Preliminary Design

Quick Reference Guide

RisiStone®
retaining wall systems

Version 3.0 | February 2021

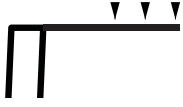
Flat | Pedestrian Load

- Nominal 50 psf / 2.4 kPa pedestrian Load
- Typical for raised patios & sidewalks

Slope | 3H:1V

- 3H:1V = 18.4° slope above the wall
- Generally a clay or concrete swale is required for proper drainage

Heavy Traffic

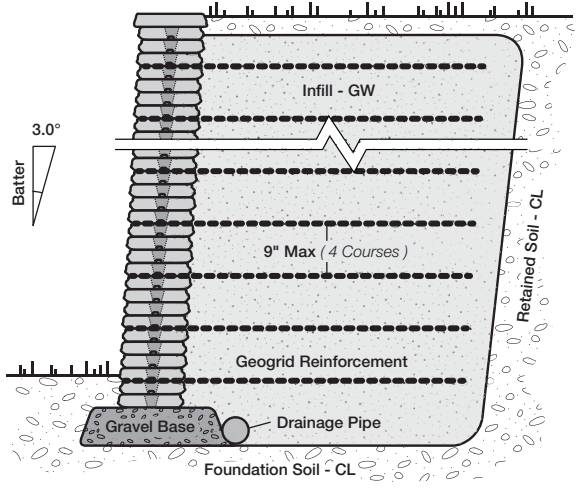


- NCMA traffic load of 250 psf / 12 kPa offset by 2ft/0.6m at top
- Traffic barrier is typically required

Rivercrest/FlagStack® | Geogrid Reinforced

NOT FOR CONSTRUCTION

Soil Condition	Description	Φ-*degrees*	Unit Weight *(g-lb/cu.ft)*
Infill (*Reinforced*)	**GW** Well graded gravel, gravel sand, max 5% fine content	35	140
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125



Exposed Wall Height	Embedment	Total Wall Height	No. Geogrid Layers	**Flat** | Pedestrian Load (50psf / 2.4kPa)	**Slope** | 3H:1V	**Heavy Traffic** (250psf / 12kPa)
(ft/m)	(ft/m)	(ft/m)		Grid Length (ft/m)	Grid Length (ft/m)	Grid Length (ft/m)
2.5 / 0.76	0.5 / 0.15	3.0 / 0.91	3	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
3.4 / 1.05	0.5 / 0.15	3.9 / 1.20	4	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
4.5 / 1.39	0.5 / 0.15	5.1 / 1.54	6	4.5 / 1.37	5.0 / 1.52	5.0 / 1.52
5.6 / 1.69	0.6 / 0.20	6.2 / 1.88	7	5.0 / 1.52	6.0 / 1.83	5.5 / 1.68

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ZenWall™ | Geogrid Reinforced

NOT FOR CONSTRUCTION

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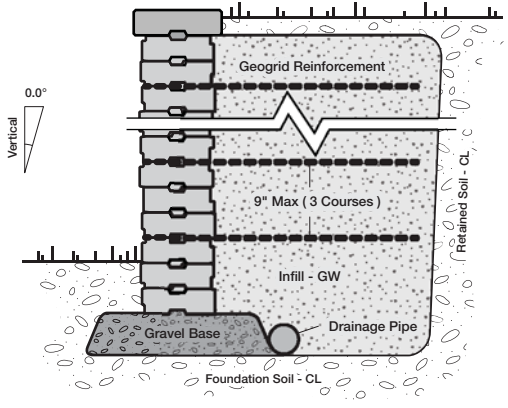
Infill (*Reinforced*)	**GW** Well graded gravel, gravel sand, max 5% fine content	35	140
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125



Exposed Wall Height	Embedment	Total Wall Height	No. Geogrid Layers	**Flat** | Pedestrian Load (50psf / 2.4kPa)	**Slope** | 3H:1V	**Heavy Traffic** (250psf / 12kPa)
(ft/m)	(ft/m)	(ft/m)		Grid Length (ft/m)	Grid Length (ft/m)	Grid Length (ft/m)
1.5 / 0.45	0.5 / 0.15	2.0 / 0.60	2	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
2.7 / 0.82	0.5 / 0.15	3.2 / 0.98	3	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
3.7 / 1.12	0.5 / 0.15	4.2 / 1.27	4	4.5 / 1.37	4.5 / 1.37	4.5 / 1.37
4.7 / 1.42	0.5 / 0.15	5.2 / 1.58	5	5.0 / 1.52	5.0 / 1.52	5.0 / 1.52

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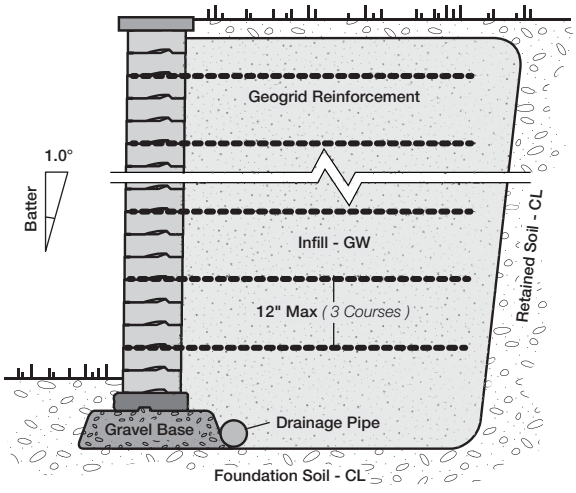
Architextures™ | Geogrid Reinforced

NOT FOR CONSTRUCTION

Soil Condition	Description	Φ-*degrees*	Unit Weight *(g-lb/cu.ft)*
Infill (*Reinforced*)	**GW** Well graded gravel, gravel sand, max 5% fine content	35	140
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125



Exposed Wall Height	Embedment	Total Wall Height	No. Geogrid Layers	**Flat** | Pedestrian Load (50psf / 2.4kPa)	**Slope** | 3H:1V	**Heavy Traffic** (250psf / 12kPa)
(ft/m)	(ft/m)	(ft/m)		Grid Length (ft/m)	Grid Length (ft/m)	Grid Length (ft/m)
2.6 / 0.79	0.5 / 0.15	3.1 / 0.94	2	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
3.6 / 1.10	0.5 / 0.15	4.1 / 1.25	3	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
4.6 / 1.40	0.5 / 0.15	5.1 / 1.55	5	4.5 / 1.37	5.0 / 1.52	5.0 / 1.52
5.5 / 1.67	0.6 / 0.19	6.1 / 1.85	5	5.0 / 1.52	6.0 / 1.83	5.5 / 1.68
6.3 / 1.93	0.7 / 0.22	7.0 / 2.15	6	6.0 / 1.83	6.5 / 1.98	6.0 / 1.83
7.2 / 2.21	0.8 / 0.25	8.0 / 2.45	7	6.5 / 1.98	7.0 / 2.13	6.5 / 1.98

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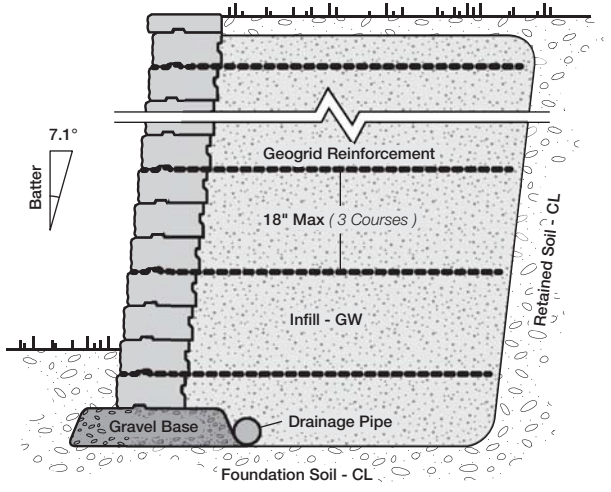
Pisa2®, PisaXL® & RomanPisa®

Geogrid Reinforced

NOT FOR CONSTRUCTION

Soil Condition	Description	Φ-*degrees*	Unit Weight *(g-lb/cu.ft)*
Infill (*Reinforced*)	**GW** Well graded gravel, gravel sand, max 5% fine content	35	140
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125



Exposed Wall Height	Embedment	Total Wall Height	No. Geogrid Layers	**Flat** | Pedestrian Load (50psf / 2.4kPa)	**Slope** | 3H:1V	**Heavy Traffic** (250psf / 12kPa)
(ft/m)	(ft/m)	(ft/m)		Grid Length (ft/m)	Grid Length (ft/m)	Grid Length (ft/m)
2.8 / 0.84	0.5 / 0.15	3.3 / 0.99	1	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
3.8 / 1.14	0.5 / 0.15	4.3 / 1.30	2	4.0 / 1.22	4.0 / 1.22	4.5 / 1.37
4.8 / 1.45	0.5 / 0.15	5.3 / 1.60	3	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
5.6 / 1.71	0.6 / 0.19	6.3 / 1.91	4	4.5 / 1.37	5.0 / 1.52	5.0 / 1.52
6.5 / 2.00	0.7 / 0.22	7.3 / 2.21	4	5.0 / 1.52	5.5 / 1.68	5.5 / 1.68
7.4 / 2.25	0.8 / 0.25	8.3 / 2.51	5	5.5 / 1.68	6.0 / 1.83	6.0 / 1.83

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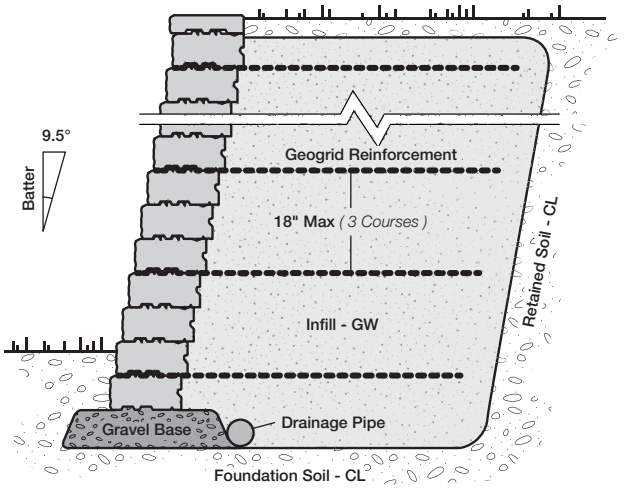
ConcordWall®, ConcordXL® & RomanWall®

Geogrid Reinforced

NOT FOR CONSTRUCTION

Soil Condition	Description	Φ-*degrees*	Unit Weight *(g-lb/cu.ft)*
Infill (*Reinforced*)	**GW** Well graded gravel, gravel sand, max 5% fine content	35	140
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125



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(ft/m)	(ft/m)	(ft/m)		Grid Length (ft/m)	Grid Length (ft/m)	Grid Length (ft/m)
2.8 / 0.84	0.5 / 0.15	3.3 / 0.99	1	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
3.8 / 1.14	0.5 / 0.15	4.3 / 1.30	2	4.0 / 1.22	4.0 / 1.22	4.5 / 1.37
4.8 / 1.45	0.5 / 0.15	5.3 / 1.60	3	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
5.6 / 1.71	0.6 / 0.19	6.3 / 1.91	4	4.5 / 1.37	5.0 / 1.52	5.0 / 1.52
6.5 / 2.00	0.7 / 0.22	7.3 / 2.21	4	5.0 / 1.52	5.5 / 1.68	5.5 / 1.68
7.4 / 2.25	0.8 / 0.25	8.3 / 2.51	5	5.5 / 1.68	6.0 / 1.83	6.0 / 1.83

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PisaSmooth™ | Geogrid Reinforced

NOT FOR CONSTRUCTION

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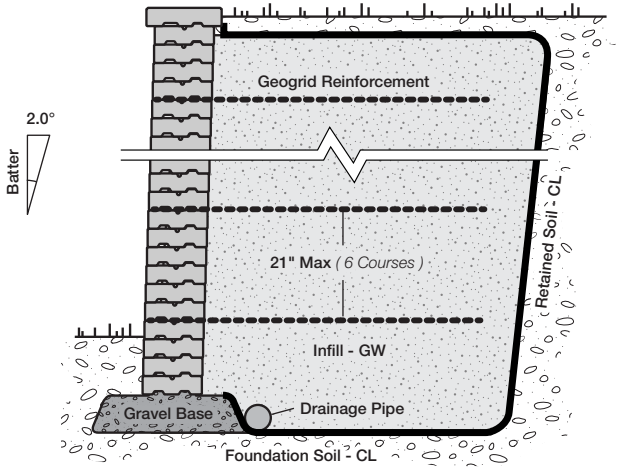
Infill (*Reinforced*)	**GW** Well graded gravel, gravel sand, max 5% fine content	35	140
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125



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(ft/m)	(ft/m)	(ft/m)		Grid Length (ft/m)	Grid Length (ft/m)	Grid Length (ft/m)
2.9 / 0.87	0.5 / 0.15	3.3 / 1.02	2	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
4.0 / 1.21	0.5 / 0.15	4.5 / 1.36	3	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
4.8 / 1.46	0.5 / 0.16	5.3 / 1.62	3	4.0 / 1.22	5.0 / 1.52	4.0 / 1.22
5.6 / 1.72	0.8 / 0.23	6.5 / 1.95	4	5.0 / 1.52	5.5 / 1.68	5.0 / 1.52
6.8 / 2.06	0.8 / 0.23	7.5 / 2.29	5	5.5 / 1.68	6.0 / 1.83	5.5 / 1.68
7.6 / 2.31	0.8 / 0.23	8.4 / 2.55	5	6.0 / 1.83	7.0 / 2.13	6.5 / 1.98

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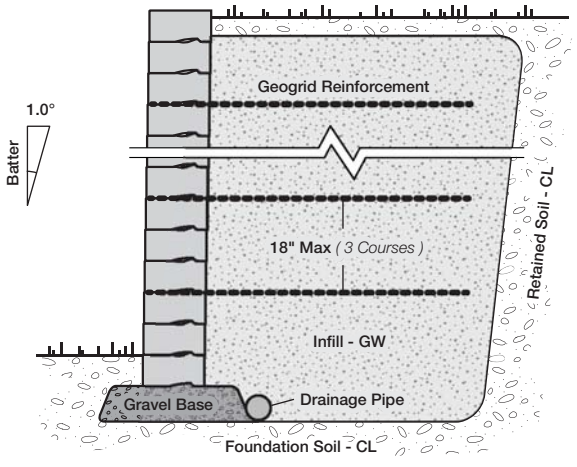
Architextures™XL | Geogrid Reinforced

NOT FOR CONSTRUCTION

Soil Condition	Description	Φ-*degrees*	Unit Weight *(g-lb/cu.ft)*
Infill (*Reinforced*)	**GW** Well graded gravel, gravel sand, max 5% fine content	35	140
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125



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(ft/m)	(ft/m)	(ft/m)		Grid Length (ft/m)	Grid Length (ft/m)	Grid Length (ft/m)
3.0 / 0.90	0.5 / 0.15	3.5/ 1.05	2	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
3.9 / 1.20	0.5 / 0.15	4.4 / 1.35	3	4.0 / 1.22	4.5 / 1.37	4.5 / 1.37
4.9 / 1.50	0.5 / 0.15	5.4 / 1.65	4	4.5 / 1.37	5.0 / 1.52	5.0 / 1.52
5.8 / 1.75	0.6 / 0.20	6.4 / 1.95	5	5.0 / 1.52	6.0 / 1.83	5.5 / 1.68
6.6 / 2.02	0.7 / 0.23	7.3 / 2.25	6	5.5 / 1.68	6.5 / 1.98	6.0 / 1.83
7.5 / 2.30	0.8 / 0.25	8.3 / 2.55	6	6.5 / 1.98	7.5 / 2.30	7.0 / 2.13

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SienaEdge™ | Geogrid Reinforced

NOT FOR CONSTRUCTION

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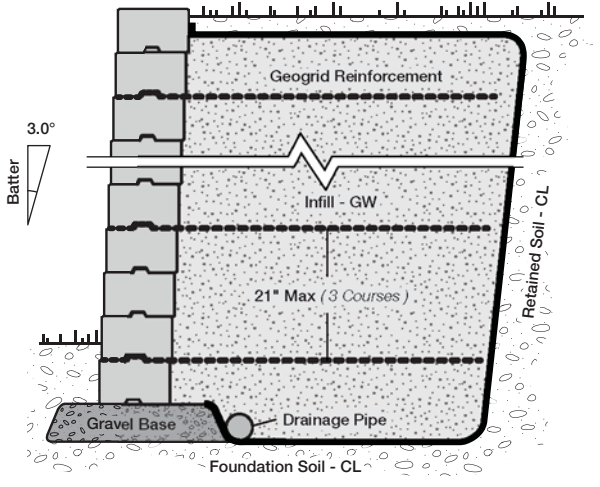
Infill (*Reinforced*)	**GW** Well graded gravel, gravel sand, max 5% fine content	35	140
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125



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(ft/m)	(ft/m)	(ft/m)		Grid Length (ft/m)	Grid Length (ft/m)	Grid Length (ft/m)
2.5 / 0.75	0.5 / 0.15	3.0 / 0.90	1	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
3.6 / 1.11	0.5 / 0.15	4.1 / 1.26	2	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
4.8 / 1.46	0.5 / 0.16	5.3 / 1.62	2	4.0 / 1.22	5.0 / 1.52	4.5 / 1.52
5.9 / 1.78	0.6 / 0.20	6.5 / 1.98	3	5.0 / 1.52	5.5 / 1.68	5.0 / 1.52
6.9 / 2.11	0.8 / 0.23	7.7 / 2.34	4	5.5 / 1.68	6.0 / 1.83	6.0 / 1.83
8.0 / 2.43	0.9 / 0.28	8.9 / 2.70	5	6.0 / 1.83	7.0 / 2.13	6.5 / 1.98

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SienaSmooth | Geogrid Reinforced

NOT FOR CONSTRUCTION

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Infill (*Reinforced*)	**GW** Well graded gravel, gravel sand, max 5% fine content	35	140
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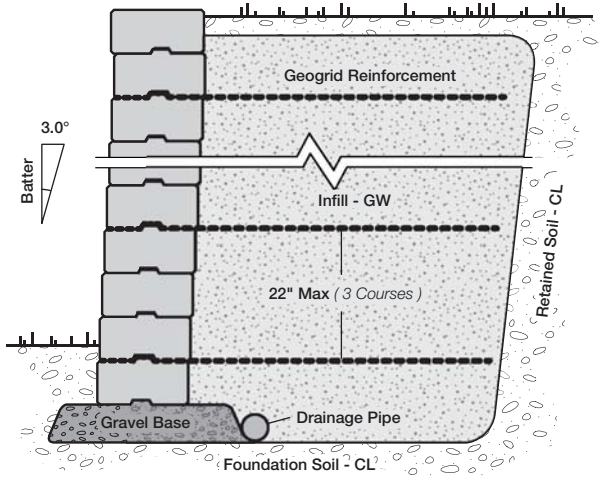

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(ft/m)	(ft/m)	(ft/m)		Grid Length (ft/m)	Grid Length (ft/m)	Grid Length (ft/m)
2.5 / 0.75	0.5 / 0.15	3.0 / 0.90	1	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
3.6 / 1.11	0.5 / 0.15	4.1 / 1.26	2	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
4.8 / 1.46	0.5 / 0.16	5.3 / 1.62	2	4.0 / 1.22	5.0 / 1.52	4.5 / 1.52
5.9 / 1.78	0.6 / 0.20	6.5 / 1.98	3	5.0 / 1.52	5.5 / 1.68	5.0 / 1.52
6.9 / 2.11	0.8 / 0.23	7.7 / 2.34	4	5.5 / 1.68	6.0 / 1.83	6.0 / 1.83
8.0 / 2.43	0.9 / 0.28	8.9 / 2.70	5	6.0 / 1.83	7.0 / 2.13	6.5 / 1.98

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SienaStone® | Geogrid Reinforced

NOT FOR CONSTRUCTION

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Infill (*Reinforced*)	**GW** Well graded gravel, gravel sand, max 5% fine content	35	140
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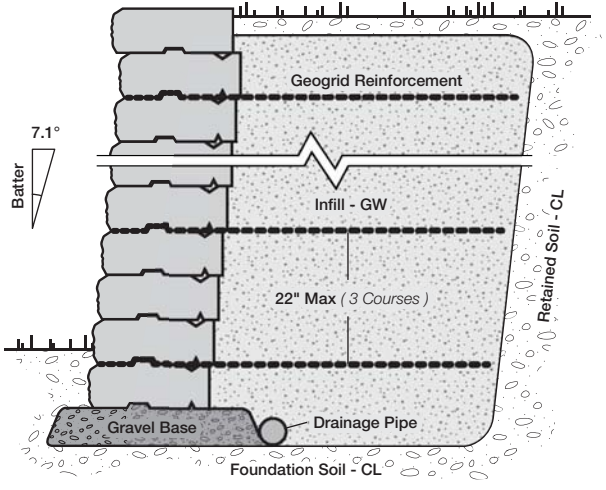

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(ft/m)	(ft/m)	(ft/m)		Grid Length (ft/m)	Grid Length (ft/m)	Grid Length (ft/m)
2.5 / 0.77	0.5 / 0.15	3.0 / 0.90	1	-	-	4.0 / 1.22
3.7 / 1.14	0.5 / 0.15	4.2 / 1.29	1	4.0 / 1.22	4.0 / 1.22	4.5 / 1.37
4.9 / 1.49	0.6 / 0.17	5.4 / 1.66	2	4.5 / 1.37	5.0 / 1.52	5.5 / 1.52
6.0 / 1.82	0.6 / 0.20	6.6 / 2.03	3	5.5 / 1.68	5.5 / 1.68	5.5 / 1.68
7.1 / 2.15	0.8 / 0.24	7.9 / 2.39	3	6.0 / 1.83	6.5 / 1.98	6.5 / 1.98
8.2 / 2.49	0.9 / 0.28	9.1 / 2.76	4	6.5 / 1.98	7.0 / 2.13	7.0 / 2.13

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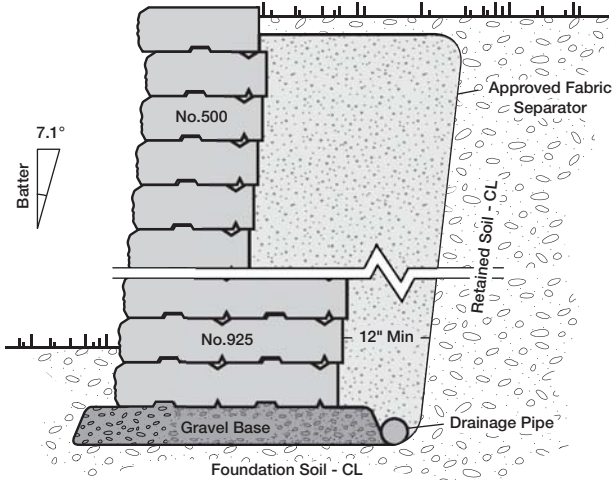
SienaStone® | Gravity Wall

NOT FOR CONSTRUCTION

Soil Condition	Description	Φ-*degrees*	Unit Weight *(g-lb/cu.ft)*
Drainage (Min. 12"/0.3m)	**GP** Free Draining Gravel, max 5% fines	-	-
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125

Drainage to be Free Draining Material in accordance with NCMA recommendations



Exposed Wall Height	Embedment	Total Wall Height	No. of Courses	**Flat** | Pedestrian Load (50psf / 2.4kPa)		**Slope** | 3H:1V		**Heavy Traffic** (250psf / 12kPa)	
(ft/m)	(ft/m)	(ft/m)		No.500	No.925	No.500	No.925	No.500	No.925
2.5/ 0.77	0.5 / 0.15	3.0 / 0.92	5	5	-	5	-	3	2
3.7 / 1.14	0.5 / 0.15	4.2 / 1.29	7	6	1	5	2	3	4
4.4 / 1.33	0.5 / 0.15	4.9 / 1.48	8	6	2	5	3	3	5
4.9 / 1.50	0.6 / 0.16	5.4 / 1.66	9	6	3	5	4	-	-
5.5 / 1.67	0.6 / 0.19	6.1 / 1.85	10	6	4	5	5	-	-
6.6 / 2.00	0.7 / 0.22	7.3 / 2.22	12	6	6	-	-	-	-

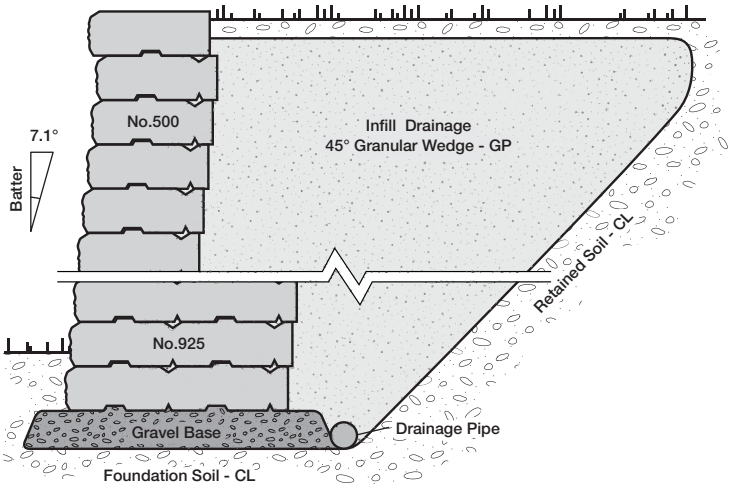
Disclaimer: Geogrid Reinforcement to be Stratagrid 200 or approved equivalent. The above design information is being provided for preliminary estimate and feasibility purposes only, and should not be used for construction. Prior to wall construction, a Final Design must be supplied by a qualified Engineer licensed in the applicable State/Province. Handrails and/or traffic barriers are not shown but are typically required and may influence the wall design. The above design is not to be use with terraced structures, water applications or within the line of influence of other permanent structures.

SienaStone® | 45° Granular Wedge

NOT FOR CONSTRUCTION

Soil Condition	Description	Φ-*degrees*	Unit Weight *(g-lb/cu.ft)*
Infill Wedge	**GP** Free Draining Gravel, max 5% fines	36	118
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125

Drainage to be Free Draining Material in accordance with NCMA recommendations



Exposed Wall Height	Embedment	Total Wall Height	No. of Courses	**Flat** | Pedestrian Load (50psf / 2.4kPa)		**Slope** | 3H:1V		**Heavy Traffic** (250psf / 12kPa)	
(ft/m)	(ft/m)	(ft/m)		No.500 | No.925		No.500 | No.925		No.500 | No.925	
2.5 / 0.77	0.5 / 0.15	3.0 / 0.92	5	5	-	5	-	4	1
3.7 / 1.14	0.5 / 0.15	4.2 / 1.29	7	7	-	7	-	4	3
4.9 / 1.49	0.5 / 0.17	5.4 / 1.66	9	9	-	8	1	4	5
6.0 / 1.83	0.7 / 0.20	6.6 / 2.03	11	9	2	8	3	4	7
7.1 / 2.15	0.8 / 0.24	7.8 / 2.39	13	9	4	8	5	4	9
8.1 / 2.48	0.9 / 0.28	9.1 / 2.76	15	9	6	8	7	-	-

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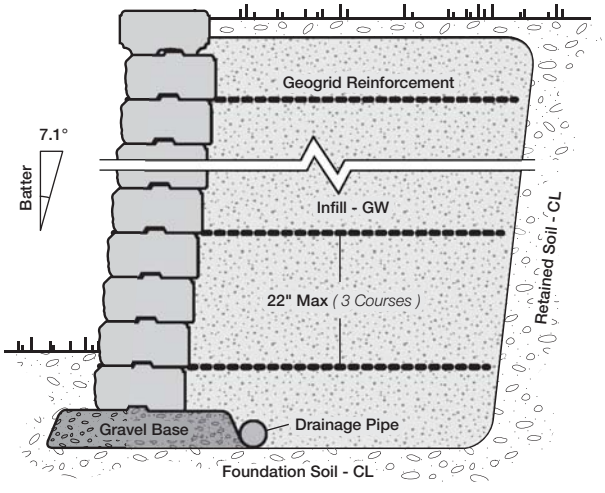
SonomaStone® | Geogrid Reinforced

NOT FOR CONSTRUCTION

Soil Condition	Description	Φ-*degrees*	Unit Weight *(g-lb/cu.ft)*
Infill (*Reinforced*)	**GW** Well graded gravel, gravel sand, max 5% fine content	35	140
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125



Exposed Wall Height	Embedment	Total Wall Height	No. Geogrid Layers	**Flat** | Pedestrian Load (50psf / 2.4kPa)	**Slope** | 3H:1V	**Heavy Traffic** (250psf / 12kPa)
(ft/m)	(ft/m)	(ft/m)		Grid Length (ft/m)	Grid Length (ft/m)	Grid Length (ft/m)
2.5 / 0.77	0.5 / 0.15	3.0 / 0.90	1	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
3.7 / 1.14	0.5 / 0.15	4.2 / 1.29	1	4.0 / 1.22	4.0 / 1.22	4.5 / 1.37
4.9 / 1.49	0.6 / 0.17	5.4 / 1.66	2	4.0 / 1.22	4.5 / 1.37	4.5 / 1.37
6.0 / 1.82	0.6 / 0.20	6.6 / 2.03	3	5.0 / 1.52	5.5 / 1.68	5.5 / 1.68
7.1 / 2.15	0.8 / 0.24	7.9 / 2.39	3	5.5 / 1.68	6.0 / 1.83	5.5 / 1.68
8.2 / 2.49	0.9 / 0.28	9.1 / 2.76	4	6.0 / 1.83	7.0 / 2.13	6.5 / 1.98

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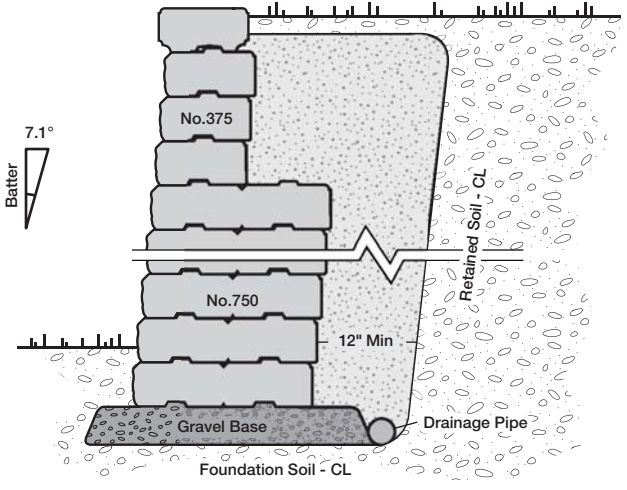
SonomaStone® | Gravity Wall

NOT FOR CONSTRUCTION

Soil Condition	Description	Φ-*degrees*	Unit Weight *(g-lb/cu.ft)*
Drainage (Min. 12"/0.3m)	**GP** Free Draining Gravel, max 5% fines	-	-
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125

Drainage to be Free Draining Material in accordance with NCMA recommendations



Exposed Wall Height	Embedment	Total Wall Height	No. of Courses	**Flat** | Pedestrian Load (50psf / 2.4kPa)		**Slope** | 3H:1V		**Heavy Traffic** (250psf / 12kPa)	
(ft/m)	(ft/m)	(ft/m)		No.375	No.750	No.375	No.750	No.375	No.750
1.9 / 0.58	0.5 / 0.15	2.4 / 0.74	4	4	-	4	-	2	2
2.5 / 0.77	0.5 / 0.15	3.0 / 0.92	5	4	1	4	1	-	-
3.1 / 0.96	0.5 / 0.15	3.6 / 1.11	6	4	2	4	2	-	-
3.7 / 1.14	0.5 / 0.15	4.2 / 1.29	7	4	3	4	3	-	-
4.9 / 1.49	0.6 / 0.17	5.4 / 1.66	9	4	5	-	-	-	-

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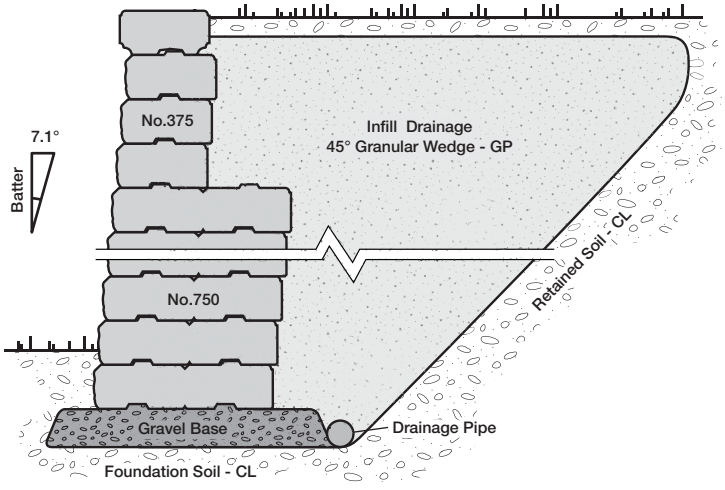
SonomaStone® | 45° Granular Wedge

NOT FOR CONSTRUCTION

Soil Condition	Description	Φ-*degrees*	Unit Weight *(g-lb/cu.ft)*
Infill Wedge	**GP** Free Draining Gravel, max 5% fines	36	118
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125

Drainage to be Free Draining Material in accordance with NCMA recommendations



Exposed Wall Height	Embedment	Total Wall Height	No. of Courses	**Flat** | Pedestrian Load (50psf / 2.4kPa)		**Slope** | 3H:1V		**Heavy Traffic** (250psf / 12kPa)	
(ft/m)	(ft/m)	(ft/m)		No.375	No.750	No.375	No.750	No.375	No.750
2.5 / 0.77	0.5 / 0.15	3.0 / 0.92	5	4	1	4	1	4	1
3.1 / 0.96	0.5 / 0.15	3.6 / 1.11	6	4	2	4	2	4	2
3.7 / 1.14	0.5 / 0.15	4.2 / 1.29	7	4	3	4	3	4	3
4.9 / 1.49	0.6 / 0.17	5.4 / 1.66	9	4	5	4	5	4	5
6.0 / 1.82	0.7 / 0.20	6.6 / 2.03	11	4	7	4	7	-	-
6.5 / 2.00	0.7 / 0.22	7.3 / 2.22	12	4	8	4	8	-	-

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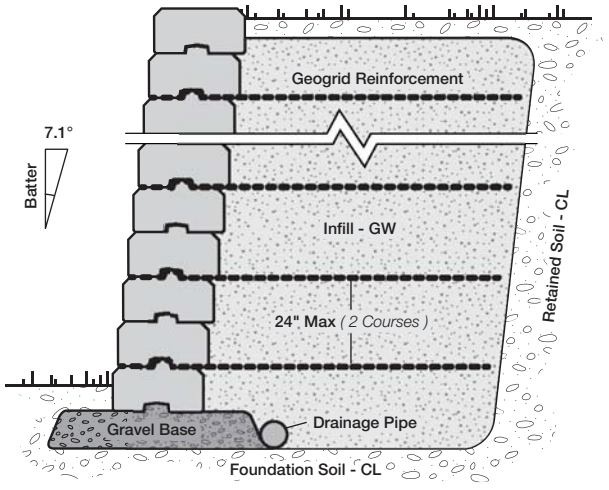
DuraHold® | Geogrid Reinforced

NOT FOR CONSTRUCTION

Soil Condition	Description	Φ-*degrees*	Unit Weight *(g-lb/cu.ft)*
Infill (*Reinforced*)	**GW** Well graded gravel, gravel sand, max 5% fine content	35	140
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125

Drainage to be Free Draining Material in accordance with NCMA recommendations



Exposed Wall Height	Embedment	Total Wall Height	No. Geogrid Layers	**Flat** | Pedestrian Load (50psf / 2.4kPa)	**Slope** | 3H:1V	**Heavy Traffic** (250psf / 12kPa)
(ft/m)	(ft/m)	(ft/m)		Grid Length (ft/m)	Grid Length (ft/m)	Grid Length (ft/m)
3.5 / 1.07	0.5 / 0.15	4.0 / 1.22	1	---	4.0 / 1.22	4.0 / 1.22
4.5 / 1.37	0.5 / 0.15	5.0 / 1.52	1	5.0 / 1.52	5.0 / 1.52	4.0 / 1.22
5.5 / 1.68	0.5 / 0.15	6.0 / 1.83	2	5.0 / 1.52	5.5 / 1.68	5.5 / 1.68
6.3 / 1.91	0.7 / 0.22	7.0 / 2.13	3	5.5 / 1.68	6.0 / 1.83	6.0 / 1.83
7.2 / 2.19	0.8 / 0.25	8.0 / 2.44	3	6.0 / 1.83	6.5 / 1.98	6.5 / 1.98
8.1 / 2.46	0.9 / 0.28	9.0 / 2.74	4	6.5 / 1.98	7.0 / 2.13	7.0 / 2.13

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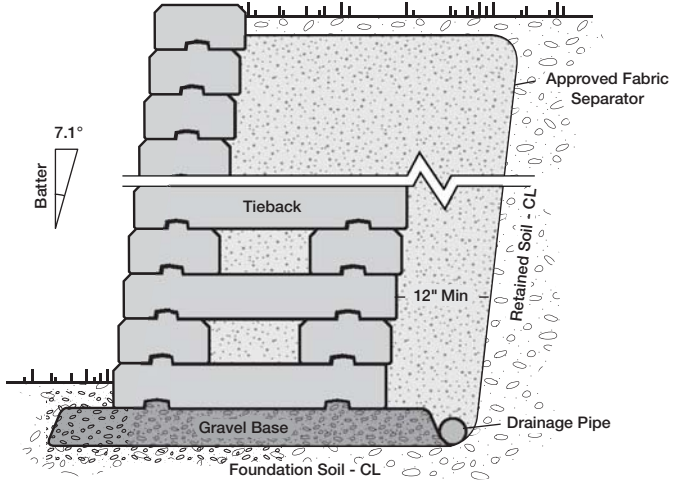
DuraHold® | Crib Wall

NOT FOR CONSTRUCTION

Soil Condition	Description	Φ-*degrees*	Unit Weight *(g-lb/cu.ft)*
Drainage (Min. 12"/0.3m)	**GP** Free Draining Gravel, max 5% fines	-	-
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125

Drainage to be Free Draining Material in accordance with NCMA recommendations



Exposed Wall Height	Embedment	Total Wall Height	No. of Courses	**Flat** | Pedestrian Load (50psf / 2.4kPa)		**Slope** | 3H:1V		**Heavy Traffic** (250psf / 12kPa)	
(ft/m)	(ft/m)	(ft/m)		Standard	Crib	Standard	Crib	Standard	Crib
3.5 / 1.07	0.5 / 0.15	4.0 / 1.22	4	4	-	4	-	3	1
4.5 / 1.37	0.5 / 0.15	5.0 / 1.52	5	5	-	4	1	3	2
5.5 / 1.68	0.5 / 0.15	6.0 / 1.83	6	5	1	4	2	3	3
9.0 / 2.74	1.0 / 0.30	10.0 / 3.05	10	5	5	4	6	3	7
13.5/ 4.11	1.5 / 0.46	15.0 / 4.57	15	5	10	-	-	3	12
16.2 / 4.94	1.8 / 0.55	18.0 / 5.49	18	5	13	-	-	-	-

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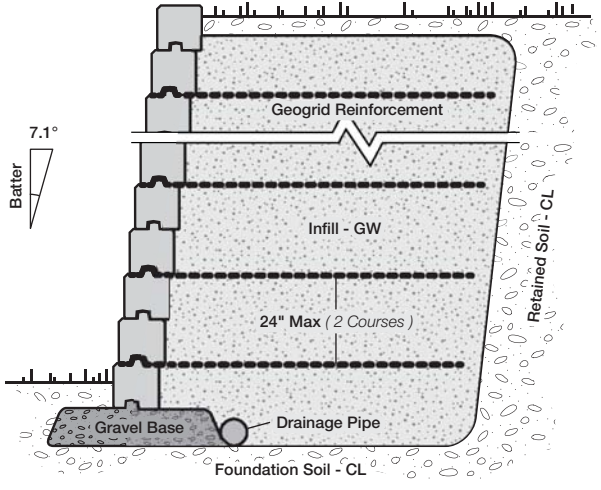
DuraHold2® | Geogrid Reinforced

NOT FOR CONSTRUCTION

Soil Condition	Description	Φ-*degrees*	Unit Weight *(g-lb/cu.ft)*
Infill (*Reinforced*)	**GW** Well graded gravel, gravel sand, max 5% fine content	35	140
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125

Drainage to be Free Draining Material in accordance with NCMA recommendations



Exposed Wall Height	Embedment	Total Wall Height	No. Geogrid Layers	**Flat** | Pedestrian Load (50psf / 2.4kPa)	**Slope** | 3H:1V	**Heavy Traffic** (250psf / 12kPa)
(ft/m)	(ft/m)	(ft/m)		Grid Length (ft/m)	Grid Length (ft/m)	Grid Length (ft/m)
3.5 / 1.07	0.5 / 0.15	4.0 / 1.22	1	4.0 / 1.22	4.0 / 1.22	4.0 / 1.22
4.5 / 1.37	0.5 / 0.15	5.0 / 1.52	1	4.0 / 1.22	4.0 / 1.22	4.5 / 1.37
5.5 / 1.68	0.5 / 0.15	6.0 / 1.83	2	4.0 / 1.22	4.5 / 1.37	4.5 / 1.37
6.3 / 1.91	0.7 / 0.22	7.0 / 2.13	2	4.5 / 1.37	5.0 / 1.52	5.0 / 1.52
7.2 / 2.19	0.8 / 0.25	8.0 / 2.44	3	5.5 / 1.68	6.0 / 1.83	6.0 / 1.83
8.1 / 2.46	0.9 / 0.28	9.0 / 2.74	3	6.0 / 1.83	7.0 / 2.13	6.5 / 1.98

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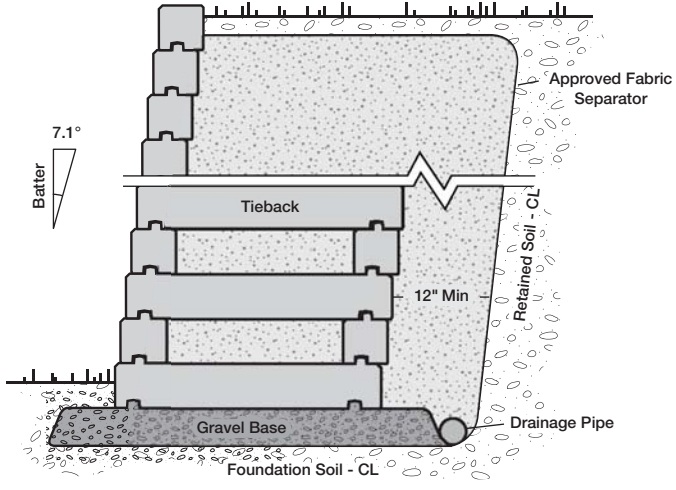
DuraHold2® | Crib Wall

NOT FOR CONSTRUCTION

Soil Condition	Description	Φ-*degrees*	Unit Weight *(g-lb/cu.ft)*
Drainage (Min. 12"/0.3m)	**GP** Free Draining Gravel, max 5% fines	-	-
Retained	**CL** Inorganic Clays, low-med plasticity	28	125
Foundation	**CL** Inorganic Clays, low-med plasticity	28	125

Drainage to be Free Draining Material in accordance with NCMA recommendations



Exposed Wall Height	Embedment	Total Wall Height	No. of Courses	**Flat** | Pedestrian Load (50psf / 2.4kPa)		**Slope** | 3H:1V		**Heavy Traffic** (250psf / 12kPa)	
(ft/m)	(ft/m)	(ft/m)		Standard	Crib	Standard	Crib	Standard	Crib
3.5 / 1.07	0.5 / 0.15	4.0 / 1.22	4	2	2	2	2	2	2
4.5 / 1.37	0.5 / 0.15	5.0 / 1.52	5	2	3	2	3	2	3
5.5 / 1.68	0.5 / 0.15	6.0 / 1.83	6	2	4	2	4	2	4
9.0 / 2.74	1.0 / 0.30	10.0 / 3.05	10	2	8	2	8	2	8
13.5/ 4.11	1.5 / 0.46	15.0 / 4.57	15	2	13	-	-	2	13
16.2 / 4.94	1.8 / 0.55	18.0 / 5.49	18	2	16	-	-	-	-

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