

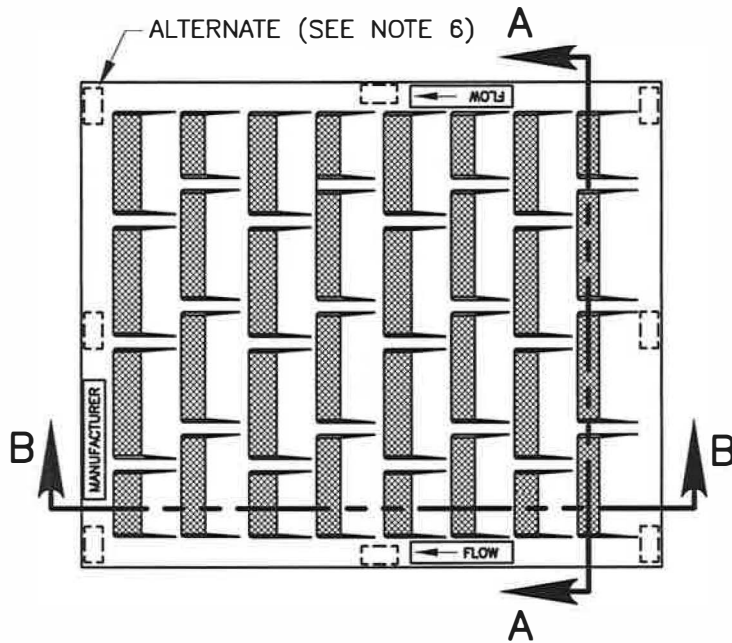
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## CITY OF SPOKANE STANDARD PLANS – SECTION B

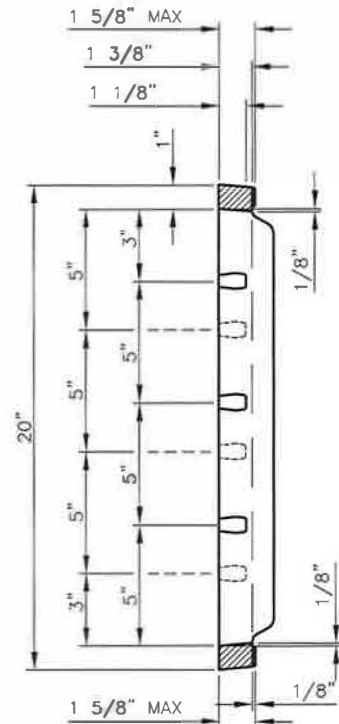
- B-101B = Revised Standard Plan  
 \*\*\*W-108A = New Standard Plan  
 #A-1 = Renumbered Standard Plan

[Back to Main TOC](#)

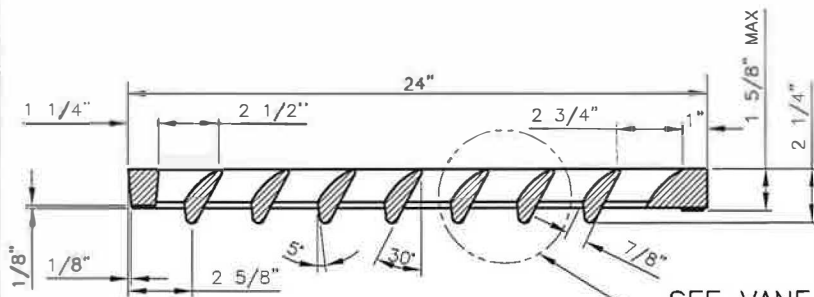
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**TOP VIEW**



**SECTION A-A**

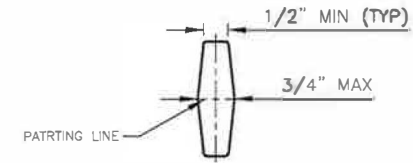


**SECTION B-B**

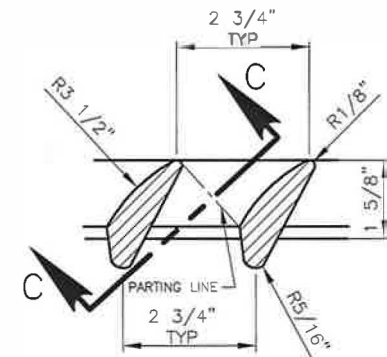
SEE VANE  
DETAIL

**NOTES:**

1. THE NAME OF THE MANUFACTURER SHALL BE EMBOSSED ON THE TOP SURFACE OF EACH GRATE. LETTERING TO BE RECESSED 1/16".
2. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-90, GRADE 30. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84 GRADE 80-55-06.
3. DIMENSIONS SHALL HAVE  $\pm 1/16$ " TOLERANCE, EXCEPT AS NOTED.
4. EDGES SHALL HAVE 1/8" RADIUS, 1/8" CHAMFER OR COMPLETE DEBURRING.
5. WELDING IS NOT PERMITTED.
6. AS AN ALTERNATE, EIGHT PADS  $1\ 1/2$ " x  $3/4$ " x  $1/8$ ", INTEGRALLY CAST WITH THE GRATE MAY BE USED.
7. WHEREVER PRACTICAL & FEASIBLE, USE GRATE SHOWN ON THIS SHEET IN CONTINUOUS GRADE CONDITIONS.



**SECTION C-C**



**VANE DETAIL**

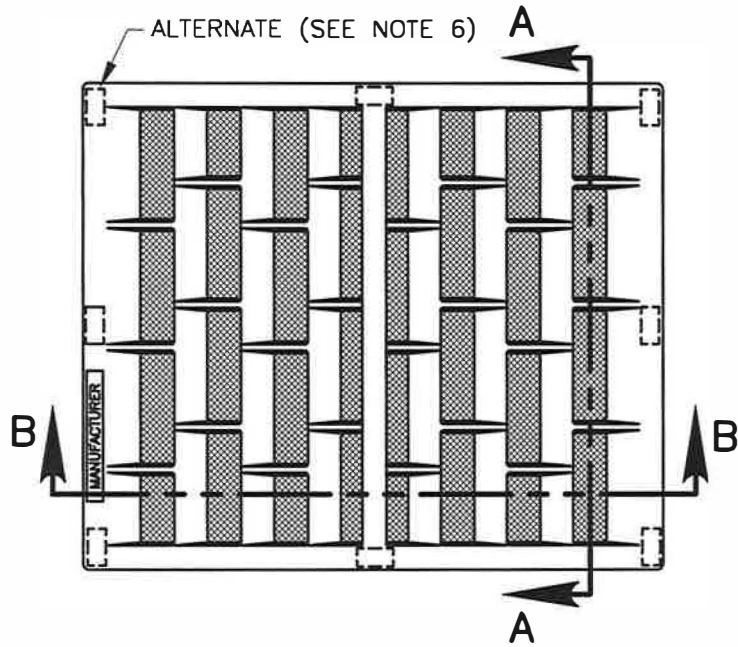
APPROVED BY  
*Eldon Brown*  
ACTING DIRECTOR,  
ENGINEERING SERVICES  
For SCOTT D. EGGER, P.E.  
*Gary S. Nelson*  
PRINCIPAL ENGINEER, DESIGN GARY S. NELSON, P.E.

ADOPTED: 05/2007  
REVISED: \_\_\_\_\_  
SUPERSEDES: \_\_\_\_\_  
CHECKED BY: JAG  
SCALE: NTS  
DWG/REV. BY: PCF

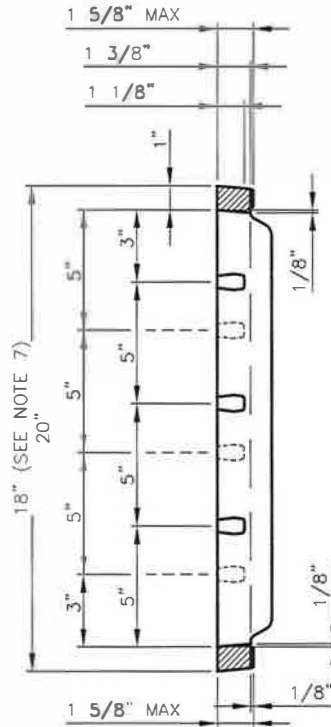
DIRECTIONAL VANED GRATE

ENGINEERING SERVICES  
CITY OF SPOKANE, WASHINGTON

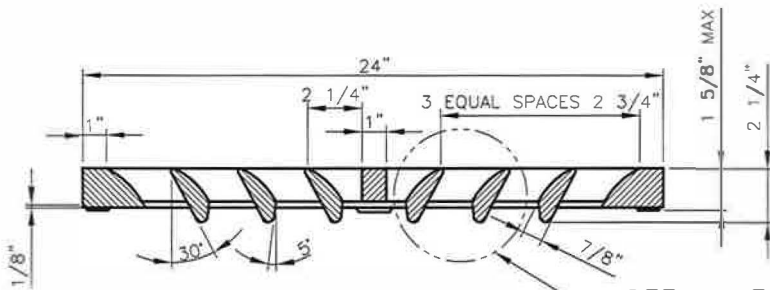
STANDARD  
PLAN No.  
B-2A



**TOP VIEW**



**SECTION A-A**

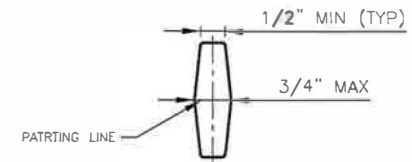


**SECTION B-B**

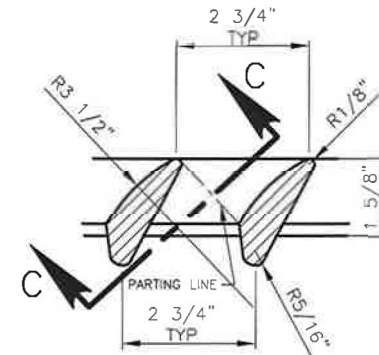
SEE VANE  
DETAIL

**NOTES:**

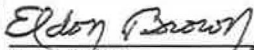

1. THE NAME OF THE MANUFACTURER SHALL BE EMBOSSED ON THE TOP SURFACE OF EACH GRATE. LETTERING TO BE RECESSED 1/16".
2. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-90, GRADE 30. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84 GRADE 80-55-06.
3. DIMENSIONS SHALL HAVE  $\pm 1/16$ " TOLERANCE, EXCEPT AS NOTED.
4. EDGES SHALL HAVE 1/8" RADIUS, 1/8" CHAMFER OR COMPLETE DEBURRING.
5. WELDING IS NOT PERMITTED.
6. AS AN ALTERNATE, EIGHT PADS  $1\ 1/2$ " x  $3/4$ " x  $1/8$ ", INTEGRALLY CAST WITH THE GRATE MAY BE USED.
7. DIMENSION FOR THE GRATE ASSOCIATED WITH CATCH BASIN TYPE 3. OTHER DIMENSIONS, THE NUMBER & POSITION OF THE VANES WILL ALSO VARY.
8. WHEREVER PRACTICAL & FEASIBLE, USE GRATE SHOWN ON THIS SHEET IN SUMP CONDITIONS.

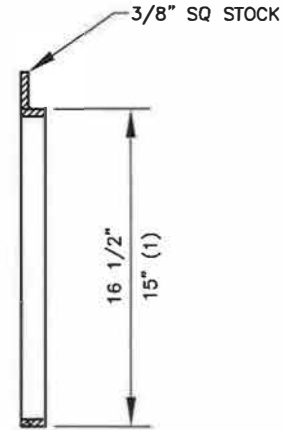
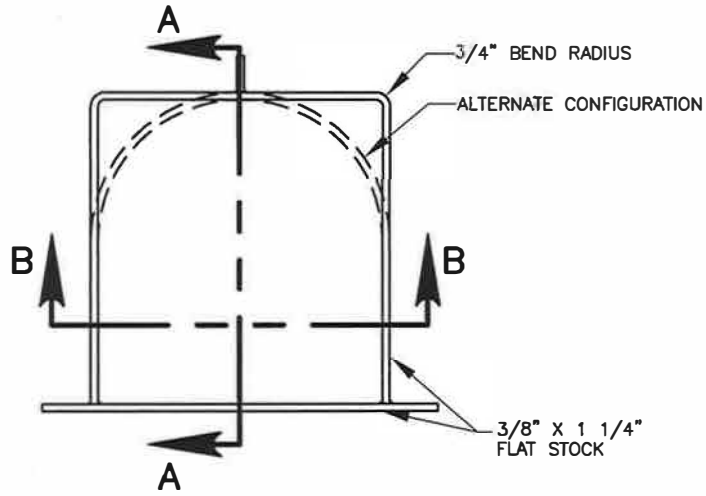


**SECTION C-C**

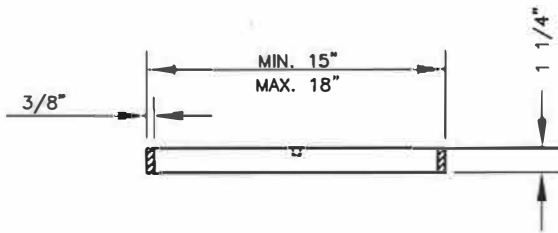


**VANE DETAIL**

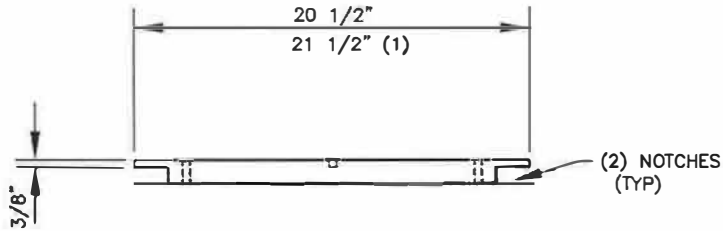
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 ACTING DIRECTOR, ENGINEERING SERVICES For SCOTT D. EGGER, P.E.		REVISED: _____ SUPERSEDES: _____ CHECKED BY: JAG SCALE: NTS DWG/REV. BY: PCF			
 PRINCIPAL ENGINEER, DESIGN GARY S. NELSON, P.E.		ENGINEERING SERVICES CITY OF SPOKANE, WASHINGTON		STANDARD PLAN No. B-2B	



**SECTION A-A**





**SECTION B-B**



**END VIEW**

(1) DIMENSION FOR FRAME ASSOCIATED WITH CATCH BASIN TYPE 3

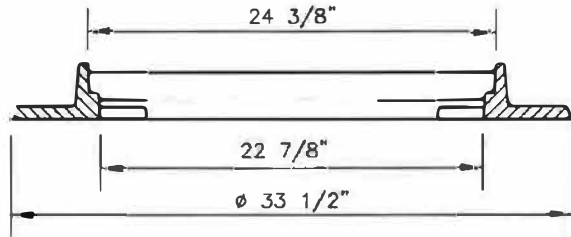
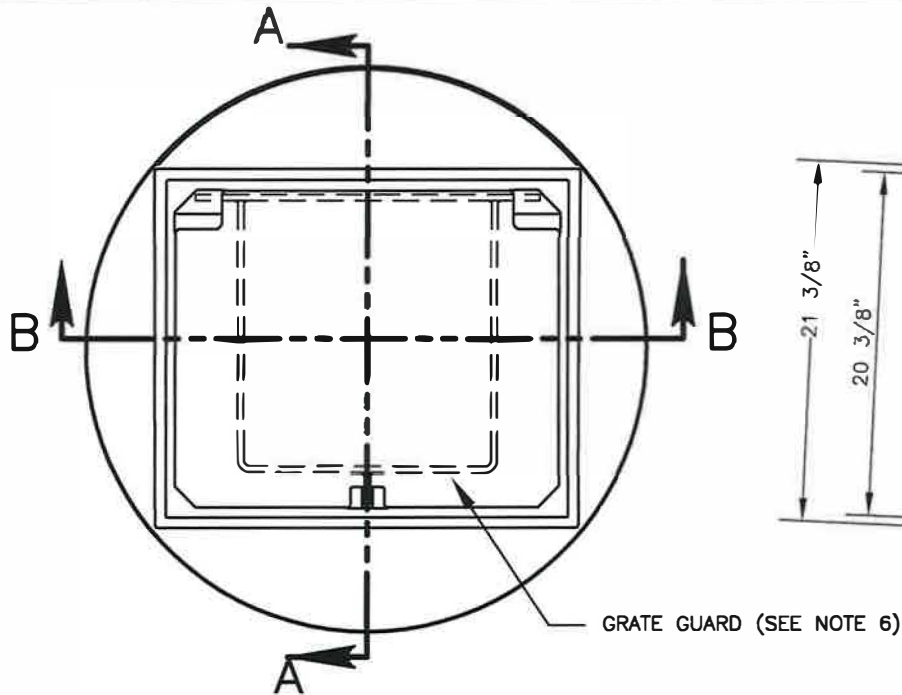
APPROVED BY  
  
 DIRECTOR, ENGINEERING SERVICES TOM L. ARNOLD, P.E.  
  
 PRINCIPAL ENGINEER, DESIGN GARY S. NELSON, P.E.

ADOPTED: 05/2007  
 REVISED: \_\_\_\_\_  
 SUPERSEDES: \_\_\_\_\_  
 CHECKED BY: JAG  
 SCALE: NTS  
 DWG/REV. BY: PCF/RDC

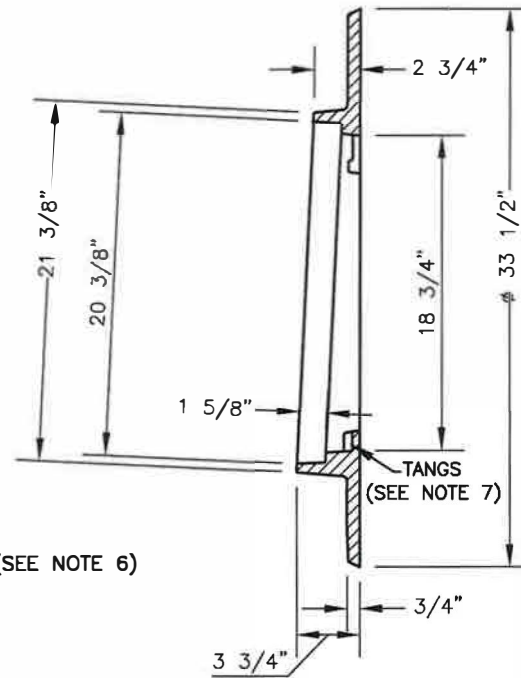
**GRATE GUARD**

ENGINEERING SERVICES  
 CITY OF SPOKANE, WASHINGTON

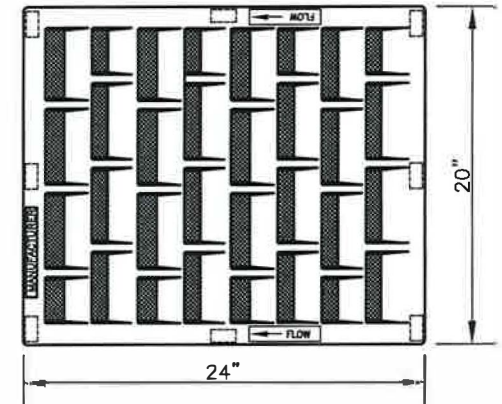
STANDARD  
 PLAN No.  
 B-2C



**SECTION B-B**



**SECTION A-A**



**DIRECTIONAL VANED GRATE**

SEE CITY STANDARD PLAN B-2A

**NOTES:**

1. SEE SECTIONS 9-05.15(1) AND 9-05.15(2)
2. FRAME: GRAY IRON CASTING, SEE SECTION 9-06.9.
3. GRATE: DUCTILE IRON CASTING, SEE SECTION 9-06.14.
4. FOUNDRY NAME, DATE, HEAT NUMBER AND MATERIAL IN RAISED LETTERS ON INTERIOR OF EACH CASTING.
5. TOLERANCES  $\pm 0.0625$ ".
6. GRATE GUARD REQ'D. SEE CITY STD PLAN B-2C.
7. CONTINUOUS LIP ON BOTTOM OF TANGS TO REST GRATE GUARD TAB ON.
8. WHEREVER PRACTICAL & FEASIBLE, USE FRAME & GRATE W/HOOD SHOWN ON THIS SHEET IN SUMP CONDITIONS.

APPROVED BY ?




DIRECTOR, ENGINEERING SERVICES    PERRY M. TAYLOR, P.E.



PRINCIPAL ENGINEER, CONST.    KENNETH M. BROWN, P.E.

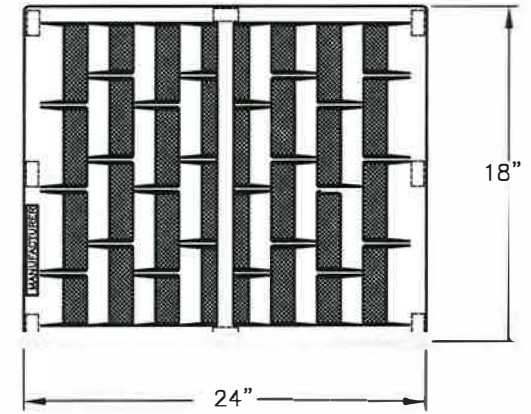
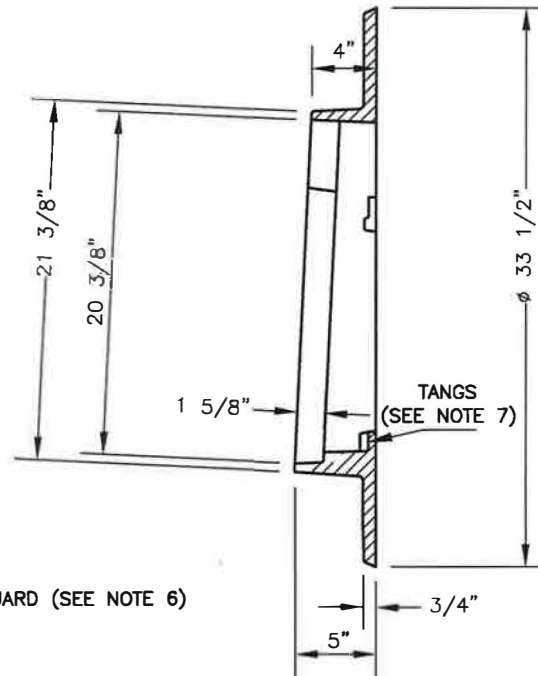
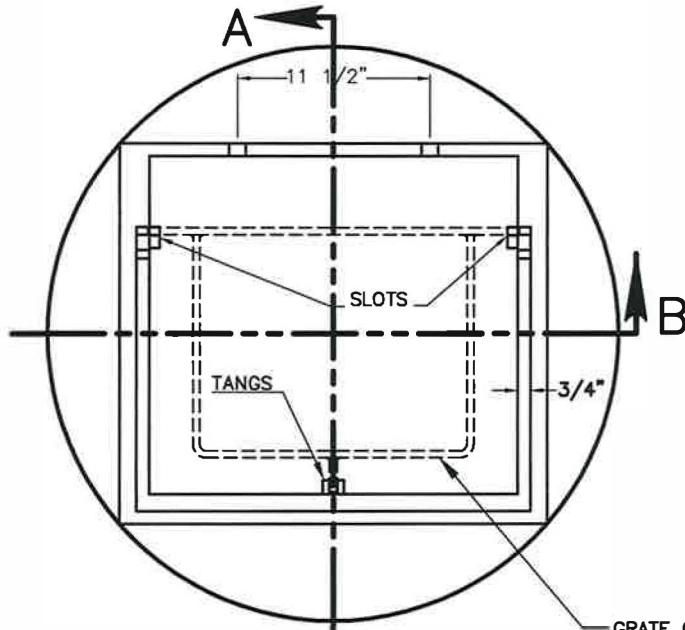
ADOPTED: 05/2007  
 REVISED: 04/2013  
 SUPERSEDES: 05/2007  
 CHECKED BY: JAG  
 SCALE: NTS  
 DWG/REV. BY: PCF/RDC

FRAME AND GRATE  
 FOR CATCH BASIN TYPE 1

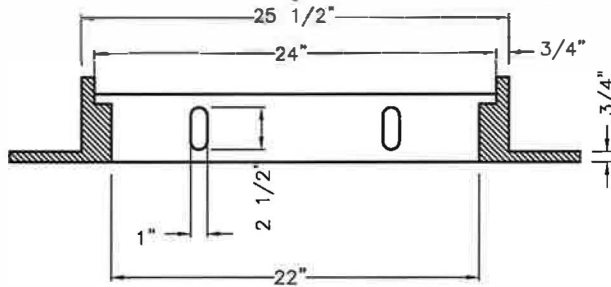


ENGINEERING SERVICES  
 CITY OF SPOKANE, WASHINGTON

STANDARD  
 PLAN No.  
 B-3A



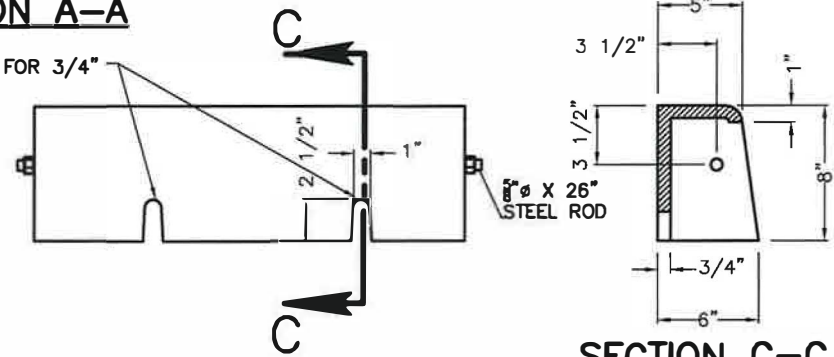
**BI-DIRECTIONAL VANED GRATE**  
SEE CITY STANDARD PLAN B-2B



**SECTION B-B**

**SECTION A-A**

2 - 1" x 2-1/2" SLOTS FOR 3/4" BOLT, NUT & WASHER



**SECTION C-C**

**CATCH BASIN HOOD**

**NOTES:**

1. SEE SECTIONS 9-05.15(1) AND 9-05.15(2)
2. FRAME: GRAY IRON CASTING, SEE SECTION 9-06.9.
3. GRATE: DUCTILE IRON CASTING, SEE SECTION 9-06.14.
4. FOUNDRY NAME, DATE, HEAT NUMBER AND MATERIAL IN RAISED LETTERS ON INTERIOR OF EACH CASTING.
5. TOLERANCES  $\pm 0.0625$ ".
6. GRATE GUARD REQ'D. SEE CITY STD PLAN B-2C.
7. CONTINUOUS LIP ON BOTTOM OF TANGS TO REST GRATE GUARD TAB ON.
8. WHEREVER PRACTICAL & FEASIBLE, USE FRAME & GRATE W/HOOD SHOWN ON THIS SHEET IN SUMP CONDITIONS.

APPROVED BY  
  
 DIRECTOR, ENGINEERING SERVICES PERRY M. TAYLOR, P.E.  
  
 PRINCIPAL ENGINEER, CONST. KENNETH M. BROWN, P.E.

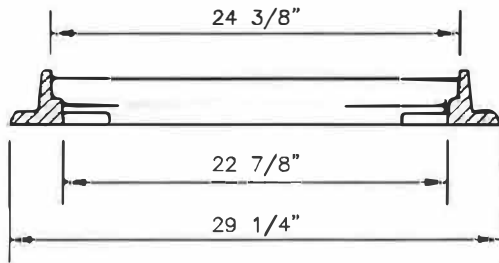
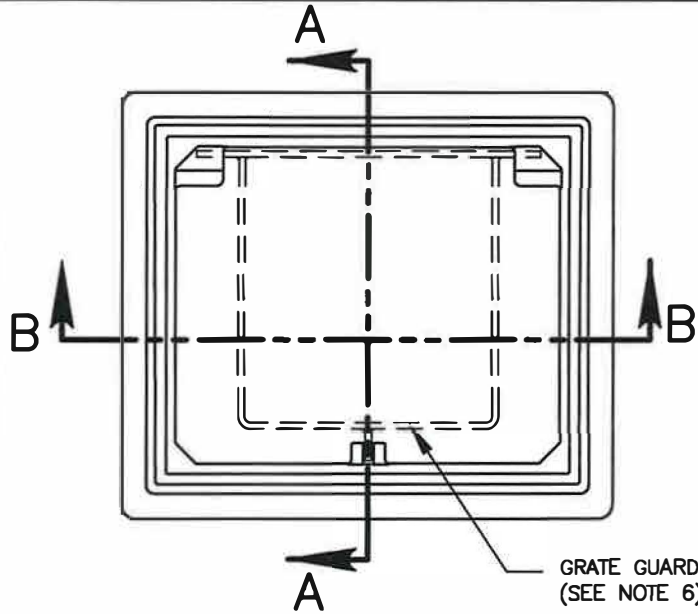
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 REVISED: 04/2013  
 SUPERSEDES: 05/2007  
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 DWG/REV. BY: PCF/RDC

FRAME AND GRATE  
 FOR CATCH BASIN TYPE 3

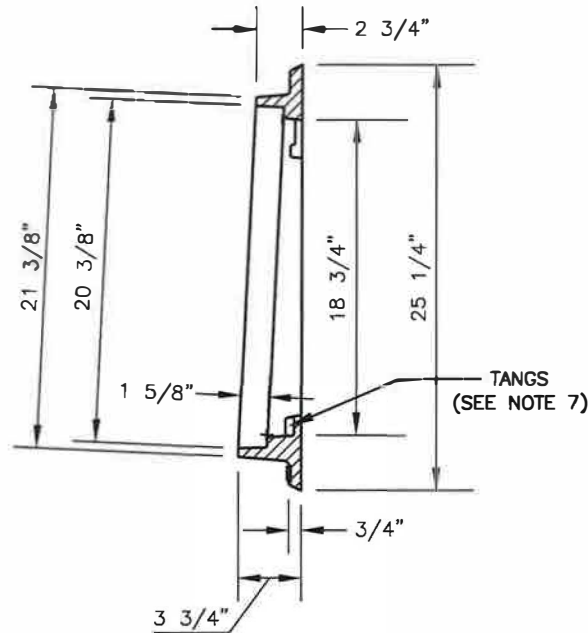


ENGINEERING SERVICES  
 CITY OF SPOKANE, WASHINGTON

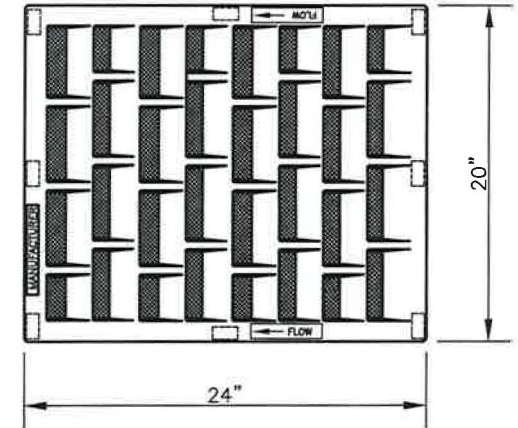
STANDARD  
 PLAN No.  
 B-3B



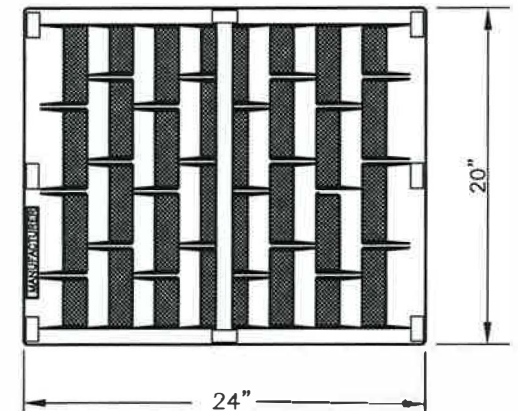
**SECTION B-B**



**SECTION A-A**



**DIRECTIONAL VANED GRATE**  
SEE CITY STANDARD PLAN B-2A



**BI-DIRECTIONAL VANED GRATE**  
SEE CITY STANDARD PLAN B-2B

**NOTES:**

1. SEE SECTIONS 9-05.15(1) AND 9-05.15(2)
2. FRAME: GRAY IRON CASTING, SEE SECTION 9-06.9.
3. GRATE: DUCTILE IRON CASTING, SEE SECTION 9-06.14.
4. FOUNDRY NAME, DATE, HEAT NUMBER AND MATERIAL IN RAISED LETTERS ON INTERIOR OF EACH CASTING.
5. TOLERANCES  $\pm 0.0625$ ".
6. GRATE GUARD REQ'D. SEE CITY STD PLAN B-2C.
7. CONTINUOUS LIP ON BOTTOM OF TANGS TO REST GRATE GUARD TAB ON.
8. USE DIRECTIONAL VANED GRATE (B-2A) IN CONTINUOUS GRADE CONDITIONS & BI-DIRECTIONAL VANED GRATE (B-2B) IN SUMP CONDITIONS

APPROVED BY  
  
 DIRECTOR, ENGINEERING SERVICES PERRY M. TAYLOR, P.E.  
  
 PRINCIPAL ENGINEER, CONST. KENNETH M. BROWN, P.E.

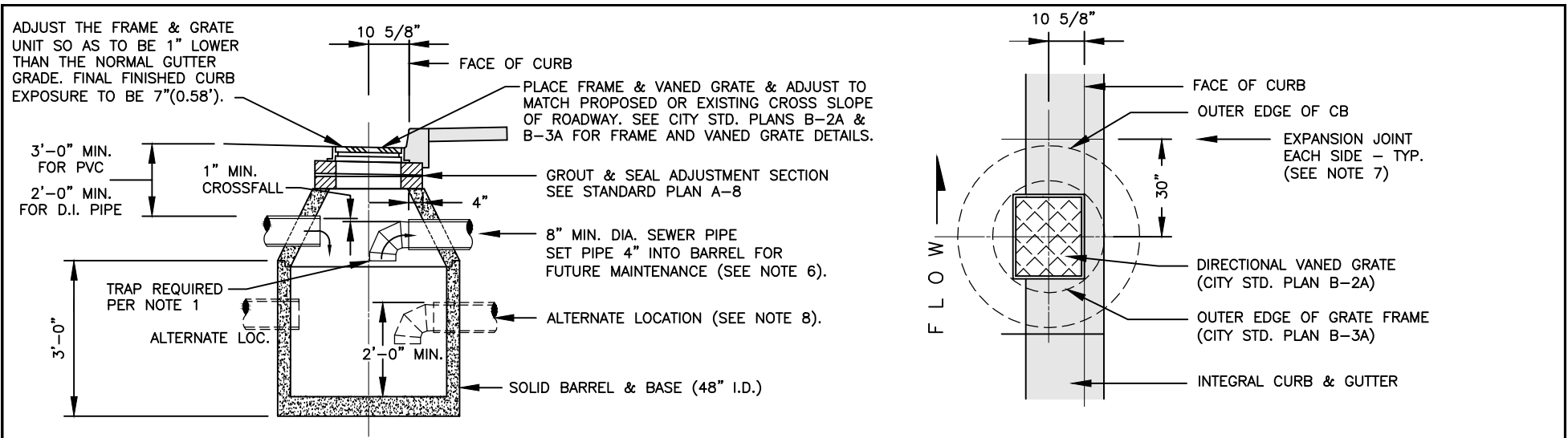
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 SUPERSEDES: 05/2007  
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FRAME AND GRATE  
 FOR INLET, TYPE 3

ENGINEERING SERVICES  
 CITY OF SPOKANE, WASHINGTON

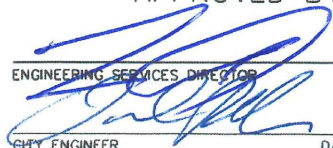

STANDARD  
 PLAN No.  
 B-3C



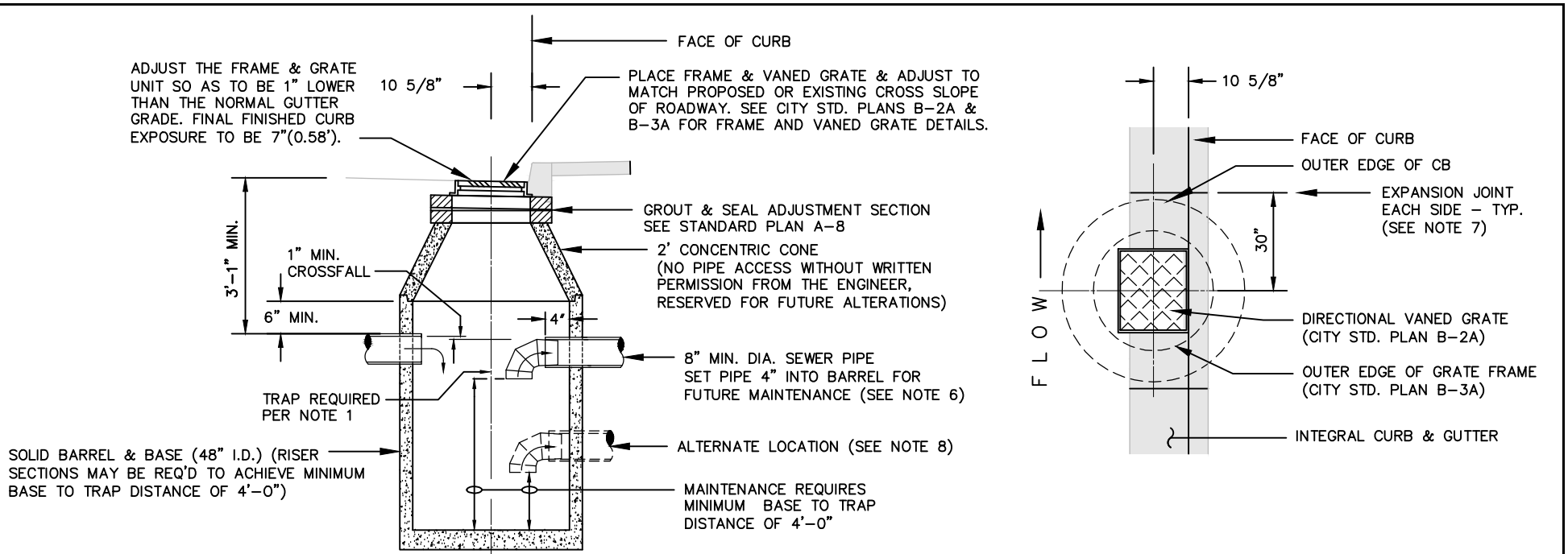
**FRAME & VANED GRATE: NORMAL INSTALLATION**  
FOR USE IN CONTINUOUS GRADE SITUATIONS

**NOTES:**

1. SEE STD. PLAN B-120 FOR OUTLET TRAP. TRAP REQUIRED WHEN CATCH BASIN CONNECTED TO CITY STORM SYSTEM, DRYWELL, ABSORPTION TRENCH, OR OTHER U/G INJECTION STRUCTURE/FACILITY. TRAP TO REMAIN REMOVABLE FOR MAINTENANCE THEREFORE NO MECHANICAL CONNECTION BETWEEN TRAP & OUTLET ALLOWED. VERTICAL PROJECTION OF TRAP NOT TO EXTEND BEYOND C/L OF ACCESS OPENING.
2. IF AN INLET PIPE IS PRESENT, THE INVERT SHALL BE HIGHER IN ELEVATION THAN THE OUTLET PIPE INVERT. A C.B. WITH AN INLET PIPE IS UTILIZED ONLY WHEN CONNECTING ADDITIONAL C.B.'s AT AN INTERSECTION OR WHEN ADDING GRATE INLET TYPE 3. A C.B. WITH INLET PIPE(S) IS NOT ALLOWED AS A SUBSTITUTE FOR A M.H.
3. SEE SEC. 9-12 FOR PRECAST CONCRETE CATCH BASINS.
4. SEE STD. PLAN Z-118 FOR BASE SLAB & FOUNDATION DETAILS.
5. CONE & BARREL JOINTS MAY BE EITHER TONGUE & GROOVE OR REVERSE TONGUE & GROOVE.
6. ADJUSTMENT SECTION, CONE, BARREL, & PIPE OPENINGS TO BE SEALED PER SECTION 7-05.
7. CONCRETE CURB & GUTTER SHALL BE BLOCKED OUT FOR A 5-FT LENGTH CENTERED @ THE C.B. TO ALLOW FOR LOCATING CB ADJACENT TO CURB.
8. USE ALTERNATE LOCATION FOR INLET/OUTLET PIPES ONLY IF INLET PIPE REQUIRES ADDITIONAL DEPTH FOR SLOPING.
9. SEE STANDARD PLAN A-8 FOR ADJUSTMENT SECTION REQUIREMENTS.
10. A DESIGN VARIANCE IS REQUIRED BEFORE A CATCH BASIN - TYPE 0 IS INSTALLED.

<p>APPROVED BY</p>  <p>ENGINEERING SERVICES DIRECTOR KYLE TWOHIG</p> <p>CITY ENGINEER DAN BULLER, P.E.</p>	<p>ADOPTED: _____</p> <p>REVISED: 10/2019</p> <p>SUPERSEDES: 01/2017</p> <p>CHECKED BY: GSN</p> <p>SCALE: NTS</p> <p>DWG./REV BY: SRM/MLD</p>	<p><b>CATCH BASIN-TYPE 0</b></p>
 <p>ENGINEERING SERVICES CITY OF SPOKANE, WASHINGTON</p>	<p>STANDARD PLAN No. <b>B-101B</b></p>	



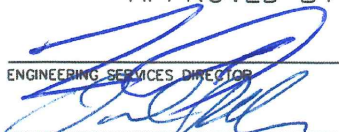


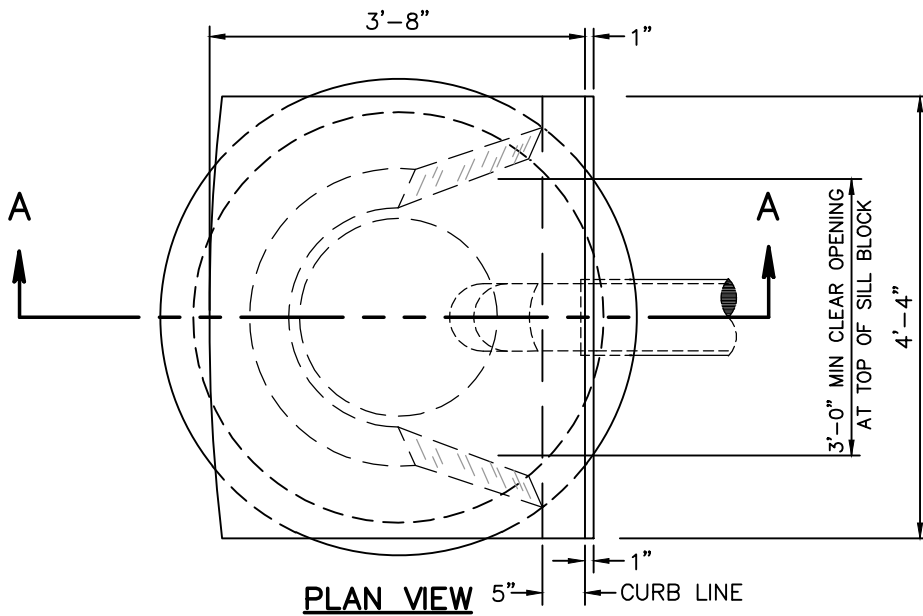
## FRAME & VANED GRATE: NORMAL INSTALLATION

FOR USE IN CONTINUOUS GRADE SITUATIONS

### NOTES:

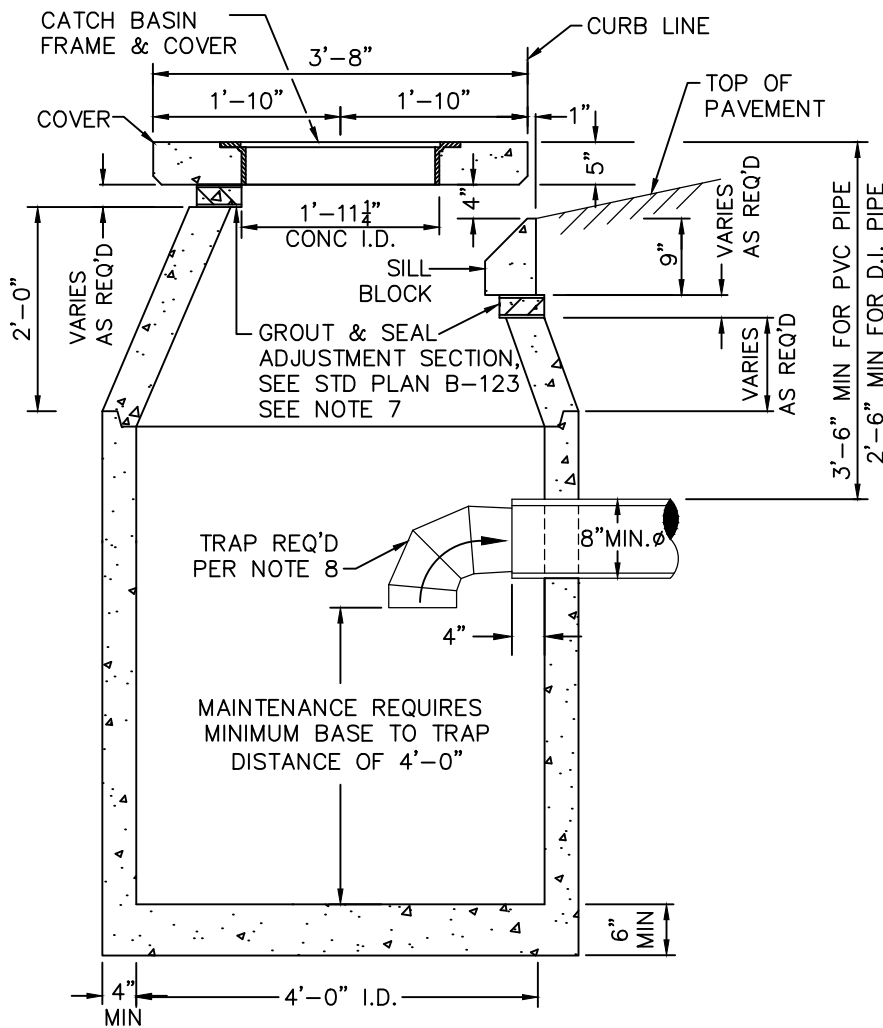
1. SEE STD. PLAN B-120 FOR OUTLET TRAP. A TRAP IS REQUIRED ON ANY OUTLET PIPE. TRAP TO REMAIN REMOVABLE FOR MAINTENANCE THEREFORE NO MECHANICAL CONNECTION BETWEEN TRAP & OUTLET ALLOWED. VERTICAL PROJECTION OF TRAP NOT TO EXTEND BEYOND C/L OF ACCESS OPENING.
2. IF AN INLET PIPE IS PRESENT, THE INVERT SHALL BE HIGHER IN ELEVATION THAN THE OUTLET PIPE INVERT. A C.B. WITH AN INLET PIPE IS UTILIZED ONLY WHEN CONNECTING ADDITIONAL C.B.'s AT AN INTERSECTION OR WHEN ADDING GRATE INLET TYPE 3. A C.B. WITH INLET PIPE(S) IS NOT ALLOWED AS A SUBSTITUTE FOR A M.H.
3. SEE SEC. 9-12 FOR PRECAST CONCRETE CATCH BASINS.
4. SEE STD. PLAN Z118 FOR BASE SLAB & FOUNDATION DETAILS.
5. CONE & BARREL JOINTS MAY BE EITHER TONGUE & GROOVE OR REVERSE TONGUE & GROOVE.
6. ADJUSTMENT SECTION, CONE, BARREL, RISER SECTIONS (IF USED), & PIPE OPENINGS TO BE SEALED PER SECTION 7-05.
7. CONCRETE CURB & GUTTER SHALL BE BLOCKED OUT FOR A 5-FT LENGTH CENTERED @ THE C.B. TO ALLOW FOR LOCATING CB ADJACENT TO CURB.
8. USE ALTERNATE LOCATION FOR INLET/OUTLET PIPES ONLY IF INLET PIPE REQUIRES ADDITIONAL DEPTH FOR SLOPING. PROVIDE 4-FT DEPTH UNDER TRAP.
9. SEE STANDARD PLAN A-8 FOR ADJUSTMENT SECTION REQUIREMENTS.

<p>APPROVED BY</p>  <p>ENGINEERING SERVICES DIRECTOR KYLE TWOHIG</p> <p>CITY ENGINEER DAN BULLER, P.E.</p>	<p>ADOPTED: _____</p> <p>REVISED: 10/2019</p> <p>SUPERSEDES: 04/2018</p> <p>CHECKED BY: JAG/GSN</p> <p>SCALE: NTS</p> <p>DWG/REV. BY: RJS/MLD</p>	<h3>CATCH BASIN - TYPE 1</h3>	
<p>SPokane</p> <p>ENGINEERING SERVICES</p> <p>CITY OF SPOKANE, WASHINGTON</p>		<p>STANDARD PLAN No. B-101C</p>	



**NOTES:**

1. SEE SEC 9-12 FOR PRECAST CONCRETE CATCH BASINS.
2. SEE STD PLAN B-114 FOR CATCH BASIN, TYPE 2, FRAME & COVER.
3. SEE STD PLAN B-105 FOR COVER & SILL BLOCK.
4. SEE STD PLAN W-106 FOR GUTTER DETAILS.
5. SEE STD PLAN Z-118 FOR BASE SLAB & FOUNDATION DETAILS.
6. CONE & BARREL JOINTS MAY BE EITHER TONGUE & GROOVE OR REVERSE TONGUE & GROOVE.
7. ADJUSTMENT SECTION, CONE, BARREL JOINTS, RISER SECTIONS (IF USED), & PIPE OPENINGS TO BE SEALED PER SEC 7-05.
8. SEE STD PLAN B-120 FOR OUTLET TRAP. A TRAP IS REQ'D ON ANY OUTLET PIPE. TRAP TO REMAIN REMOVABLE FOR MAINTENANCE THEREFORE, NO MECHANICAL CONNECTION BETWEEN TRAP & OUTLET PIPE IS ALLOWED. VERTICAL PROJECTION OF TRAP NOT TO EXTEND BEYOND C/L OF ACCESS OPENING.
9. SEE STANDARD PLAN A-8 FOR ADJUSTMENT SECTION REQUIREMENTS.
10. C.B. TYPE 2 SHALL BE UTILIZED WHERE GUTTER GRADES ARE  $\leq \pm 0.75\%$  (.0075).



**SECTION A-A**

APPROVED BY  
  
 ENGINEERING SERVICES DIRECTOR  
 KYLE TWHOIG  
 CITY ENGINEER  
 DAN BULLER, P.E.

ADOPTED: \_\_\_\_\_  
 REVISED: 10/2019  
 SUPERSEDES: 01/2017  
 CHECKED BY: JAG  
 SCALE: NTS  
 DWG./REV. BY: TSS/MLD

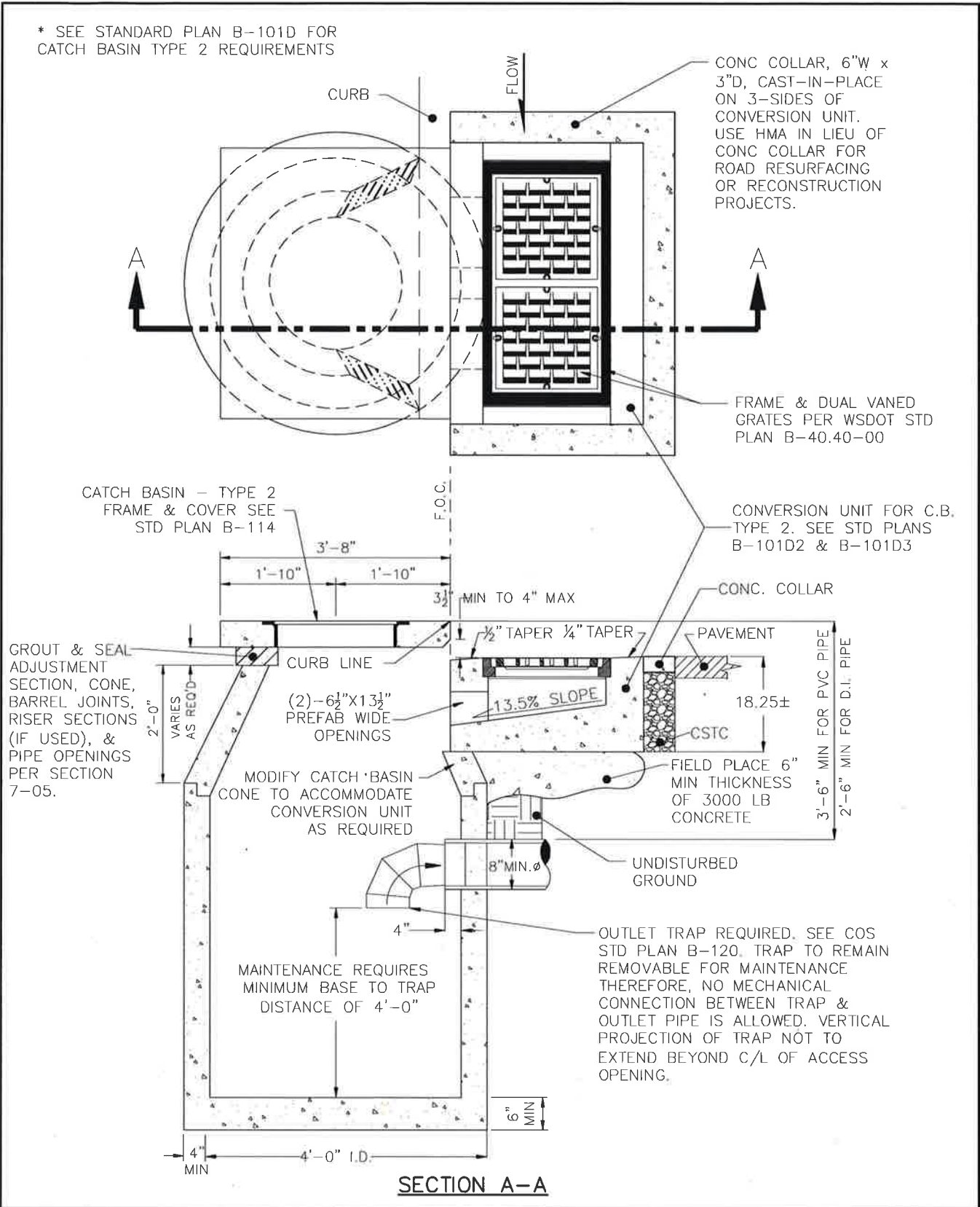
**CATCH BASIN - TYPE 2**



ENGINEERING SERVICES  
 CITY OF SPOKANE, WASHINGTON

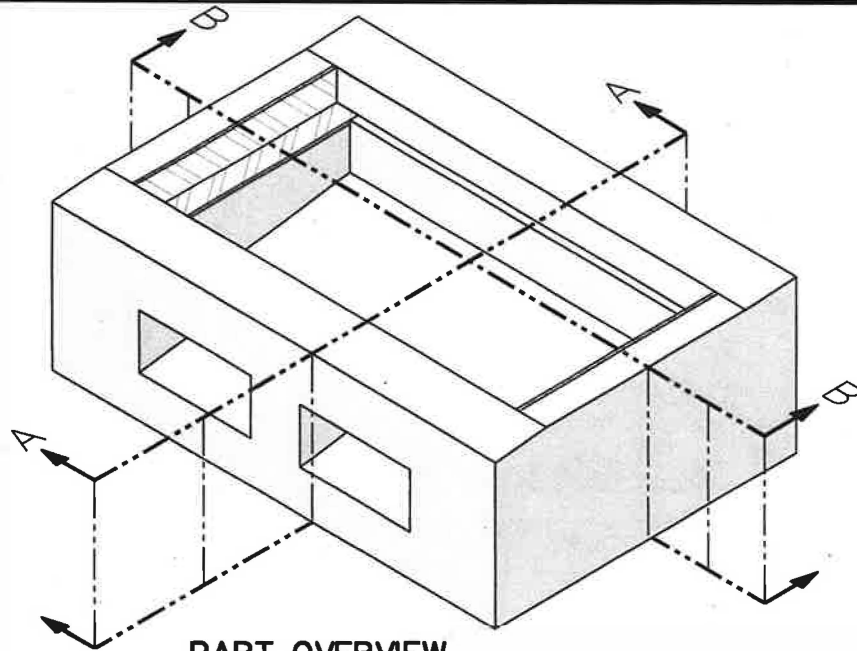
STANDARD  
 PLAN No.  
**B-101D**



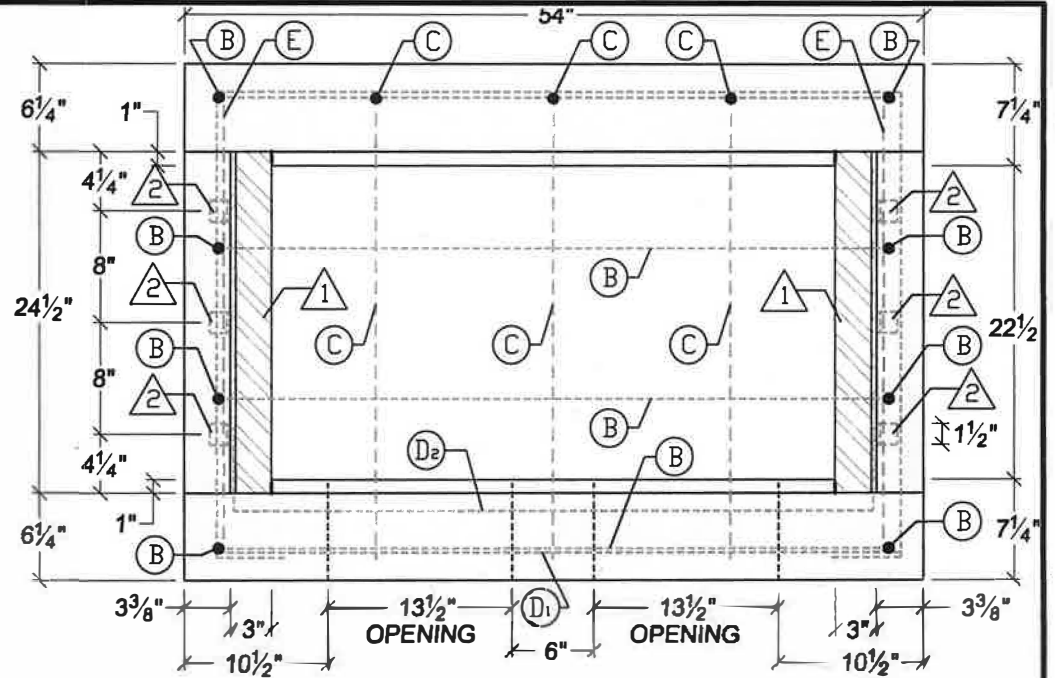
\* SEE STANDARD PLAN B-101D FOR CATCH BASIN TYPE 2 REQUIREMENTS



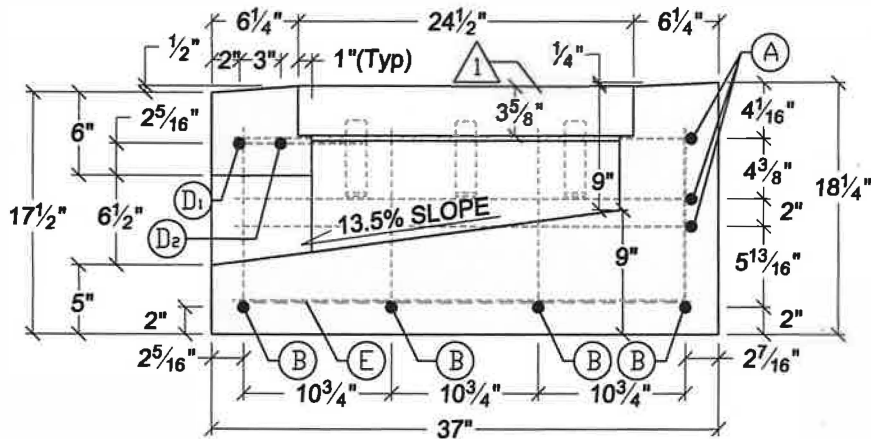
<p>APPROVED BY</p>  <p>ENGINEERING OPERATIONS MANAGER KYLE TWOHIG</p>  <p>CITY ENGINEER DANIEL ALBERT BULLER, P.E.</p>	<p>ADOPTED: 01/2009                  REVISED: 01/2017                  SUPERSEDES: 04/2012                  CHECKED BY: JAG                  SCALE: NTS                  DWG/REV. BY: TCB/MLD</p>	<p>CATCH BASIN - TYPE 2                  W/ CONVERSION UNIT FOR WSDOT VANED GRATES</p> <p>ENGINEERING SERVICES                  CITY OF SPOKANE, WASHINGTON</p> <p>STANDARD PLAN No. B-101D1</p>
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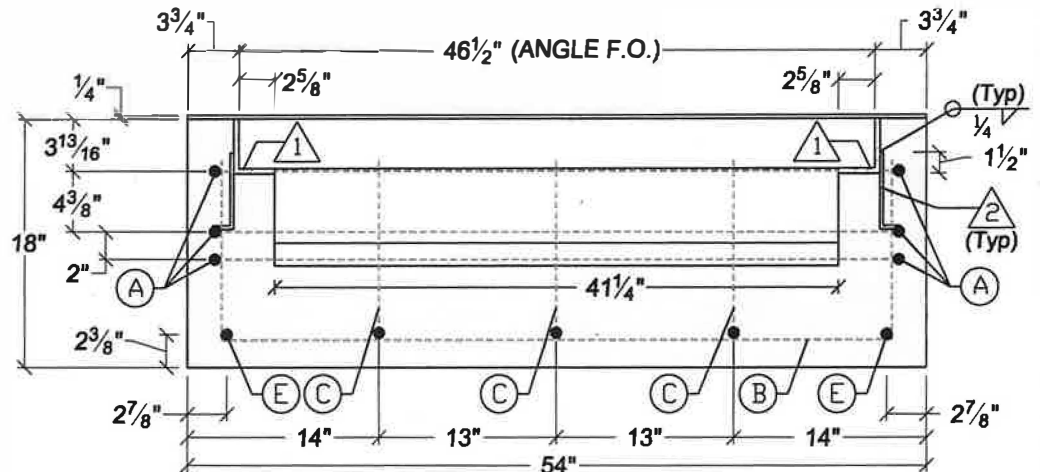
**PART OVERVIEW**



**TOP VIEW**



**SECTION A-A**



**SECTION B-B**

**DETAIL NOTES:**

- ① 4"x3"x3/8" L=24 1/2" STEEL ANGLE (ONE BOTH ENDS)
- ② 5 1/2"x1 1/2"x1/4" L=1 1/2" STEEL ANGLES (3 BOTH ENDS)
- Ⓝ SEE PLAN B-101D3 FOR REBAR IDENTIFICATION & BENDING

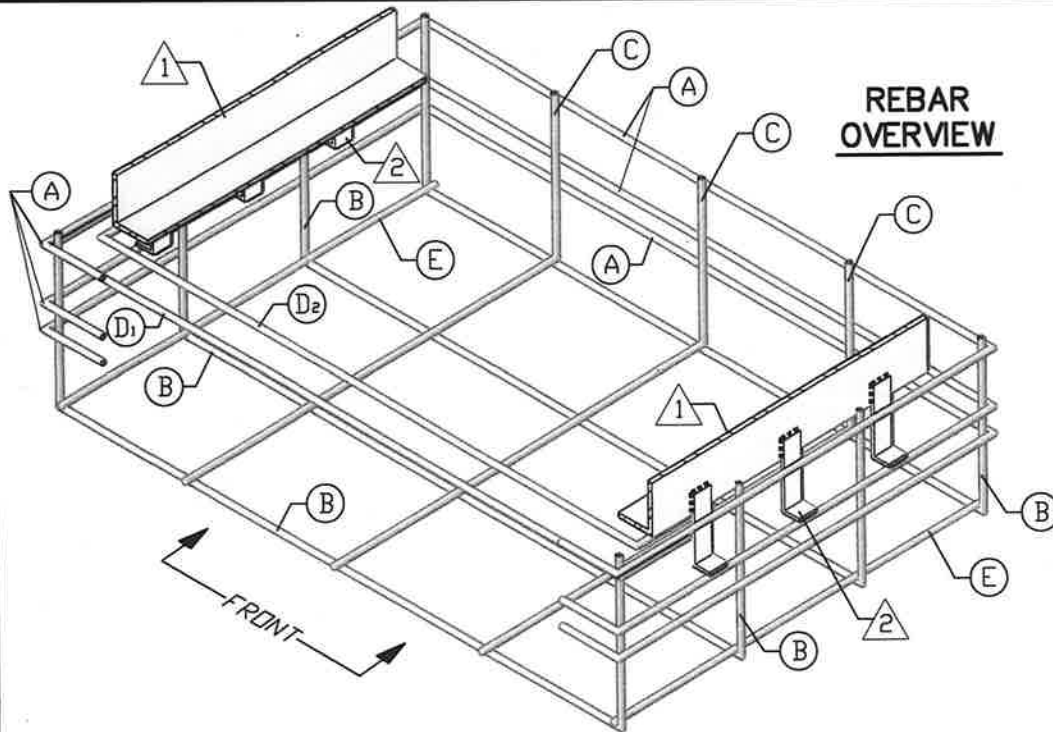
APPROVED BY  
  
 DIRECTOR, ENGINEERING SERVICES P. MIKE TAYLOR, P.E.  
  
 PRINCIPAL ENGINEER, DESIGN GARY S. NELSON, P.E.

ADOPTED: 01/2009  
 REVISED: 09/2010  
 SUPERSEDES:  
 CHECKED BY: JAG  
 SCALE: NTS  
 DWG/REV. BY: MBM



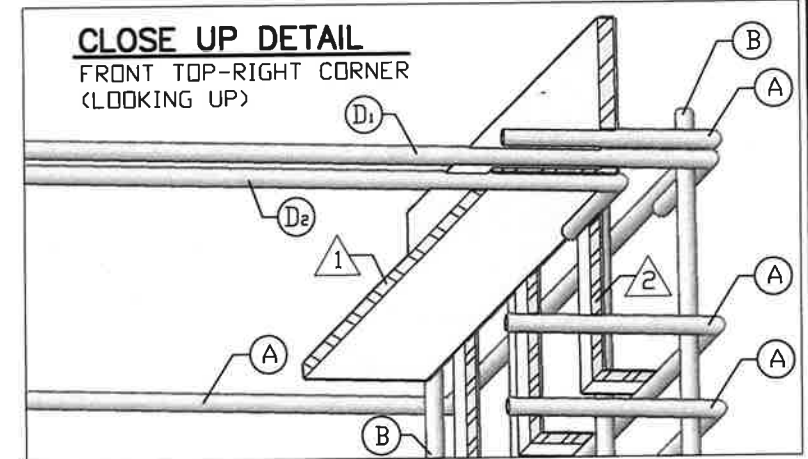
CONVERSION UNIT  
 RETRO-FIT FOR CATCH BASIN TYPE 2  
 ENGINEERING SERVICES  
 CITY OF SPOKANE, WASHINGTON

STANDARD  
 PLAN No.  
 B-101D2

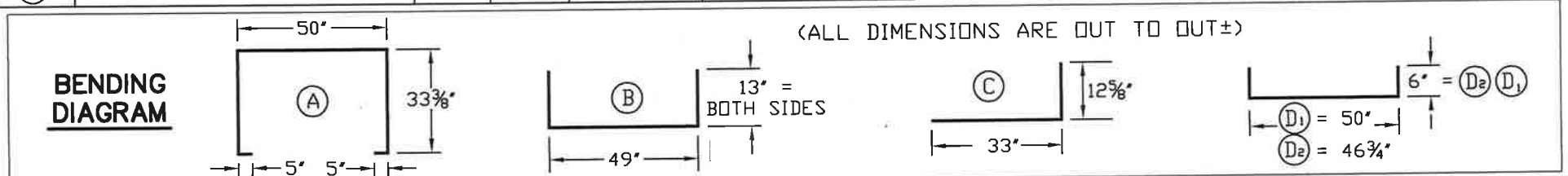


**NOTES:**

1. ANGLE  $\triangle 1$  SHALL BE SET SO THAT THE PREFABRICATED FRAME SHALL HAVE FULL BEARING ON BOTH ENDS. THE FINISHED TOP OF CONCRETE SHALL BE EVEN WITH THE TOP OF STEEL ANGLE.
2. THE CONVERSION UNIT WITH FRAME & GRATE SHALL BE PLACED TO MATCH THE GUTTER SLOPE TO PROVIDE AN UNOBSTRUCTED FLOW LINE.
3. ALL EXPOSED CONCRETE EDGES SHALL BE FINISHED WITH A  $\frac{1}{2}$ " RADIUS EDGER TOOL.
4. CONSTRUCT CONCRETE LEDGE FOR GRATE FRAME AROUND ALL FOUR SIDES. THE LONG CONCRETE LEDGES ARE RAISED  $\frac{3}{8}$ " ABOVE THE SHORT LEDGES SINCE THEY RECEIVE NO  $\frac{3}{8}$ " ANGLE.
5. ALL PICKUP HOLES SHALL BE GROUTED FULL AFTER THE BASIN HAS BEEN PLACED.
6. SEE CONTRACT FOR TYPE OF GRATE SPECIFIED. SEE WSDOT STANDARD PLAN B-40.40-00 FOR FRAME & GRATE DETAILS.
7. ALL REBAR SHALL HAVE A MINIMUM OF 2" COVERAGE ON ALL SIDES.



MARK	REBAR LOCATION	QTY.	SIZE	LENGTH	DESCRIPTION
(A)	SIDEWALL	3	3	10'-6 3/4"±	HORIZ.
(B)	BOTTOM SLAB AND SIDEWALL	4		6'-3"±	VERTICAL ON SIDEWALLS
(C)	BOTTOM SLAB AND SIDEWALL	3		3'-10"±	VERTICAL ON SIDEWALLS
(D <sub>1</sub> )	SIDE WALL OVER OPENING	1		5'-2"±	HORIZ.
(D <sub>2</sub> )		1		4'-10 3/4"±	HORIZ.
(E)	BOTTOM SLAB @ EACH END	2		2'-9"±	STRAIGHT



**DETAIL NOTES:**

$\triangle 1$  4"x3"x3/8" L=24 1/2" STEEL ANGLE (ONE BOTH ENDS)

$\triangle 2$  5 1/2"x1 1/2"x1/4" L=1 1/2" STEEL ANGLES (3 BOTH ENDS)

APPROVED BY

*[Signature]*

DIRECTOR, ENGINEERING SERVICES P. MIKE TAYLOR, P.E.

*[Signature]*

PRINCIPAL ENGINEER, DESIGN GARY S. NELSON, P.E.

ADOPTED: 01/2009

REVISED: 09/2010

SUPERSEDES:

CHECKED BY: JAG

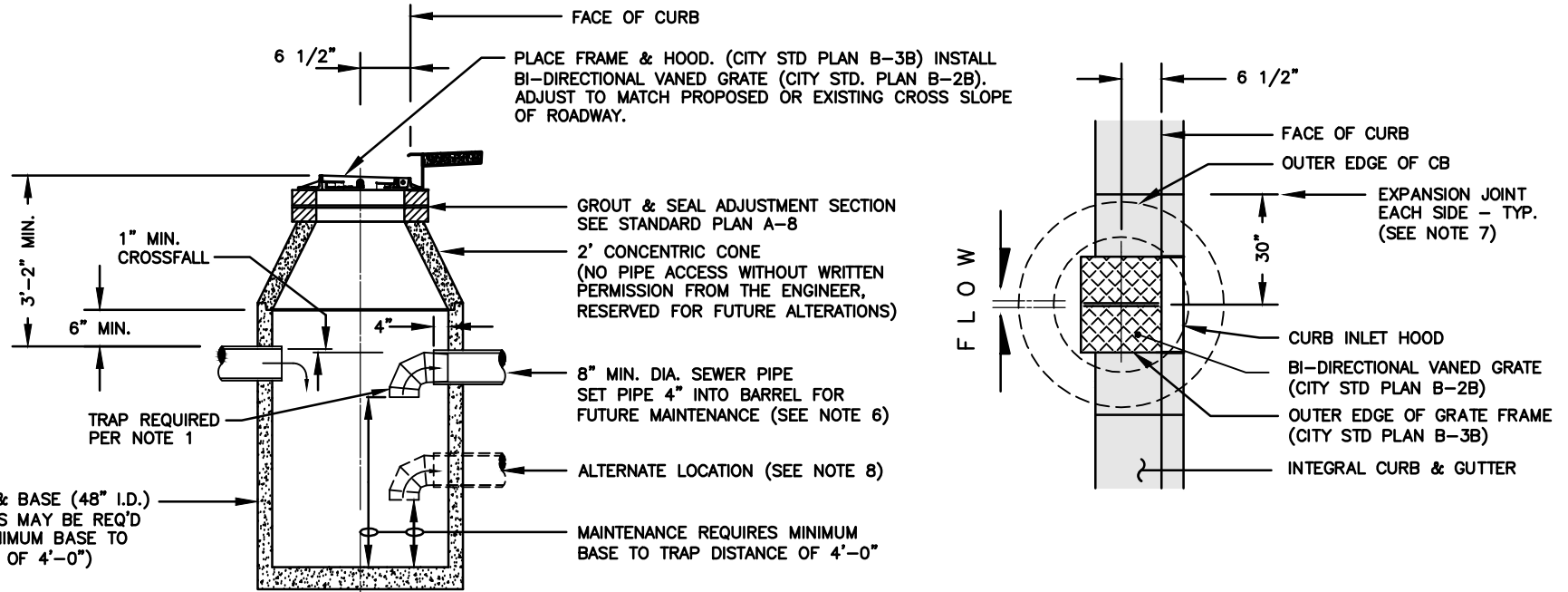
SCALE: NTS

DWG/REV. BY: MBM

CONVERSION UNIT NOTES  
INCLUDING BAR LIST & BENDING DIAGRAM

ENGINEERING SERVICES  
CITY OF SPOKANE, WASHINGTON

STANDARD  
PLAN No.  
B-101D3



### CURB & GUTTER INLET FRAME & BI-DIRECTIONAL GRATE

FOR USE IN SUMP SITUATIONS

**NOTES:**

1. SEE STD. PLAN B-120 FOR OUTLET TRAP. A TRAP IS REQUIRED ON ANY OUTLET PIPE. TRAP TO REMAIN REMOVABLE FOR MAINTENANCE THEREFORE NO MECHANICAL CONNECTION BETWEEN TRAP & OUTLET ALLOWED. VERTICAL PROJECTION OF TRAP NOT TO EXTEND BEYOND C/L OF ACCESS OPENING.
2. IF AN INLET PIPE IS PRESENT, THE INVERT SHALL BE HIGHER IN ELEVATION THAN THE OUTLET PIPE INVERT. A C.B. WITH AN INLET PIPE IS UTILIZED ONLY WHEN CONNECTING ADDITIONAL C.B.'S AT AN INTERSECTION OR WHEN ADDING GRATE INLET TYPE 3. A C.B. WITH INLET PIPE(S) IS NOT ALLOWED AS A SUBSTITUTE FOR A M.H.
3. SEE SEC. 9-12 FOR PRECAST CONCRETE CATCH BASINS.
4. SEE STD. PLAN Z-118 FOR BASE SLAB & FOUNDATION DETAILS.
5. CONE & BARREL JOINTS MAY BE EITHER TONGUE & GROOVE OR REVERSE TONGUE & GROOVE.
6. ADJUSTMENT SECTION, CONE, BARREL, RISER SECTIONS (IF USED), & PIPE OPENINGS TO BE SEALED PER SECTION 7-05.
7. CONCRETE CURB & GUTTER SHALL BE BLOCKED OUT FOR A 5-FT LENGTH CENTERED @ THE C.B. TO ALLOW FOR LOCATING C.B. ADJACENT TO CURB.
8. USE ALTERNATE LOCATION FOR INLET/OUTLET PIPES ONLY IF INLET PIPE REQUIRES ADDITIONAL DEPTH FOR SLOPING. PROVIDE 4-FT DEPTH UNDER TRAP.
9. SEE STANDARD PLAN A-8 FOR ADJUSTMENT SECTION REQUIREMENTS.

APPROVED BY  
  
 ENGINEERING SERVICES DIRECTOR KYLE TWOHIG  
 CITY ENGINEER DAN BULLER, P.E.

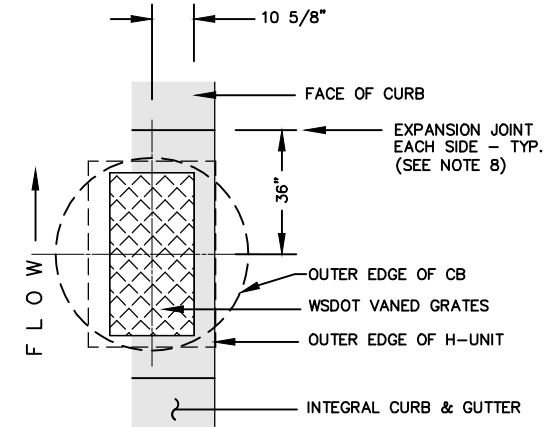
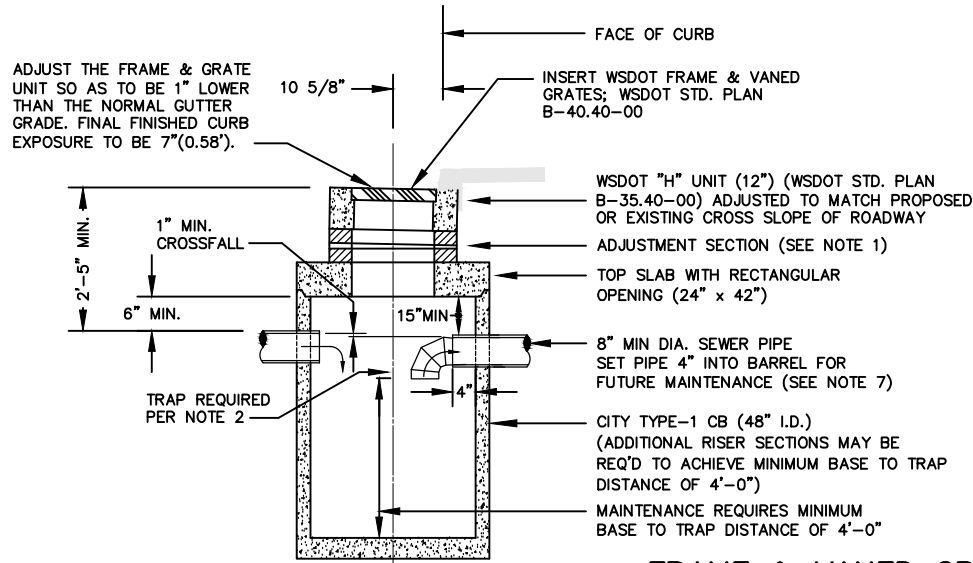
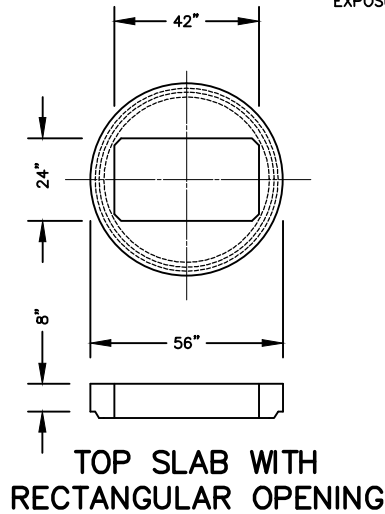
ADOPTED: \_\_\_\_\_  
 REVISED: 10/2019  
 SUPERSEDES: 04/2018  
 CHECKED BY: JAG, GSN  
 SCALE: NTS  
 DWG./REV BY: RJS/MLD



**CATCH BASIN-TYPE 3**

ENGINEERING SERVICES  
 CITY OF SPOKANE, WASHINGTON

STANDARD  
 PLAN No.  
**B-101E**

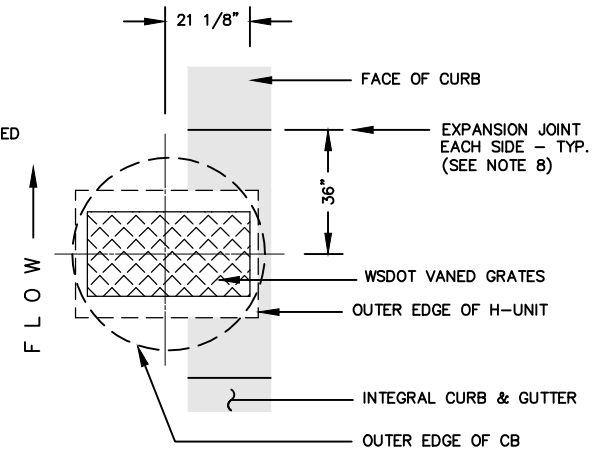
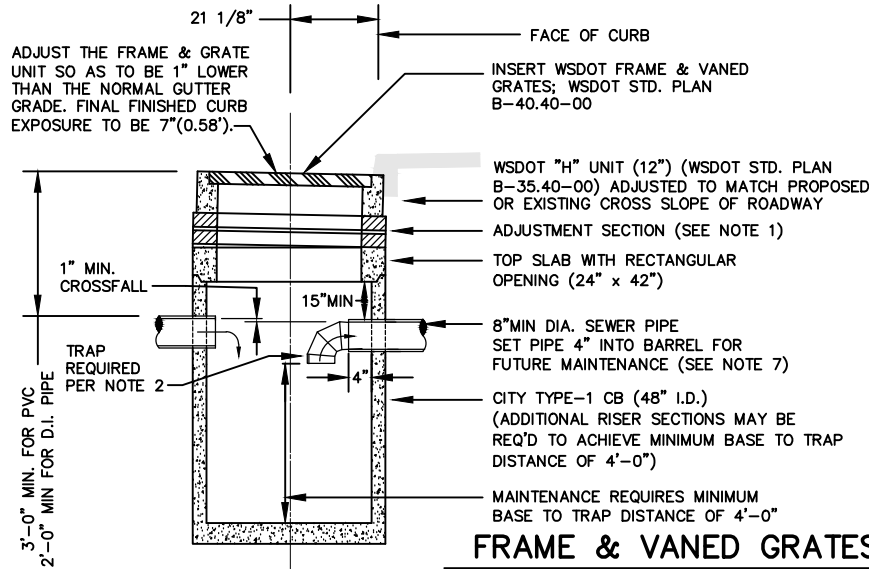


**FRAME & VANED GRATES: NORMAL INSTALLATION**

FOR USE IN CONTINUOUS GRADE SITUATIONS

**NOTES:**

1. GROUT & SEAL ADJUSTMENT SECTION. ADJUSTMENT SECTION FOR EXISTING STRUCTURES TO MATCH FIELD CONDITIONS AS REQUIRED (3" MIN-12" MAX). SEE STANDARD PLAN A-8 FOR ADJUSTMENT SECTION REQUIREMENTS.
2. SEE STD. PLAN B-120 FOR OUTLET TRAP. A TRAP IS REQUIRED ON ANY OUTLET PIPE. TRAP TO REMAIN REMOVABLE FOR MAINTENANCE THEREFORE NO MECHANICAL CONNECTION BETWEEN TRAP & OUTLET ALLOWED. VERTICAL PROJECTION OF TRAP NOT TO EXTEND BEYOND C/L OF ACCESS OPENING.
3. IF AN INLET PIPE IS PRESENT, THE INVERT SHALL BE HIGHER IN ELEVATION THAN THE OUTLET PIPE INVERT. A C.B. WITH AN INLET PIPE IS UTILIZED ONLY WHEN CONNECTING ADDITIONAL C.B.'s AT AN INTERSECTION OR WHEN ADDING GRATE INLET TYPE 3. A C.B. WITH INLET PIPE(S) IS NOT ALLOWED AS A SUBSTITUTE FOR A M.H.
4. SEE SEC. 9-12 FOR PRECAST CONCRETE CATCH BASINS.
5. SEE STD. PLAN Z-118 FOR BASE SLAB & FOUNDATION DETAILS.
6. TOP SLAB & BARREL JOINTS MAY BE EITHER TONGUE & GROOVE OR REVERSE TONGUE & GROOVE.
7. ADJUSTMENT SECTION, TOP SLAB, BARREL, RISER SECTIONS (IF USED), & PIPE OPENINGS TO BE SEALED PER SECTION 7-05.
8. CONCRETE CURB & GUTTER SHALL BE BLOCKED OUT FOR A 6-FT LENGTH CENTERED @ THE C.B. TO ALLOW FOR LOCATING CB ADJACENT TO CURB.



**FRAME & VANED GRATES: ROTATED INSTALLATION**

FOR USE IN CONTINUOUS GRADE SITUATIONS

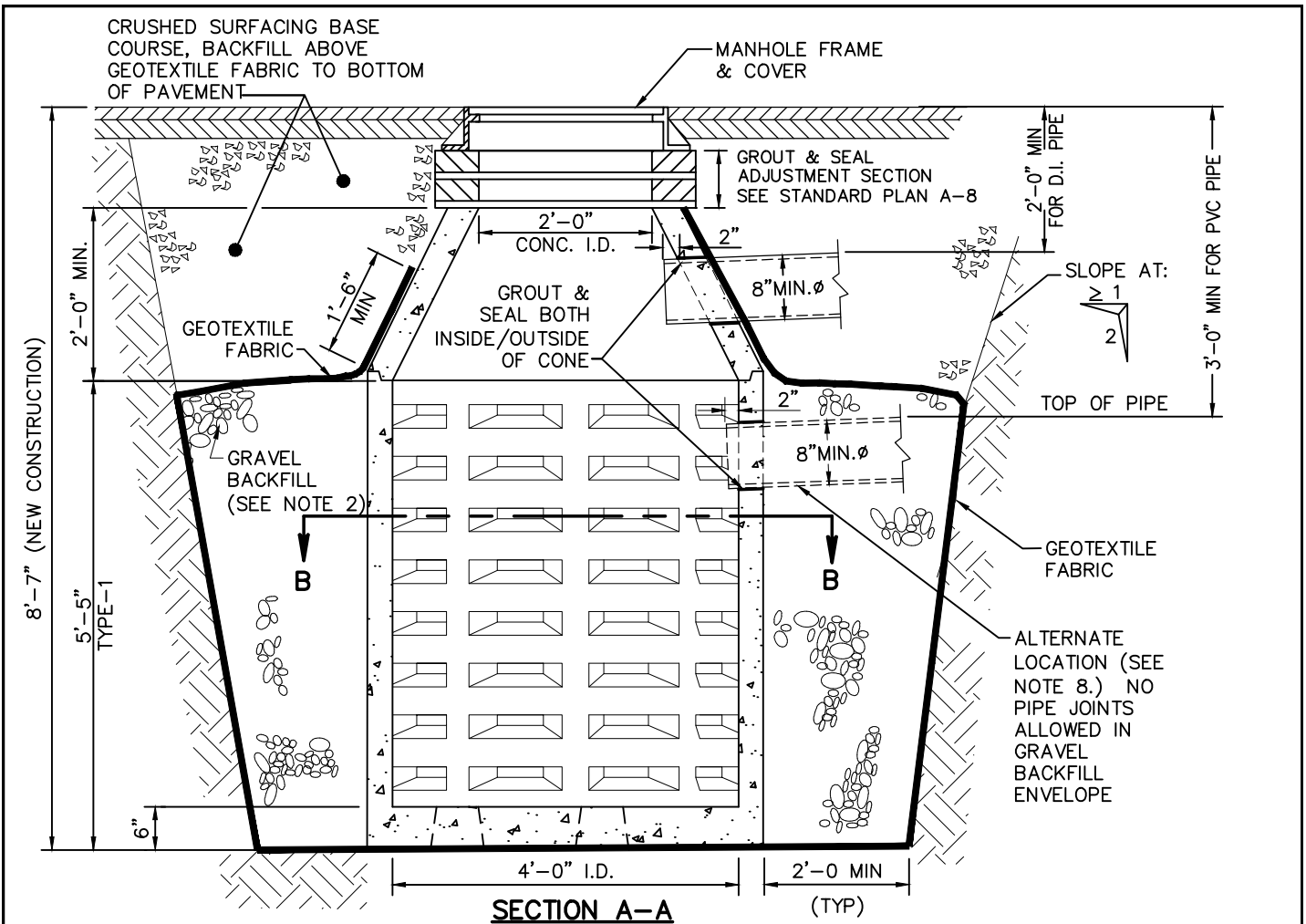
APPROVED BY  
  
 ENGINEERING SERVICES DIRECTOR KYLE TWOHIG  
  
 CITY ENGINEER DAN BULLER, P.E.

ADOPTED: \_\_\_\_\_  
 REVISED: 10/2019  
 SUPERSEDES: 04/2018  
 CHECKED BY: JAG, GSN  
 SCALE: \_\_\_\_\_ NTS  
 DWG./REV BY: RJS/MLD



**CATCH BASIN TYPE 4**  
 ENGINEERING SERVICES  
 CITY OF SPOKANE, WASHINGTON

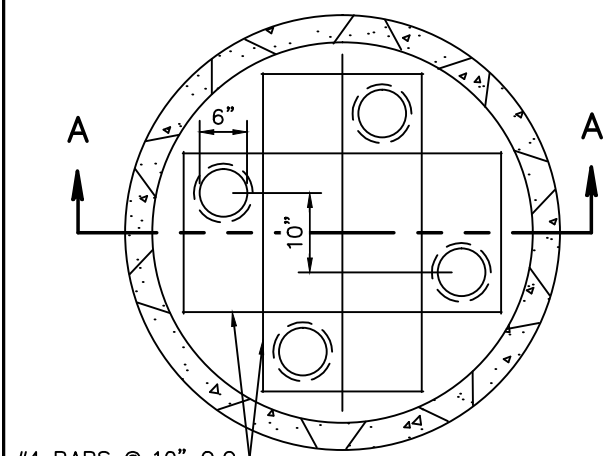
STANDARD  
 PLAN No.  
**B-101F**



**SECTION A-A**

**NOTES:**

1. SEE SEC 9-12 FOR PRECAST CONCRETE DRYWELLS.
2. SEE SEC 9-03.12(5) FOR GRAVEL BACKFILL FOR DRYWELLS.
3. SEE SEC 9-33 FOR WOVEN GEOTEXTILE FABRIC (MODERATE SURVIVABILITY CLASS A). OVERLAP ALL FABRIC JOINTS 1'-6" MIN. WRAP & SECURE FABRIC AROUND PIPE TO PREVENT MIGRATION OF FINES INTO GRAVEL ENVELOPE.
4. SEE STD PLANS A-12 & A-13 FOR MANHOLE FRAME & COVER.
5. SEE STD PLAN Z-118 FOR BASE & FOUNDATION DETAILS.
6. CONE & BARREL JOINTS MAY BE EITHER TONGUE & GROOVE OR REVERSE TONGUE & GROOVE.
7. ADJUSTMENT SECTION, CONE & BARREL JOINTS TO BE SEALED PER SEC 7-05.
8. USE ALTERNATE PIPE LOCATION ONLY IF PIPE REQUIRES ADDITIONAL DEPTH FOR SLOPING, DEPTH OF COVER, OR OTHER RESTRICTIVE FIELD CONDITION.
9. SEE STANDARD PLAN A-8 FOR ADJUSTMENT SECTION REQUIREMENTS.
10. SEE STANDARD PLAN W-103 FOR CRUSHED ROCK REQUIREMENTS.




**SECTION B-B**

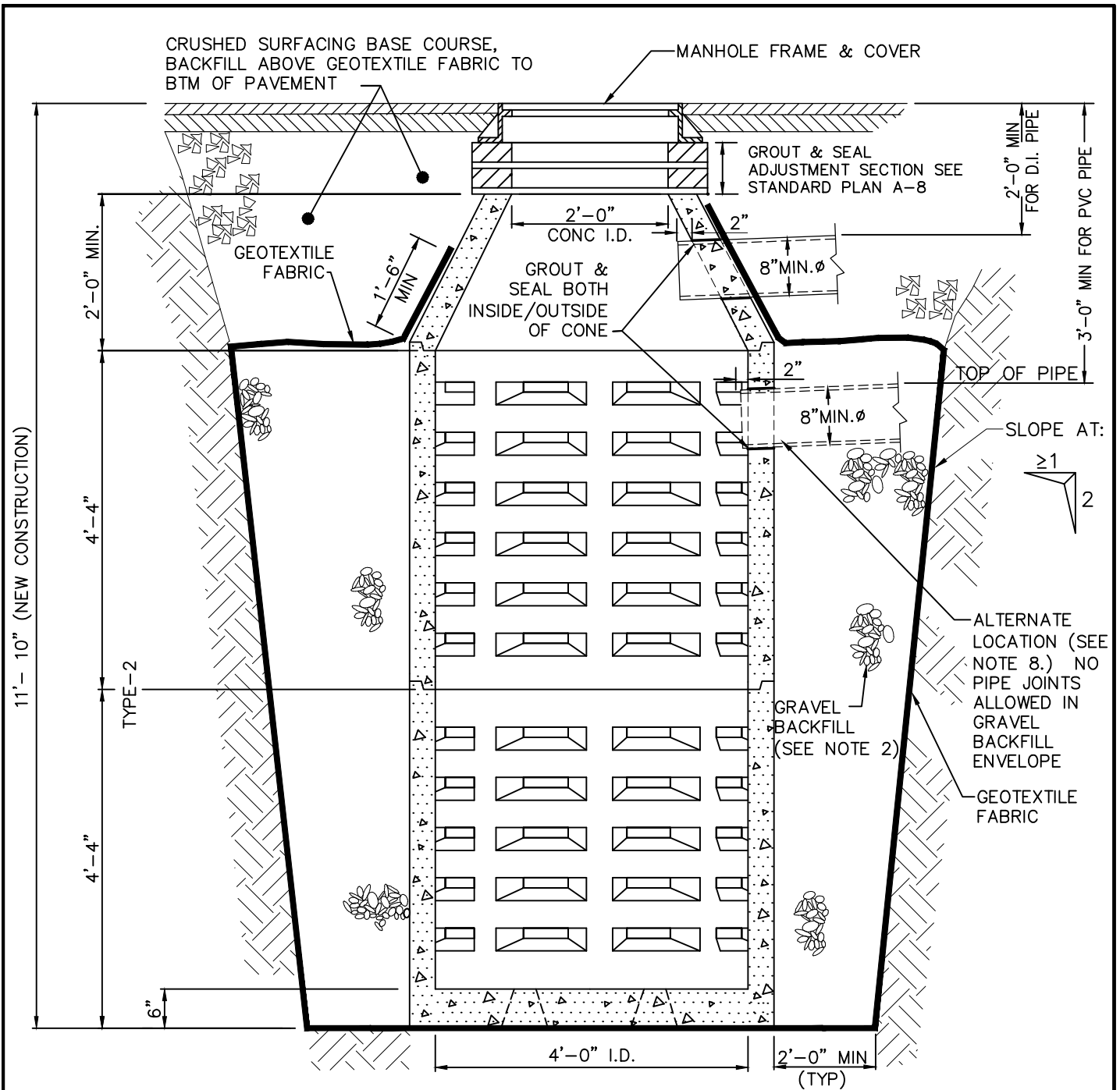
#4 BARS @ 10" O.C.  
EA WAY. (TYP)  
FOR STD PLANS  
B-102D & B-102F

APPROVED BY  
  
ENGINEERING SERVICES DIRECTOR  
KYLE TWHOHIG  
CITY ENGINEER  
DAN BULLER, P.E.

ADOPTED: \_\_\_\_\_  
REVISED: 10/2019  
SUPERSEDES: 01/2017  
CHECKED BY: JAG  
SCALE: NTS  
DWG/REV. BY: SRM/MLD

**DRYWELL - TYPE I**  
 ENGINEERING SERVICES  
CITY OF SPOKANE, WASHINGTON  
STANDARD PLAN No. **B-102C**

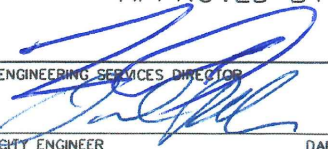




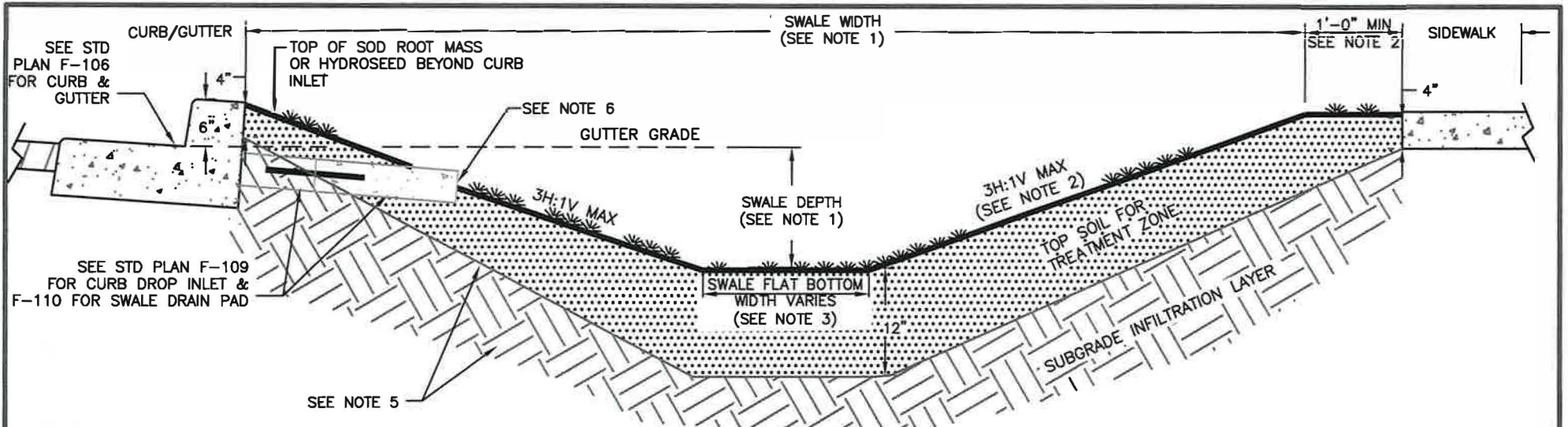


**NOTES:**

**SECTION**

1. SEE SEC 9-12 FOR PRECAST CONCRETE DRYWELLS.
2. SEE SEC 9-03.12(5) FOR GRAVEL BACKFILL FOR DRYWELLS.
3. SEE SEC 9-33 FOR WOVEN GEOTEXTILE FABRIC (MODERATE SURVIVABILITY, CLASS A). OVERLAP ALL FABRIC JOINTS 1'-6" MIN. WRAP & SECURE FABRIC AROUND PIPE TO PREVENT MIGRATION OF FINES INTO GRAVEL ENVELOPE..
4. SEE STD PLANS A-12 & A-13 FOR MANHOLE FRAME & COVER.
5. SEE STD PLANS B-102C & Z-118 FOR BASE & FOUNDATION DETAILS.
6. CONE & BARREL JOINTS MAY BE EITHER TONGUE & GROOVE OR REVERSE TONGUE & GROOVE.
7. ADJUSTMENT SECTION, CONE & BARREL JOINTS TO BE SEALED PER SEC 7-05.
8. USE ALTERNATE PIPE LOCATION ONLY IF PIPE REQUIRES ADDITIONAL DEPTH FOR SLOPING, DEPTH OF COVER, OR OTHER RESTRICTIVE FIELD CONDITION.
9. SEE STANDARD PLAN A-8 FOR ADJUSTMENT SECTION REQUIREMENTS.
10. SEE STANDARD PLAN W-102 FOR CRUSHED ROCK REQUIREMENTS.

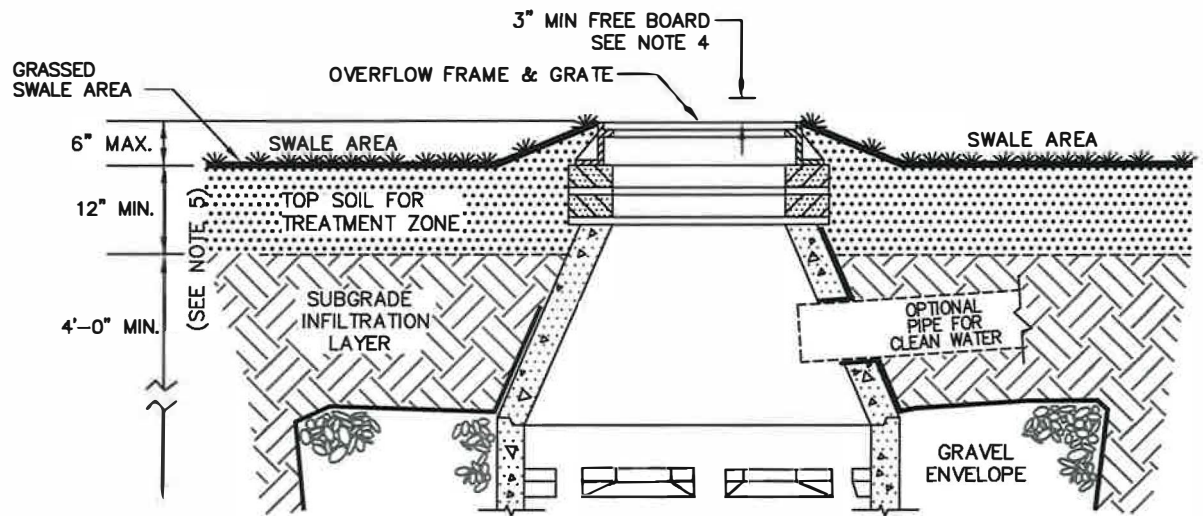
<p>APPROVED BY</p>  <p>ENGINEERING SERVICES DIRECTOR KYLE TWOHIG</p>  <p>CITY ENGINEER DAN BULLER, P.E.</p>	<p>ADOPTED: _____</p> <p>REVISED: 10/2019</p> <p>SUPERSEDES: 01/2017</p> <p>CHECKED BY: JAG</p> <p>SCALE: NTS</p> <p>DWG./REV. BY: SRM/RDC</p>	<p><b>DRYWELL - TYPE 2</b></p>  <p>ENGINEERING SERVICES CITY OF SPOKANE, WASHINGTON</p>	<p>STANDARD PLAN No. <b>B-102D</b></p>
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TYPICAL SECTION


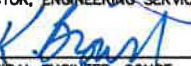

NOTES:

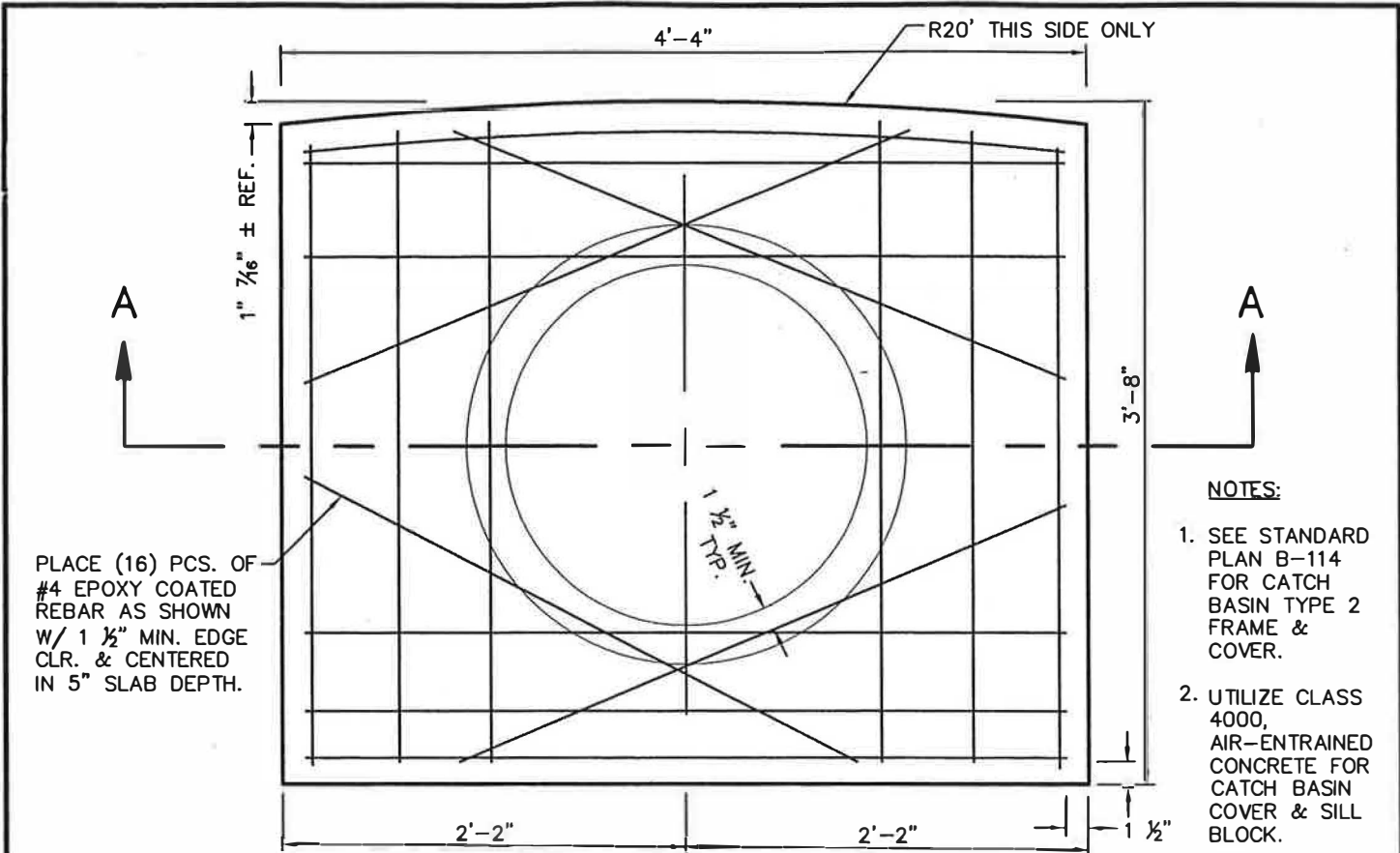
1. SWALE DESIGN WIDTH & DEPTH WILL VARY AS REQ'D TO PROVIDE ADEQUATE TREATMENT STORAGE FOR THE GIVEN STORM VOLUME.
2. PROVIDE A 1'-0" MIN. FLAT & FLUSH AREA ADJACENT TO SIDEWALK WHEN USING A SIDE-SLOPE NO STEEPER THAN 3:1. IF FLAT AREA IS NOT PROVIDED ADJACENT TO SIDEWALK, THEN USE A SIDE-SLOPE NO STEEPER THAN 4:1. SEE DES. STD. 6.4-2.
3. WHEN SWALE WIDTH IS ADEQUATE, PROVIDE A PRACTICAL FLAT BOTTOM. OTHERWISE, A "V" BOTTOM IS ACCEPTABLE.
4. DRYWELL SHALL BE INSTALLED AT A 10 FT MIN DISTANCE FROM LOWEST INLET TO PREVENT DIRECT INFLOW INTO THE OVERFLOW GRATE. DRYWELL MUST BE LOCATED WITHIN 8' OF ROADWAY FOR ACCESS & MAINTENANCE. PROVIDE A 3" MIN FREEBOARD BETWEEN LOWEST SWALE INLET & TOP OF DRYWELL GRATE OR OVERFLOW BERM.
5. SEE THE SPOKANE REGIONAL STORMWATER MANUAL (SRSM) INCLUDING TABLE 6-1 FOR INFILTRATION & OTHER DESIGN CRITERIA FOR TREATMENT ZONE & SUBGRADE INFILTRATION LAYER.
6. 2" EXPOSURE BETWEEN TOP OF CURB INLET & SWALE DRAIN PAD TO TOP OF SOD ROOT MASS OR HYDROSEED WITH A DRYLAND GRASS MIX.
7. SWALE OVERFLOW GRASS BERMS SHALL HAVE A 2'-FT MIN FLAT TOP WIDTH (IN THE DIRECTION OF FLOW) & A SIDE-SLOPE NO STEEPER THAN 3:1.



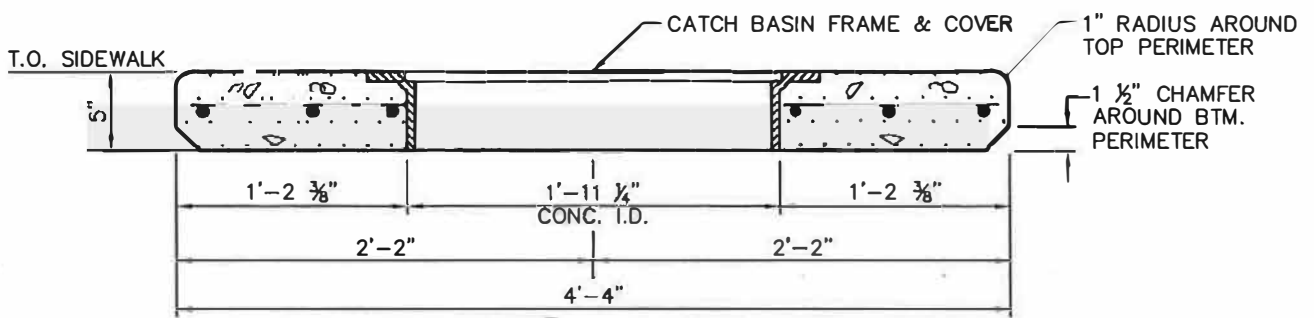
DRYWELL IN SWALE

SEE STD PLANS B-102C & B-102D FOR DRYWELL REQ'MTS

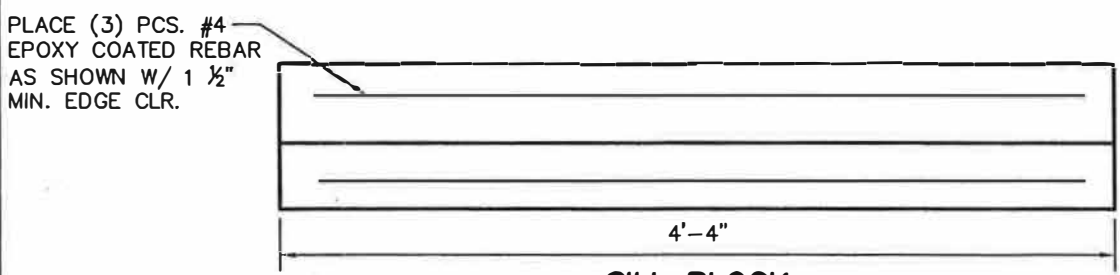
APPROVED BY  DIRECTOR, ENGINEERING SERVICES PERRY M. TAYLOR, P.E.		ADOPTED: 06/1994 REVISED: 04/2012 SUPERSEDES: 09/2010	BIO-INFILTRATION SWALE W/ OVERFLOW STRUCTURE
PRINCIPAL ENGINEER, CONST.  KENNETH M. BROWN, P.E.		CHECKED BY: SJS SCALE: NTS REVISED BY: DSH	
 ENGINEERING SERVICES CITY OF SPOKANE, WASHINGTON			STANDARD PLAN No. B-102F



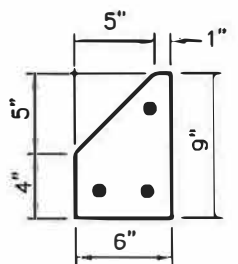
**PLAN VIEW**



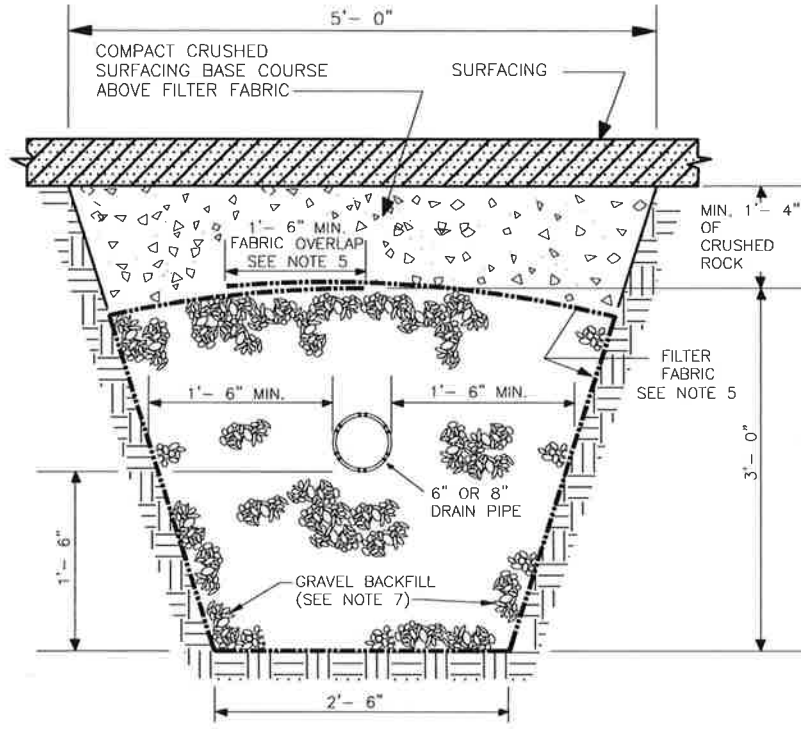
**SECTION A-A  
CATCH BASIN COVER**



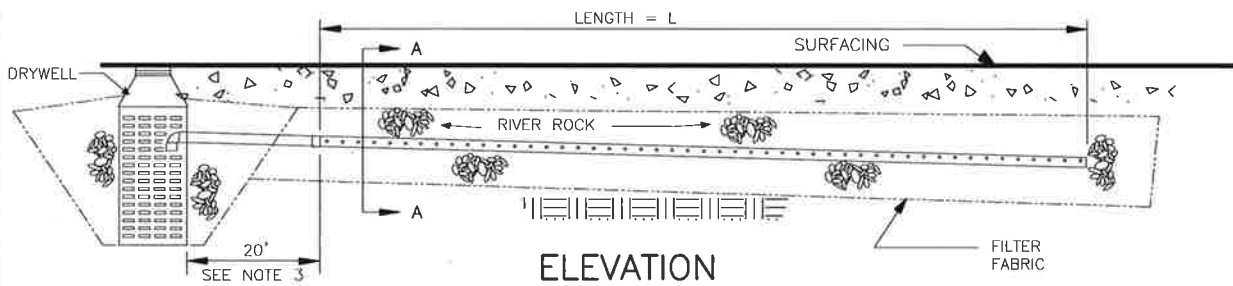
**SILL BLOCK**



<p>APPROVED BY</p> <p><i>D. Nakagawara</i></p> <p>DIRECTOR, ENGINEERING SERVICES DAVE NAKAGAWARA, P.E.</p> <p><i>Ken Brown</i></p> <p>PRINCIPAL ENGINEER, DESIGN KEN BROWN, P.E.</p>	<p>ADOPTED: 2/86</p> <p>REVISED: 7/02</p> <p>SUPERSEDES: 2/90</p> <p>SCALE: 1"=1'-0"</p> <p>DWG. BY: DGB/MDH</p>	<p>CATCH BASIN COVER TYPE 2 WITH SILL BLOCK</p> <p>ENGINEERING SERVICES CITY OF SPOKANE, WASHINGTON</p> <p>STANDARD PLAN No. B-105</p>
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SECTION A-A

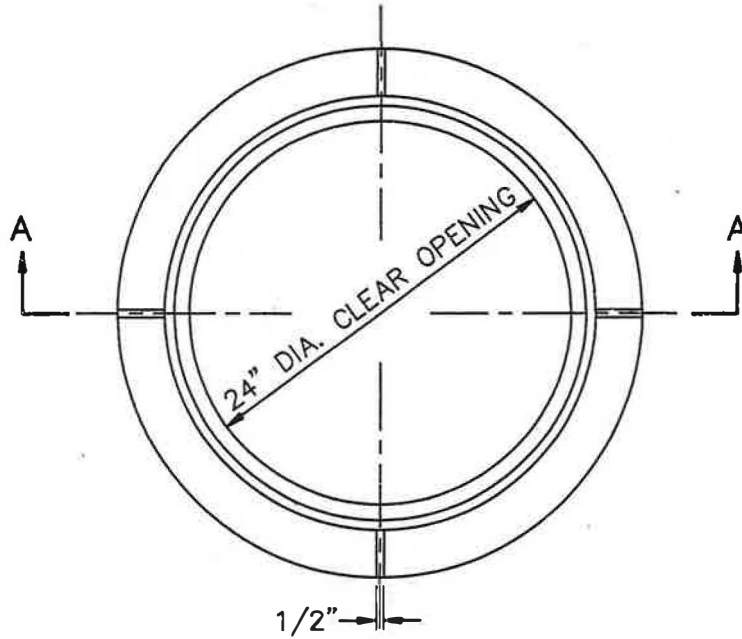


ELEVATION

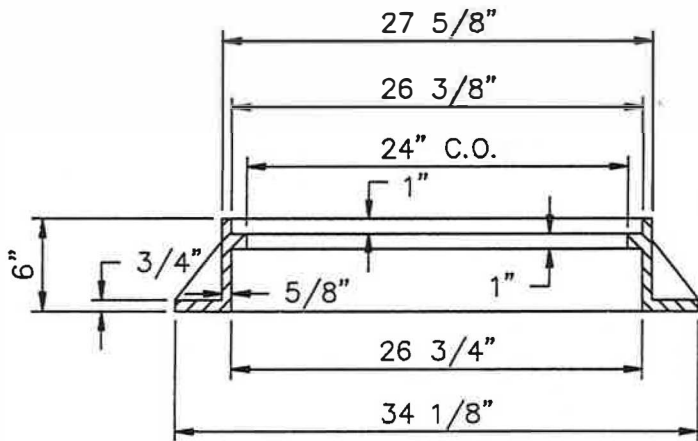
NOTES:

1. USE ABSORPTION TRENCH WHERE CALLED FOR IN THE PLANS OR AS DIRECTED BY THE ENGINEER & IN ACCORDANCE W/ SECTION 7-05.3(101).
2. DRAIN PIPE TO BE LAID ON A -0.5% TO -1.0% GRADE AWAY FROM THE DRYWELL.
3. DRAIN PIPE TO BE SOLID WALL FOR 1ST 20-FT FROM DRYWELL. REMAINDER OF DRAIN PIPE TO BE PERFORATED PER SECTION 9-05.
4. OUTLET TRAP PER STANDARD PLAN B-120 TO BE INSTALLED ON DRYWELL EXIT PIPE. SEAL PIPE COLLAR TO DRYWELL.
5. OVERLAP FABRIC A MINIMUM OF 1'-6". SEE SECTION 9-33 FOR WOVEN GEOTEXTILE FABRIC (MODERATE SURVIVABILITY CLASS A).
6. SEE STANDARD PLANS B-102C, & D FOR DRYWELL DETAILS.
7. SEE SECTION 9-03.12(5) FOR GRAVEL BACKFILL FOR DRYWELLS.

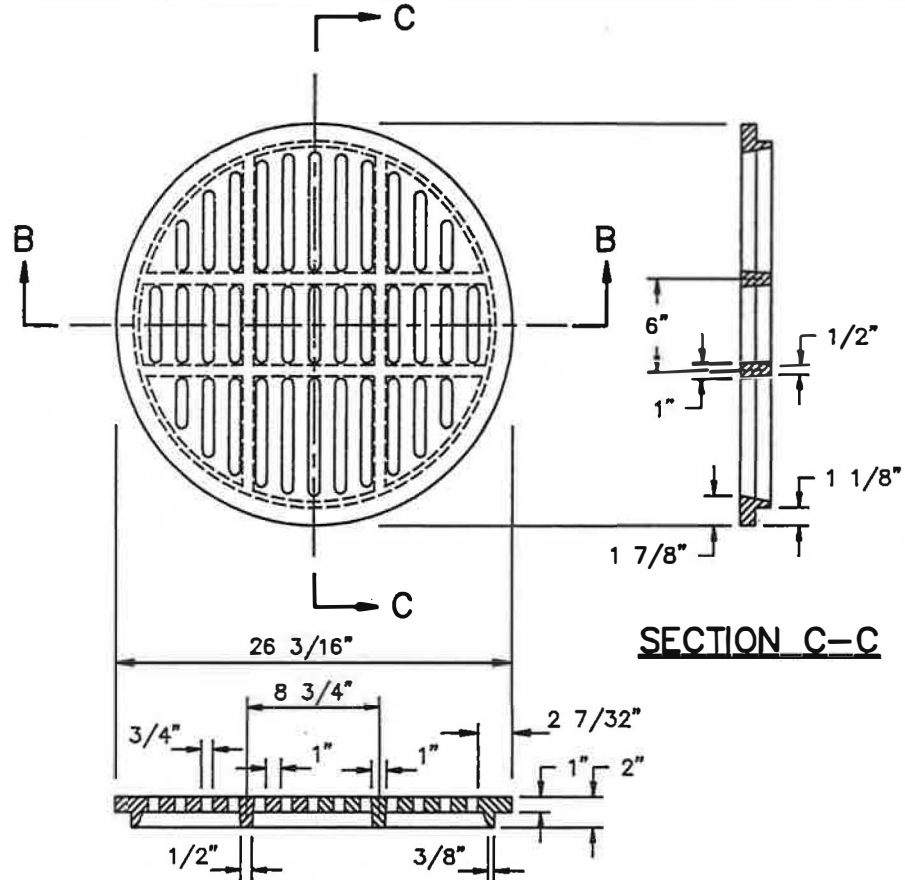
<p>APPROVED BY:</p> <p>ENGINEERING OPERATIONS MANAGER      KYLE TWOHIG</p> <p>CITY ENGINEER      DANIEL ALBERT BULLER, P.E.</p>	<p>ADOPTED: 6/1994                  REVISED: 01/2017                  SUPERSEDES: 05/2007                  CHECKED BY: JAG                  SCALE: NTS                  DWG/REV. BY: REP/RLB</p>	<p><b>ABSORPTION TRENCH DETAILS                  FOR STORM DRAINAGE</b></p>
		<p>ENGINEERING SERVICES                  CITY OF SPOKANE, WASHINGTON</p>
		<p>STANDARD                  PLAN No.                  B-111</p>



CAST IRON FRAME MIN. WEIGHT 168 LBS.



**SECTION A-A**

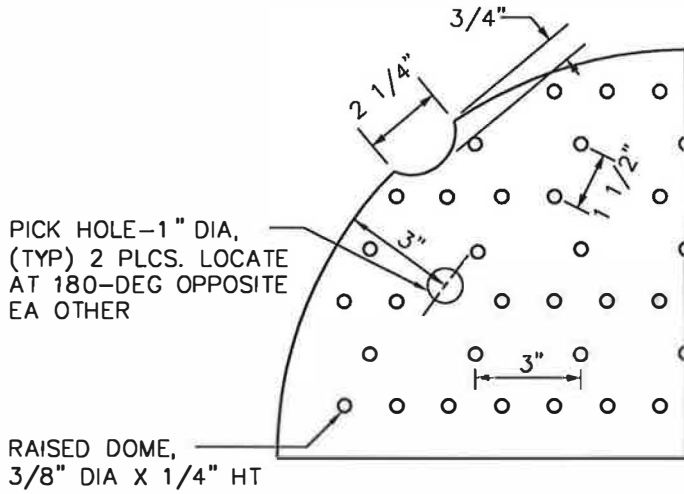


**SECTION B-B**

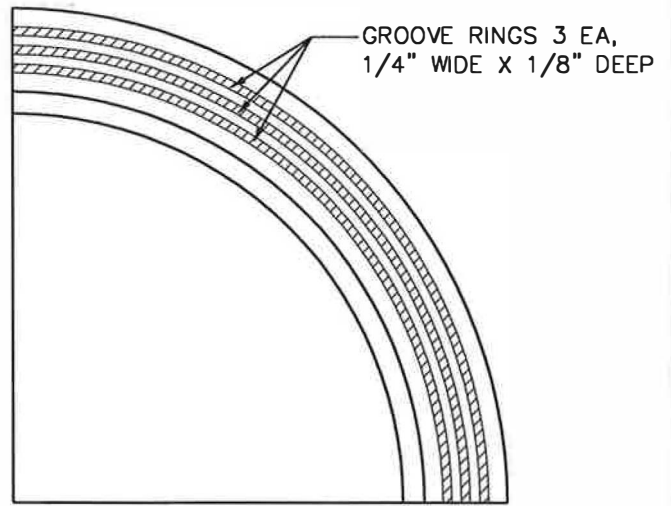
**DRAWING NOTES:**

1. See Section 9-05.15 (2).
2. Frame: ASTM A48 Class 30 Gray Iron.
3. Grate: ASTM A536 Class 80-55-06 Ductile Iron.
4. Foundry Name, Date, Material and Heat Number In Raised Letters on Interior Face of Each Casting.
5. Fit Tolerance 1/8" (+/-).

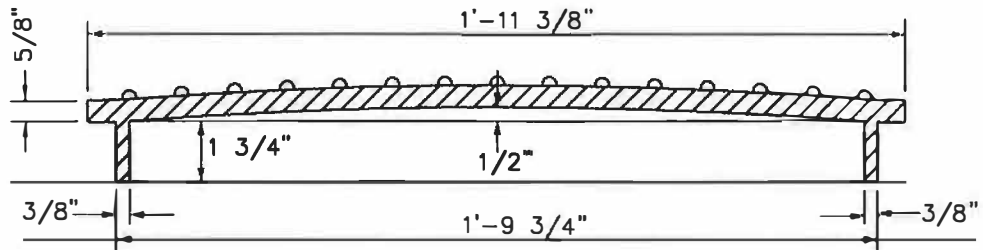
<p><b>APPROVED BY</b></p> <p>CITY ENGR. <i>[Signature]</i></p> <p>CH. DESIGN ENGR. <i>[Signature]</i></p>	<p>SCALE <u>    </u> NIS <u>    </u></p> <p>ADOPTED <u>2/90</u></p>	<p><b>CATCH BASIN FRAME &amp; GRATE</b></p>	
	<p>REVISED <u>    </u></p> <p>SUPERSEDES <u>    </u></p>	<p>DEPT. OF PUBLIC WORKS</p> <p>ENGR. DIVISION SPOKANE, WA</p>	



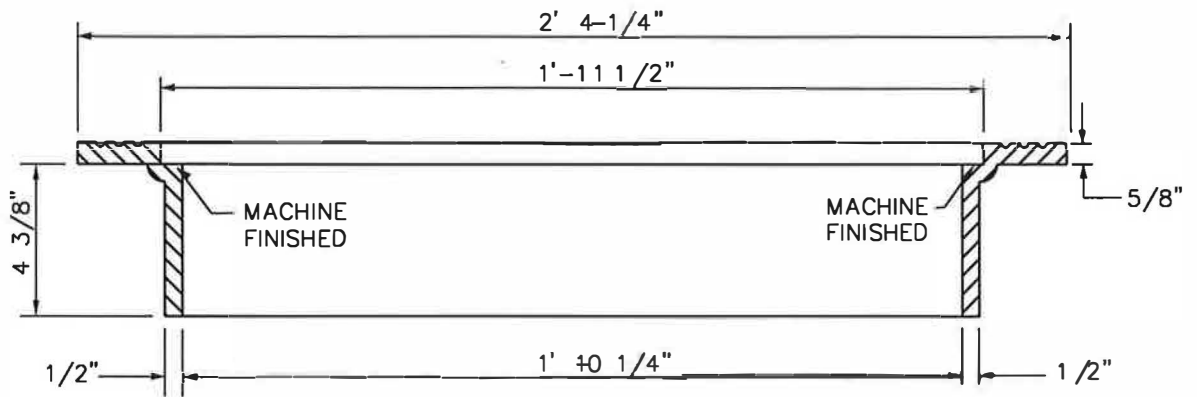
**1/4 PLAN OF COVER**



**1/4 PLAN OF FRAME**



**SECTION - COVER**

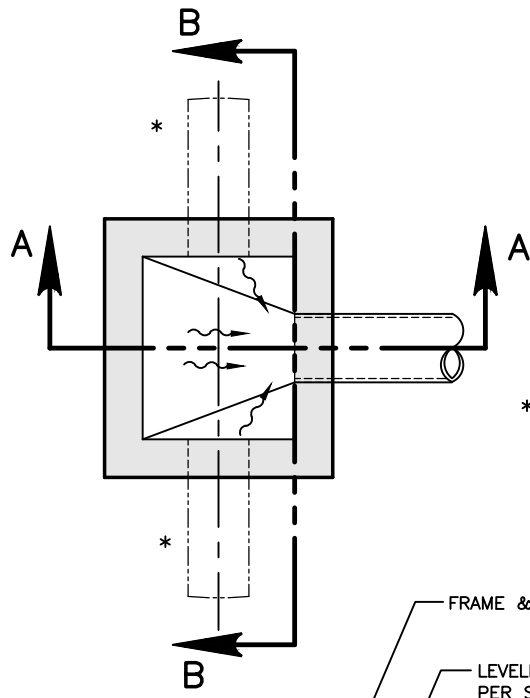


**SECTION - FRAME**

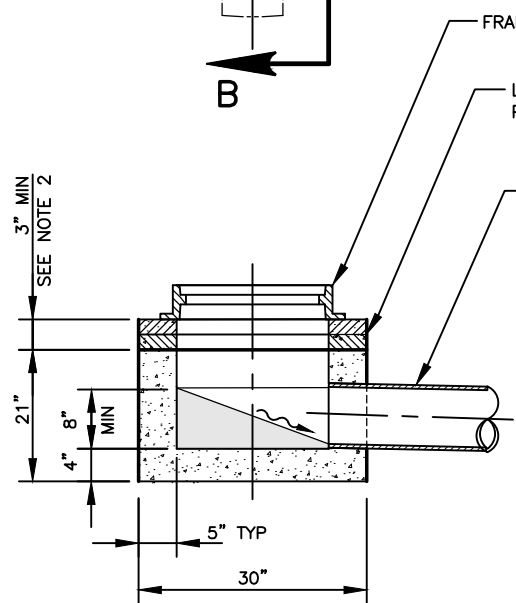
**NOTES:**

1. SEE SEC 9-05.15 FOR METAL CASTINGS.
2. ALL MATING SURFACES SHALL BE MACHINE FINISHED TO ENSURE A NON-ROCKING FIT.

<p>APPROVED BY</p> <p><i>Tom L. Arnold</i></p> <p>DIRECTOR, ENGINEERING SERVICES    TOM L. ARNOLD, P.E.</p> <p><i>Ken M. Brown</i></p> <p>PRINCIPAL ENGINEER, DESIGN    KEN M. BROWN, P.E.</p>	<p>ADOPTED: 2/86</p> <p>REVISED: 4/2004</p> <p>SUPERSEDES: 7/02</p> <p>SCALE: NTS</p> <p>DWG/REV. BY: TSS</p>	<p><b>CATCH BASIN FRAME &amp; COVER</b></p> <p>TYPE 2</p> <p>ENGINEERING SERVICES</p> <p>CITY OF SPOKANE, WASHINGTON</p>	<p>STANDARD PLAN No. B-114</p>
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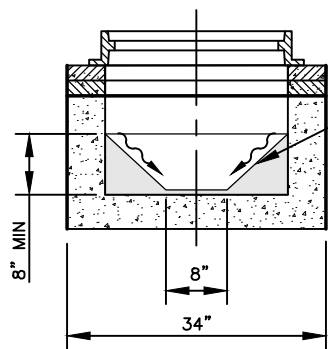


\* OPTIONAL OUTLET LOCATION.  
ROTATE SLOPING TO MATCH



**SECTION A-A**

FRAME & GRATE - SEE STD PLAN B-3C  
 LEVELING SECTION, ADJUST INLET  
 PER SEC. 7-05.3(1) (SEE NOTE 2)  
 8" DIA DUCTILE IRON OUTLET PIPE  
 PIPE END SHALL BE FLUSH WITH THE  
 INTERIOR WALL OF THE STRUCTURE



**SECTION B-B**


FIELD GROUT & FORM FLOW CHANNEL.

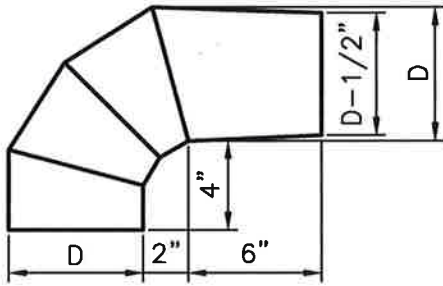
**NOTES:**

1. CONCRETE USED IN CONSTRUCTION OF THIS BOX SHALL BE CLASS 4000 AS SPECIFIED IN SECTION 6-02 OF STANDARD SPECIFICATIONS.
2. GROUT & SEAL ADJUSTMENT SECTION. SEE STANDARD PLAN A-8.

APPROVED BY  
  
 ENGINEERING SERVICES DIRECTOR  
 KYLE TWOHIG  
  
 CITY ENGINEER  
 DAN BULLER, P.E.

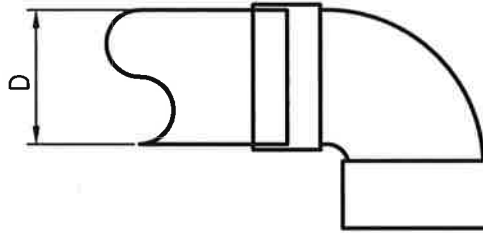
ADOPTED: \_\_\_\_\_  
 REVISED: 10/2019  
 SUPERSEDES: 01/2017  
 CHECKED BY: JAG  
 SCALE: NTS  
 DWG/REV. BY: DGB/MLD

<p><b>GRATE INLET STRUCTURE TYPE 3</b></p>	 <p>ENGINEERING SERVICES CITY OF SPOKANE, WASHINGTON</p>	<p>STANDARD PLAN No. <b>B-119</b></p>
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### TYPE 60A TRAP

1. TRAP TO BE MADE OF GALVANIZED SHEET METAL. MINIMUM THICKNESS 18 GA.
2. ALL JOINTS TO BE SEAMED, SPOT WELDED, AND SOLDERED OR CONTINUOUSLY BUTT-WELDED.
3. EXTERIOR WELDS SHALL BE GROUND SMOOTH.

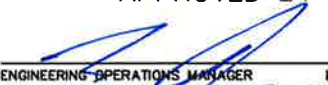




### PVC BELL ELBOW TRAP

1. 6" OR 8" WITH GASKETS REMOVED.

#### NOTES:

1. DIMENSION "D" IS NOMINAL DIAMETER OF OUTLET PIPE.

<p>APPROVED BY</p>  <p>ENGINEERING OPERATIONS MANAGER KYLE TWOHIG</p>  <p>CITY ENGINEER DANIEL ALBERT BULLER, P.E.</p>	<p>ADOPTED: PRE-1986                  REVISED: 01/2017                  SUPERSEDES: 05/2007                  CHECKED BY: JAG                  SCALE: NTS                  DWG/REV. BY: REP/MLD</p>	<p style="text-align: center;">OUTLET TRAP</p>  <p>ENGINEERING SERVICES                  CITY OF SPOKANE, WASHINGTON</p>	<p>STANDARD                  PLAN No.                  B-120</p>
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