GUTTER/ASPHALT TRANSITION AREA

FRAME & GRATE
SEE DETAIL 401C

2" WEEP HOLE AT FACE

RECESSED AREA
SEE DETAIL 401B

6" PLUGGED HOLE

TOP OF CURB

TOP OF PAVEMENT

"DRAINS TO RIVER BUTTON"
(SEE NOTE 1)

SLOPE TO GRATE

SLOPE TO GRATE

FRAME & GRATE
SEE DETAIL 401C

2" WEEP HOLE AT FACE

2" WEEP HOLE AT UPHILL SIDE WITH CAP
(TYPICAL)

1/4" SQUARE
(TYPICAL)

2" WEEP HOLE CAP

2'-4 1/4"

6"

6"

3/4" - 0"

SUBGRADE

SECTION A-A
PROFILE

NOTES:
1. SET "DRAINS TO RIVER" BUTTON INTO CURB BEFORE CONCRETE HAS CURED. CONTACT CITY FOR BUTTON SPECIFICATIONS (TYPICAL)
2. THIS CATCH BASIN IS REQUIRED IN ALL LOCATIONS UNLESS OTHERWISE SPECIFIED BY THE ENGINEER

SECTION B-B
SEE DETAIL 401B

CMC

CATCH BASIN

DATE JAN 2019

DRAWN CMC

APPR. 

DOM. NO. 401A
NOTES:

1. INSTALL 6" DRAIN PIPE SUCH THAT THE TOP OF PIPE IS 6" BELOW GRATE OR ALIGNED WITH THE CROWN OF THE OUTLET, WHICHEVER IS LOWER.

2. IF CATCH BASIN WILL BE PART OF A DRIVEWAY WING, SLANT THE REBAR CAGE AND INLET FORM TO THE SLOPE OF THE TOP OF CURB IN THE WING WHEN POURING THE CATCH BASIN. MAINTAIN THE "Y2" DIMENSION AND DECREASE THE INLET AS NEEDED.

3. IF THE DISTANCE FROM TOP OF CURB TO THE GRATE IS EQUAL TO OR LESS THAN "Y2" NO CURB INLET IS REQUIRED.

4. #3 AND #5 BARS SHALL BE PLACED DURING CURB CONSTRUCTION.

5. ALL BARS SHALL BE PLACED 1 1/2" CLEAR OF NEAREST FACE OF CONCRETE UNLESS SHOWN OR OTHERWISE NOTED.

6. ALL BAR SPLICE LENGTHS SHALL BE A MIN 20".

7. CONCRETE WITH 3300 PSI STRENGTH AT 28-DAYS SHALL BE USED IN ALL INLET CONSTRUCTION.

<table>
<thead>
<tr>
<th>TABLE 601-C</th>
<th>CURB TYPE</th>
<th>MONOLITHIC</th>
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<tbody>
<tr>
<td>Y1</td>
<td>8 1/2&quot;</td>
<td>7 1/2&quot;</td>
</tr>
<tr>
<td>Y2</td>
<td>5 3/4&quot;±</td>
<td>4 3/4&quot;±</td>
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</table>
CATCH BASIN FRAME AND GRATE

SECTION A-A

- 5/8" x 3" BOLT
- 4 ANCHORS 1/4"
- 2 1/2"
- 3/4"
- 2' 8 1/2"

PLAN (FRAME)

- 2 1/2" x 2" x 1/2" SQ. EDGE FLAT BARS
- 3" x 2 1/2" x 3/8" ANGLE (TYP.)
- 2 1/2" x 2" x 1/2" SQ. EDGE FLAT BARS
- 2'-3 3/8"
- 2'-4 3/4"
- 4 CORNERS 1/4"

NOTE:
USE VERTICAL BEADS IN CORNERS, FILLET WELD JOINT ON BOTTOM OF FRAME. GRATE MUST REST FLAT ON FRAME SURFACE.

SECTION B-B

- 3/8" x 2" FLAT BAR EACH END
- 3/8" x 2 1/2" FLAT BARS @ 1 7/8"
- O.C. LOAD PER AASHTO H-20 OR AS APPROVED BY ENGINEER

PLAN (GRADE)

- 8 BARS ON 4" CENTERS
- 2 1/2"
- 3/16" ROUND OR RECTANGULAR CROSS BARS SHALL BE FILLET WELDED, RESISTANCE WELDED OR ELECTROFORGED TO BEARING BARS

TYPICAL BOTH ENDS, OUTER BARS & EVERY THIRD INNER BAR

3/8" ROUND OR RECTANGULAR CROSS BARS

TYPICAL ALL BARS

3/16"
NOTE:
SET "DRAINS TO RIVER" BUTTON INTO CURB BEFORE
CONCRETE HAS CURED. CONTACT CITY FOR BUTTON
SPECIFICATIONS (TYPICAL)
NOTE:
USE VERTICAL BEADS IN CORNERS, FILLET WELD JOINT ON BOTTOM OF FRAME. GRATE MUST REST FLAT ON FRAME SURFACE. BAR SIZE PER AASHTO LOAD REQUIREMENTS AND AS APPROVED BY ENGINEER.

NOTE:
THIS GRATE MAY BE REQUIRED IN HILLSIDE AREAS OR WHERE STREET SLOPES EXCEED 5 PERCENT GRADE, OR WHERE THE CATCH BASIN FRAME AND GRATE (STANDARD DETAIL 401C) IS NOT CAPABLE OF INTERCEPTING COMPLETELY THE DESIGN STORM FLOW AT THE CURB.
NOTE:
USE VERTICAL BEADS IN CORNERS, FILLET WELD JOINT ON BOTTOM OF FRAME. GRATE MUST REST FLAT ON FRAME SURFACE. BAR SIZE PER AASHTO LOAD REQUIREMENTS AND AS APPROVED BY ENGINEER.

NOTE:
THIS GRATE MAY BE REQUIRED IN HILLSIDE AREAS OR WHERE STREET SLOPES EXCEED 5 PERCENT GRADE, OR WHERE THE CATCH BASIN FRAME AND GRATE (STANDARD DETAIL 401C) IS NOT CAPABLE OF INTERCEPTING COMPLETELY THE DESIGN STORM FLOW AT THE CURB.

MODIFIED CATCH BASIN FRAME
WITH SINGLE P-45 GRATE
NOTE:
SET "DRAINS TO RIVER" BUTTON INTO CURB BEFORE CONCRETE HAS CURED. CONTACT CITY FOR BUTTON SPECIFICATIONS (TYPICAL).

NOTE:
THIS CATCH BASIN IS AN ALTERNATIVE, FOR USE IN SPECIAL CIRCUMSTANCES AS REQUIRED BY THE ENGINEER.
1. CONCRETE SHALL ATTAIN A MINIMUM COMpressive STRENGTH OF 3300 P.S.I. IN 28 DAYS

2. FOR FRAME & GRATE DETAIL SEE DETAIL 403C

3. WHERE PRECAST INLETS ARE USED AS AN ALTERNATIVE TO CAST IN PLACE INLETS, A 4" COMPACTED LEVELING BED OF 3/4"-0" CRUSHED AGGREGATE SHALL BE PROVIDED

NOTE: SET "DRAINS TO RIVER" BUTTON INTO CURB BEFORE CONCRETE HAS CURED. CONTACT CITY FOR BUTTON SPECIFICATIONS (TYPICAL).
1. Concrete shall attain a minimum compressive strength of 3300 P.S.I. in 28 days.

2. For frame & grate detail see detail 403C.

3. Where precast inlets are used as an alternative to cast in place inlets, a 4" compacted leveling bed of 3/4"-0" crushed aggregate shall be provided.

Note: Set "Drains to River" button into curb before concrete has cured. Contact city for button specifications (typical).
2'-8 1/2"
3/4"

2 1/2"x1/2" SQ.
EDGE FLAT BARS

3"x2 1/2"x3/8"
ANGLE (TYP.)

2 1/2"x1/2" SQ.
EDGE FLAT BARS

4 CORNERS
1/4"

3/4"

5/8"x3" BOLT

4 ANCHORS
1/4"

2 1/2"

2'-8"
2'-7 1/4"

2'-3"

2 1/2"x1/4" SQ.
EDGE FLAT BAR
(9 EA.)

2 1/2"x5/8" SQ.
EDGE FLAT BAR (TYP.)

1 1/2"

3" ON CENTER

2'-8"
2'-7 1/4"

2'-3"

2 1/2"x1/4" SQ.
EDGE FLAT BAR
(9 EA.)

BOTH ENDS
ALL BARS
3/16"
NOTE:
SET "DRAINS TO RIVER" BUTTON INTO ADJACENT CURB BEFORE CONCRETE HAS CURED. CONTACT CITY FOR BUTTON SPECIFICATIONS (TYPICAL)

FRAME & COVER
SEE DETAIL 404B

2" WEEP HOLE BOTH SIDES (TYPICAL)

COMBINATION CURB INLET
SEE DETAIL 404B

PRECAST 48" FLAT TOP WITH STANDARD ROUND OPENING
SEE DETAIL 404B

PRECAST 48" DIA. MANHOLE SECTION (1' TO 4' HIGH)

PRECAST 48" DIA. MANHOLE BASE (2', 3' OR 4' HIGH) 2' MINIMUM

MIN. 6" DIA. HOLE WITH REMOVABLE PLUG

STANDARD MANHOLE STEPS
SEE DETAIL 210

1" COMPACTED CRUSHED ROCK 6" MIN. DEPTH, AS APPROVED BY ENGINEER

PROFILE

INLET-MANHOLE STANDARD
COMBINATION CURB INLET

NOTES:

1. REINFORCING FOR INLET UNIT: 3 EA. #4 HORIZONTAL BARS.
2. REINFORCING FOR TOP UNIT: 2 EA. #3 HORIZONTAL BARS.
3. REINFORCING FOR INLET SLOPED BASE: 4" X 4" MESH.
4. GUTTER IS TAPERED DOWN TO GRATE INLET.
5. SET "DRAINS TO RIVER" BUTTON INTO ADJACENT CURB BEFORE CONCRETE HAS CURED, CONTACT CITY FOR BUTTON SPECIFICATIONS (TYPICAL).

STANDARD FLAT TOP WITH ROUND OPENING
NOTE: SET "DRAINS TO RIVER" BUTTON INTO CURB BEFORE CONCRETE HAS CURED. CONTACT CITY FOR BUTTON SPECIFICATIONS (TYPICAL).

NORMAL PAVEMENT
SLOPE

FRAME & GRATE
SEE DETAIL 401C

SECTION A-A

3 - #3 TOP BARS CONTINUOUS TO BOTTOM BARS
SPACE AS SHOWN RELATIVE

NOTE: SET "DRAINS TO RIVER" BUTTON BEFORE CONCRETE HAS CURED. CONTACT CITY FOR BUTTON SPECIFICATIONS (TYPICAL).

#6 BARS CONTINUOUS

#5 HOOP

#6 BARS CONTINUOUS @ 4" CTRS.

MANHOLE DIAMETER AS REQUIRED

3 - #3 L BARS @ 5" MAX. CTRS. SPICE LOCATION

12 - #5 VERT. BARS (TYP.)

#6 BAR EA. SIDE

2 - #6 BARS

5 - #6 BARS @ 4" CTRS.

INLET-MANHOLE
SEE DETAIL 404A

STANDARD MANHOLE STEPS

TOP CURB

TOP FACE OF CURB

INLET-MANHOLE ALTERNATE TOP

FRAME & GRATE
SEE DETAIL 401C

NORMAL PAVEMENT
SLOPE

SECTION A-A

3 - #3 TOP BARS CONTINUOUS TO BOTTOM BARS
SPACE AS SHOWN RELATIVE

NOTE: SET "DRAINS TO RIVER" BUTTON BEFORE CONCRETE HAS CURED. CONTACT CITY FOR BUTTON SPECIFICATIONS (TYPICAL).

#6 BARS CONTINUOUS

#5 HOOP

#6 BARS CONTINUOUS @ 4" CTRS.

MANHOLE DIAMETER AS REQUIRED

3 - #3 L BARS @ 5" MAX. CTRS. SPICE LOCATION

12 - #5 VERT. BARS (TYP.)

#6 BAR EA. SIDE

2 - #6 BARS

5 - #6 BARS @ 4" CTRS.

INLET-MANHOLE
SEE DETAIL 404A

STANDARD MANHOLE STEPS

TOP CURB

TOP FACE OF CURB

SECTION B-B

PLAN
(TOP BARS NOT SHOWN IN PLAN VIEW)

INLET-MANHOLE ALTERNATE TOP
NON-GRATED INLET-MANHOLE (A)

NOTES:
1. 48-INCH DIAMETER INLET MANHOLES FOR USE WITH PIPES 27-INCH AND LESSER INSIDE DIAMETER ONLY
2. STANDARD FRAME AND COVER OR APPROVED EQUAL, CAST INTO INLET-MANHOLE COVER SEE DETAIL 205 & 410
3. SET "DRAINS TO RIVER" BUTTON INTO CURB BEFORE CONCRETE HAS CURED. CONTACT CITY FOR BUTTON SPECIFICATIONS (TYPICAL).
INLET-MANHOLE (B) TOP
SEE DETAIL 404F

STANDARD MANHOLE STEPS
(SEE DETAIL 210)

MIN. 6-INCH DIA.
HOLE WITH
REMOVABLE PLUG

PRECAST 48" DIA.
MANHOLE SECTION
(1' TO 4' HIGH)

FIELD FORM AND POUR
ADDITIONAL CONCRETE
TRANSITION TO FLAT TOP AS
REQUIRED

NOTES:
1. 48-INCH DIAMETER INLET
MANHOLES FOR USE WITH
PIPES 27-INCH OR LESSER
INSIDE DIAMETER ONLY
2. STANDARD FRAME AND COVER
OR APPROVED EQUAL, CAST
INTO INLET-MANHOLE COVER
SEE DETAILS 205 & 411
3. SET "DRAINS TO RIVER"
BUTTON INTO CURB BEFORE
CONCRETE HAS CURED.
CONTACT CITY FOR BUTTON
SPECIFICATIONS (TYPICAL).

PRE-CAST 48" DIA.
MANHOLE BASE
(2', 3' OR 4' HIGH)
2' MINIMUM

PROFILE
NOTES:
1. STANDARD FRAME AND COVER OR APPROVED EQUAl, CAST INTO INLET-MANHOLE TOP. SEE DETAILS 205 & 411
2. SET "DRAINS TO RIVER" BUTTON INTO CURB BEFORE CONCRETE HAS CURED. CONTACT CITY FOR BUTTON SPECIFICATIONS (TYPICAL).
FLOW CONTROL MANHOLE

FRAME & COVER SET IN NON-SHRINK GROUT
SEE DETAILS 205 & 411

24" MAX.
12"

1/2" ALUMINUM TUBE

FLOW

WATER TIGHT TURN OUT GATE IN PLACE.
SEE DETAIL 405B

FLOW

12" MIN.

60" MIN.
36" MIN.

OVERFLOW ELV.

30" MIN.

3"

INVERT ELV.

12" MIN.

24" MIN.

3" VARIES

FLOW CONTROL MANHOLE

MULTI-ORIFICE ELBOWS TO BE LOCATED TO ASSURE LADDER CLEARANCE. ORIFICE SHALL BE MOUNTED ON BOTTOM OF ELBOWS. ELBOWS SHALL BE SHORT RADIUS AND SHALL NOT EXTEND MORE THAN 8" FROM OVERFLOW PIPE.

FABRICATED SOLID WALL HDPE CROSS PER ASTM D1248 SDR 26. SLIGHT TAPER ON OUTLET PIPE BY MANUFACTURER TO MAKE WATERTIGHT CONNECTION BY SLIPPING INTO OUTLET PIPE. CROSS SHALL BE ANCHORED TO MANHOLE WALL WITH STAINLESS STEEL BANDS AND 1/2" STAINLESS STEEL BOLT.

NON-SHRINK GROUT (TYPICAL)

COMPACTED GRANULAR MATERIAL

RESTRICTOR PLATE (FOR FLOW CONTROL ONLY)
ORIFICE DIA.: __________

SECTION A-A

MANHOLE ACCESS FROM ABOVE

INFLOW LINE(S) PER PLAN

CITY OF GRESHAM

DRAWN CMC

DATE JAN 2019

APPD.

DWG. NO. 405A
PIVOT BOLT: 3/8" - 16 UNC - 2A X 2 1/4" HEX HD. CAP SCREW WITH 3/8" X 1" CUT WASHER & 3/8" WAVE WASHER

1/2" THRU 6 PLACES ON 10 3/8" BOLT CIRCLE FOR BOLTING TO GATE FLANGE CONNECTION ON TEE

OPERATING ROD CONNECTION DRILLED FOR 7/16" - 14 UNC - 2A X 2 1/4" HEX HD. CAP SCREW WITH ESNA NUT

DRILLED THRU BOTH SIDES FOR 7/16" CAP SCREW

1/2" ALUMINUM TUBE

1 1/16" X 1 1/2" DP SOCKET CROSS DRILLED FOR 1/4" - 20 UNC -2A X 2 1/4" HEX HD. CAP SCREW WITH ESNA NUT

NOTES:
1. MATERIAL: CAST ALUMINUM ALLOY PER ASTM B26M
2. ALL FASTENERS SHALL BE STAINLESS STEEL
3. INSTALLER SHOULD CONSULT INSTRUCTION NOTES FURNISHED WITH SHEAR GATES
4. A NEOPRENE RUBBER GASKET IS REQUIRED BETWEEN THE RISER MOUNTING FLANGE AND THE GATE FLANGE
5. INSTALL SHEAR GATE WITH THE LEVEL-LINE MARKING ON A TRUE HORIZONTAL PLANE WHEN THE GATE IS IN A CLOSED POSITION
NOTES:

S = 0.005 FT/FT

FLOW CONTROL MANHOLE SEE DETAILS 210

STANDARD MANHOLE SEE DETAILS 201 OR 202

1. THIS DETAIL REPRESENTS A DESIGN CONCEPT. FINAL DESIGN MAY VARY DEPENDING ON SITE CONDITIONS AND SHALL BE APPROVED BY THE ENGINEER.

2. DETENTION PIPE AND ALL CONNECTIONS SHALL BE WATERTIGHT.

150' MAXIMUM WHEN OFF-LINE FROM STORMWATER LINE

3' MIN. WHEN IN-LINE

0' WHEN OFF-LINE

TAMPERPROOF LID

STANDARD STEPS

STANDARD MANHOLE

MAXIMUM DIAMETER 36''

36'' MINIMUM

DETENTION PIPE TYPICAL CLOSED

1. THIS DETAIL REPRESENTS A DESIGN CONCEPT. FINAL DESIGN MAY VARY DEPENDING ON SITE CONDITIONS AND SHALL BE APPROVED BY THE ENGINEER.

2. DETENTION PIPE AND ALL CONNECTIONS SHALL BE WATERTIGHT.
STANDARD FRAME (SEE DETAIL 205) AND COVER (SEE DETAIL 440). OFFSET AS APPROVED BY THE ENGINEER.

SET IN NON-SHRINK GROUT (TYPICAL)

CURB

CATCH BASIN

24" MAX.

24" MAX.

12" MIN.

12" MIN.

12" MIN.

12" MIN.

48" DIA. X 5" THICK WALLS PERFORATED SECTIONS AND SOLID BOTTOM.

GEOTEXTILE FABRIC TO BE PLACED BETWEEN BACKFILL AND DRAIN ROCK

SEE NOTE 2

12" SDR 26 HDPE DRAIN PIPE

2.0 % SLOPE

CORED OPENING WITH NON-SHRINK GROUT (TYP.)

48" DIA. X 5" THICK WALLS PERFORATED SECTIONS AND SOLID BOTTOM.

DRAIN ROCK

UNDISTURBED NATIVE MATERIAL, OR 1"-0"

COMPACTED CRUSHED ROCK (6" MIN. DEPTH) AS APPROVED BY THE ENGINEER

MAXIMUM 12" OR 3 GRADE RINGS.

MINIMUM - 2" RINGS

FINISH GRADE

25' MIN.

30' MAXIMUM

30' MAXIMUM

20' STANDARD

12" MIN.

16" MIN.

48" DIA. X 5" THICK WALLS PERFORATED SECTIONS AND SOLID BOTTOM.

48" DIA. X 5" THICK WALLS PERFORATED SECTIONS AND SOLID BOTTOM.

NOTES:

① HDPE WRAP AROUND THE OUTSIDE OF THE PERFORATED SECTIONS SHALL BE ADDED IF THE DRAIN ROCK IS SMALLER THAN 2"-4".

② 12" 90° SHORT RADIUS ELBOW PER ASTM D1248, SDR 26 PLAIN END. ELBOW SHALL BE CONNECTED TO STORM PIPE WITH 1/8" ROLLED TAPER (WELD OD) AND ANCHORED TO MANHOLE WALL WITH STAINLESS STEEL STRAP

③ ALL PIPE TO SEDIMENTATION MANHOLE & PRECAST DRYWELL SHALL HAVE CLASS "B" BEDDING & PIPE ZONE MATERIAL.
INSTALL ONE STANDARD STEP
SEE DETAIL 210

POLYPROPYLENE HANGING LADDER
STEPS SHALL NOT CONFLICT WITH IE IN/OUT

PLACE LADDER WITH BASE OF LADDER
6" MINIMUM BELOW FINISH GRADE OF NEW CONCRETE BASE

EXISTING DRYWELL CONVERTED TO SEDIMENTATION MANHOLE

NEW 12" THICK CONCRETE BOTTOM

6" MIN.

24" MAX.

POLYPROPYLENE HANGING LADDER

January 2019

Kimberly Bogert

ANSI A (8.50 X 11.00 INCHES)
1/2"-13 NC X 1 1/4" STAINLESS STEEL HEX HEAD CAP SCREW W/ 1 1/4" Ø OD X 3/32" THK. 8-18 STAINLESS STEEL WASHER & 3/32" NEOPRENE WASHER, (3) EA. REQUIRED.

MACHINE TO A TRUE BEARING ALL AROUND.
PLACE ROCK 1' ABOVE CROWN
BOTH SIDES OF CHANNEL FOR "A" < 8'
OR ONE SIDE OF CHANNEL FOR "A" ≥ 8'

NOTE:
1. DIMENSION "A" + "B" SHALL, AT A MINIMUM, EQUAL THE LENGTH SHOWN IN PWS SUBSECTION 4.05.04.

SECTION A-A

OUTFALL PROTECTION

1' OR 2' ROCK THICKNESS
PER PWS SUBSECTION 4.05.04

LINED WITH DRAINAGE GEOTEXTILE

PLAN

TOP OF BANK

FLOW

"B" (4' MIN.)

"A"

30° MIN.

2' MIN.

TOP OF BANK

TOP OF BANK

TOP OF BANK

TOP OF BANK

TOP OF BANK

TOP OF BANK

TOP OF BANK

TOP OF BANK