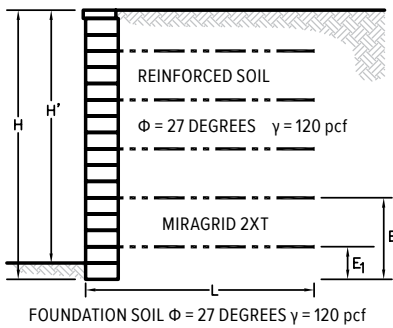
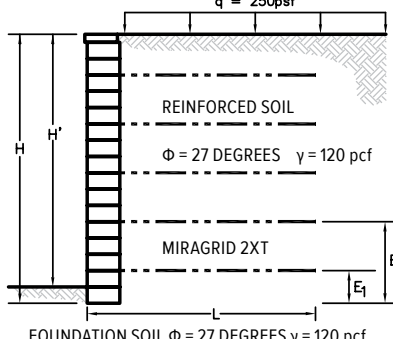
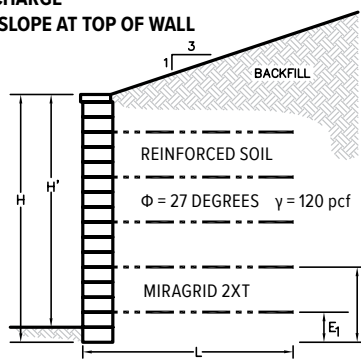


# SINGLE SIDED CAST STONE WALL™ SOIL FRICTION ANGLE GRID CHART | 27°

| For grid estimating purposes only   | Exposed Height H', (ft) | Total Height H, (ft) | No. of Cast Stone Courses | Grid Layers | Length L, (ft) | Layer Number - Place Grid at Elevation Ei (ft) |     |     |     |   |   |   |  |  |  |
|---|-------------------------|----------------------|---------------------------|-------------|----------------|--|-----|-----|-----|---|---|---|--|--|--|
|   |                         |                      |                           |             |                | 1  | 2   | 3   | 4   | 5 | 6 | 7 |  |  |  |
| <b>Case 1 with <math>\phi = 27</math> degrees</b><br>NO SURCHARGE<br>NO SLOPE AT TOP OF WALL<br>                       | 1.8                     | 2.3                  | 4                         | 1           | 4.0            | 1.0  |     |     |     |   |   |   |  |  |  |
|   | 2.3                     | 2.8                  | 5                         | 1           | 4.0            | 1.0  |     |     |     |   |   |   |  |  |  |
|   | 2.8                     | 3.3                  | 6                         | 2           | 4.0            | 1.0  | 2.0 |     |     |   |   |   |  |  |  |
|   | 3.3                     | 3.8                  | 7                         | 2           | 4.0            | 1.0  | 2.5 |     |     |   |   |   |  |  |  |
|   | 3.8                     | 4.3                  | 8                         | 2           | 4.0            | 1.0  | 2.5 |     |     |   |   |   |  |  |  |
|   | 4.3                     | 4.8                  | 9                         | 3           | 5.0            | 1.0  | 2.5 | 3.5 |     |   |   |   |  |  |  |
|   | 4.8                     | 5.3                  | 10                        | 3           | 5.0            | 1.0  | 2.5 | 3.5 |     |   |   |   |  |  |  |
|   | 5.3                     | 5.8                  | 11                        | 3           | 5.0            | 1.0  | 2.5 | 4.0 |     |   |   |   |  |  |  |
|   | 5.8                     | 6.3                  | 12                        | 4           | 6.0            | 1.0  | 2.5 | 4.0 | 5.0 |   |   |   |  |  |  |
|   | 6.3                     | 6.8                  | 13                        | 4           | 6.0            | 1.0  | 2.5 | 4.0 | 5.0 |   |   |   |  |  |  |
| 6.8   | 7.3                     | 14                   | 4                         | 7.0         | 1.0            | 2.5  | 4.0 | 5.5 |     |   |   |   |  |  |  |
| 7.3   | 7.8                     | 15                   | 5                         | 7.0         | 1.0            | 2.5  | 4.0 | 5.5 | 6.5 |   |   |   |  |  |  |
| 7.8   | 8.3                     | 16                   | 5                         | 7.0         | 1.0            | 2.5  | 4.0 | 5.5 | 6.5 |   |   |   |  |  |  |
| 8.3   | 8.8                     | 17                   | 5                         | 7.5         | 1.0            | 2.5  | 4.0 | 5.5 | 7.0 |   |   |   |  |  |  |
| <b>Case 2 with <math>\phi = 27</math> degrees</b><br>SURCHARGE FROM ROADWAY OR PARKING<br>NO SLOPE AT TOP OF WALL<br> | 1.8                     | 2.3                  | 4                         | 1           | 5.0            | 0.5  |     |     |     |   |   |   |  |  |  |
|   | 2.3                     | 2.8                  | 5                         | 2           | 5.0            | 0.5  | 1.5 |     |     |   |   |   |  |  |  |
|   | 2.8                     | 3.3                  | 6                         | 2           | 5.5            | 1.0  | 2.0 |     |     |   |   |   |  |  |  |
|   | 3.3                     | 3.8                  | 7                         | 2           | 5.5            | 1.0  | 2.0 |     |     |   |   |   |  |  |  |
|   | 3.8                     | 4.3                  | 8                         | 2           | 6.5            | 1.0  | 2.5 |     |     |   |   |   |  |  |  |
|   | 4.3                     | 4.8                  | 9                         | 3           | 6.5            | 1.0  | 2.5 | 3.5 |     |   |   |   |  |  |  |
|   | 4.8                     | 5.3                  | 10                        | 3           | 7.5            | 1.0  | 2.5 | 4.0 |     |   |   |   |  |  |  |
|   | 5.3                     | 5.8                  | 11                        | 3           | 7.5            | 1.0  | 2.5 | 4.0 |     |   |   |   |  |  |  |
|   | 5.8                     | 6.3                  | 12                        | 4           | 7.5            | 1.0  | 2.5 | 4.0 | 5.0 |   |   |   |  |  |  |
|   | 6.3                     | 6.8                  | 13                        | 4           | 8.5            | 1.0  | 2.5 | 4.0 | 5.5 |   |   |   |  |  |  |
| 6.8   | 7.3                     | 14                   | 4                         | 8.5         | 1.0            | 2.5  | 4.0 | 5.5 |     |   |   |   |  |  |  |
| 7.3   | 7.8                     | 15                   | 5                         | 9.0         | 1.0            | 2.5  | 4.0 | 5.5 | 6.5 |   |   |   |  |  |  |
| 7.8   | 8.3                     | 16                   | 5                         | 9.0         | 1.0            | 2.5  | 4.0 | 5.5 | 6.5 |   |   |   |  |  |  |
| 8.3   | 8.8                     | 17                   | 5                         | 9.5         | 1.0            | 2.5  | 4.0 | 5.5 | 7.0 |   |   |   |  |  |  |
| <b>Case 3 with <math>\phi = 27</math> degrees</b><br>NO SURCHARGE<br>3:1 MAX SLOPE AT TOP OF WALL<br>                | 1.8                     | 2.3                  | 4                         | 1           | 4.0            | 1.0  |     |     |     |   |   |   |  |  |  |
|   | 2.3                     | 2.8                  | 5                         | 1           | 4.0            | 1.0  |     |     |     |   |   |   |  |  |  |
|   | 2.8                     | 3.3                  | 6                         | 2           | 4.0            | 1.0  | 2.0 |     |     |   |   |   |  |  |  |
|   | 3.3                     | 3.8                  | 7                         | 2           | 4.5            | 1.0  | 2.5 |     |     |   |   |   |  |  |  |
|   | 3.8                     | 4.3                  | 8                         | 2           | 4.5            | 1.0  | 2.5 |     |     |   |   |   |  |  |  |
|   | 4.3                     | 4.8                  | 9                         | 3           | 6.0            | 1.0  | 2.5 | 3.5 |     |   |   |   |  |  |  |
|   | 4.8                     | 5.8                  | 11*                       | 3           | 6.0            | 1.0  | 2.5 | 4.0 |     |   |   |   |  |  |  |
|   | 5.3                     | 6.3                  | 12*                       | 3           | 7.0            | 1.0  | 2.5 | 4.0 | 5.0 |   |   |   |  |  |  |
|   | 5.8                     | 6.8                  | 13*                       | 4           | 7.0            | 1.0  | 2.5 | 4.0 | 5.0 |   |   |   |  |  |  |
|   | 6.3                     | 7.3                  | 14*                       | 4           | 8.5            | 1.0  | 2.5 | 4.0 | 5.5 |   |   |   |  |  |  |
| 6.8   | 7.8                     | 15*                  | 4                         | 8.5         | 1.0            | 2.5  | 4.0 | 5.5 | 6.5 |   |   |   |  |  |  |
| 7.3   | 8.3                     | 16*                  | 5                         | 8.5         | 1.0            | 2.5  | 4.0 | 5.5 | 6.5 |   |   |   |  |  |  |
| 7.8   | 8.8                     | 17*                  | 5                         | 9.0         | 1.0            | 2.5  | 4.0 | 5.5 | 7.0 |   |   |   |  |  |  |

\*REQUIRES TWO FULL COURSES BURIED

**NOTES:**

- Information presented in this chart is to be used for preliminary design and estimating purposes. Final design should be performed by a Professional Engineer qualified in both geotechnical engineering and segmental retaining wall design.
- This estimating chart is applicable to sites where soil conditions meet the following minimum criteria: Angle of Internal Friction,  $\phi > 27^\circ$  and moist unit weight,  $\gamma = 120\text{pcf}$ . Typical for low plasticity silts meeting the following USCS classification: ML or coarser.
- Design charts prepared for use with EP Henry's Cast Stone Wall block system with Mirafi's type 2XT reinforcing geogrids. Grids MUST extend to the front face of the block.

**4. Definitions:**

- H = total height, in feet
- L = length of Mirafi 2XT required, in feet
- $\phi$  = angle of internal friction, degrees
- $\gamma$  = moist unit weight, pounds per cubic foot
- Ei = elevation of grid layer from bottom of wall, in feet

- These charts do not reflect any provisions for global stability or other analyses, which may be related to site-specific conditions including relief of excess hydrostatic pressures due to groundwater or springs. All these conditions should be checked and evaluated as appropriate, using site specific soil and subsurface conditions, as well as any special loading criteria.
- Design Minimum Factors of Safety: 1.5 for reinforcement

pullout, 1.5 for external sliding, 2.0 for overturning, and 2.0 for bearing.

- All walls shall be supported on an aggregate leveling pad and shall have adequate drainage provisions in accordance with EP Henry's standard specification guidelines.
- To the best of our knowledge, the information presented in this design chart is complete and accurate. However, EP Henry Corporation cannot assume any liability or accept any responsibility for the accuracy or completeness of this information. Further, EP Henry Corporation cannot assume any liability for damages arising from claims in which construction proceeded without final design drawings prepared by a Professional Engineer registered in the State of construction specializing in both geotechnical engineering and segmental retaining wall design.