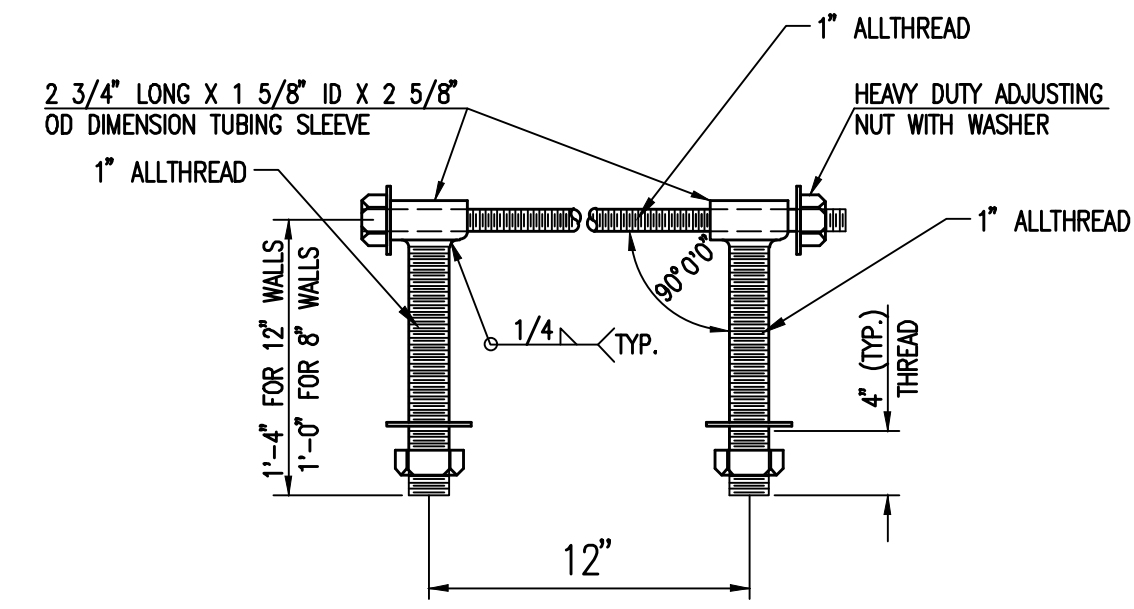
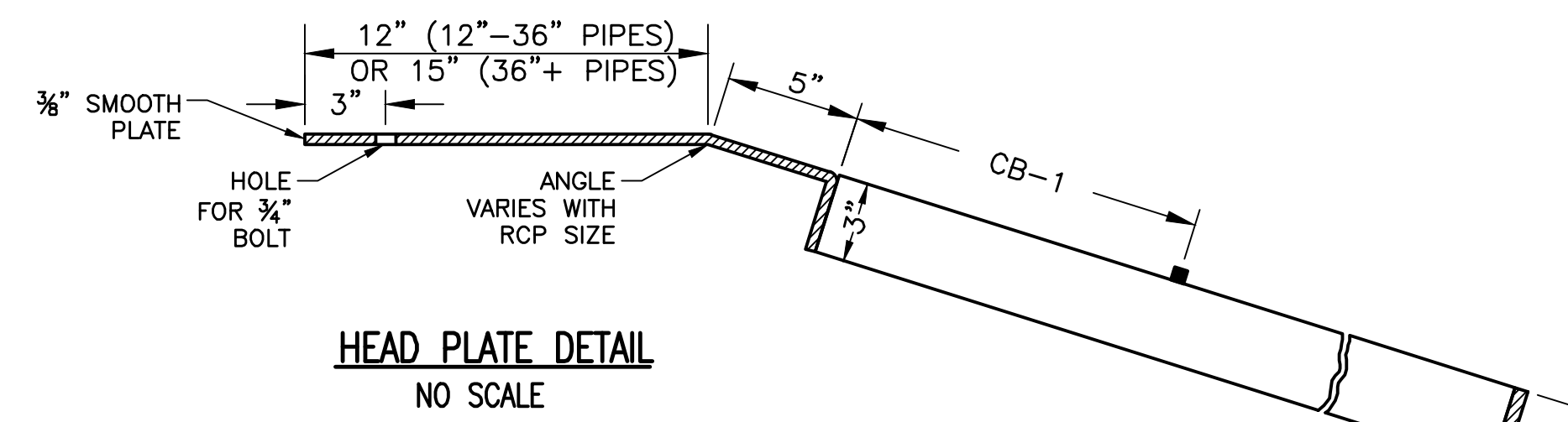
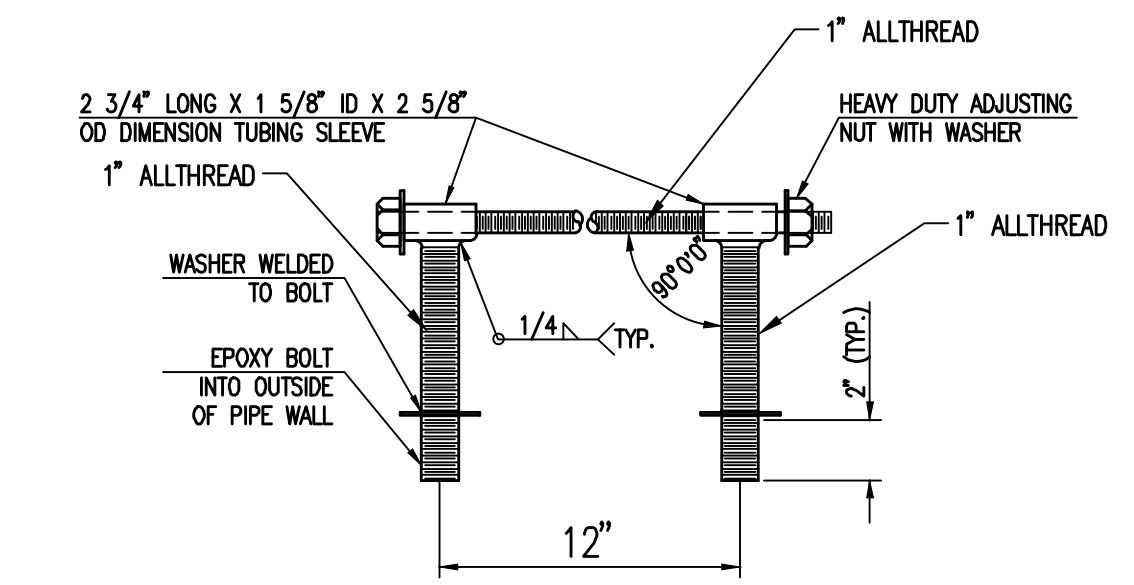


GRATE DIMENSIONS													
PIPE SIZE	HEAD PLATE	A	B	C	D	E	F	CB-1	CB-2	CB-3	CB-4	SP-1	SP-2
12"	13"	19 1/4"	19 3/8"	-	-	-	27"	10 3/8"	-	-	-	3@4"	3@6"
15"	13"	23 1/2"	25 1/4"	-	-	-	34"	10 3/4"	-	-	-	3@4"	3@8"
18"	13"	25"	26 1/8"	-	-	-	40"	12 7/8"	-	-	-	3@4"	3@9"
24"	17"	41 1/2"	42 1/2"	43 1/2"	-	-	53"	12"	15"	-	-	4@4"	4@9"
30"	19"	51 1/2"	52 1/2"	53 1/2"	-	-	65"	16 1/4"	11 3/4"	12"	-	2@3"+3@4"	5@9"
36"	21"	60 1/2"	61 1/2"	62 1/2"	-	-	78"	18 5/8"	14 1/4"	16"	-	2@2"+4@4"	6@9"
42"	22"	65 1/2"	66 1/2"	67 3/8"	68 3/4"	-	86"	13 3/8"	12 9/8"	13"	11 3/4"	7@3"	7@9"
48"	25"	70 7/8"	71"	71 3/4"	73"	74 1/2"	90"	16 1/4"	14 3/4"	14 3/4"	14 3/4"	8@3"	8@9"
54"	26"	71 3/4"	73"	74 1/2"	74 3/4"	76 3/4"	96"	6 7/8"	20 7/8"	17 7/8"	15 5/8"	4@2 3/4"+5@3"	9@9"
60"	28"	61 1/8"	61 3/4"	62 3/4"	64 1/2"	66 5/8"	102"	12"	12"	11 1/2"	13"	2@2"+8@3"	10@9"



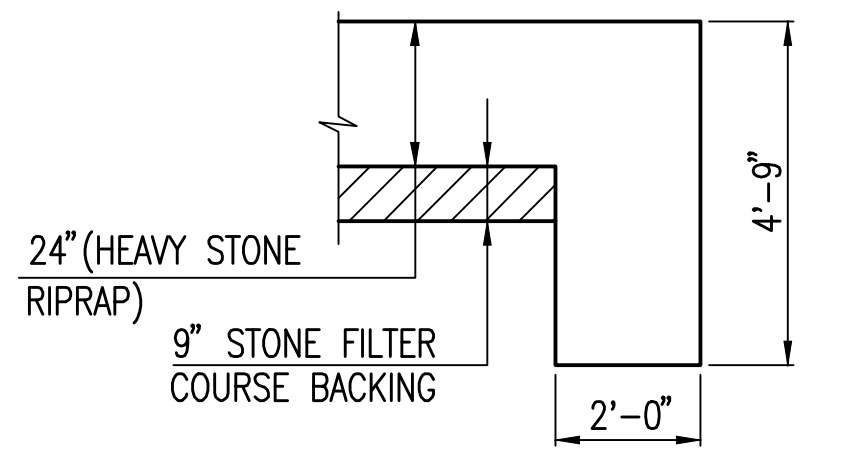
HEAVY DUTY (H.D.) COUPLER (>=36")  
NO SCALE

- NOTES
1. BOLTS TO BE A-36 1 1/2" DIAMETER.
  2. BOLTS, NUTS, WASHERS AND SLEEVES TO BE ZINC PLATED.
  3. WASHERS TO BE 3 1/2" O.D. X 7 GAUGE.
  4. SHIP WITH NUTS AND WASHERS PLACED ON BOLTS.



HEAVY DUTY (H.D.) COUPLER (<=30")  
NO SCALE

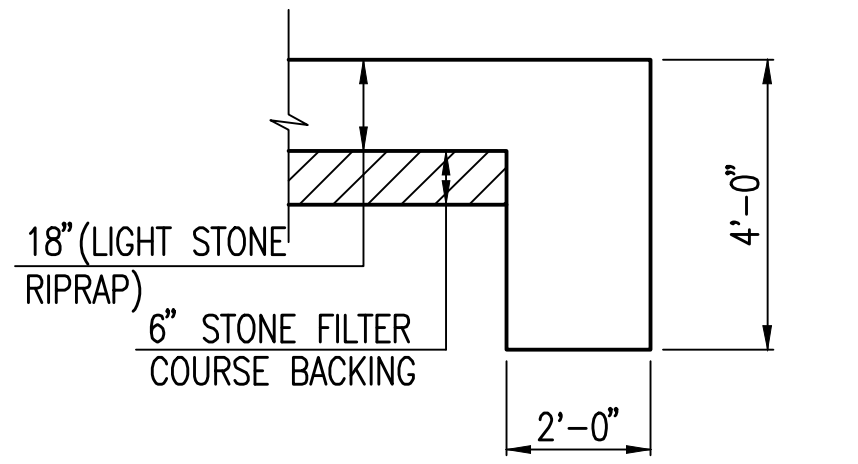
- NOTES
1. BOLTS TO BE A-36 1 1/2" DIAMETER.
  2. BOLTS, NUTS, WASHERS AND SLEEVES TO BE ZINC PLATED.
  3. WASHERS TO BE 3 1/2" O.D. X 7 GAUGE.
  4. SHIP WITH NUTS AND WASHERS PLACED ON BOLTS.



TYPICAL SECTION THRU TOEWALL  
NO SCALE

- NOTES
1. ALL RIPRAP FOR THIS PROJECT SHALL BE NATURAL STONE. NEITHER BROKEN CONCRETE, FABRIC ENVELOPE, NOR PREMIXED DRY PACKAGED CONCRETE BAG ALTERNATES WILL BE ALLOWED, UNLESS INDICATED OTHERWISE.
  2. TOEWALLS SHALL BE INSTALLED ALONG ALL UNPROTECTED EDGES OF STONE RIPRAP.
  3. GROUTING OF THE SURFACE OF THE RIPRAP SHALL NOT BE PERFORMED, UNLESS INDICATED OTHERWISE. GROUTING OF THE TOEWALLS SHALL BE PERFORMED PER CITY SPECIFICATIONS.

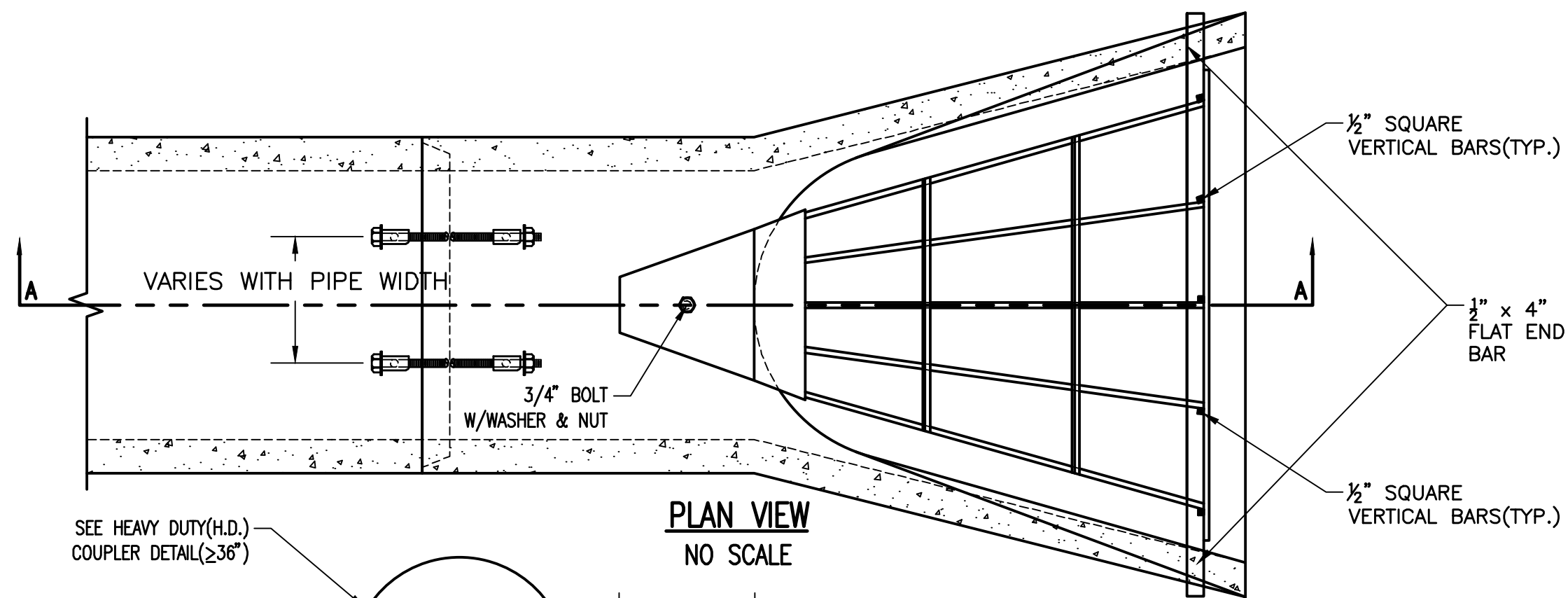
HEAVY STONE RIPRAP DETAILS



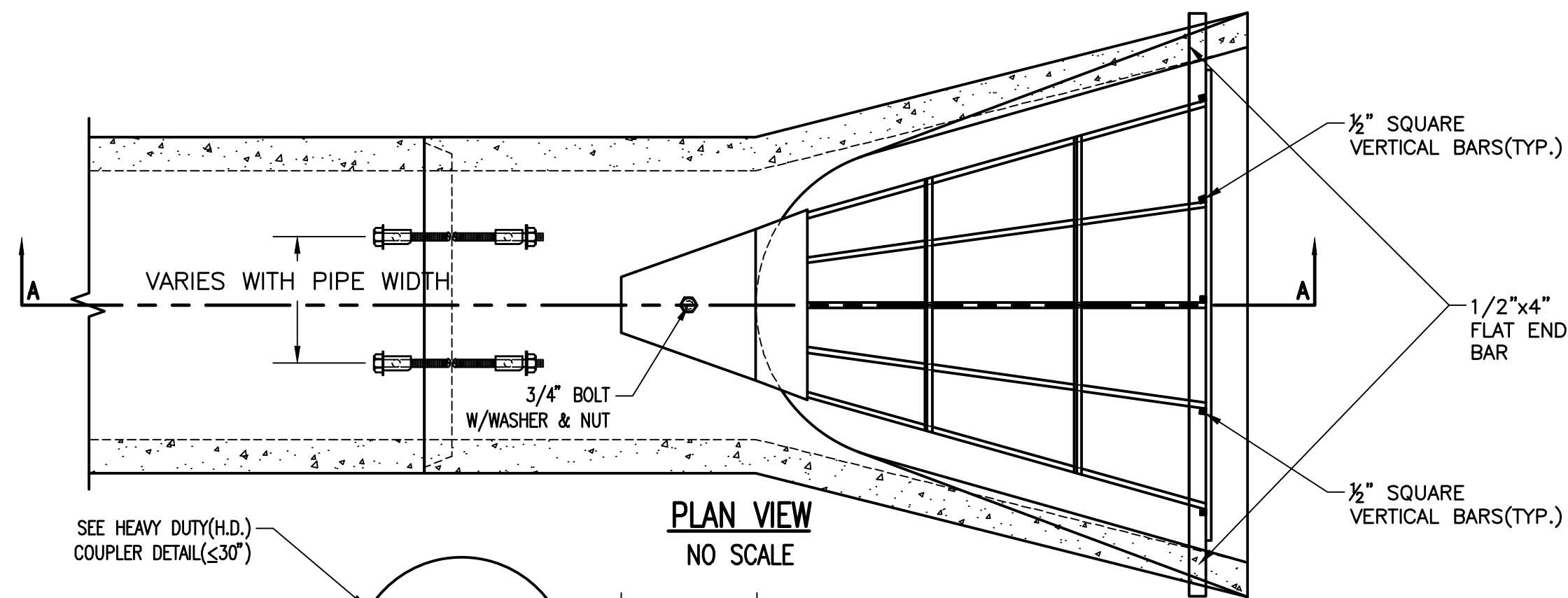
TYPICAL SECTION THRU TOEWALL  
NO SCALE

- NOTES
1. ALL RIPRAP FOR THIS PROJECT SHALL BE NATURAL STONE. NEITHER BROKEN CONCRETE, FABRIC ENVELOPE, NOR PREMIXED DRY PACKAGED CONCRETE BAG ALTERNATES WILL BE ALLOWED, UNLESS INDICATED OTHERWISE.
  2. TOEWALLS SHALL BE INSTALLED ALONG ALL UNPROTECTED EDGES OF STONE RIPRAP.
  3. GROUTING OF THE SURFACE OF THE RIPRAP SHALL NOT BE PERFORMED, UNLESS INDICATED OTHERWISE. GROUTING OF THE TOEWALLS SHALL BE PERFORMED PER CITY SPECIFICATIONS.

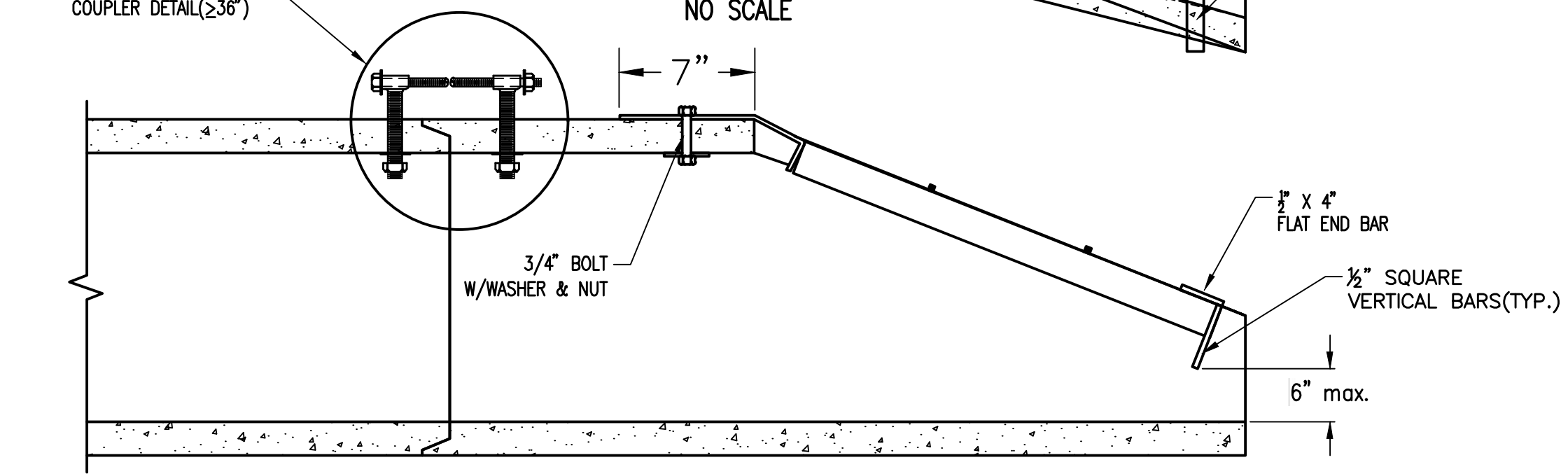
LIGHT STONE RIPRAP DETAILS



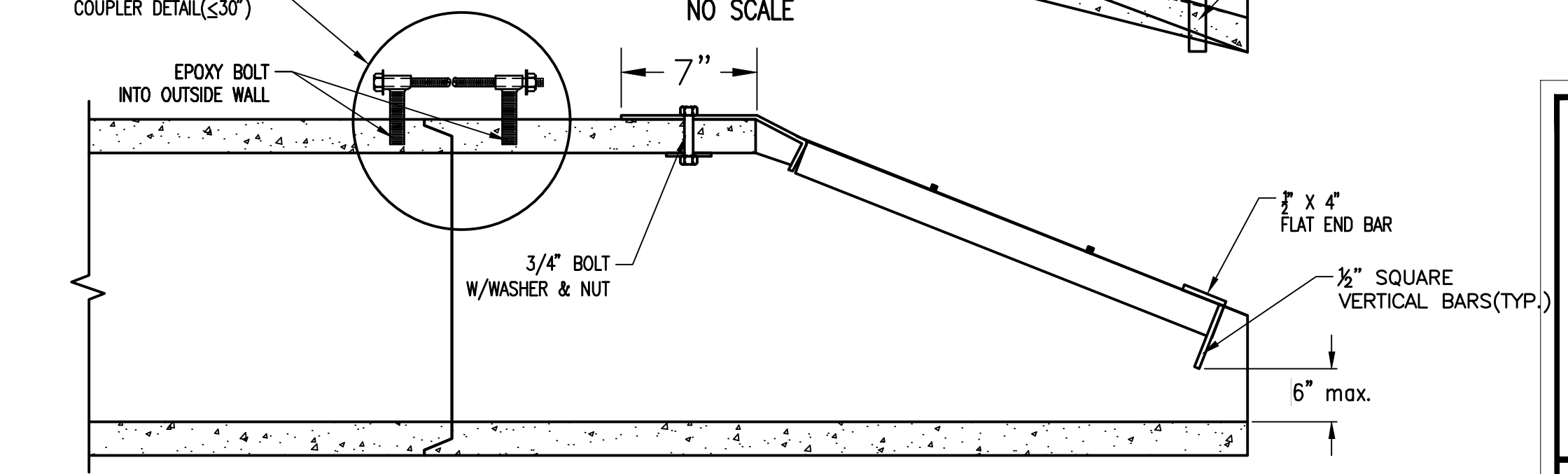
PLAN VIEW  
NO SCALE



PLAN VIEW  
NO SCALE



SECTION A-A



SECTION A-A

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CITY OF WICHITA  
PUBLIC WORKS & UTILITIES  
ENGINEERING DIVISION

END SECTION, PIPE  
RESTRAINT COUPLER  
& END GRATE

CITY ENGINEER  
**GARY JANZEN, P.E.**

PROJECT NUMBER 472-85454	OCA NUMBER 795043	DATE 01/2015
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CITY ENGINEER'S OFFICE  
CITY HALL - SEVENTH FLOOR  
455 NORTH MAIN STREET  
WICHITA, KANSAS 67202-1620  
(316) 268-4501

DESIGN	DRAWN
SHEET 14 of 19	