

# CIVIL DESIGN PROFESSIONALS

INNOVATIVE ENGINEERING SOLUTIONS

January 31, 2024

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Mid-Hudson Concrete Products

RE: Hillcrest (24-0091)  
Ossining, New York

## Project Information:

Civil Plan: Prepared by KSCJ Consulting Last Dated 11/26/2023.  
Geotechnical Report: Not Provided.

## Design Assumptions:

**Redi-Rock:** 24", 28", 41", 60" Deep Units  
**Wall Batter:** 0°  
**Design Method:** NCMA  
**Seismic:** 0.08  
**Live Load:** 50 PSF  
**Dead Load:** 0 PSF  
**Toe Slope:** Varies (See Grading Plan)  
**Back Slope:** Flat

## NCMA Safety Factors

Sliding	1.5
Overturning - Reinforced	2.0
Overturning - Gravity	1.5
Bearing	2.0
Global Stability	1.3

Seismic Safety Factors are 75% of Static

## Design Notes:

Wall angles and bends have been changed to radiuses to accommodate the functionality of the Redi-Rock retaining wall system which has a minimum radius of 15'.

Quantities provided in this preliminary estimate are for budgetary purposes only. Geotechnical information and building structural information (footing elevations, dimensions and loading) shall be provided prior to final design. Wall design, block quantities and geogrid lengths are subject to change pending global stability analysis.

CDP assumes there is no high water level in the vicinity of the walls. If there is a HWL, it shall be provided to CDP and the design may change.

Guardrails and fences shall be placed no closer than 3-feet from the wall face (or 1-foot minimum from back of block) to the edge of the post footing. If the fence is placed directly against the wall blocks Sleeve-Its will be required. An alternate design could be considered that connects the fence post to the top of the wall depending on loading requirements and fence design (by others).

During wall construction, excavation shall remain within the construction limits shown on the plans. All available means and methods used to keep excavation within the construction limits shall be incidental. The contractor shall coordinate relocation of all existing conduits and services with the utility provider.

### Geotechnical Notes:

The owner is responsible for obtaining a geotechnical investigation with borings drilled along the retaining wall following industry standards. The minimum required soil borings will be per the geotechnical engineer's recommendation and satisfaction.

The owner or owner's representative has not provided soil parameters for the proposed earth structure(s). In preparation of the design, assumed soil parameters were used. Construction verification of the assumed soil parameters is imperative prior to and during construction. Failure to validate the assumed soil parameters can result in structure failure and shall render these plans void.

Assumed Soil Parameters:	$\phi$	c	$\gamma$	
Reinforced Backfill	34°	0 PSF	120 PCF	Select Granular
Retained Backfill 1 (1H:1V)	34°	0 PSF	120 PCF	Select Granular
Foundation Soil	30°	0 PSF	120 PCF	Sand

The above minimum soil strength parameters shall be verified prior to final design.

The foundation soils at the wall locations shall be capable of safely supporting the maximum applied load of the walls without failure or excessive settlement. The maximum applied load for the proposed wall(s) is 3,700 PSF.

Global stability analyses have not been performed due to insufficient information. A licensed Geotechnical Engineer shall perform global stability analyses based on the proposed wall design, site geometry, and the actual parameters of the onsite soils. These analyses shall be provided to CDP prior to commencing construction.

**General Notes:**

The design cost may change with any alteration to the soils design properties, wall profile, and/or grading plan than was used to prepare this preliminary design (including assumptions made because of insufficient information provided by the Client for the preliminary design).

See project specifications and/or geotechnical report for additional information and requirements.

Electronic copies of the plans and calculations are provided. Hard copies (wet signed & sealed) may be provided and will be billed time and material (\$75 + shipping costs).

CDP may provide design calculations for review by a qualified Professional Engineer. Comments and/or approval of the calculations shall be provided to CDP prior to construction.

The following services are not included in the final design and may be provided under a separate proposal:

- Project meetings including preconstruction meeting (\$200/hour and travel expenses + 10%).
- Site inspections.
- Comprehensive global stability analysis.
- Structural calculations (i.e. fences, barriers, etc.).
- Fence/railing designs.
- As built drawings.
- Wall construction conformance letter


Items required for CDP to provide a construction conformance letter:

- Foundation Inspection/Testing
- Soil Property Testing (Sieve, Shear, Moisture, etc.)
- Soil Compaction Testing
- Inspection Logs
- Construction Photographs, including: Excavation, Leveling Pad, Drainpipe and Outlets, Block Placement and Steps, Filter Fabric and/or Geogrid Reinforcement (if applicable), Finished Geometry (Back Slope, Toe Slope, Batter, etc.)

We are able to commence work immediately upon your submittal of a work order for final design.

We appreciate the opportunity of providing services to you. If you have any questions or comments regarding this project, please feel free to contact us.

Sincerely,



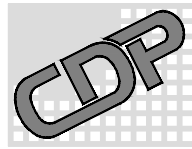
Jeff Calander

The project quantities are as follows:

- The unit area and volume quantities are neat quantities. Contractor shall confirm the quantities and add in any additional necessary factors (i.e., waste, compaction, etc.).
- Drainage aggregate includes 12" zone behind blocks, core fill, and/or voids between blocks.
- The geogrid quantity includes a 5% waste factor and 1AT overlap.
- Blocks require 6.75-inch diameter, 2-inch tall knobs for near vertical batter.

	Wall 1
Wall Length (FT)	107.62
Block Area (SF)	1447.63
Mirafi 5XT (SY)	1402
Grid Length (FT)	14 - 17
Reinf. Backfill (CY) Phi 34°	553
Ret. Backfill 2 (CY) Phi 30°	316
Ret. Backfill 1 (CY) Phi 34°	50
Aggregate Leveling Pad (CY)	8
Drainage Aggregate (CY)	67
1AT Connector (EA)	178

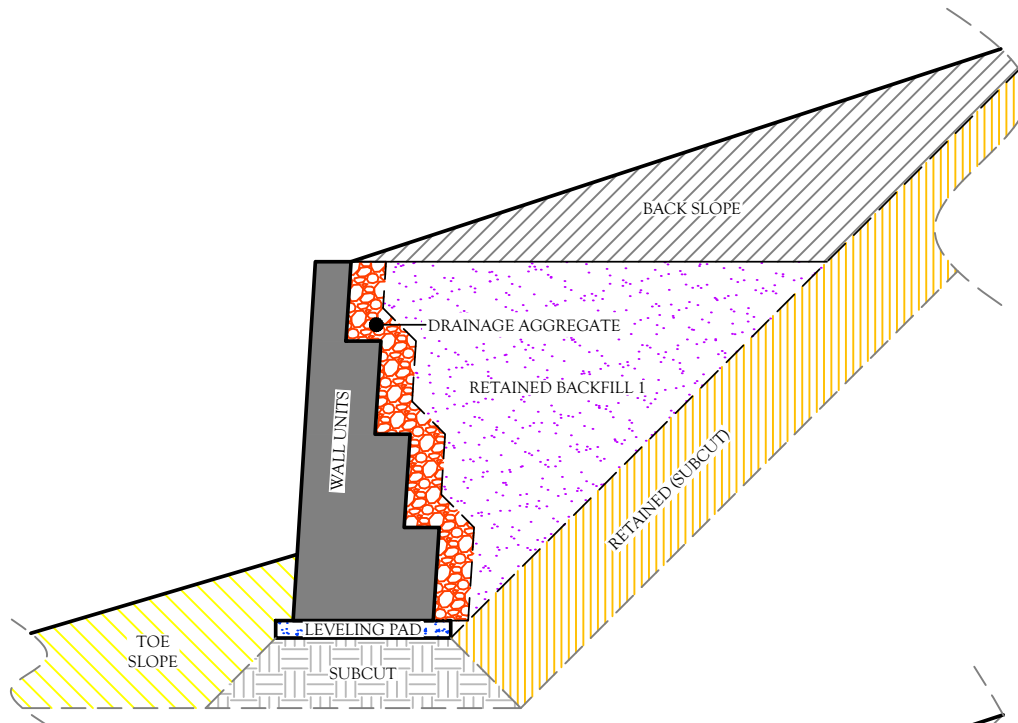
Unit	SF/Unit	Wall 1 NV	Area
CAP	1.92	26	49.97
3CAP	3.11	1	3.11
3HC	2.15	1	2.15
FT	5.77	15	86.48
HFT	2.88	1	2.88
FTE	8.65	2	17.30
F-VT	5.77	10	57.66
MC	8.65	10	86.48
28M	5.77	164	945.56
28H	2.88	4	11.53
28B	5.77	17	98.02
41M	5.77	8	46.13
41B	5.77	2	11.53
60M	5.77	3	17.30
60B	5.77	2	11.53
TOTAL:		Wall 1 NV	1447.63



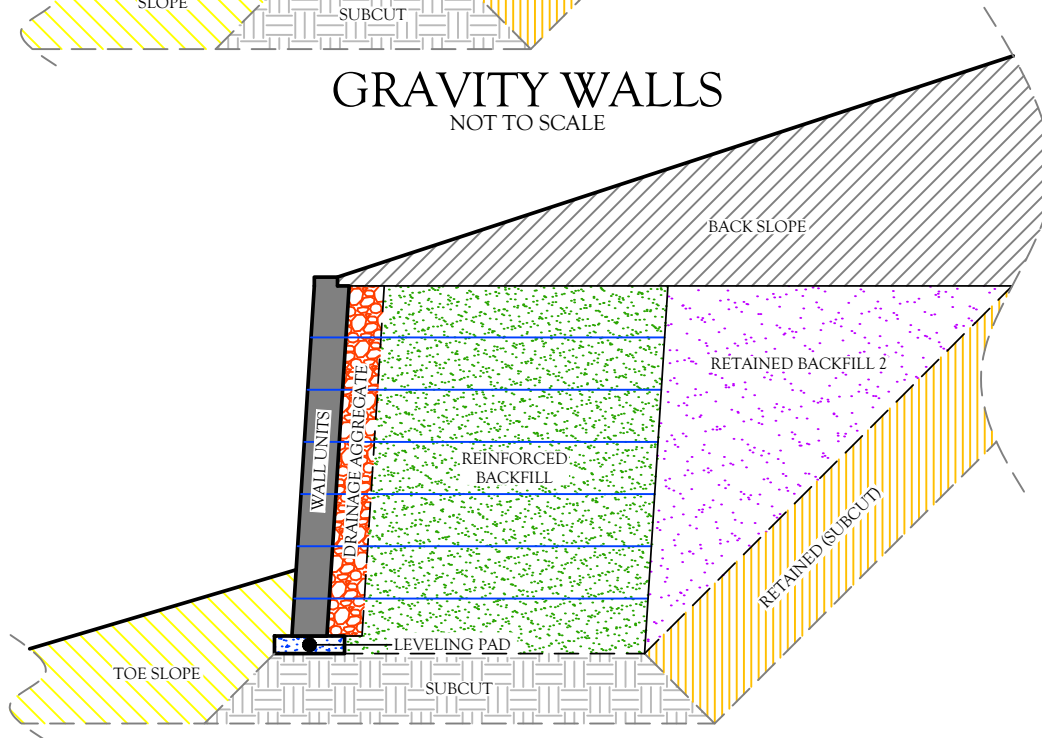
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## WALL ZONES / AREAS



**GRAVITY WALLS**  
NOT TO SCALE



**REINFORCED WALLS**  
NOT TO SCALE

- This detail shall not be used for construction and merely defines various zones as they pertain to the wall quantities. The detail does not define scope of work. See contract documents for specific details on the scope of work that will be provided by all parties.
- Not all details above may apply to every project. These are for reference only.



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