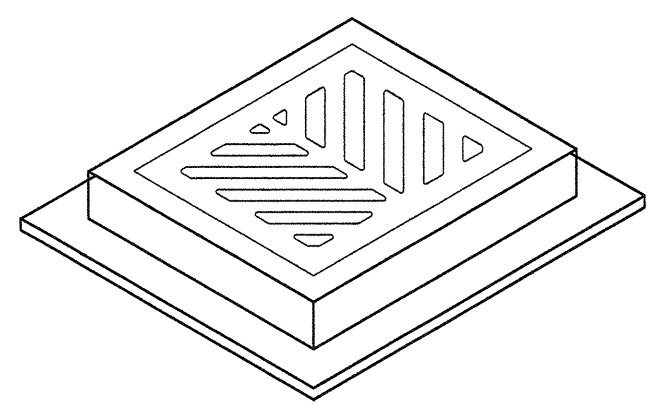
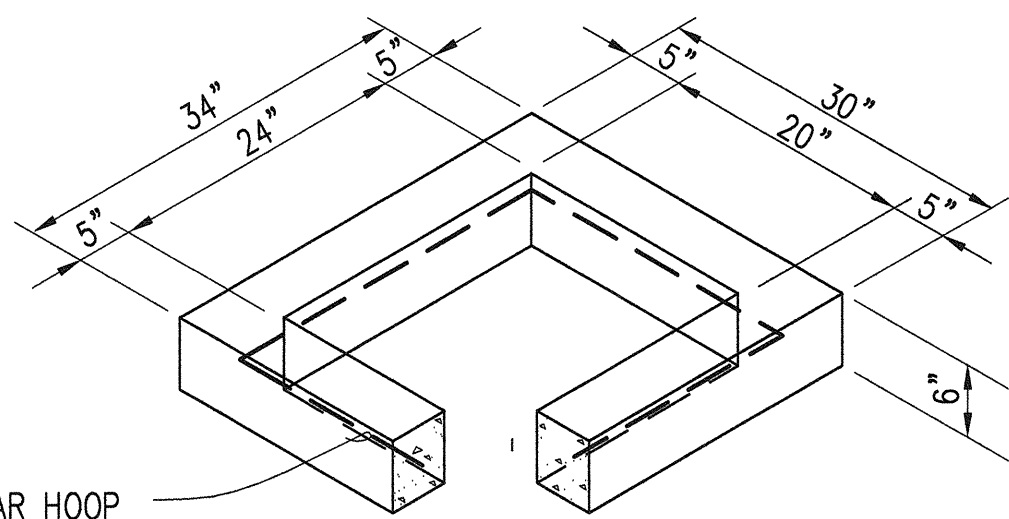


A
B
C
D
E

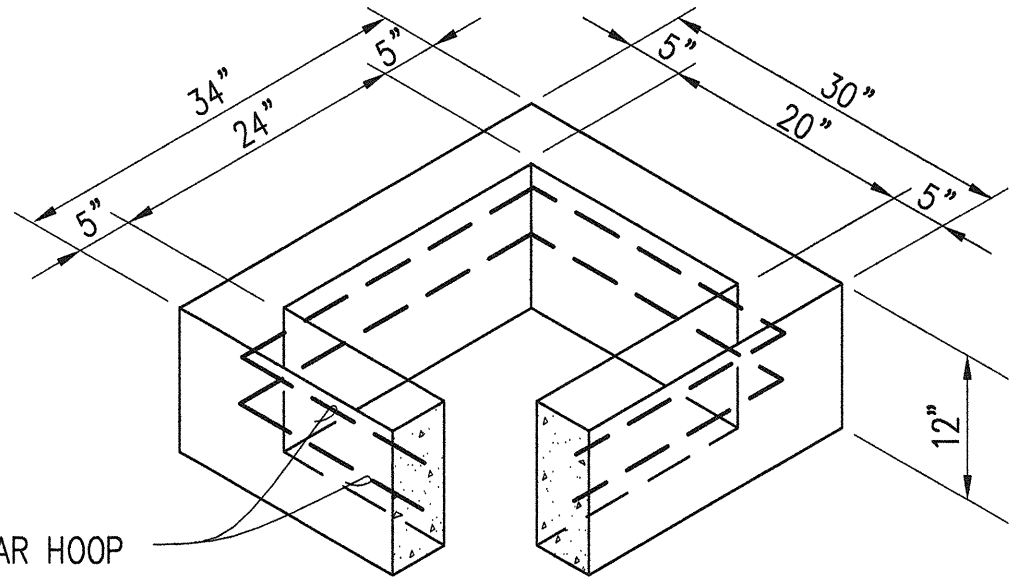
A
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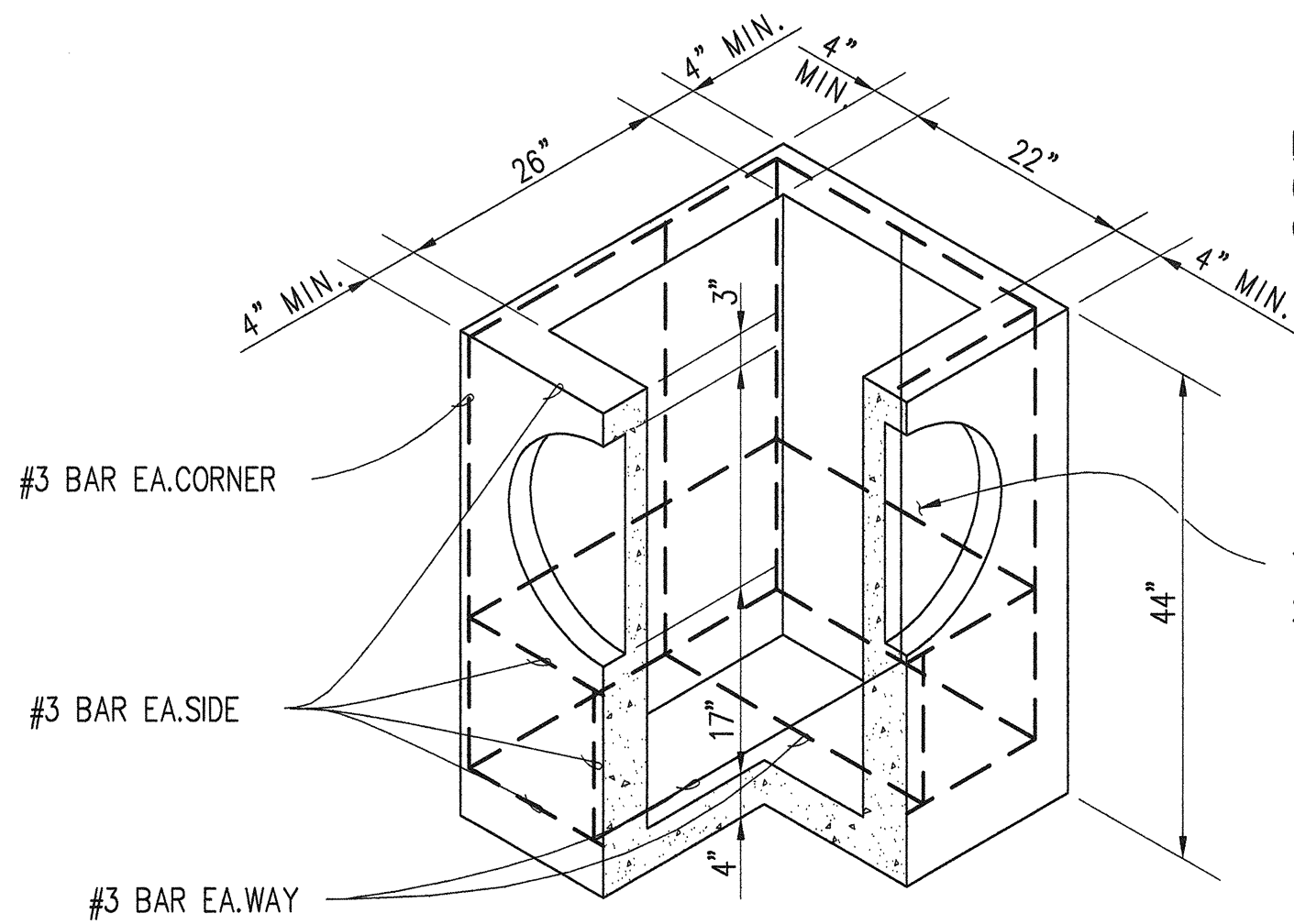
FOR FRAME SEE
C4-06



6" RISER SECTION



12" RISER SECTION



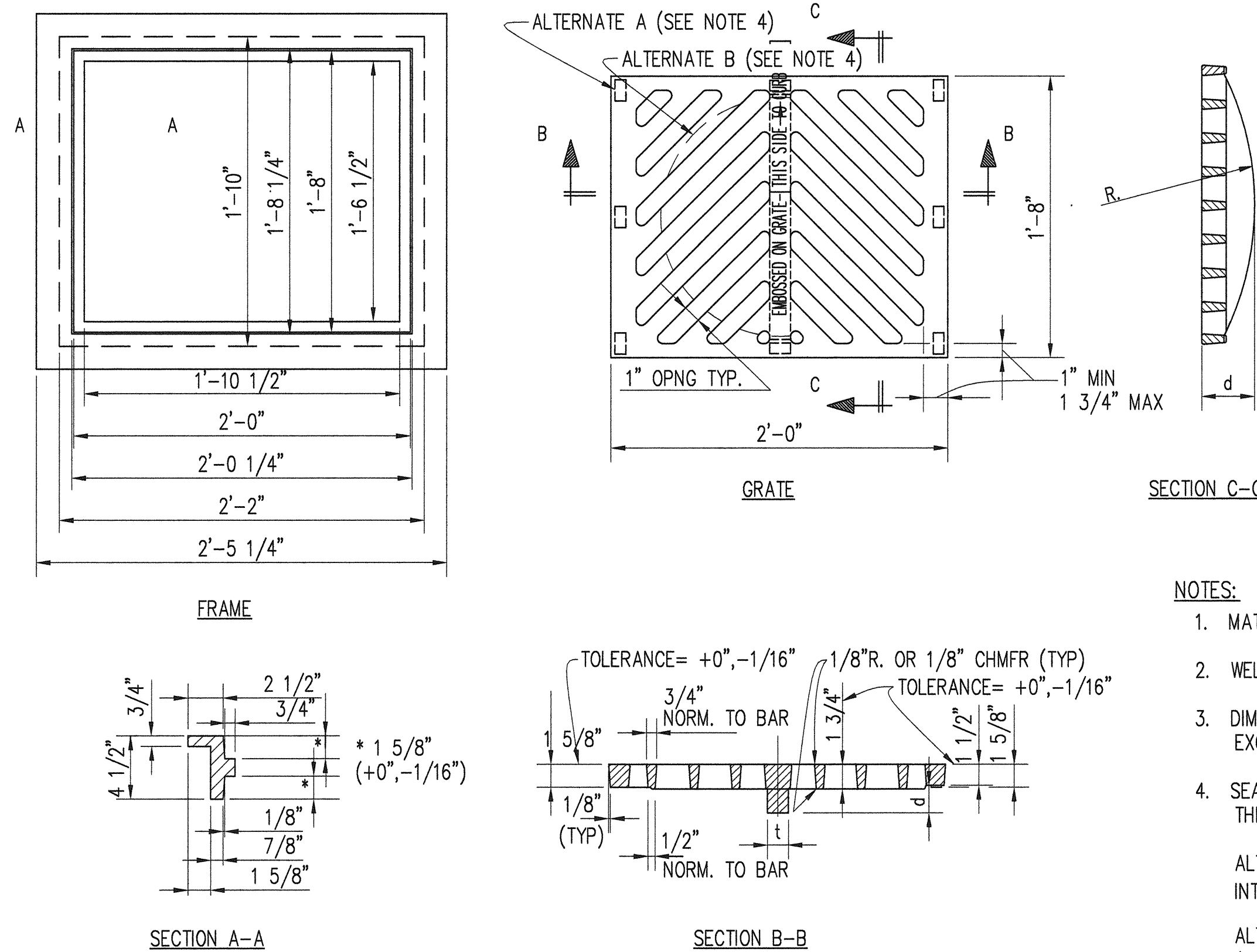
PRECAST BASE SECTION
(MEASUREMENT AT THE TOP
OF THE BASE)

TYPICAL KNOCKOUT W/
2" MIN. WALL THICKNESS

TYPE 1 CATCH BASIN

NTS

3
C4-01



STANDARD FRAME AND GRATE

NTS

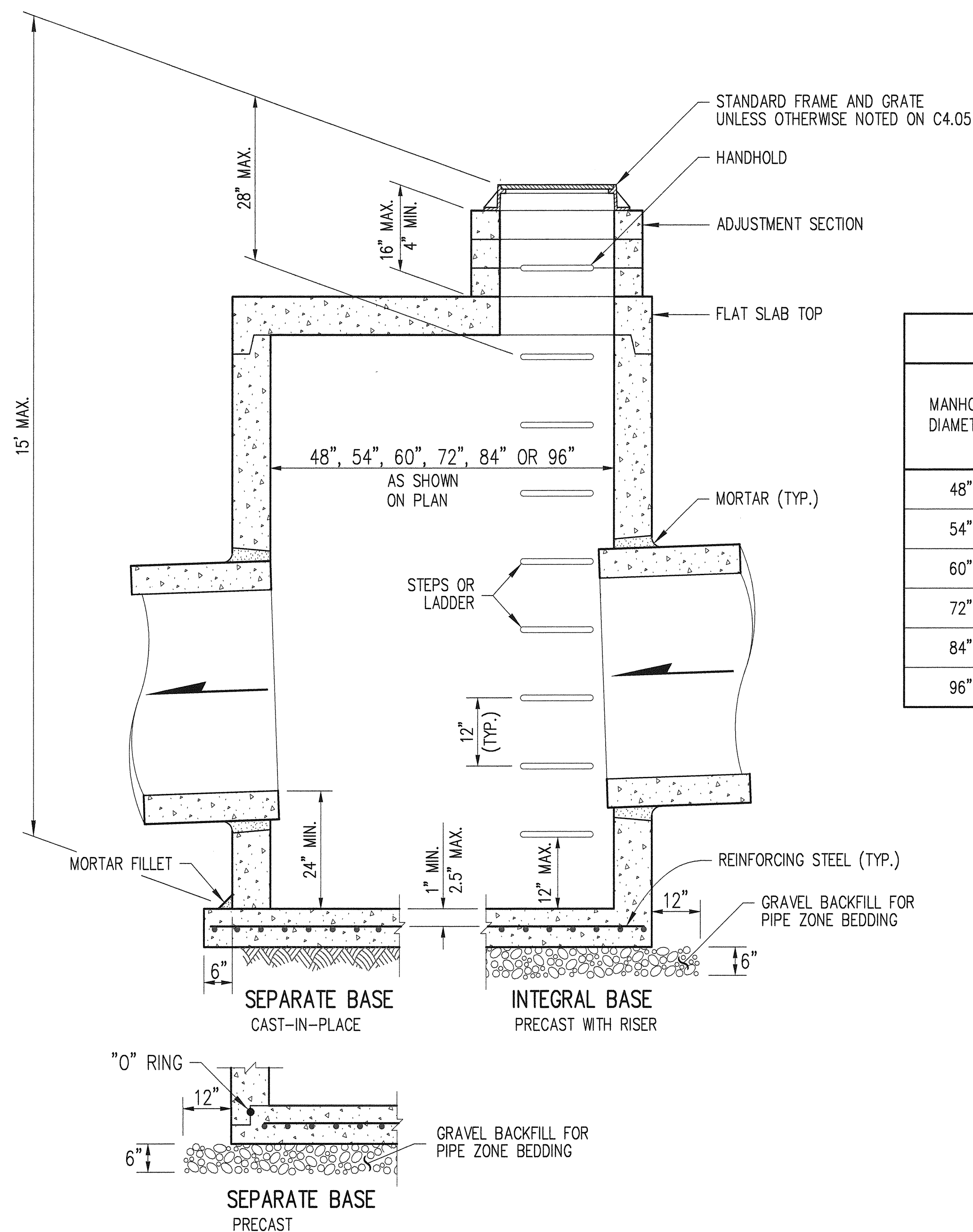
2
C4-06

NOTES:

1. MATERIAL SHALL BE DUCTILE IRON OR CAST STEEL.
2. WELDING NOT PERMITTED.
3. DIMENSIONS SHALL HAVE $\pm 1/16"$ TOLERANCE EXCEPT AS NOTED.
4. SEATING OF GRATE SHALL BE ACCOMPLISHED BY ONE OF THE FOLLOWING :
ALTERNATE A SHALL BE 8 PADS $1\frac{1}{2} \times 3\frac{1}{4} \times 1\frac{1}{8}$ " INTEGRALLY CAST WITH THE GRATE. (SECTION B-B)
ALTERNATE B SHALL BE A MACHINED SURFACE OUTSIDE A 17" CIRCLE, BOTTOM ONLY. (SEE SECTION C-C)

NOTES:

1. NO STEPS ARE REQUIRED WHEN HEIGHT IS 4' OR LESS.
2. THE BOTTOM OF THE PRECAST MANHOLE MAY BE SLOPED TO FACILITATE CLEANING.
3. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM TO 2.5" MAXIMUM. PROVIDE A 1.5" MINIMUM GAP BETWEEN THE KNOCKOUT WALL AND THE OUTSIDE OF THE PIPE. AFTER THE PIPE IS INSTALLED, FILL THE GAP WITH JOINT MORTAR IN ACCORDANCE WITH STANDARD SPECIFICATION 9-04.3.



TYPE 2 CATCH BASIN

NTS

1
C4-01

MANHOLE DIMENSIONS						
MANHOLE DIAMETER	WALL THICKNESS	BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS	BASE REINFORCING STEEL in ² /ft. IN EACH DIRECTION	
					SEPARATE BASE	INTEGRAL BASE
48"	4"	6"	36"	8"	0.23	0.15
54"	4.5"	8"	42"	8"	0.19	0.19
60"	5"	8"	48"	8"	0.25	0.25
72"	6"	8"	60"	12"	0.35	0.24
84"	8"	12"	72"	12"	0.39	0.29
96"	8"	12"	84"	12"	0.39	0.29

PIPE ALLOWANCES					
MANHOLE DIAMETER	PIPE MATERIAL WITH MAXIMUM INSIDE DIAMETER				
	CONCRETE	ALL METAL	CPSP ①	SOLID WALL PVC ②	PROFILE WALL PVC ③
48"	24"	30"	24"	27"	30"
54"	30"	36"	30"	27"	36"
60"	36"	42"	36"	36"	42"
72"	42"	54"	42"	36"	48"
84"	54"	60"	54"	36"	48"
96"	60"	72"	60"	36"	48"

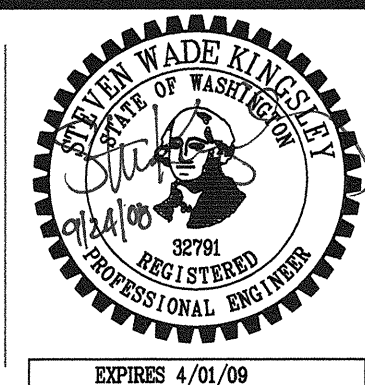
- ① CORRUGATED POLYETHYLENE STORM SEWER PIPE (STD. SPEC. 9-05.20)
② (STD. SPEC. 9-05.12(1))
③ (STD. SPEC. 9-05.12(2))

kpff Consulting Engineers

1201 Pacific Avenue, Suite 800
Tacoma, Washington 98402
(253) 396-0150 Fax (253) 396-0162

GIFFIN • BOLTE • JURGENS
ARCHITECTS

815 S.W. SECOND AVENUE • PORTLAND, OREGON 97204
(503) 223-0992 www.gbjaarch.com FAX (503) 294-3961



MultiCare
EMERGENCY DEPARTMENT & CANCER CENTER EXPANSION

TACOMA, WASHINGTON

Date 09-26-2008
Scale 1" = 10'
Drawn By REB
Job No. 4034

GRADING AND
DRAINAGE
DETAILS

C4
06