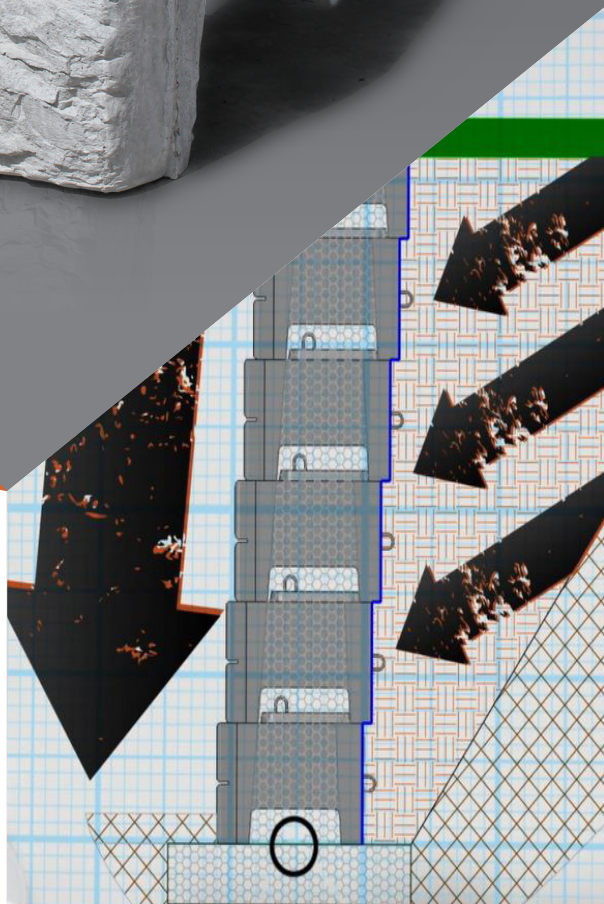
U.S. Version
Release 3.0

Design Tables

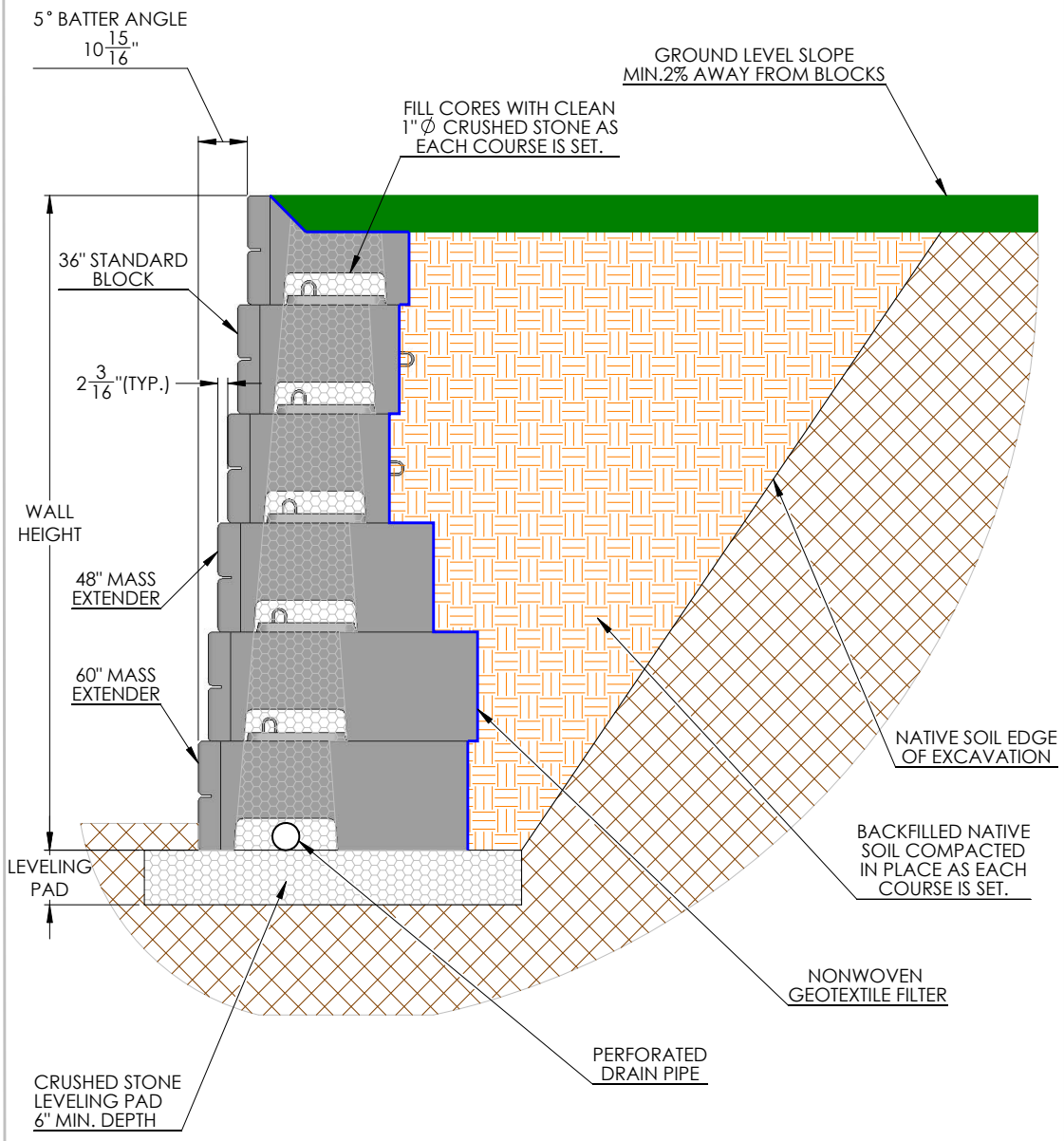
Section 3



VERTI BLOCK®

www.verti-block.com

TYPICAL GRAVITY WALL WITH VERTI-BLOCK MASS EXTENDERS



DRAWN BY	DATE	TITLE:
DAN BALLING	12/30/2013	12' SECTION W/ MASS EXTENDERS

16500 SOUTH 500 WEST
BLUFFDALE, UTAH 84065
PHONE: (801) 571-2028

DWG NO. WD-15

SCALE: 1: 30 | SHEET 1 OF 1

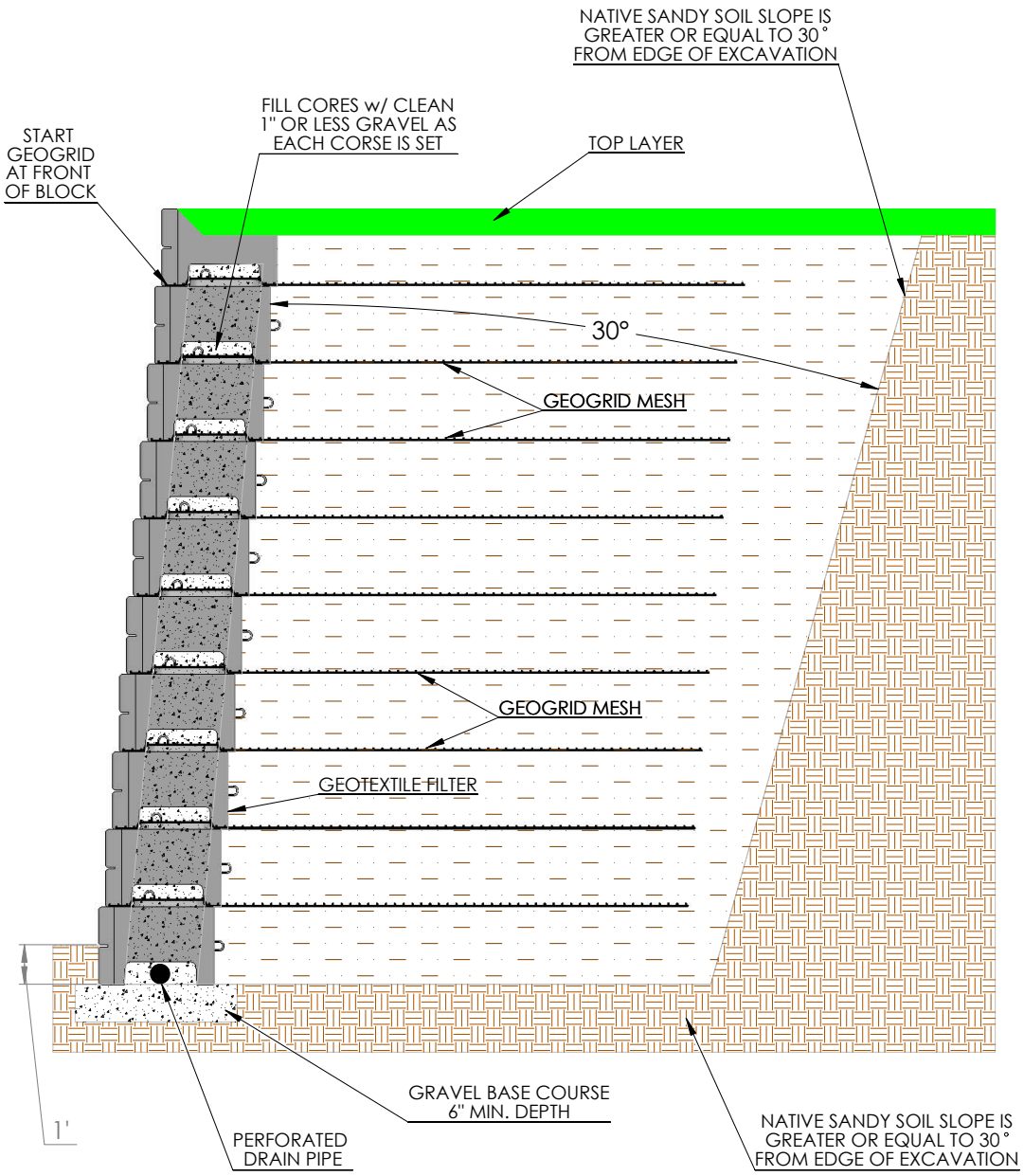
Gravity Wall Matrix with Standard and Mass Extender Blocks

Soil Type	Silty *Internal Angle of Friction ≥ 28°*			Sandy *Internal Angle of Friction ≥ 30°*			Gravely Sand *Internal Angle of Friction ≥ 35°*			Gravely *Internal Angle of Friction ≥ 40°*		
Load Condition	Exposed Wall Height	Min. Bury Depth	Leveling Pad	Exposed Wall Height	Min. Bury Depth	Leveling Pad	Exposed Wall Height	Min. Bury Depth	Leveling Pad	Exposed Wall Height	Min. Bury Depth	Leveling Pad
Level Backfill / No Surcharge												
36" Blocks Only	7.5	0.5	0.5	7.5	0.5	0.5	9.5	0.5	0.5	11	1	0.5
36" Blocks Only	9.5	0.5	0.5	9.5	0.5	0.5	11	1	0.5	13	1	1
36" w/ (1) 48" bottom row	11	1	0.5	11	1	0.5	13	1	1	15	1	1
36" w/ (1) 48" & (1) 60" bottom row	13	1	1	13	1	0.5	15	1	1	17	1	1
36" w/ (2) 48" & (1) 60" bottom row	--	--	--	15	1	1	--	--	--	--	--	--
36" w/ (1) 48" & (3) 60" bottom row	--	--	--	--	--	--	17	1	1	--	--	--
36" w/ (4) 60" bottom row	--	--	--	--	--	--	--	--	--	19	1	1
Level Backfill / 250 psf Surcharge												
36" Blocks Only	5.5	0.5	0.5	5.5	0.5	0.5	7.5	0.5	0.5	9.5	0.5	0.5
36" w/ (1) 48" bottom row	7.5	0.5	0.5	7.5	0.5	0.5	9.5	0.5	0.5	11	1	0.5
36" w/ (2) 48" bottom rows	9.5	0.5	0.5	9.5	0.5	0.5	11	1	0.5	13	1	1
36" w/ (2) 48" & (1) 60" bottom rows	11	1	0.5	11	1	0.5	13	1	1	15	1	1
36" w/ (3) 48" & (1) 60" bottom rows	--	--	--	--	--	--	--	--	--	--	--	--
36" w/ (2) 48" & (4) 60" bottom rows	--	--	--	--	--	--	15	1	1	--	--	--
36" w/ (2) 48" & (5) 60" bottom rows	--	--	--	--	--	--	--	--	--	17	1	1
2:1 Sloping Backfill / No Surcharge												
36" Blocks Only	5.5	0.5	0.5	5.5	0.5	0.5	9.5	0.5	0.5	11	1	0.5
36" w/ bottom (1) 48" bottom row	--	--	--	7.5	0.5	0.5	11	1	0.5	13	1	1
36" w/ (1) 60" bottom rows	7.5	0.5	1	9.5	0.5	1	--	--	--	--	--	--
36" w/ (1) 48" & (1) 60" bottom rows	--	--	--	--	--	--	13	1	1	15	1	1
36" w/ (1) 48" & (2) 60" bottom rows	--	--	--	--	--	--	--	--	--	--	--	--
36" w/ (2) 48" & (5) 60" bottom rows	--	--	--	--	--	--	15	1	1	--	--	--
36" w/ (1) 48" & (6) 60" bottom rows	--	--	--	--	--	--	--	--	--	17	1	1

The above chart was prepared by Verti-Crete, LLC for estimating and conceptual design purposes only. All information in believed to be true and accurate; however Verti-Crete, LLC assumes no responsibility for the use of these design charts for actual construction. Determination of the suitability of each chart is the sole responsibility of the user. Final designs for construction purposes must be performed by a registered Professional Engineer, using the actual conditions of the proposed site.

Notes: Unit weight of soil is 120 psf. When friction angle of 28 degrees was used 50 lbs of cohesion was assumed. Minimum factors of safety are sliding: 1.5, overturning: 1.5, and bearing: 2.0. Seismic forces have not been considered. Wall design shall address both internal and external drainage and shall be evaluated by the professional engineer responsible for final design. Backfill material to be compacted to 95% modified proctor density.

20' GEOGRID FRICTION CONNECTION



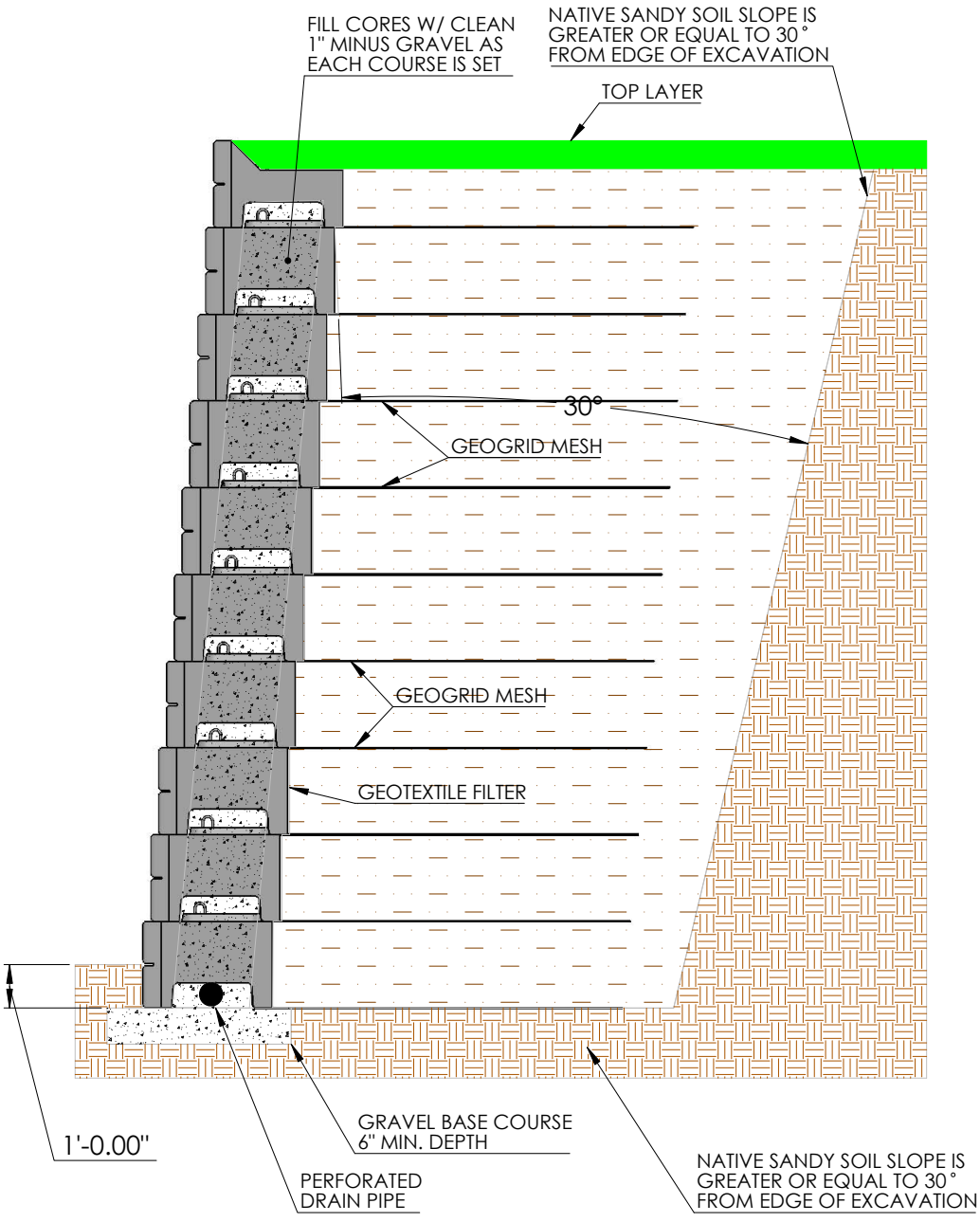
DRAWN BY	DATE	TITLE:
DAN BALLING	12/12/2013	20' FRICTION DETAIL

16500 SOUTH 500 WEST
BLUFFDALE, UTAH 84065
PHONE: (801) 571-2028

DWG NO. M-03

SCALE: 1: 42 | SHEET 1 OF 1

20' GEOGRID POSITIVE CONNECTION



DRAWN BY	DATE	TITLE:
R FONTANESI	3/8/2016	20' LOOP THRU POSITIVE CONNECTION

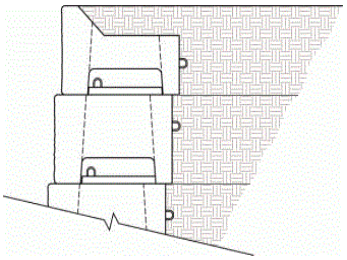
16500 SOUTH 500 WEST
BLUFFDALE, UTAH 84065
PHONE: (801) 571-2028

DWG NO. WD-36

SCALE: 1: 30 | SHEET 1 OF 1

Reinforced Wall Matrix

Soil Type	Silty Soil
Load Condition	Level Backfill / No Surcharge
Internal Angle of Friction	≥ 28°
Suggested Geogrid	Stratagrid®



Wall Height	Bury Depth	Level Pad	Dimensions measured in feet from face of block **VP** – *Geogrid Verticle Placement* **GT** – *Geogrid Type (Strata 200, 500, 600)* **L** – *Geogrid Length in Feet*											
8′	0.5′	0.5′	VP GT L	None										
10′	0.5′	0.5′	VP GT L	None										
12′	0.57′	0.5′	VP GT L	2 200 8.5	4 200 8.5	6 200 8.5								
14′	0.67′	0.5′	VP GT L	2 500 9.8	4 500 9.8	6 500 9.8	8 500 9.8							
16′	0.76′	0.5′	VP GT L	2 500 11.1	4 500 11.1	6 500 11.1	8 500 11.1	10 500 11.1						
18′	0.86′	0.5′	VP GT L	2 500 12.3	4 500 12.3	6 500 12.3	8 500 12.3	10 500 12.3	12 500 12.3					
20′	0.95′	0.5′	VP GT L	2 500 13.6	4 500 13.6	6 500 13.6	8 500 13.6	10 500 13.6	12 500 13.6	14 500 13.6				
22′	1′	0.5′	VP GT L	2 600 14.9	4 600 14.9	6 600 14.9	8 600 14.9	10 600 14.9	12 600 14.9	14 600 14.9	16 600 14.9			
24′	1.14′	0.5′	VP GT L	2 600 16.2	4 600 16.2	6 600 16.2	8 600 16.2	10 600 16.2	12 600 16.2	14 600 16.2	16 600 16.2	18 600 16.2		
26′	1.24′	0.5′	VP GT L	2 600 17.4	4 600 17.4	6 600 17.4	8 600 17.4	10 600 17.4	12 600 17.4	14 600 17.4	16 600 17.4	18 600 17.4	20 600 17.4	
28′	1.33′	0.5′	VP GT L	2 600 18.7	4 600 18.7	6 600 18.7	8 600 18.7	10 600 18.7	12 600 18.7	14 600 18.7	16 600 18.7	18 600 18.7	20 600 18.7	22 600 18.7
30′	1.43′	0.5′	VP GT L	2 600 20	4 600 20	6 600 20	8 600 20	10 600 20	12 600 20	14 600 20	16 600 20	18 600 20	20 600 20	22 600 20	24 600 20

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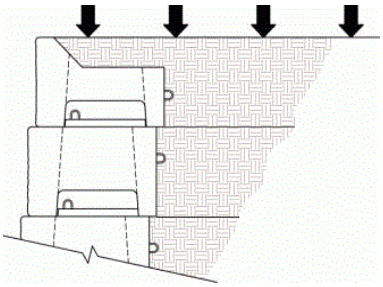
Notes: Unit weight of soil is 120 psf. Minimum factors of safety are sliding: 1.5, overturning: 1.5, and bearing: 2.0. Wall design shall address both internal and external drainage and shall be evaluated by the professional engineer responsible for final design. Backfill material to be compacted to 95% modified proctor density. Designs are in general accordance with NCMA guidelines.

Reinforced Wall Matrix

Soil Type	Silty Soil
Load Condition	Level Backfill / 250 psf Surcharge
Internal Angle of Friction	≥ 28°
Suggested Geogrid	Stratagrid®



Wall Height	Bury Depth	Level Pad	Dimensions measured in feet from face of block **VP** – *Geogrid Verticle Placement* **GT** – *Geogrid Type (Strata 200, 500, 600)* **L** – *Geogrid Length in Feet*											
6′	0.5′	0.5′	VP GT L	None										
8′	0.5′	0.5′	VP GT L	2 200 7.9	4 200 7.9									
10′	0.5′	0.5′	VP GT L	2 200 9.2	4 200 9.2	6 200 9.2								
12′	0.57′	0.5′	VP GT L	2 500 9.5	4 500 9.5	6 500 9.5								
14′	0.67′	0.5′	VP GT L	2 500 10.8	4 500 10.8	6 500 10.8	8 500 10.8							
16′	0.76′	0.5′	VP GT L	2 500 12.1	4 500 12.1	6 500 12.1	8 500 12.1	10 500 12.1						
18′	0.86′	0.5′	VP GT L	2 500 13.3	4 500 13.3	6 500 13.3	8 500 13.3	10 500 13.3	12 500 13.3					
20′	0.95′	0.5′	VP GT L	2 600 14.6	4 600 14.6	6 600 14.6	8 600 14.6	10 600 14.6	12 600 14.6	14 600 14.6				
22′	1.05′	0.5′	VP GT L	2 600 15.9	4 600 15.9	6 600 15.9	8 600 15.9	10 600 15.9	12 600 15.9	14 600 15.9	16 600 15.9			
24′	1.14′	0.5′	VP GT L	2 600 17.1	4 600 17.1	6 600 17.1	8 600 17.1	10 600 17.1	12 600 17.1	14 600 17.1	16 600 17.1	18 600 17.1		
26′	1.24′	0.5′	VP GT L	2 600 18.4	4 600 18.4	6 600 18.4	8 600 18.4	10 600 18.4	12 600 18.4	14 600 18.4	16 600 18.4	18 600 18.4	20 600 18.4	
28′	1.33′	0.5′	VP GT L	2 600 19.7	4 600 19.7	6 600 19.7	8 600 19.7	10 600 19.7	12 600 19.7	14 600 19.7	16 600 19.7	18 600 19.7	20 600 19.7	22 600 19.7

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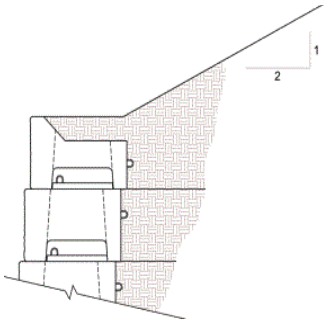
Notes: Unit weight of soil is 120 psf. Minimum factors of safety are sliding: 1.5, overturning: 1.5, and bearing: 2.0. Wall design shall address both internal and external drainage and shall be evaluated by the professional engineer responsible for final design. Backfill material to be compacted to 95% modified proctor density. Designs are in general accordance with NCMA guidelines.

Reinforced Wall Matrix

Soil Type	Silty Soil
Load Condition	2:1 Sloping Backfill / No Surcharge
Internal Angle of Friction	≥ 28°
Suggested Geogrid	Stratagrid®



Wall Height	Bury Depth	Level Pad	Dimensions measured in feet from face of block **VP** – *Geogrid Verticle Placement* **GT** – *Geogrid Type (Strata 200, 500, 600)* **L** – *Geogrid Length in Feet*										
6′	0.5′	0.5′	VP GT L	None									
8′	0.5′	0.5′	VP GT L	2 200 8.6	4 200 8.6								
10′	0.5′	0.5′	VP GT L	2 500 9.5	4 500 9.5								
12′	0.6′	0.5′	VP GT L	2 500 11.1	4 500 11.1	6 500 11.1							
14′	0.6′	0.5′	VP GT L	2 500 13.0	4 500 13.0	6 500 13.0	8 500 13.0						
16′	0.6′	0.5′	VP GT L	2 500 15.0	4 500 15.0	6 500 15.0	8 500 15.0	10 500 15.0					
18′	0.6′	0.5′	VP GT L	2 500 17.0	4 500 17.0	6 500 17.0	8 500 17.0	10 500 17.0	12 500 17.0				
20′	0.6′	0.5′	VP GT L	2 600 19.0	4 600 19.0	6 600 19.0	8 600 19.0	10 600 19.0	12 600 19.0	14 600 19.0			
22′	0.6′	0.5′	VP GT L	2 600 21.0	4 600 21.0	6 600 21.0	8 600 21.0	10 600 21.0	12 600 21.0	14 600 21.0	16 600 21.0		
24′	0.6′	0.5′	VP GT L	2 600 23.0	4 600 23.0	6 600 23.0	8 600 23.0	10 600 23.0	12 600 23.0	14 600 23.0	16 600 23.0	18 600 23.0	

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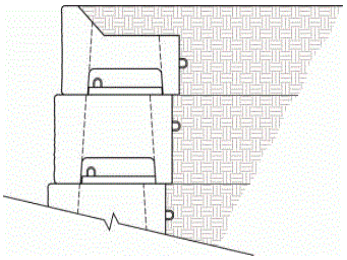
Notes: Unit weight of soil is 120 psf. Minimum factors of safety are sliding: 1.5, overturning: 1.5, and bearing: 2.0. Wall design shall address both internal and external drainage and shall be evaluated by the professional engineer responsible for final design. Backfill material to be compacted to 95% modified proctor density. Designs are in general accordance with NCMA guidelines.

Reinforced Wall Matrix

Soil Type	Sandy Soil
Load Condition	Level Backfill / No Surcharge
Internal Angle of Friction	≥ 30°
Suggested Geogrid	Stratagrid®

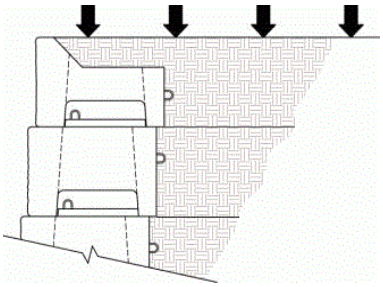


Wall Height	Bury Depth	Level Pad	Dimensions measured in feet from face of block **VP** – *Geogrid Verticle Placement* **GT** – *Geogrid Type (Strata 200, 500, 600)* **L** – *Geogrid Length in Feet*											
8′	0.5′	0.5′	VP GT L	None										
10′	0.5′	0.5′	VP GT L	None										
12′	0.57′	0.5′	VP GT L	2 200 8.5	4 200 8.5	6 200 8.5								
14′	0.67′	0.5′	VP GT L	2 500 9.8	4 500 9.8	6 500 9.8	8 500 9.8							
16′	0.76′	0.5′	VP GT L	2 500 11.1	4 500 11.1	6 500 11.1	8 500 11.1	10 500 11.1						
18′	0.86′	0.5′	VP GT L	2 500 12.3	4 500 12.3	6 500 12.3	8 500 12.3	10 500 12.3	12 500 12.3					
20′	0.95′	0.5′	VP GT L	2 500 13.6	4 500 13.6	6 500 13.6	8 500 13.6	10 500 13.6	12 500 13.6	14 500 13.6				
22′	1′	0.5′	VP GT L	2 600 14.9	4 600 14.9	6 600 14.9	8 600 14.9	10 600 14.9	12 600 14.9	14 600 14.9	16 600 14.9			
24′	1.14′	0.5′	VP GT L	2 600 16.2	4 600 16.2	6 600 16.2	8 600 16.2	10 600 16.2	12 600 16.2	14 600 16.2	16 600 16.2	18 600 16.2		
26′	1.24′	0.5′	VP GT L	2 600 17.4	4 600 17.4	6 600 17.4	8 600 17.4	10 600 17.4	12 600 17.4	14 600 17.4	16 600 17.4	18 600 17.4	20 600 17.4	
28′	1.33′	0.5′	VP GT L	2 600 18.7	4 600 18.7	6 600 18.7	8 600 18.7	10 600 18.7	12 600 18.7	14 600 18.7	16 600 18.7	18 600 18.7	20 600 18.7	22 600 18.7
30′	1.43′	0.5′	VP GT L	2 600 20	4 600 20	6 600 20	8 600 20	10 600 20	12 600 20	14 600 20	16 600 20	18 600 20	20 600 20	22 600 20

Notes: Unit weight of soil is 120 psf. Minimum factors of safety are sliding: 1.5, overturning: 1.5, and bearing: 2.0. Wall design shall address both internal and external drainage and shall be evaluated by the professional engineer responsible for final design. Backfill material to be compacted to 95% modified proctor density. Designs are in general accordance with NCMA guidelines.

Reinforced Wall Matrix

Soil Type	Sandy Soil
Load Condition	Level Backfill / 250 psf Surcharge
Internal Angle of Friction	≥ 30°
Suggested Geogrid	Stratagrid®



Wall Height	Bury Depth	Level Pad	Dimensions measured in feet from face of block **VP** – *Geogrid Verticle Placement* **GT** – *Geogrid Type (Strata 200, 500, 600)* **L** – *Geogrid Length in Feet*											
6′	0.5′	0.5′	VP GT L	None										
8′	0.5′	0.5′	VP GT L	2 200 7.9	4 200 7.9									
10′	0.5′	0.5′	VP GT L	2 200 9.2	4 200 9.2	6 200 9.2								
12′	0.57′	0.5′	VP GT L	2 500 9.5	4 500 9.5	6 500 9.5								
14′	0.67′	0.5′	VP GT L	2 500 10.8	4 500 10.8	6 500 10.8	8 500 10.8							
16′	0.76′	0.5′	VP GT L	2 500 12.1	4 500 12.1	6 500 12.1	8 500 12.1	10 500 12.1						
18′	0.86′	0.5′	VP GT L	2 500 13.3	4 500 13.3	6 500 13.3	8 500 13.3	10 500 13.3	12 500 13.3					
20′	0.95′	0.5′	VP GT L	2 600 14.6	4 600 14.6	6 600 14.6	8 600 14.6	10 600 14.6	12 600 14.6	14 600 14.6				
22′	1.05′	0.5′	VP GT L	2 600 15.9	4 600 15.9	6 600 15.9	8 600 15.9	10 600 15.9	12 600 15.9	14 600 15.9	16 600 15.9			
24′	1.14′	0.5′	VP GT L	2 600 17.1	4 600 17.1	6 600 17.1	8 600 17.1	10 600 17.1	12 600 17.1	14 600 17.1	16 600 17.1	18 600 17.1		
26′	1.24′	0.5′	VP GT L	2 600 18.4	4 600 18.4	6 600 18.4	8 600 18.4	10 600 18.4	12 600 18.4	14 600 18.4	16 600 18.4	18 600 18.4	20 600 18.4	
28′	1.33′	0.5′	VP GT L	2 600 19.7	4 600 19.7	6 600 19.7	8 600 19.7	10 600 19.7	12 600 19.7	14 600 19.7	16 600 19.7	18 600 19.7	20 600 19.7	22 600 19.7

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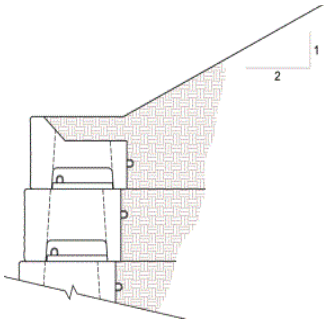
Notes: Unit weight of soil is 120 psf. Minimum factors of safety are sliding: 1.5, overturning: 1.5, and bearing: 2.0. Wall design shall address both internal and external drainage and shall be evaluated by the professional engineer responsible for final design. Backfill material to be compacted to 95% modified proctor density. Designs are in general accordance with NCMA guidelines.

Reinforced Wall Matrix

Soil Type	Sandy Soil
Load Condition	2:1 Sloping Backfill / No Surcharge
Internal Angle of Friction	≥ 30°
Suggested Geogrid	Stratagrid®



Wall Height	Bury Depth	Level Pad	**Dimensions measured in feet from face of block** **VP** – *Geogrid Verticle Placement* **GT** – *Geogrid Type (Strata 200, 500, 600)* **L** – *Geogrid Length in Feet*										
6′	0.5′	0.5′	**VP** **GT** **L**	None									
8′	0.5′	0.5′	**VP** **GT** **L**	2 200 8.6	4 200 8.6								
10′	0.5′	0.5′	**VP** **GT** **L**	2 500 9.5	4 500 9.5								
12′	0.6′	0.5′	**VP** **GT** **L**	2 500 11.1	4 500 11.1	6 500 11.1							
14′	0.6′	0.5′	**VP** **GT** **L**	2 500 13.0	4 500 13.0	6 500 13.0	8 500 13.0						
16′	0.6′	0.5′	**VP** **GT** **L**	2 500 15.0	4 500 15.0	6 500 15.0	8 500 15.0	10 500 15.0					
18′	0.6′	0.5′	**VP** **GT** **L**	2 500 17.0	4 500 17.0	6 500 17.0	8 500 17.0	10 500 17.0	12 500 17.0				
20′	0.6′	0.5′	**VP** **GT** **L**	2 600 19.0	4 600 19.0	6 600 19.0	8 600 19.0	10 600 19.0	12 600 19.0	14 600 19.0			
22′	0.6′	0.5′	**VP** **GT** **L**	2 600 21.0	4 600 21.0	6 600 21.0	8 600 21.0	10 600 21.0	12 600 21.0	14 600 21.0	16 600 21.0		
24′	0.6′	0.5′	**VP** **GT** **L**	2 600 23.0	4 600 23.0	6 600 23.0	8 600 23.0	10 600 23.0	12 600 23.0	14 600 23.0	16 600 23.0	18 600 23.0	

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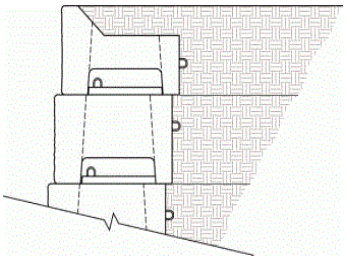
Notes: Unit weight of soil is 120 psf. Minimum factors of safety are sliding: 1.5, overturning: 1.5, and bearing: 2.0. Wall design shall address both internal and external drainage and shall be evaluated by the professional engineer responsible for final design. Backfill material to be compacted to 95% modified proctor density. Designs are in general accordance with NCMA guidelines.

Reinforced Wall Matrix

Soil Type	Gravely/Sandy Soil
Load Condition	Level Backfill / No Surcharge
Internal Angle of Friction	≥ 35°
Suggested Geogrid	Stratagrid®



Wall Height	Bury Depth	Level Pad	Dimensions measured in feet from face of block **VP** – *Geogrid Verticle Placement* **GT** – *Geogrid Type (Strata 200, 500, 600)* **L** – *Geogrid Length in Feet*											
10′	0.5′	0.5′	VP GT L	None										
12′	0.5′	0.5'	VP GT L	None										
14′	0.67'	0.5'	VP GT L	2 200 8.4	4 200 8.4	6 200 8.4								
16'	0.76'	0.5'	VP GT L	2 500 9.8	4 500 9.8	6 500 9.8								
18'	0.86'	0.5'	VP GT L	2 500 10.8	4 500 10.8	6 500 10.8	8 500 10.8							
20'	0.95'	0.5'	VP GT L	2 500 12	4 500 12	6 500 12	8 500 12	10 500 12						
22'	1.05'	0.5'	VP GT L	2 500 13.2	4 500 13.2	6 500 13.2	8 500 13.2	10 500 13.2	12 500 13.2					
24'	1.14'	0.5'	VP GT L	2 500 14.5	4 500 14.5	6 500 14.5	8 500 14.5	10 500 14.5	12 500 14.5	14 500 14.5				
26'	1.24'	0.5'	VP GT L	2 500 15.6	4 500 15.6	6 500 15.6	8 500 15.6	10 500 15.6	12 500 15.6	14 500 15.6	16 500 15.6			
28'	1.33'	0.5'	VP GT L	2 500 16.8	4 500 16.8	6 500 16.8	8 500 16.8	10 500 16.8	12 500 16.8	14 500 16.8	16 500 16.8	18 500 16.8		
30'	1.4'	0.5'	VP GT L	2 600 18	4 600 18	6 600 18	8 600 18	10 600 18	12 600 18	14 600 18	16 600 18	18 600 18	20 600 18	
30' +			VP GT L	Heights above 30 feet are achievable. Please contact your Verti-Block dealer for more details										

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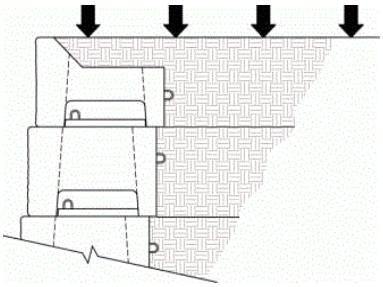
Notes: Unit weight of soil is 120 psf. Minimum factors of safety are sliding: 1.5, overturning: 1.5, and bearing: 2.0. Wall design shall address both internal and external drainage and shall be evaluated by the professional engineer responsible for final design. Backfill material to be compacted to 95% modified proctor density. Designs are in general accordance with NCMA guidelines.

Reinforced Wall Matrix

Soil Type	Gravely/Sandy Soil
Load Condition	Level Backfill / 250 psf Surcharge
Internal Angle of Friction	≥ 35°
Suggested Geogrid	Stratagrid®



Wall Height	Bury Depth	Level Pad	Dimensions measured in feet from face of block **VP** – *Geogrid Verticle Placement* **GT** – *Geogrid Type (Strata 200, 500, 600)* **L** – *Geogrid Length in Feet*											
8'	0.5'	0.5'	VP GT L	None										
10'	0.5'	0.5'	VP GT L	2 200 6.8	4 200 6.8									
12'	0.57'	0.5'	VP GT L	2 200 7.9	4 200 7.9	6 200 7.9								
14'	0.67'	0.5'	VP GT L	2 500 9	4 500 9	6 500 9	8 500 9							
16'	0.76'	0.5'	VP GT L	2 500 9.6	4 500 9.6	6 500 9.6	8 500 9.6							
18'	0.86'	0.5'	VP GT L	2 500 10.8	4 500 10.8	6 500 10.8	8 500 10.8	10 500 10.8						
20'	0.95'	0.5'	VP GT L	2 500 12	4 500 12	6 500 12	8 500 12	10 500 12	12 500 12					
22'	1.05'	0.5'	VP GT L	2 500 13.2	4 500 13.2	6 500 13.2	8 500 13.2	10 500 13.2	12 500 13.2	14 500 13.2				
24'	1.14'	0.5'	VP GT L	2 500 14.4	4 500 14.4	6 500 14.4	8 500 14.4	10 500 14.4	12 500 14.4	14 500 14.4	16 500 14.4			
26'	1.25'	0.5'	VP GT L	2 500 15.6	4 500 15.6	6 500 15.6	8 500 15.6	10 500 15.6	12 500 15.6	14 500 15.6	16 500 15.6	18 500 15.6		
28'	1.33'	0.5'	VP GT L	2 600 16.8	4 600 16.8	6 600 16.8	8 600 16.8	10 600 16.8	12 600 16.8	14 600 16.8	16 600 16.8	18 600 16.8	20 600 16.8	
30' +			VP GT L	Heights above 30 feet are achievable. Please contact your Verti-Block dealer for more details										

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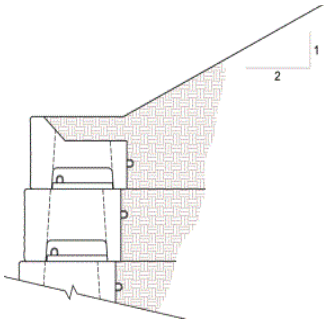
Notes: Unit weight of soil is 120 psf. Minimum factors of safety are sliding: 1.5, overturning: 1.5, and bearing: 2.0. Wall design shall address both internal and external drainage and shall be evaluated by the professional engineer responsible for final design. Backfill material to be compacted to 95% modified proctor density. Designs are in general accordance with NCMA guidelines.

Reinforced Wall Matrix

Soil Type	Gravely/Sandy Soil
Load Condition	2:1 Sloping Backfill / No Surcharge
Internal Angle of Friction	≥ 35°
Suggested Geogrid	Stratagrid®



Wall Height	Bury Depth	Level Pad	Dimensions measured in feet from face of block **VP** – *Geogrid Verticle Placement* **GT** – *Geogrid Type (Strata 200, 500, 600)* **L** – *Geogrid Length in Feet*											
8'	0.5'	0.5'	VP GT L	None										
10'	0.5'	0.5'	VP GT L	None										
10'	0.5'	0.5'	VP GT L	2 200 7.4	4 200 7.4									
12'	0.57'	0.5'	VP GT L	2 500 7.8	4 500 7.8									
14'	0.67'	0.5'	VP GT L	2 500 9.2	4 500 9.2	6 500 9.2								
16'	0.76'	0.5'	VP GT L	2 500 10.6	4 500 10.6	6 500 10.6	8 500 10.6							
18'	0.86'	0.5'	VP GT L	2 500 12	4 500 12	6 500 12	8 500 12	10 500 12						
20'	0.95'	0.5'	VP GT L	2 600 13.5	4 600 13.5	6 600 13.5	8 600 13.5	10 600 13.5	12 600 13.5					
22'	1.05'	0.5'	VP GT L	2 600 14.9	4 600 14.9	6 600 14.9	8 600 14.9	10 600 14.9	12 600 14.9	14 600 14.9				
24'	1.14'	0.5'	VP GT L	2 600 16.4	4 600 16.4	6 600 16.4	8 600 16.4	10 600 16.4	12 600 16.4	14 600 16.4	16 600 16.4			

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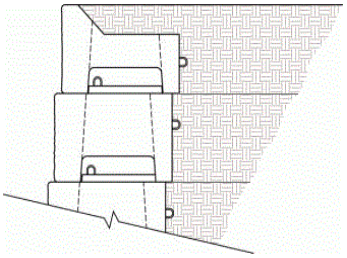
Notes: Unit weight of soil is 120 psf. Minimum factors of safety are sliding: 1.5, overturning: 1.5, and bearing: 2.0. Wall design shall address both internal and external drainage and shall be evaluated by the professional engineer responsible for final design. Backfill material to be compacted to 95% modified proctor density. Designs are in general accordance with NCMA guidelines.

Reinforced Wall Matrix

Soil Type	Gravely Soil
Load Condition	Level Backfill / No Surcharge
Internal Angle of Friction	≥ 40°
Suggested Geogrid	Stratagrid®



Wall Height	Bury Depth	Level Pad	Dimensions measured in feet from face of block **VP** – *Geogrid Verticle Placement* **GT** – *Geogrid Type (Strata 200, 500, 600)* **L** – *Geogrid Length in Feet*											
14'	0.5'	0.5'	VP GT L	None										
16'	0.76'	0.5'	VP GT L	2 200 9.6	4 200 9.6	6 200 9.6	8 200 9.6							
18'	0.86'	0.5'	VP GT L	2 200 10.8	4 200 10.8	6 200 10.8	8 200 10.8	10 200 10.8						
20'	0.95'	0.5'	VP GT L	2 200 12	4 200 12	6 200 12	8 200 12	10 200 12	12 200 12					
22'	1.05'	0.5'	VP GT L	2 500 13.2	4 500 13.2	6 500 13.2	8 500 13.2	10 500 13.2						
24'	1.14'	0.5'	VP GT L	2 500 14.4	4 500 14.4	6 500 14.4	8 500 14.4	10 500 14.4	12 500 14.4					
26'	1.24'	0.5'	VP GT L	2 500 15.6	4 500 15.6	6 500 15.6	8 500 15.6	10 500 15.6	12 500 15.6	14 500 15.6				
28'	1.33'	0.5'	VP GT L	2 500 16.8	4 500 16.8	6 500 16.8	8 500 16.8	10 500 16.8	12 500 16.8	14 500 16.8	16 500 16.8			
30'	1.43'	0.5'	VP GT L	2 500 18	4 500 18	6 500 18	8 500 18	10 500 18	12 500 18	14 500 18	16 500 18	18 500 18		
32'	1.52'	0.5'	VP GT L	2 500 19.2	4 500 19.2	6 500 19.2	8 500 19.2	10 500 19.2	12 500 19.2	14 500 19.2	16 500 19.2	18 500 19.2	20 500 19.2	
34'	1.62'	0.5'	VP GT L	2 500 20.4	4 500 20.4	6 500 20.4	8 500 20.4	10 500 20.4	12 500 20.4	14 500 20.4	16 500 20.4	18 500 20.4	20 500 20.4	22 500 20.4
34' +			VP GT L	Heights above 34 feet are achievable. Please contact your Verti-Block dealer for more details										

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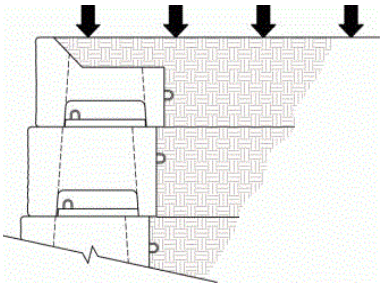
Notes: Unit weight of soil is 120 psf. Minimum factors of safety are sliding: 1.5, overturning: 1.5, and bearing: 2.0. Wall design shall address both internal and external drainage and shall be evaluated by the professional engineer responsible for final design. Backfill material to be compacted to 95% modified proctor density. Designs are in general accordance with NCMA guidelines.

Reinforced Wall Matrix

Soil Type	Gravely Soil
Load Condition	Level Backfill / 250 psf Surcharge
Internal Angle of Friction	≥ 40°
Suggested Geogrid	Stratagrid®



Wall Height	Bury Depth	Level Pad	Dimensions measured in feet from face of block **VP** – *Geogrid Verticle Placement* **GT** – *Geogrid Type (Strata 200, 500, 600)* **L** – *Geogrid Length in Feet*											
10'	0.5'	0.5'	**VP** **GT** **L**	None										
12'	0.57'	0.5'	**VP** **GT** **L**	2 200 7.2	4 200 7.2	6 200 7.2								
14'	0.67'	0.5'	**VP** **GT** **L**	2 200 8.4	4 200 8.4	6 200 8.4	8 200 8.4							
16'	0.76'	0.5'	**VP** **GT** **L**	2 200 9.6	4 200 9.6	6 200 9.6	8 200 9.6	10 200 9.6						
18'	0.86'	0.5'	**VP** **GT** **L**	2 200 10.8	4 200 10.8	6 200 10.8	8 200 10.8	10 200 10.8	12 200 10.8					
20'	0.95'	0.5'	**VP** **GT** **L**	2 500 12	4 500 12	6 500 12	8 500 12	10 500 12	12 500 12					
22'	1.05'	0.5'	**VP** **GT** **L**	2 500 13.2	4 500 13.2	6 500 13.2	8 500 13.2	10 500 13.2	12 500 13.2	14 500 13.2				
24'	1.14'	0.5'	**VP** **GT** **L**	2 500 14.4	4 500 14.4	6 500 14.4	8 500 14.4	10 500 14.4	12 500 14.4	14 500 14.4	16 500 14.4			
26'	1.24'	0.5'	**VP** **GT** **L**	2 500 15.6	4 500 15.6	6 500 15.6	8 500 15.6	10 500 15.6	12 500 15.6	14 500 15.6	16 500 15.6	18 500 15.6		
28'	1.33'	0.5'	**VP** **GT** **L**	2 500 16.8	4 500 16.8	6 500 16.8	8 500 16.8	10 500 16.8	12 500 16.8	14 500 16.8	16 500 16.8	18 500 16.8	20 500 16.8	
30'	1.43'	0.5'	**VP** **GT** **L**	2 500 18	4 500 18	6 500 18	8 500 18	10 500 18	12 500 18	14 500 18	16 500 18	18 500 18	20 500 20.4	22 500 20.4
30' +			**VP** **GT** **L**	Heights above 30 feet are achievable. Please contact your Verti-Block dealer for more details										

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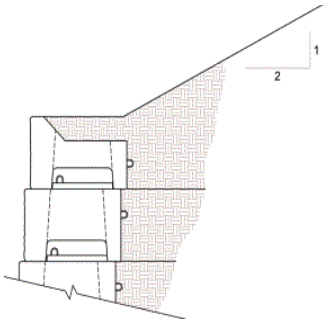
Notes: Unit weight of soil is 120 psf. Minimum factors of safety are sliding: 1.5, overturning: 1.5, and bearing: 2.0. Wall design shall address both internal and external drainage and shall be evaluated by the professional engineer responsible for final design. Backfill material to be compacted to 95% modified proctor density. Designs are in general accordance with NCMA guidelines.

Reinforced Wall Matrix

Soil Type	Gravely Soil
Load Condition	2:1 Sloping Backfill / No Surcharge
Internal Angle of Friction	≥ 40°
Suggested Geogrid	Stratagrid®



Wall Height	Bury Depth	Level Pad	Dimensions measured in feet from face of block **VP** – *Geogrid Verticle Placement* **GT** – *Geogrid Type (Strata 200, 500, 600)* **L** – *Geogrid Length in Feet*											
12'	0.5'	0.5'	**VP** **GT** **L**	None										
14'	0.67'	0.5'	**VP** **GT** **L**	2 200 8.9	4 200 8.9	6 200 8.9	8 200 8.9							
16'	0.76'	0.5'	**VP** **GT** **L**	2 500 9.6	4 500 9.6	6 500 9.6								
18'	0.86'	0.5'	**VP** **GT** **L**	2 500 10.8	4 500 10.8	6 500 10.8	8 500 10.8							
20'	0.95'	0.5'	**VP** **GT** **L**	2 200 12	4 200 12	6 200 12	8 200 12	10 200 12						
22'	1.05'	0.5'	**VP** **GT** **L**	2 500 13.2	4 500 13.2	6 500 13.2	8 500 13.2	10 500 13.2	12 500 13.2					
24'	1.14'	0.5'	**VP** **GT** **L**	2 500 14.4	4 500 14.4	6 500 14.4	8 500 14.4	10 500 14.4	12 500 14.4	14 500 14.4				
26'	1.25'	0.5'	**VP** **GT** **L**	2 500 15.6	4 500 15.6	6 500 15.6	8 500 15.6	10 500 15.6	12 500 15.6	14 500 15.6	16 500 15.6			
28'	1.33'	0.5'	**VP** **GT** **L**	2 600 16.8	4 600 16.8	6 600 16.8	8 600 16.8	10 600 16.8	12 600 16.8	14 600 16.8	16 600 16.8	18 600 16.8		
30'	1.43'	0.5'	**VP** **GT** **L**	2 600 18	4 600 18	6 600 18	8 600 18	10 600 18	12 600 18	14 600 18	16 600 18	18 600 18	20 600 20.4	
32'	1.52'	0.5'	**VP** **GT** **L**	2 600 19.2	4 600 19.2	6 600 19.2	8 600 19.2	10 600 19.2	12 600 19.2	14 600 19.2	16 600 19.2	18 600 19.2	20 600 19.2	22 600 19.2
34'	1.62'	0.5'	**VP** **GT** **L**	2 600 20.4	4 600 20.4	6 600 20.4	8 600 20.4	10 600 20.4	12 600 20.4	14 600 20.4	16 600 20.4	18 600 20.4	20 600 20.4	22 600 20.4	24 600 20.4

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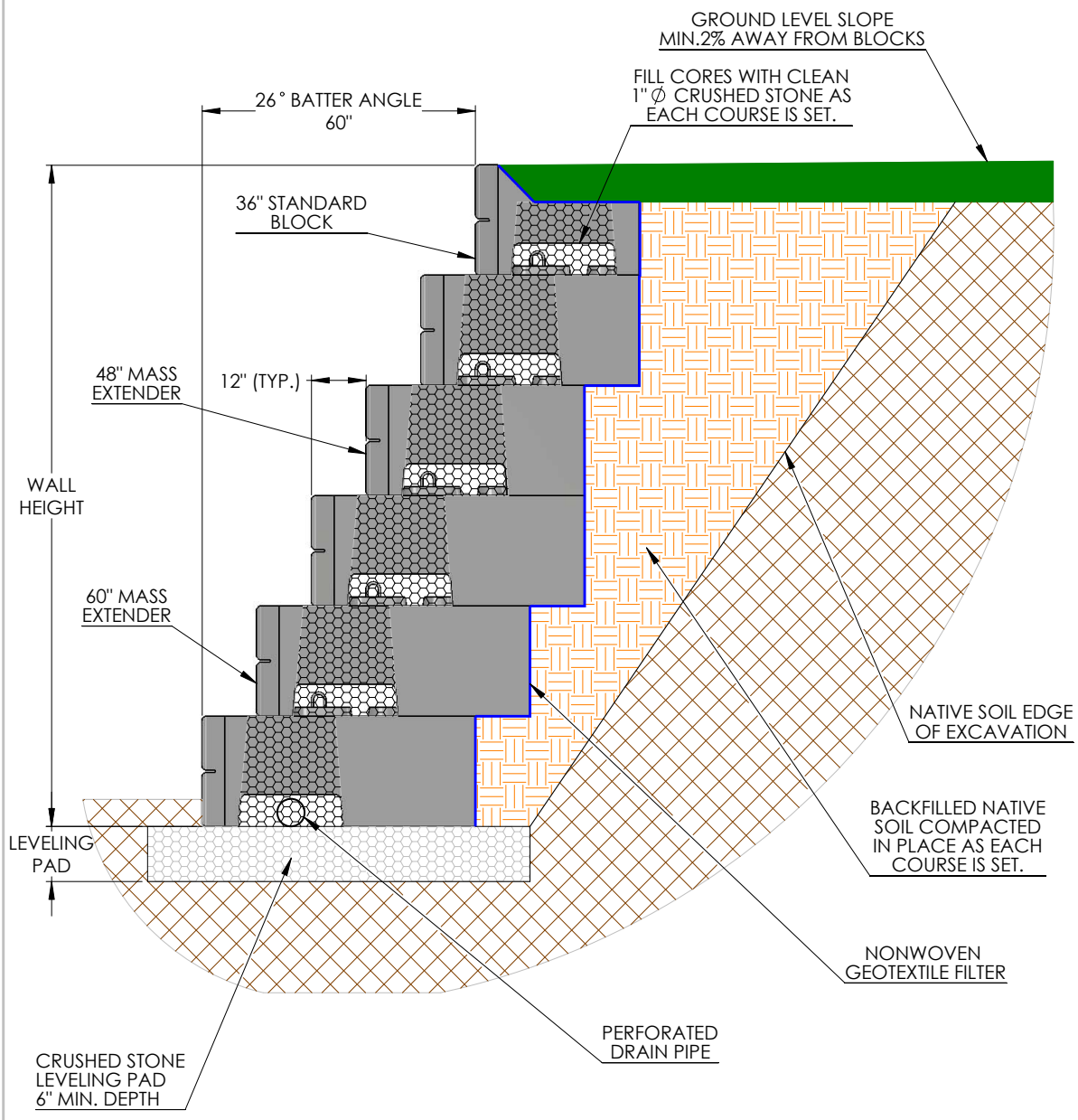
Notes: Unit weight of soil is 120 psf. Minimum factors of safety are sliding: 1.5, overturning: 1.5, and bearing: 2.0. Wall design shall address both internal and external drainage and shall be evaluated by the professional engineer responsible for final design. Backfill material to be compacted to 95% modified proctor density. Designs are in general accordance with NCMA guidelines.

TYPICAL GRAVITY WALL WITH 12" SETBACK



DRAWN BY	DATE	TITLE:
R FONTANESI	1/6/2016	12' GRAVITY WALL W/ 12" SETBACK

16500 SOUTH 500 WEST
BLUFFDALE, UTAH 84065
PHONE: (801) 571-2028

DWG NO. WD-34

SCALE: 1: 30 | SHEET 1 OF 1

Gravity Wall Matrix with Mass Extenders and 12" Batter

Soil Type	Silty *Internal Angle of Friction ≥ 28°*			Sandy *Internal Angle of Friction ≥ 30°*			Gravely Sand *Internal Angle of Friction ≥ 35°*			Gravely *Internal Angle of Friction ≥ 40°*		
Load Condition	Exposed Wall Height	Min. Bury Depth	Leveling Pad	Exposed Wall Height	Min. Bury Depth	Leveling Pad	Exposed Wall Height	Min. Bury Depth	Leveling Pad	Exposed Wall Height	Min. Bury Depth	Leveling Pad
Level Backfill / No Surcharge												
36" Blocks Only	5.5	0.5	0.5	5.5	0.5	0.5	7.5	0.5	0.5	11	1	0.5
36" Blocks Only	7.5	0.5	0.5	7.5	0.5	0.5	9.5	0.5	0.5	13	1	0.5
36" Blocks Only	9	1	1	9	1	1	11	1	1	15	1	1
36" Blocks Only	10.5	1.5	1	10.5	1.5	1	13	1	1	17	1	1
36" w/ (1) 48" bottom row	12.5	1.5	1	12.5	1.5	1	15	1	1	19	1	1
36" w/ (1) 48" bottom row	--	--	--	--	--	--	17	1	1	20.5	1.5	1
36" w/ (1) 60" bottom rows	14	2	1	14	2	1	19	1	1	22.5	1.5	1
36" w/ (1) 48" & (1) 60" bottom rows	--	--	--	16	2	1	--	--	--	24.5	1.5	1
Level Backfill / 250 psf Surcharge												
36" Blocks Only	3.5	0.5	0.5	3.5	0.5	0.5	5.5	0.5	0.5	9.5	0.5	0.5
36" Blocks Only	5.5	0.5	0.5	5.5	0.5	0.5	7.5	0.5	0.5	11	1	0.5
36" Blocks Only	7	1	0.5	7	1	0.5	9	1	0.5	13	1	1
36" Blocks Only	8.5	1.5	1	8.5	1.5	1	11	1	1	15	1	1
36" w/ (1) 48" bottom row	--	--	--	10.5	1.5	1	13	1	1	17	1	1
36" w/ (1) 48" bottom rows	--	--	--	12	2	1	--	--	--	19	1	1
36" w/ (1) 60" bottom rows	--	--	--	--	--	--	15	1	1	--	--	--
36" w/ (1) 48" & (1) 60" bottom rows	10.5	1.5	1	--	--	--	17	1	1	21	1	1
36" w/ (2) 48" & (1) 60" bottom rows	--	--	--	--	--	--	--	--	--	23	1	1
36" w/ (1) 48" & (2) 60" bottom rows	--	--	--	14	2	1	--	--	--	--	--	--
36" w/ (3) 48" & (3) 60" bottom rows	--	--	--	--	--	--	19	1	1	--	--	--
2:1 Sloping Backfill / No Surcharge												
36" Blocks Only	3.5	0.5	0.5	5.5	0.5	0.5	7.5	0.5	0.5	11	1	0.5
36" Blocks Only	5.5	0.5	0.5	7	1	0.5	9.5	0.5	0.5	13	1	0.5
36" Blocks Only	7	1	1	8.5	1.5	1	11	1	1	15	1	1
36" w/ (1) 48" bottom row	--	--	--	--	--	--	13	1	1	17	1	1
36" w/ (1) 60" bottom rows	--	--	--	--	--	--	15	1	1	18.5	1.5	1
36" w/ (1) 48" & (1) 60" bottom rows	--	--	--	--	--	--	16.5	1.5	1	20.5	1.5	1
36" w/ (2) 48" & (2) 60" bottom rows	--	--	--	10.5	1.5	1	--	--	--	--	--	--
36" w/ (3) 60" bottom rows	8.5	1.5	1	--	--	--	--	--	--	--	--	--
36" w/ (2) 48" & (4) 60" bottom rows	--	--	--	12	2	1	--	--	--	22.5	1.5	1

Version 2.1

The above chart was prepared by Verti-Crete, LLC for estimating and conceptual design purposes only. All information in believed to be true and accurate; however Verti-Crete, LLC assumes no responsibility for the use of these design charts for actual construction. Determination of the suitability of each chart is the sole responsibility of the user. Final designs for construction purposes must be performed by a registered Professional Engineer, using the actual conditions of the proposed site.

Notes: Unit weight of soil is 120 psf. Minimum factors of safety are sliding: 1.5, overturning: 1.5, and bearing: 2.0. Seismic forces have not been considered. Wall design shall address both internal and external drainage and shall be evaluated by the professional engineer responsible for final design. Backfill material to be