ICC-ES Evaluation Report

ESR-1959

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DIVISION: 32 00 00—EXTERIOR IMPROVEMENTS **Section: 32 32 23—Segmental Retaining Walls**	**REPORT HOLDER:** **ANCHOR WALL SYSTEMS** **ADDITIONAL LISTEE:** **SIERRA, AN OLDCASTLE COMPANY**	**EVALUATION SUBJECT:** **ANCHOR WALL RETAINING WALL SYSTEMS**	

1.0 EVALUATION SCOPE

Compliance with the following codes:

■ 2021, 2018, 2015, 2012 and 2009 and 2006 *International Building Code®* (IBC)

Property evaluated:

■ Physical properties

2.0 USES

The Anchor Wall Retaining Wall Systems consist of modular concrete units for the construction of conventional gravity or geogrid-reinforced-soil retaining walls, with or without a mass of reinforced soil, stabilized by horizontal layers of geosynthetic reinforcement materials.

3.0 DESCRIPTION

3.1 Anchor Wall Units:

Anchor Wall concrete units are available in seven configurations: Vertica, Vertica Pro, Diamond, Diamond Pro, Diamond Pro Pinned System, Highland and GeoHold Pro. Vertica, Vertica Pro, Diamond, Diamond Pro and Diamond Pro Pinned System units have either a straight or beveled face profile; the Vertica, Vertica Pro, Diamond and Diamond Pro cap and corner units have a straight profile; the Highland units have a straight profile. GeoHold Pro has a groove near the front face of the block. The groove is provided for installation of a polymeric pipe which may be used to enhance the connection between the geogrid reinforcing elements and the facing blocks. The Diamond Pro Pinned System comes with pre-formed holes used to insert fiberglass alignment pins.

To provide setbacks/batters, the GeoHold Pro, Vertica, and Vertica Pro units have lugs on the top, the Diamond, Diamond Pro and Highland units have a rear-lip system, and the Diamond Pro Pinned System comes with pre-formed holes. See Figure 1 for configurations, dimensions, and nominal weights. The nominal unit weights, noted in Table 1, are to be used in design.

All units are made with normal-weight aggregates and comply with ASTM C1372, with a minimum 28-day compressive strength of 3,500 psi on the net area in accordance with Anchor Wall Systems quality documentation.

3.2 Unit Core and Drainage Fill:

Unit core and drainage fill must be $^{3}/_{4}$- to 1-inch (19 to 25 mm) crushed stones with no fines, placed inside the unit cores and between and behind the units. The unit core fill provides additional weight to the completed wall section, for stability, as well as local drainage at the face of the structure and a filter zone to keep the backfill soils from filtering out through the space between units.

3.3 Geogrid:

The geogrid materials listed in Table 3 are proprietary materials used to increase the height of the Anchor Wall System above the height at which the wall is stable under its self-weight as a gravity system. Geogrids are synthetic materials specifically designed for use as soil reinforcement.

3.4 Connection Pipe:

When required by the design, the connection pipe used for the GeoHold Pro connection system must be $^{3}/_{4}$-inch diameter (19.1 mm) Schedule 80 PVC pipe conforming to ASTM D1785. The connection pipe fits into the groove of the GeoHold Pro units. When the pipe is utilized, the geogrid is wrapped around the PVC pipe and extended back over the block and into the soil to enhance the connection between the soil reinforcement and facing blocks.

3.5 Fiberglass Pins:

Pultruded fiberglass pins used with the Diamond Pro Pinned System provide alignment of the units during placement, positive placement of the geogrid reinforcement, and enhance inter-unit shear strength. The connection pins are 0.5 inch in diameter and 5.0 inches long, and have a minimum short beam shear strength of 6,400 psi (44 MPa).

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 General: Structural calculations must be submitted to the code official for each wall system installation. The system must be designed as a gravity or reinforced-soil retaining wall that depends on the weight and geometry of the concrete units and soil to resist lateral earth pressures and other lateral forces. Lateral earth pressures are determined using either Coulomb or Rankine earth pressure theory. The design must include evaluation of both external and internal stability of the structure and include consideration of external loads such as surcharges and seismic forces, as applicable.

External stability analysis must be similar to that required for conventional retaining walls, and must consider base (lateral) sliding, overturning, bearing capacity (and excessive settlement), and overall (deep-seated) slope stability. Internal stability analysis of segmental retaining walls (SRWs) without geogrid-reinforced soil must consider movement between courses. Internal stability analysis of SRWs with geogrid-reinforced soil must consider the maximum allowable reinforcement tension, pull-out resistance of reinforcement behind the active failure zone (excessive movement of geosynthetic through the reinforced soil zone), and the connection strength of geosynthetic reinforcement material to the SRW concrete units or blocks, and movement between courses.

Minimum safety factors used in design (for external stability check) for SRWs, with and without a geogrid-reinforced soil mass, must be 1.5 for deep-seated (global) stability and 2.0 for bearing capacity. The minimum safety factors must be 1.5 for lateral sliding and 2.0 for overturning for SRWs with a geogrid-reinforced soil mass. The minimum safety factors against lateral sliding and overturning must be 1.5 (2021, 2018, 2015, 2012 and 2009 IBC Section 1807.2.3 and 2006 IBC Section 1806.1, as applicable), for SRWs without a reinforced soil mass. Minimum safety factors used in design (for internal stability) must be 1.5 for peak connection strength between the geosynthetic material and SRW units, and for peak shear strength between SRW units with or without geosynthetic material. Seismic safety factors for all limit states related to SRW design may be 75 percent of the corresponding minimum allowable static safety factors.

A site-specific soils investigation report in accordance with 2021, 2018, 2015, 2012, 2009 IBC Section 1803 or 2006 IBC Section 1802, as applicable, is required. The soils investigation report must specify the ultimate tensile strength, long-term design strength and allowable tensile strength of the geosynthetic reinforcement material and the soil-reinforcement and interaction coefficients, including the coefficient of interaction for pullout and coefficient of direct sliding. The soils investigation report must also specify safety factors for tensile rupture and pullout of the geosynthetic reinforcement. Where the wall is assigned to Seismic Design Category (SDC) C, D, E or F, the site-specific soils report must include the information as required by 2021, 2018, 2015, 2012 and 2009 IBC Section 1803.5.11. Where the wall is assigned to Seismic Design Category (SDC) D, E or F, the site-specific soils report must include the information as required by 2021, 2018, 2015, 2012 and 2009 IBC Section 1803.5.12. Where the wall is located in an area subject to the 2006 IBC, in Sesmic Design Category (SDC) C, the site-specific soils report must include the information as required by 2006 IBC Section 1802.2.6. Where the wall is located in an area subject to the 2006 IBC, in Sesmic Design Category (SDC) D, E or F, the site-specific soils report must include the information as required by 2006 IBC Section 1802.2.7.

The design of the Anchor Wall retaining wall must be based on accepted geotechnical principles for gravity and soil-reinforced structures.

4.1.2 Gravity Retaining Walls: The gravity wall system relies on the weight and geometry of the Anchor Wall units to resist lateral earth pressures. Gravity wall design is based on standard engineering principles for modular concrete retaining walls. Inter-unit shear capacity equations are provided in Table 2.

4.1.3 Geogrid-reinforced Retaining Walls:

4.1.3.1 General: The geogrid-reinforced soil system relies on the weight and geometry of the Anchor Wall units and the reinforced soil mass to act as a coherent gravity mass to resist lateral earth pressures. The design of a reinforced soil structure is specific to the Anchor Wall unit selected, soil reinforcement strength and soil interaction, soil strength properties, and structure geometry. Figure 2 shows typical component details.

4.1.3.2 Structural Analysis: Structural analysis must be based on accepted engineering principles and the IBC. The analysis must include all items noted in Sections 4.1.3.2.1 and 4.1.3.2.2 of this report. All contact surfaces of the units must be maintained in compression.

4.1.3.2.1 External Stability Analysis:

1. The minimum length of the reinforced mass is 0.6 times the height of the wall (as measured from the top of the leveling pad to the top of the wall) or as required to satisfy a safety factor of 1.5 on sliding at the base, whichever is greater.
2. The minimum safety factor for overturning the reinforced mass is 2.0, considering the mass as a rigid body rotating about the toe of the wall.
3. Global stability analysis must be provided for walls with slopes below the toe of the wall, walls on soft foundations, walls that will be designed for submerged conditions, or tiered walls.
4. After completion of the internal stability analysis and geogrid layout, sliding along each respective geogrid layer must be checked, including shearing through the connection at the wall face.

4.1.3.2.2 Internal Stability Analysis:

1. Geogrid spacing must be based on local stability of the Anchor Wall units during construction. Vertical spacing is typically limited to two times the depth of the unit.
2. Tension calculations for each respective layer of reinforcing must be provided. Tension is based on the earth pressure and surcharge load calculated from halfway to the layer below to halfway to the layer above. Calculated tension must not exceed the allowable geogrid strength.
3. Connection capacity must be checked for each connection of geogrid to the Anchor Wall (see Table 3). The calculated connection capacity must be equal to or greater than the calculated tension for each layer.
4. A calculation check must be made on pullout of the upper layers of geogrid from the soil zone beyond the theoretical Coulomb or Rankine failure plane. The pullout capacity must be equal to or greater than the calculated tension after the applicable geogrid interaction and sliding coefficient adjustment factors are applied.

4.2 Installation:

The wall system units are assembled in a running bond pattern, except for the Highland Stone units, which are assembled in a random bond pattern. The wall system units are assembled without mortar or grout, and are stacked and aligned at the design setback/batter using the vertical lip at the lower rear edge, except for the GeoHold Pro, Vertica and Vertica Pro units which have alignment lugs on the top surface and the Diamond Pro Pinned System which uses fiberglass pins for block alignment. The system may include horizontal layers of structural geogrid reinforcement in the backfill soil mass. Requirements for installation of the Anchor Wall Retaining Wall System are as follows:

1. Excavate for leveling pad and reinforced fill zone.
2. Inspect excavations for adequate bearing capacity of foundation soils and observation of groundwater conditions by a qualified geotechnical engineer.
3. Install a minimum 6-inch-thick (152 mm) leveling pad of crushed stone, compacted to at least 90 percent of the maximum dry density as determined by ASTM D1557 (95 percent per ASTM D698). (An unreinforced concrete pad in accordance with 2021, 2018, 2015, 2012, 2009 IBC Section 1809.8 or 2006 IBC Section 1805.4.2.3, as applicable, may be utilized in place of the crushed stone pad.)

4. Install the first course of Anchor Wall units, ensuring units are level from side to side and front to back.

   When installing Diamond Pro Pinned System, the fiberglass pins must be installed in either the 2 front (1.7 degree batter/setback) or 2 rear (7.1 degree batter/setback) pinholes on each block.

5. Units with cores must be filled with unit core drainage fill described in Section 3.2 of this report. The unit core drainage fill is required for all installations and must extend back a minimum of 6 inches (152 mm) from the back of the unit. See Figure 2.

6. Clean the top surface of the units to remove loose aggregate.

7. At designated elevations per the design, install geogrid reinforcing to within 1 inch (25.4 mm) of the outer face of the wall. Check to ensure that the proper orientation of the geogrid reinforcement is used so the strong direction is perpendicular to the face. Adjacent rolls are placed side by side; no overlap is required. Geogrids are pulled taut to remove slack from the geogrid before backfill is placed. The entire length is pulled taut to remove any folds or wrinkles.

   When using GeoHold Pro and where geogrid and PVC pipe is required, the PVC pipe must be laid in the block groove over a geogrid layer which extends beyond the groove by at least 10 inches (254 mm). Once the pipe is in position, the section of geogrid extending beyond the groove must be pulled over the pipe in preparation to receive the next block layer.

8. Place and compact backfill over the geogrid reinforcing layer in appropriate lift thickness to ensure compaction. Backfill used in the reinforced fill mass must consist of suitable fine-grained or course-grained soil placed in lifts compacted to at least 90 percent of the maximum dry density as determined by ASTM D1557 (95 percent per ASTM D698). The backfill soil properties, lift thickness, and degree of compaction must be determined by the soils engineer based on site-specific conditions. In cut-wall applications, if the reinforced soil has poor drainage properties, a granular drainage layer of synthetic drainage composite should be installed to prevent buildup of hydrostatic pressures behind the reinforced soil mass. Provisions for adequate subsurface drainage must be determined by the soils engineer. The reinforced backfill must be placed and compacted no lower than the top unit-elevation to which geogrid placement is required.

9. Report placement of units at the design setback/batter, pins, or PVC pipe (where appropriate), core fill, backfill, and geogrids, as shown on plans, to finished grade.

4.3 Special Inspection:

Special inspection must be provided in accordance with 2021, 2018, 2015 and 2012 IBC Section 1705.4, or 2009 IBC Section 1704.5, as applicable. The inspector's responsibilities include verifying the following:

1. The modular concrete unit dimensions.
2. Anchor Wall unit identification of compliance with ASTM C1372, including compressive strength and water absorption, as described in Section 3.1 of this report.
3. Product identification, including evaluation report number (ESR-1959).
4. Foundation preparation.
5. Anchor Wall unit placement, including alignment and inclination.
6. PVC pipe connections, including installation locations, proper fit within the blocks, and installation sequence with respect to the geosynthetic reinforcement placement.
7. Proper fiberglass pin installation, where required.
8. Geosynthetic reinforcement type (manufacture and model number), location and placement.
9. Backfill placement and compaction.
10. Drainage provisions and water management.

5.0 CONDITIONS OF USE:

The Anchor Wall Retaining Wall Systems described in this report comply with, or are suitable alternatives to what is specified in, the codes indicated in Section 1.0 of this report, subject to the following conditions:

5.1 The systems are designed and installed in accordance with this report, the manufacturer's published installation instructions, and accepted engineering principles. If there is a conflict between this report and the manufacturer's published installation instructions, this report governs.

5.2 The wall design calculations are submitted to, and approved by, the code official. The calculations must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

5.3 A site-specific soils investigation in accordance with 2021, 2018, 2015, 2012, 2009 IBC Section 1803 or 2006 IBC Section 1802, as applicable, as noted in Section 4.1.1 of this report, must be provided for each project site.

5.4 In areas where repeated freezing and thawing under saturated conditions occur, evidence of compliance with freeze-thaw durability requirements of ASTM C1372 must be furnished to the code official for approval prior to construction.

5.5 Special inspection must be provided for backfill placement and compaction, geogrid placement (when applicable), and block installation, in accordance with Section 4.3 of this report.

5.6 Details in this report are limited to areas outside of groundwater. For applications where free-flowing groundwater is encountered, or where wall systems are submerged, the installation and design of systems must comply with the recommendations of the soils engineer and the appropriate sections of the NCMA Design Manual for Segmental Retaining Walls, and must be approved by the code official.

5.7 Under the 2021 IBC, project specifications or soil and water conditions that have sulfate concentrations identified in ACI 318-19 Table 19.3.1.1 as severe (S2) or very severe (S3), shall include mix designs for the concrete masonry and grout that comply with the content of ACI 318-19 Table 19.3.1.1.

5.8 Under the 2018 and 2015 IBC, project specifications or soil and water conditions that have sulfate concentrations identified in ACI 318-14 Table 19.3.1.1 as severe (S2) or very severe (S3), shall include mix designs for the concrete masonry and grout that comply with the content of ACI 318-14 Table 19.3.1.1.

5.9 Under the 2012 IBC project specifications or soil and water conditions that have sulfate concentrations identified in ACI 318-11 Table 4.2.1 as severe (S2) or very severe (S3), shall include mix designs for the concrete masonry and grout that comply with the content of ACI 318-11 Table 4.3.1.

5.10 Under the 2009 IBC, project specifications for soil and water conditions that have sulfate concentrations identified in ACI 318-08 Table 4.2.1 as severe or very severe, shall include mix designs for the concrete masonry and grout that comply with the content of ACI 318-08 Table 4.3.1. See 2009 IBC Section 1904.5.

5.11 Under the 2006 IBC, project specifications for soil and water conditions that have sulfate concentrations identified in ACI 318-05 Table 4.3.1 as severe or very severe, shall include mix designs for the concrete masonry and grout that comply with the content of ACI 318-05 Table 4.3.1. See 2006 IBC Section 1904.3.

5.12 This report evaluates only the connection strength of the geogrid material when attached to the concrete units. Physical properties of the geogrid material or its interaction with the soil have not been evaluated.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Segmental Retaining Walls (AC276), dated April 2021.

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-1959) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.

7.2 In addition, each pallet of concrete units is identified with one of the listees' name and address, and the name of the product.

7.3 The report holder's contact information is the following:

ANCHOR WALL SYSTEMS
5909 BAKER ROAD, SUITE 550
MINNETONKA, MINNESOTA 55345-5996
(800) 473-4452
www.anchorwall.com

7.4 The Additional Listee's contact information is the following:

SIERRA, AN OLDCASTLE COMPANY
10714 POPLAR AVENUE
FONTANA, CALIFORNIA 92337
(909) 355-6422

TABLE 1—ANCHOR WALL UNITS NOMINAL WEIGHTS

PRODUCT		NOMINAL WEIGHT[1] (lbf)
Diamond		70
Diamond Pro		73
Diamond Pro Pinned System		75
Highland Stone	Small	30
	Medium	60
	Large	79
Vertica		90
Vertica Pro		118
GeoHold Pro		67

For SI: 1 lbf = 4.448 N.

[1]The unit weight has a ±5 percent tolerance.

TABLE 2—INTER-UNIT SHEAR RESISTANCE EQUATIONS[1]

UNIT		PEAK SHEAR STRENGTH (pounds/linear foot)		SERVICEABILITY SHEAR STRENGTH (pounds/linear foot)	
		Equation	Maximum	Equation	Maximum
WITHOUT GEOGRID					
Vertica		F = 6530 + 0.91 N	10170	F = 1625 + 0.17 N	2250
Vertica Pro		F = 4650 + 0.37 N	7009	F = 2323 + 0.19 N	3494
Diamond		F = 2179 + 0.58 N	3055	F = 1532 + 0.27 N	1804
Diamond Pro		F = 83 + 2.04 N	2485	F = 118 + 1.56 N	1682
		F = 2299 +0.19 N	2485 to 3043	F = 1323 + 0.36 N	1682 to 2760
Diamond Pro Pinned System		F = 1145 + 0.89N	4687	F = 408 + 0.77N	3647
Highland		F = 876 + 1.21 N	2689	F = 456 + 0.63 N	1363
GeoHold Pro		F = 620 + 0.7 N	2873	F = 176 + 0.4 N	1380
WITH GEOGRID					
Vertica	Miragrid 3XT	P = 5138 + 0.92 N	8816	P = 1037 + 0.35 N	2446
	Miragrid 8XT	P = 6516 + 0.36 N	7940	P = 1557 + 0.15 N	2141
Vertica Pro	Miragrid 3XT	P = 5416 + 0.23 N	6354	P = 2144 + 0.40 N	3624
	Miragrid 10XT	P = 4755 + 0.31 N	6002	P = 1980 + 0.44 N	3694
Diamond	Miragrid 3XT	P = 1661 + 0.45 N	2332	P = 1322 + 0.39 N	1837
	Miragrid 5XT	P = 1505 + 0.61 N	2365	P = 1173 + 0.39 N	1752
Diamond Pro	Miragrid 3XT	P = 1795 + 0.13 N	2323	P = 668 + 0.35 N	2060
	Miragrid 8XT	P = 2283 + 0.19 N	3017	P = 929 + 0.32 N	2197
	Stratagrid SGU 60	P = 1219 + 0.71N	3100	P = 1095 + 0.50N	2598
	Stratagrid SGU 80	P = 1063 + 0.71N	3600	P = 994 + 0.42N	2509
	Stratagrid SGU 120	P = 997 + 0.72N	4021	P = 615 + 0.63N	3113
Diamond Pro Pinned System	Miragrid 3XT	P = 1189 + 0.71N	3324	P = 343 + 0.76 N	2347
	Miragrid 5XT	P = 978 + 0.99N	4548	P = 821 + 0.68N	3274
	Miragrid 8XT	P = 1549 + 0.66N	4180	P = 741 + 0.67N	3550
	Stratagrid SGU 60	P = 1233 + 0.91N	3902	P = 603 + 0.80N	2997
	Stratagrid SGU 80	P = 1399 + 0.79N	4120	P = 1017 + 0.58N	2987
	Stratagrid SGU 120	P = 1468 + 0.77N	4702	P = 798 + 0.71N	3780
Highland	Miragrid 3XT	P = 1162 + 0.74 N	2271	P = 728 + 0.36 N	1268
	Miragrid 5XT	P = 980 + 0.52 N	1695	P = 648 + 0.38 N	1201
GeoHold Pro	Miragrid 3XT	P = 509 + 0.4 N	1580	P = 115 + 0.4 N	1240
	Miragrid 10XT	P = 572 + 0.5 N	2040	P = 128 + 0.4 N	1440

For **SI:** 1 lb/linear ft. = 14.6 N/m.

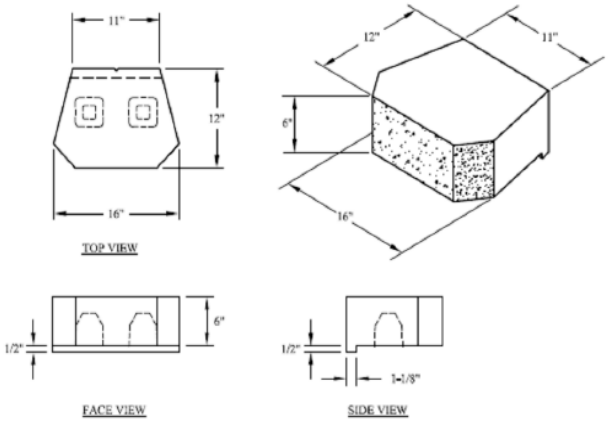
[1]The inter-unit service-state shear resistance, F [lb/linear foot of block (N/m)], of the Anchor Wall units at any depth is a function of the superimposed normal (applied) load, N [lb/linear foot of block (N/m)].

TABLE 3—GEOGRID-TO-BLOCK PULLOUT RESISTANCE EQUATIONS[1]

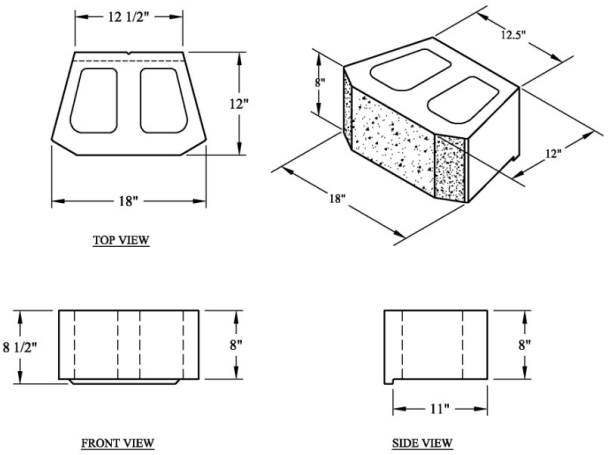
GEOGRID		PEAK CONNECTION STRENGTH (pounds/linear foot)		SERVICEABILITY CONNECTION STRENGTH (pounds/linear foot)	
		Equation	Maximum	Equation	Maximum
Vertica	Miragrid 3XT	P = 873 + 0.27 N	1940	P = 663 + 0.21 N	1480
	Miragrid 8XT	P = 944 + 0.28 N	2040	P = 618 + 0.30 N	1810
Vertica Pro	Miragrid 3XT	P = 1153 + 0.45 N	2275	P = 752 + 0.23 N	1322
		P = 2283 - 0.004 N	2275 to 2261	P = 1357 - 0.014 N	1322 to 1264
	Miragrid 10XT	P = 1707 + 0.35 N	3983	P = 1331 + 0.20 N	2598
Diamond	Miragrid 3XT	P = 757 + 0.27 N	1159	P = 504 + 0.24 N	859
	Miragrid 5XT	P = 930 + 0.42 N	1525	P = 547 + 0.35 N	1069
Diamond Pro	Miragrid 3XT	P = 889 + 0.48 N	1370	P = 698 + 0.20 N	1482
		P = 1301 + 0.06 N	1370 to 1578		
	Miragrid 8XT	P = 607 + 1.32 N	1928	P = 144 + 1.45 N	1595
		P = 1786 + 0.14 N	1928 to 2354	P = 1514 + 0.08 N	1595 to 1835
	Stratagrid SGU 60	P = 1310 + 0.11N	1593	P = 1052 + 0.18N	1593
	Stratagrid SGU 80	P = 1385 + 0.31N	2417	P = 995 + 0.38N	2280
	Stratagrid SGU 120	P = 1833 + 0.52N	3840	P = 1198 + 0.52N	3307
Diamond Pro Pinned System	Miragrid 3XT	P = 1349 + 0.26N	2003	P = 655 + 0.14N	1020
	Miragrid 5XT	P = 1476 + 0.29N	2370	P = 536 + 0.25N	1287
	Miragrid 8XT	P = 1172 + 0.54N	3280	P = 807 + 0.28N	1850
	Stratagrid SGU 60	P = 1106 + 0.30N	1800	P = 815 + 0.29N	1630
	Stratagrid SGU 80	P = 1335 + 0.34N	2480	P = 1193 + 0.23N	1850
	Stratagrid SGU 120	P = 1587 + 0.54N	3773	P = 1205 + 0.36N	2597
Highland	Miragrid 3XT	P = 779 + 0.46 N	1428	P = 477 + 0.41 N	1103
	Miragrid 5XT	P = 970 + 0.37 N	1519	P = 575 + 0.42 N	1206
GeoHold Pro	Miragrid 3XT without connection pipe	P = 1025 + 0.2 N	1723	P = 832 + 0.1 N	1215
	Miragrid 8XT without connection pipe	P = 1139 + 0.4 N	2537	P = 837 + 0.2 N	1702
	Miragrid 8XT with connection pipe	P = 1456 + 0.4 N	2736	P = 525 + 0.3 N	1424
	Miragrid 10XT without connection pipe	P = 1018 + 0.4 N	2662	P = 645 + 0.3 N	1663
	Miragrid 10XT with connection pipe	P = 1201 + 0.6 N	3021	P = 496 + 0.3 N	1732

For **SI:** 1 lb/linear ft. = 14.6 N/m.

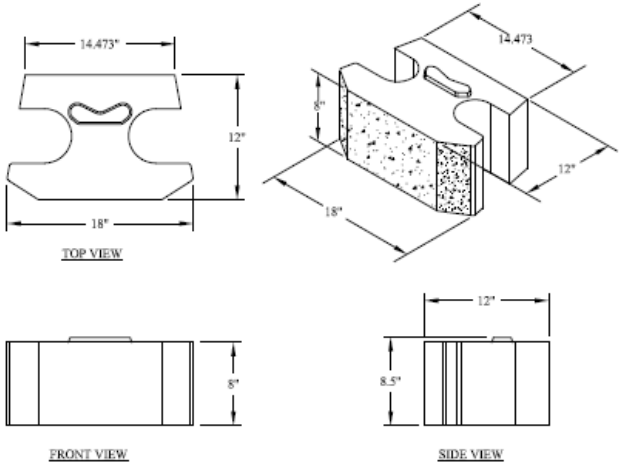
[1]Where N = superimposed normal (applied) load (lb/linear foot of geogrid).



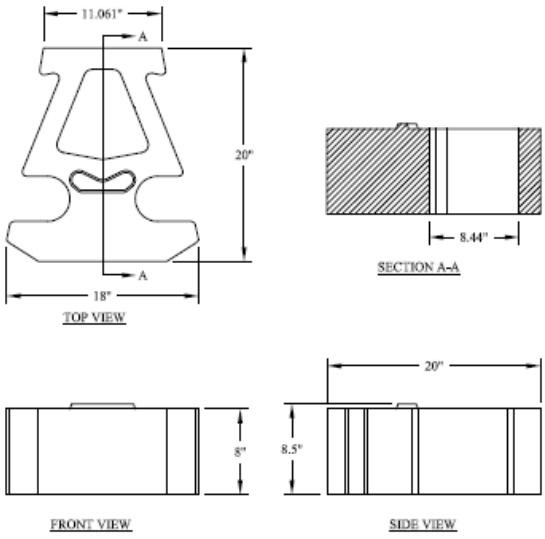
DIAMOND BLOCK

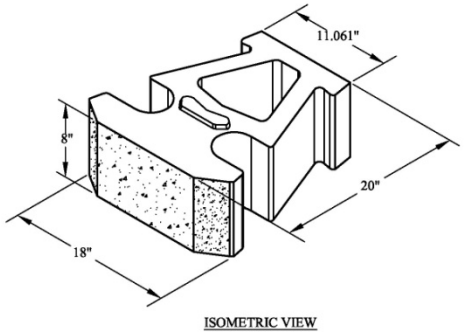


DIAMOND PRO BLOCK

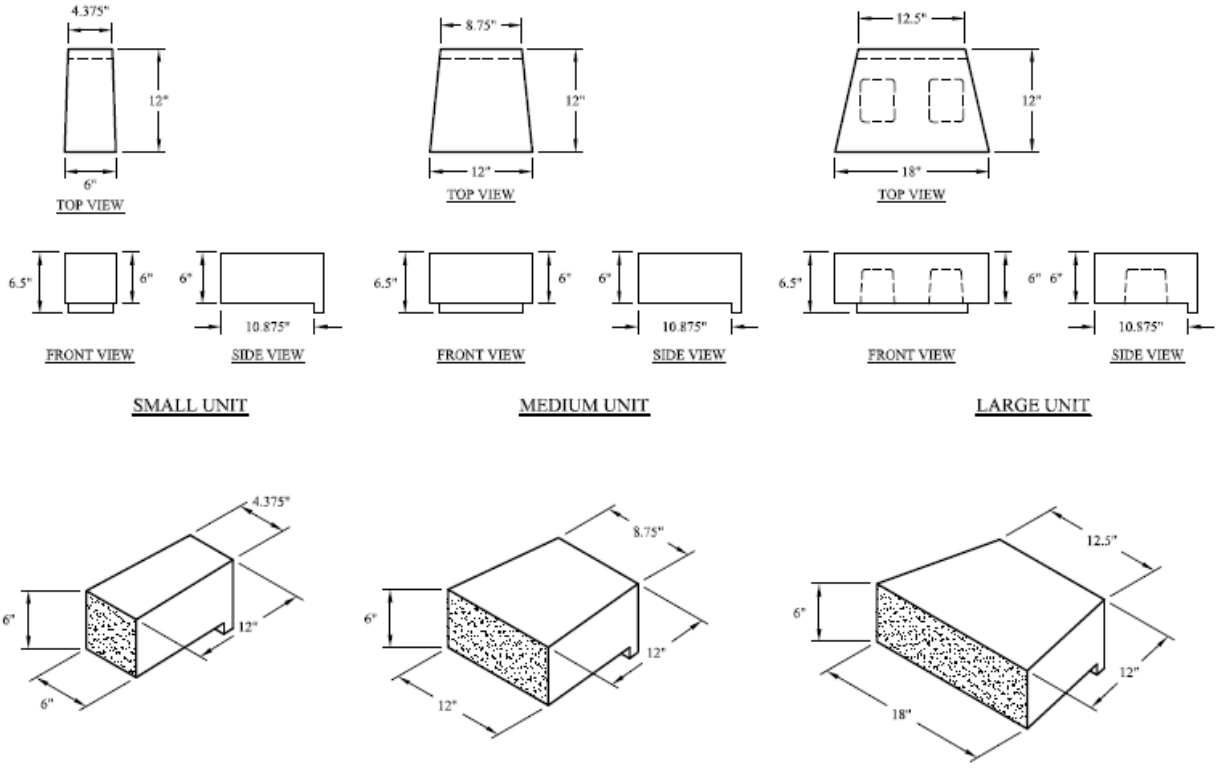


VERTICA BLOCK

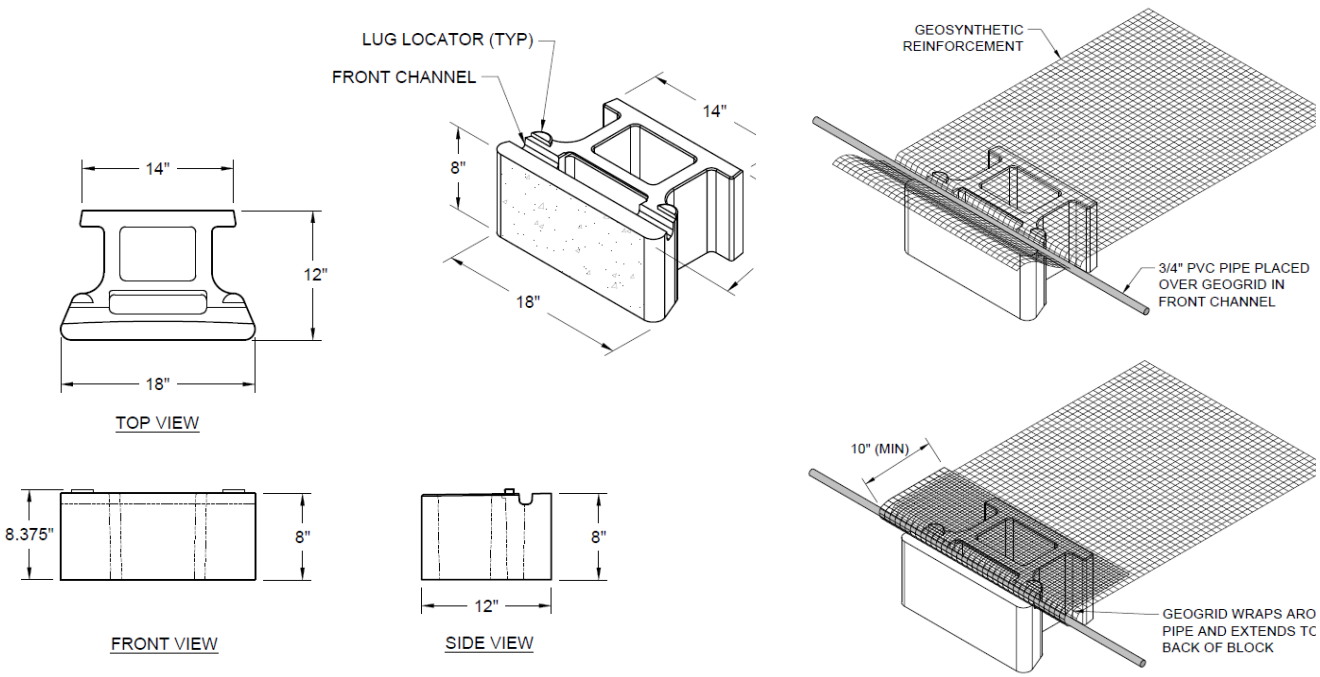




VERTICA PRO BLOCK

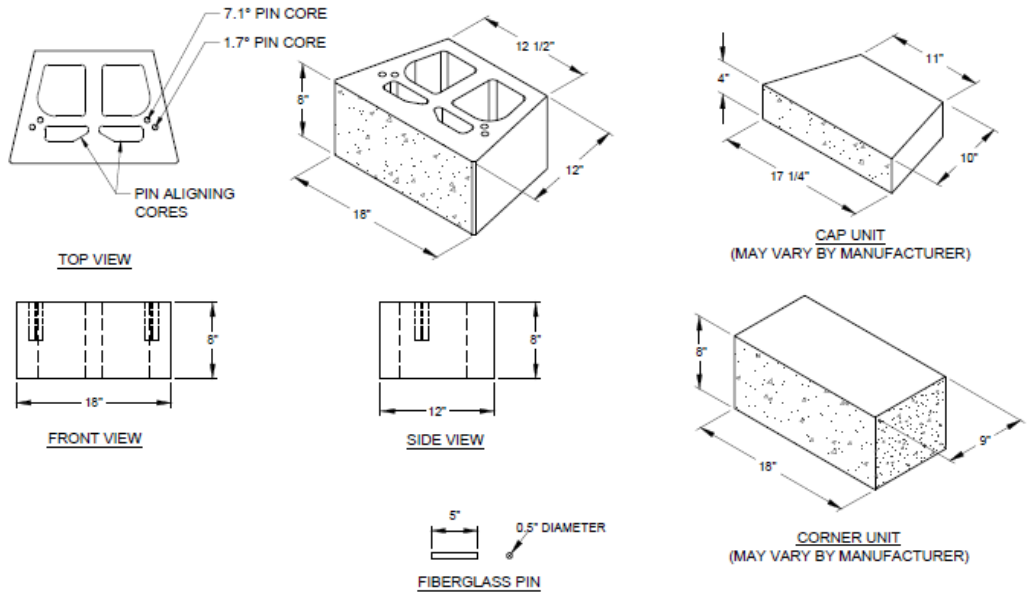


HIGHLAND STONE BLOCK



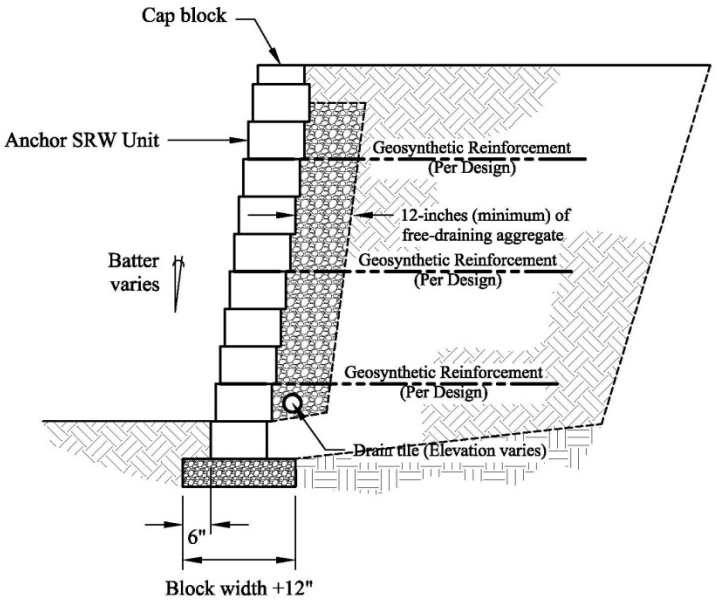
GEOHOLD PRO BLOCK

FIGURE 1—ANCHOR WALL BLOCK UNITS (CONTINUED)



DIAMOND PRO PINNED SYSTEM

FIGURE 1—ANCHOR WALL BLOCK UNITS (CONTINUED)



For **SI:** 1 inch = 25.4 mm.

FIGURE 2—TYPICAL WALL SECTION