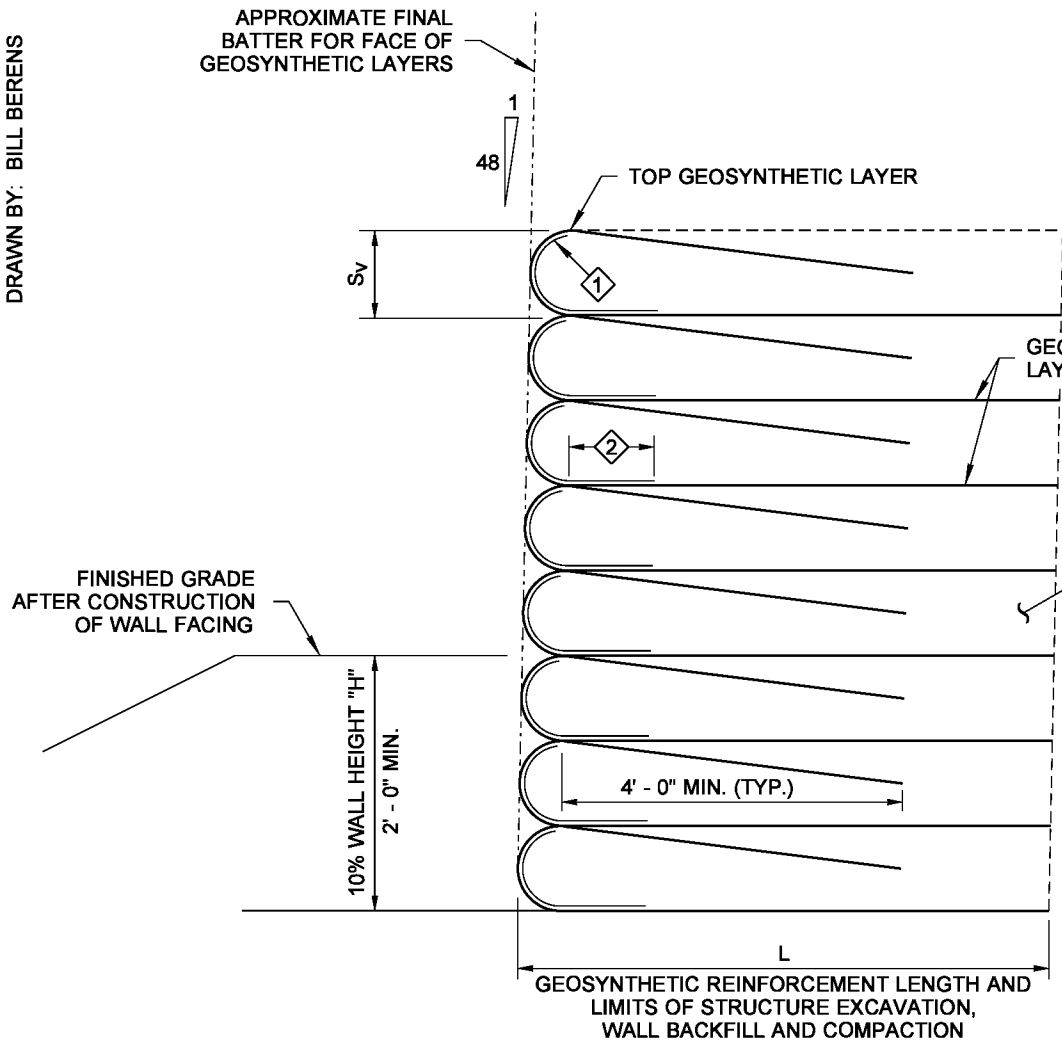
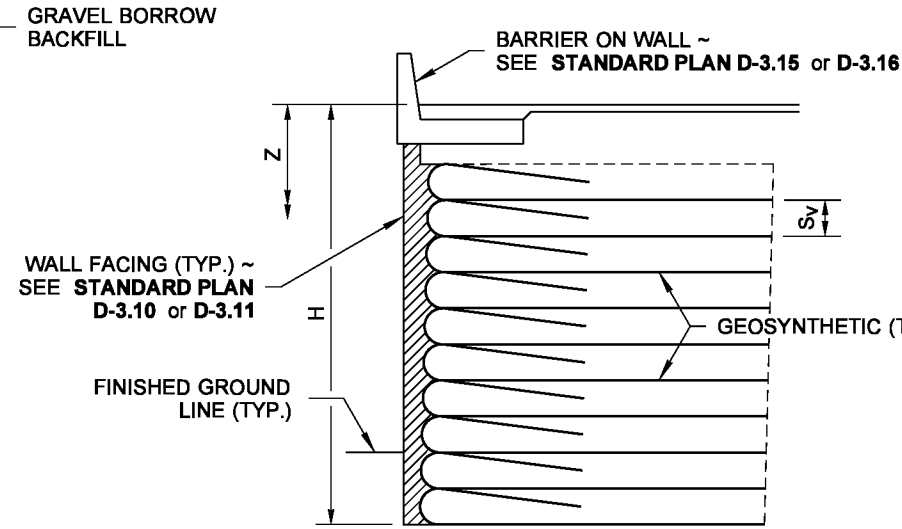


DRAWN BY: BILL BERENS

APPROXIMATE FINAL
BATTER FOR FACE OF
GEOSYNTHETIC LAYERS

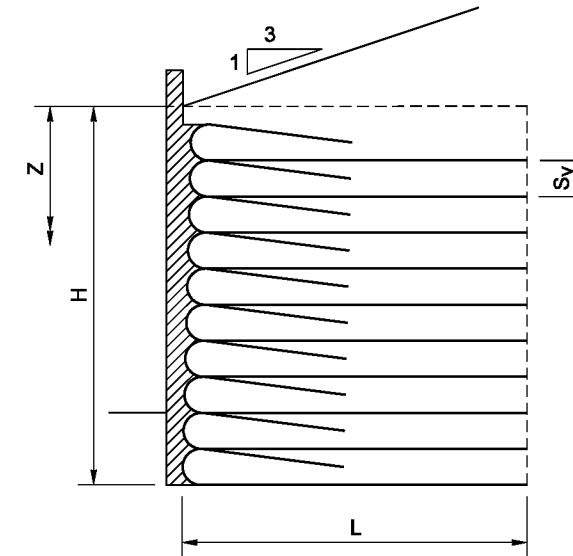


SECTION DETAIL



**GEOSYNTHETIC WALL WITH
2 FT TRAFFIC SURCHARGE**

TYPE 1, $A_S \leq 0.51g$
TYPE 5, $A_S \leq 0.20g$

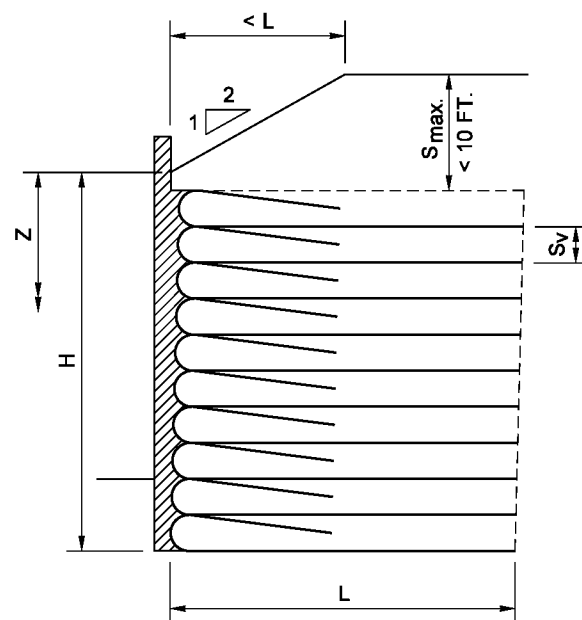


GEOSYNTHETIC WALL

TYPE 3, $A_S \leq 0.51g$
TYPE 7, $A_S \leq 0.20g$

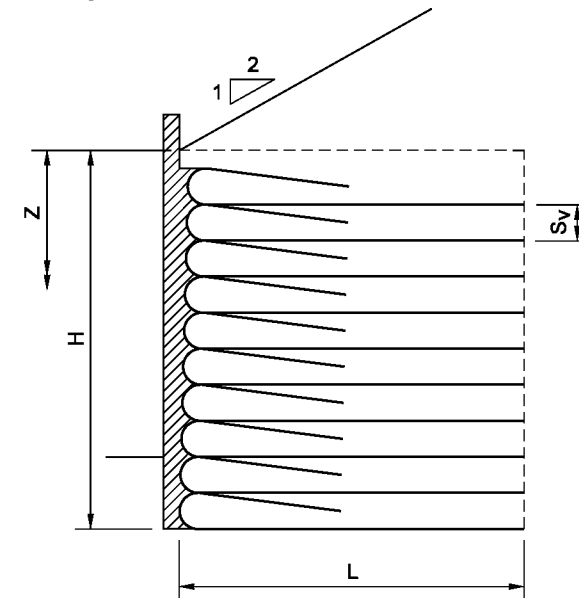
KEY NOTES

- ① GEOTEXTILE FOR UNDERGROUND DRAINAGE CLASS A, MODERATE SURVIVABILITY (ONLY NEEDED IF A GEOGRID IS USED FOR GEOSYNTHETIC REINFORCEMENT)
- ② 1' - 0" MIN. GEOTEXTILE OVERLAP, TOP & BOTTOM



GEOSYNTHETIC WALL

TYPE 2, $A_S \leq 0.51g$
TYPE 6, $A_S \leq 0.20g$

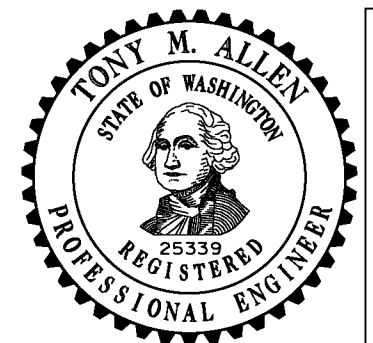


GEOSYNTHETIC WALL

TYPE 4, $A_S \leq 0.51g$
TYPE 8, $A_S \leq 0.20g$

NOTES

1. For the values of "L," see sheet 3, and for the values of "S_v" see sheet 2.
2. For Geosynthetic Wall Construction Sequence, see sheet 4.
3. "A_s" is the peak seismic ground acceleration as defined and applied in the AASHTO LRFD Bridge Design Specifications, Articles 3.10.4.1 and 11.6.5.
4. The long-term geosynthetic design strength "T_{al}" shall be determined in accordance with WSDOT Standard Practice T925. See Qualified Products List (QPL), Appendix "D," for products in which "T_{al}" has been determined. "H" and "Z" are graphically defined. "Z" is the distance from the top of the wall to a geosynthetic layer, and is used to determine "T_{al}" for that layer.
5. "L," the geosynthetic reinforcement length behind the wall face, is graphically defined. The maximum factored bearing stress acts in the vertical direction at the base of the wall. The load factors used are as specified in the AASHTO LRFD Bridge Design Specifications for each specified limit state.
6. Fascia or facing type shall be selected from **Standard Plans D-3.10 or D-3.11** and called out in the Contract Plans. Region is to coordinate with the Geotechnical Services and Bridge & Structures offices.



NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT UNTIL IT IS APPROVED AND SIGNED BY THE ENGINEER AND THE ENGINEER'S LICENSE NUMBER IS FILED AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

**PERMANENT
GEOSYNTHETIC WALL
STANDARD PLAN D-3.09-00**

SHEET 1 OF 4 SHEETS

APPROVED FOR PUBLICATION

Pasco Bakotich III 05/17/12

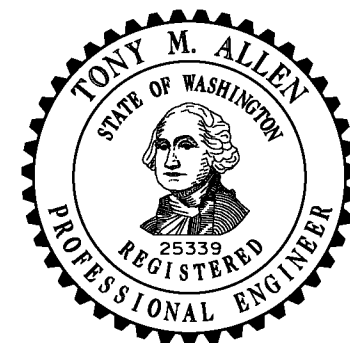
STATE DESIGN ENGINEER DATE



PERMANENT GEOSYNTHETIC WALL - GEOSYNTHETIC REINFORCEMENT DESIGN

WALL GEOMETRY AND REINFORCEMENT LAYER LOCATION			LONG-TERM GEOSYNTHETIC REINFORCEMENT STRENGTH REQUIRED, T_{al} (lbs/ft)*					
TOTAL WALL HEIGHT, H (ft)	DEPTH BELOW WALL TOP AT FACE, z (ft)	GEOSYNTHETIC REINFORCEMENT VERTICAL SPACING, S_v (ft)	GEOSYNTHETIC WALL TYPE 1	GEOSYNTHETIC WALL TYPES 2 AND 4	GEOSYNTHETIC WALL TYPE 3	GEOSYNTHETIC WALL TYPE 5	GEOSYNTHETIC WALL TYPES 6 AND 8	GEOSYNTHETIC WALL TYPE 7
UP TO 5	5	1.0	505	240	220	505	240	220
	5	1.25	631	300	280	631	300	275
5 < H ≤ 10	0 to 10	1.0	530	500	470	528	487	460
	0 to 10	1.25	660	630	590	660	609	575
10 < H ≤ 15	0 to 10	1.0	580	620	570	584	586	545
	10.1 to 15	1.0	760	780	740	760	760	719
	0 to 10	1.25	730	770	710	730	732	681
	10.1 to 15	1.25	950	980	920	950	950	899
15 < H ≤ 20	0 to 10	1.0	584	672	616	584	626	572
	10.1 to 20	1.0	992	1072	1000	992	1032	976
	0 to 10	1.25	730	840	770	730	783	715
	10.1 to 20	1.25	1240	1340	1250	1240	1290	1220
20 < H ≤ 25	0 to 10	1.0	580	720	660	584	667	599
	10.1 to 20	1.0	1050	1180	1100	1048	1128	1064
	20.1 to 25	1.0	1220	1350	1270	1224	1304	1240
	0 to 10	1.25	730	900	820	730	834	749
	10.1 to 20	1.25	1310	1470	1380	1310	1410	1330
	20.1 to 25	1.25	1530	1690	1590	1530	1630	1550
25 < H ≤ 30	0 to 10	1.0	580	780	700	584	708	626
	10.1 to 20	1.0	1050	1240	1140	1048	1168	1088
	20.1 to 30	1.0	1460	1640	1540	1456	1576	1496
	0 to 10	1.25	730	980	870	730	885	782
	10.1 to 20	1.25	1310	1550	1430	1310	1460	1360
	20.1 to 30	1.25	1820	2050	1920	1820	1970	1870
30 < H ≤ 35	0 to 10	1.0	580	830	740	584	749	653
	10.1 to 20	1.0	1050	1290	1180	1048	1216	1120
	20.1 to 30	1.0	1510	1740	1630	1512	1680	1584
	30.1 to 35	1.0	1690	1920	1800	1688	1848	1752
	0 to 10	1.25	730	1040	925	730	936	816
	10.1 to 20	1.25	1310	1610	1480	1310	1520	1400
	20.1 to 30	1.25	1890	2180	2040	1890	2100	1980
	30.1 to 35	1.25	2110	2400	2250	2110	2310	2190

NOTE: See Note 4, sheet 1.



NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT UNTIL IT IS REGISTERED WITH THE STATE OF WASHINGTON. THE ENGINEER'S SIGNATURE AND SEAL MUST BE FILED AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

**PERMANENT
GEOSYNTHETIC WALL
STANDARD PLAN D-3.09-00**

SHEET 2 OF 4 SHEETS

APPROVED FOR PUBLICATION

Pasco Bakotich III **05/17/12**
STATE DESIGN ENGINEER DATE



DRAWN BY: BILL BERENS

PERMANENT GEOSYNTHETIC WALL - EXTERNAL STABILITY DESIGN (INCLUDES SEISMIC DESIGN FOR LARGE EARTHQUAKE: $A_g \leq 0.51g$)

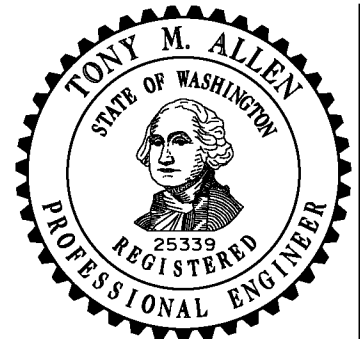
Table with 4 main columns: GEOSYNTHETIC WALL TYPE 1, GEOSYNTHETIC WALL TYPE 2, GEOSYNTHETIC WALL TYPE 3, and GEOSYNTHETIC WALL TYPE 4. Each column has sub-headers for L (FT), SERVICE, STRENGTH, and EXTREME EVENT I/II.

NOTE: See General Note 5, sheet 1.

PERMANENT GEOSYNTHETIC WALL - EXTERNAL STABILITY DESIGN (INCLUDES SEISMIC DESIGN FOR LARGE EARTHQUAKE: $A_g \leq 0.20g$)

Table with 4 main columns: GEOSYNTHETIC WALL TYPE 5, GEOSYNTHETIC WALL TYPE 6, GEOSYNTHETIC WALL TYPE 7, and GEOSYNTHETIC WALL TYPE 8. Each column has sub-headers for L (FT), SERVICE, STRENGTH, and EXTREME EVENT I/II.

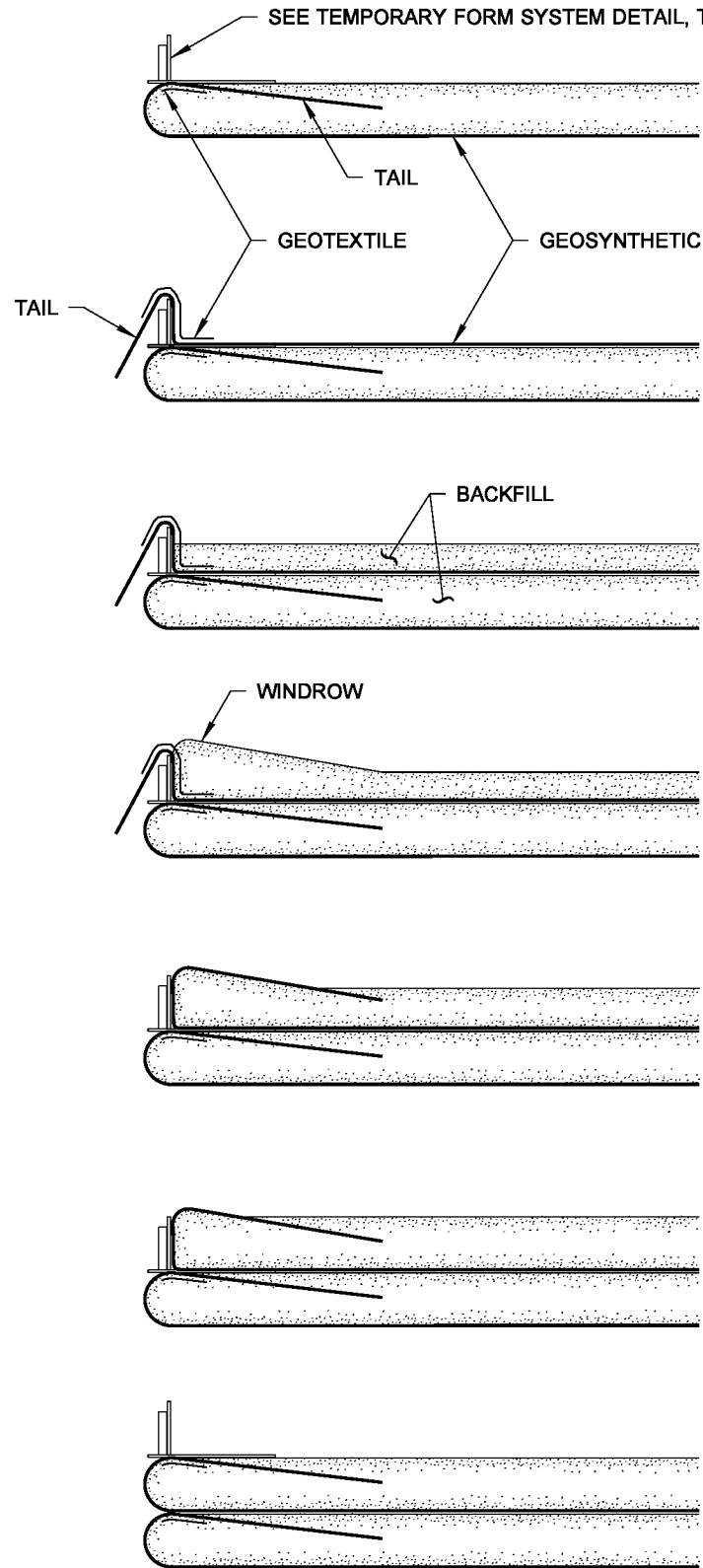
NOTE: See Note 5, sheet 1.



NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT UNLESS IT IS USED IN CONNECTION WITH THE ORIGINAL SET OF PLANS BY THE ENGINEER WHO PREPARED IT. THIS DOCUMENT IS TO BE FILED AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

PERMANENT GEOSYNTHETIC WALL STANDARD PLAN D-3.09-00 SHEET 3 OF 4 SHEETS

APPROVED FOR PUBLICATION Pasco Bakotich III 05/17/12 STATE DESIGN ENGINEER DATE Washington State Department of Transportation

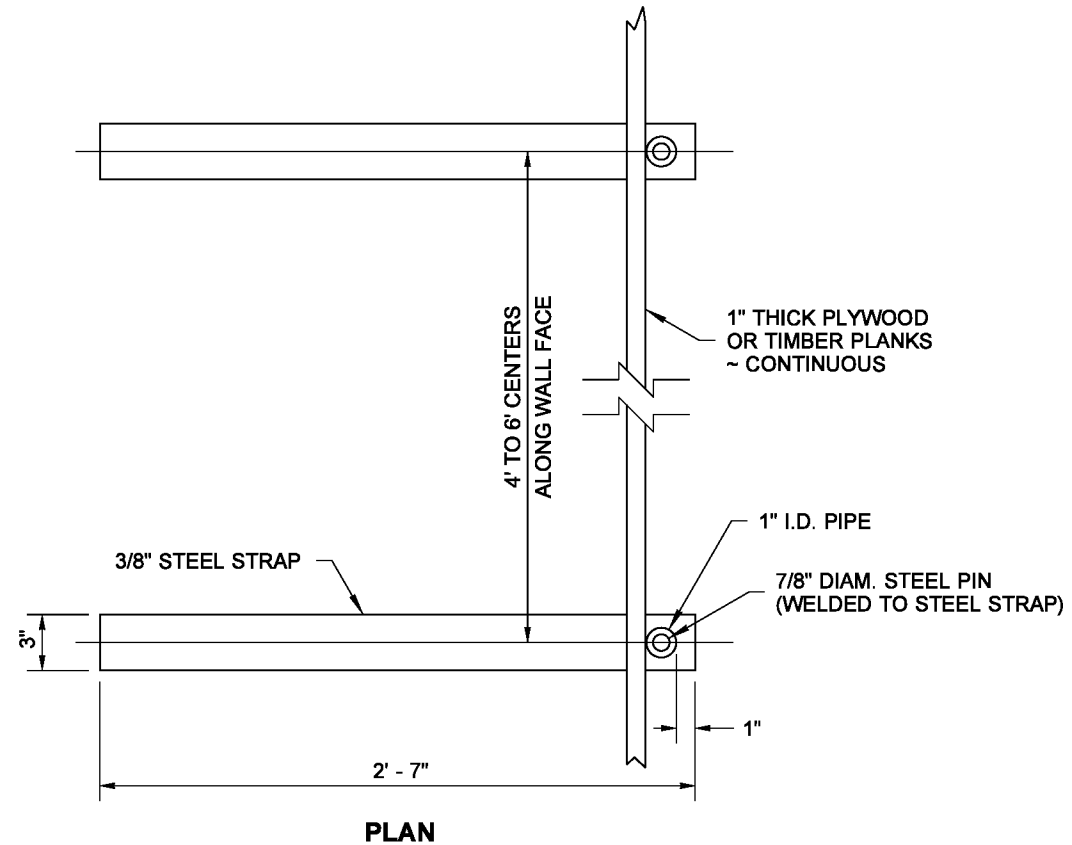
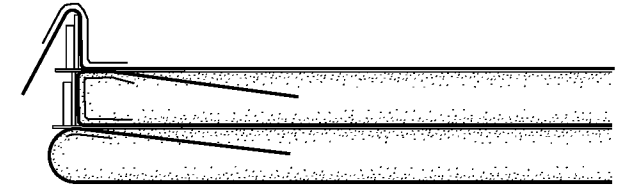


GEOSYNTHETIC WALL CONSTRUCTION SEQUENCE
(SECTION VIEW)

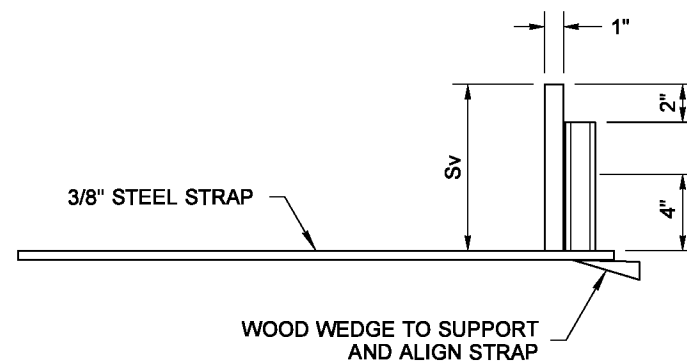
1. SET FORM ON COMPLETED LIFT.
2. UNROLL GEOSYNTHETIC AND POSITION IT SO THAT A 4' - 0" WIDE "TAIL" DRAPES OVER THE FORM. IF A GEOGRID IS USED FOR THE GEOSYNTHETIC REINFORCEMENT, POSITION GEOTEXTILE TO PREVENT BACKFILL FROM SPILLING THROUGH GEOGRID OPENINGS.
3. PLACE THE BACKFILL UNTIL THE BACKFILL IS UP TO HALF OF THE REQUIRED VERTICAL GEOSYNTHETIC LAYER SPACING.
4. PLACE A WINDROW TO SLIGHTLY GREATER THAN FULL LIFT HEIGHT AGAINST THE FORM.
5. PLACE THE GEOSYNTHETIC "TAIL" OVER THE WINDROW AND LOCK INTO PLACE WITH BACKFILL.
6. COMPLETE BACKFILLING UNTIL THE COMPACTED BACKFILL LAYER THICKNESS IS EQUAL TO THE REQUIRED VERTICAL GEOSYNTHETIC LAYER SPACING.
7. THE FORM MAY BE LEFT IN PLACE WHILE CONSTRUCTING THE NEXT LAYER (SEE NOTE 2) OTHERWISE, RESET THE FORM AND REPEAT THE SEQUENCE.

NOTES(SHEET)

1. Use of the Temporary Form System, as detailed in this plan, is optional.
2. To help maintain the wall face batter, leave the form system for the preceding layer in place while constructing the next layer. When the upper layer is complete, remove the form system from the lower layer and reset it for the next layer. See below.

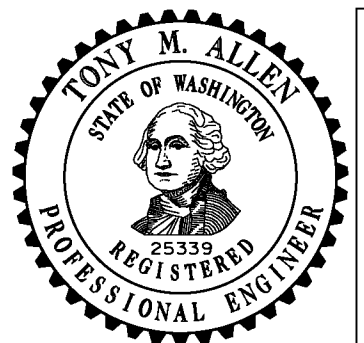


PLAN



ELEVATION

TEMPORARY FORM SYSTEM DETAIL



NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT UNTIL IT IS SIGNED AND SEALED BY THE ORIGINAL DESIGNER. THE ENGINEER'S SIGNATURE AND SEAL MUST BE FILED AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

**PERMANENT
GEOSYNTHETIC WALL
STANDARD PLAN D-3.09-00**

SHEET 4 OF 4 SHEETS

APPROVED FOR PUBLICATION

Pasco Bakotich III 05/17/12
STATE DESIGN ENGINEER DATE

