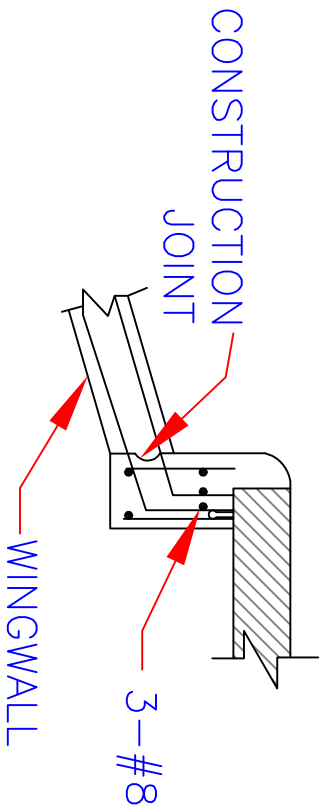
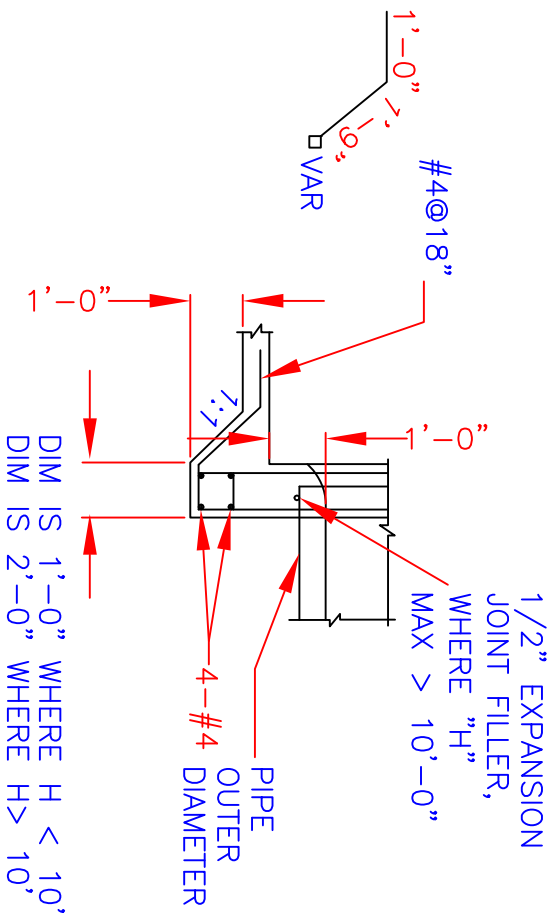


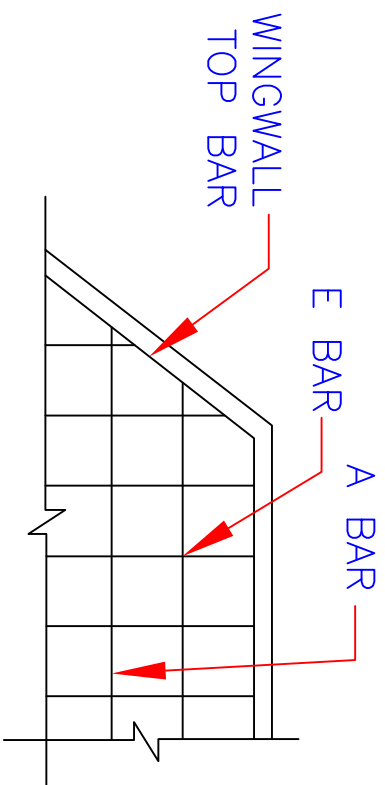
CITY OF OROVILLE DEPARTMENT OF PUBLIC WORKS		
STANDARD FOR HEADWALL, ENDWALL AND WINGWALL		
DRAWN BY: SG	RICK WALLS, P.E. DIRECTOR OF PUBLIC WORKS DEPARTMENT	SHEET 1 OF 4 SD-05



DETAIL A



DETAIL B



DETAIL C

NOTES:

- ① PLACE #5 REBAR ON DIAGONALS @ 4" FROM PIPE OD.
- ② PIPE CONNECTIONS SHALL CONFORM TO ASTM C-923. UNITS SHALL INCLUDE A WATER STOP.
- ③ CHAMFER ALL EXPOSED EDGES 3/4"
- ④ ALL STEEL MINIMUM 2" FROM CONCRETE EDGES.
- ⑤ ALL LAP SPLICES MINIMUM 12".



CITY OF OROVILLE
DEPARTMENT OF PUBLIC WORKS

STANDARD FOR

HEADWALL, ENDWALL, AND WINGWALL

DRAWN BY:
SG

RICK WALLS, P.E.
DIRECTOR OF PUBLIC WORKS DEPARTMENT

SHEET
2 OF 4
SD-05

HEADWALL DIMENSIONS

PIPE DIA	PIPE OD	W	H _{MIN}	T*	L _{MIN}
24"	30"	4'-6"	4'-8"	8"	2'-9"
27"	33.5"	4'-6"	4'-10"	8"	3'-0"
30"	37"	4'-6"	5'-3"	8"	3'-3"
33"	40.5"	4'-6"	5'-9"	8"	3'-6"
36"	44"	5'-6"	5'-9"	8"	3'-9"
42"	51"	6'-6"	6'-6"	8"	4'-3"
48"	58"	7'-6"	7'-5"	10"	5'-3"
54"	65"	9'-6"	7'-7"	10"	5'-9"
60"	72"	10'-6"	8'-3"	10"	6'-0"
72"	86"	12'-6"	9'-8"	10"	7'-3"

*T IS TO BE 10" IF A HAND RAILING IS PLACED ON THE WALL STRUCTURE

REINFORCING STEEL DIMENSIONS AND DATA

	A BAR	B BAR	C BAR	D BAR	E BAR	WINGWALL TOP BAR
H < 7'	#4@12"DC	#4@12"DC	#4@12"DC	#4@12"DC	#4@12"DC	#4
7' < H ≤ 8'	#4@12"DC EF	#4@12"DC EF	#4@12"DC EF	#4@12"DC EF	#4@12"DC EF	#4
8' < H ≤ 10'	#5@12"DC EF	#5@6"DC EF	#5@12"DC EF	#5@12"DC EF	#5@12"DC EF	#5



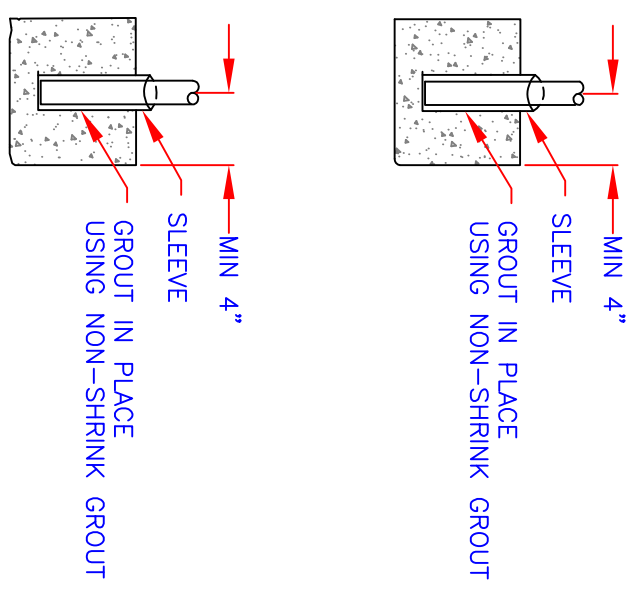
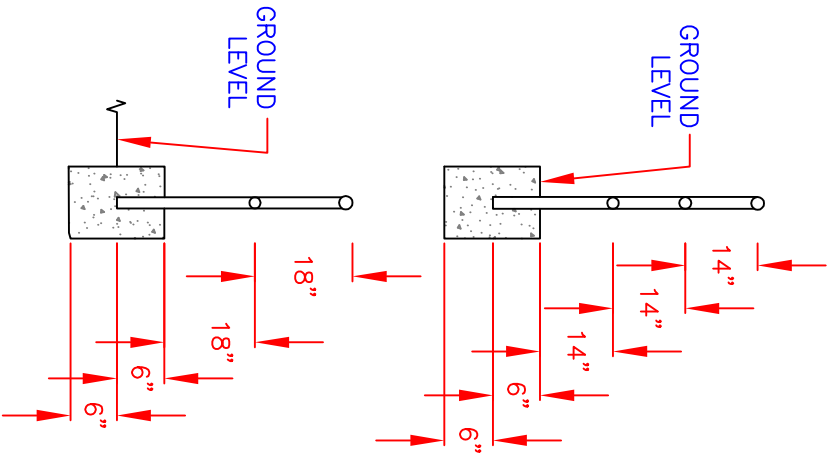
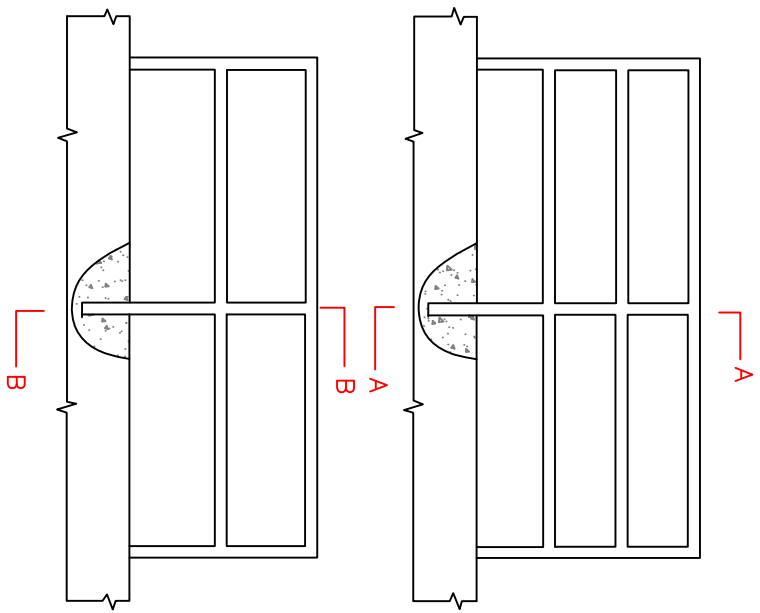
CITY OF OROVILLE
DEPARTMENT OF PUBLIC WORKS

STANDARD FOR
HEADWALL, ENDWALL, AND WINGWALL

DRAWN BY:
SG

RICK WALLS, P.E.
DIRECTOR OF PUBLIC WORKS DEPARTMENT

SHEET
3 OF 4
SD-05



NOTES:

1. GUARDRAIL – 1½” SEAMLESS STEEL PIPE ASTM 53 GRADE B, HOT DIP GALVANIZED. PAINT COLOR (IF NEEDED) TO BE SPECIFIED ON PLANS.
2. ALL GUARDRAIL WELDS ¾” FILLET GROUND SMOOTH.
3. MAXIMUM SPACING OF POSTS SHALL BE 6’.
4. TO BE SHOWN ON IMPROVEMENT PLANS FOR PLACEMENT.



CITY OF OROVILLE
DEPARTMENT OF PUBLIC WORKS

STANDARD FOR
HEADWALL, ENDWALL, AND WINGWALL

DRAWN BY: SG	RICK WALLS, P.E.	SHEET 4 OF 4
DIRECTOR OF PUBLIC WORKS DEPARTMENT		SD-05