



**Geogrid Reinforcing Summary-North Wall**

Total Height (ft)	Maximum Exposed Height (ft)	B (ft)	Total Number of Layers	Layer Type	Layer Number	Minimum Length (ft)	Blocks Above Leveling Pad					
							H1	H2	H3	H4	H5	
0.0 - 2.7	2.2	0.5	1	3XT	1	2.9	2					
2.8 - 4.7	2.3 - 4.2	0.5	1	3XT	1	4.4	4					
4.8 - 6.7	4.3 - 6.2	0.5	2	3XT	1 2	4.0 5.0	3 -	-	7			
6.8 - 8.7	6.3 - 8.2	0.5	3	3XT	1	5.2	2	-	-			
					2	5.2	-	6	-			
					3	6.3	-	-	10			
8.8 - 10.7	8.3 - 10.2	0.5	4	3XT	1	6.4	2	-	-			
					2	6.4	-	5	-			
					3	6.4	-	-	9	-		
					4	7.6	-	-	-	13		

**Geogrid Reinforcing Summary-West Detention Basin**

Total Height (ft)	Maximum Exposed Height (ft)	B (ft)	Total Number of Layers	Layer Type	Layer Number	Minimum Length (ft)	Blocks Above Leveling Pad				
							H1	H2	H3	H4	
0.0 - 2.7	1.7	1.0	1	3XT	1	2.5	2				
2.8 - 4.7	1.8 - 3.7	1.0	1	3XT	1	4.4	4				
4.8 - 6.7	3.8 - 5.7	1.0	2	3XT	1 2	4.0 4.8	3 -	-	7		
6.8 - 8.7	5.8 - 7.7	1.0	3	3XT	1	5.2	2	-	-		
					2	5.2	-	6	-		
					3	5.9	-	-	10		
8.8 - 11.3	7.8 - 10.3	1.0	4	3XT	1	6.8	3	-	-		
					2	6.8	-	6	-		
					3	6.8	-	-	10	-	
					4	7.5	-	-	-	14	

**Geogrid Reinforcing Summary-East Retention Basin**

Total Height (ft)	Maximum Exposed Height (ft)	B (ft)	Total Number of Layers	Layer Type	Layer Number	Minimum Length (ft)	Blocks Above Leveling Pad				
							H1	H2	H3	H4	H5
0.0 - 2.7	1.7	1.0	1	3XT	1	2.8	2				
2.8 - 4.7	1.8 - 3.7	1.0	1	3XT	1	4.4	4				
4.8 - 6.7	3.8 - 5.7	1.0	2	3XT	1 2	4.0 4.8	3 -	-	7		
6.8 - 8.7	5.8 - 7.7	1.0	3	3XT	1	5.2	2	-	-		
					2	5.2	-	6	-		
					3	6.0	-	-	10		
8.8 - 10.7	7.8 - 9.7	1.0	4	3XT	1	6.4	2	-	-		
					2	6.4	-	5	-		
					3	6.4	-	-	9	-	
					4	7.3	-	-	-	13	
10.8 - 12.7	9.8 - 11.7	1.0	5	3XT	1	7.6	2	-	-		
					2	7.6	-	5	-		
					3	7.6	-	-	8	-	
					4	7.6	-	-	-	12	-
					5	8.5	-	-	-	-	16

- General Notes**
- The Versa-lok retaining walls should be constructed as shown on the plan and cross-section. The walls should be constructed using the 8-inch, square foot unit. The geogrid reinforcement should consist of Miragrid 3XT or an equivalent approved by the geotechnical engineer. The wall batter should be 1/4 inch per unit. The embedment depth "B" is shown on the cross-section and geogrid summary. The bottom of wall elevations shown on the front elevations are at finish grade.
  - The bearing soils for the walls should be approved by the geotechnical engineer. The foundation materials should consist of low plasticity soil or engineered fill capable of supporting bearing pressures of 2,000 pounds per square foot (psf). The base of the excavations should be free of loose or soft soil, uncompacted fill, or water. All unsuitable soil should be removed and replaced with approved soil or minus limestone compacted to at least 90 percent of the maximum dry density as determined by the Modified Proctor Compaction Test (ASTM D 1557).
  - The retained soil should consist of undisturbed virgin soil or engineered fill having an angle of internal friction, or phi (φ) angle, of 28 degrees or higher.
  - The backfill or reinforced material should consist of compacted one-inch minus crushed limestone having a φ angle of 35 degrees or higher. The area directly behind the basin walls should be backfilled with a minimum of 18 inches of 1-inch clean crushed limestone drainage aggregate. Blanket drains should be installed as shown on the cross-section. The rock fill should be placed in 6-inch lifts and compacted using a vibratory tamper. The minus rock should be compacted to the specification given in Note 5.
  - The leveling pads should consist of minus crushed limestone and should have the minimum dimensions as shown on the cross section. All minus rock should be compacted to at least 90 percent of its maximum dry density as determined by the Modified Proctor Compaction Test.
  - All soil or minus rock fill material should be tested by a qualified soil technician during placement to assure it is compacted to its proper density.
  - Filteration fabric, such as Miraft 14GN, should be placed between the 1-inch clean drainage aggregate and reinforced minus rock. The filter fabric should also be placed between the top of the clean rock and soil cap above the aggregate and against the backs of the top rows of block as shown on the cross section.
  - 4-inch diameter perforated PVC pipes should be installed as shown on the cross-section with positive gravity flow to the low points of the walls where they may discharge in front and away from the walls. Drain pipe outlets should have a maximum spacing of 40 ft.
  - The geogrid should be placed at the heights and locations given in the geogrid reinforcing summaries. The length of the geogrid given in the summaries is measured from the front face of the wall. All geogrid should be pulled tight prior to the placement of fill upon it. The grid should be placed following the manufacturer's requirements.
  - All surface drainage behind the walls should be directed away and downslope of the walls. The soil exposed in front of and behind the walls should be seeded and strawed or covered with an erosion-control fabric or mulch as soon as construction is completed.
  - Fences or appropriate barriers should be constructed above the walls in accordance with City of O'Fallon requirements. Forms should be installed in the wall backfill during wall construction at the necessary locations to accommodate the posts for the fences or barriers.
  - The design of the walls are based on conditions and loads imposed on the walls at the completion of the project. Prior to project completion the walls are vulnerable to damages caused by construction activity adjacent to the walls. Only hand-operated equipment can be used in the 3-ft zone directly behind the back of the wall faces, and equipment with a weight not exceeding 2 in can be used behind the 3-ft zone.
  - Any pipe which extends through the walls should be supported using the concrete headwall detail. Appropriate rip-rap should be placed for scour protection as needed at discharge points.
  - Unless otherwise noted, materials and installation procedures shall be in accordance with National Concrete Masonry Association Design Manual for Segmental Retaining Walls and the manufacturer's specifications.
  - No changes shall be made to these notes, cross-section, or tables without the written approval of GeoTest, Inc.

NOTE: STRUCTURAL DESIGN AND CALCULATIONS PERFORMED BY GEOTEST, INC., 8614 MANCHESTER ROAD, ST. LOUIS, MO. 63144. TEL. NO. (314) 968-1642.