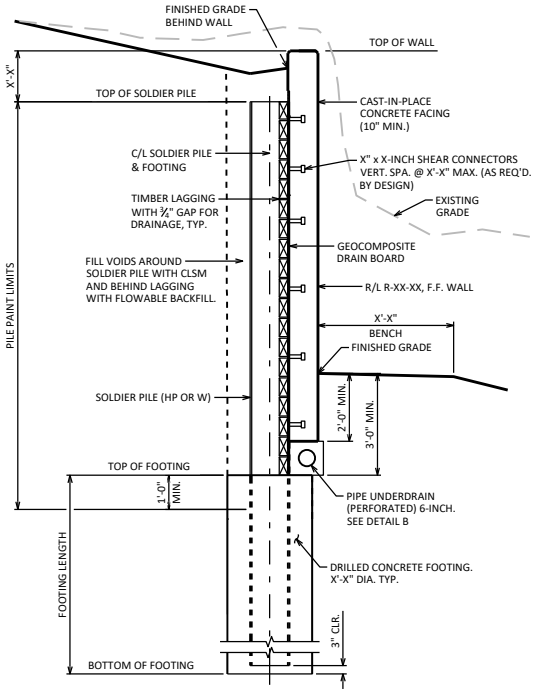
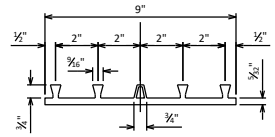


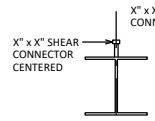
TYPICAL SECTION

(SOLDIER PILE WALL WITH CIP CONCRETE FACING)



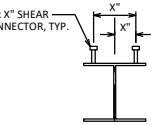
P.C.W. "TYPE B" DETAIL

(POLYVINYL CHLORIDE WATERSTOP)
(INCLUDED IN BID ITEM "CONCRETE MASONRY RETAINING WALLS")
P.C.W. SHALL BE BUTT SPLICED AT ANY INTERSECTIONS BY USING A HEATED SPLICING IRON. HOLD P.C.W. FLUSH WITH CONCRETE. SEAL ALL VERTICAL ENDS OF P.C.W. WITH NON-STAINING BITUMINOUS JOINT SEALER.



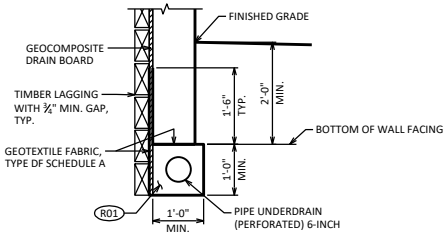
STUD LAYOUT

HP X x X
W X x X



STUD LAYOUT

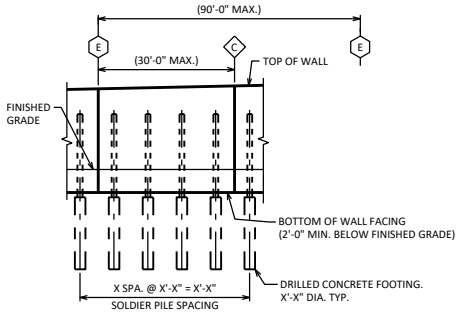
HP X x X
W X x X



DETAIL B

(BETWEEN SOLDIER PILES)

R01 ENCLOSE PIPE UNDERDRAIN IN MINIMUM 1'-0" X 1'-0" AREA OF BASE AGGREGATE OPEN GRADED MATERIAL WRAPPED IN GEOTEXTILE FABRIC. AGGREGATE IS INCLUDED IN THE PIPE UNDERDRAIN.

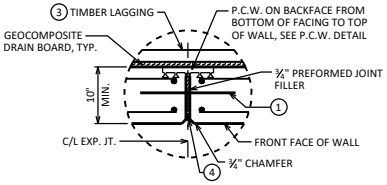


PARTIAL WALL ELEVATION

LOOKING AT FRONT FACE OF WALL

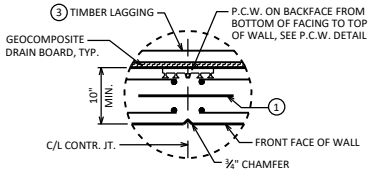
E WALL FACING EXPANSION JOINT

C WALL FACING CONTRACTION JOINT



EXPANSION JOINT DETAIL

(SEE GENERAL PLAN & ELEVATION SHEETS FOR LOCATION OF JOINTS. MAX. SPACING OF EXPANSION JOINTS = 90')



CONTRACTION JOINT DETAIL

(SEE GENERAL PLAN & ELEVATION SHEETS FOR LOCATION OF JOINTS. MAX. SPACING OF CONTRACTION JOINTS = 30')

1. ¾" DIA. X 1'-6" SMOOTH EPOXY COATED DOWELS PLACED AT 2'-0" CENTERS MID-DEPTH IN THE WALL. DOWELS SHALL BE LIGHTLY COATED WITH A DEBONDING SURFACE TREATMENT OVER ½ THE DOWEL LENGTH. EMBED 9" INTO ADJACENT WALL. DOWELS INCLUDED IN THE BID ITEM "CONCRETE MASONRY RETAINING WALLS".
2. WALL FACING REINFORCEMENT TO BE DESIGNED AND DETAILED BY THE DESIGN ENGINEER
3. TIMBER LAGGING. ANCHOR LAGGING TO PILES AS NECESSARY TO RETAIN MATERIAL AND AS A LEFT-IN-PLACE CONCRETE FACING FORM FOR THE BACK FACE. SET LAGGING WITH ¾" VERTICAL GAPS FOR DRAINAGE. FLOWABLE FILL MATERIAL SHALL BE COMPATIBLE WITH THE VERTICAL GAP.
4. SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND ⅛" BELOW SURFACE OF CONCRETE)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE SHOWN OR NOTED.

ALL DIMENSIONS ARE ALONG THE FRONT FACE OF WALL UNLESS OTHERWISE SHOWN OR NOTED.

THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES RETAINING WALLS R-XX-XX".

FLOWABLE BACKFILL SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION "FLOWABLE BACKFILL". NO CEMENTITIOUS MATERIAL WILL BE ALLOWED IN FLOWABLE BACKFILL. ALL MATERIAL AND WORK IS INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES RETAINING WALLS (R-XX-XX)".

CONTROLLED LOW STRENGTH MATERIAL (CLSM) SHALL BE IN ACCORDANCE WITH "BACKFILL CONTROLLED LOW STRENGTH" (209.0200.S). ALL MATERIAL AND WORK IS INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES RETAINING WALLS (R-XX-XX)".

THE QUANTITY OF CAST-IN-PLACE CONCRETE MASONRY FOR THE SOLDIER PILE CAST-IN-PLACE CONCRETE FACING IS PAID FOR UNDER THE BID ITEM "CONCRETE MASONRY RETAINING WALLS".

THE VOLUME OF EARTHWORK REQUIRED TO INSTALL THE SOLDIER PILES AND FOOTINGS IS INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES RETAINING WALLS (R-XX-XX)".

DO NOT SPLICE SOLDIER PILES.

SURFACE PREP AND SHOP PAINT SOLDIER PILES FROM TOP OF PILE TO 1'-0" BELOW TOP OF FOOTING WITH ONE COAT OF ZINC-RICH PRIMER AS SPECIFIED IN SECTION 517 OF THE STANDARD SPECIFICATIONS. WELDED STUD SHEAR CONNECTORS ARE NOT REQUIRED TO BE PAINTED. PAINTING OF PILES PAID FOR UNDER BID ITEM "PAINTING EPOXY SYSTEM (R-XX-XX)".

DESIGN DATA

MATERIALS PROPERTIES:

CONCRETE (FACING) — $f'c$ = 4,000 PSI
CONCRETE (FOOTING) — $f'c$ = 3,500 PSI
BAR STEEL REINFORCEMENT, GRADE 60 — fy = 60,000 PSI
HIGH STRENGTH STRUCTURAL STEEL — fy = 50,000 PSI
* TIMBER LAGGING — F_{bo} = 1,000 PSI
E = 1,700,000 PSI
$t_{min.}$ = (3" MIN.)

* MATERIAL VALUES BASED ON DOUGLAS FIR-LARCH NO. 1 ≥ 2 IN WIDE, REFERENCE AASHTO LRFD SPECIFICATION TABLE 8.4.1.1.4-1.

LIVE LOAD:

LIVE LOAD SURCHARGE: XXX PSF

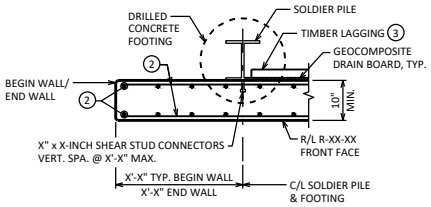
DESIGNER NOTES

MODIFY DETAILS, NOTES, AND BID ITEMS AS REQUIRED.

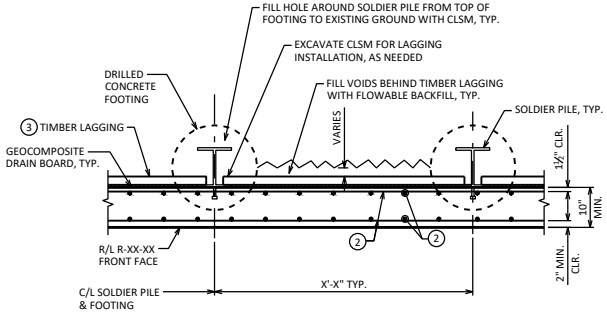
TIMBER LAGGING SHALL BE DESIGNED AS A TEMPORARY WALL FACING AND NOT CONTRIBUTE TO THE FINAL WALL FACING. PROVIDE THE MINIMUM REQUIRED THICKNESS ON THE PLANS AND UPDATE TIMBER LAGGING MATERIAL PROPERTIES, AS REQUIRED BY DESIGN.

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTALS
203.0220	REMOVING STRUCTURE (R-XX-XX)	EACH	1
206.3001	EXCAVATION FOR STRUCTURES RETAINING WALLS (R-XX-XX)	EACH	1
502.0110.S	CONCRETE MASONRY SOLDIER PILE FOOTINGS	CY	
504.0500	CONCRETE MASONRY RETAINING WALLS	CY	
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	
506.0605	STRUCTURAL STEEL HS	LB	
506.3XXX	WELDED STUD SHEAR CONNECTORS _ X _-INCH	EACH	
517.0601	PAINTING EPOXY SYSTEM (R-XX-XX)	EACH	1
612.0106	PIPE UNDERDRAIN 6-INCH	LF	
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	
SPV.0090	FOUNDATION DRILLING	LF	
SPV.0110	TIMBER LAGGING	MBM	
SPV.0165	GEOCOMPOSITE DRAIN BOARD	SF	
	NON-BID ITEMS		
	FILLER	SIZE	½", ¾"



SECTION AT BEGINNING/END OF WALL



SECTION THRU SOLDIER PILE WALL

SOLDIER PILE DATA TABLE

PILE NO.	WALL R/L STA.	OFFSET (FT.)	APPROX. EXISTING GRADE	FOUNDATION DRILLING LENGTH (FT.)	TOP OF WALL	TOP OF SOLDIER PILE	FINISHED GRADE AT WALL FACE	EXPOSED HEIGHT (FT.)	TOP OF FOOTING	BOTTOM OF FOOTING	FOOTING LENGTH (FT.)	FOOTING DIAMETER (FT.)	SOLDIER PILE SECTION	SOLDIER PILE LENGTH (FT.)	NO. OF SHEAR STUDS REQ'D (FACING)
1															
2															

SOLDIER PILE WALL ANALYSIS SOIL PARAMETERS

SOIL UNIT	TOTAL UNIT WEIGHT (PCF)	UNDRAINED		DRAINED	
		COHESION (PSF)	FRICTION ANGLE (DEG)	COHESION (PSF)	FRICTION ANGLE (DEG)

SOLDIER PILE WALL

BUREAU OF STRUCTURES

APPROVED: *Laura Shadewald*

DATE: 7-26

STANDARD 14.20