

CONSTRUCTION DETAILS

NOTES

Typical Gra
Setback = $1\frac{5}{8}$ " (41 mm) (5° batter angle on wall)
Exposed wall (Height varies with design)
Bury depth
Leveling pad (A
This drawing is for reference only. Determination of the suitability and/or the design engineer of record. Final project designs, including all construct conditions of the proposed site

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avity Wall Section



As specified by Engineer)

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Typical XL Gravity Wall Section

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Setback = $9\frac{3}{8}$ " (238 mm)

60" (1520 mm

(27.5° Batter

Exposed Wall Height

Angle on Wall)

Min. Bury Depth-

Leveling Pad



Large Batter Wall Section



Alternating Planter & Standard Batter Wall Section

Typical Reinforced Wall Section



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Applicable for sites with groundwater well below the leveling pad elevation and well-drained retained soils.







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Field Installed Pipe

Isometric View of Corner Retaining Wall Blocks (Per Design) The top row of blocks in this diagram are shown in red. They have been cutout in line with their bottom grooves to show how they fit with the knobs on the bottom row of blocks. 10" (254 mm) knob is fully engaged Non-woven geotextile fabric in all joints between blocks (Typical) Slope 1%-2% for Drainage Approach Grade 90 Degree Corner block

Top View of Bottom Two Rows

90° Outside Corner

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Steps Through Wall

S

6" TYP.

6" TYP.



Stair Section

Flush End to 90° Corner

Notes: • Wall is flush with building. • Rows 2, 4, 6, and 8 require approximately 1/8" (3 mm) gaps between blocks for length of wall given. • Solution shown based on a 24" (610 mm) wide corner block. Short Block (Typical) Short Blocks Required Row 1 0 2 and 3 1 per Row Corner Block (Typical) 4 and 5 2 per Row 6 and 7 3 per Row 8 4 per Row

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Alternate long and short face of Freestanding Corner block on either end of row for proper



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Double 90° Outside Corner - Short Block Solution







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(1) 9" (230 mm) Setback Short block on the 2nd row (2) 9" (230 mm) Setback Short block on the 3rd row (3) 9" (230 mm) Setback Short block on the 4nd row (1) Additional 9" (230 mm) Setback Short block for every additional row to the top of the wall

> Alternate long and short face of Freestanding Corner Top block on either end of row for proper spacing

Untextured top of block and stone infill between adjacent blocks will be visible (Typical)

9" (230 mm) Setback block with $7\frac{1}{2}$ " (190 mm) diameter knobs

Recess pocket and lifting insert may be visible Options: Fill with tinted mortar or use custom blocks without top lifter if desired (Typical)









Top Block Coping Option

Grade Change on Top of Wall Using 9" (230 mm) Stepdown Blocks



Note: Corner Garden Blocks are shown, Half Corner Garden Blocks are optional as grading permits.

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Sealant Adhesive: One-component, highly flexible, non-priming, gun grade, high performance elastomeric polyurethane sealant shall have movement of plus or minus 25% per ASTM C719, tensile strength greater than 200 psi (1.4 MPa) per ASTM D412, and adhesion to peel on concrete greater than 20 PLI per ASTM C794. Apply sealant in one and one half-inch (1.5") (38 mm) diameter round "hersey kiss" shaped dollops located in two rows at 8" (203 mm) on center, immediately below the 9" (230mm) Stepdown Block.



Minimum radius for bottom row

Number of courses	Height of wall	Radius from face of block	Distance between blocks*		
1	1'-6" (0.46 m)	14'-6" (4.42 m)	0.13" (3 mm)		
2	3'-0" (0.91 m)	14'-8" (4.47 m)	0.21" (5 mm)		
3	4'-6" (1.37 m)	14'-10" (4.52 m)	0.28" (7 mm)		
4	6'-0" (1.83 m)	15'-0" (4.57 m)	0.36" (9 mm)		
5	7'-6" (2.29 m)	15'-2" (4.62 m)	0.43" (11 mm)		
6	9'-0" (2.74 m)	15'-4" (4.67 m)	0.50" (13 mm)		
7	10'-6" (3.20 m)	15'-6" (4.72 m)	0.57" (15 mm)		
8	12'-0" (3.66 m)	15'-8" (4.78 m)	0.63" (16 mm)		
9	13'-6" (4.11 m)	15'-10" (4.83 m)	0.70" (18 mm)		
10	15'-0" (4.57 m)	16'-0" (4.88 m)	0.76" (19 mm)		
11	16'-6" (5.03 m)	16'-2" (4.93 m)	0.83" (21 mm)		
12	18'-0" (5.49 m)	16'-4" (4.98 m)	0.88" (22 mm)		
13	19'-6" (5.94 m)	16'-6" (5.03 m)	0.95" (24 mm)		
14	21'-0" (6.40 m)	16'-8" (5.08 m)	1.01" (26 mm)		

14'-6" (4.42 m) is the minimum radius for Redi-Rock blocks. It occurs when all the blocks are placed tight together. A larger radius is required on the bottom row of a Redi-Rock wall to account for the batter between courses of blocks and still provide enough space to construct the top row of blocks.





* Distance between blocks is measured at the back of 28" (710 mm) blocks and 24" (610 mm) behind the form parting line (back edge of face texture) for 41" (1030 mm) blocks. This distance is intended to be a guide only. Minimum radius is controlling.

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Geogrid Layout for Concave Curves and Radial Corners











Block Layout for 90° Outside Corner

The top row of blocks are shown in red. They have been cutout in line with their bottom grooves to show how they fit with the knobs on the bottom row of block. The geogrid strips are not shown for clarity.







- Reinforcement effective unit perimeter for pullout calculations, C = 1.5 (1 side full contact with soil,



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Sample Plan and Profile Positive Connection MSE Wall

de drops along exposed ured side of garden her block (Typical) Proposed finish grade 4 6 8											
TO	TOW Elev. = 116.5							1			
PC 28T 5X <u>T-1</u> 5'	PC 5X1	28T [-15]	PC 2 5XT	28T -15'	PC 5XT	28T - <u>1</u> 5'	PC 5XT	28T -15'	PC 5XT	28Ť -17'	115
P 5	C 28M XT-15'	PC 5XT	28M -15'	PC 5XT	28M -15'	PC 5	28M -15'	PC 2 5XT	28M -17'		
PC 28M	PC 5X1	28M [-15]	PC 2 5XT	23M -15'	PC 5XT	28M -15'	PC 2 5XT	28M -15'	PC 2 5XT	28M -17'	
P 5	C 28M XT-15'	PC 5XT	28M 15'	PC 5XT	28M 15'	PC 5XT	28M '-15'	PC 2 5XT	28M -17'		110
C 28M XT-15'	PC 5X1	28M [-15]	PC 2 5XT	3M -15'	PC 5XT	28M 15'	PC 5XT	28M -15'	—PC 2 5XT	28M- -17'	110
P	C 28M XT-15'	PC 10X	28M T-15'	PC 10X	28M T-15'	PC 10X	28M T-15'	PC 2 10X1	28M -17'		
PC 28M	PC 10X	28M T-15'	PC 2 10XT	3M 15'	PC 10X	28M T-15'	PC 1	28M Г-15'	PC 1 10X	28M [-17]	
P	C 28M XT-15	PC 10X	28M T-15'	PC 10X	28M T-15'	PC 10X	28M T-15'	PC 2	28M -17'		105
C 28M	PC 10X	28M T-15'	PC 2 10XT	3M 15'	PC 10X	28M T-15'	PC : 10X	28M Г-15'	PC 2 10X1	28M Г-17'	
P	C 28M XT-15	PC 10X	28M T-15'	PC 10X	28M T-15'	PC 10X	28M T-15'	PC 2 10X1	28M -17'		
C 28M	PC 10X	28M T-15'	PC 2	8M -15'	PC 10X	28M T-15'	PC 1	28М Г-15' -	PC 2 10X1	28M [-17]	100
, P	C 28B XT-15	PC 10X	28B T-15'	PC 10X	28B T-15'	F/C 1/0X	28B T-15'	PC 2 10X1	28M -17'		
Proposed finish grade at toe of wall						PC 20X	28B Г-17'				
PRO	FILE			·				l	BOWI	Elev	. = 97.0
										_	

Light Pole Base or Concrete Pile in Reinforced Soil Zone

Manhole or Large Obstruction in Reinforced Soil Zone



3D View from Back

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Utilities in the Reinforced Soil Zone

Pipes Installed Through Wall - Perpendicular



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Section View







Sealant Adhesive: One-component, highly flexible, non-priming, gun grade, high performance elastomeric polyurethane sealant shall have movement of plus or minus 25% per ASTM C719, tensile strength greater than 200 psi (1.4 MPa) per ASTM D412, and adhesion to peel on concrete greater than 20 PLI per ASTM C794. Apply sealant in one and one half-inch (1.5") (38 mm) diameter round "hersey kiss" shaped dollops located in two rows at the top of the Freestanding blocks at 8" (203 mm) on center

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Typical Cantilever Wall Section

Redi-Rock Cap (if desired)

> Grade to drain surface water away from wall

Freestanding Block Continuous Corner Detail

HORIZONTAL AND VERTICAL TRIM TEXTURE AS REQUIRED FOR GOOD REBAR, AS REQUIRED FIT BETWEEN BLOCKS AVOID RIB-TO-RIB JOINTS. CUT CORNER BLOCK TO ALLOW FOR POSITION BLOCKS OR CUT RIBS CONTINUATION OF REBAR AS REQUIRED F-CHC CORNER HOLLOW CORE FREESTANDING BLOCK F-HC HOLLOW CORE FREESTANDING BLOCKS CAST-IN-PLACE CONCRETE

FOOTING, AS REQUIRED

SET CAP BLOCK ON TOP F-HC UNIT AND EMBED STEEL REINFORCEMENT IMMEDIATELY AFTER PLACEMENT OF

CAST-IN-PLACE CONCRETE

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ATTACH FLANGE MOUNTED FENCE POSTS TO CAP UNIT WITH -CONCRETE ANCHOR BOLTS (RED HED TRU-BOLT WEDGE ANCHORS OR EQUAL)

Freestanding Block Coping with Fence Attachment

CAST-IN-PLACE CONCRETE IN HOLLOW CORE OF F-HC UNITS AND IN TOP HALF OF VERTICAL CORE SLOT IN PC BLOCKS IMMEDIATELY BELOW F-HC BLOCKS, MINIMUM 28 DAY COMPRESSIVE STRENGTH = 4,000 psi

No. 6 HORIZONTAL BARS, CONTINUOUS, 24" OVERLAP ON ENDS TYPICAL, BOTH SIDES OF CENTER CORE

No. 6 VERTICAL BARS, 11 ½" O.C. TYPICAL, BOTH SIDES OF CENTER CORE

No. 3 BAR HOOK - WRAP AROUND LIFTING INSERT IN TOP OF BLOCK AND EXTEND INTO HOLLOW CORE AREA OF F-HC BLOCK

RECESSED LIFTING HOOK AREA FILLED WITH CAST-IN-PLACE CONCRETE (WHEN FREESTANDING BLOCKS ARE FILLED)

COVER TOP OF RETAINING BLOCKS AND ALL EXPOSED GEOGRID WITH 6 mil VISQUEEN PLASTIC LAYER

NO. 57 STONE INFILL IN VERTICAL CORE SLOT, BETWEEN ADJACENT BLOCKS, AND 12" BEHIND BACK OF BLOCKS. FILL BOTTOM HALF OF VERTICAL CORE SLOT FOR PC BLOCKS IMMEDIATELY BELOW FREESTANDING BLOCKS.

ALL REINFORCING STEEL TO CONFORM TO ASTM A706 OR AASHTO M31 GRADE 60.

ALL REINFORCING STEEL TO CONFORM TO No. 4 BARS, 40" LONG ASTM A706 OR AASHTO M31 GRADE 60. (TIE TO EMBEDDED HOOKS) 3" 🗶 3" (2) REDI-ROCK R ANCHORS (11¹/₂" FROM EACH END) 18 %" 4" -/ 10" 3" **BEND DETAIL END VIEW** NO. 3 REBAR HOOKS CAP BLOCK CAST WITH R-ANCHORS (SPECIALTY BLOCK) ATTACH FLANGE MOUNTED FENCE POSTS TO CAP UNIT WITH CONCRETE ANCHOR BOLTS (RED HED TRU-BOLT WEDGE ANCHORS OR EQUAL) SET CAP BLOCK ON TOP F-HC UNIT AND EMBED STEEL REINFORCEMENT IMMEDIATELY AFTER PLACEMENT OF CAST-IN-PLACE CONCRETE CAST-IN-PLACE CONCRETE IN HOLLOW CORE OF F-HC UNITS AND IN TOP HALF OF VERTICAL CORE SLOT IN PC BLOCKS IMMEDIATELY BELOW F-HC BLOCKS, MINIMUM 28 DAY COMPRESSIVE STRENGTH = 4,000 psi No. 6 VERTICAL BARS, 11 ½" O.C. TYPICAL, BOTH SIDES OF CENTER CORE No. 6 HORIZONTAL BARS, CONTINUOUS, 24" OVERLAP ON ENDS TYPICAL. BOTH SIDES OF CENTER CORE No. 3 BAR HOOK - WRAP AROUND LIFTING INSERT IN TOP OF BLOCK AND EXTEND INTO HOLLOW CORE AREA OF F-HC BLOCK COVER TOP OF RETAINING BLOCKS AND ALL EXPOSED GEOGRID WITH 6 mil VISQUEEN PLASTIC LAYER NO. 57 STONE INFILL IN VERTICAL CORE SLOT, BETWEEN ADJACENT BLOCKS, AND 12" BEHIND BACK OF BLOCKS. FILL BOTTOM HALF OF VERTICAL CORE SLOT FOR PC BLOCKS IMMEDIATELY BELOW FREESTANDING BLOCKS.

Freestanding Block Coping with Fence Attachment

—3' (1.0 m)-Minimum (From Back of Block)





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Post and Beam Guardrail

Top View

Cast-in-Place Moment Slab Traffic Barrier - Flat Grade Installation

Cast-in-Place Moment Slab Traffic Barrier - Sloping Installation





Cast-in-place traffic barrier



Materials

Concrete for cast-in-place barrier and moment slab shall be dot standard structure mix. Minimum 28 day compressive strength shall be 4,000 psi (27.6 mpa) or higher as specified. Cast-In-Place level up concrete shall be manufactured in accordance with ASTM C94. Minimum 28 day compressive strength shall be 3,500 psi (24.1 MPa) or higher as specified. Reinforcing steel shall conform to ASTM A706 or AASHTO M31 Grade 60 (420 MPa).

Design

Moment slab shown is dimensioned based on an equivalent static load of 10,000 lbs (44.5 kN) per NCHRP Report 663. Moment slab reinforcement shown is based on AASHTO LRFD Bridge Design Specifications, 5th edition, 2010, TL-4 loading detailed in Table A13.2.1.

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