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# Retaining Wall Issues

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*Presented by* Jeffrey M. Benway P. E.



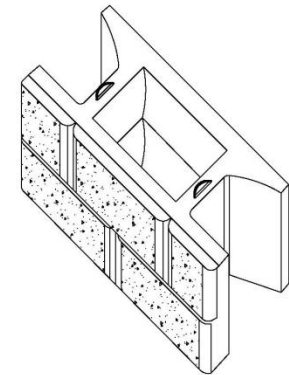
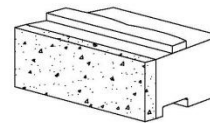
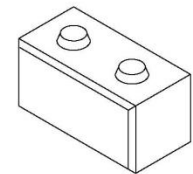
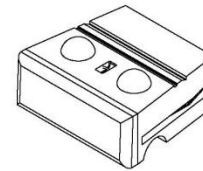
# Terms

- MSE-Mechanically Stabilized Earth
- SRW-Segmental Retaining Wall
- NCMA-National Concrete Masonry Association
- AASHTO-American Association of State Highway and Transportation Officials



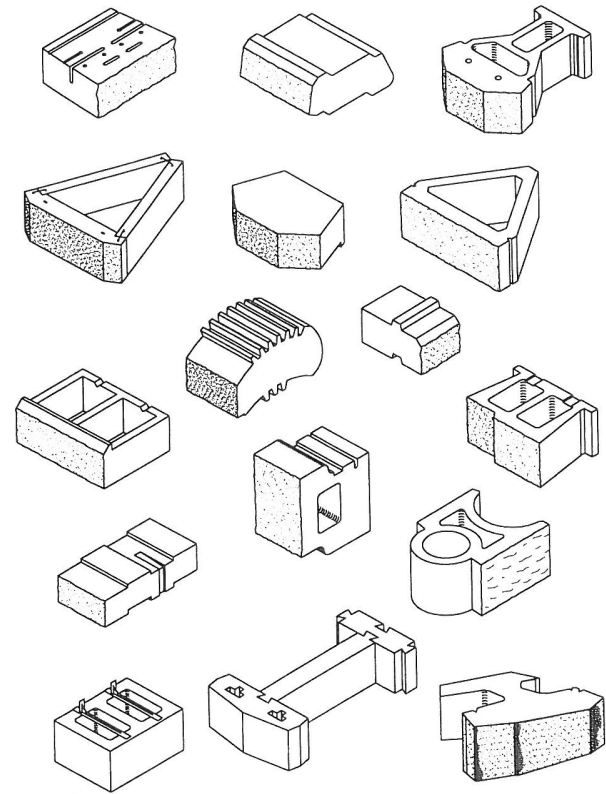
# Terms

- Large Block
- Typically 18-30" High
- Weigh 2500-6000 lbs
- Wet-Cast



# Terms

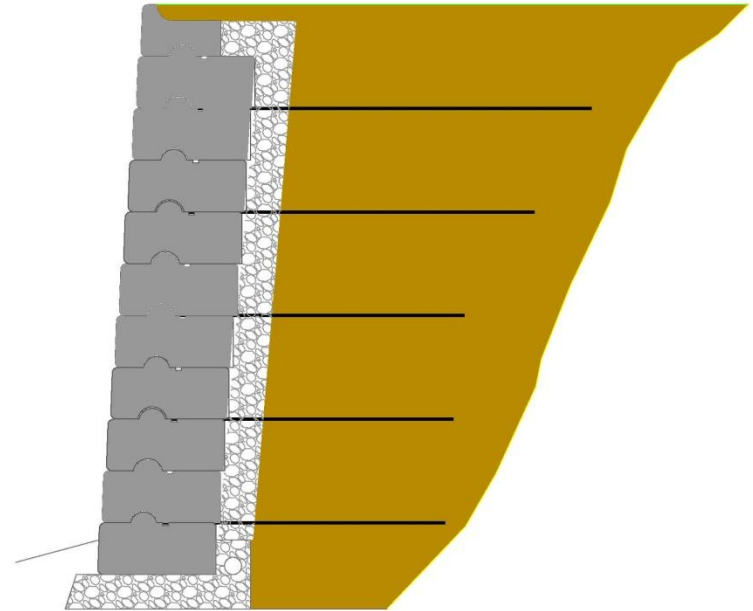
- Small Block
- Typically 8-9" High
- Weigh ~70 lbs
- Dry-Cast



# Terms

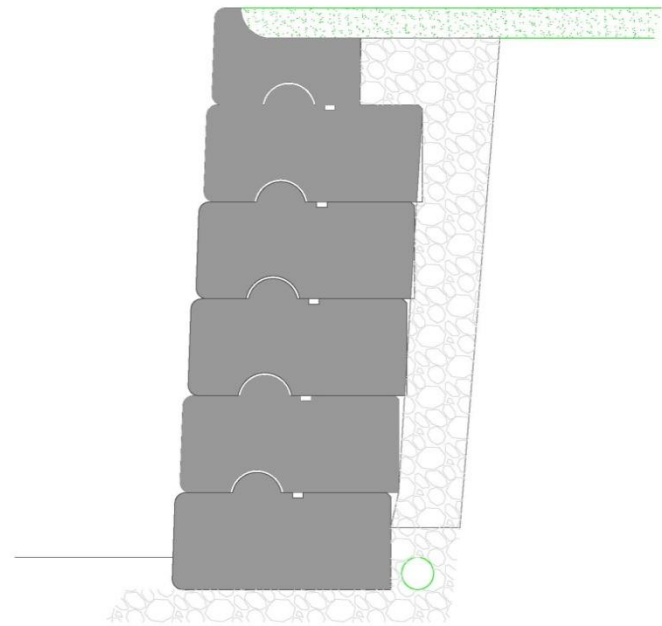
## ■ Reinforced Wall

- Uses geogrid
- Depth of geogrid is typically  $\frac{2}{3}$  the wall height or more.
- Usually not appropriate for septic systems.

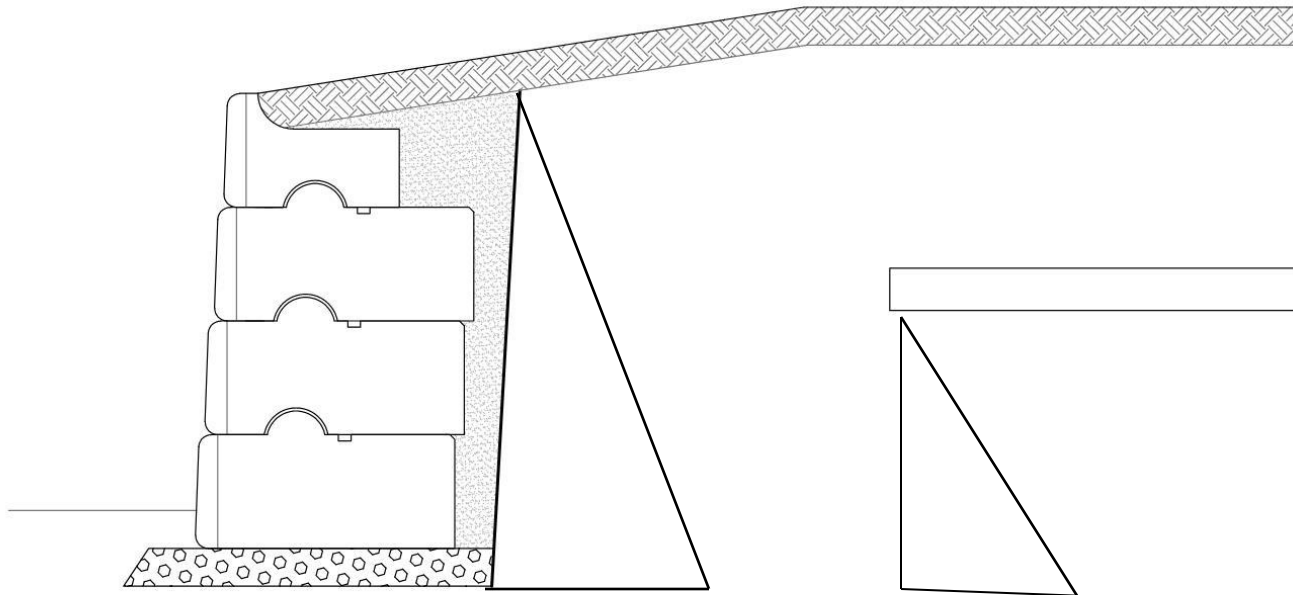


# Terms

- Gravity Wall
  - Large Block 20'+
  - Small Block 4'
  - Bottom block depth should be at least  $\frac{1}{3}$  the wall height.

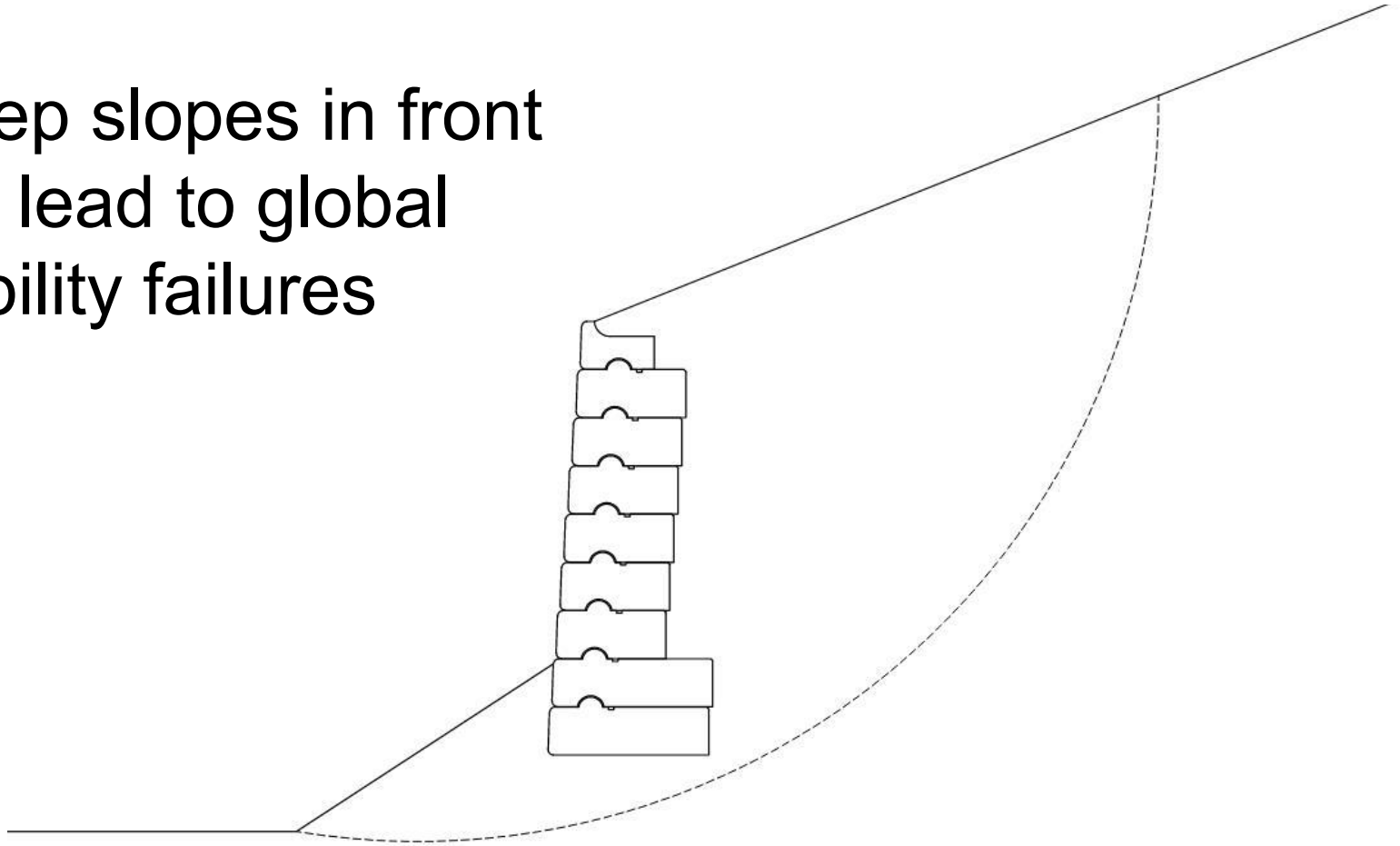


# Pressure from Septic System



# Global Stability

- Steep slopes in front can lead to global stability failures





# Permitting

- Is a Building Permit required?
  - ◆ Town dependent-Ask the Building Inspector
  - ◆ IBC says any wall over four feet needs a permit, any wall over six feet has to be designed by a PE
- Inspections
  - ◆ Mass. Building Code requires special inspections for walls over ten feet high
  - ◆ Cannot be certified after the wall is built
- Title 5
  - ◆ Any retaining wall supporting a system has to be designed by a PE. 15.255(2)(f)

# Construction Issues (15.255)

- ◆ The impervious barrier shall be designed by a Sanitarian or PE.
- ◆ The construction of the barrier shall be supervised by the designer.
- ◆ An as-built plan certified by the designer must be submitted.

# Conclusions

- The following are a few of the items that the Health Officer should be aware of:
  - ◆ Has the wall been designed to account for the water load from the system?
  - ◆ Is the barrier the proper distance above the system and below the wall?
  - ◆ Is there a steep slope in front of the wall? If so, has this been accounted for?
  - ◆ Does the septic tank put a load on the wall or the wall a load on the tank?

# Retaining Wall Issues

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