Outlook

Re: Willie C & Sons LLC - T,O.B. Install Proposals

From Eric Brown <eric@williecandsons.com>
Date Wed 3/4/2026 12:00 PM
To Nicole Briand <nbriand@bowdoinham.com>; James Herling <james@williecandsons.com>

1 attachment (93 KB)
Town of Bowdenham - Material Notes.pdf;

Hi Nicole,
It was nice to speak with you yesterday regarding the materials for the upcoming wall replacements. As requested, the information below (and in PDF attachement) should provide a bit of recap to our conversation and insight to the differences in wet and dry cast materials, along with reasoning to support the use of the suggested dry-cast product for replacing compromised retainment walls on Center St and Ridge Rd. You'll find some additional manufacturing information further below, but in short, wet cast and dry cast concrete are two distinct methods for producing concrete products, each suited for different applications based on their unique material properties and manufacturing requirements. The key differentiator is the amount of water used in the mix, leading to variations in how they are poured, molded, and cured. Dry cast methods result in a higher, compressive strength and density with its lower water to cement ratio, creating a stronger and very durable product as opposed to wet cast, which is predominantly suggested for its ability to cover the variety of applications that include flood walls, retention ponds, marine and saltwater instances where direct contact and hydrostatic pressure is expected. There is no real difference in life expectancy between wet cast and dry when installed in the appropriate application with proper engineering and industry standards. When performed correctly, each will have a life expectancy of 40-80 years or beyond. In this case, engineering and installation processes for the suggested dry-cast product would include:

- 12" depth of mechanically compacted leveling pads/footings installed in engineers, segmental lifts with first course of block embedded a minimum of 4" below grade.
- Proper batter/set back (slope of wall face) and composite pin installation for each course and block.
- Geogrid stabilization tie-in to hillsides installed every 2nd block course.
- Complete filtering and drainage capabilities that include Mirafi geotextile underlayment and backing filter between soils and drain rock backfill, along with...
- 4" perforated drain pipe at base of wall set at proper flow slope to outlet through strategic "weep" holes (that daylight every 50 feet max) and at downslope end of wall and directed into stormwater systems.
- Ample drain rock back fill to facilitate the removal of incidental ground water, eliminate hydrostatic pressure and seepage force, provide a zone of frost protection, and aid in compaction of soil behind geotextile filter.

In our assessment and review of the two existing structures, they reveal that failing/crumbling sections were compromised by the lack of proper engineering and drainage capabilities (listed above) that allowed hydrostatic absorption into wall materials from the slope behind. The sections that currently show forced pressure and forward leaning is likely a direct result of insufficient compaction of footings, lack of geotextile filters, and absence of proper geogrid reinforcement tie-ins to the hillside. There really should be no reason for the apparent failure of the existing walls within the 15 years mentioned, when an installation such as this is properly engineered and executed. Though I will say, in my 25+ years in the industry, I have seen manufactured landscape products evolve and get refined to be developed better within the last 15 years. Perhaps this was also contributing factor to the current walls demise.

For additional protection from roadway winter salt, we might recommend an application of suitable sealant to the face and capstones of wall materials. However, we dont see any obvious results of salt damage to existing walls that would have contributed to crumbling.

I hope this helps alleviate any concerns. Feel free to reach out to me with any additional questions or further thoughts.

Best regards,

Eric Brown

Dry and Wet Cast Core Differences:

Wet Cast Concrete

Wet cast concrete is characterized by a **higher water-to-cement ratio**, resulting in a more fluid, pourable mixture.

- **Consistency & Production:** Its fluidity allows it to be poured into molds and flow into intricate details and complex shapes without much external vibration. It typically requires a longer time in the mold before it can be demolded, as it relies on chemical hardening rather than mechanical compaction.
- **Advantages:**
  - **Smooth Finish:** Achieves a very smooth, often aesthetically pleasing surface finish, sometimes resembling polished stone.
  - **Intricate Details:** Ideal for creating products with fine details, sharp edges, and complex architectural designs.
  - **Reduced Vibration:** Less vibration is generally required during casting, simplifying the process for certain applications.
  - **Higher Early Strength (for some applications):** Can achieve good strength, and its flowability ensures proper consolidation around rebar.
- **Disadvantages:**
  - **Longer Cure Time:** Requires more time to cure and gain sufficient strength for demolding, slowing down production cycles.
  - **Potential for Efflorescence:** The higher water content can sometimes lead to more prominent efflorescence (white mineral deposits) on the surface if not properly managed.

- **Shrinkage Potential:** Can be more susceptible to shrinkage cracking during curing if not properly controlled.

- **Typical Applications:**
  - Architectural precast panels
  - Concrete countertops and sinks
  - Statues, garden ornaments, and decorative elements
  - Precast pipes, utility vaults, and manholes
  - Some forms of bridge components and structural beams

Dry Cast Concrete

Dry cast concrete, conversely, features a **low water-to-cement ratio**, giving it a stiff, earth-moist consistency akin to thick mud or dough.

- **Consistency & Production:** This low slump mix means it cannot be poured. Instead, it relies heavily on high-frequency vibration and intense compaction within the molds to achieve density and strength. Due to its minimal water content, products can often be demolded almost immediately after compaction, allowing for rapid, high-volume production.
- **Advantages:**
  - **Rapid Demolding:** Products can be stripped from molds quickly, significantly speeding up manufacturing cycles.
  - **High Production Volume:** Facilitates automated, high-volume production, making it very cost-effective for mass-produced items.
  - **Dimensional Stability:** Exhibits excellent dimensional stability immediately after compaction, reducing the risk of slump or deformation.
  - **Lower Shrinkage:** The low water content generally translates to less drying shrinkage.
- **Disadvantages:**
  - **Rougher Finish:** Typically results in a coarser or more textured surface finish, as it doesn't flow to create a smooth surface.
  - **Requires High Compaction:** Needs specialized, powerful machinery for vibration and compaction, which can be energy-intensive.
  - **Limited Intricacy:** Less suitable for highly detailed or intricate designs due to its low workability.
- **Typical Applications:**
  - Interlocking concrete pavers and permeable pavers
  - Retaining wall blocks and segmental retaining walls
  - Standard concrete masonry units (CMU blocks)
  - Curbstones and edgers

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