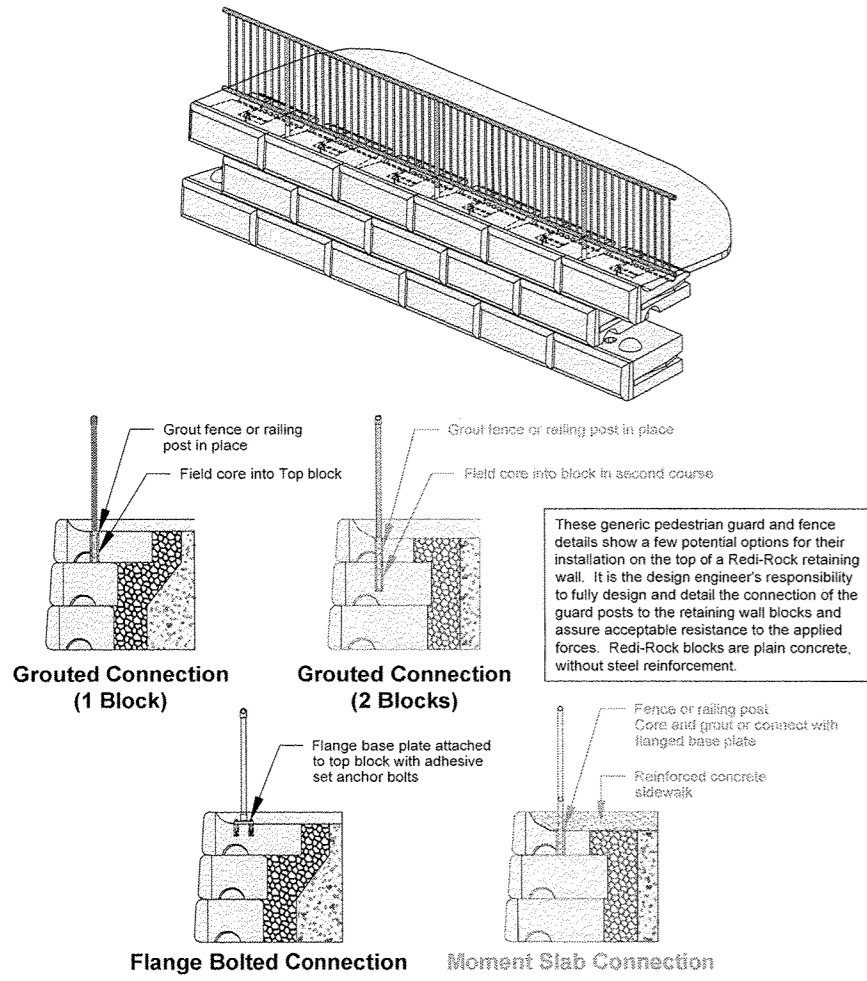


Fence or Pedestrian Guard Connection Options



These generic pedestrian guard and fence details show a few potential options for their installation on the top of a Red-Rock retaining wall. It is the design engineer's responsibility to fully design and detail the connection of the guard posts to the retaining wall blocks and assure acceptable resistance to the applied forces. Red-Rock blocks are plain concrete, without steel reinforcement.

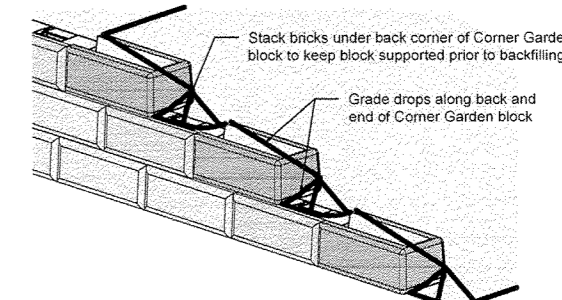
This drawing is for reference only. Determination of the suitability and/or manner of use of any details contained in this document is the sole responsibility of the design engineer of record. Final project designs, including all construction details, shall be prepared by a licensed professional engineer using the actual conditions of the proposed site.

DRAWN BY: JRJ	TITLE: Fence or Pedestrian Guard Connection Options	<p>05481 US 31 SOUTH, CHARLEVOIX, MI 49720 (989) 222-8400 ext 3010 • engineering@red-rock.com www.red-rock.com</p>
APPROVED BY: JRJ	FILE: 5 Fence or Pedestrian Guard Connection Options 062215.dwg	
DATE: 06-22-2015	SHEET: 1 of 1	

GENERAL NOTES

- THE OWNER OR OWNERS REPRESENTATIVE MUST RETAIN A GEOTECHNICAL ENGINEER/CONSTRUCTION TESTING FIRM TO EVALUATE THE FOUNDATION SOILS PRIOR TO CONSTRUCTION. UNSUITABLE SOILS (IF ANY), AS DETERMINED BY THE OWNER'S GEOTECHNICAL ENGINEER, SHALL BE REMOVED AND REPLACED WITH PROPERLY COMPACTED FILL SOIL AS DIRECTED BY THE OWNER'S GEOTECHNICAL ENGINEER. UNSUITABLE SOILS ARE DEFINED AS ANY SOIL THAT DOES NOT HAVE SUFFICIENT BEARING CAPACITY OR WILL CAUSE EXCESSIVE WALL SETTLEMENT.
- THE OWNER OR OWNER'S REPRESENTATIVE HAS NOT PROVIDED PRELIMINARY SOIL PARAMETERS FOR THIS SEGMENTAL RETAINING WALL DESIGN. DESIGN SOIL PARAMETERS HAVE BEEN ESTIMATED. IT IS THE RESPONSIBILITY OF THE GEOTECHNICAL TESTING REPRESENTATIVE TO VERIFY THE ASSUMED SOIL STRENGTH PARAMETERS ARE REPRESENTATIVE OF THE SOILS AVAILABLE FOR WALL CONSTRUCTION. IF THE SOIL STRENGTH PARAMETERS ARE FOUND TO BE INCONSISTENT WITH THOSE ASSUMED BY THE FOLLOWING DATA, THESE VALUES ARE NO LONGER VALID AND IT IS THE RESPONSIBILITY OF THE OWNER OR OWNER'S REPRESENTATIVE TO REQUEST RECOMMENDATIONS OR ADDITIONAL DATA FOR THE GEOTECHNICAL ENGINEER SO THE RETAINING WALL SYSTEM CAN BE RE-DESIGNED EFFECTIVELY.
- ASSUMED RETAINED SOIL: SILTY LEAN CLAY (ML-CL), $\phi=26^\circ$, $\gamma=120$ PCF; DRAINAGE COLUMN AND REINFORCED MATERIAL COARSE AGGREGATE IDOT CA-7 (AASHTO No.57)(GP), $\phi=38^\circ$, $\gamma=105$ PCF; ASSUMED FOUNDATION SOIL SILTY LEAN CLAY (ML-CL), $\phi=26^\circ$, $\gamma=120$ PCF, $c=50$ PSF
- ANY EXCAVATION, UNDERCUT, BELOW THE WALL SHOULD HAVE PROPER 1:1 LATERAL OVERSIZING. EXCAVATION OVERSIZING SHOULD BE MEASURED FROM THE FRONT OF THE GRAVEL LEVELING PAD AND THE BACK OF THE DRAINAGE COLUMN.

Top of Wall Step Options

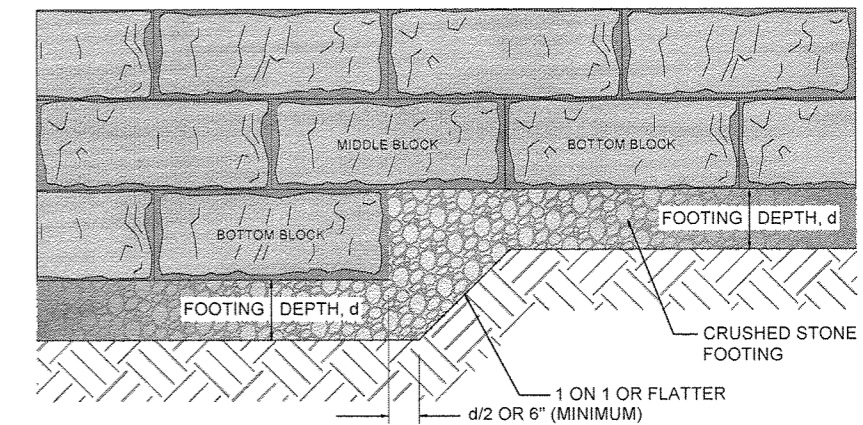


Alternate Garden Block Placement

This drawing is for reference only. Determination of the suitability and/or manner of use of any details contained in this document is the sole responsibility of the design engineer of record. Final project designs, including all construction details, shall be prepared by a licensed professional engineer using the actual conditions of the proposed site.

DRAWN BY: JRJ	TITLE: Top of Wall Step Options	<p>05481 US 31 SOUTH, CHARLEVOIX, MI 49720 (989) 222-8400 ext 3010 • engineering@red-rock.com www.red-rock.com</p>
APPROVED BY: JRJ	FILE: 1 Top of Wall Step Options 062215.dwg	
DATE: 06-22-2015	SHEET: 1 of 1	

STEP FOOTING DETAILS



PROFILE VIEW - CRUSHED STONE FOOTING (No Scale)

DRAWN BY: JRJ	TITLE: Step Footing Details	<p>05481 US 31 SOUTH, CHARLEVOIX, MI 49720 (989) 222-8400 ext 3010 • engineering@red-rock.com www.red-rock.com</p>
APPROVED BY: JRJ	FILE: 6 Step Footing Details 062215.dwg	
DATE: 06-22-2015	SHEET: 1 of 1	

Face Texture	Cobble / Limestone	Ledgestone	Face Texture	Cobble / Limestone	Ledgestone	Face Texture	Cobble / Limestone	Ledgestone	Face Texture	Cobble / Limestone	Ledgestone
Block Weight:	1567 lb (704 kg)	1124 lb (510 kg)	867 lb (398 kg)	824 lb (374 kg)	1229 lb (557 kg)	1158 lb (525 kg)	1162 lb (529 kg)	1096 lb (497 kg)	1232 lb (559 kg)	1070 lb (480 kg)	1060 lb (480 kg)
Block Volume:	8.88 ft ³ (0.251 m ³)	7.86 ft ³ (0.223 m ³)	6.76 ft ³ (0.191 m ³)	5.76 ft ³ (0.163 m ³)	8.57 ft ³ (0.243 m ³)	8.07 ft ³ (0.229 m ³)	8.18 ft ³ (0.231 m ³)	7.66 ft ³ (0.217 m ³)	9.61 ft ³ (0.272 m ³)	7.5 ft ³ (0.212 m ³)	7.4 ft ³ (0.211 m ³)
Center of Gravity:	14.8" (378 mm)	14.2" (362 mm)	14.8" (378 mm)	14.8" (378 mm)	15.2" (388 mm)	14.8" (372 mm)	15.2" (388 mm)	14.8" (372 mm)	15.2" (388 mm)	14.8" (372 mm)	14.8" (372 mm)

Face Texture	Cobble / Limestone	Ledgestone	Face Texture	Cobble / Limestone	Ledgestone	Face Texture	Cobble / Limestone	Ledgestone	Face Texture	Cobble / Limestone	Ledgestone
Block Weight:	1613 lb (732 kg)	1542 lb (699 kg)	1518 lb (689 kg)	1447 lb (656 kg)	1872 lb (848 kg)	1802 lb (828 kg)	1870 lb (850 kg)	1390 lb (630 kg)	1360 lb (617 kg)	1370 lb (620 kg)	1360 lb (617 kg)
Block Volume:	11.28 ft ³ (0.319 m ³)	10.78 ft ³ (0.305 m ³)	10.62 ft ³ (0.301 m ³)	10.12 ft ³ (0.287 m ³)	14.28 ft ³ (0.404 m ³)	13.84 ft ³ (0.391 m ³)	14.28 ft ³ (0.404 m ³)	9.84 ft ³ (0.279 m ³)	9.5 ft ³ (0.271 m ³)	9.5 ft ³ (0.271 m ³)	9.5 ft ³ (0.271 m ³)
Center of Gravity:	13.9" (354 mm)	13.4" (340 mm)	14.2" (360 mm)	13.6" (346 mm)	14.2" (360 mm)	14.2" (360 mm)	14.2" (360 mm)	14.2" (360 mm)	14.2" (360 mm)	14.2" (360 mm)	14.2" (360 mm)

Face Texture	Cobble / Limestone	Ledgestone	Face Texture	Cobble / Limestone	Ledgestone	Face Texture	Cobble / Limestone	Ledgestone	Face Texture	Cobble / Limestone	Ledgestone
Block Weight:	1744 lb (791 kg)	1672 lb (758 kg)	1622 lb (736 kg)	1551 lb (703 kg)	1932 lb (876 kg)	1862 lb (846 kg)	1932 lb (876 kg)	1381 lb (626 kg)	1406 lb (640 kg)	1519 lb (693 kg)	1480 lb (670 kg)
Block Volume:	12.19 ft ³ (0.345 m ³)	11.70 ft ³ (0.331 m ³)	11.34 ft ³ (0.321 m ³)	10.85 ft ³ (0.307 m ³)	16.65 ft ³ (0.469 m ³)	16.65 ft ³ (0.469 m ³)	16.65 ft ³ (0.469 m ³)	10.65 ft ³ (0.302 m ³)	9.66 ft ³ (0.273 m ³)	10.5 ft ³ (0.300 m ³)	10.3 ft ³ (0.293 m ³)
Center of Gravity:	14.0" (355 mm)	13.5" (343 mm)	14.2" (362 mm)	13.7" (349 mm)	14.2" (362 mm)	14.2" (362 mm)	14.2" (362 mm)	14.2" (362 mm)	14.2" (362 mm)	14.2" (362 mm)	14.2" (362 mm)

- Units for dimensions are inches (mm), typical unless noted otherwise.
- Confirm block production with licensed Red-Rock manufacturer.
- Variable radius feature can be cast on only one end, coordinate.
- Architectural faces on the blocks have varying texture.
- Actual block volumes and weights may vary.
- Weights are based upon a concrete density of 143 lb/ft³ (229 kg/m³).
- Knobs are typically 10" (254 mm) diameter by 4" (102 mm) tall. Smaller knobs are available.
- Blocks contain a vertical slot for a 12" (300 mm) strip of geogrid soil reinforcement.
- Interface Shear knobs are typically 10" (254 mm) diameter by 4" (102 mm) tall. Smaller knob diameters are available.

BWL	<p>Block Library FREESTANDING BLOCKS</p> <p>Red-Rock Block Library 062215.dwg</p>
JRJ	

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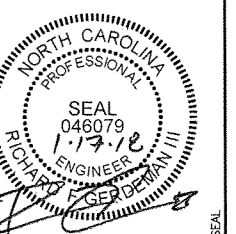
MORRISVILLE PROJECT # : 17-11000001 FILE # : 17-0001-S/C

Town of Morrisville
 APPROVED FOR CONSTRUCTION

Signature: _____ Date: _____
 Town of Morrisville, Town Engineer

Signature: *[Signature]* Date: 5/23/18
 Planning

Signature: *[Signature]* Date: 5/23/18
 Other (specify):



REVISION	DATE	No.

PROJECT No: 075356
 DATE: 01/17/18
 DES. DR. CKD.
 11301 Carmel Commons Blvd.
 Suite 300
 Charlotte, NC 28226
 704.525.6284
 FAX: 704.525.6529



SITE IMPROVEMENT PLANS
WATERWALK MORRISVILLE
 1012 & 1016 LOWER SHILOH WAY
 MORRISVILLE, NORTH CAROLINA

DETAILS

CONSTRUCTION SHALL NOT START UNTIL CONSTRUCTION MANAGER INITIALIZES A SRW INSTALLATION MEETING WITH ALL PARTIES & DESIGN ENGINEER.

SHEET NO. **R8**

Engineering Inspection Services must be contacted (919) 463-6907 at a minimum 24 hours prior to the commencement of any construction activities.