**REINFORCING STEEL "A"**

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

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

**NOTES:**

1. MATERIALS: CONCRETE—CLASS 4000; REINFORCING STEEL—ASTM A615 GRADE 60 MIN.; CHANNEL AND SHELF MATERIAL—CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 476. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ. FT
4. MAX HOLE SIZE SHALL BE OD OF PIPE PLUS 5 IN. MIN HOLE SIZE SHALL BE OD OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE BETWEEN HOLES IS 8 IN.

**REFERENCES:**

STD SPEC SEC 7-05

City of Seattle

NOT TO SCALE TYPE 204b MAINTENANCE HOLE

REINFORCING STEEL "A"

<table>
<thead>
<tr>
<th>MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION</th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.29</td>
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<tr>
<td>30' MAX</td>
<td>0.36</td>
<td>0.26</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.42</td>
<td>0.31</td>
</tr>
</tbody>
</table>

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

REF STD SPEC SEC 7-05
**200 SEWER-DRAINAGE APPURTENANCES**

**REINFORCING STEEL "A"**

<table>
<thead>
<tr>
<th>MIN. 50 IN/FT, TOP FACE, IN EACH DIRECTION</th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.29</td>
<td>0.21</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.36</td>
<td>0.26</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.42</td>
<td>0.31</td>
</tr>
</tbody>
</table>

**"H"**

**LEVELING BRICKS OR CONCRETE COLLAR**

**FLOW DIRECTION**

**EXTENDED Q'S OF SEWER PIPES INTERSECT AT Q OF MAINTENANCE HOLE**

**PLAN VIEW (TOP REMOVED)**

**MAINTENANCE HOLE FRAME & COVER SEE STD PLAN NO. 230**

**HANDHOLDS, SEE STD PLANS NO. 232A & 232B**

**TOP SLAB REINFORCEMENT**

**NOTES:**

1. MATERIALS: CONCRETE—CLASS 4000, REINFORCING STEEL—ASTM 4615 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 SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.

3. MINIMUM REQUIRED SOIL BANDING = 3,000 LBS/50 FT.

4. MAX. HOLE SIZE SHALL BE OD OF PIPE PLUS 6 IN. MIN. HOLE SIZE SHALL BE OD OF PIPE PLUS 3 IN. MIN. CLEAR DISTANCE BETWEEN HOLES IS 6 IN.

**REF STD SPEC SEC 7-05**

**City of Seattle**

**NOT TO SCALE**

**TYPE 204.5b MAINTENANCE HOLE**

**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 SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT.
4. MAX HOLE SIZE SHALL BE OD OF PIPE PLUS 6 IN. MIN HOLE SIZE SHALL BE OD OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE BETWEEN HOLES IS 8 IN.
**REINFORCING STEEL "A"**

<table>
<thead>
<tr>
<th>MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION</th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.33</td>
<td>0.25</td>
</tr>
<tr>
<td>30' MAX</td>
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<td>0.31</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.49</td>
<td>0.37</td>
</tr>
</tbody>
</table>

**H**

**NOTES:**
1. MATERIALS: CONCRETE-CLASS 4000;
   REINFORCING STEEL-ASTM A615 GRADE 60 VIN; CHANNEL AND SHELF MATERIAL-CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 476. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT.
4. MAX HOLE SIZE SHALL BE OD OF PIPE PLUS 6 IN. MIN HOLE SIZE SHALL BE OD OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE BETWEEN HOLES IS 8 IN.

**BASE DETAIL**

SECTION A-A

**MORTAR FILLET**

6 IN CAST-IN-PLACE BASE

**PRECasting BASE**

PRECAST BASE W/ INTEGRAL RISERS

**REINFORCING STEEL "A" SEE TABLE**

**TYPE 205b MAINTENANCE HOLE**

City of Seattle

NOT TO SCALE

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 476. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/50 FT
4. MAX HOLE SIZE SHALL BE OD OF PIPE PLUS 7 IN. MIN HOLE SIZE SHALL BE OD OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE BETWEEN HOLES IS 12 IN.

REF STD SPEC SEC 7-05

City of Seattle

NOT TO SCALE

TYPE 206a MAINTENANCE HOLE
REINFORCING STEEL "A"

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

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

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

TYPE 206b MAINTENANCE HOLE

REF STD SPEC SEC 7-05

City of Seattle

REINFORCING STEEL "A"

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

PRECAST BASE  CAST-IN-PLACE BASE

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

4-#6@12"BF
(CUT AS REQ'D)

FAN #6
BARS @ 4" EQ SFA BF (TYP)

#6 BF (TYP)

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 SHALL BE
   RUBBER GASKETED CONFORMING TO ASTM C
   443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
   LBS/SQ FT.
4. MAX HOLE SIZE SHALL BE OD OF PIPE
   PLUS 8 IN. MIN HOLE SIZE SHALL BE OD
   OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE
   BETWEEN HOLES IS 12 IN.

REF Std Spec Sec 7-05

City of Seattle

NOT TO SCALE

TYPE 207a MAINTENANCE HOLE

**200 SEWER-DRAINAGE APPURTE ploted**

**STANDARD PLAN NO 207b**

**REINFORCING STEEL "H"**

<table>
<thead>
<tr>
<th>MIN. SO IN/FT, TOP FACE, IN EACH DIRECTION</th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.34</td>
<td>0.27</td>
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<tr>
<td>30' MAX</td>
<td>0.43</td>
<td>0.35</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.52</td>
<td>0.42</td>
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</tbody>
</table>

**TOP SLAB REINFORCEMENT**

**NOTES:**
1. MATERIAL: CONCRETE—CLASS 4000.
2. REINFORCING STEEL—ASTM A615 GRADE 60 MIN., CHANNEL AND SHELF MATERIAL—CONCRETE CLASS 3000.
3. MINIMUM REQUIRED SOIL BORING = 3,000 LBS/SQ FT
4. MAX HOLE SIZE SHALL BE OD OF PIPE PLUS 1 IN. MIN HOLE SIZE SHALL BE OD OF PIPE PLUS 1 IN. MIN CLEAR DISTANCE BETWEEN HOLES IS 12 IN.

**REF STD SPEC SEC 7-05**

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

REINFORCING STEEL "A"

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

<table>
<thead>
<tr>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX.</td>
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<tr>
<td>30' MAX.</td>
<td>0.66</td>
</tr>
<tr>
<td>48' MAX.</td>
<td>0.78</td>
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</tbody>
</table>

H

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
   SHALL CONFORM TO ASTM C 478. JOINTS
   BETWEEN PRECAST COMPONENTS SHALL BE
   RUBBER GASKETED CONFORMING TO ASTM C
   443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
   LBS/SQ FT
4. MAX HOLE SIZE SHALL BE OD OF PIPE PLUS
   9". MIN HOLE SIZE SHALL BE OD OF PIPE
   PLUS 3". MIN DISTANCE BETWEEN HOLES IS 12".

REFERENCES:
REF STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE
TYPE 208a MAINTENANCE HOLE

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
   SHALL CONFORM TO ASTM C 478. JOINTS
   BETWEEN PRECAST COMPONENTS SHALL BE
   RUBBER GASKETED CONFORMING TO ASTM C
   443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
   LBS/SD FT
4. MAX HOLE SIZE SHALL BE OD OF PIPE PLUS
   9". MIN HOLE SIZE SHALL BE OD OF PIPE
   PLUS 3". MIN DISTANCE BETWEEN HOLES IS 12".

REF STD SPEC SEC 7-05

City of Seattle

NOT TO SCALE

TYPE 208b MAINTENANCE HOLE

### REINFORCING STEEL "A"

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

<table>
<thead>
<tr>
<th></th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.57</td>
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</tr>
<tr>
<td>30' MAX</td>
<td>0.70</td>
<td>0.59</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.81</td>
<td>0.69</td>
</tr>
</tbody>
</table>

**THE GREATER OF**

- 3/8" INSIDE PIPE DIAMETER OR
- 1" (TYP)

### HOLE SIZING

- 4-#6 BF (CUT AS RED'D)
- 13-#6 BF
- 2" CLR (TYP)
- 4-#6 BARS @ 4 EQUAL SPACES BF

**TOP SLAB REINFORCEMENT**

**NOTES:**

1. MATERIAL: CONCRETE-CLASS 4000
2. REINFORCING STEEL-ASTM A615 GRADE 60 MIN.
3. CHANNEL AND SHELF MATERIAL: CONCRETE CLASS 3000.
4. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
5. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/50 FT
6. MAX HOLE SIZE SHALL BE 0% OF PIPE PLUS 10", MIN HOLE SIZE SHALL BE 0% OF PIPE PLUS 3", MIN DISTANCE BETWEEN HOLES IS 12".

**REF STD SPEC SEC 7-05**

City of Seattle

REINFORCING STEEL "A"

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

<table>
<thead>
<tr>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
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<tr>
<td>20' MAX</td>
<td>0.44</td>
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<td>30' MAX</td>
<td>0.56</td>
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<td>40' MAX</td>
<td>0.68</td>
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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 SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/50 FT
4. MAX HOLE SIZE SHALL BE 12" "OD OF PIPE PLUS 10". MIN HOLE SIZE SHALL BE 12" "OD OF PIPE PLUS 5". MIN DISTANCE BETWEEN HOLE IS 12".

REF STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE
TYPE 209b MAINTENANCE HOLE

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

<table>
<thead>
<tr>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
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<tbody>
<tr>
<td>20' MAX</td>
<td>0.52</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.66</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.81</td>
</tr>
</tbody>
</table>

NOTES:
1. MATERIAL: CONCRETE—CLASS 4000
2. PRECAST MAINTENANCE HOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 445.
3. MINIMUM REQUIRED SOIL BEARING = 3000 LBS/SQ FT
4. MAX HOLE SIZE SHALL BE 00 OF PIPE PLUS 11", MIN HOLE SIZE SHALL BE 00 OF PIPE PLUS 3", MIN DISTANCE BETWEEN HOLES IS 12".

REF STD SPEC SEC 7-05

200 SEWER-DRAINAGE APPURTENANCES

LOCATION OF MH LADDER FOR TYPE B MAINTENANCE HOLE.

"H" REINFORCING STEEL "A"
MIN. 50 IN/FT. TOP FACE, IN EACH DIRECTION

<table>
<thead>
<tr>
<th></th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
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</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.62</td>
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<tr>
<td>30' MAX</td>
<td>0.79</td>
<td>0.69</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.97</td>
<td>0.85</td>
</tr>
</tbody>
</table>

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
SHALL CONFORM TO ASTM C 478. JOINTS
BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.

3. MINIMUM REQUIRED SOIL BEARING = 3,000
LBS/50 FT

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

REFERENCES:
STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE
TYPE 211b MAINTENANCE HOLE

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
   SHALL CONFORM TO ASTM C 478. JOINTS
   BETWEEN PRECAST COMPONENTS SHALL BE
   RUBBER GASKETED CONFORMING TO ASTM C
   443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
   LBS/SQ FT
4. MAX HOLE SIZE SHALL BE OD OF PIPE PLUS
   13". MIN HOLE SIZE SHALL BE OD OF PIPE
   PLUS 3". MIN DISTANCE BETWEEN HOLES IS 12".
REINFORCING STEEL "A"

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

<table>
<thead>
<tr>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
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</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.81</td>
</tr>
<tr>
<td>30' MAX</td>
<td>1.09</td>
</tr>
<tr>
<td>40' MAX</td>
<td>1.36</td>
</tr>
</tbody>
</table>

"H"

FLOW DIRECTION

LOCATION OF MH LADDER FOR TYPE H MAINTENANCE HOLE

EXTENDED % OF SEWER INTERSECT AT % OF MH

SLOPE: ¼"-1'-0" (TYP)

THE GREATER OF % INSIDE PIPE DIAMETER OR 1'-0" (TYP)

PLAN VIEW

(TOP REMOVED)

MAINTENANCE HOLE FRAME & COVER, SEE STD PLAN NO. 230

LEVELING BRICKS OR CONCRETE COLLAR

⅝" SMOOTH MORTAR LINING

HANDHOLDS, SEE STD PLANS NO. 232a & 232b

MAINTENANCE HOLE LADDER, SEE STD PLANS NO. 232a & 232b

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
   SHALL CONFORM TO ASTM C 478. JOINTS
   BETWEEN PRECAST COMPONENTS SHALL BE
   RUBBER GASKETED CONFORMING TO ASTM C
   443.

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

4. MAX HOLE SIZE SHALL BE OD OF PIPE PLUS
   13". MIN HOLE SIZE SHALL 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

NEW TYPE 230 FRAME & COVER
NEW PAVEMENT GRADE

REMOVE EXISTING 1'-6" DIAMETER FRAME & COVER

REBUILD MH WITH NEW RADIAL BRICKS IN A RUNNING BOND PATTERN WITH 3/8" MIN TO 1/2" MAX. GROUT SO THAT NEW FRAME AND COVER IS AT THE NEW PAVEMENT GRADE.

NEW MH HANDHOLD
SEE STD PLANS NO 232a & 232b

NEW MH STEP
SEE STD PLANS NO 232a & 232b

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

REPLACE EXISTING STEPS OR LADDER TO SHELF

EXISTING BRICK MAINTENANCE HOLE

1'-9" MIN CLR OPENING

NEW 3/4" MORTAR LINING SEE NOTE 4

3" HANDHOLD

2'-6" DIA

RUNNING BOND PATTERN
GROUT BETWEEN ALL BRICKS

REF STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE

REBUILD EXISTING BRICK MAINTENANCE HOLE

SEWER DRAINAGE APPURTEYNANCES

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

SECTION A-A

NOTES:
1. MATERIAL – STEEL REINFORCED POLYPROPYLENE
2. DIMENSIONS FOR THE MH LADDER AND STEP ARE MINIMUM REQUIREMENTS ONLY.
3. WHEN THE DISTANCE FROM THE LOWEST (HIGHEST) STEP OR HANDHOLD TO THE TOP OF THE MH FRAME EXCEEDS 1'-6", A HANDHOLD SHALL 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 SHALL BE FROM THE SAME MANUFACTURER.
5. A VERTICAL HANDHOLD SHALL BE INSTALLED 4'-0" ABOVE THE SHELF WHEN INDICATED IN MH PLAN VIEW.
24" HIGH CONCENTRIC CONE

18" HIGH CONCENTRIC CONE

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 SHALL 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 SHALL BE FROM THE SAME MANUFACTURER.
5. STEP ON OPPOSITE SIDE OF MH SHALL BE PLACED MID-WAY BETWEEN STEPS ON OPPOSING SIDE.

MH WITH PRECAST TOP SLAB
NOTES:

1. CONCRETE FOR DROP CONNECTION SUPPORT SHALL BE CL 3000.
3. DROP CONNECTIONS SHALL BE USED WHERE DROP IS NOT MORE THAN 20'-0".

DUCTILE IRON OUTSIDE DROP CONNECTION

REF STD SPEC SEC 7-08
NOTES:
1. PROVIDE PIPE MANUFACTURER RECOMMENDATION FOR PIPE HANGER AND CONCRETE ANCHORAGE TO SPU FOR APPROVAL.
2. SIZE MH TO MEET MINIMUM INSIDE CLEARANCE.
4. PVC PIPE & ELBOW SHALL BE ASTM D 2241 CL200 OR ASTM 1785 SCH 40.
5. CLEAN-OUT SHALL BE LOCATED AS APPROVED BY SPU.

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

DETAIL A
FOR MAIN 3'-0" DIA OR SMALLER

DETAI B
FOR MAIN 3'-6" DIA OR LARGER
ALLOWABLE OUTLET LOCATION

SECTION A-A

1'-0" MAX TO JOINT (TYP)

PIPE CONNECTION TO APPROVED OUTLET

TYPE 240A
TYPE 240B

INLET CONNECTION

ALLOWABLE INLET LOCATION

SEE CB TYPE/CASTING TABLE BELOW

LEVELING BRICK OR PRECAST RISER

PRECAST TUP SLAB PER STD PLAN NO 243a
TYPE 240A: UNIT R SLAB
TYPE 240B: UNIT P-40 SLAB
TYPE 240C: UNIT T SLAB
TYPE 240D: UNIT T SLAB

FLOW LINE

OUTLET TRAP SEE STD PLAN NO 267

SEE TABLE 1

4" MIN
1'-4" MAX

4" MIN
1'-4" MAX

4'-0"

R" MIN
1'-4" MAX

4'-8" MIN

SINGLE CIRCULAR CAGE 0.12 SQ IN/LF IN EACH DIRECTION

TYPE 9 MINERAL AGGREGATE W/ PORTLAND CEMENT 4" MIN

REINFORCING STEEL 0.15 SQ IN/LF IN EACH DIRECTION

SECTION B-B

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

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>6&quot;Ø</th>
<th>8&quot; MIN</th>
<th>1'-0&quot; MAX</th>
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</thead>
<tbody>
<tr>
<td>8&quot;Ø</td>
<td>10&quot; MIN</td>
<td>1'-4&quot; MAX</td>
<td></td>
</tr>
<tr>
<td>12&quot;Ø</td>
<td>1'-3&quot; MIN</td>
<td>2'-0&quot; MAX</td>
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<table>
<thead>
<tr>
<th>CB TYPE</th>
<th>CASTING</th>
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<tbody>
<tr>
<td>CB TYPE</td>
<td>FRAME</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
</tr>
<tr>
<td>240A</td>
<td>PER STD PLAN 230</td>
</tr>
<tr>
<td>240B</td>
<td>PER STD PLAN 264</td>
</tr>
<tr>
<td>240C</td>
<td>PER STD PLAN 262</td>
</tr>
<tr>
<td>240D</td>
<td>PER STD PLAN 263</td>
</tr>
</tbody>
</table>

REF STD SPEC SEC 7-05

City of Seattle

NOT TO SCALE

TYPE 240 CATCH BASIN

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 SHALL BE RUNNING BOND PATTERN WITH 3/4 TO 1/2 GROUT IN BETWEEN BRICKS.

SECTION A—A

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

SECTION B—B

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

MIN 0'-1" PRECAST BASE TYPE 9 MINERAL AGGREGATE W/ PORTLAND CEMENT
NOTES:
1. MATERIAL: CONCRETE; CLASS 4000
   REINFORCING STEEL: ASTM A 615 OR 60
2. INSTALL & LOCATE PER STD PLANS NO 250 & 261
3. OUTLET TRAP TO BE LOCATED DIRECTLY BELOW FRAME AND GRATE
4. USE OF LEVELING BRICKS SHALL BE RUNNING BOND PATTERN WITH ⅛ TO ½ GROUT IN BETWEEN BRICKS.
200 SEWER-DRAINAGE APPURTEYNANCES

EXTENSION UNIT
SECTION A-A

UNIT S

EXTENSION UNIT
SECTION B-B

UNIT U

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

REF STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE
PRECAST CATCH BASIN
EXTENSION RISERS

NOTES:
1. CB INLET GRATES SHALL NOT BE PLACED IN CROSSWALKS.
2. CB INLETS SHALL NOT BE PLACED IN CURB RAMP LANDINGS.

REFERENCE: STD SPEC SEC 7-05

City of Seattle

NOTES:
2. TYPE B CONNECTIONS SHALL BE USED WITH CB TYPES 240C, 240D, 242A AND 242B.
3. CONNECTIONS SHALL MAINTAIN A MINIMUM OF 2% AND A MAXIMUM OF 10% GRADE.
4. MAX BEND SHALL BE 22½ DEGREES OR Y-BEND. USE OF Y-BEND REQUIRE APPROVAL BY SDPL.
5. 1" DI SPOOL AND COUPLING REQUIRED WITH CUT-IN TEE.
SECTION A-A

SECTION B-B

REF STD SPEC SEC 9-12

City of Seattle | NOT TO SCALE | TYPE 262 INLET FRAME

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

SECTION A-A
PAD 1½" X ¾" X ¾"
THICK (8 OPTIONAL)
EMBOSSED ON GRATE
1" OPENING (TYP.)

SECTION B-B

SECTION C-C

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
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 SHALL BE WELDED TO OUTSIDE OF TRAP
   (1" WIDE X 0.1" THICK)

SECTION A-A
N.Y.S.

REF STD SPEC SEC 9-12
NOTES:
1. GRATE MATERIAL: DUCTILE IRON
2. FRAME PER STD PLAN NO 264

SECTION A–A

SECTION B–B
NOTES:
1. DETENTION PIPE MATERIAL SHALL 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 SHALL BE USED FOR CONNECTIONS.
2. BENDING FOR DETENTION PIPE SHALL BE CLASS 9. DIP AND RCP SHALL BE BLED IN MINERAL AGGREGATE TYPE 9. FLEXIBLE PIPE SHALL BE BLED IN MINERAL AGGREGATE TYPE 22.
3. INTERMEDIATE MHs WILL BE REQUIRED FOR DETENTION PIPE LENGTHS GREATER THAN 350LF.
4. OUTLET PIPE SHALL CONNECT TO MH ON MAINLINE.
5. STRUCTURE DESIGN SHALL 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 SHALL NOT BE PLACED DIRECTLY OVER THE TOP OF INLET PIPE

<table>
<thead>
<tr>
<th>DETENTION PIPE DIAMETER</th>
<th>FLOW CONTROL STRUCTURE* (MH SIZE)</th>
<th>UPSTREAM** (MH SIZE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18&quot;</td>
<td>204b</td>
<td>204b</td>
</tr>
<tr>
<td>24&quot;</td>
<td>208b</td>
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<tr>
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<tr>
<td>60&quot;</td>
<td>208b</td>
<td>208b</td>
</tr>
<tr>
<td>72&quot;</td>
<td>210b</td>
<td>210b</td>
</tr>
</tbody>
</table>

*SPECIFIC DESIGN INFORMATION AS INDICATED ON CONSTRUCTION DRAWINGS
**SIZE OF UPSTREAM MH SHALL BE ADJUSTED FOR ALTERNATIVE PIPE MATERIAL

REF STD SPEC SEC 7-16

City of Seattle

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 SHALL NOT BE PLACED DIRECTLY OVER THE TOP OF INLET PIPE

REF STD SPEC SEC 7-16

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

NOTE:
FOR D1, D2, D3 t, s, s1, n & w
VALUES AND GENERAL NOTES SEE
STD PLAN NO 271d

SECTION A-A

TYPE A

SECTION B-B

NON-CORRUGATED PIPE 0.135" THICK
SAME OD AS CONNECTION PIPE
CONNECT TO CONNECTION PIPE W/
STAINLESS STEEL FLEXIBLE RIGID
WALLED COUPLER

TYPE B

SECTION A-A

SECTION B-B

CMP DETENTION STRUCTURE
END PLATE DETAILS
TYPES A & B

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

SECTION A–A

TYPE C

SECTION B–B

DETAIL A

DETAIL B
FLAT STIFFENER

DETAIL C

DETAIL D

DETAIL E

NON-CORRUGATED PIPE

CMP DETENTION STRUCTURE
END PLATE DETAILS
TYPE C
## PIPE DIAMETER | END PLATE THICKNESS | STIFFENER TYPE & SIZE | STIFFENER SPACING | SIZE W
--- | --- | --- | --- | ---
### TYPE A
30" | 3/4" | FLAT 2 3/8" x 3/4" | 6" | 6" | 3 | 3/8"
36" | 3/4" | FLAT 3" x 3/4" | 6" | 6" | 4 | 3/8"
48" | 3/4" | FLAT 4 3/8" x 3/4" | 8" | 8" | 4 | 3/8"
60" | 3/8" | L 2 3/4" x 2" x 3/8" | 10" | 10" | 4 | 1/4"
72" | 3/8" | L 3" x 3" x 3/8" | 6" | 10" | 6 | 1/4"
### TYPE B
30" | 6" | 3/4" | FLAT 2 3/8" x 3/4" | 5 3/8" | 5 3/8" | 3 | 3/8"
36" | 6" | 3/4" | FLAT 3" x 3/4" | 5 3/8" | 4 | 3/8"
48" | 6" | 3/4" | FLAT 4 3/8" x 3/4" | 8" | 8" | 4 | 3/8"
60" | 3/8" | L 2 3/4" x 2" x 3/8" | 10" | 10" | 4 | 1/4"
72" | 3/8" | L 3" x 3" x 3/8" | 6" | 10" | 6 | 1/4"
### TYPE C
48" | 30" | 3/4" | FLAT 4 3/8" x 3/4" | 2" | 8" | 1 | 3/8"
60" | 36" | 3/8" | L 2 3/4" x 2" x 3/8" | 2" | 7" | 2 | 3/8"
72" | 36" | 3/8" | L 2" x 3" x 3/8" | 3" | 6" | 3 | 3/8"

### NOTES:
1. DESIGNS VALID FOR PIPE INSTALLED WITH 6'-0" OR LESS OF COVER FROM CROWN OF PIPE TO GRADE. MAXIMUM WATER SUCTION 3'-0" ABOVE CROWN OF PIPE.
2. END PLATE MATERIAL: ALUMINUM 6061-T6
3. DESIGNS SHALL BE USED ONLY FOR ALUMINUM CMP.
NOTES:
1. PVC PIPE SHALL BE SCHEDULE 40, PER ASTM 1785.
2. CONSTRUCTION DRAWINGS SHALL 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 ROW USE

CONNECTION & CONTROL DEVICE FOR PRIVATE SYSTEM

REF STD SPEC SEC 7-16
NOTES:
1. CONCRETE: CLASS 4000
2. 4" MIN THICKNESS FOR CURVED BOTTOM STRUCTURE

SECTION A--A

TYPE 277 A FRAME & COVER PER STD PLAN NO 230 TYPE 277B FRAME & GRATE PER STD PLAN NO 264

LEVELING BRICK
(USE GROUT FOR LESS THAN 4")

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

GROUT BOTTOM TO INVERT OF CC
APPROVED SAND MIX OR GROUT

TYPE 9 MINERAL AGGREGATE W/ PORTLAND CEMENT

6" MIN FOR FLAT BOTTOM, 4" MIN FOR CURVED BOTTOM

6" TO 12" SD TO MATCH CROWNS

SLOPE TO DRAIN

GRADE

2'-3/4" MAX (12"CC)
3'-3/4" MAX (18"CC)

6" TO 12" SD (SIZE TO MATCH EX CC)
FLEXIBLE JOINT
-FOR EX CC USE COUPLINGS
-FOR NEW CC USE BELL & SPIGOT

NEW OR EX 12" TO 18" CC

1'-0" MAX (Typ)

PLAN

4" MIN 1'-10" 4" MIN

4" MIN

REF STD SPEC SEC 7-02 & 9-12.9

200 SEWER-DRAINAGE APPURtenances

STANDARD PLAN NO 277

REV DATE: DEC 2013

City of Seattle
NOT TO SCALE

TYPE 277 JUNCTION BOX & INSTALLATION

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

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

REF STD SPEC SEC 7-17 & 7-16.2

City of Seattle
NOT TO SCALE
TEE INSTALLATION
CORRUGATED METAL PIPE

NOTE:
USE LOCKING CLEAN-OUT IN ROW.
DRILL AND TAP, APPLY ANTI-SEIZE
COATING AND BOLT DOWN WITH 3/8" S.S.
ALLEN-HEAD BOLTS – 2 PLACES.

CAST IRON FRAME & COVER

PLUG SHALL BE SEALED IN SAME MANNER AS MAIN SEWER JOINTS

WYE OR 1/8 BEND

FRAME & COVER PER STD PLAN NO 280

2'-6" X 2'-6" X 1'-6"
CONC PAD

12" DIA DIP, 12" LONG
FIBER JOINT PACKING

6" MINERAL AGGREGATE TYPE 2

NOTE:
USE LOCKING CLEAN-OUT IN ROW.
DRILL AND TAP, APPLY ANTI-SEIZE
COATING AND BOLT DOWN WITH 3/8" S.S.
ALLEN-HEAD BOLTS – 2 PLACES.

CAST IRON FRAME & COVER

PLUG SHALL BE SEALED IN SAME MANNER AS MAIN SEWER JOINTS

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FIBER JOINT PACKING

6" MINERAL AGGREGATE TYPE 2

NOTE:
USE LOCKING CLEAN-OUT IN ROW.
DRILL AND TAP, APPLY ANTI-SEIZE
COATING AND BOLT DOWN WITH 3/8" S.S.
ALLEN-HEAD BOLTS – 2 PLACES.

CAST IRON FRAME & COVER

PLUG SHALL BE SEALED IN SAME MANNER AS MAIN SEWER JOINTS

WYE OR 1/8 BEND
FOR PIPES LESS THAN 48" DIAMETER
(HELICAL OR ANNULAR)

REFERENCE

REF STD SPEC SEC 7-16.2 & 9-05

City of Seattle
NOT TO SCALE
CORRUGATED METAL PIPE COUPLING BANDS

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

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

CLASS C BEDDING

CLASS D BEDDING

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

MINERAL AGGREGATE PER STD SPEC 6-03.16
TYPE B FOR DUCTILE IRON WHEN Applicable
OR CONCRETE PIPE TYPE 22 FOR VITRIFIED
CLAY AND FLEXIBLE PIPE

SELECTED NATIVE MATERIAL

SUITABLE BACKFILL

FLUIDIZED THERMAL BACKFILL OR CDF

CLASS B SAND

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. UNIFORM SUPPORT PIPE BARREL EXCAVATE HOLES FOR BELLS AND COUPLING.

REF STD SPEC SEC 7-11,7-17
PARALLEL INSTALLATION

CROSSING WATER OVER SEWER

CROSSING WATER UNDER SEWER

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

REF STD SPEC SEC 1-07.17 & 7-11

City of Seattle

NOT TO SCALE

SEWER & WATER SPACING & CLEARANCES

NOTES:
1. ALL 3/8" STEEL & L3" x 2" x 3/8" TO BE A-36.
2. 6" PIPE TO BE STANDARD WEIGHT STEEL.
3. AFTER FABRICATION, DRAIN ASSEMBLY TO BE HOT DIP GALVANIZED.
4. VANED GRATE TO BE PER STD PLAN NO 265.

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 1278: SCAI 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)