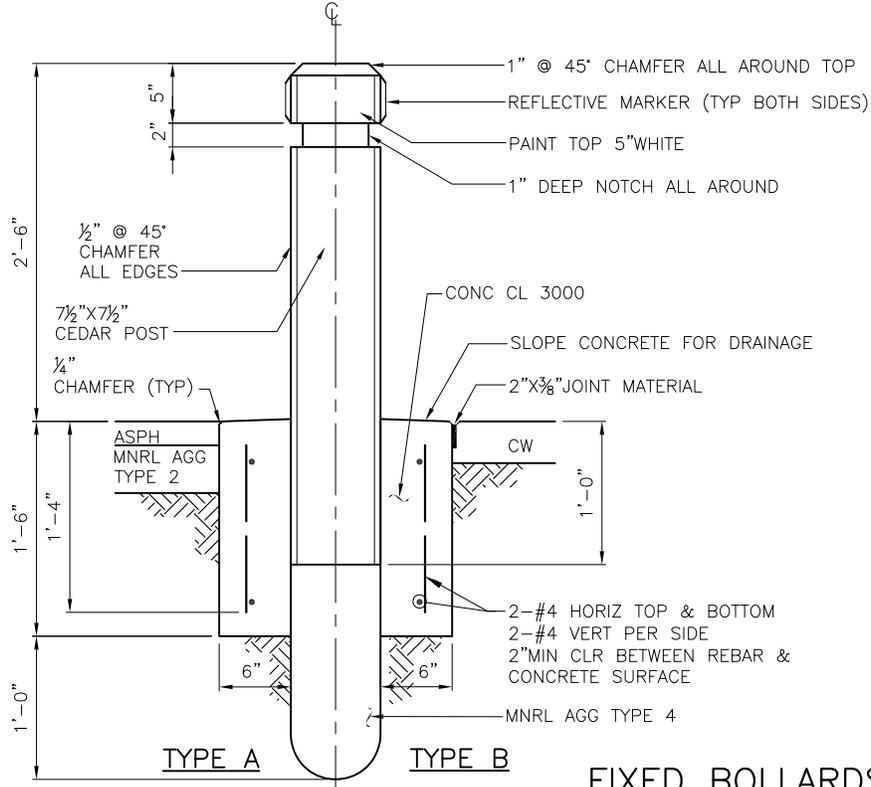
City of Seattle

NOT TO SCALE

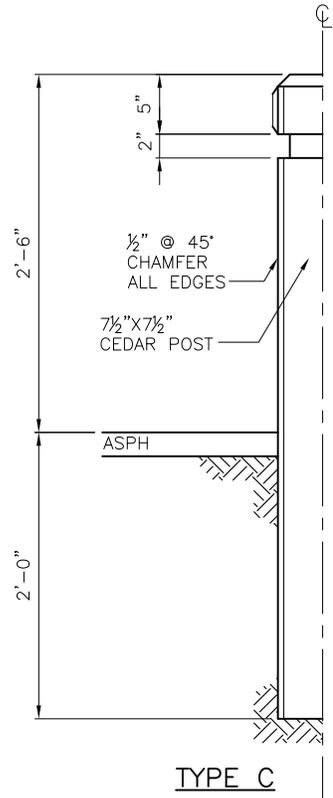
ECOLOGY BLOCK, CONCRETE



REMOVABLE BOLLARDS



FIXED BOLLARDS



TYPE C

REF STD SPEC SEC 8-02

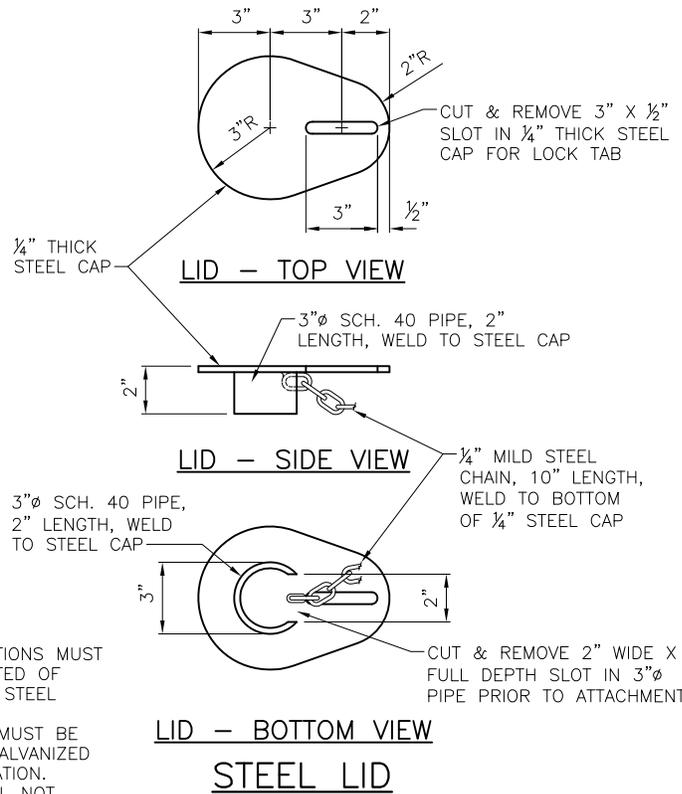
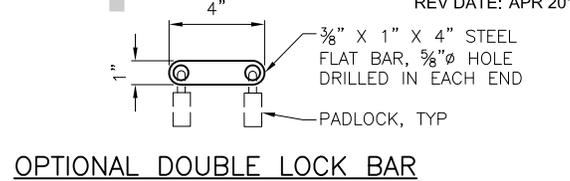
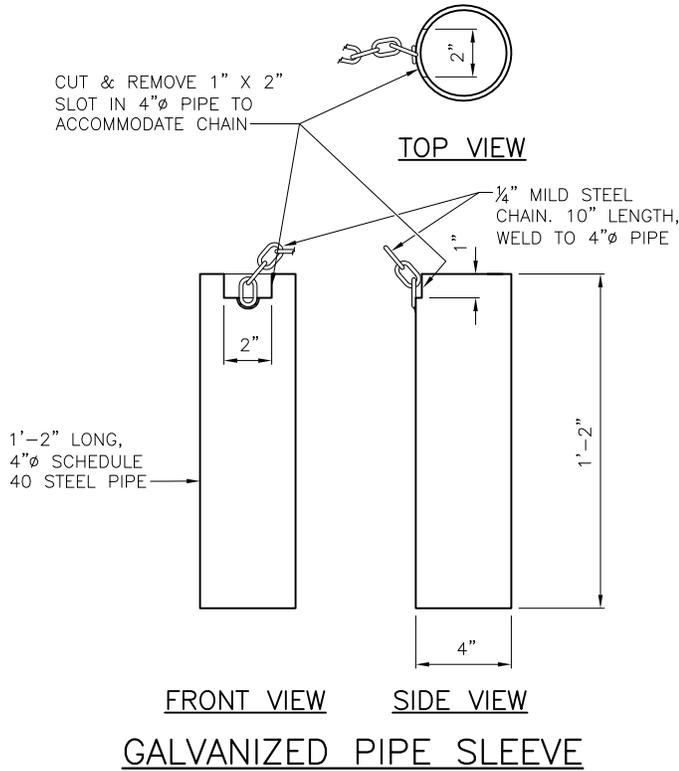


City of Seattle

NOT TO SCALE

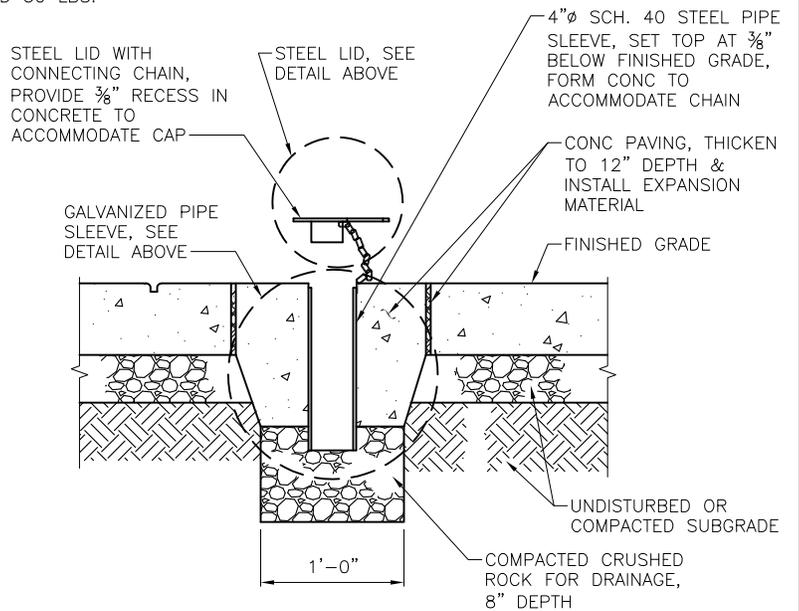
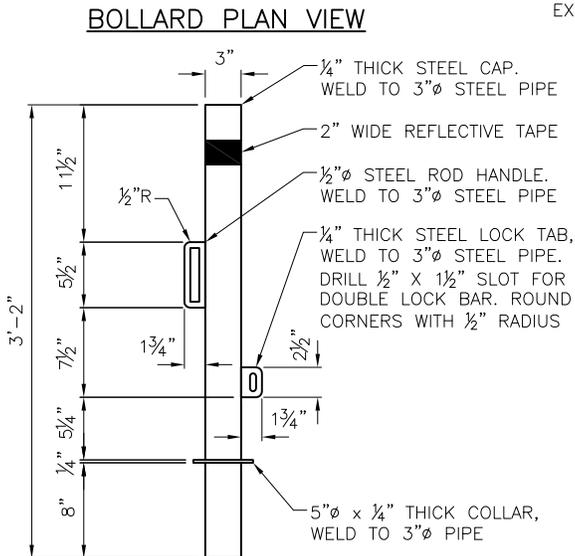
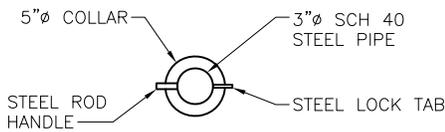
FIXED & REMOVABLE WOOD BOLLARD

DRAFT



NOTES:

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



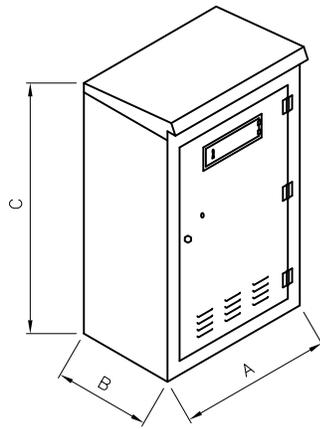
REF STD SPEC SEC 8-02



City of Seattle

NOT TO SCALE

REMOVABLE STEEL BOLLARD

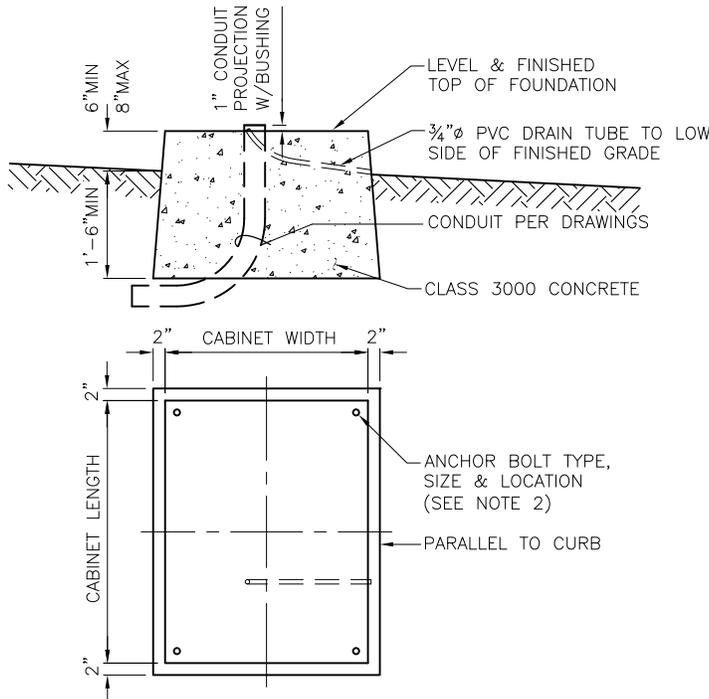


NOTES:

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

DIMENSION	TYPE II	TYPE III	TYPE VI
A	30"	44"	44"
B	17"	25 1/2"	25 1/2"
C	38" TO 52"	50" TO 58"	64 3/4" TO 67 1/2"

SIGNAL CONTROLLER CABINET—TYPES II, III, VI



SIGNAL CONTROLLER FOUNDATION

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

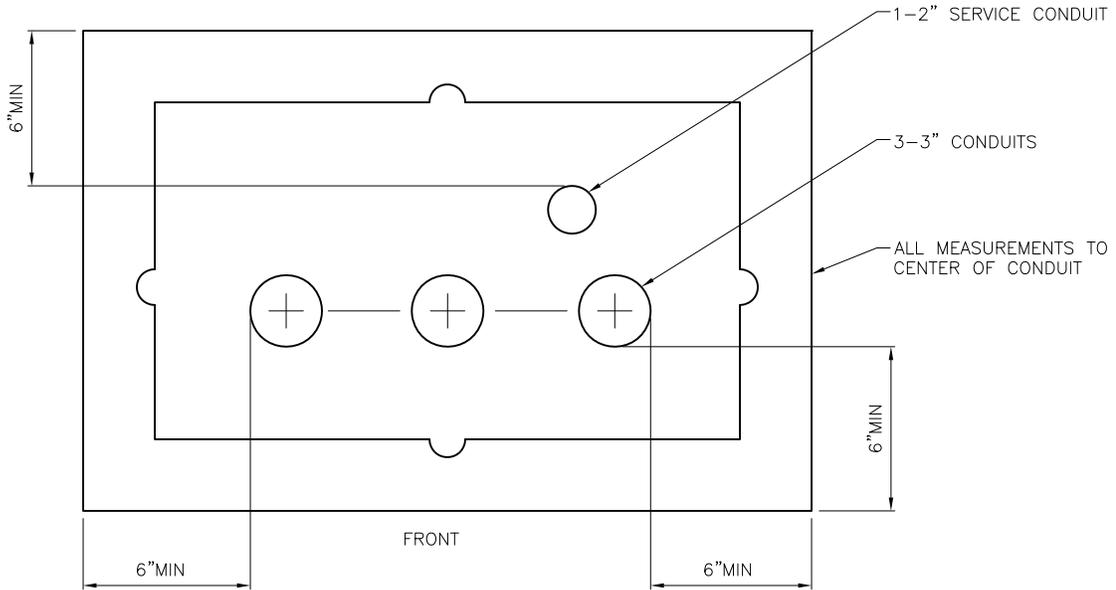
REF STD SPEC SEC 8-31 & 8-32



City of Seattle

NOT TO SCALE

**SIGNAL CONTROLLER
CABINET & FOUNDATION**



CONDUIT LAYOUT – SIGNAL CONTROLLER FOUNDATION

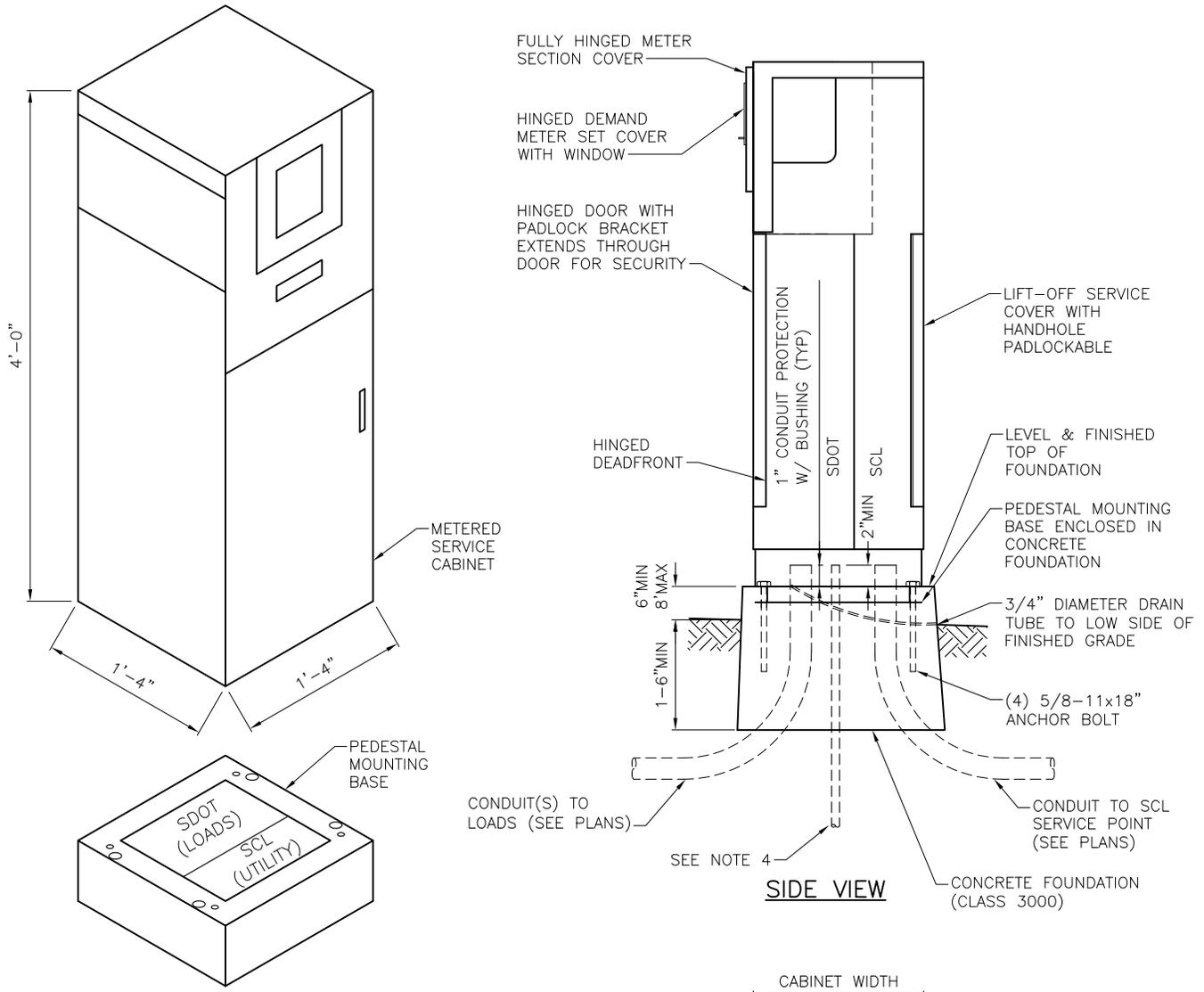
REF STD SPEC SEC 8-31 & 8-32



City of Seattle

NOT TO SCALE

SIGNAL CONTROLLER FOUNDATION CONDUIT LAYOUT



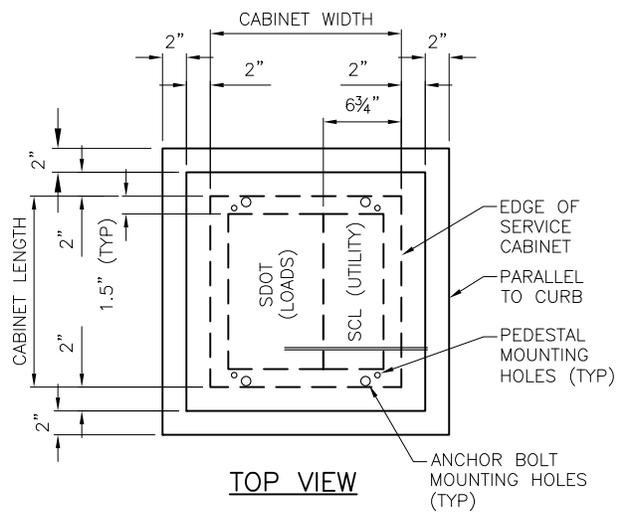
ISOMETRIC VIEW

SIDE VIEW

TOP VIEW

NOTES:

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



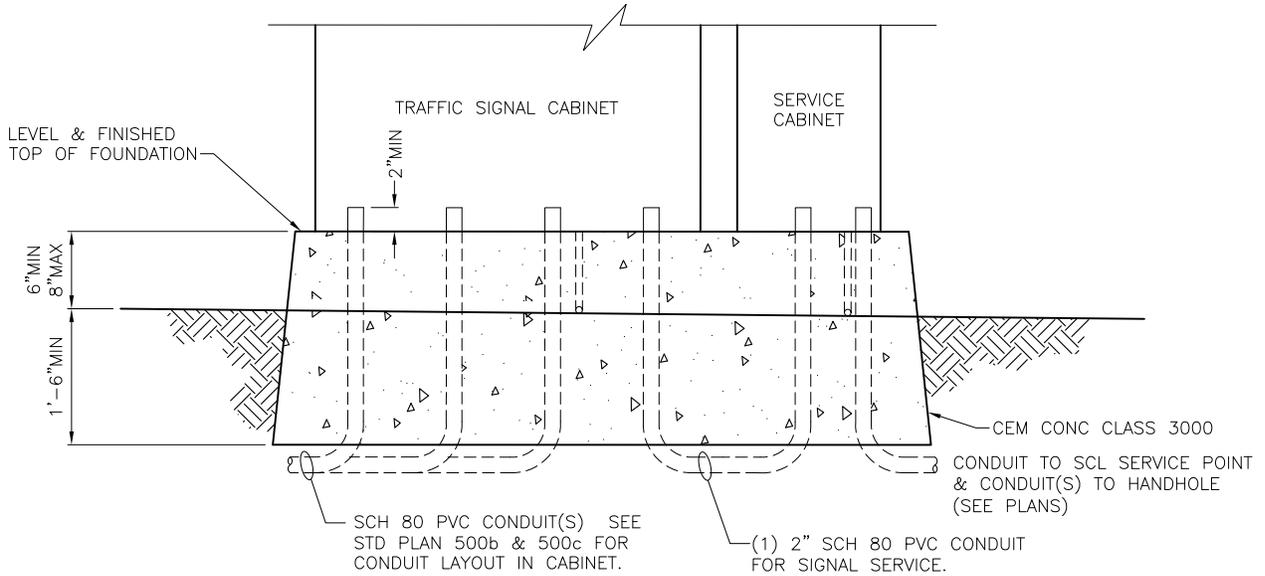
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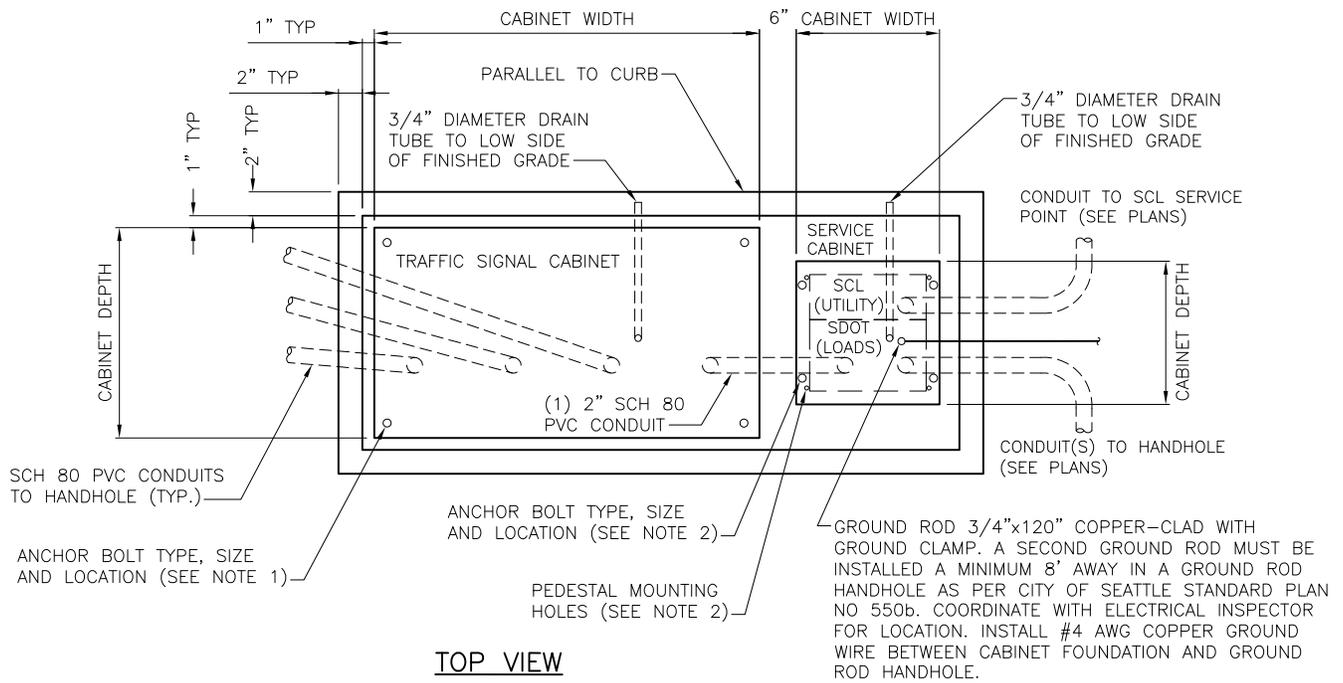
City of Seattle

NOT TO SCALE

SERVICE CABINET
FOUNDATION DETAIL



SIDE VIEW



TOP VIEW

JOINT SIGNAL CONTROLLER/SERVICE CABINET FOUNDATION DETAIL

NOT TO SCALE

NOTES:

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

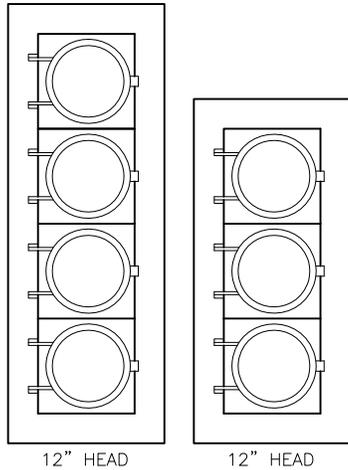
REF STD SPEC SEC 8-31,8-32



City of Seattle

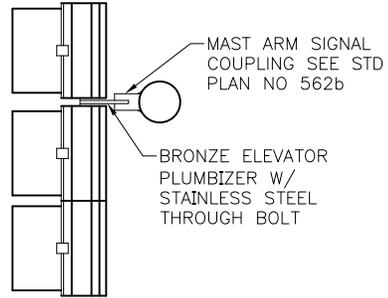
NOT TO SCALE

**JOINT SIGNAL CONTROLLER/
SERVICE CABINET
FOUNDATION DETAIL**



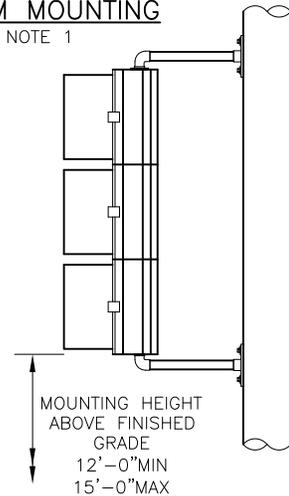
TYPICAL SIGNAL FACES

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



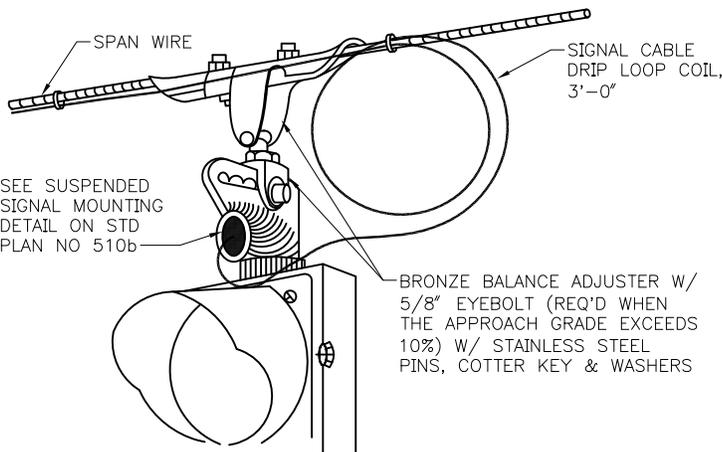
MAST ARM MOUNTING

SEE NOTE 1



BRACKET MOUNTING

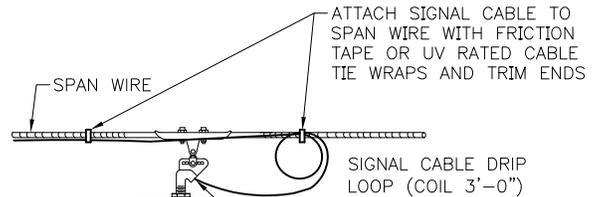
FOR SIGNAL HEAD BRACKET ASSEMBLY
SEE STD PLAN NO 511



SIGNAL HANGER DETAIL

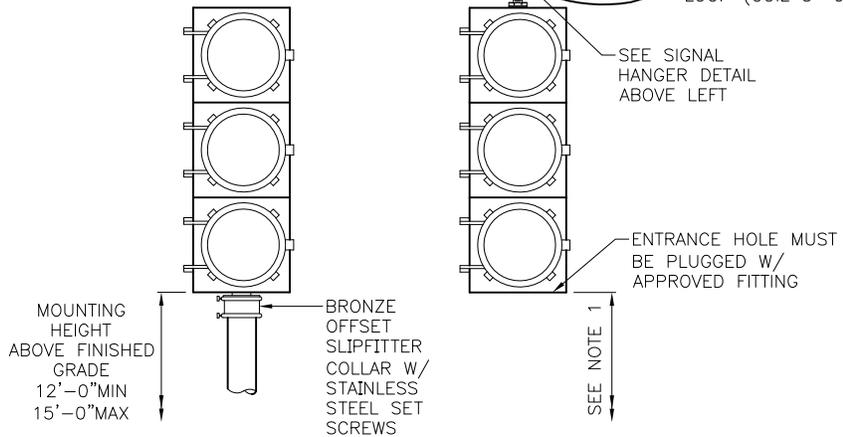
SEE SUSPENDED
SIGNAL MOUNTING
DETAIL ON STD
PLAN NO 510b

BRONZE BALANCE ADJUSTER W/
5/8" EYEBOLT (REQ'D WHEN
THE APPROACH GRADE EXCEEDS
10%) W/ STAINLESS STEEL
PINS, COTTER KEY & WASHERS



NOTES:

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



PEDESTAL TOP MOUNTING

FOR PEDESTAL SEE STD PLAN NO 524

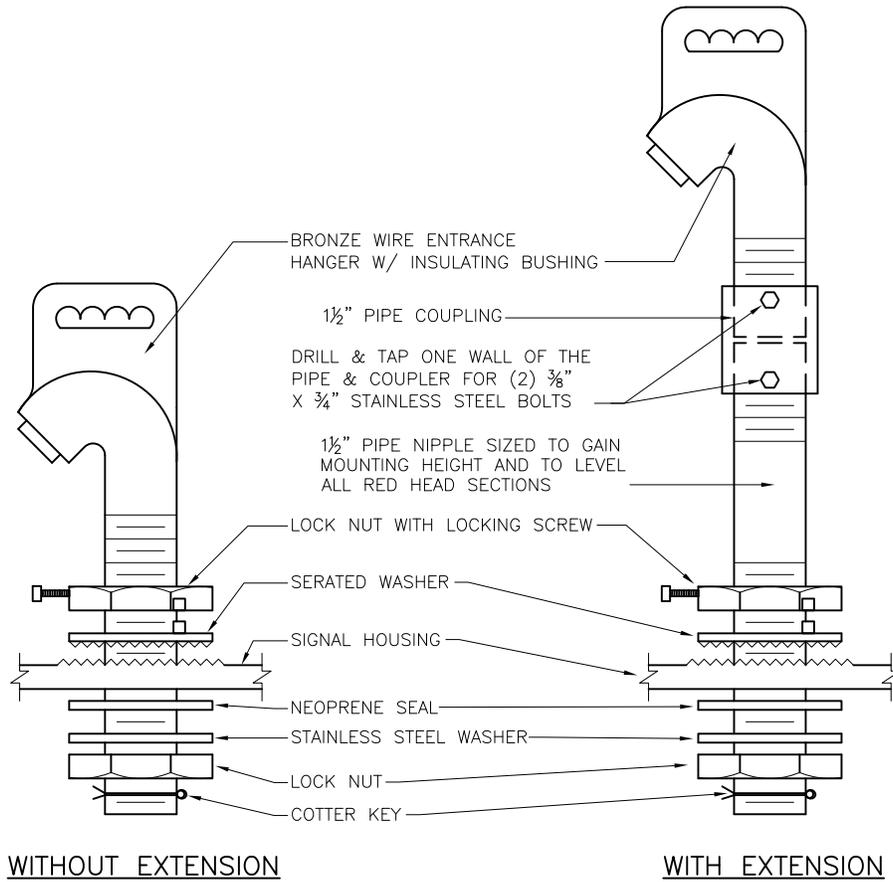
REF STD SPEC SEC 8-31



City of Seattle

NOT TO SCALE

VEHICULAR SIGNAL MOUNTING



SUSPENDED SIGNAL MOUNTING DETAIL

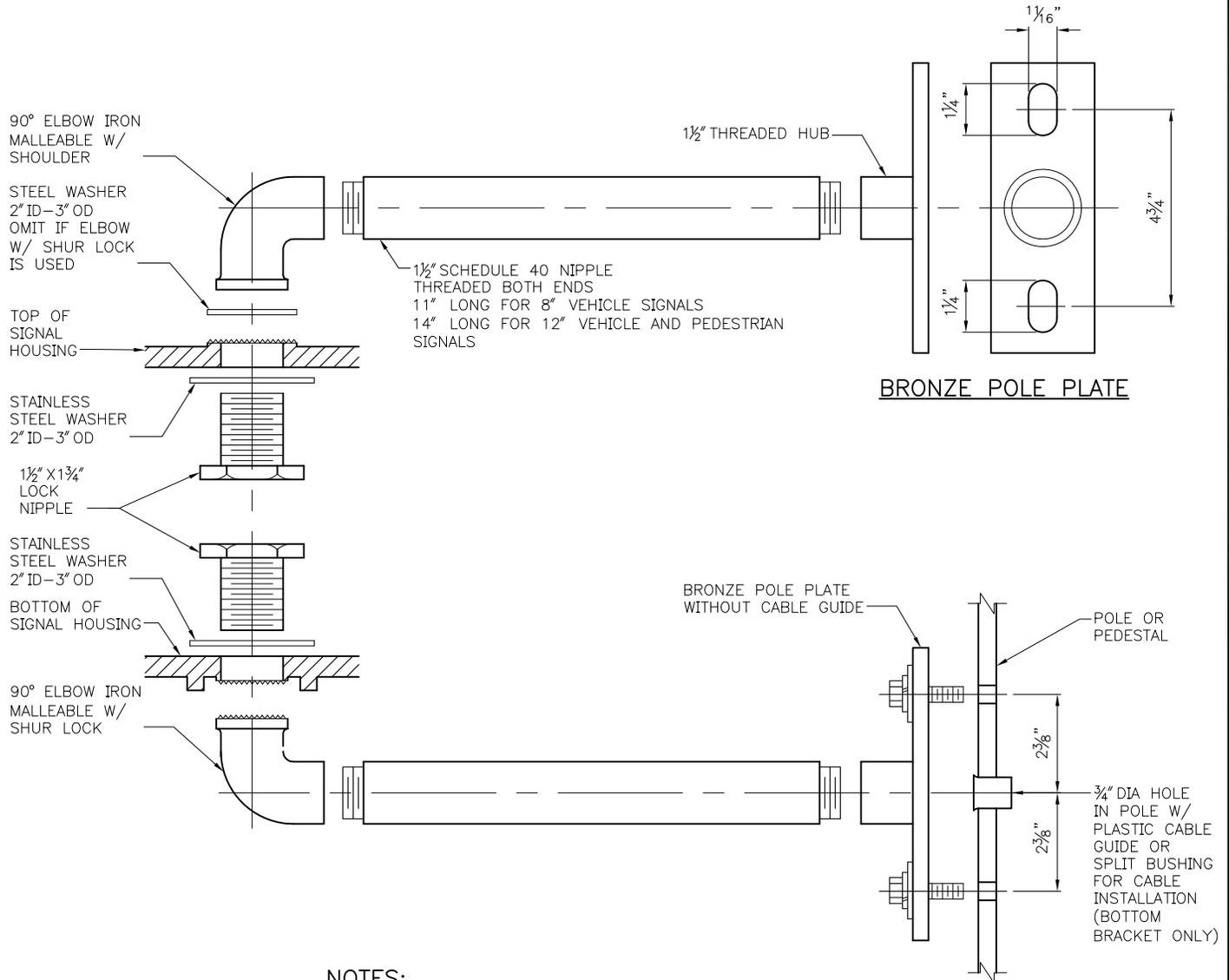
REF STD SPEC SEC 8-31



City of Seattle

NOT TO SCALE

VEHICULAR SIGNAL MOUNTING



NOTES:

1. 3/8"x1 1/2" BOLT, 3/8" LOCK WASHER, 7/16"x1 3/8" WASHER 4 OF EACH REQUIRED PER ASSEMBLY; ALL STAINLESS STEEL.
2. MOUNTING MUST 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"x2 1/2" MIN STUD BOLT ANCHORS, SLEEVE TYPE.
 - ON WOOD POLES USE 1 1/2"x2 1/2" LAG BOLTS.

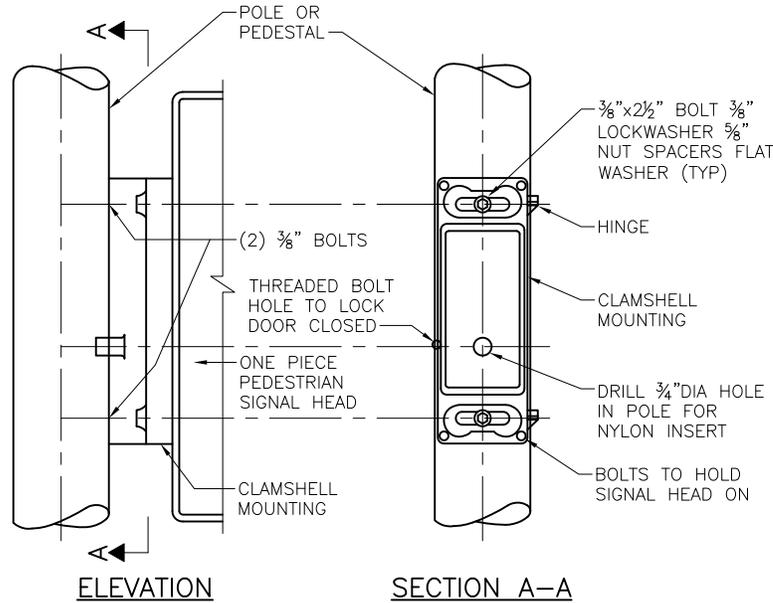
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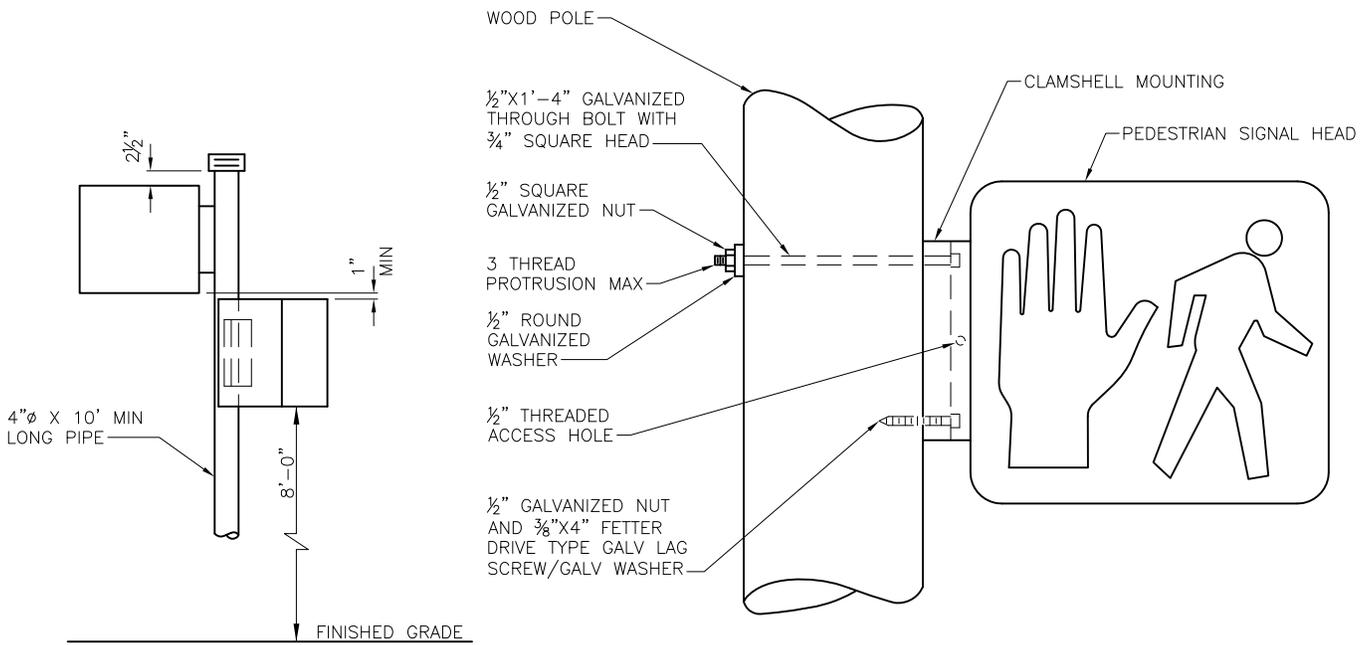
City of Seattle

NOT TO SCALE

SIGNAL HEAD BRACKET ASSEMBLY



METAL POLE MOUNT



PEDESTAL MOUNT

WOOD POLE MOUNT

NOTES:

1. BOLT AND WASHERS MUST BE STAINLESS STEEL PER ASTM A 563 DH AND ASTM F 436
2. MOUNTING MUST BE AS FOLLOWS:
 - ON METAL POLES THINNER THAN 7 GAUGE, USE 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 WITH OR MADE FROM CONCRETE USE 3/8"x2 1/2" STUD BOLT ANCHORS WITH HEX NUT
3. FOR STREET NAME SIGN PEDESTAL INSTALLATION, SEE STD PLAN NO 623

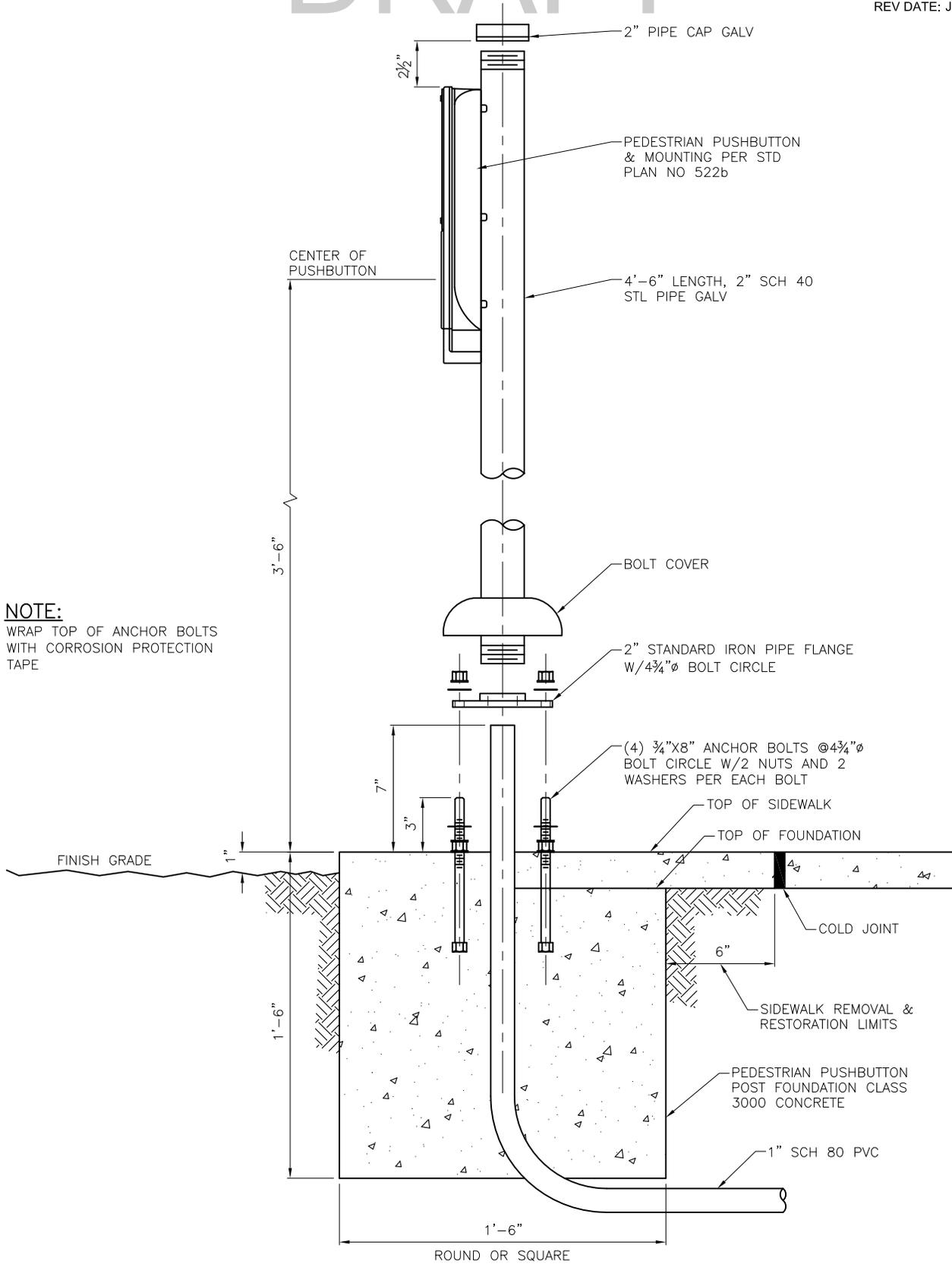
REF STD SPEC SEC 8-31



City of Seattle

NOT TO SCALE

PEDESTRIAN SIGNAL
CLAMSHELL MOUNTING



NOTE:
WRAP TOP OF ANCHOR BOLTS WITH CORROSION PROTECTION TAPE

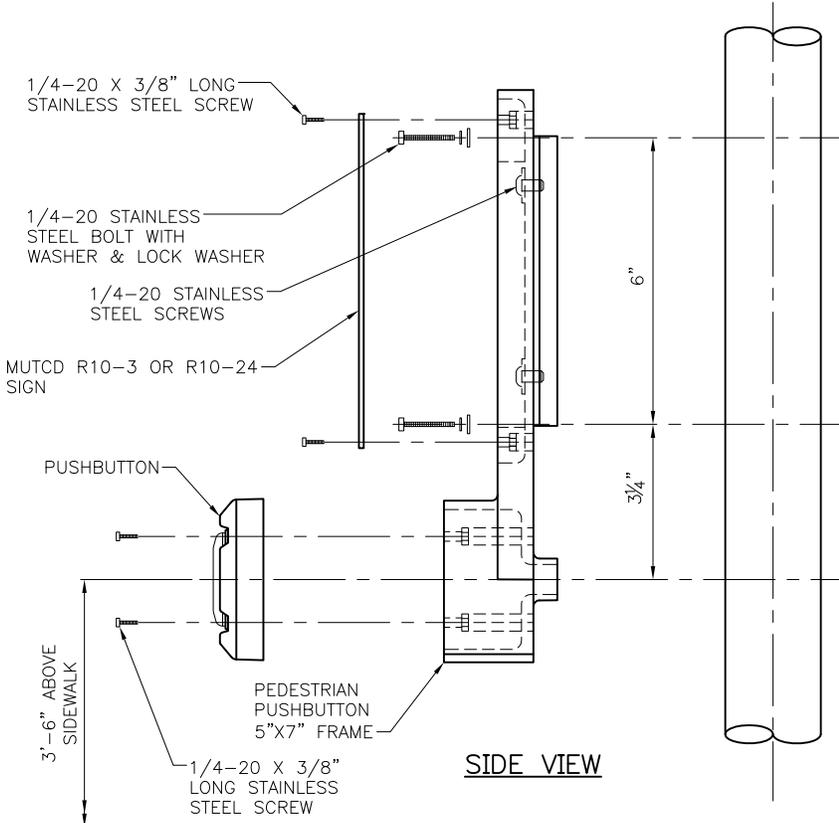
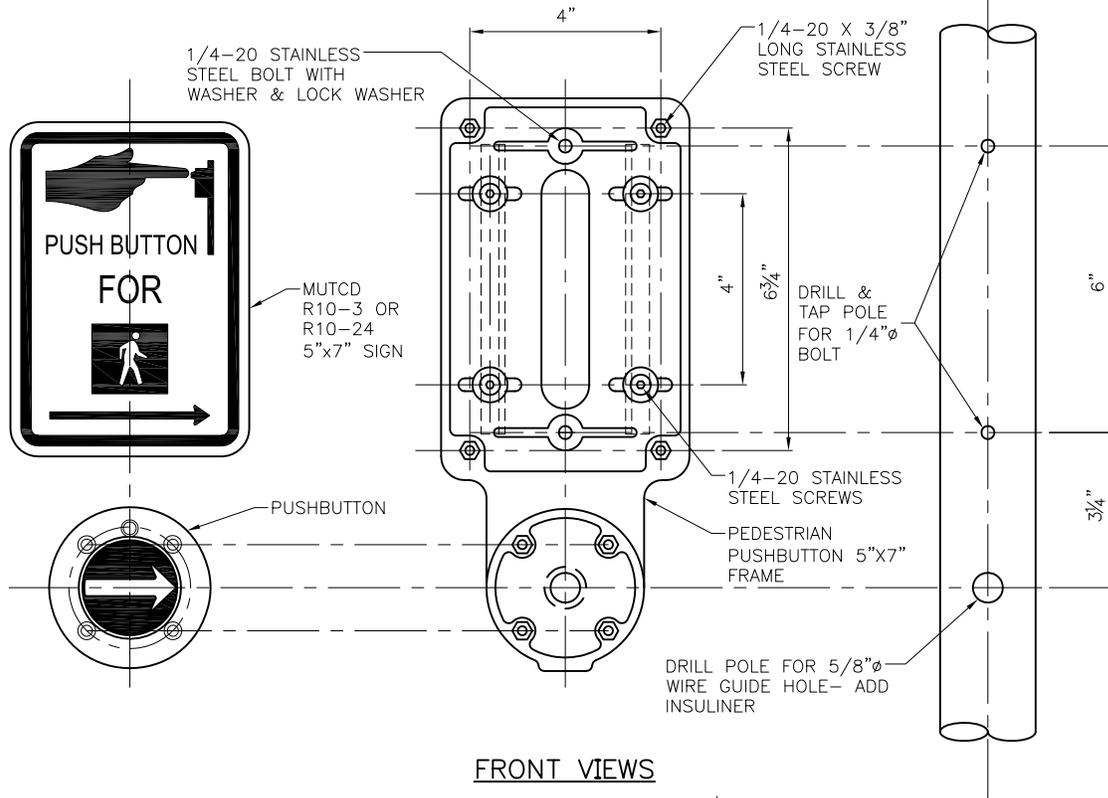
REF STD SPEC SEC 8-31 & 8-32



City of Seattle

NOT TO SCALE

PEDESTRIAN PUSHBUTTON POST & FOUNDATION



NOTES:

1. PUSHBUTTON MUST HAVE DIRECTIONAL ARROW AS SPECIFIED ON THE PLANS.
2. INSTALLATION OF TWO PEDESTRIAN PUSHBUTTON ASSEMBLIES MUST BE APPROVED BY THE ENGINEER.
3. DETAIL SHOWS PUSHBUTTON INSTALLED ON METAL POLE. PUSHBUTTON INSTALLED ON OTHER MATERIALS MUST BE PER MANUFACTURER'S RECOMMENDATION.

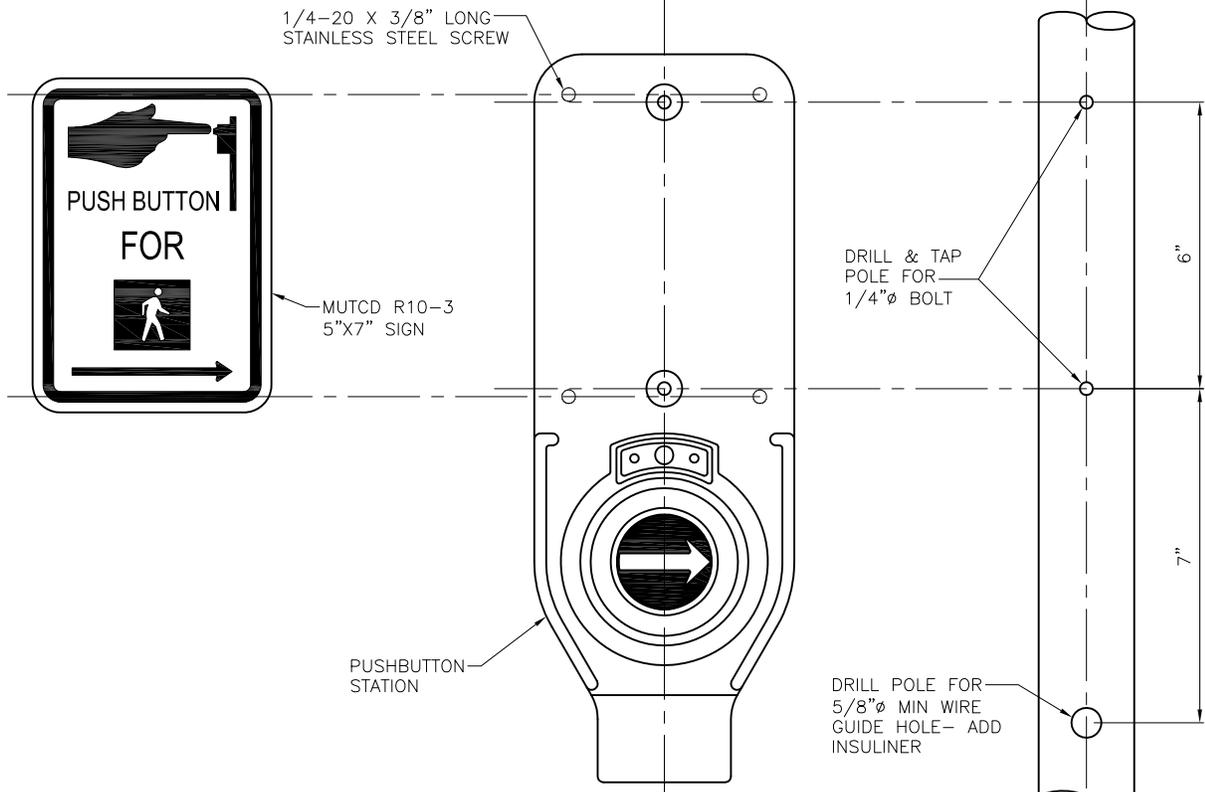
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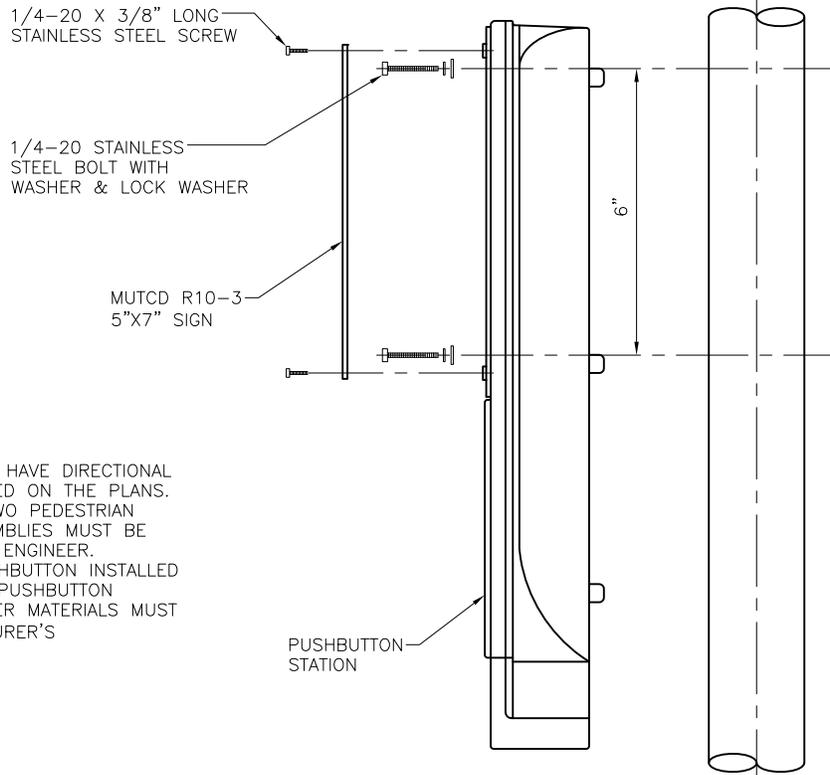
City of Seattle

NOT TO SCALE

PEDESTRIAN PUSHBUTTON ASSEMBLY



FRONT VIEWS



SIDE VIEW

NOTES:

1. PUSHBUTTON MUST HAVE DIRECTIONAL ARROW AS SPECIFIED ON THE PLANS.
2. INSTALLATION OF TWO PEDESTRIAN PUSHBUTTON ASSEMBLIES MUST BE APPROVED BY THE ENGINEER.
3. DETAIL SHOWS PUSHBUTTON INSTALLED ON METAL POLE. PUSHBUTTON INSTALLED ON OTHER MATERIALS MUST BE PER MANUFACTURER'S RECOMMENDATION.

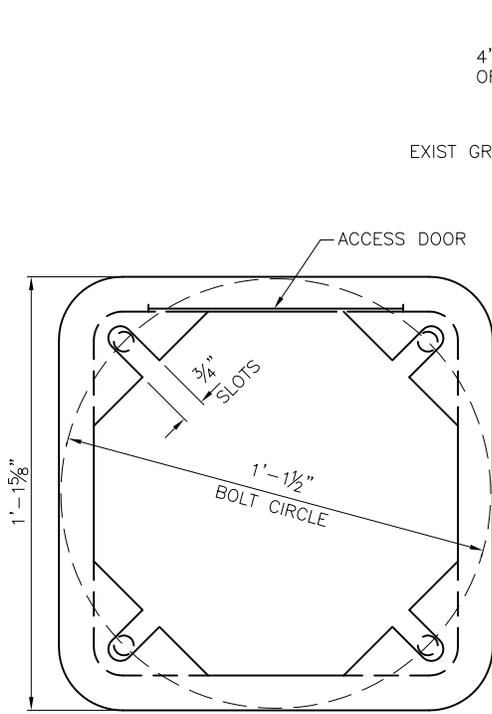
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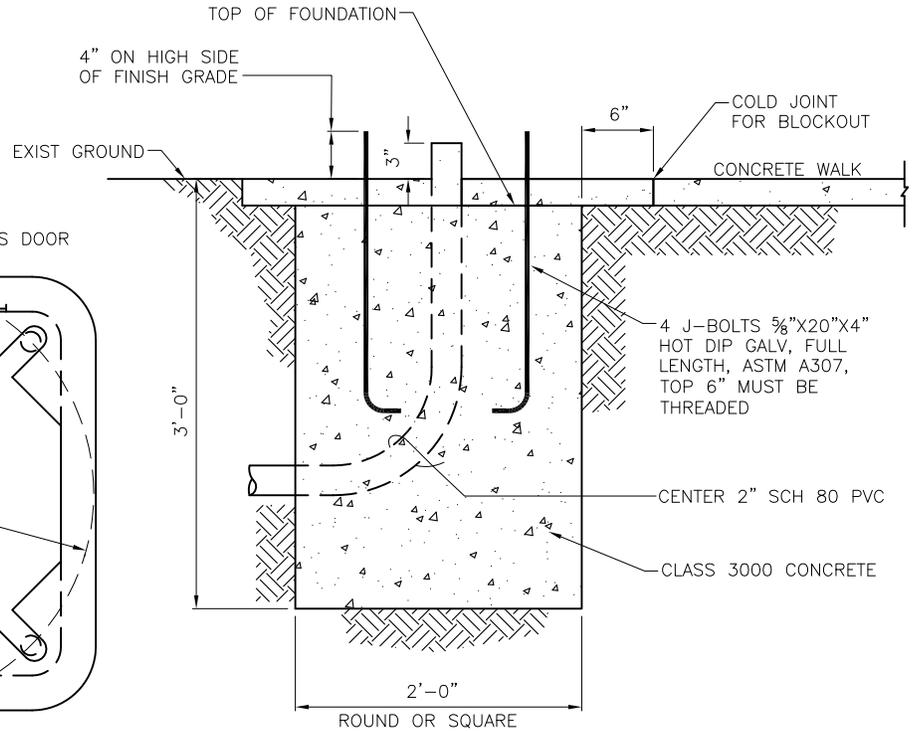
City of Seattle

NOT TO SCALE

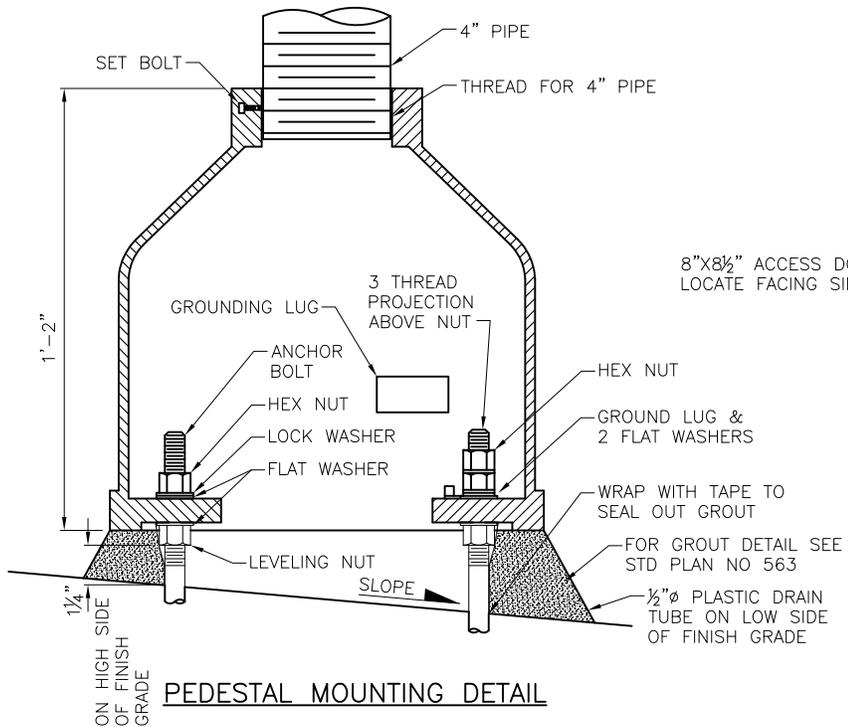
ACCESSIBLE PEDESTRIAN
SIGNAL (APS)
PED. PUSHBUTTON ASSEM.



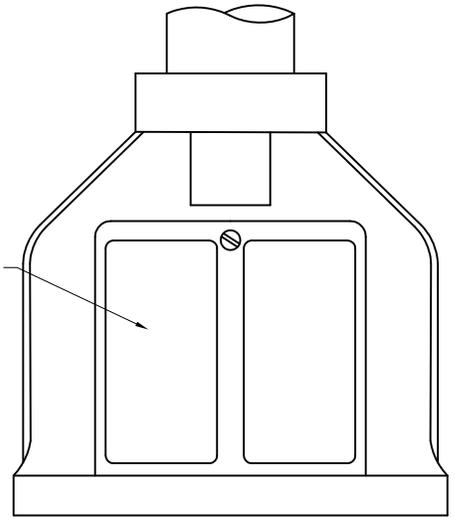
BOTTOM VIEW



PEDESTAL FOUNDATION



PEDESTAL MOUNTING DETAIL



SQUARE BASE PEDESTAL

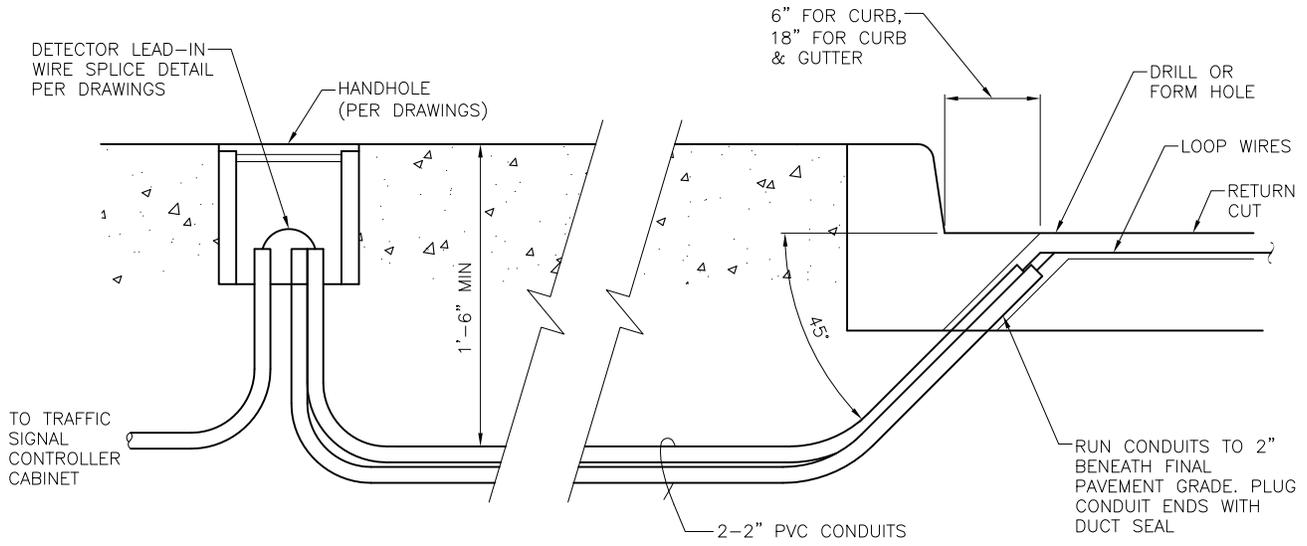
REF STD SPEC SEC 8-32



City of Seattle

NOT TO SCALE

PEDESTAL & FOUNDATION



CURB/PAVEMENT ENTRANCE FOR DETECTOR LOOP WIRES

NOTES:

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

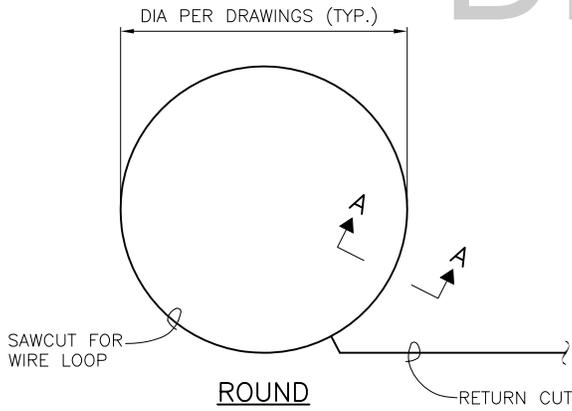
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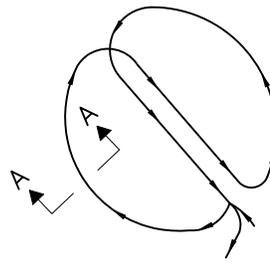
City of Seattle

NOT TO SCALE

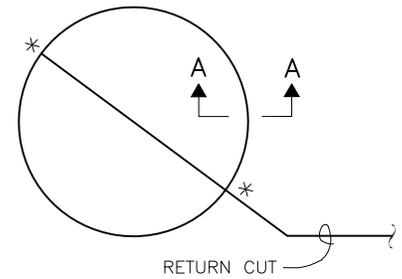
DETECTOR LOOP LEAD-IN



DIPOLE LOOP DETECTOR

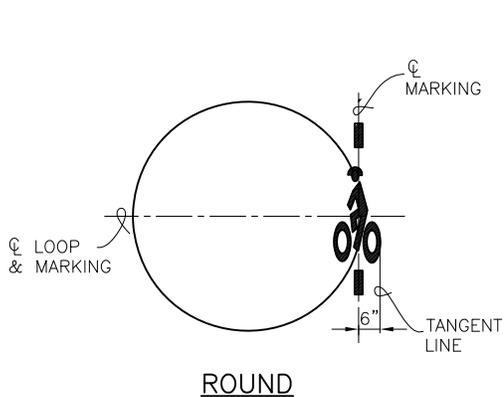


WINDING
DETAIL



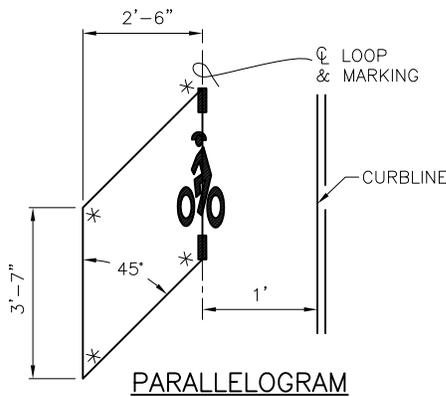
ROUND

QUADRIPOLE LOOP DETECTOR



ROUND

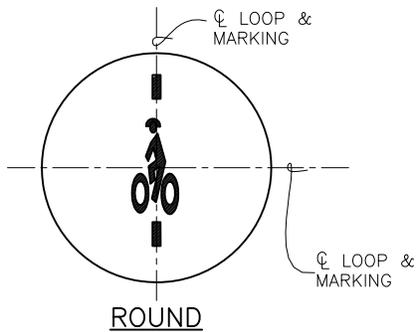
BICYCLE DIPOLE



PARALLELOGRAM

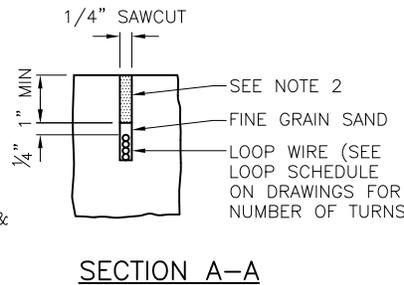
***NOTE:**

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

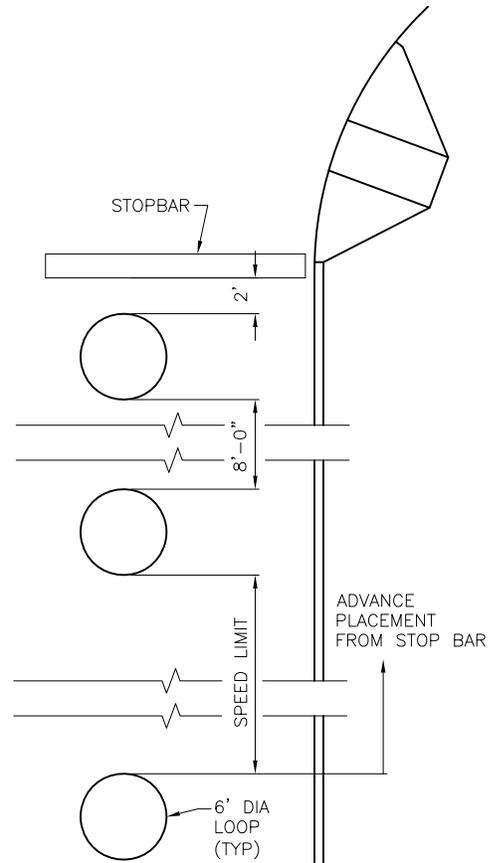


ROUND

BICYCLE QUADRIPOLE



SECTION A-A



STANDARD LOOP SPACING

NOTES:

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

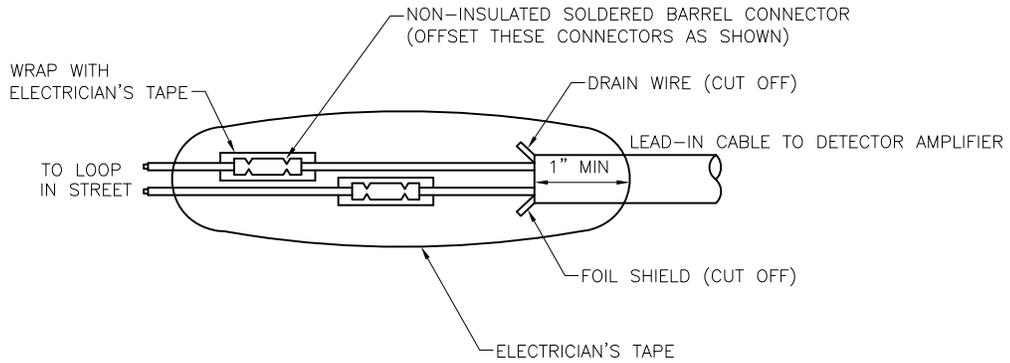
REF STD SPEC SEC 8-31



City of Seattle

NOT TO SCALE

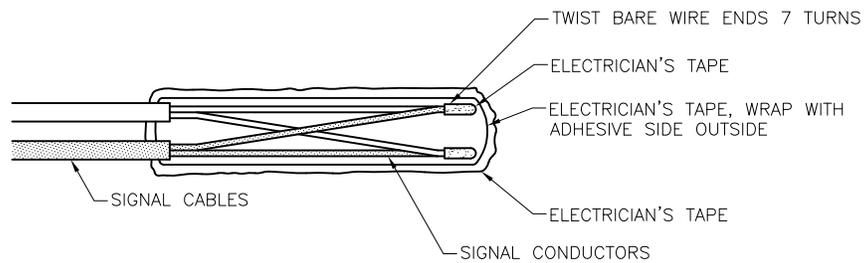
DETECTOR LOOP DETAILS



DETECTOR LEAD-IN WIRE SPLICE DETAIL

NOTE:

SOLDER CONNECTION AFTER CRIMPING



SIGNAL CABLE SPLICE

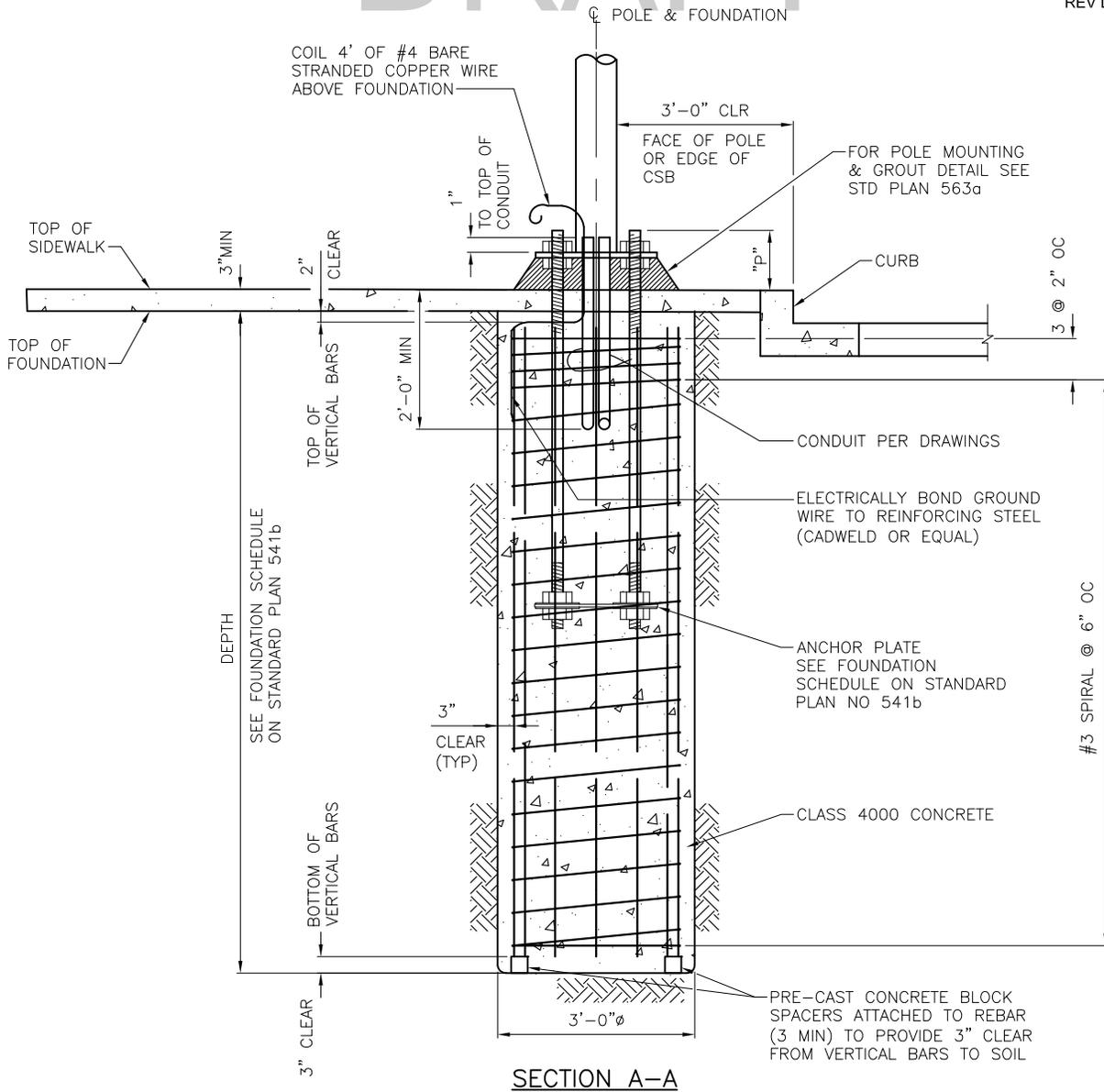
REF STD SPEC SEC 8-31



City of Seattle

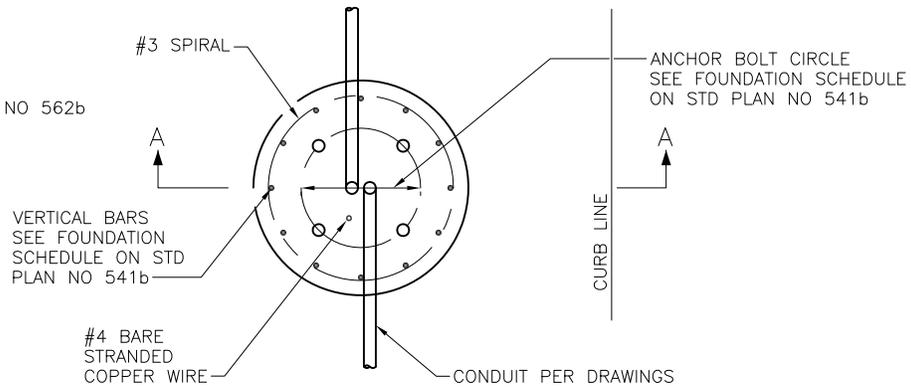
NOT TO SCALE

DETECTOR LOOP WIRE &
SIGNAL CABLE SPLICE



NOTE:

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



STRAIN POLE FOUNDATION IN SIDEWALK

REF STD SPEC SEC 8-32, 6-02

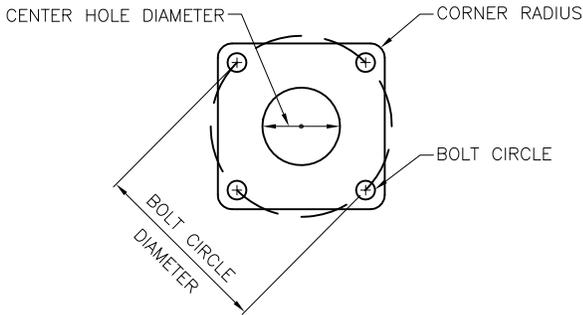


City of Seattle

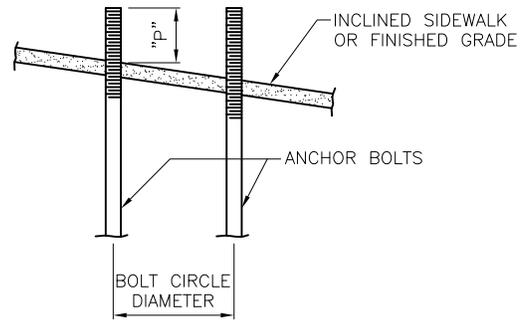
NOT TO SCALE

STRAIN POLE FOUNDATION DETAIL (TYPE T, V, X & Z)

FOUNDATION SCHEDULE										
POLE TYPE	PROJECTION	VERTICAL REINFORCING	DEPTH (LATERAL BEARING)		ANCHOR BOLTS (TOTAL 4 PER POLE)	ANCHOR PLATE DIMENSIONS				
	P		100#/SF/FT	150#/SF/FT		SIZE	BOLT CIRCLE DIA	BOLT HOLE	CENTER HOLE	CORNER RADIUS
T	7½"	10 #8	8'-0"	7'-6"	1½" DIA X 60"	¾" X 16" X 16"	14½"	1½"	10"	1½"
V	9"	10 #8	9'-6"	8'-6"	1¾" DIA X 72"	¾" X 16" X 16"	18"	1⅞"	12½"	1½"
X	10"	12 #8	12'-6"	10'-6"	2" DIA X 72"	¾" X 18" X 18"	20"	2¼"	14"	2"
Z	11½"	12 #8	15'-0"	13'-0"	2½" DIA X 72"	½" X 20" X 20"	22"	2⅝"	15"	2¼"



ANCHOR PLATE



INCLINED CONDITION

NOTES:

1. CONCRETE STRENGTH MUST BE CLASS 4000, ¾"MAX SIZE COARSE AGGREGATE.
2. ANCHOR BOLTS FOR TYPE V,X,Z: ASTM F1554-99, GRADE 105, CLASS 2A INCLUDING SUPPLEMENTARY REQUIREMENTS S2, S3 AND S5. ANCHOR BOLTS FOR TYPE T: ASTM F 1554 FY=55 KSI MIN. NUTS: ASTM A563 HEAVY HEX GRADE DH. HARDENED STEEL WASHERS: ASTM F436.
3. ANCHOR PLATE: ASTM A36. HOT DIP GALVANIZED.
4. ALL REINFORCING BARS MUST BE DEFORMED BILLET STEEL CONFORMING TO ASTM CLASS A706, GRADE 60.
5. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED ASTM A153 INCLUDING NUTS & WASHERS (FULL LENGTH) WITH 18" OF THREADS ON TOP & 12" ON BOTTOM
6. TAPE THE TOP OF ANCHOR BOLTS WITH CORROSION PROTECTION TAPE PER STD SPEC SEC 8-32.3(2)A PRIOR TO POURING CONCRETE.

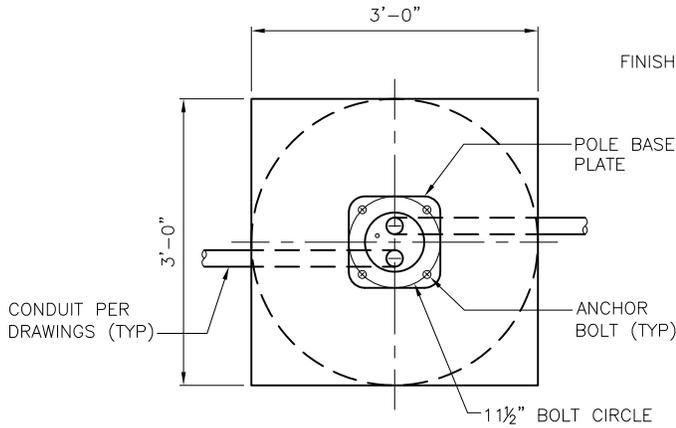
REF STD SPEC SEC 8-32



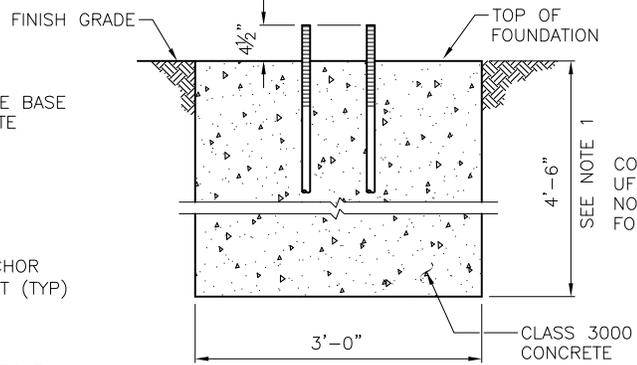
City of Seattle

NOT TO SCALE

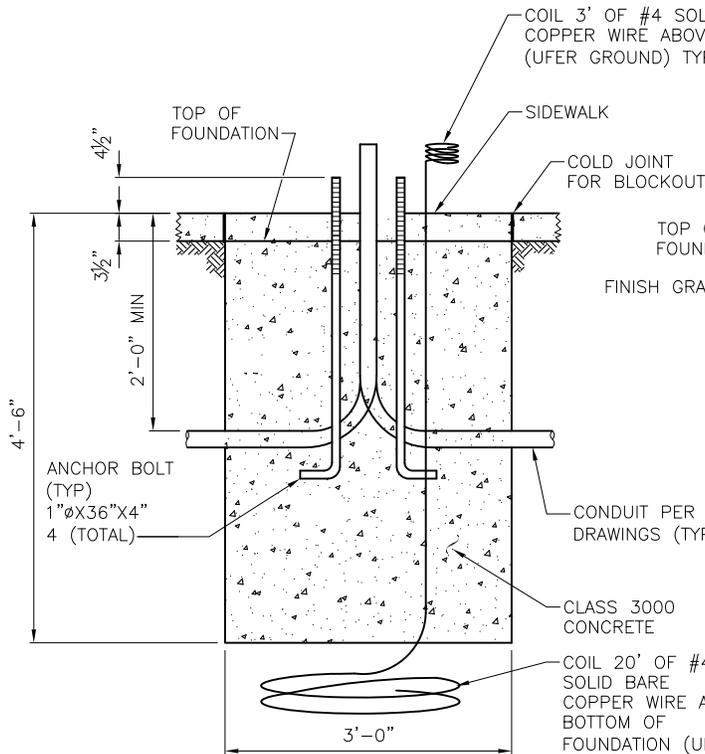
STRAIN POLE FOUNDATION
SCHEDULE & NOTES
(TYPE T, V, X & Z)



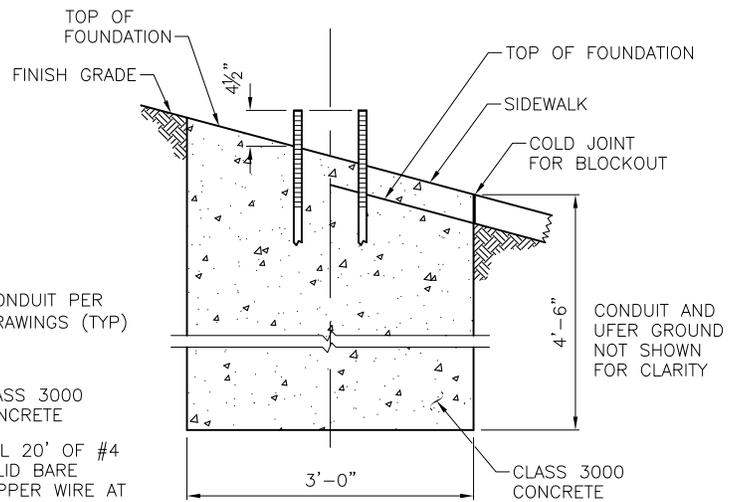
PLAN



IN EARTH



IN SIDEWALK



ON AN INCLINE

NOTES:

1. BOLT CIRCLE: 1 1/2" TYP
2. SEE STD PLAN NO 563a FOR POLE MOUNTING AND GROUT DETAIL
3. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED ASTM A153 OR F2329, FULL LENGTH AND FABRICATED FROM ASTM F1554 OR A576 WITH 12" THREADS ON TOP
4. UFER GROUND NOT SHOWN IN ALL DETAILS FOR CLARITY

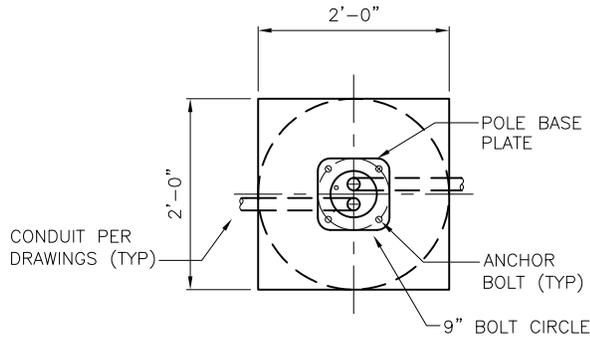
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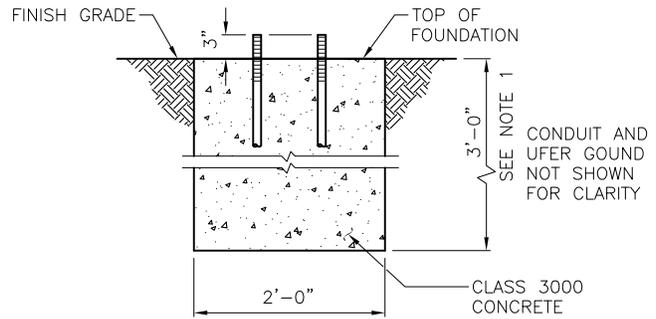
City of Seattle

NOT TO SCALE

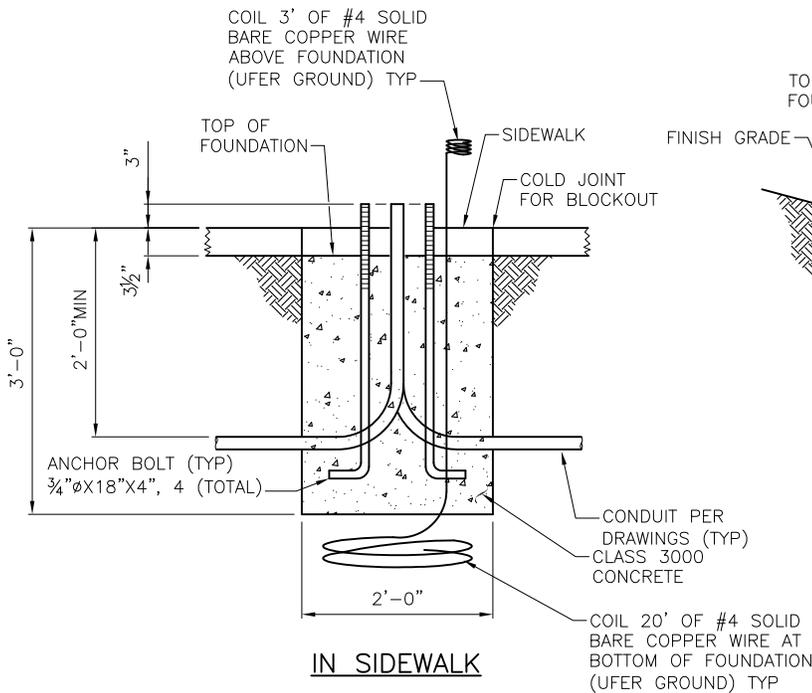
STREET LIGHT
POLE FOUNDATIONS



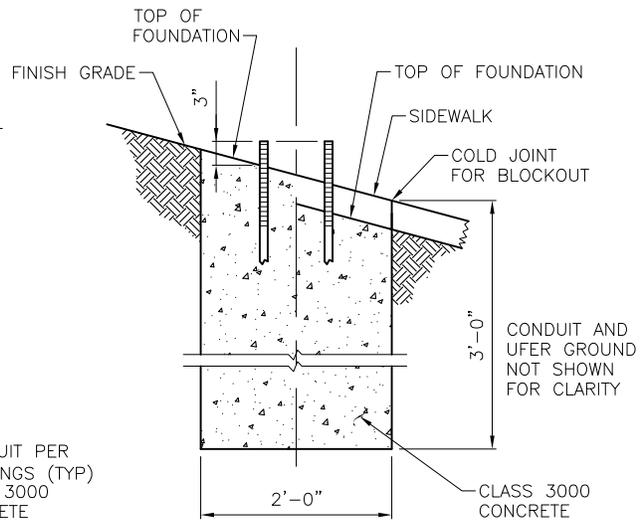
PLAN



IN EARTH



IN SIDEWALK



ON AN INCLINE

NOTES:

1. BOLT CIRCLE: 9" TYP
2. SEE STD PLAN NO 563a FOR POLE MOUNTING AND GROUT DETAIL
3. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED TO ASTM A153 OR F2329, FULL LENGTH AND FABRICATED FROM ASTM F1554 OR A576 WITH 8" OF THREADS ON TOP
4. SEE SCL MATERIAL STANDARD 5756.09 FOR POLES
5. SEE SCL CONSTRUCTION STANDARD 1716.07 FOR STREETLIGHT HANDHOLE AND CONDUIT REQUIREMENTS.

REF STD SPEC SEC 8-32



City of Seattle

NOT TO SCALE

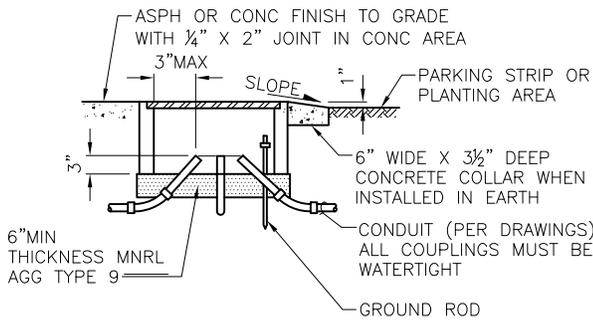
PEDESTRIAN STREET LIGHT
POLE FOUNDATIONS

NOTES:

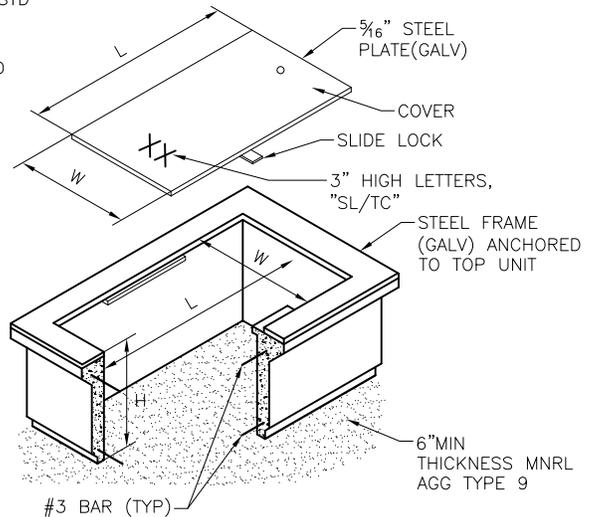
1. THE COVER MUST HAVE $\frac{1}{16}$ " TO $\frac{1}{8}$ " CLEARANCE ON EACH EDGE WITHIN THE FRAME AFTER GALVANIZING.
2. THE GROUND ROD MUST EXTEND 4" ABOVE THE BOTTOM OF THE HANDHOLE OR MINERAL AGGREGATE.
3. TYPE 1, 2, 3, 5 & 6 HANDHOLE COVERS MUST HAVE "TC" AND/OR "SL" ON THEM, AS APPROPRIATE.
4. TYPE 4 HANDHOLE MUST BE INSTALLED IN ROADWAYS, PARKING LOTS, ETC.
5. FOR PAVEMENT DEPTH GREATER THAN 7" USE FRAME EXTENSIONS (SEE STD PLAN NO 231) TO BRING THE COVER UP TO THE LEVEL OF THE FINISHED PAVEMENT WITHOUT EMBEDDING THE BOTTOM FLANGE OF THE CASTING IN THE PAVEMENT.
6. A 4' LENGTH OF #6 THWN OR THHN COPPER WIRE MUST BE SECURED FROM THE HANDHOLE COVER TO THE FRAME. WITH A 4'-0" LENGTH FROM FRAME THAT CAN BE HOOKED UP TO A GROUND ROD.
7. ALL HANDHOLE COVERS AND FRAMES MUST HAVE A NON-SKID SURFACE (SEE STD SPEC SEC 9-34.6)
8. ALL HANDHOLES MUST HAVE A LOAD RATING OF H20.
9. GROUND ROD REQUIRED IN ALL STREETLIGHT HANDHOLES PER SCL CONSTR STD 1710.50
10. SEE SCL CONSTRUCTION STANDARD 1716.07 FOR STREETLIGHT HANDHOLE AND CONDUIT REQUIREMENTS.

HANDHOLE SCHEDULE

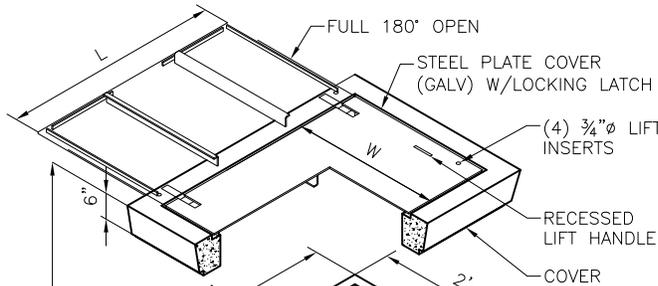
HANDHOLE TYPE	TOP UNIT INSIDE DIMENSION			EXTENSION UNIT(E)	COVER DIMENSIONS	
	L	W	H		L	W
1	19"	14"	12"	12"	18"	13"
2	28"	17"	12"	12"	26 $\frac{1}{2}$ "	17"
3	36"	24"	12"	12"	35"	24"
4	24"Ø	VAR	NA	NA	NA	NA
5	36"	24"	32"	NA	35"	24"
6	42"	42"	38 $\frac{1}{2}$ "	NA	33 $\frac{1}{2}$ "	33 $\frac{3}{4}$ "
GRHH	8"Ø			NA		



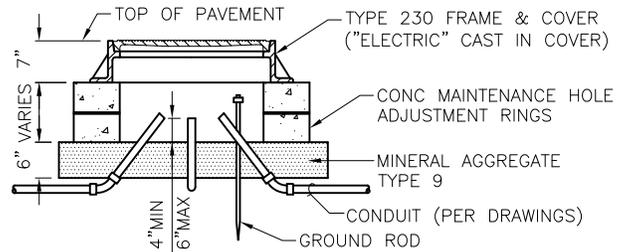
HANDHOLE INSTALLATION DETAIL



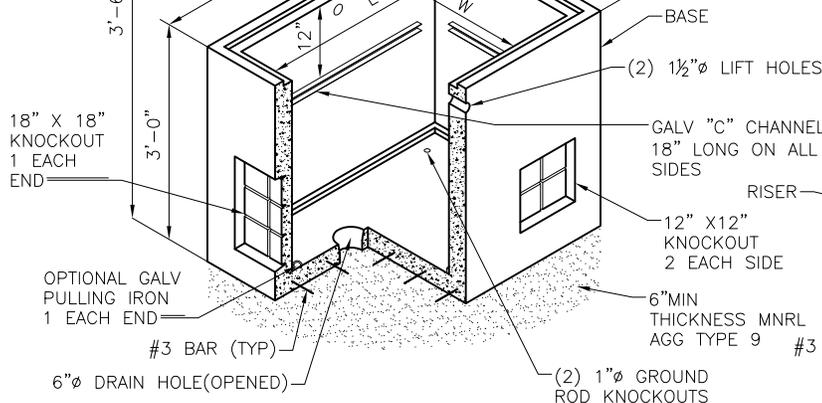
TYPE 1 & 2 HANDHOLE



TYPE 5 HANDHOLE



**TYPE 4 HANDHOLE
TRAFFIC BEARING**



**TYPE 3 HANDHOLE
(COVER SAME AS TYPE 5)**

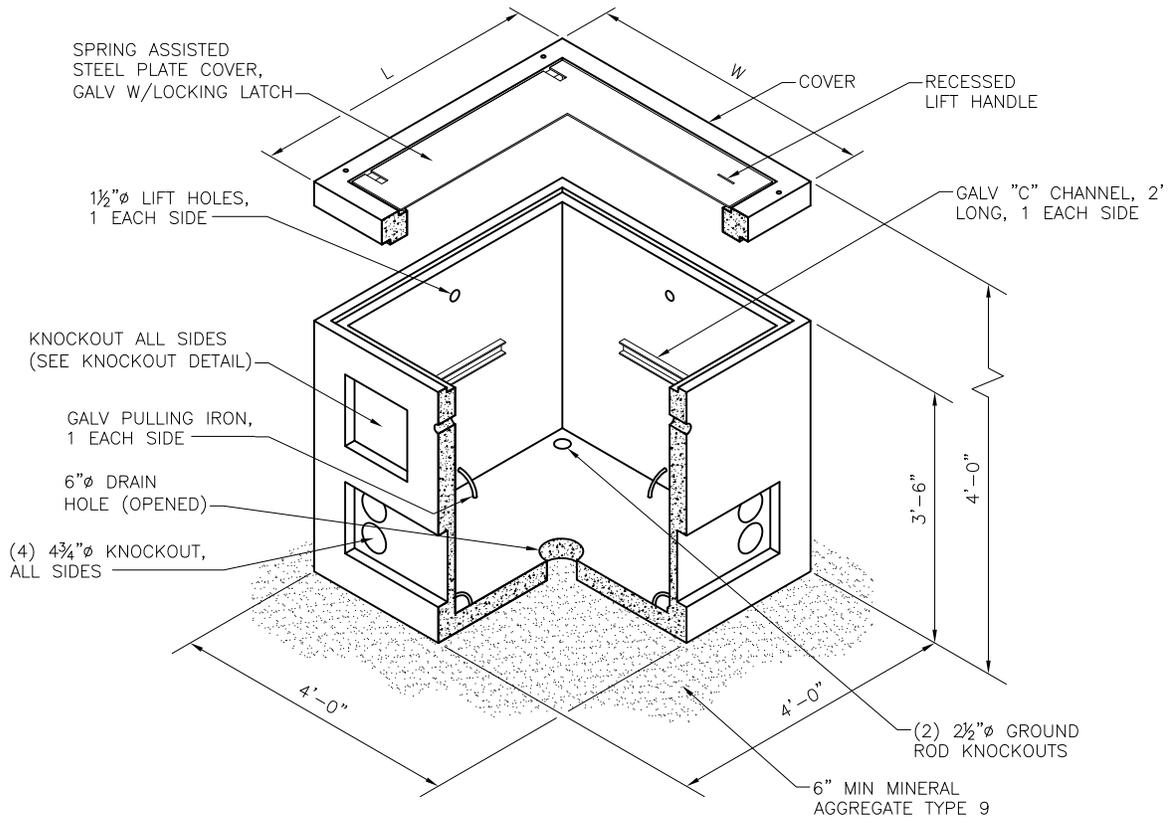
REF STD SPEC SEC 8-33



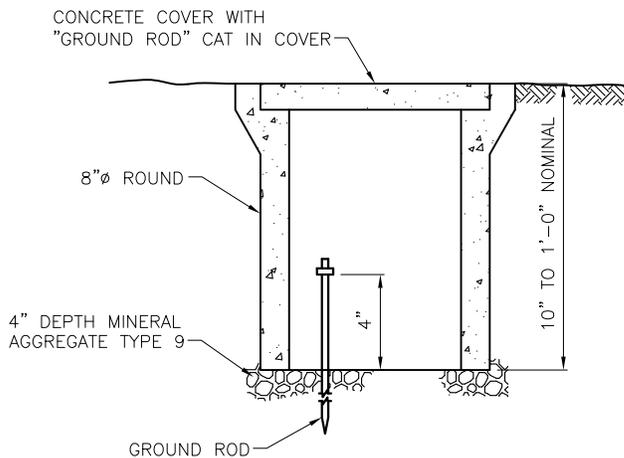
City of Seattle

NOT TO SCALE

HANDHOLES



TYPE 6 HANDHOLE



GROUND ROD HANDHOLE (GRHH)

NOTES:

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

REF STD SPEC SEC 8-33



City of Seattle

NOT TO SCALE

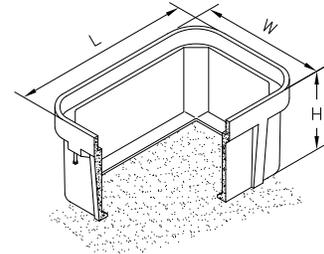
HANDHOLES

NOTES:

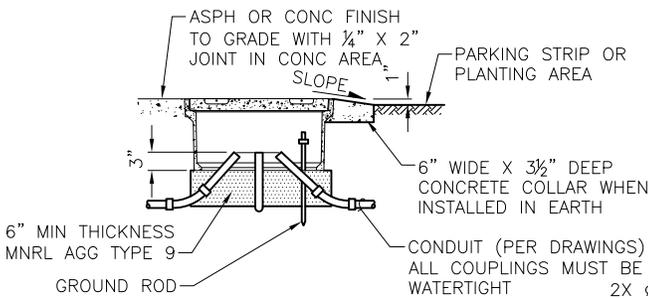
1. ALL NON-DELIBERATE TRAFFIC PULL BOX COVERS MUST COMPLY WITH ALL TEST PROVISIONS OF ANSI/SCTE 77 2010 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY", & MUST MEET THE TIER 15 APPLICATION. MARKING SHOWING THE TIER 15 RATING MUST BE EMBOSSED IN THE TOP SURFACE OF THE COVER.
2. ALL NON-DELIBERATE TRAFFIC PULL BOXES MUST COMPLY WITH ALL TEST PROVISIONS OF ANSI/SCTE 77 2012 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY", & MUST MEET THE TIER 22 APPLICATION. MARKINGS SHOWING THE TIER 22 RATING MUST BE LABELED OR STENCILED ON THE INSIDE & OUTSIDE OF THE BOX.
3. ALL NON-DELIBERATE TRAFFIC PULL BOXES & COVERS MUST BE MADE OF POLYMER CONCRETE WITH FIBERGLASS REINFORCEMENT. THE BOX MUST HAVE CONTINUOUS FIBERGLASS CLOTH REINFORCEMENT ON THE INSIDE & OUTSIDE PERIMETERS. THE COVER MUST HAVE A MINIMUM OF TWO LAYERS OF FIBERGLASS CLOTH REINFORCEMENT.
4. ALL NON-DELIBERATE TRAFFIC PULL BOXES & COVERS MUST BE TESTED & CERTIFIED, MEETING ALL TEST PROVISIONS ON THE ANSI/SCTE 77, TO THE 66WF, MEETING ALL TEST PROVISION OF THE LATEST REVISION OF ANSI/SCTE 77.
5. PULL SLOTS MUST BE RATED FOR MINIMUM PULL OUT OF 3,000 POUNDS.
6. TYPE 4 HANDHOLE MUST BE INSTALLED IN ROADWAYS PARKING LOTS, ETC. ALL COVERS MUST BE COMPLETE WITH A MOLDED LOGO, MANUFACTURERS NAME & TIER RATING LOGO (NO GLUE IN LOGO). LOGO MUST READ "TC" AND/OR "SL" UNLESS STATED OTHERWISE BY THE CITY OF SEATTLE.
7. THE GROUND ROD MUST EXTEND 4" ABOVE THE BOTTOM OF THE HANDHOLE OR MINERAL AGGREGATE.
8. FOR PAVEMENT DEPTH GREATER THAN 7" USE FRAME EXTENSIONS (SEE STD PLAN NO 231) TO BRING THE COVER UP TO THE LEVEL OF THE FINISHED PAVEMENT WITHOUT EMBEDDING THE BOTTOM FLANGE OF THE CASTING IN THE PAVEMENT.
9. A 4' LENGTH OF #6 THWN OR THHN COPPER WIRE MUST BE SECURED FROM THE HANDHOLE COVER TO THE FRAME. WITH A 4'-0" LENGTH FROM FRAME THAT CAN BE HOOKED UP TO A GROUND ROD.
10. ALL HANDHOLE COVERS AND FRAMES MUST HAVE A NON-SKID SURFACE (SEE STD SPEC SEC 9-34.6)
11. SEE SCL CONSTRUCTION STANDARD 1716.07 FOR STREET HANDHOLE AND CONDUIT REQUIREMENTS.

HANDHOLE SCHEDULE

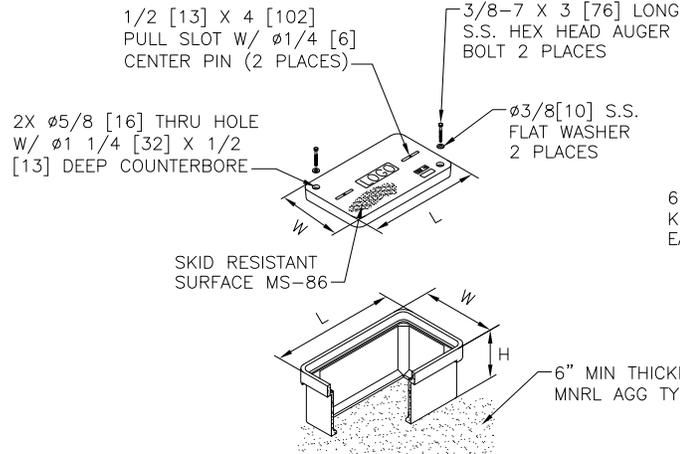
HANDHOLE TYPE	TOP UNIT INSIDE DIMENSION			EXTENSION UNIT(E)	COVER DIMENSIONS	
	L	W	H		L	W
1	24"	13"	12"	12"	24"	13"
2	30"	17"	12"	12"	30"	17"
3	36"	24"	18"	12"	36"	24"
4	24"Ø	VAR	VAR	NA	NA	NA
5	30"	48"	36"	NA	30"	48"
6	48"	48"	48"	NA	48"	48"
GRHH	8"Ø			NA		



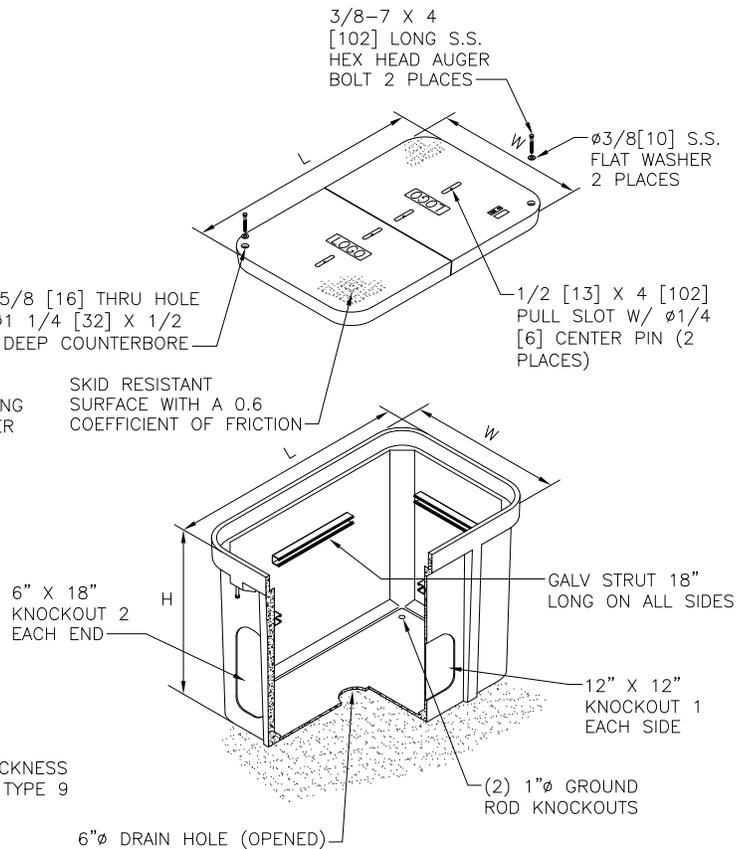
TYPE 3 HANDHOLE
(COVER SAME AS TYPE 5)



HANDHOLE INSTALLATION DETAIL



TYPE 1 & 2 HANDHOLE



TYPE 5 HANDHOLE

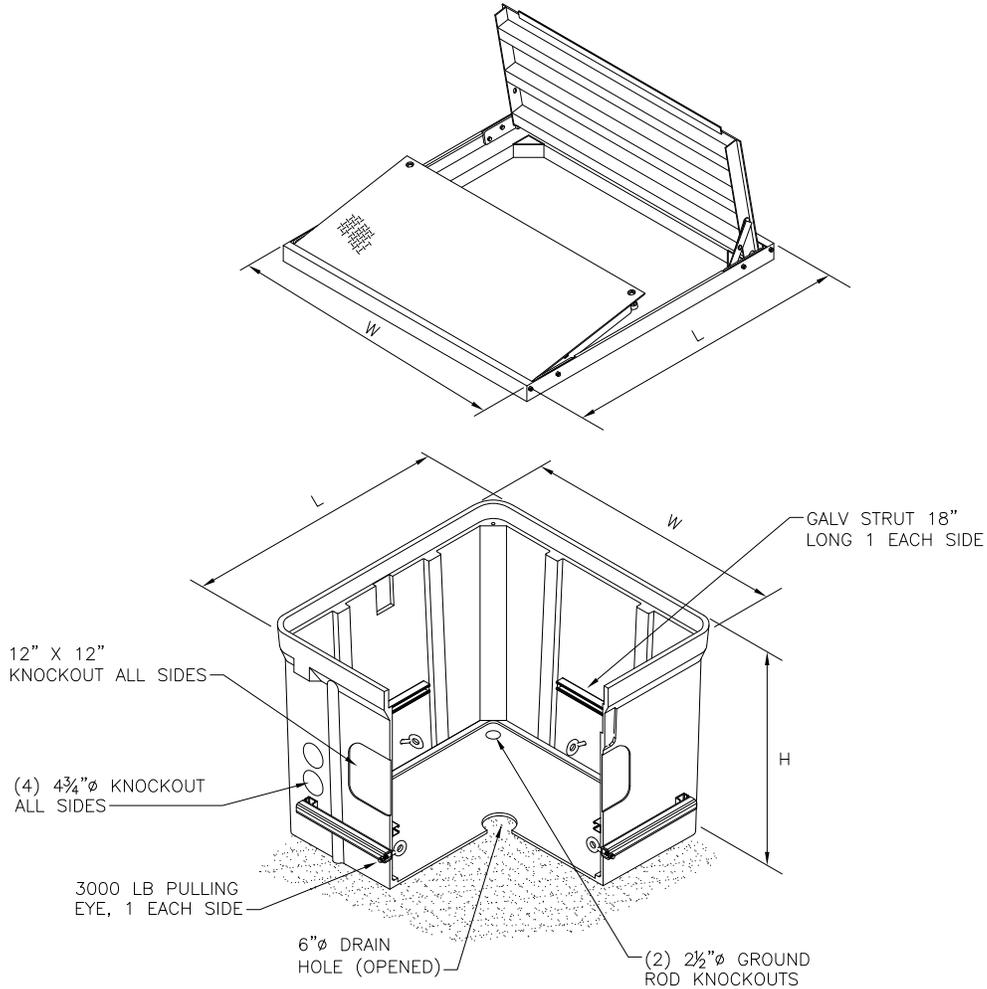
REF STD SPEC SEC 8-33



City of Seattle

NOT TO SCALE

**POLYMER CONCRETE
HANDHOLES**



TYPE 6 HANDHOLE

NOTES:

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

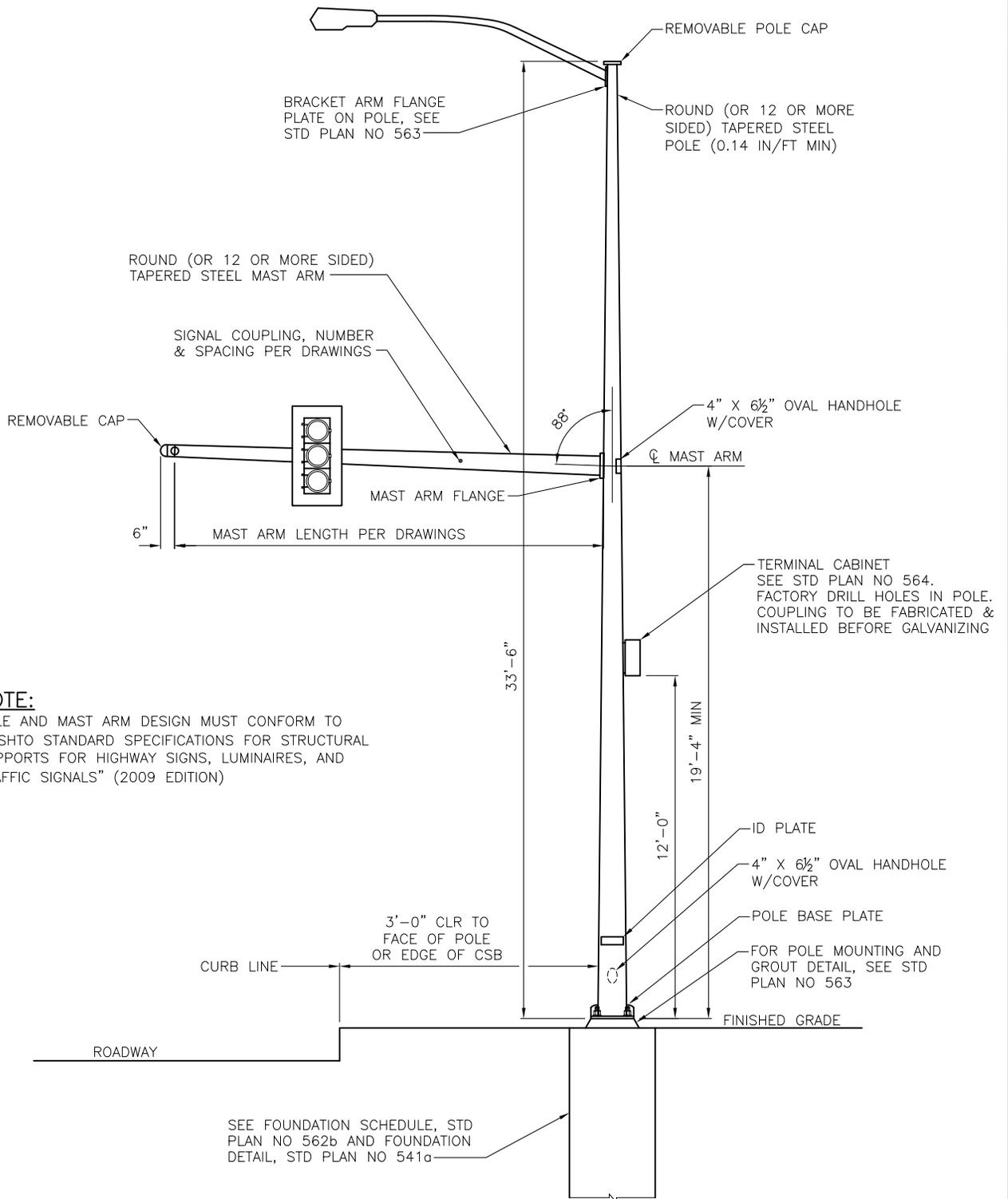
REF STD SPEC SEC 8-33



City of Seattle

NOT TO SCALE

POLYMER CONCRETE
HANDHOLES



NOTE:
POLE AND MAST ARM DESIGN MUST CONFORM TO "AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" (2009 EDITION)

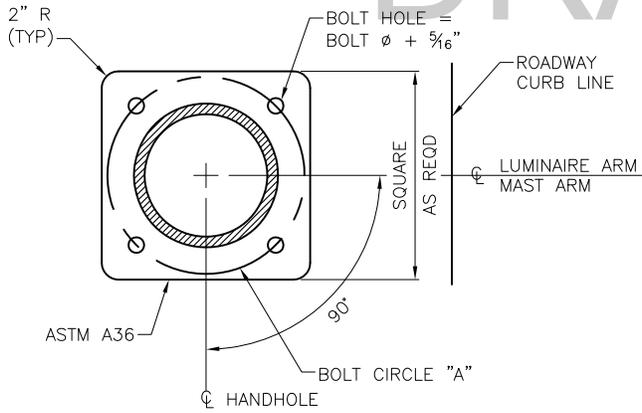
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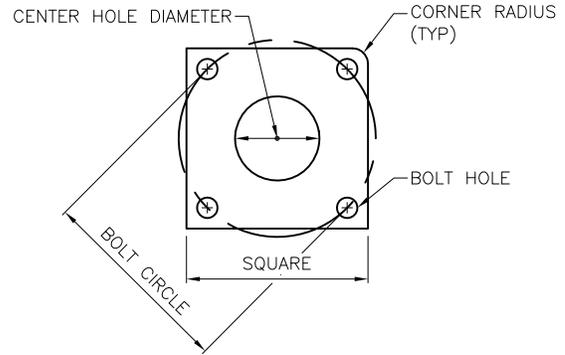
City of Seattle

NOT TO SCALE

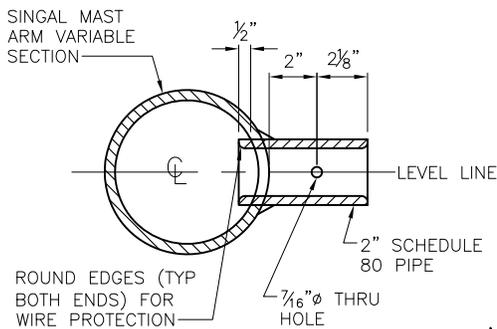
STEEL MAST ARM POLE



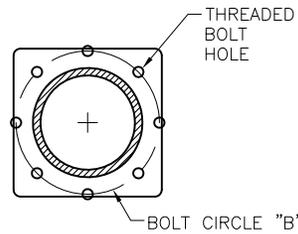
POLE BASE PLATE



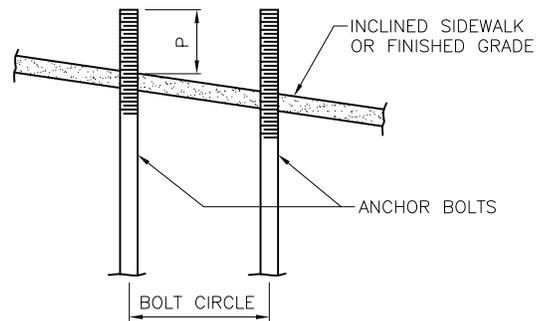
ANCHOR PLATE
PER FOUNDATION SCHEDULE



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"	1¾"
31'-0" TO 40'-0"	12"	1¼"-7NC	18" X 18"	16½"	2¼"
41'-0" TO 45'-0"	13½"	1¼"-7NC	18" X 18"	18"	2¼"
46'-0" TO 60'-0"	14"	1½"-6NC	20" X 20"	20"	2½"

POLE FOUNDATION NOTES

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

FOUNDATION SCHEDULE											
MAST ARM LENGTH	FOUNDATION DEPTH (LATERAL BEARING)		ANCHOR BOLTS ($F_y=55$ KSI MIN.)			VERTICAL REINFORCING	ANCHOR PLATE DIMENSIONS				
	150#/SF /FT	100#/SF /FT	PROJECTION	BOLT CIRCLE DIA	SIZE (J HOOK)		SIZE	BOLT CIRCLE DIA	BOLT HOLE	CENTER HOLE	CORNER RADIUS
15'-0" TO 30'-0"	7'-6"	8'-0"	7½"	14½"	1½" X 60"	10 #8	¾" X 16" X 16"	14½"	1½"	10"	1½"
31'-0" TO 40'-0"	8'-6"	9'-6"	9"	16½"	1¾" X 72"	10 #8	¾" X 16" X 16"	16½"	1⅞"	12½"	1½"
41'-0" TO 45'-0"	8'-6"	9'-6"	9"	18"	1¾" X 72"	10 #8	¾" X 16" X 16"	18"	1⅞"	12½"	1½"
46'-0" TO 60'-0"	10'-6"	12'-6"	10"	20"	2" X 72"	12 #8	¾" X 18" X 18"	20"	2⅞"	14"	2"

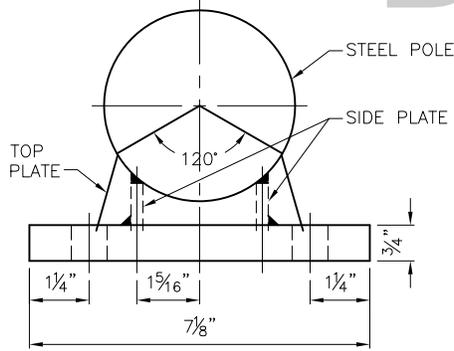
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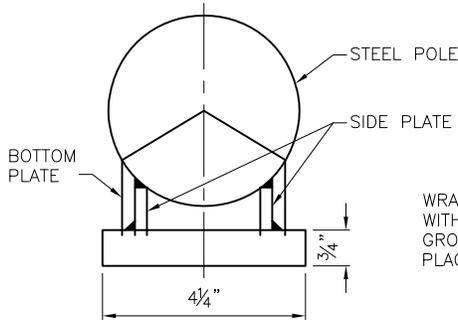
City of Seattle

NOT TO SCALE

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

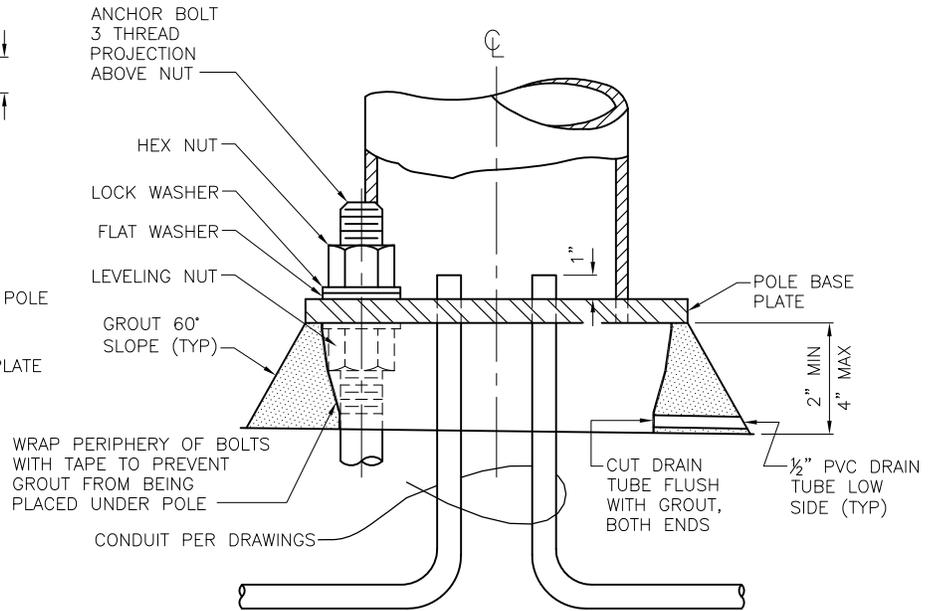


SECTION A-A



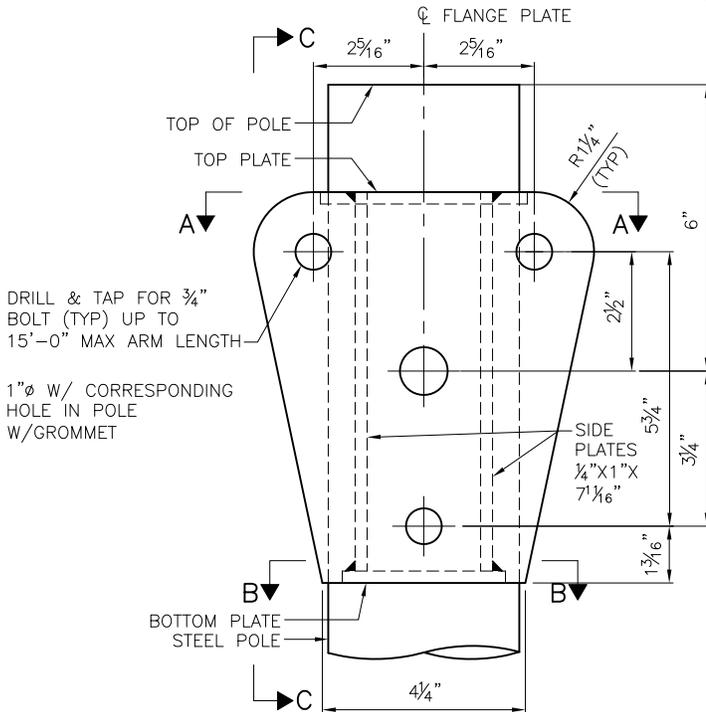
SECTION B-B

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

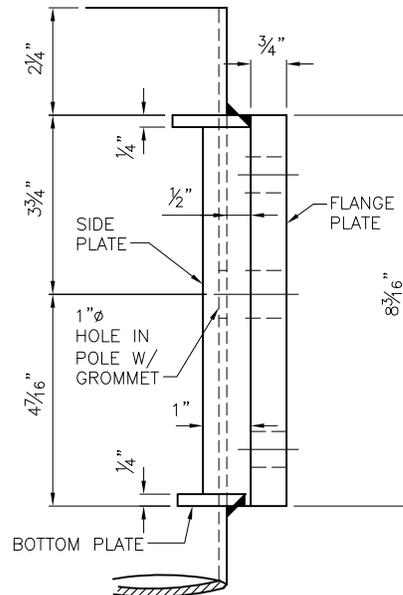


POLE MOUNTING & GROUT DETAIL

(EXCEPT FOR POLES W/CHIEF SEATTLE BASE)



BRACKET ARM FLANGE
PLATE ON POLE



SECTION C-C

STRUCTURAL CARBON STEEL PLATES
MUST BE ASTM A36

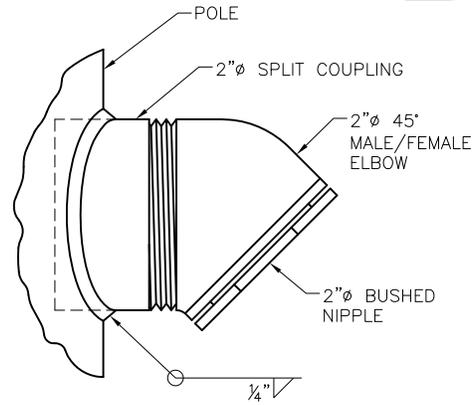
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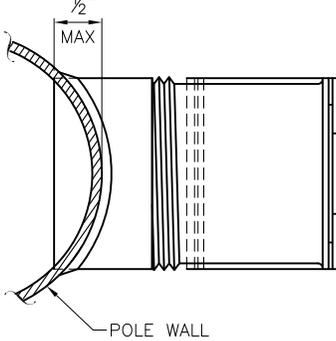
City of Seattle

NOT TO SCALE

MISCELLANEOUS STEEL
POLE DETAILS

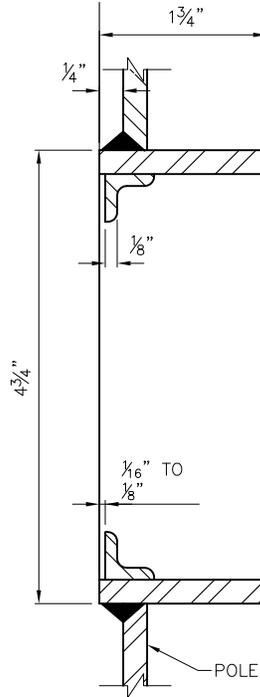


ELEVATION



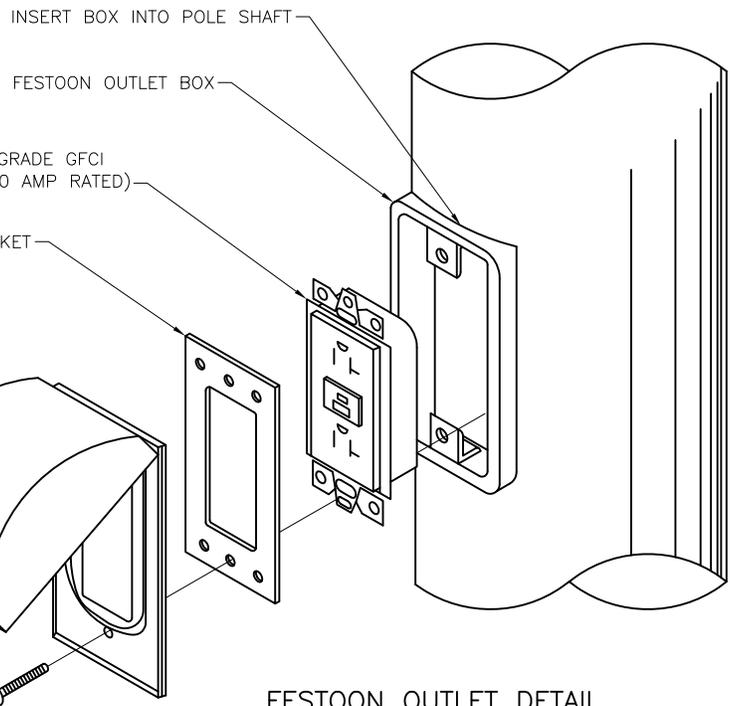
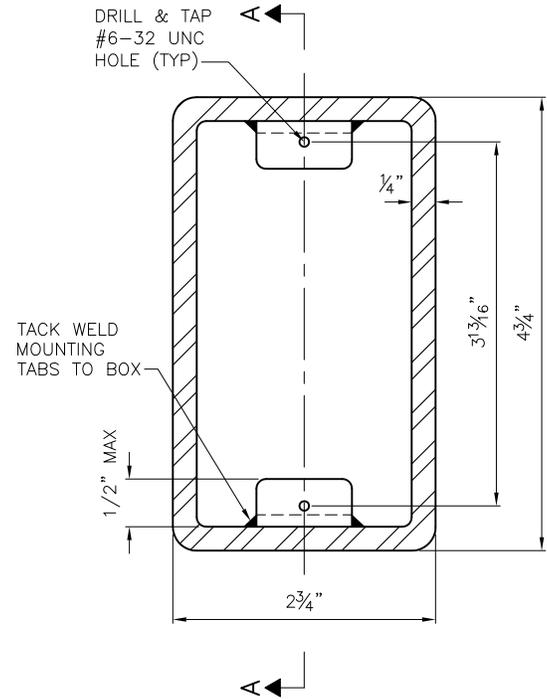
PLAN

CABLE OUTLET DETAIL



SECTION A-A

FESTOON OUTLET BOX



FESTOON OUTLET DETAIL

(METAL POLES)

NOTES:

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

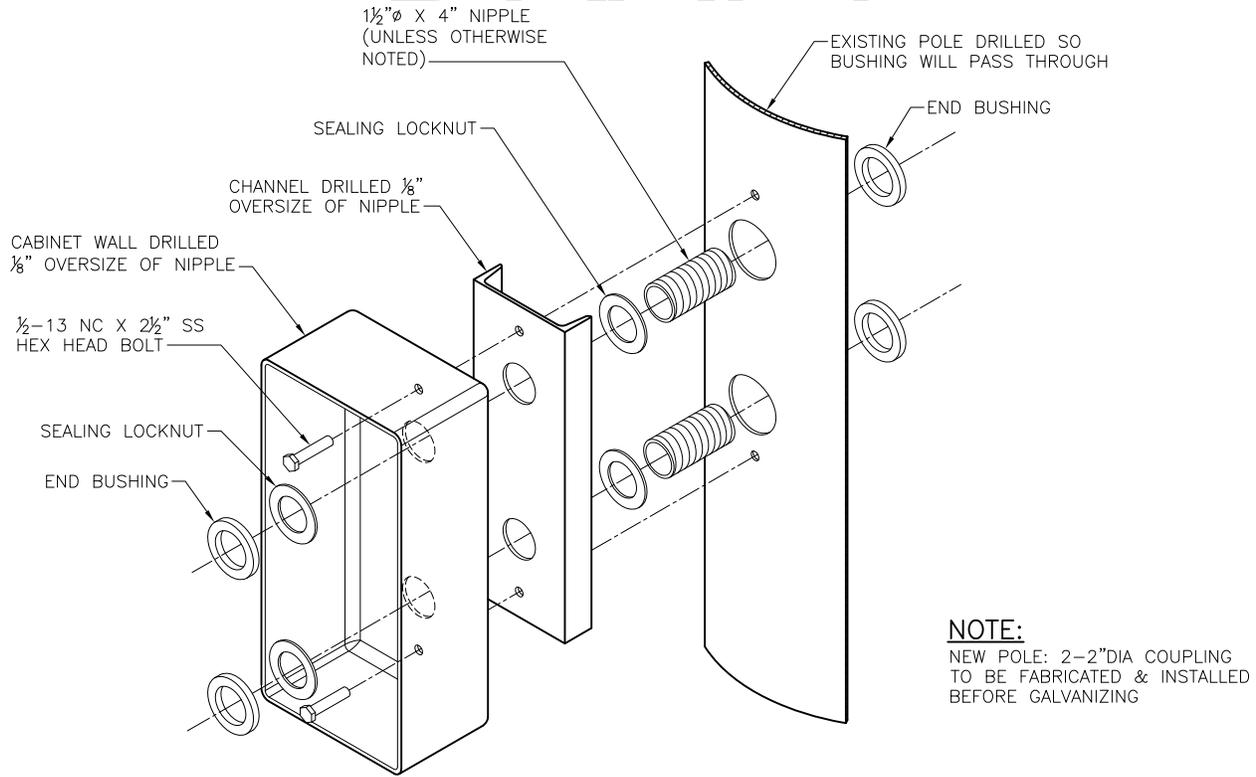
REF STD SPEC SEC 8-30 & 8-32



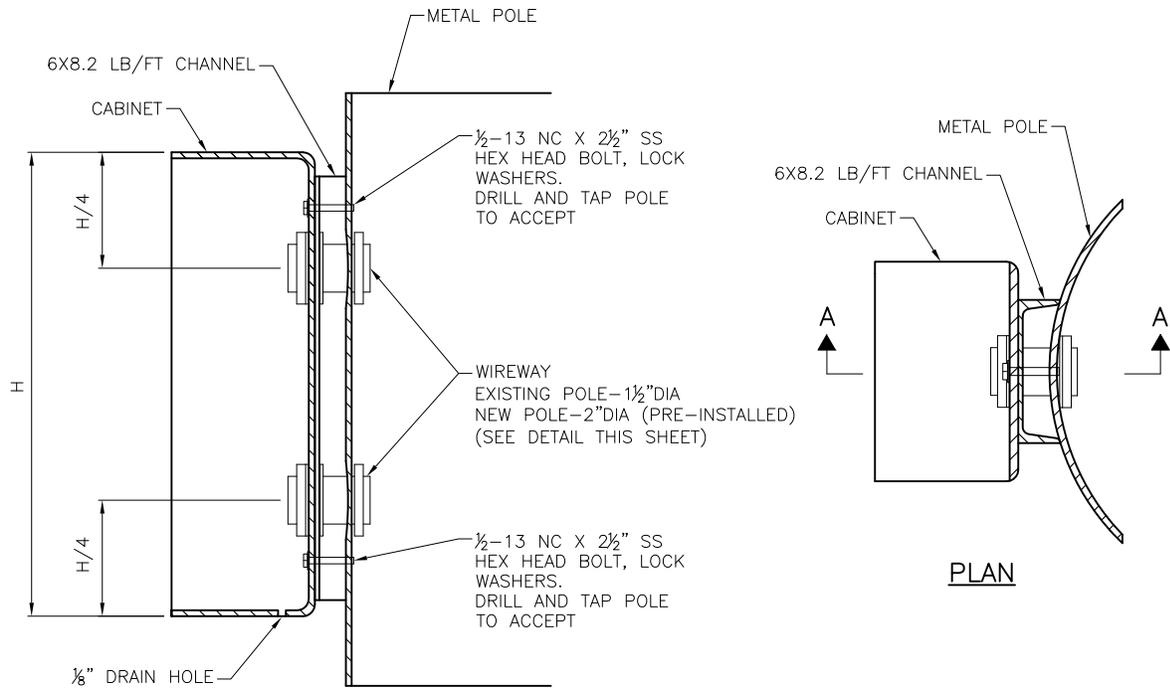
City of Seattle

NOT TO SCALE

MISCELLANEOUS STEEL POLE DETAILS



WIREWAY ISOMETRIC DETAIL



SECTION A-A

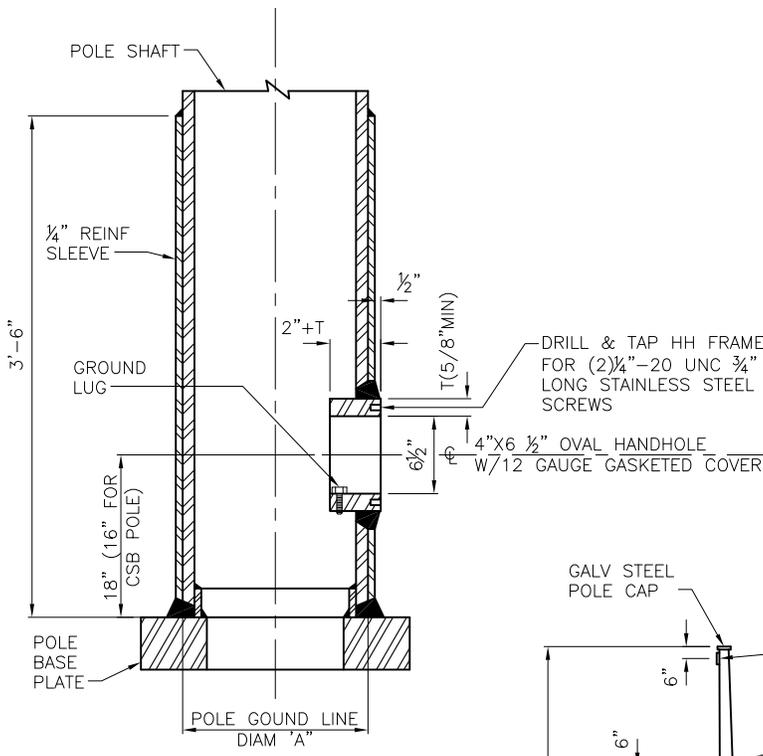
REF STD SPEC SEC 8-32



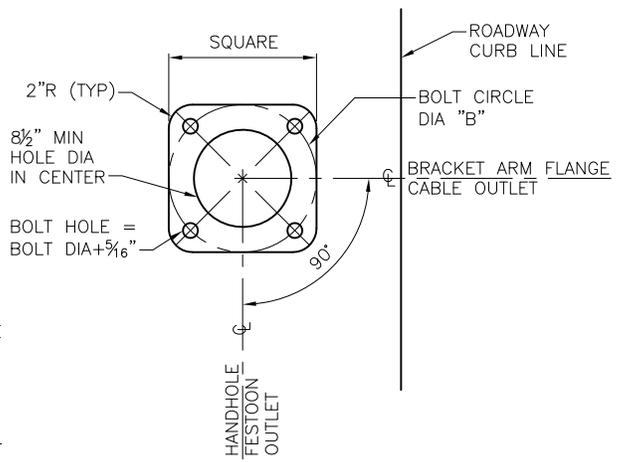
City of Seattle

NOT TO SCALE

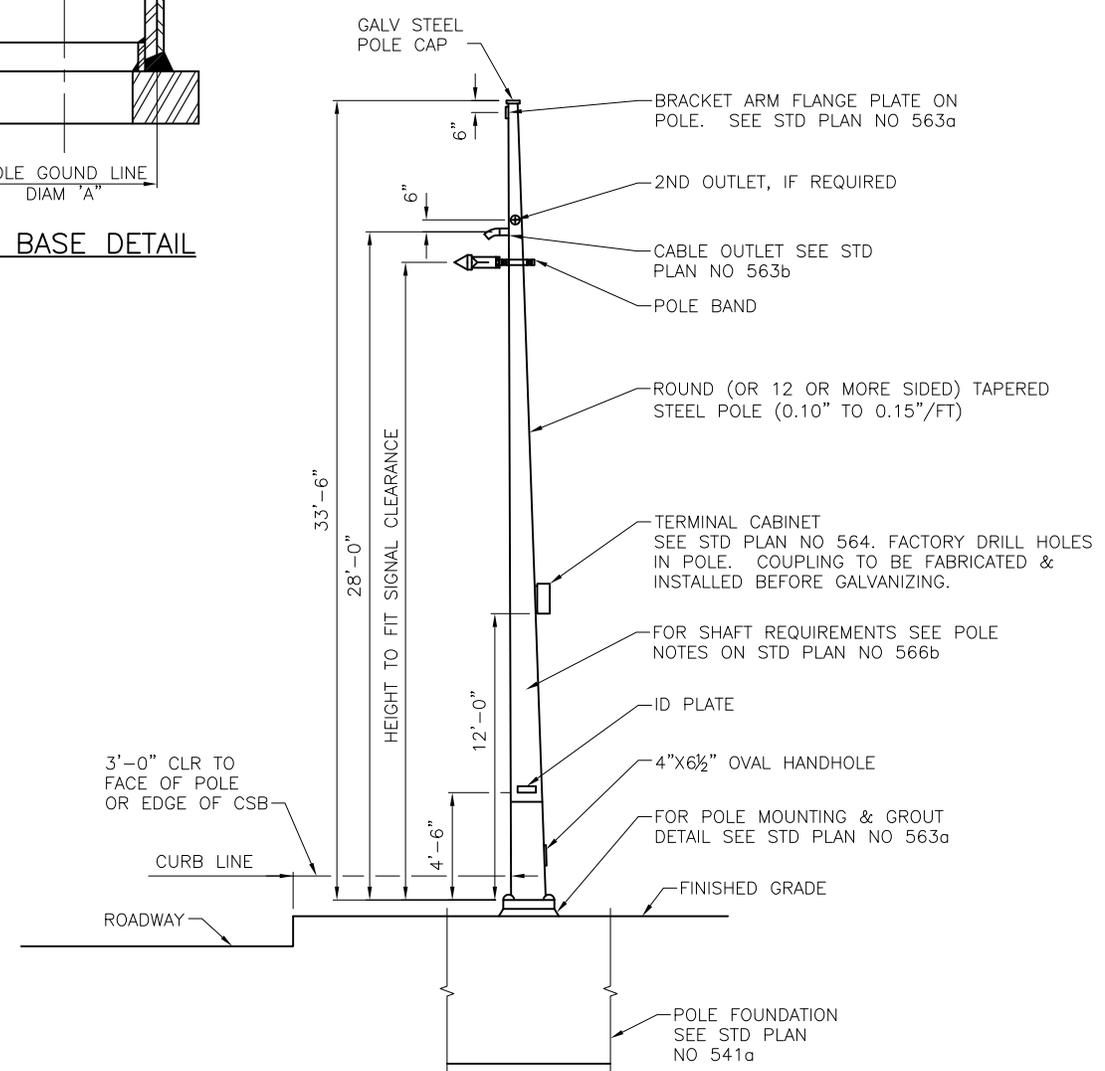
TERMINAL CABINET
POLE MOUNTING



POLE BASE DETAIL



POLE BASE PLATE



STRAIN POLE

REF STD SPEC SEC 8-32



City of Seattle

NOT TO SCALE

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

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"	2¼"	1¾"DIA X 72"
X	93	14"	12½"	2"X20"X20"	2"X23"X23"	20"	2⅝"	2"DIA X 72"
Z	164	15"	--	2½"X23"X23"	--	22"	2⅓"	2½"DIA X 72"

NOTES:

1. THE YIELD MOMENT MUST BE 2X THE DEAD LOAD MOMENT. THE ULTIMATE PLASTIC MOMENT MUST BE 2.5X THE DEAD LOAD MOMENT.
2. POLE SHAFT AND REINFORCING SLEEVE: ASTM A572 GRADE 50, 60 OR 65 (Fy=50, 60 OR 65 KSI RESPECTIVELY) OR ASTM A595 GRADE A OR B (Fy=55 OR 60 KSI RESPECTIVELY).
3. BASE PLATE AND HANDHOLE REINFORCING RIM: ASTM A36 OR ASTM A572 GRADE 42. BASE PLATE Fy≥0.65 POLE SHAFT Fy THE BASE PLATE THICKNESS MAY BE REDUCED BY ¼" IF ASTM A572 GRADE 42 STEEL IS USED.
4. REINFORCING SLEEVE MUST BE FABRICATED FROM THE SAME MATERIAL AND YIELD STRENGTH AS THE POLE SHAFT.
5. POLE SHAFTS MUST HAVE NO MORE THAN TWO LONGITUDINAL WELDS IN EACH PLY.
6. MINIMUM SHAFT WALL THICKNESS OF EACH PLY MUST BE 0.239" (3 GAUGE). POLE MUST HAVE A MAXIMUM OF TWO PLYS NOT INCLUDING THE ¼" REINFORCING SLEEVE.
7. MAXIMUM SILICON CONTENT IN STEEL MUST BE 0.04%. SEE STD SPEC SECTION 9-33.1(3) FOR GENERAL GALVANIZING REQUIREMENTS.
8. POLE DIAMETER FOR 12 OR MORE SIDED POLES MUST BE MEASURED FROM THE POINT TO POINT DIMENSION.
9. POLES MUST MEET DEFLECTION CRITERIA STATED IN STD SPEC SECTION 9-33.2(2) WITH THE DEAD LOAD APPLIED AT 25' ABOVE GROUND LINE.
10. POLE STRENGTH MUST MEET REQUIREMENTS OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (CURRENT EDITION).

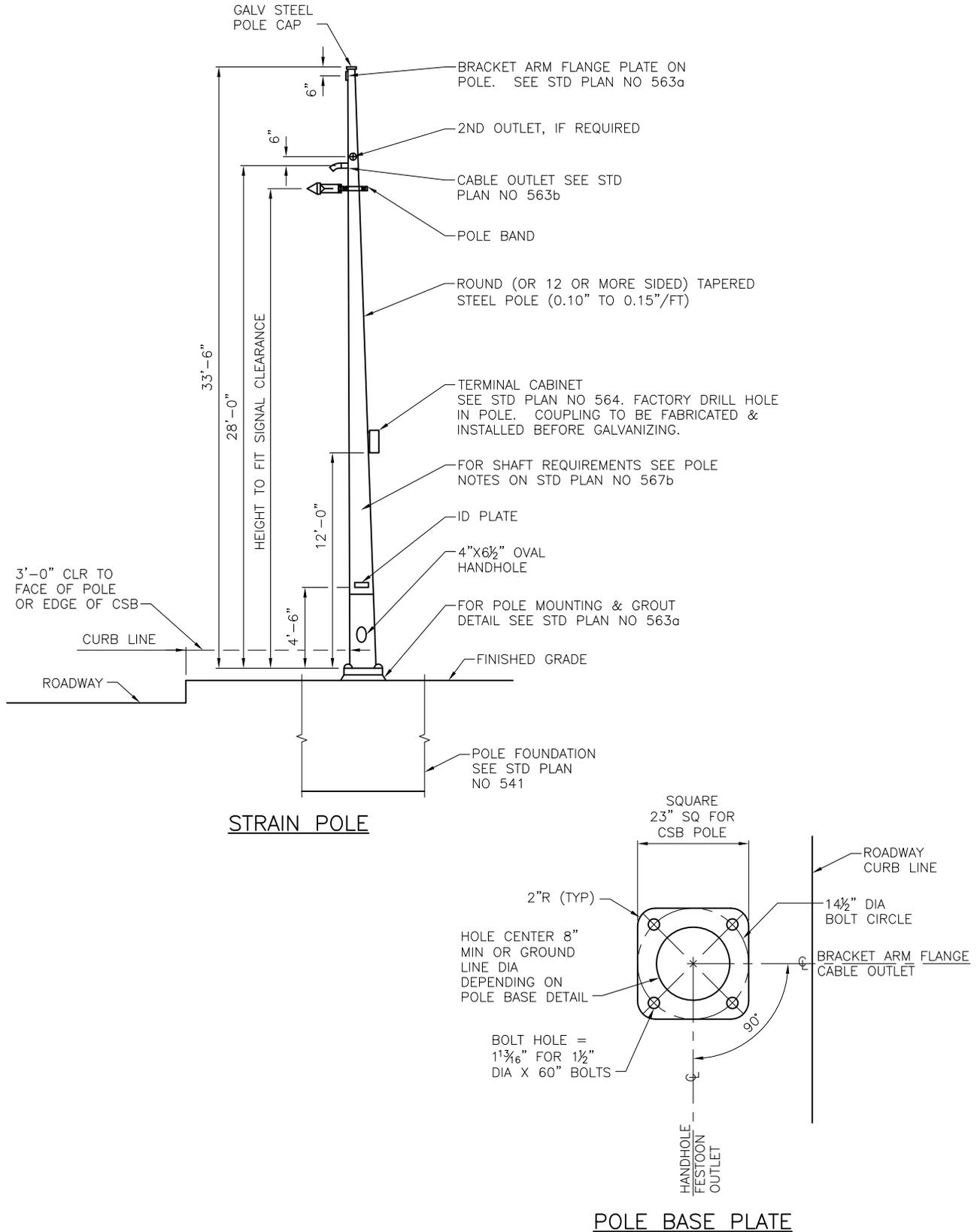
REF STD SPEC SEC 8-32, 9-33



City of Seattle

NOT TO SCALE

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



REF STD SPEC SEC 8-32



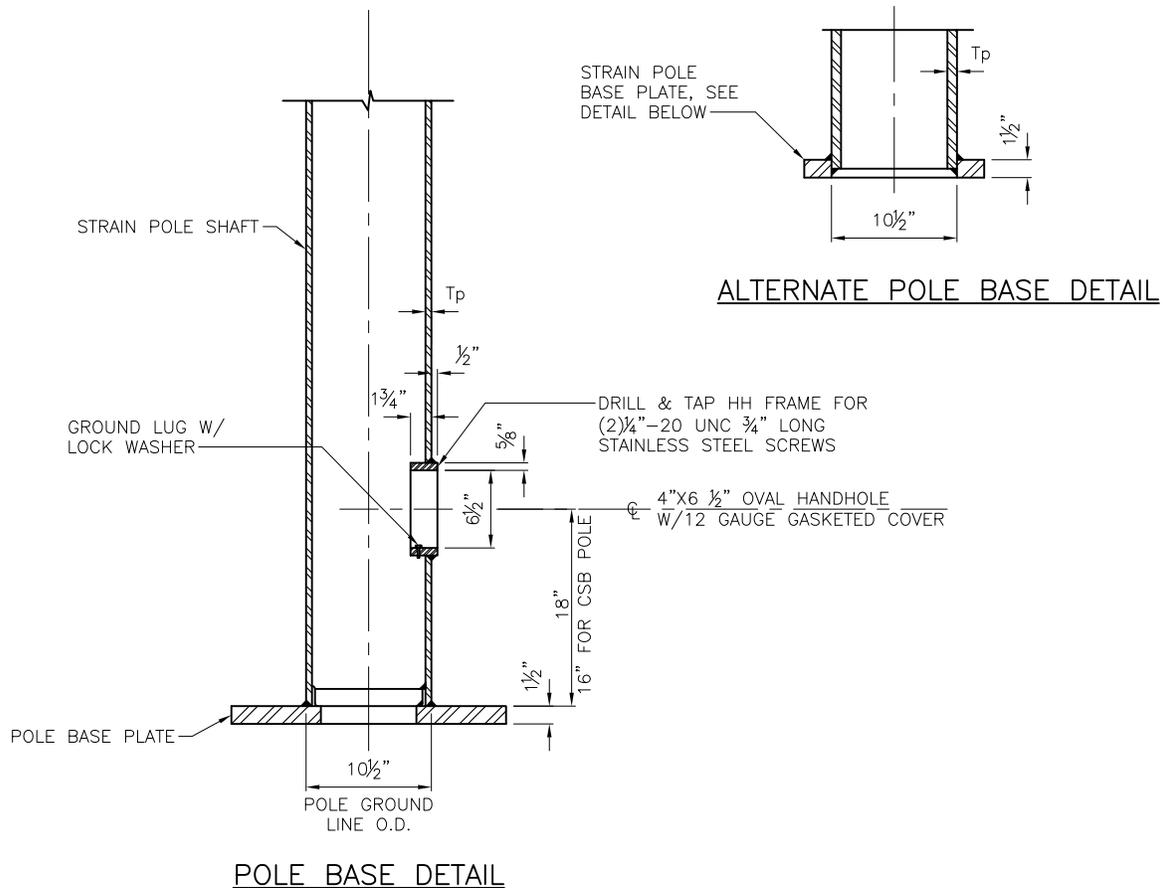
City of Seattle

NOT TO SCALE

TYPE T STRAIN POLE DETAILS
TRAFFIC SIGNAL ONLY

NOTES:

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



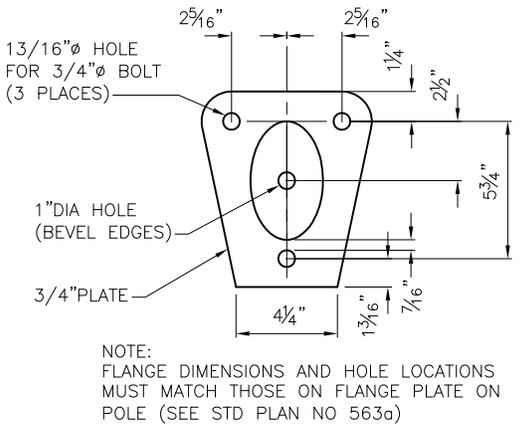
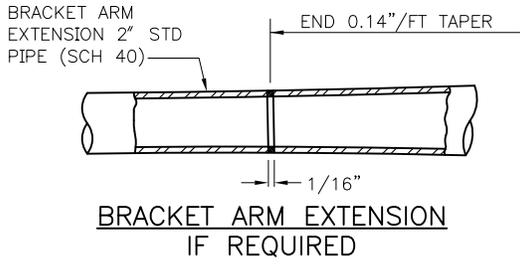
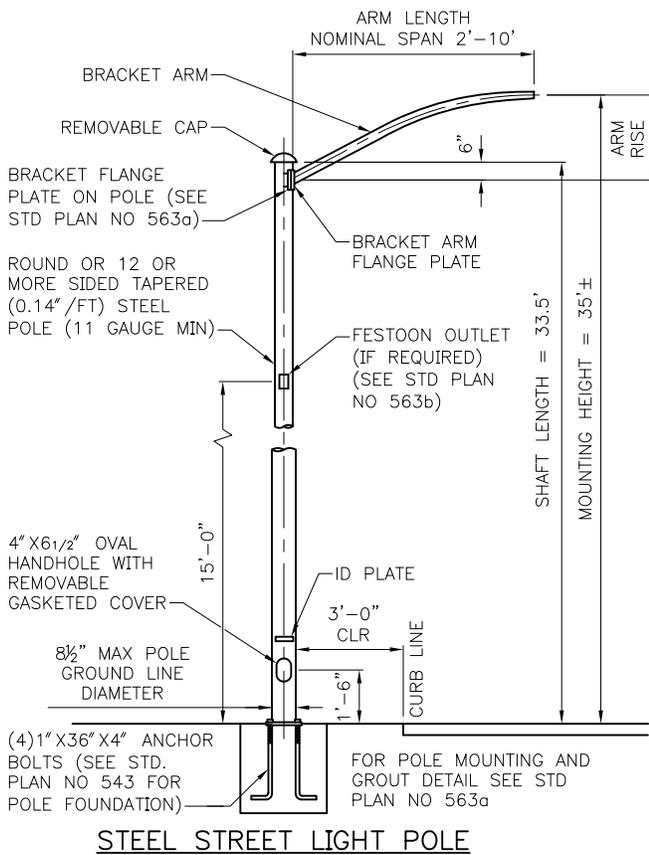
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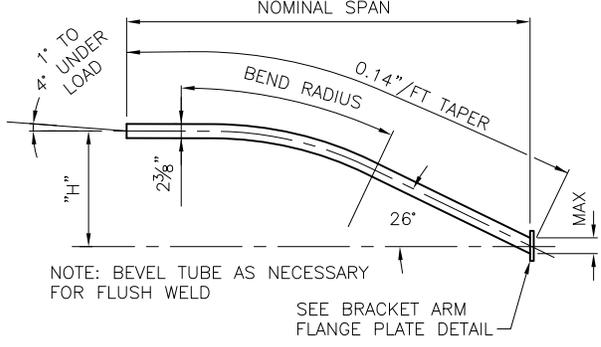
City of Seattle

NOT TO SCALE

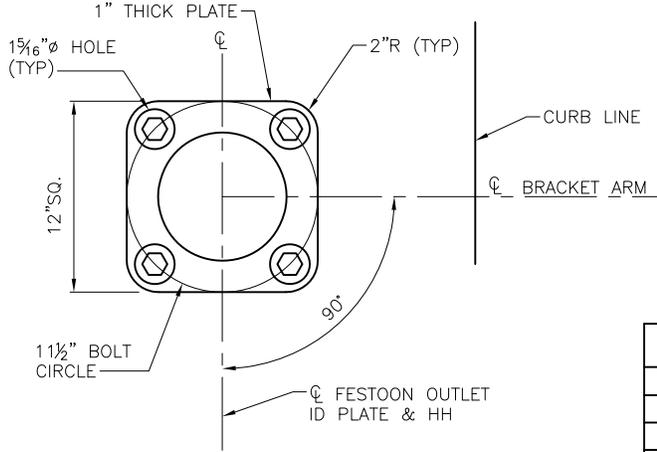
TYPE T STRAIN POLE DETAILS
TRAFFIC SIGNAL ONLY



BRACKET ARM FLANGE PLATE



2' THRU 10' BRACKET ARMS



POLE BASE PLATE

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

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

NOTE:

1. ALL OTHER ARM LENGTHS REQUIRE SCL REVIEW AND APPROVAL

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

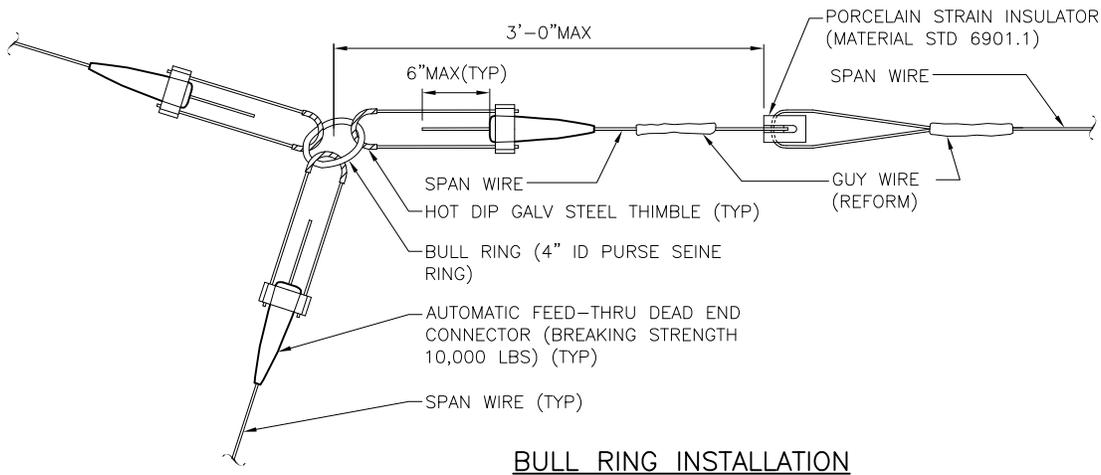
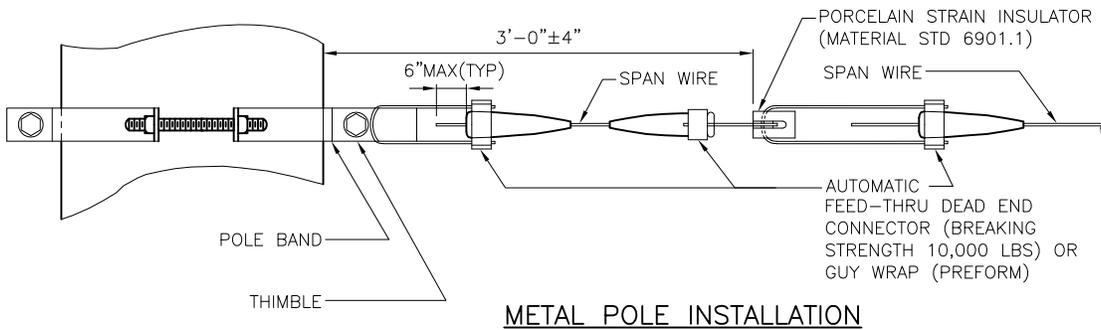
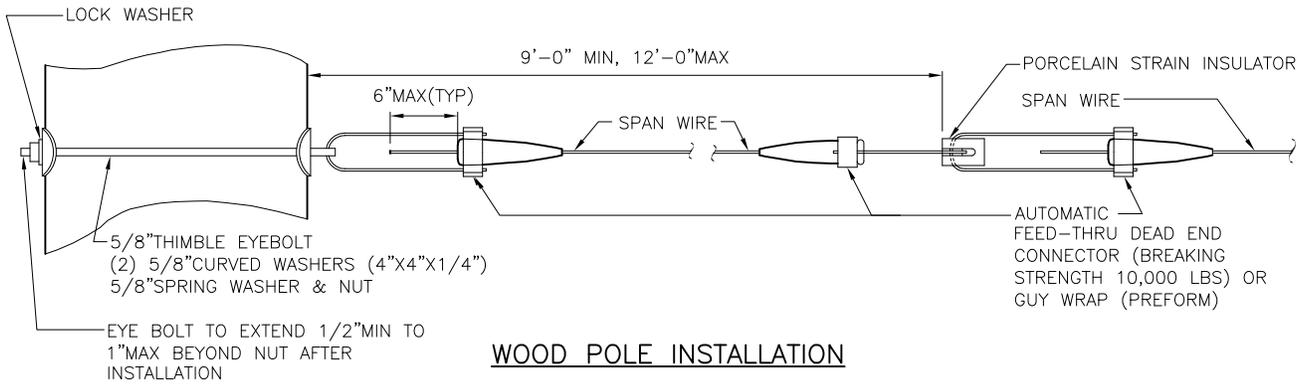
REF STD SPEC SEC 8-32



City of Seattle

NOT TO SCALE

STEEL STREET LIGHT POLE WITH BRACKET ARM



NOTES:

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

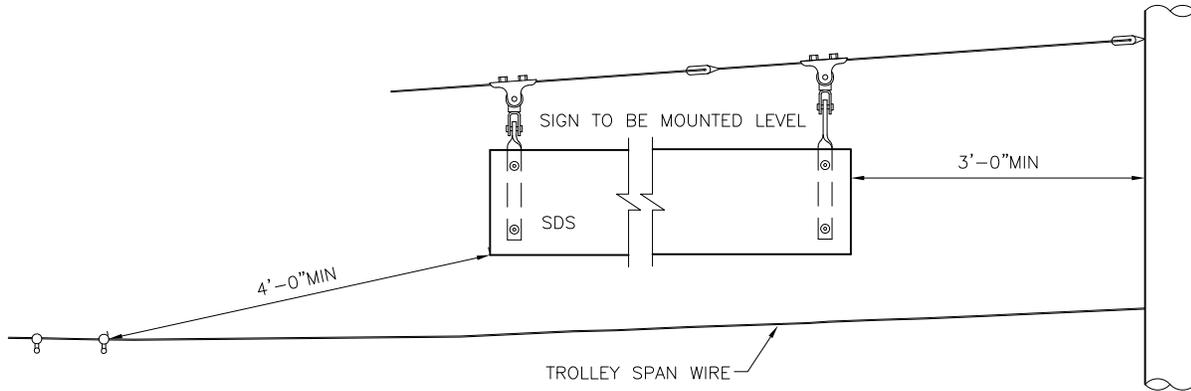
REF STD SPEC SEC 8-21 & SCL MATERIAL STANDARD 6901.1



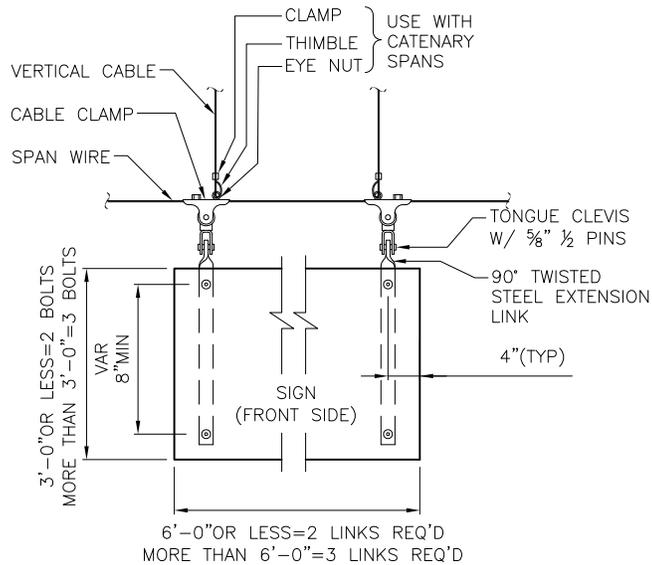
City of Seattle

NOT TO SCALE

SPAN WIRE INSTALLATION



STREET DESIGNATION SIGN



SPAN WIRE MOUNTED SIGN

NOTES:

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

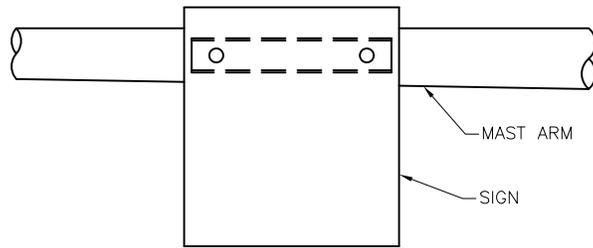
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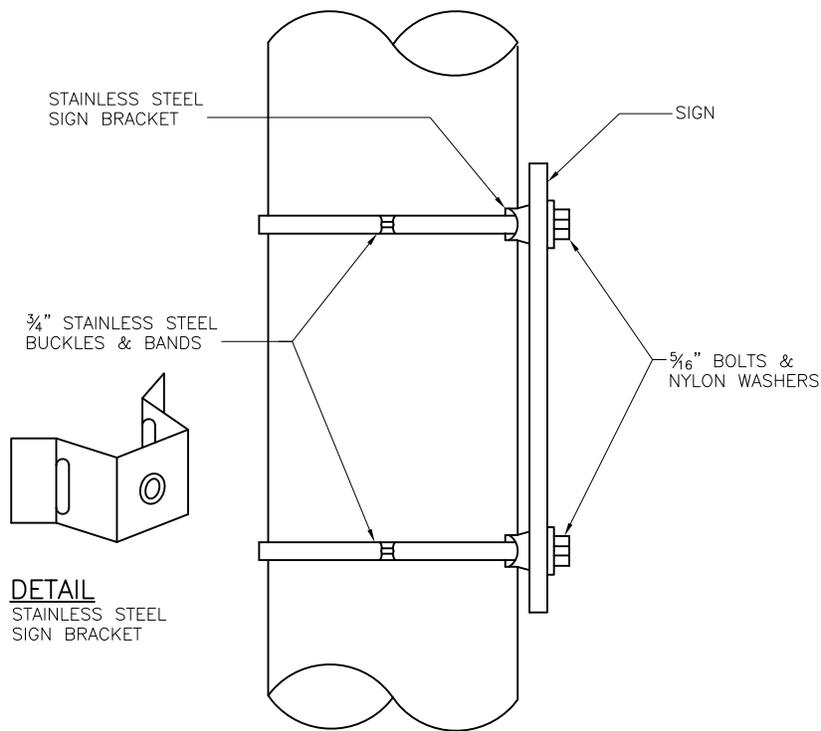
City of Seattle

NOT TO SCALE

OVERHEAD SIGNS
SPANWIRE MOUNTED



SIGN MOUNTING ON MAST ARM



TEMPORARY SIGN MOUNTING ON METAL POLE

NOTES:

1. EXCEPT AS NOTED OTHERWISE, ALL HARDWARE MUST BE STAINLESS STEEL.
2. MOUNTING OF TRAFFIC SIGNS MUST BE AS FOLLOWS: ON METAL POLE THINNER THAN 7 GAUGE, USE 3/8" STAINLESS STEEL RIVNUTS ON METAL POLES 7 GAUGE OR THICKER, FOR 3/8" BOLT (STAINLESS STEEL RIVNUT OPTIONAL) ON POLES FILLED WITH OR MADE FROM CONCRETE, USE 3/8"x21/2"MIN STUD BOLT ANCHORS WITH HEX NUT.
3. FOR SIGN FEATURE, CONTACT TRAFFIC ENGINEER.

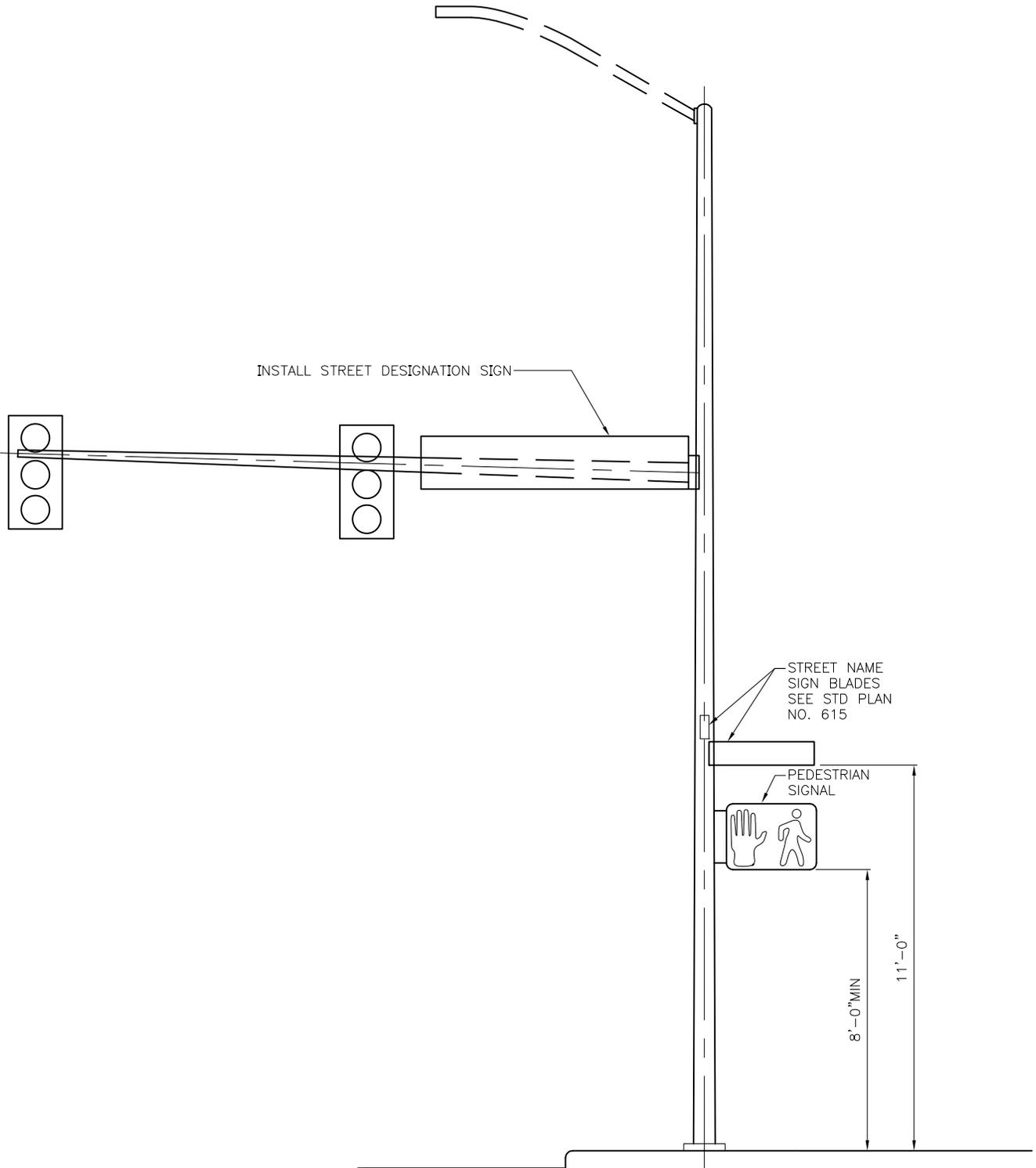
REF STD SPEC SEC 8-21



City of Seattle

NOT TO SCALE

**SIGN INSTALLATION
(NON-SPANWIRE MOUNTING)**



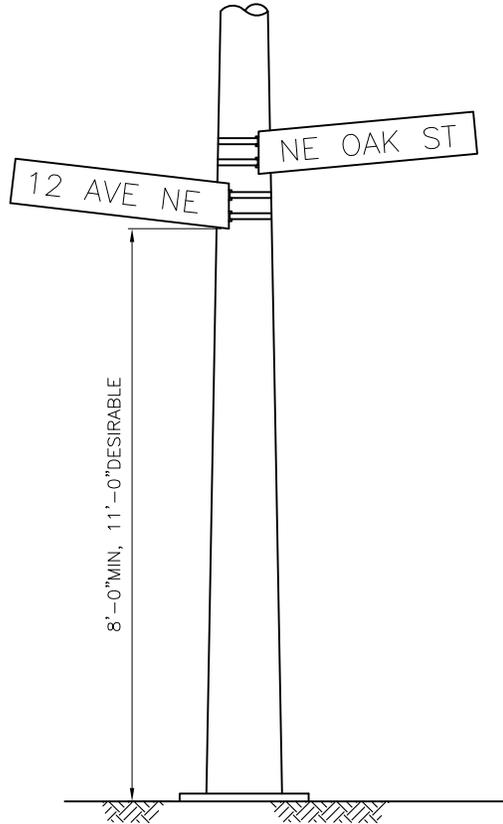
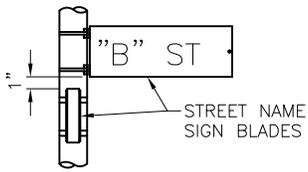
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City of Seattle

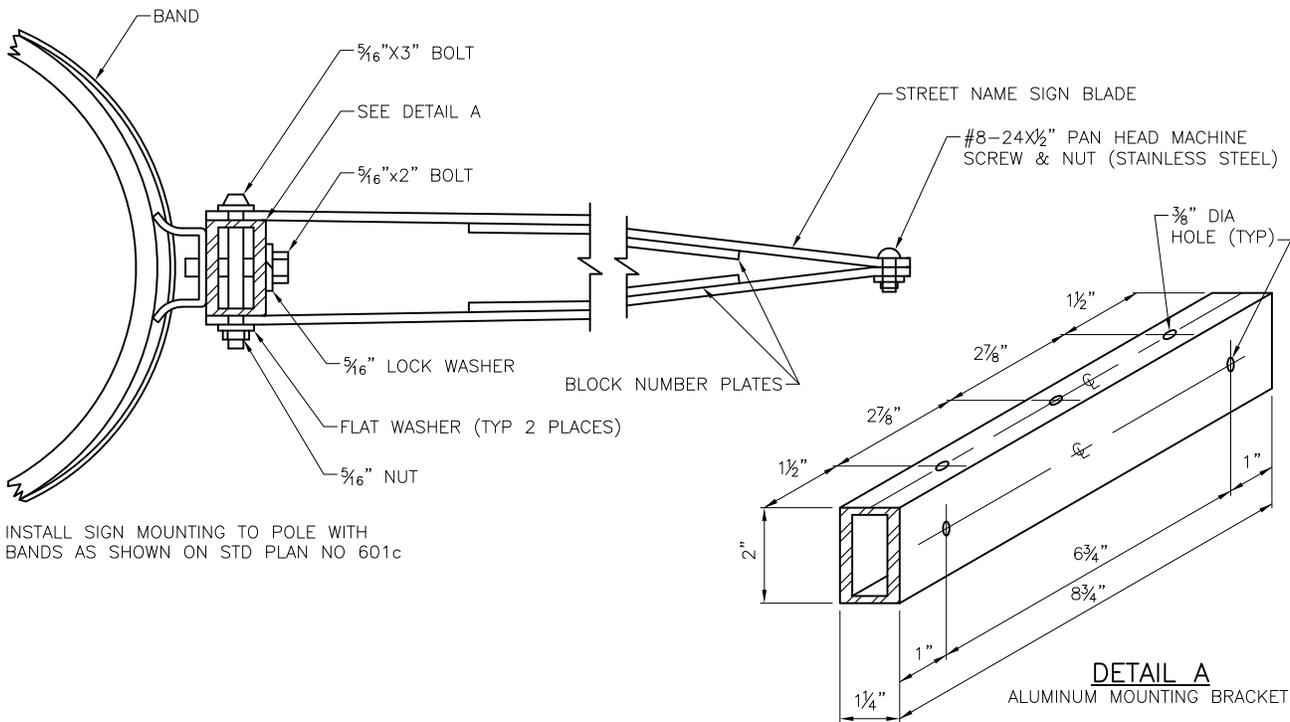
NOT TO SCALE

STANDARD SIGN INSTALLATION
STEEL POLES



NOTES:

1. STAGGER SNS BLADES WITH THE "AVENUE" DESIGNATION BLADE BELOW THE "STREET" DESIGNATION BLADE
2. SNS MUST 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

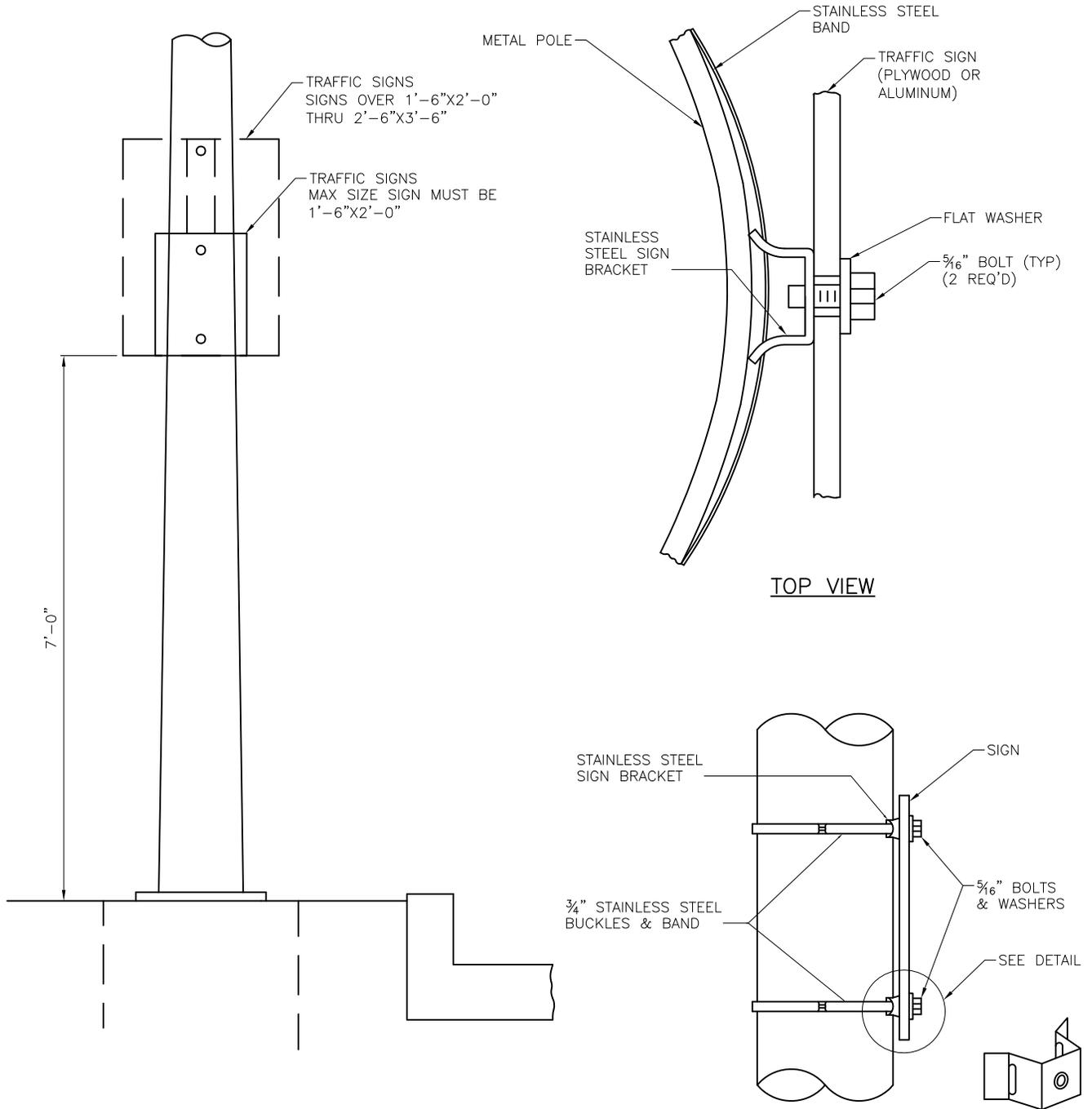
REF STD SPEC SEC 8-21



City of Seattle

NOT TO SCALE

SNS BRACKET FOR STEEL POLES



TRAFFIC SIGNS
SIGNS OVER 1'-6"X2'-0"
THRU 2'-6"X3'-6"

TRAFFIC SIGNS
MAX SIZE SIGN MUST BE
1'-6"X2'-0"

METAL POLE

STAINLESS STEEL
BAND

TRAFFIC SIGN
(PLYWOOD OR
ALUMINUM)

FLAT WASHER

STAINLESS
STEEL SIGN
BRACKET

5/16" BOLT (TYP)
(2 REQ'D)

TOP VIEW

STAINLESS STEEL
SIGN BRACKET

SIGN

3/4" STAINLESS STEEL
BUCKLES & BAND

5/16" BOLTS
& WASHERS

SEE DETAIL

SIDE VIEW

DETAIL

STAINLESS STEEL
SIGN BRACKET

NOTES:

1. ON POLES FILLED WITH OR MADE FROM CONCRETE USE 5/16"x2 1/2" 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.

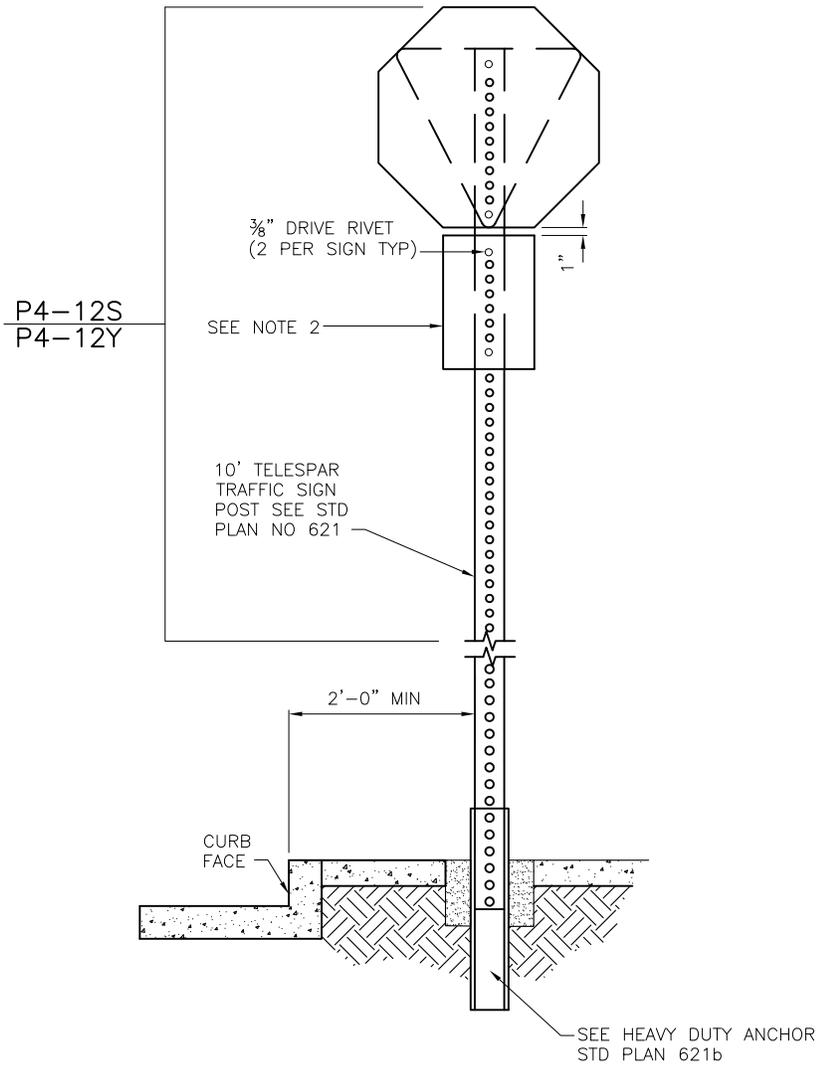
REF STD SPEC SEC 8-21



City of Seattle

NOT TO SCALE

TRAFFIC SIGN MOUNTING
ON METAL POLES



POST ANCHOR INSTALLATIONS

NOTE:

CONTACT SEATTLE DEPARTMENT OF TRANSPORTATION (684-5087) FOR DETAILS REGARDING SIGN MESSAGE AND FOUNDATION.

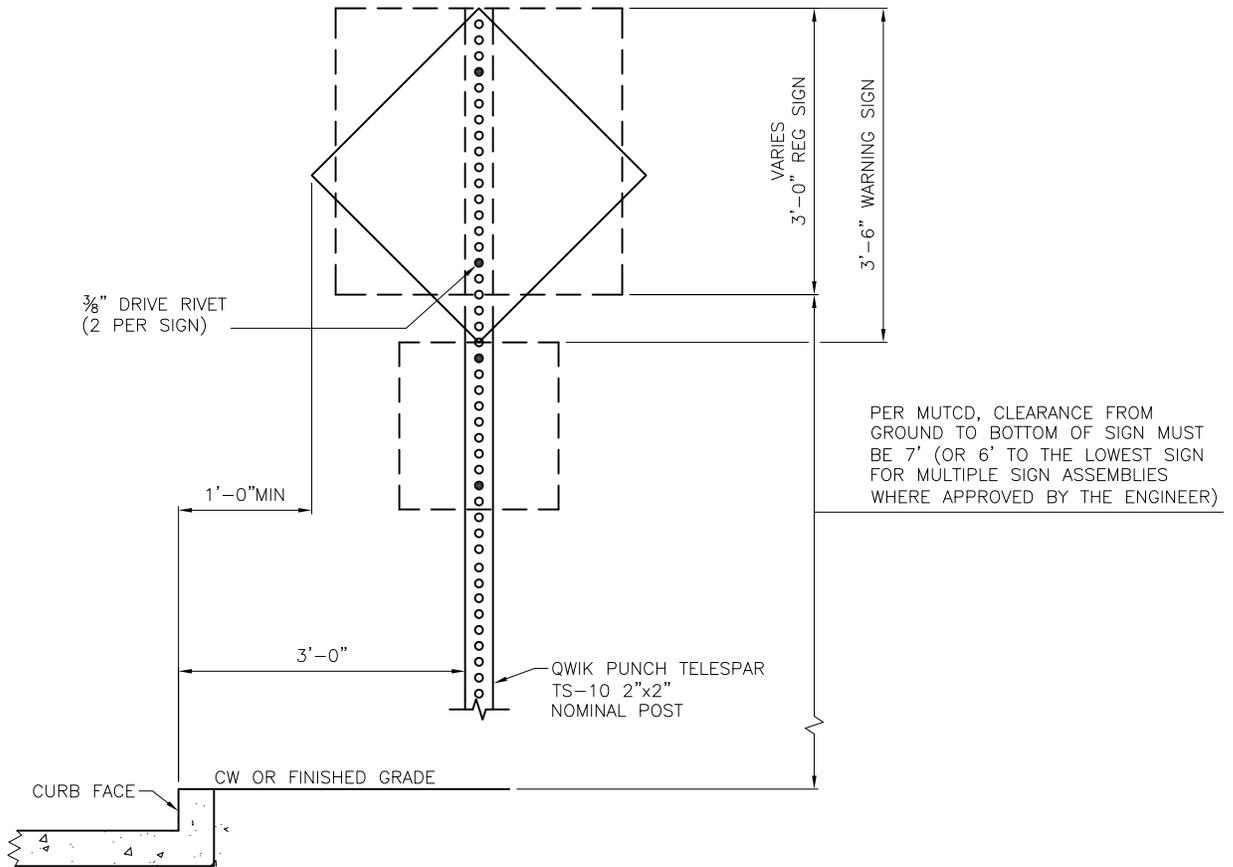
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City of Seattle

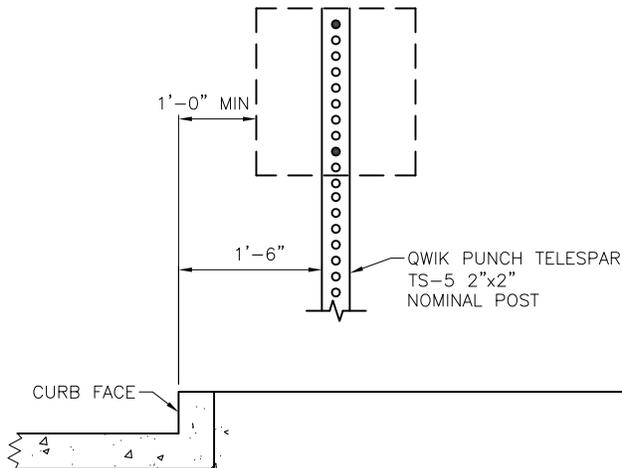
NOT TO SCALE

STOP AND YIELD SIGN POST AND ANCHOR INSTALLATION



TS-10

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



TS-5

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

PER MUTCD, CLEARANCE FROM GROUND TO BOTTOM OF SIGN MUST BE 7' (OR 6' TO THE LOWEST SIGN FOR MULTIPLE SIGN ASSEMBLIES WHERE APPROVED BY THE ENGINEER)

NOTES:

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

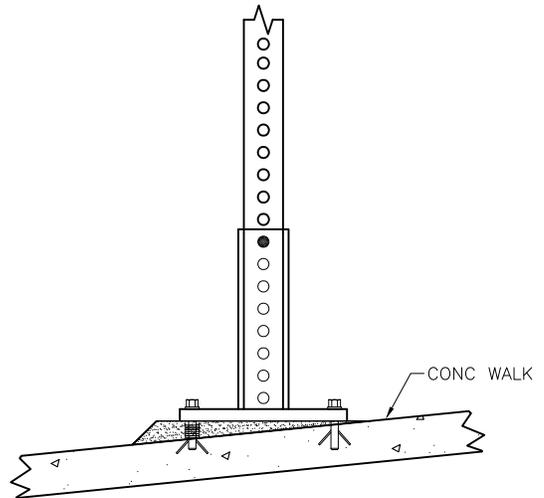
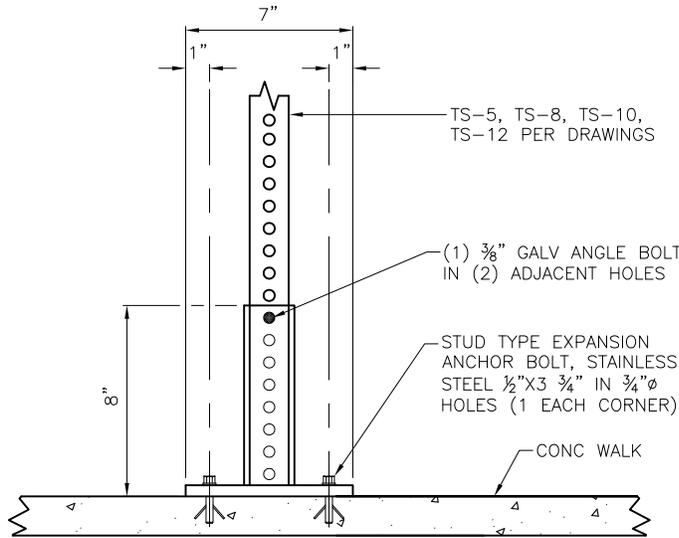
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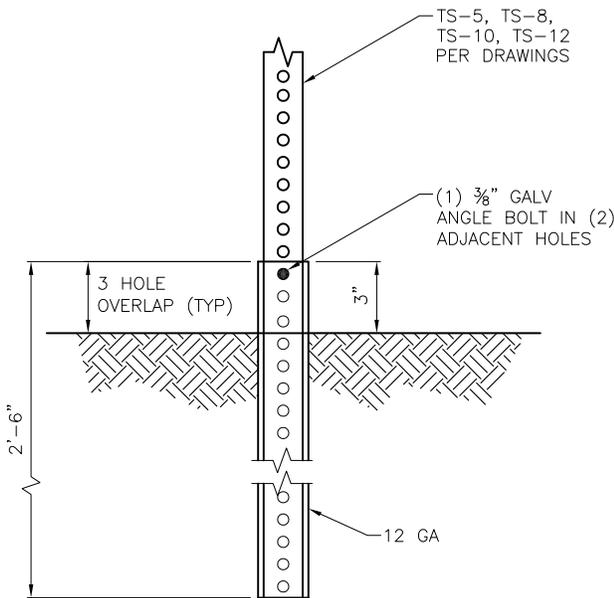
City of Seattle

NOT TO SCALE

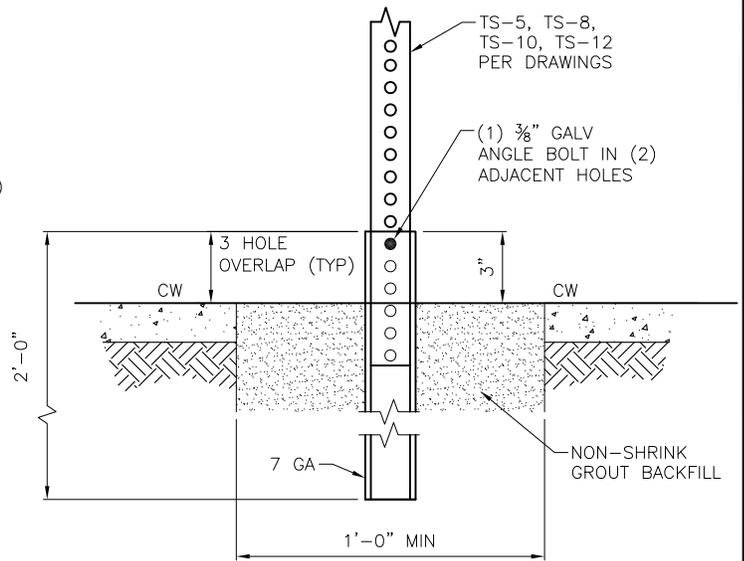
WARNING AND REGULATORY SIGN POST



SURFACE MOUNT



LIGHT DUTY ANCHOR



HEAVY DUTY ANCHOR

NOTES:

1. 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.
2. USE CONCRETE FOOTINGS FOR ALL SIGNS LARGER THAN 96 SQUARE INCHES.

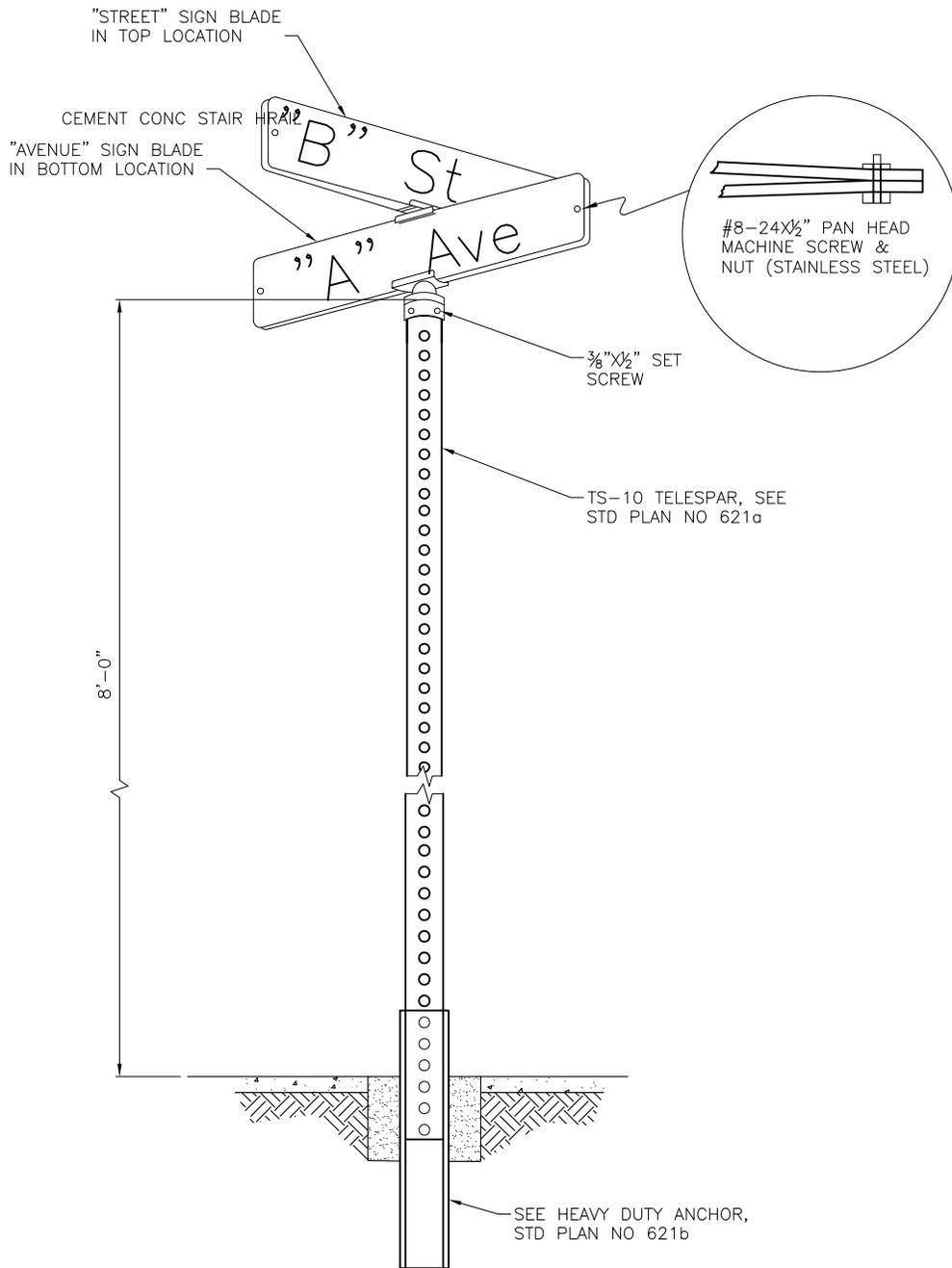
REF STD SPEC SEC 8-21



City of Seattle

NOT TO SCALE

**WARNING AND REGULATORY
SIGN POST ANCHOR
INSTALLATIONS**



NOTES:

1. SNS BLADE MUST BE INSTALLED PARALLEL TO CORRESPONDING STREET
2. INSTALLATION OF SNS ON ANY OTHER METAL POLE MUST REQUIRE REVIEW AND APPROVAL BY THE ENGINEER
3. SNS/SP RELOCATION: OLD CONCRETE MUST BE REMOVED AND NEW CONCRETE BASE MUST BE CONSTRUCTED
4. CITY OF SEATTLE MUST FABRICATE SNS BLADES AND SUPPLY MOUNTING HARDWARE AT PROJECT OR CONTRACTOR EXPENSE

REF STD SPEC SEC 8-21



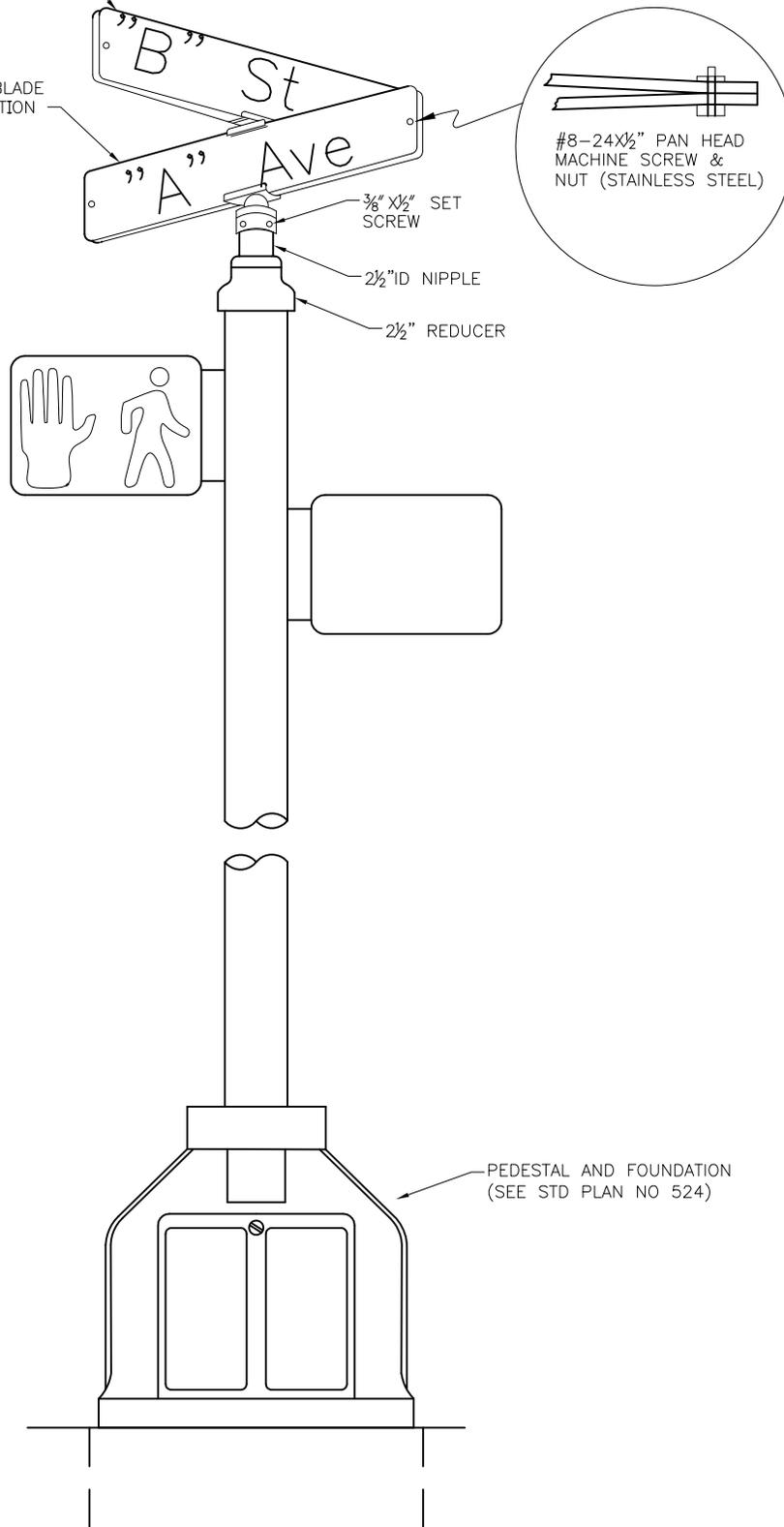
City of Seattle

NOT TO SCALE

STREET NAME SIGN
INSTALLATION

"STREET" SIGN BLADE
IN TOP LOCATION

"AVENUE" SIGN BLADE
IN BOTTOM LOCATION



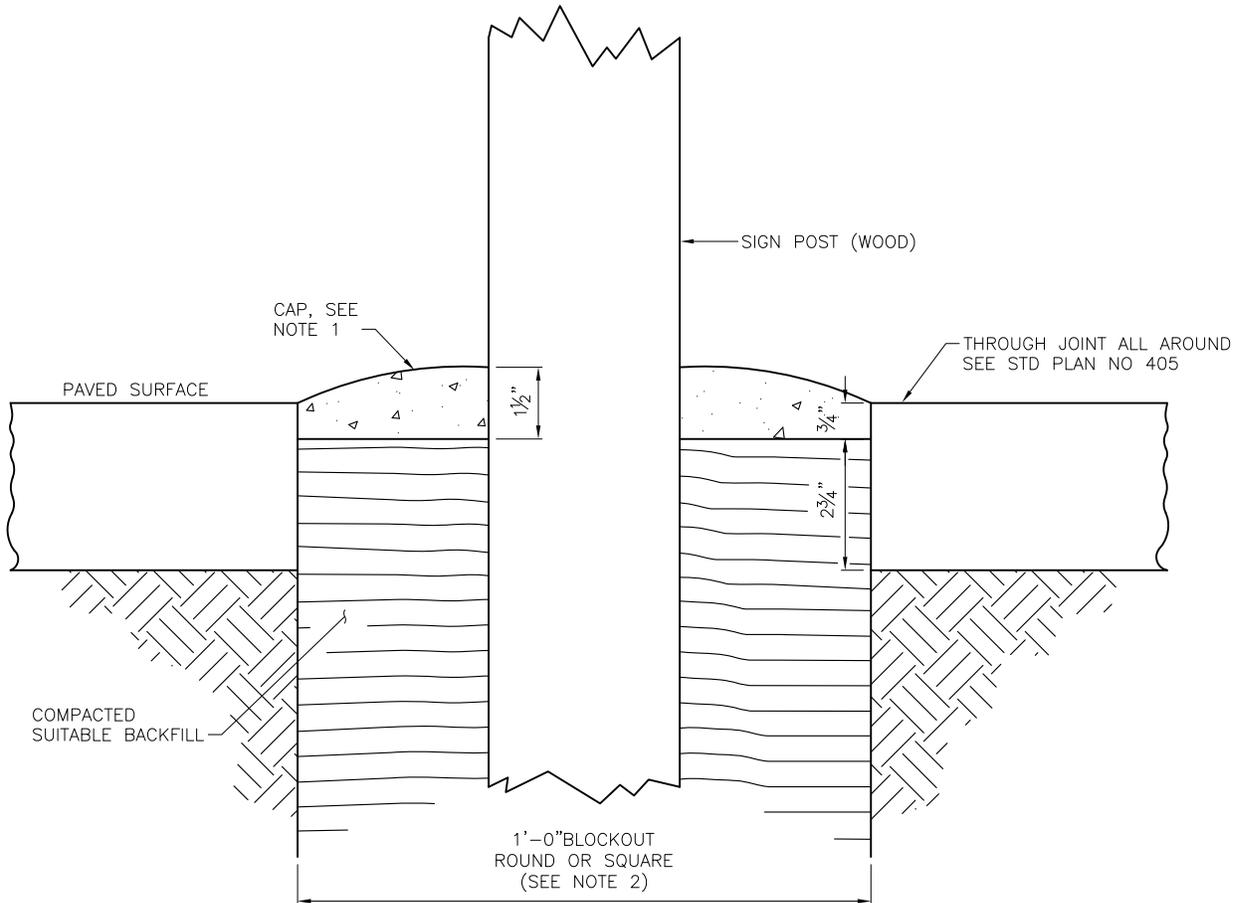
REF STD SPEC SEC 8-21



City of Seattle

NOT TO SCALE

STREET NAME SIGN
PEDESTAL INSTALLATION



NOTES:

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

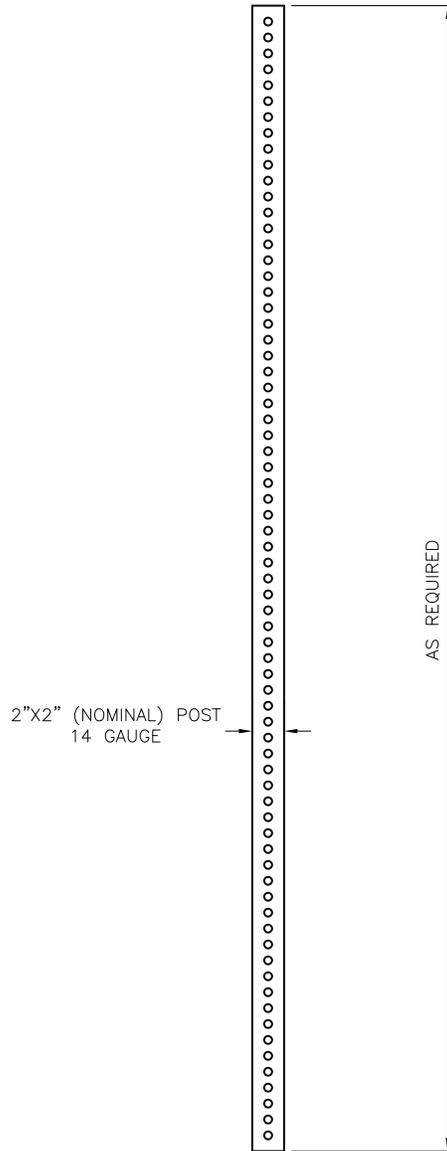
REF STD SPEC SEC 8-21



City of Seattle

NOT TO SCALE

POST CAP



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

NOTES:

- 1. SEE STD PLANS NO 620 & 621

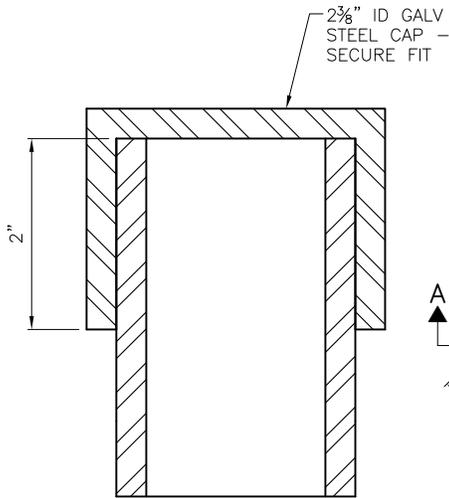
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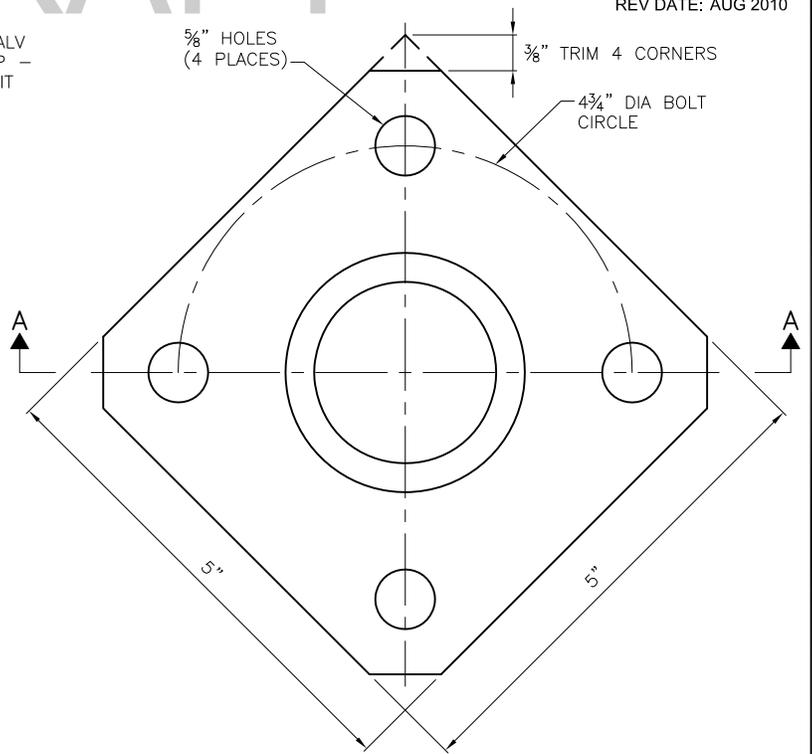
City of Seattle

NOT TO SCALE

TRAFFIC SIGN POSTS

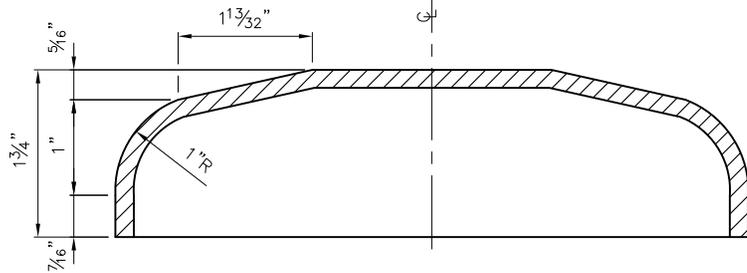
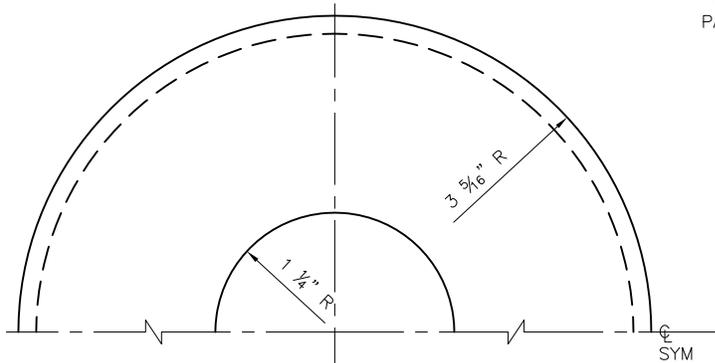


METER POST CAP
(TO BE USED W/ SIGN INSTALLATION)

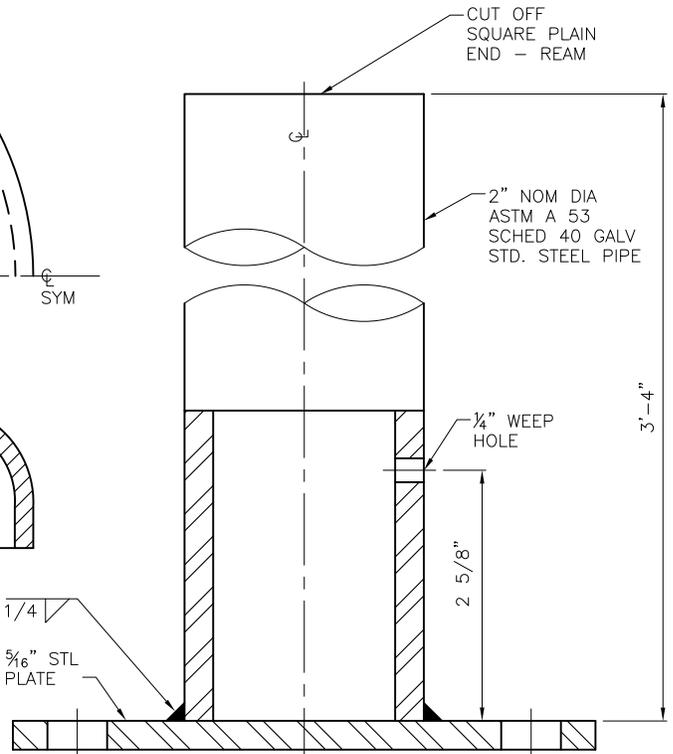


METER POST

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

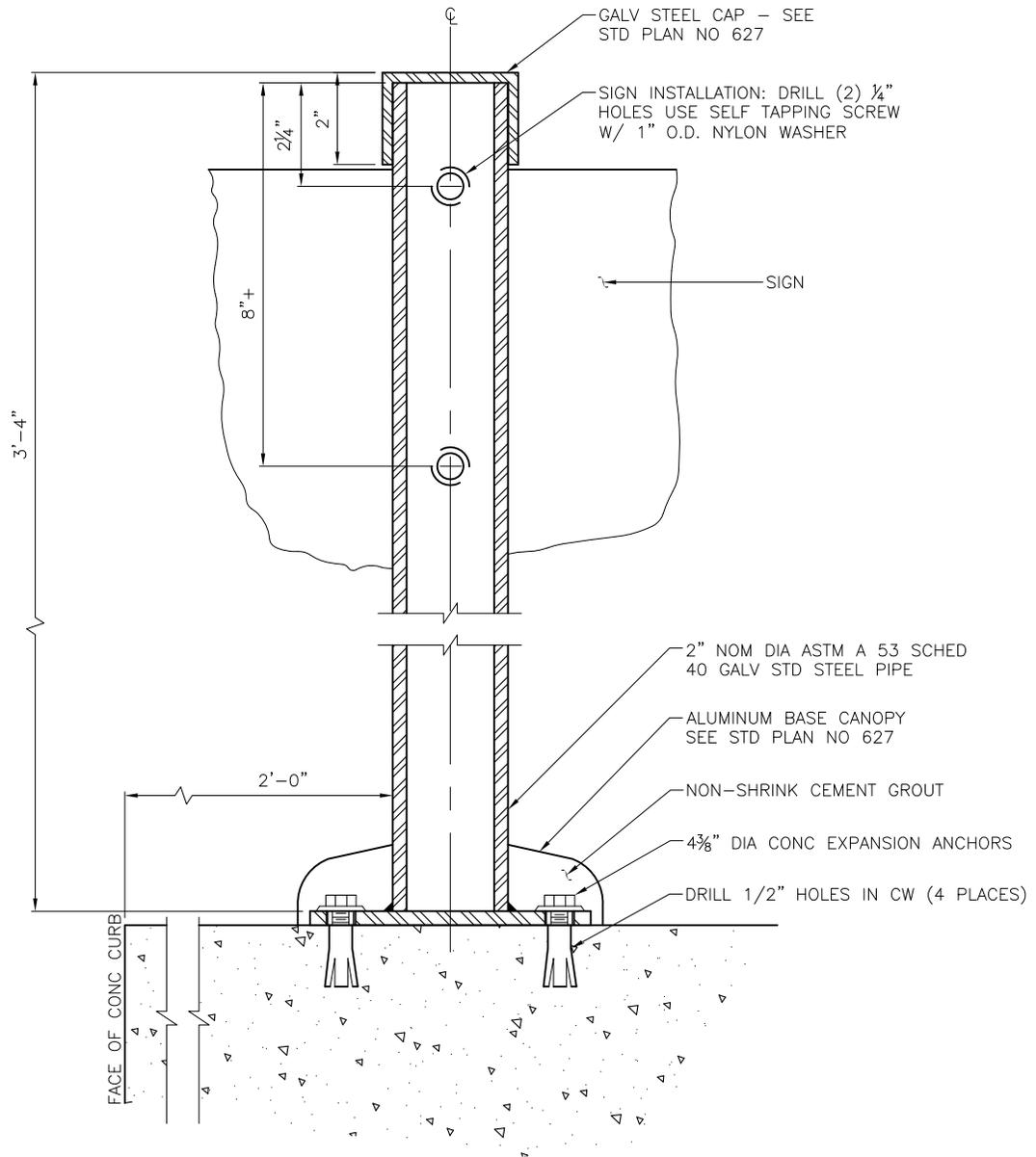
REF STD SPEC SEC 8-21



City of Seattle

NOT TO SCALE

PARKING METER POST & ACCESSORIES



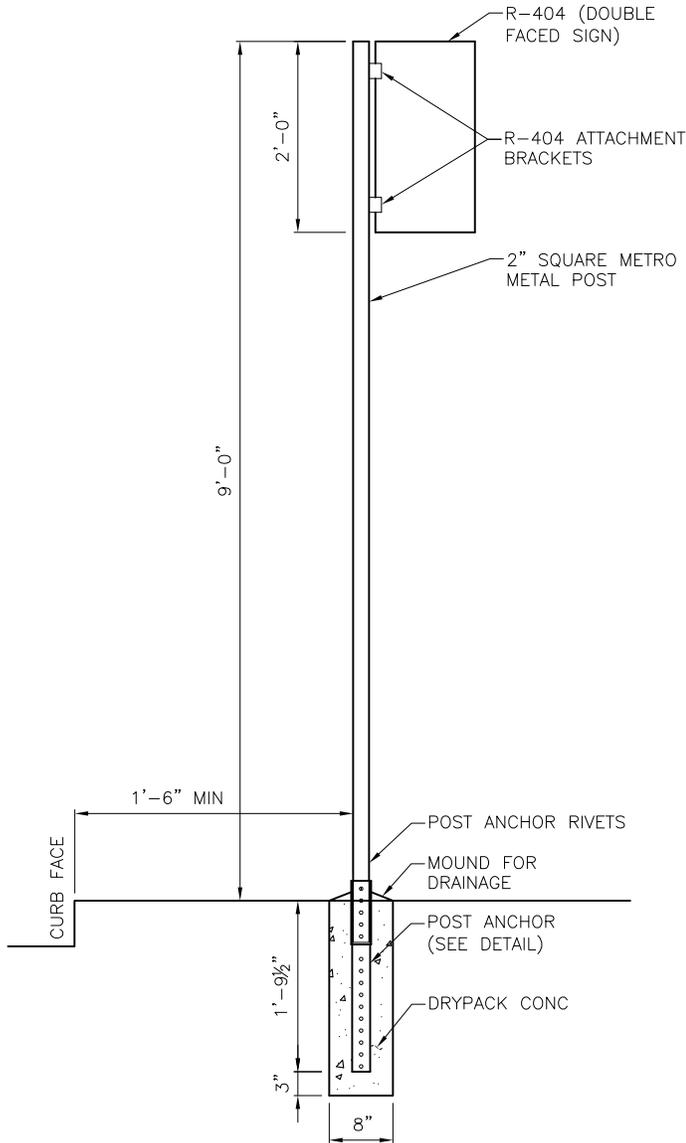
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City of Seattle

NOT TO SCALE

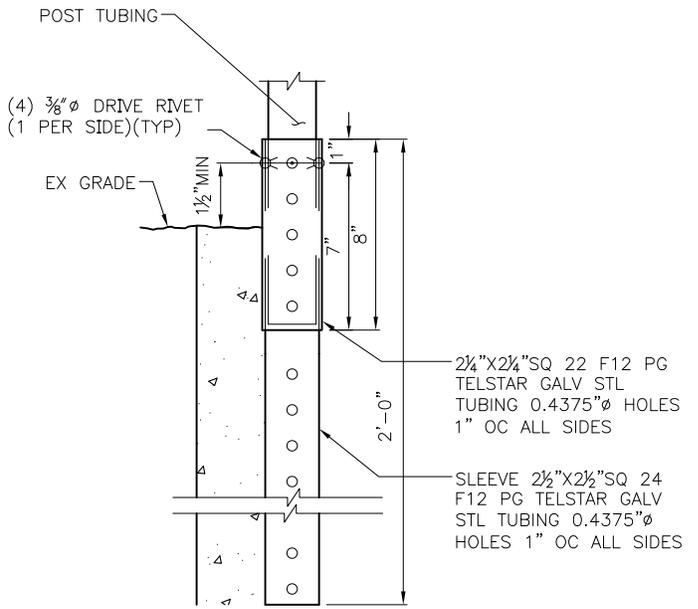
SURFACE MOUNT METER
POST INSTALLATION DETAIL



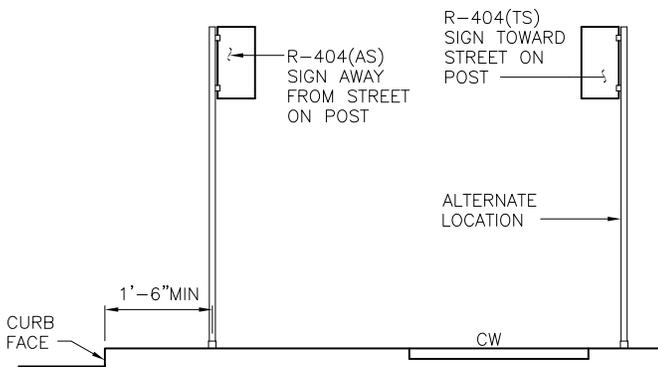
DIRECT BURIAL INSTALLATION

NOTES:

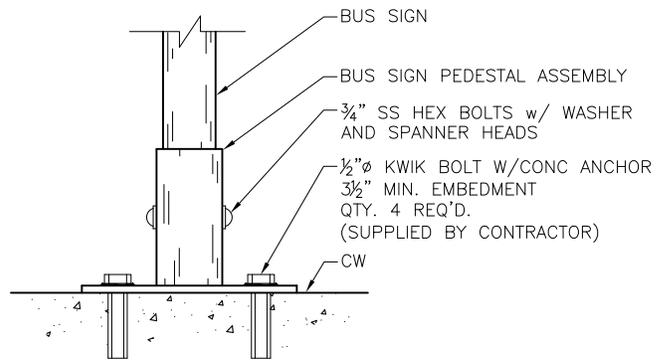
1. POST ANCHOR RIVETS MUST BE 1/2" ABOVE GROUND LEVEL
2. ATTACHMENT BRACKETS MUST FACE AWAY FROM STREET AS WHEN POST IS LOCATED 3'-0" FROM EDGE OF CURB. ATTACHMENT BRACKETS MUST FACE TOWARDS STREET (TS) WHEN POST IS LOCATED AT BACK SIDE OF SIDEWALK
3. FOR POST RELOCATIONS, OLD CONCRETE MUST BE REMOVED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



POST ANCHOR DETAIL



SIGN LOCATION DETAIL



SURFACE MOUNT INSTALLATION

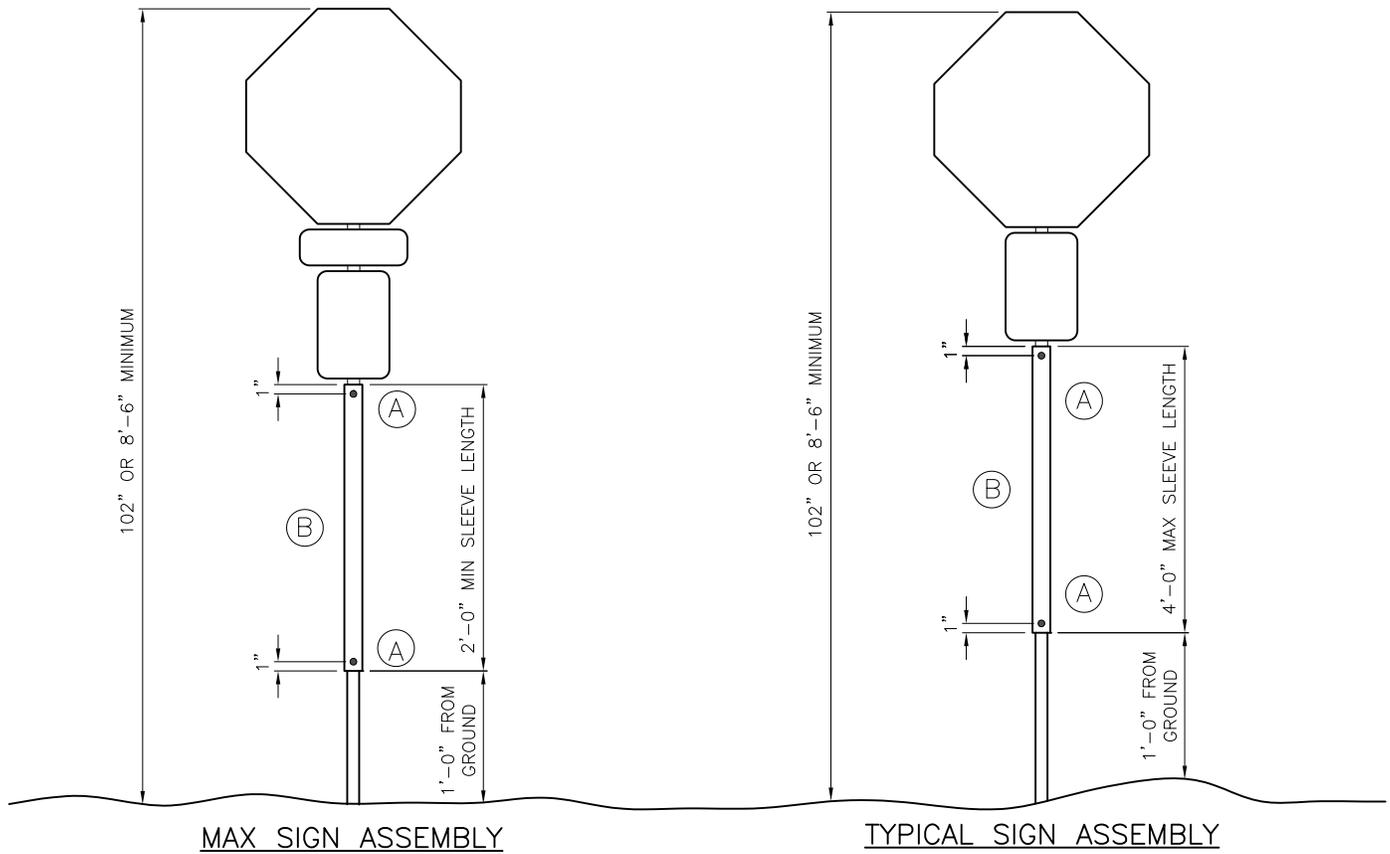
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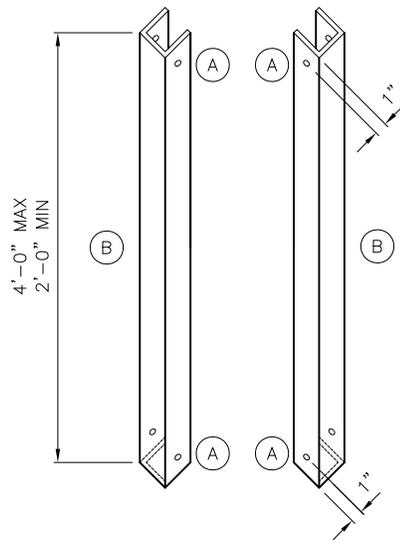
City of Seattle

NOT TO SCALE

METRO BUS ZONE SIGN INSTALLATION



ELEVATIONS



DETAILS

- (A) STEEL SELF-TAPPING #10X $\frac{1}{2}$ " WITH HEX WASHER HEAD ZINC PLATED
- (B) FLOURESCENT YELLOW GREEN OR RED AND WHITE SLEEVE

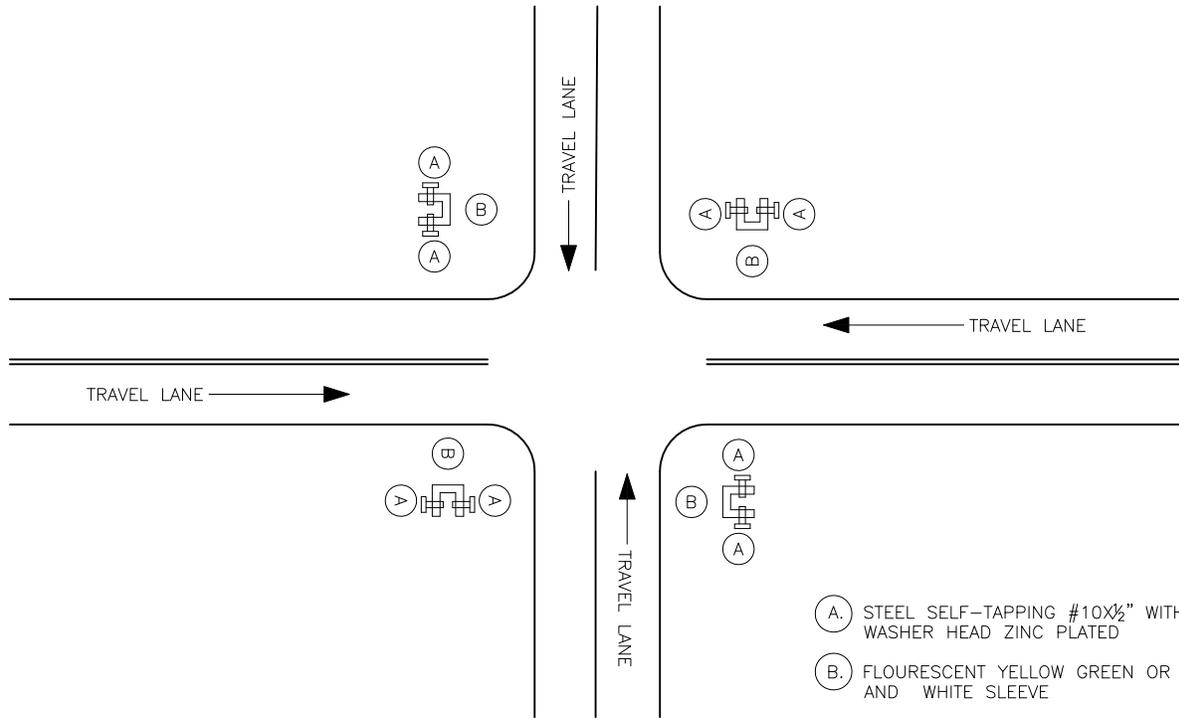
REF STD SPEC SEC



City of Seattle

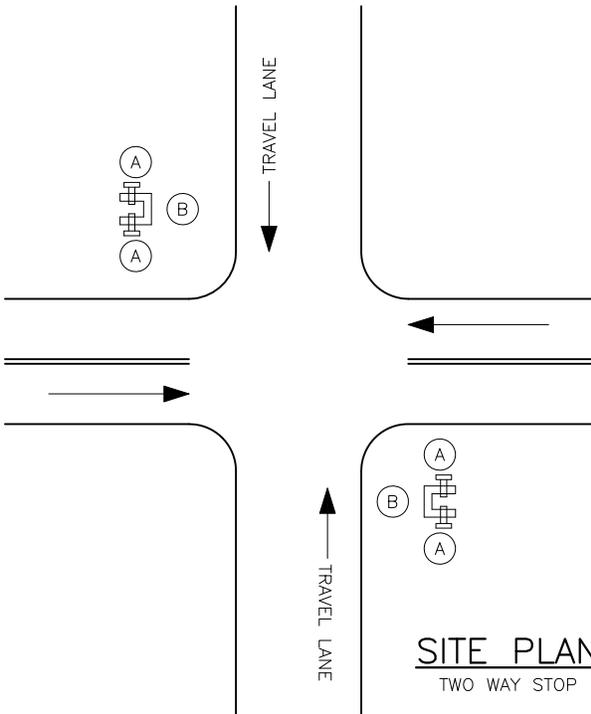
NOT TO SCALE

POST SLEEVE INSTALLATION
ELEVATION AND DETAIL PLAN

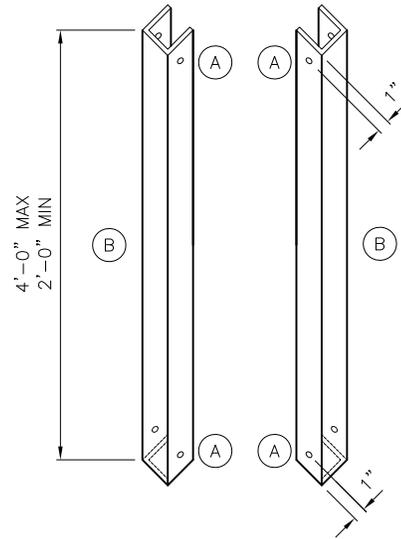


- (A) STEEL SELF-TAPPING #10X $\frac{1}{2}$ " WITH HEX WASHER HEAD ZINC PLATED
- (B) FLOURESCENT YELLOW GREEN OR RED AND WHITE SLEEVE

SITE PLAN
ALL WAY STOP



SITE PLAN
TWO WAY STOP



DETAILS

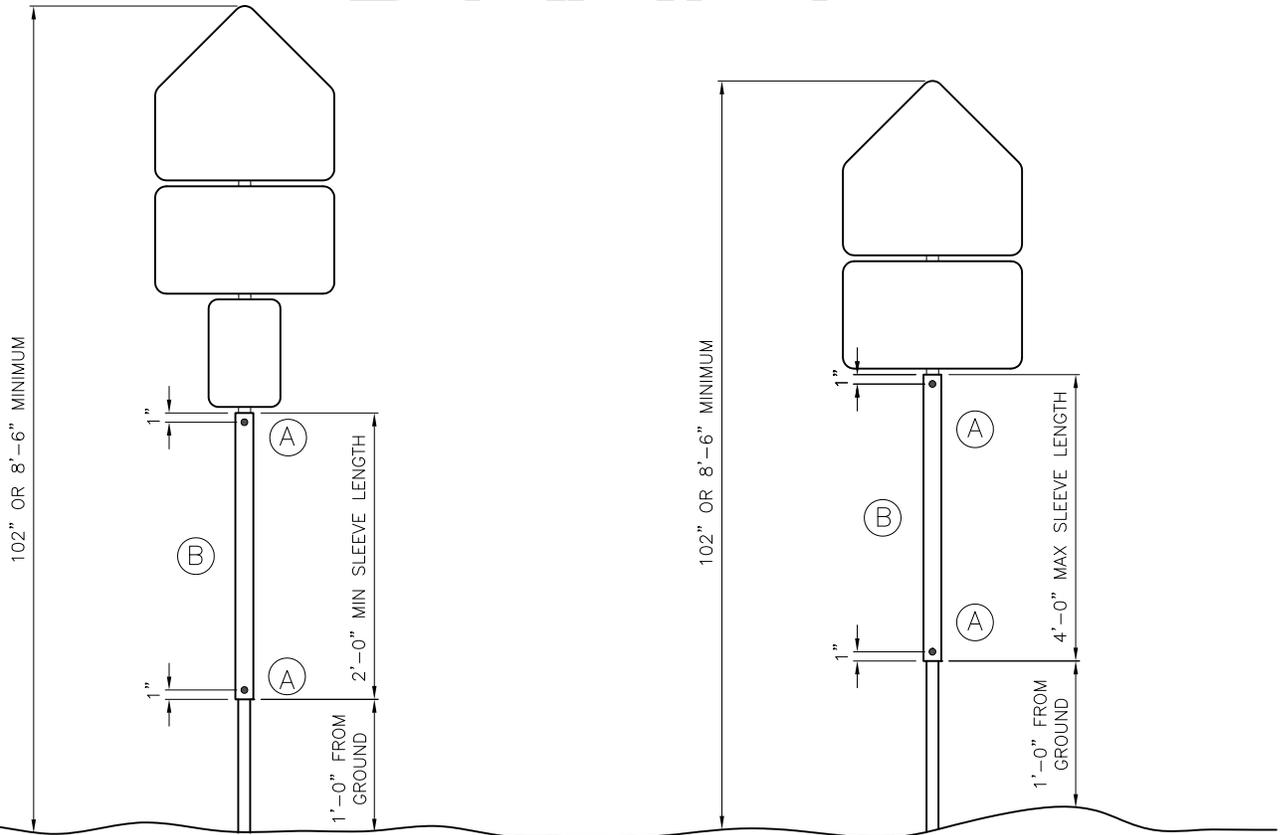
REF STD SPEC SEC



City of Seattle

NOT TO SCALE

POST SLEEVE INSTALLATION
DETAIL AND SITE PLAN

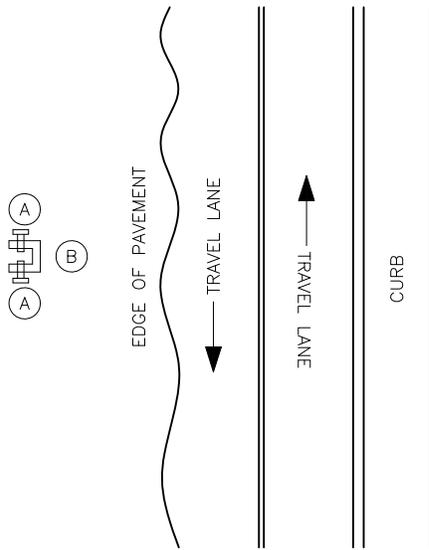


MAX SIGN ASSEMBLY

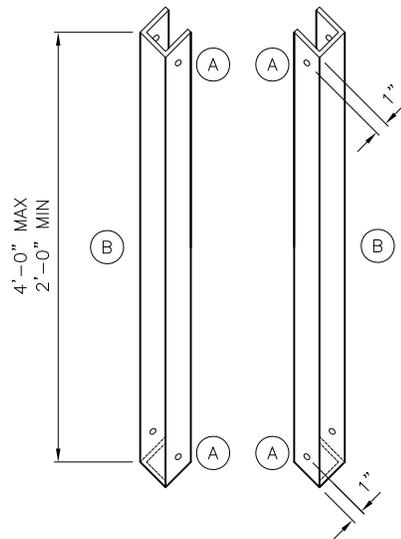
TYPICAL SIGN ASSEMBLY

ELEVATIONS

- (A) STEEL SELF-TAPPING #10X $\frac{1}{2}$ " WITH HEX WASHER HEAD ZINC PLATED
- (B) FLOURESCENT YELLOW GREEN OR RED AND WHITE SLEEVE



SITE PLAN



DETAILS

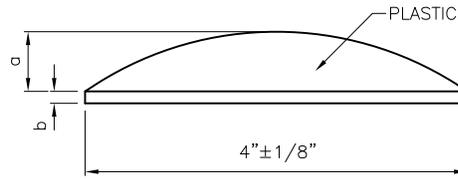
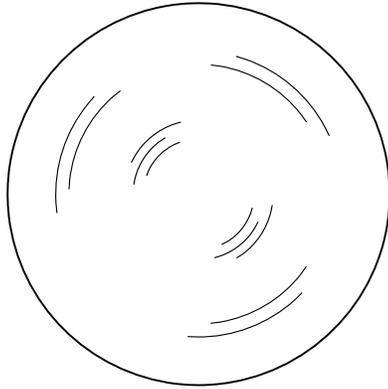
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NOT TO SCALE

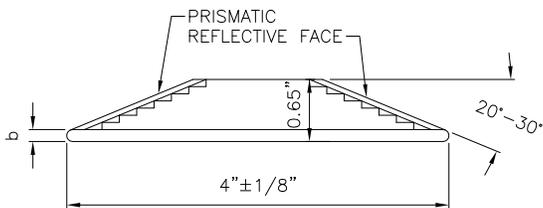
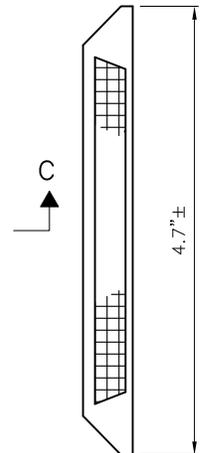
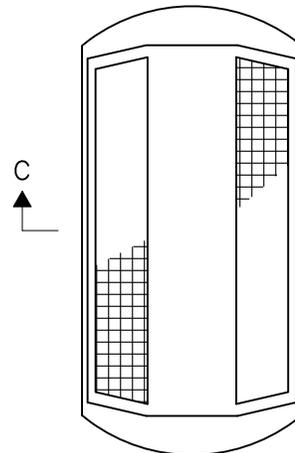
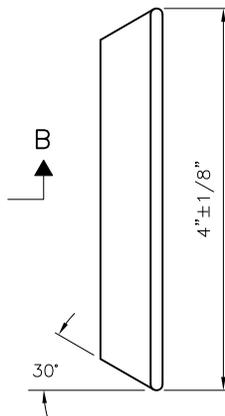
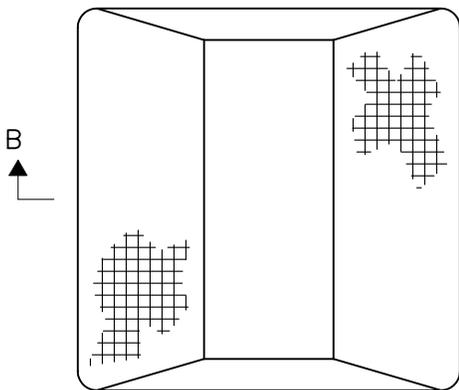
POST SLEEVE INSTALLATION
ELEVATION AND SITE PLAN



LANE MARKER-TYPE 1

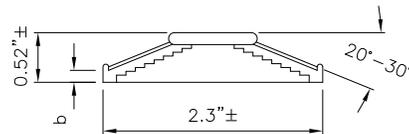
$a = 5/8" \pm 1/8"$
 $b = 1/8" \pm 1/16"$

← DIRECTION OF TRAFFIC



SECTION B-B

LANE MARKER-TYPE 2A
 4" PRISMATIC REFLECTIVE MARKER



SECTION C-C

LANE MARKER-TYPE 2B

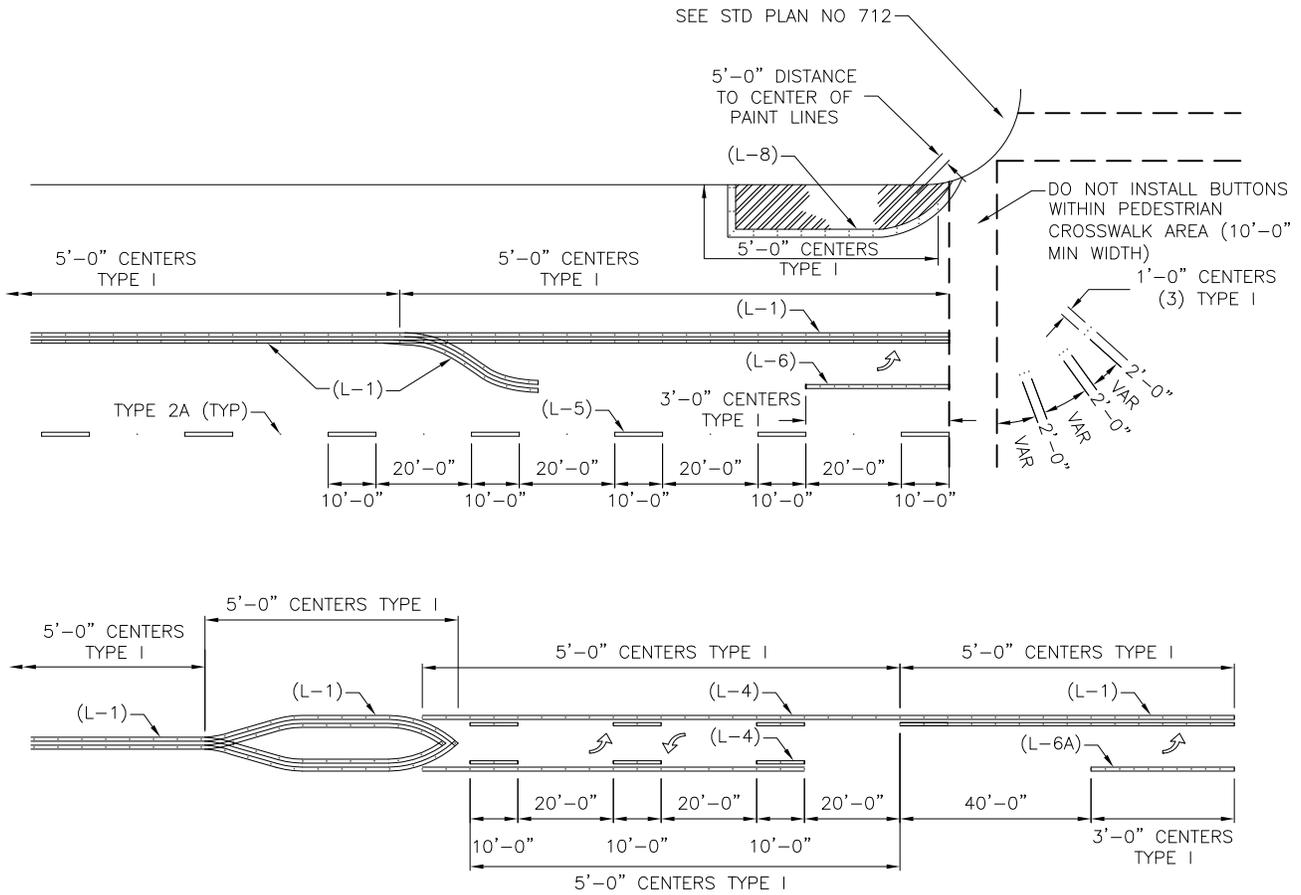
REF STD SPEC SEC 8-08 & 9-21



City of Seattle

NOT TO SCALE

TRAFFIC BUTTONS &
 LANE MARKERS



TYPICAL TYPE 1 TRAFFIC BUTTON (4") INSTALLATION DETAILS

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

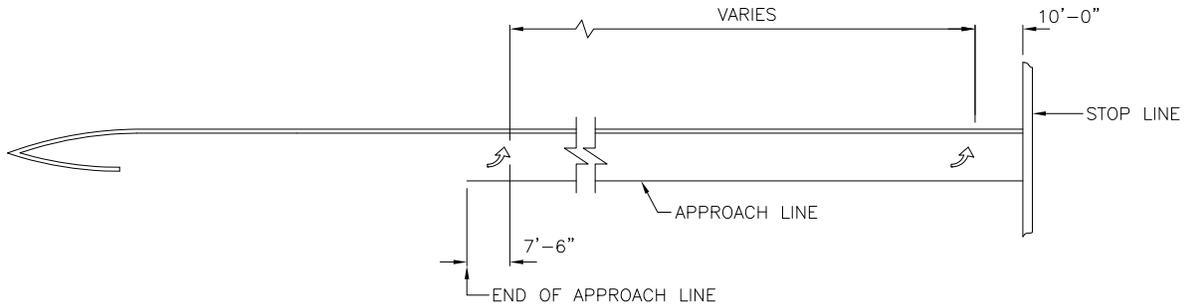
REF STD SPEC SEC 8-22



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NOT TO SCALE

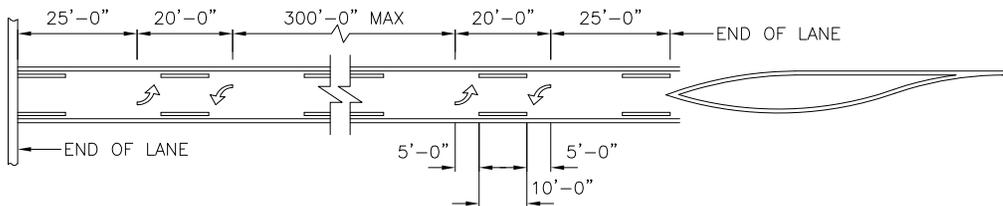
TYPICAL LEFT TURN
CHANNELIZATION AND
LEGEND PLACEMENT



TYPICAL LEFT TURN CHANNELIZATION

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

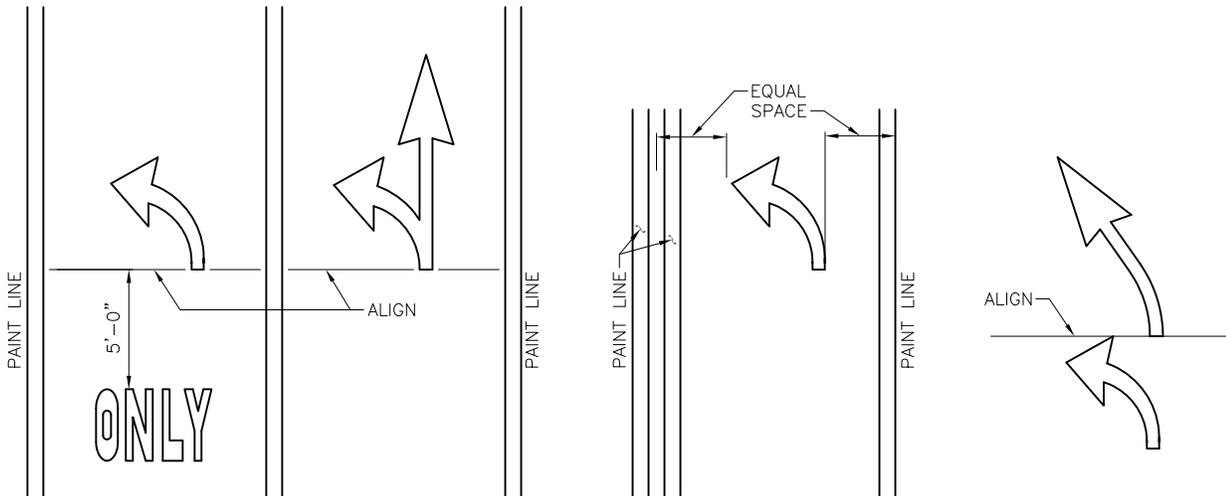
APPROACH LINE LENGTH	LEGEND SETS
LESS THAN 50 FEET	1 SET AT X-WALK END OF POCKET
50 FEET-120 FEET	2 SETS
125 FEET-300 FEET	3 SETS (SECOND LEGEND LOCATED MIDWAY BETWEEN FIRST AND LAST LEGENDS)
OVER 300 FEET	ADDITIONAL SETS SPACED AT APPROX 100 FT INTERVALS BETWEEN FIRST AND LAST SETS



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 BETWEEN BOTH ENDS OF LANE)
50 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 MUST BE ALIGNED AS SHOWN

LEGENDS MUST 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

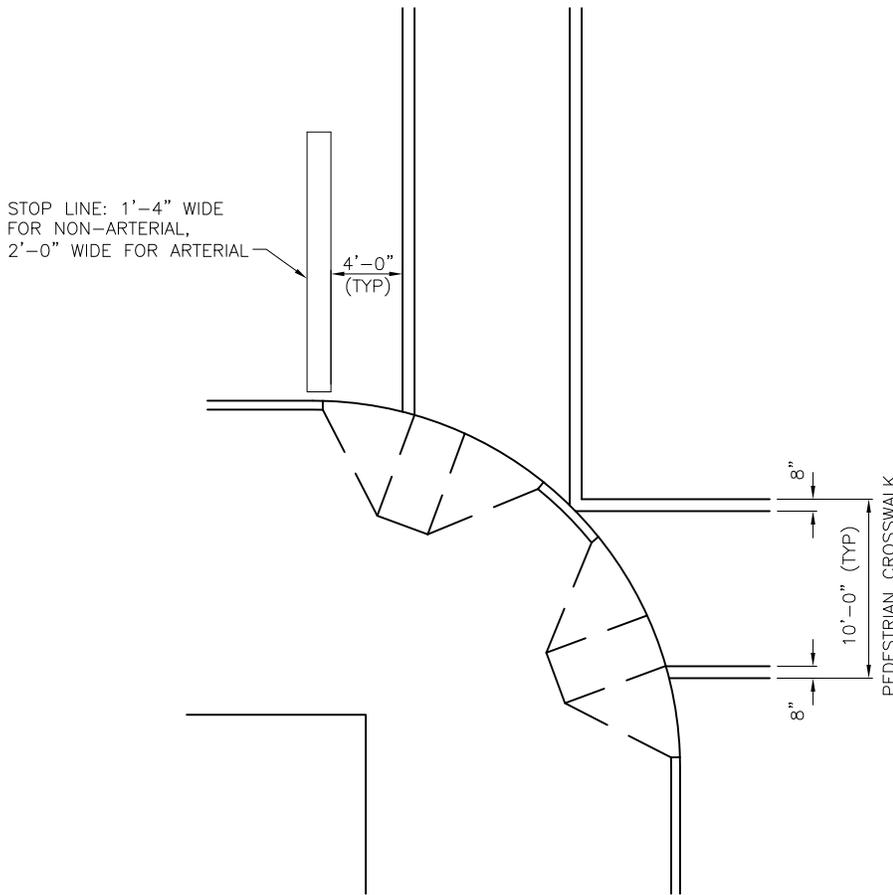
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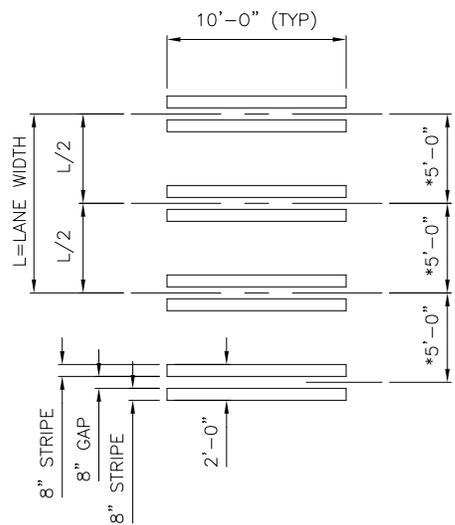
City of Seattle

NOT TO SCALE

TYPICAL LEFT TURN CHANNELIZATION AND LEGEND PLACEMENT



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



TYPICAL "LADDER STYLE" PEDESTRIAN CROSSWALK

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

NOTES:

1. "LADDER STYLE" CROSSWALK MUST BE USED IN MOST APPLICATIONS. "TRANSVERSE LINE" CROSSWALK MAY ONLY BE USED WITH APPROVAL OF ENGINEER.
2. LOWER LANDING OF CURB RAMP MUST 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 MUST BE APPROVED BY SDOT.
5. COLORED OR TEXTURED PAVEMENT CROSSWALKS MUST BE SUPPLEMENTED WITH EITHER "LADDER STYLE" OR "TRANSVERSE LINE" CROSSWALK MARKINGS.
6. EXISTING CROSSWALK MARKINGS THAT CONFLICT WITH NEW CROSSWALK MARKINGS MUST BE REMOVED BY GRINDING.

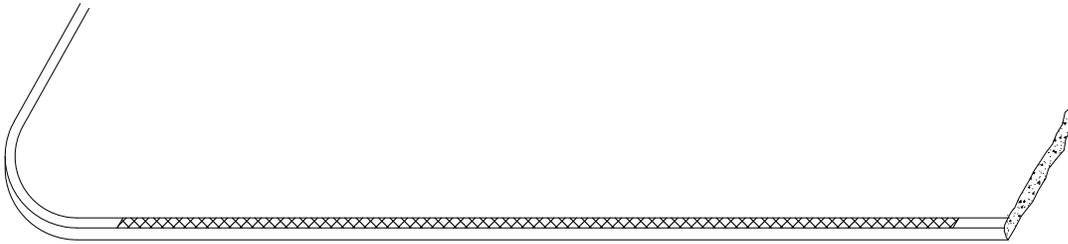
REF STD SPEC SEC 8-22



City of Seattle

NOT TO SCALE

TYPICAL CROSSWALK & STOP LINE INSTALLATION DETAILS



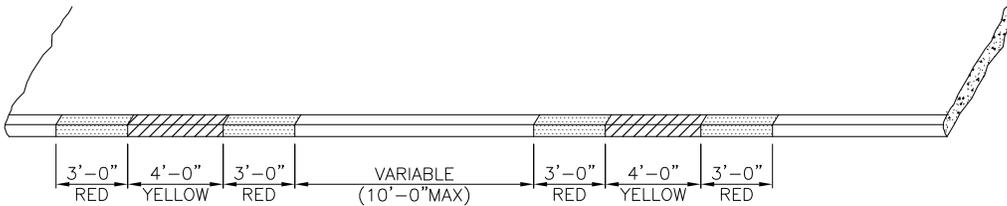
L-10
PASSENGER LOAD ZONE, ETC
(WHITE)



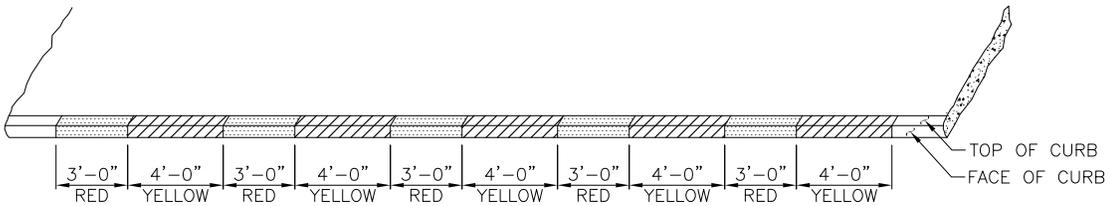
L-11
TOW-AWAY ZONE
(RED)



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



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



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

NOTES:

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

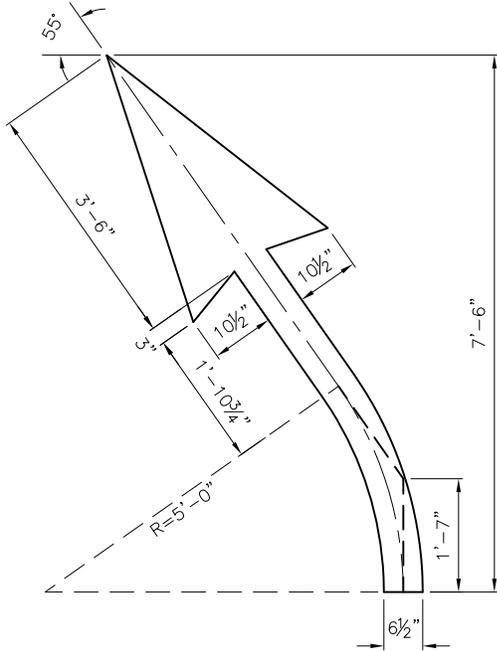
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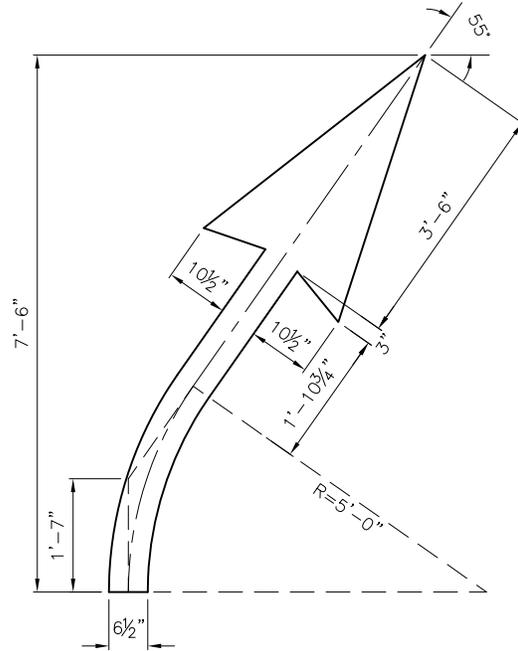
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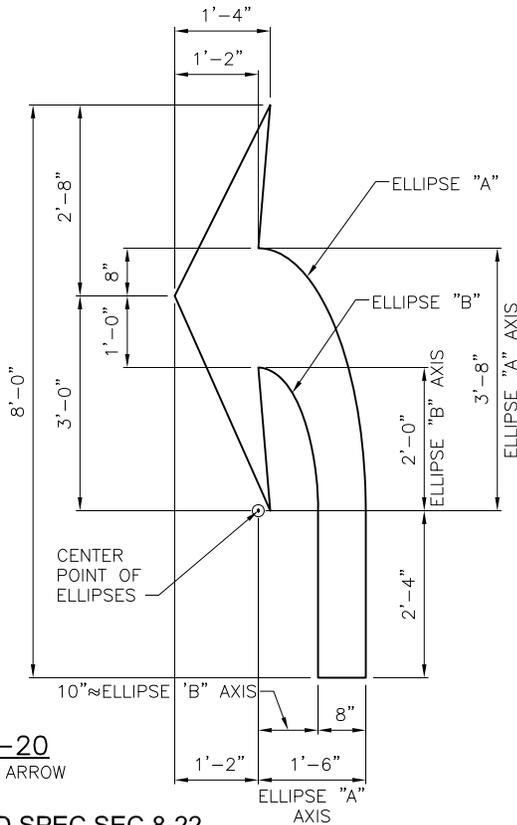
**CURB SPACE MARKING
DETAILS**



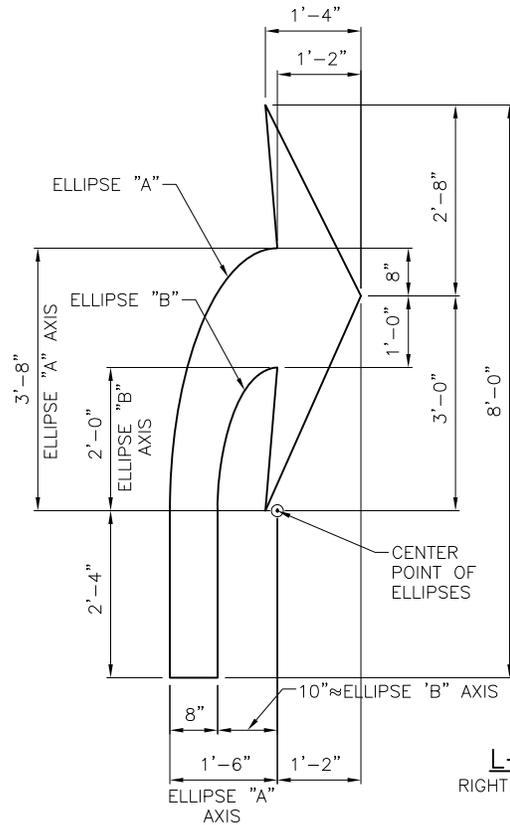
L-18
OBLIQUE LEFT ARROW



L-19
OBLIQUE RIGHT ARROW



L-20
LEFT ARROW



L-21
RIGHT ARROW

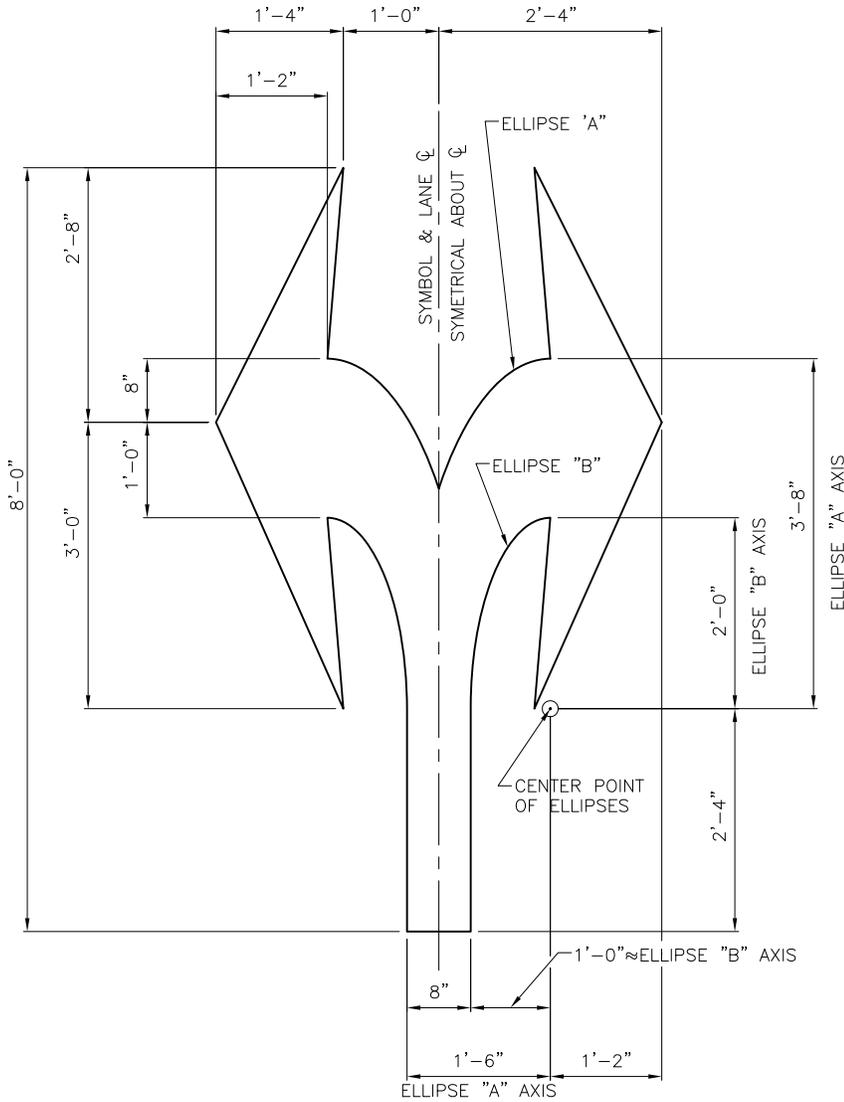
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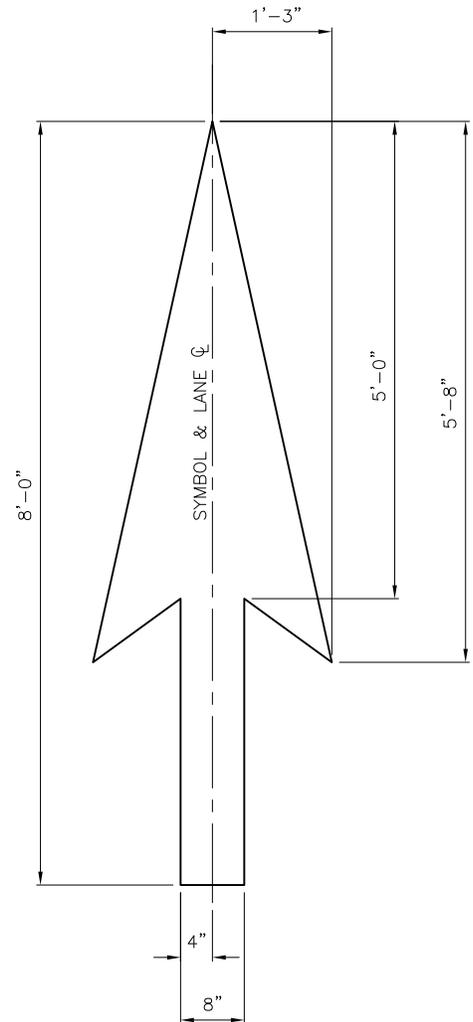
NOT TO SCALE

PAVEMENT MARKINGS
LEGENDS/SYMBOLS



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

NOTE:
"T" = THERMOPLASTIC



L-22, L-22T
THROUGH ARROW

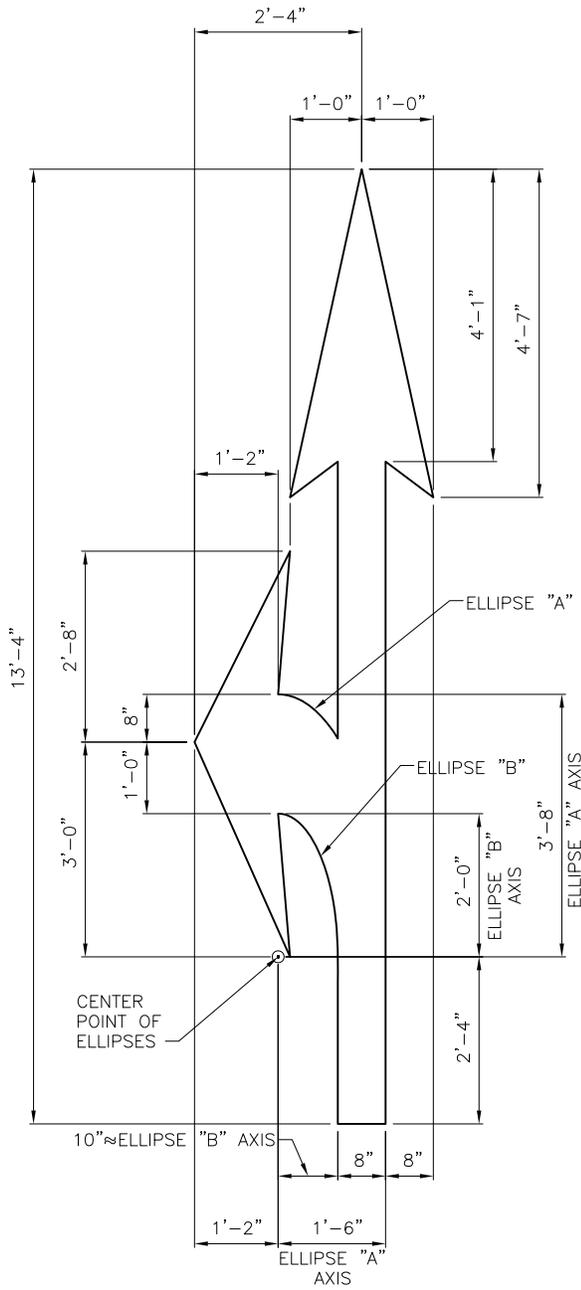
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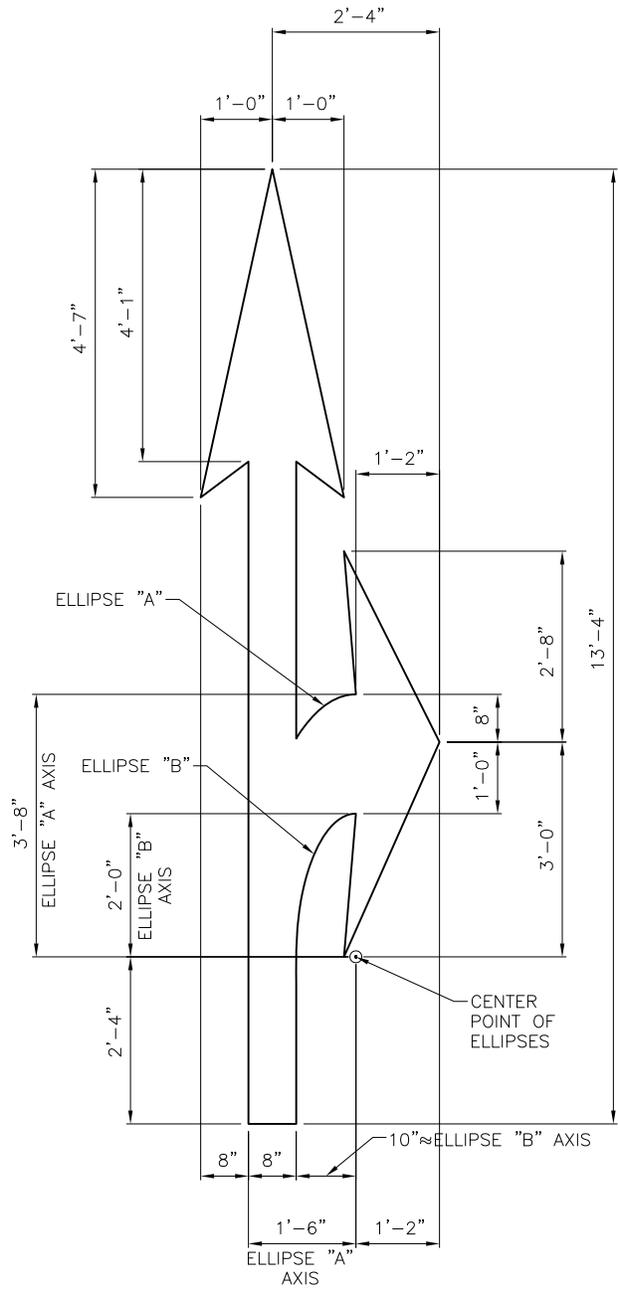
City of Seattle

NOT TO SCALE

PAVEMENT MARKINGS
LEGENDS/SYMBOLS



L-23
LEFT & THROUGH ARROWS



L-24
RIGHT & THROUGH ARROWS

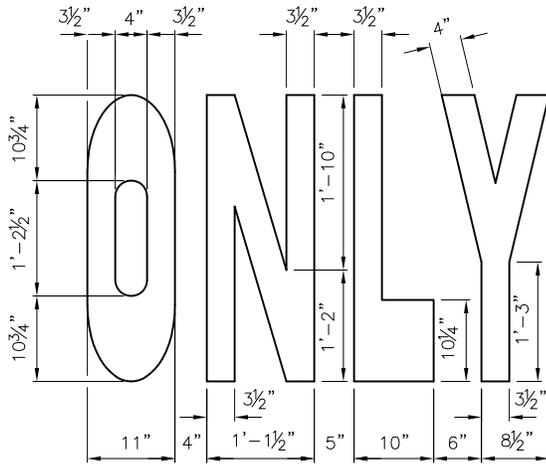
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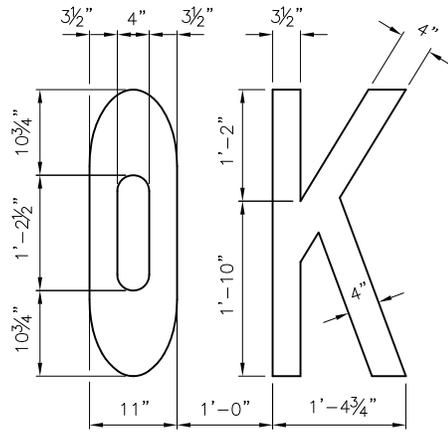
City of Seattle

NOT TO SCALE

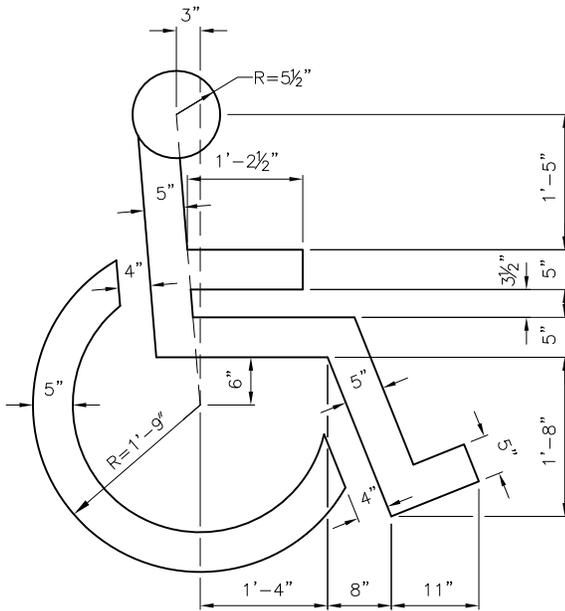
PAVEMENT MARKINGS
LEGENDS/SYMBOLS



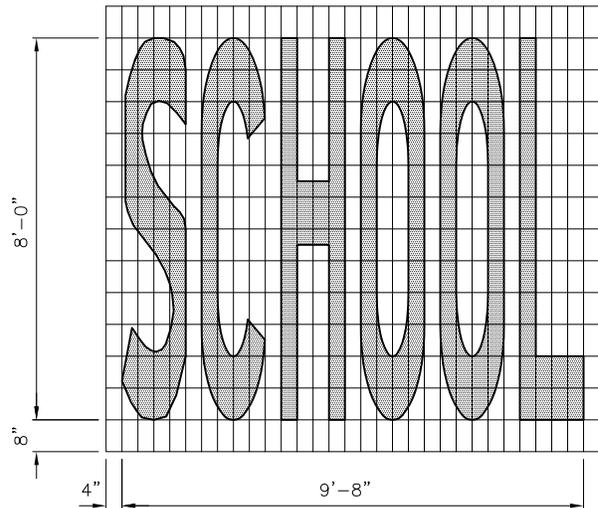
L-25, L-25T
"ONLY" LEGEND



L-26, L-26T
"OK" LEGEND



L-29, L-29T
DISABLED PERSON SYMBOL



L-35, L-35T
"SCHOOL" LEGEND

REF STD SPEC SEC 8-22

NOTE:
"T" = THERMOPLASTIC



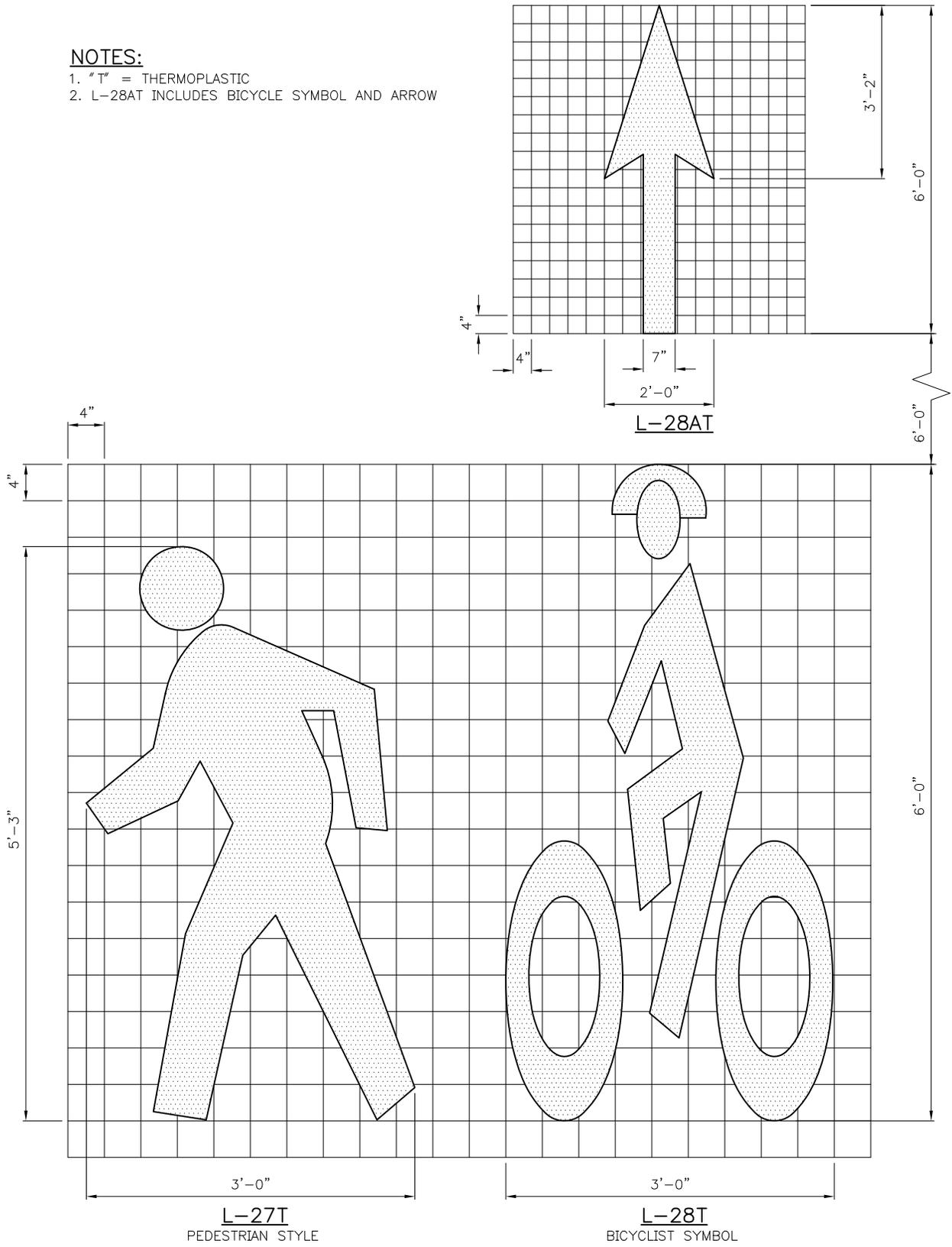
City of Seattle

NOT TO SCALE

**PAVEMENT MARKINGS
LEGENDS/SYMBOLS**

NOTES:

- 1. "T" = THERMOPLASTIC
- 2. L-28AT INCLUDES BICYCLE SYMBOL AND ARROW



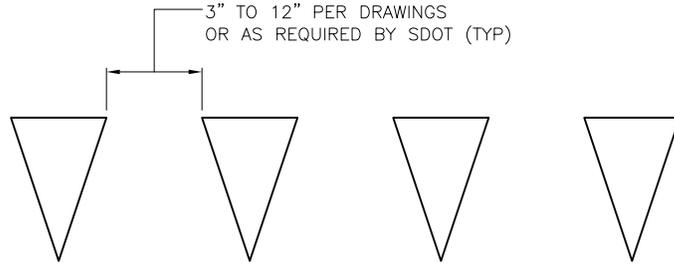
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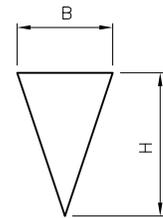
City of Seattle

NOT TO SCALE

**BICYCLIST & PEDESTRIAN
SYMBOLS**



↑
DIRECTION
OF TRAVEL



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

$(1.5 \times B) = H$

L-9A, L-9AT
YIELD LINE

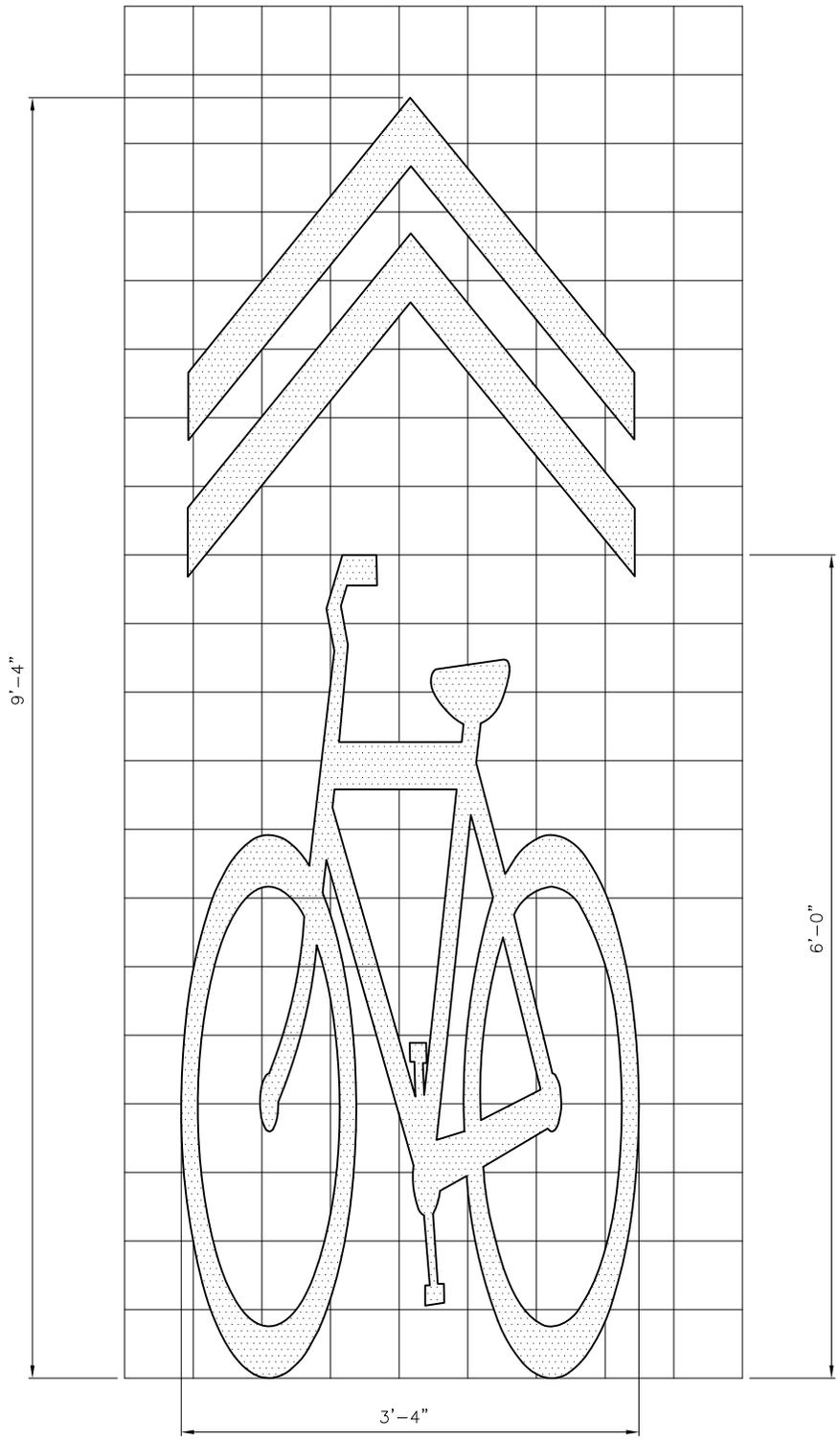
REF STD SPEC SEC 8-22



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NOT TO SCALE

PAVEMENT MARKINGS
LEGENDS/SYMBOLS



NOTES:
 ALL ROUNDED CORNERS MUST HAVE A
 1" RADIUS

L-28BT
 SHARROW

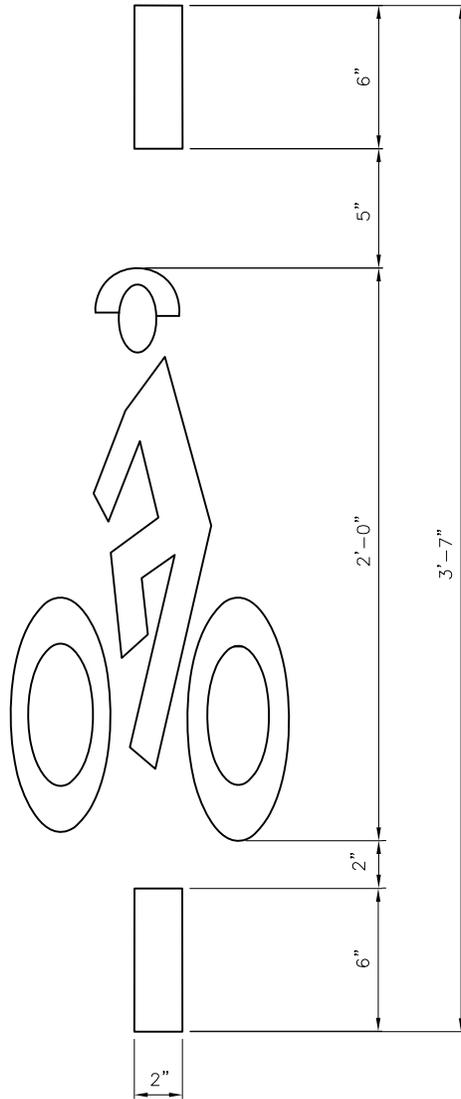
REF STD SPEC SEC 8-22



City of Seattle

NOT TO SCALE

SHARROW SYMBOL



L-36T

BICYCLE DETECTOR LOOP SYMBOL

NOTES:

SEE STD PLAN NO 530b FOR PLACEMENT

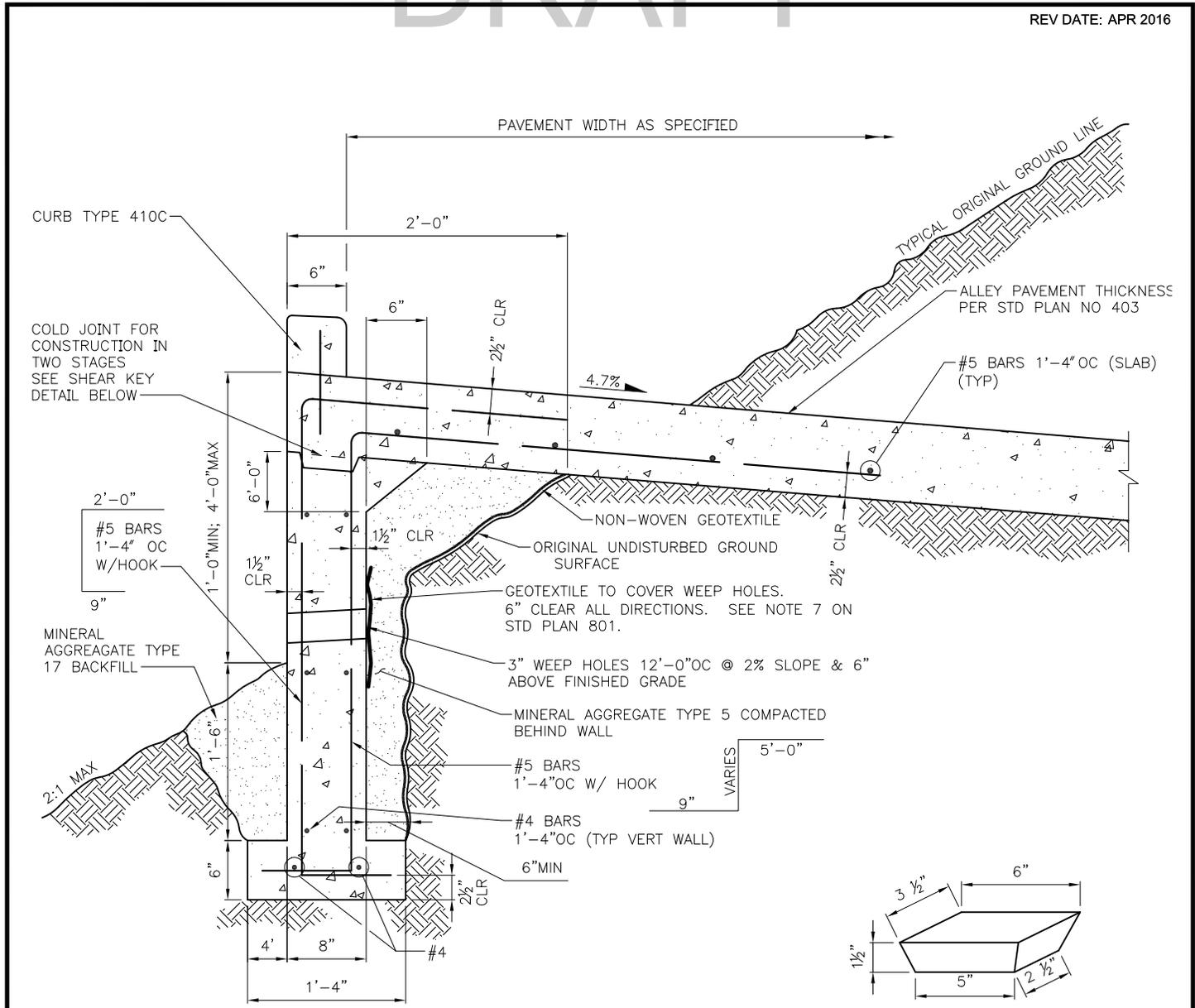
REF STD SPEC SEC 8-22



City of Seattle

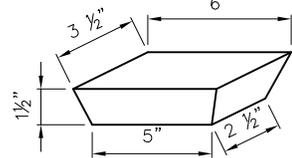
NOT TO SCALE

BICYCLE DETECTOR
PAVEMENT MARKING



NOTES:

1. BASE OF SUPPORT WALL TO BE BEARING ON COMPACTED SUITABLE MATERIAL
2. BACK FORM FOR SUPPORT WALL MAY BE OMITTED AND CONCRETE PLACED AGAINST NATIVE EARTH WHEN GROUND CONDITIONS PERMIT. CLEARANCE TO REINF STEEL IN BACK FACE MUST BE 2 1/2"
3. WHEN CONSTRUCTION OF ALLEY PAVEMENT IS NOT PLACED INTEGRAL WITH SUPPORT WALL, SHEAR KEYS MUST BE INSTALLED 1'-6" ON CENTERS
4. CONCRETE FOR SUPPORT WALL MUST BE CLASS 4000
5. REINFORCING STEEL ASTM A706 (AASHTO M 31 GRADE 60)
6. VEHICULAR & PEDESTRIAN RAILING PER RIGHT OF WAY IMPROVEMENT MANUAL



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

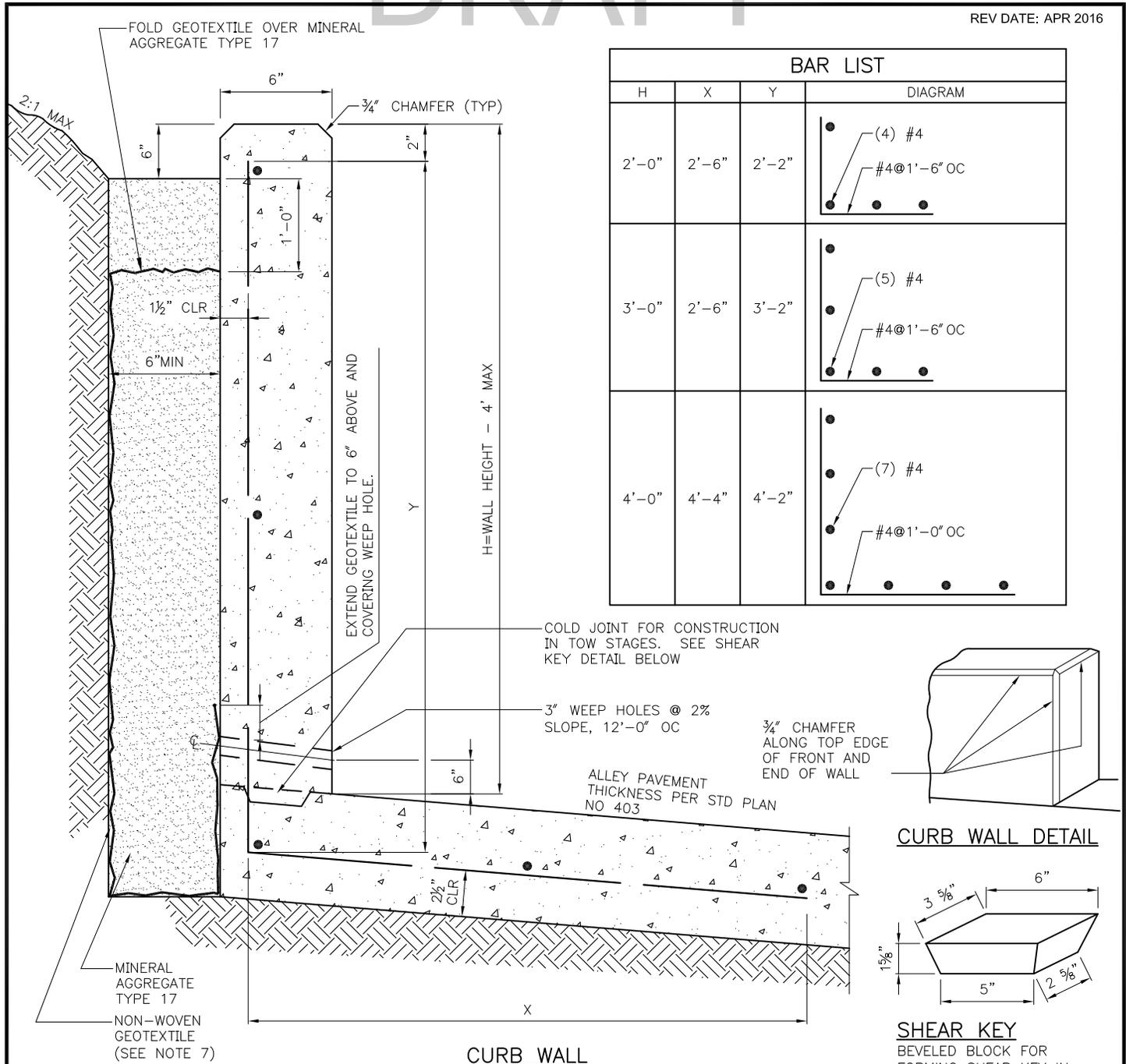
REF STD SPEC SEC 8-17, 8-19



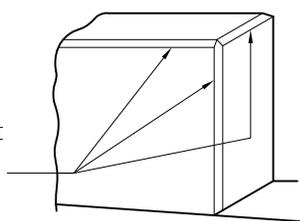
City of Seattle

NOT TO SCALE

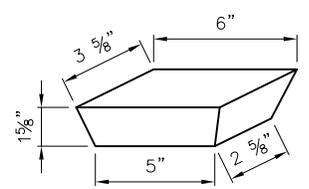
SUPPORT WALL



BAR LIST			
H	X	Y	DIAGRAM
2'-0"	2'-6"	2'-2"	
3'-0"	2'-6"	3'-2"	
4'-0"	4'-4"	4'-2"	



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 MUST BE INSTALLED IN THE PAVEMENT SLAB
5. REINF STEEL ASTM A706 (AASHTO M 31 GRADE 60)
6. ANY RAILING ON TOP OF WALL PER RIGHT OF WAY IMPROVEMENT MANUAL
7. NON-WOVEN GEOTEXTILE TO BE MODERATE SURVIVABILITY, ANY CLASS PER TABLES 1 AND 2 STD SPEC SEC 9-37
8. ALLEY THICKNESS PER STANDARD PLAN NO 403

REF STD SPEC SEC 8-17



City of Seattle

NOT TO SCALE

CURB WALL