Regulation of Shorewalls on the Nottawasaga River:

Can Conservation Authorities Manage Conflicting Interests of Ecology, Engineering and Aesthetics?

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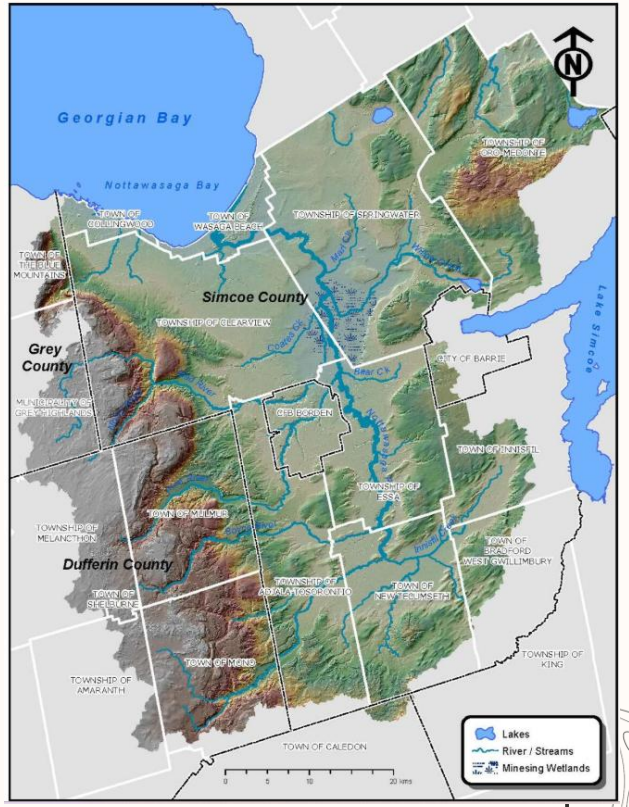
Nottawasaga Valley Watershed

- Niagara Escarpment (a World Biosphere Reserve) to the west, the Oak Ridges Moraine to the south, and the Oro Moraine to the east.
- Three major rivers (Boyne River, Pine River, and Innisfil Creek) and countless smaller ones meet to the form the Upper Nottawasaga River before flowing through the Internationally Significant Minesing Wetlands.
- The Mad River and Willow Creek discharge into the Nottawasaga River at the Minesing Wetlands.
- As it flows out of the Minesing Wetlands, the Nottawasaga River flows into the Nottawasaga Bay at Wasaga Beach.
- Four rivers form above the Niagara Escarpment, and flow directly into Nottawasaga Bay along the Town of Collingwood shoreline.



Regulatory Responsibilities of a CA

O. Reg 41/24

1. (1) In section 28 of the Act and in this Regulation,

"development activity" means,

(a) the construction, reconstruction, erection or placing of a building or structure of any kind,

(b) any change to a building or structure that would have the effect of altering the use or potential use of the building or structure, increasing the size of the building or structure or increasing the number of dwelling units in the building or structure,

(c) site grading, or

(d) the temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere; ("activité d'aménagement")

"hazardous land" means land that could be unsafe for development because of naturally occurring processes associated with flooding, erosion, dynamic beaches or unstable soil or bedrock; ("terrain dangereux")

Regulatory Responsibilities of a CA

Conservation Authorities Act

28 (1) No person shall carry on the following activities, or permit another person to carry on the following activities, in the area of jurisdiction of an authority:

1. Activities to straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream or watercourse or to change or interfere in any way with a wetland.

2. Development activities in areas that are within the authority's area of jurisdiction and are,

   i. hazardous lands,

   ii. wetlands,

   iii. river or stream valleys the limits of which shall be determined in accordance with the regulations,

   iv. areas that are adjacent or close to the shoreline of the Great Lakes-St. Lawrence River System or to an inland lake and that may be affected by flooding, erosion or dynamic beach hazards, such areas to be further determined or specified in accordance with the regulations, or

   v. other areas in which development should be prohibited or regulated, as may be determined by the regulations. 2017, c. 23, Sched. 4, s. 25; 2022, c. 21, Sched. 2, s. 7 (1).

Regulatory Responsibilities of a CA

Conservation Authorities Act

28.1 (1) An authority may issue a permit to a person to engage in an activity specified in the permit that would otherwise be prohibited by section 28, if, in the opinion of the authority,

(a) the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock;

(b) the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property; and

(c) any other requirements that may be prescribed by the regulations are met. 2017, c. 23, Sched. 4, s. 25; 2022, c. 21, Sched. 2, s. 9 (1).

Shorewalls

"Vertical or near vertical shoreline **protection** work separating the land and water areas and has the primary purpose of blocking wave action"

- Protection: non-structural or structural protection works engineered for protecting development and site alteration located within hazard-susceptible shoreline areas
  - Common in urbanized areas and for existing development.

- Prevention: reduces or minimizes loss by modifying the loss potential
  - Preferred, but not always realistic.
  - ie. Hazardous land acquisition, hazard allowances.

Lower Nottawasaga River [Town of Wasaga Beach]

05-Jun-2026

Legend

- Jurisdiction Boundary
- Municipalities
- NVCA Properties
- Flood Hazard
- Slope Erosion Hazard
- Major Roads
  - Major Highway
  - Highway
  - Major Road
- Local Roads
  - Streets and Small Roads
  - Unclassified
- Lakes
- River / Stream
- Neighbouring CAs

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*"It is imperative that any protection works consider both the immediate and the broader **ecological**, **geomorphological** and **socio-economic** contexts, as no part of the system operates independently of any other part."*

MNR *Technical Guidelines-Great Lakes-St. Lawrence River Shorelines*

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MNR *Technical Guidelines-Great Lakes-St. Lawrence River Shorelines*

8 Types of Structural Protection Works

1. Filling
2. Dyking
3. Flexible revetments & shorewalls
4. Rigid revetments & shorewalls
5. Beach nourishment
6. Groynes
7. Artificial headlands
8. Detached breakwaters

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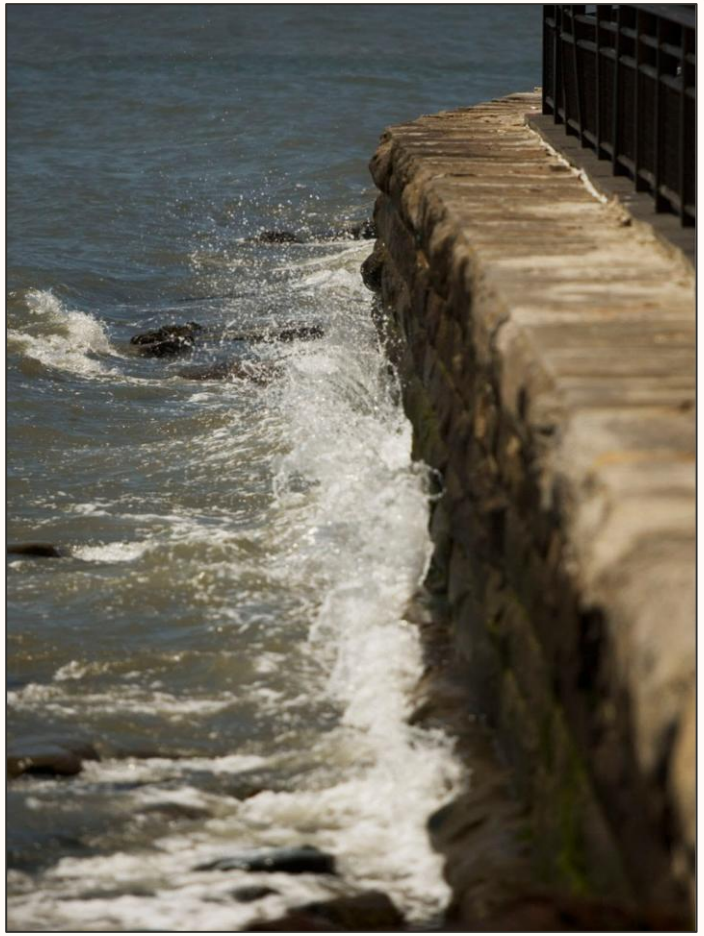
Flexible Protection Works

- Able to endure *some* settlement and movement over time
- Armour stone*, rip-rap, interlocking block mats

Rigid Protection Works

- Requires sound foundation that will not settle or move over time
- Vulnerable to cracking and structural failure



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Nottawasaga River Shorewall Standards (2014)

Shorewall Replacement Standard

- Ainley Group retained by the Town of Wasaga Beach in 2014 to develop a Shorewall Replacement Standard for waterfront property owners.
  - Determine appropriate type of shorewall protection;
  - Stabilize shoreline on the property; and
  - Streamline review process.

"It is intended that this standard will be used to help promote stable riverbanks with regard for a more aesthetically pleasing shoreline."

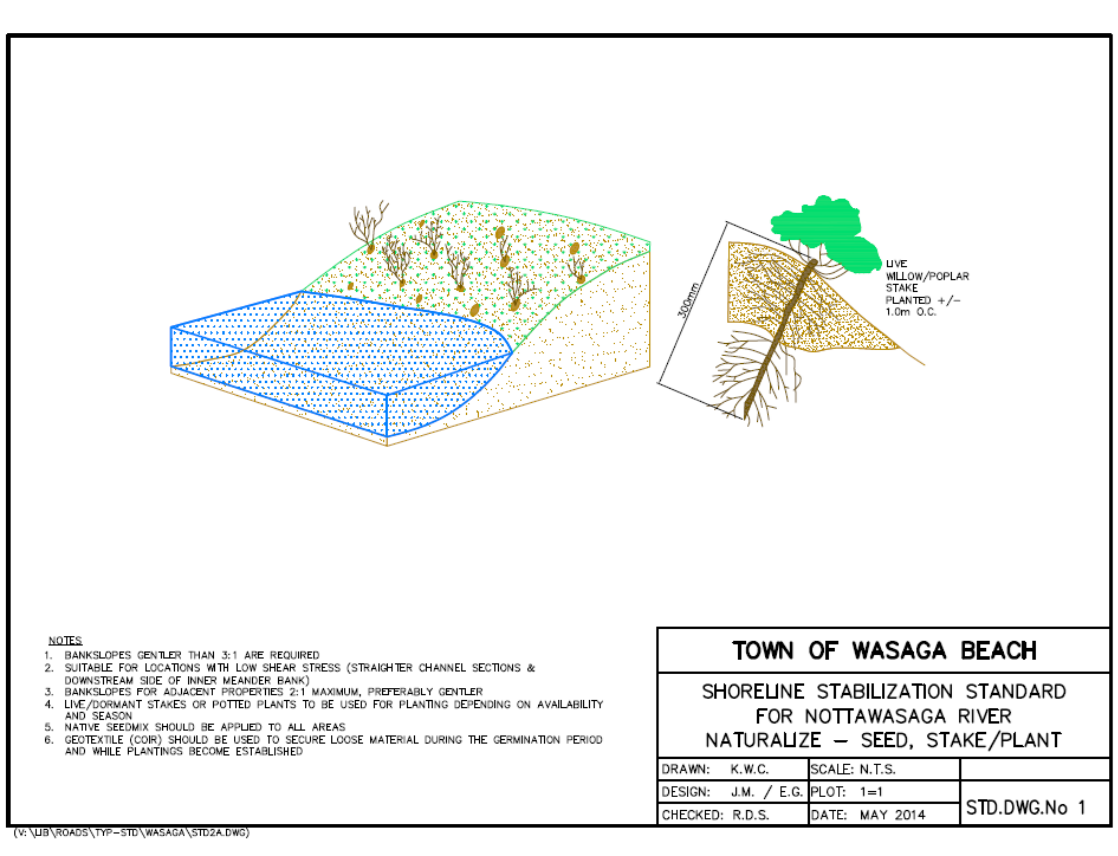
Results

- Identified 5 methods of shoreline erosion protection works appropriate for the Nottawasaga River
  - Non-Structural:
    - Naturalization
    - Bioengineering*
      *may be combined with structural elements
  - Structural
    - Armourstone
    - Cedar Posts
    - Sheet Piles

- Structural protection works to be considered when naturalization and bioengineering are not viable.

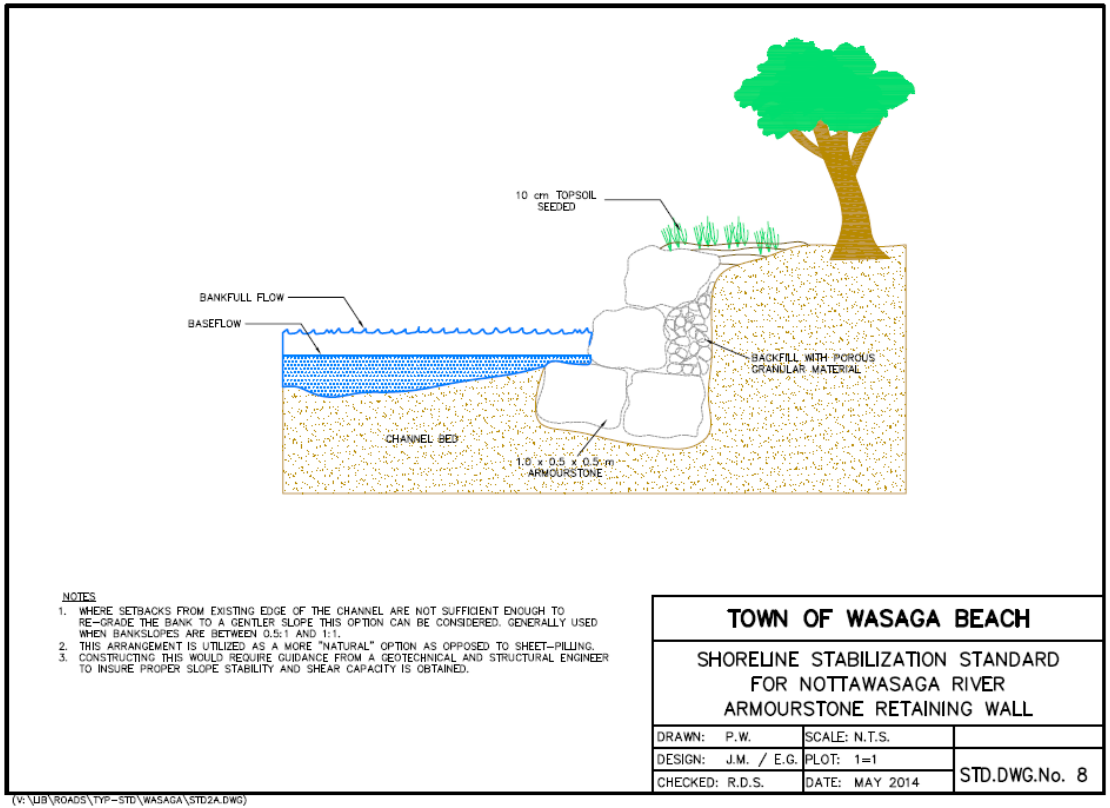
Naturalization

- 3:1 slope or gentler
- Native seeding or planting
- Live staking
- Geotextile fabric to secure exposed material while seeds germinate



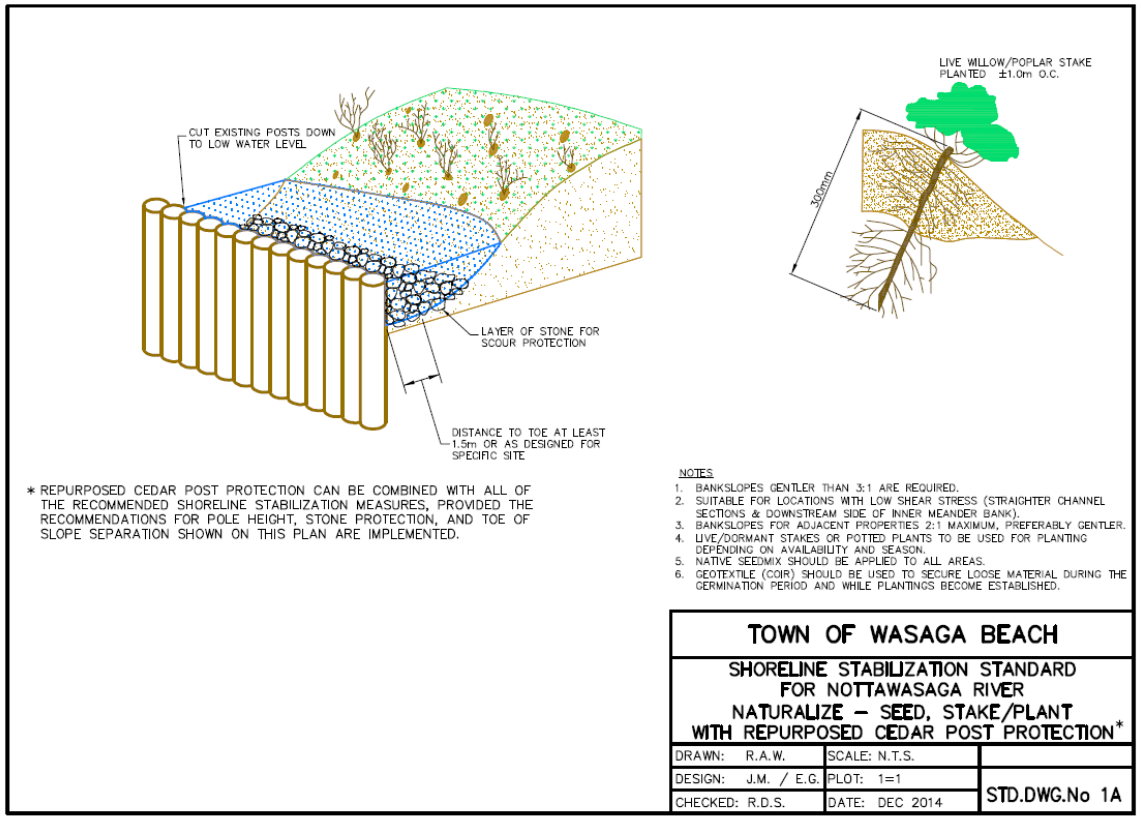
Armourstone

- Suitable for steep slopes
- Stacked with offset away from channel to reduce bank slope
- Creates roughness



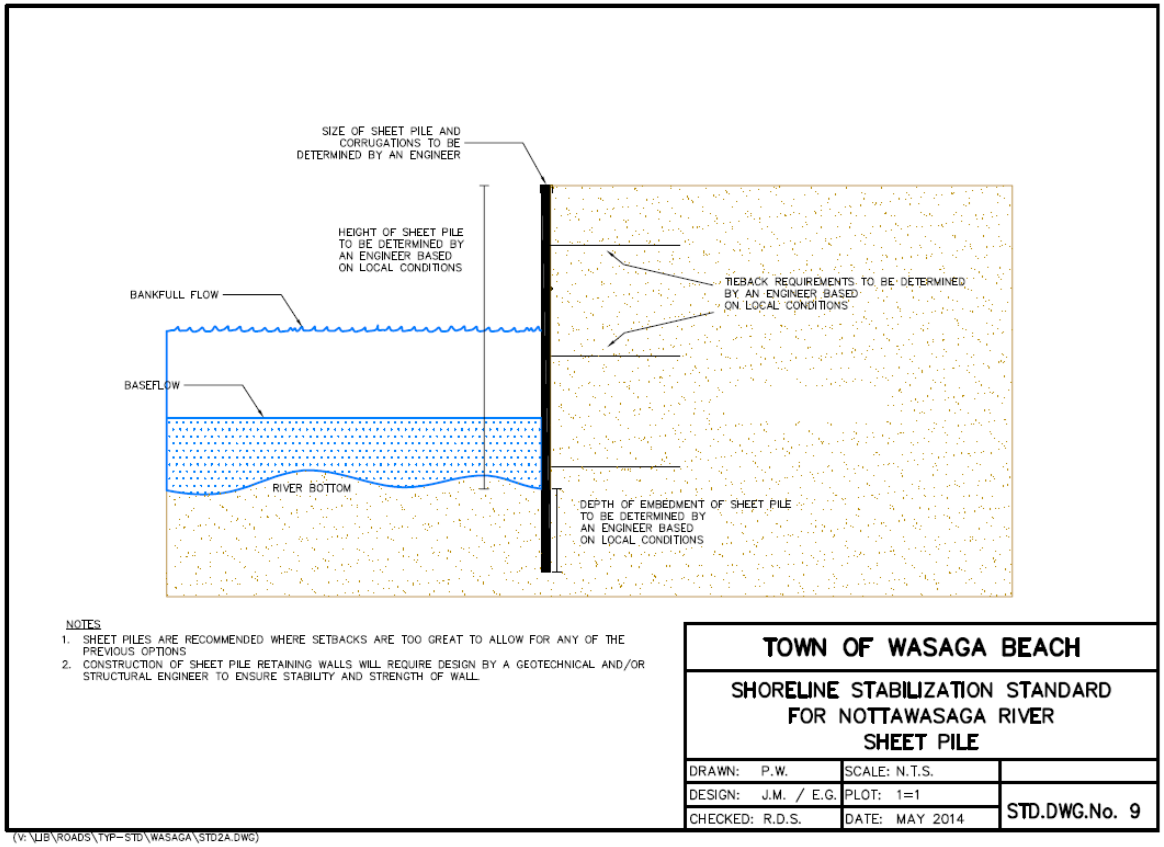
Cedar Posts

- Suitable for steep slopes
- Recommended when armourstone or naturalization are not viable options
- Sediment accumulation provides medium for aquatic plants
- Addition to shoreline options rather than a stand-alone



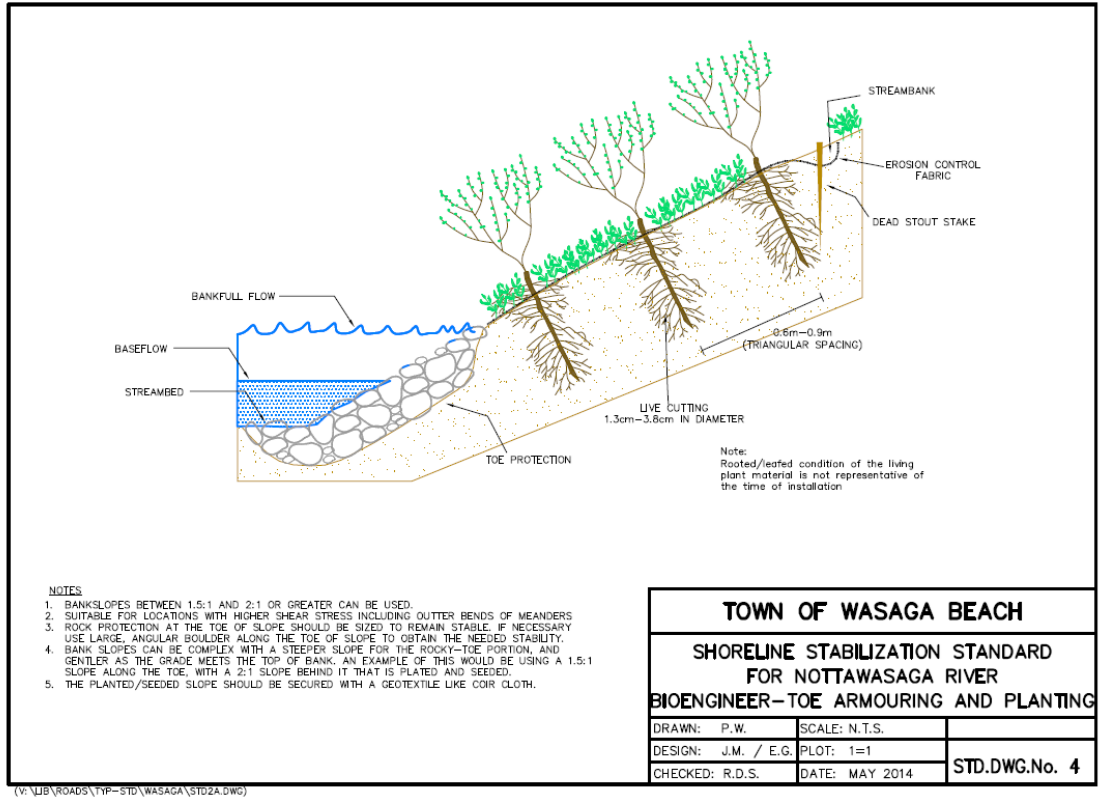
Sheet Piles

- Suitable for existing vertical shorelines unable to be regraded
- Recommended when naturalization and armour stone not viable



Bioengineering

- Suitable for steep or gentle slopes
- Combination of:
  - Brush mattress
  - Seeding & planting
  - Rip rap
  - Coir logs
  - Fascines
- Provides riparian habitat
- Stewardship river restoration projects!



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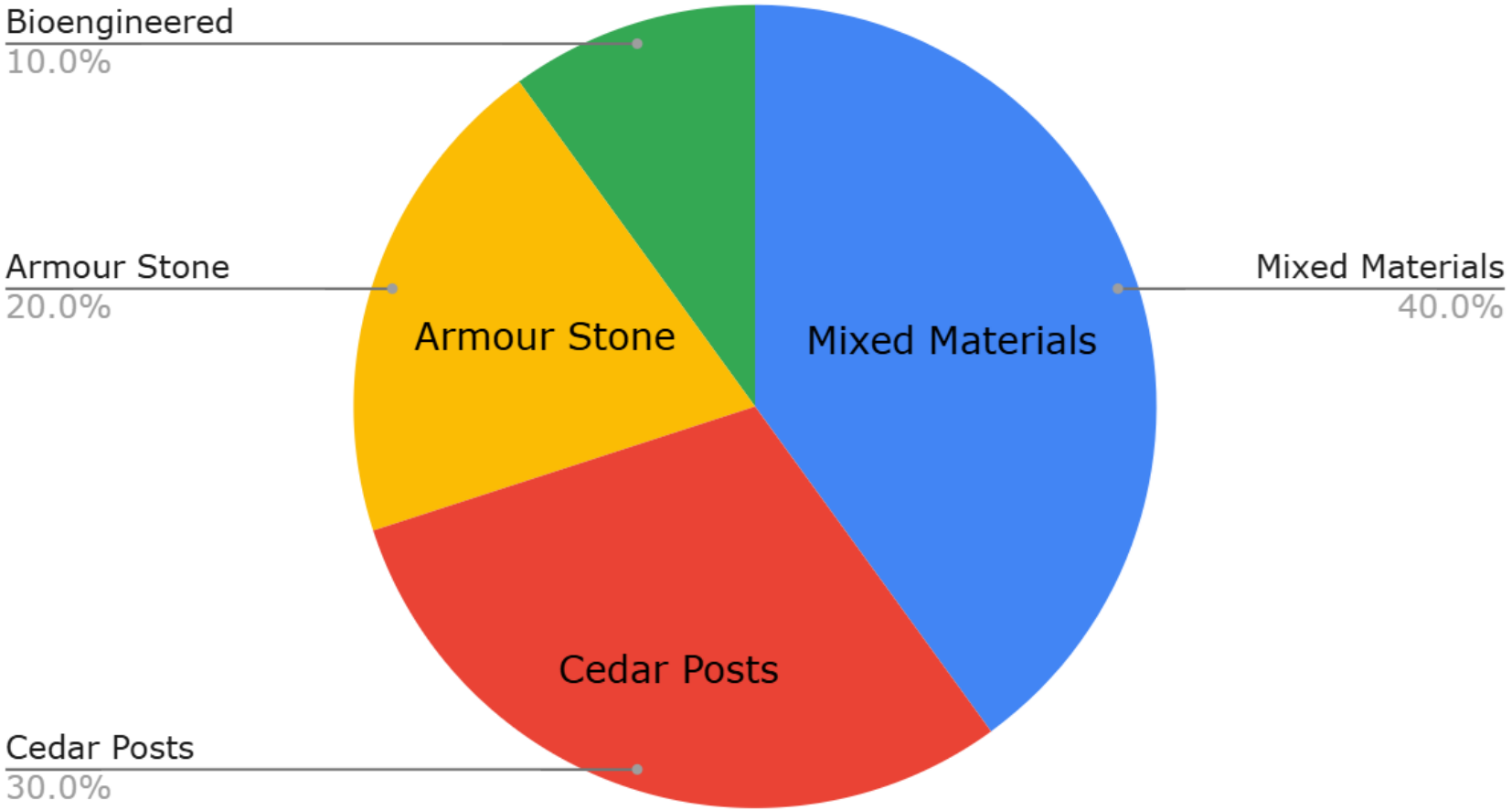
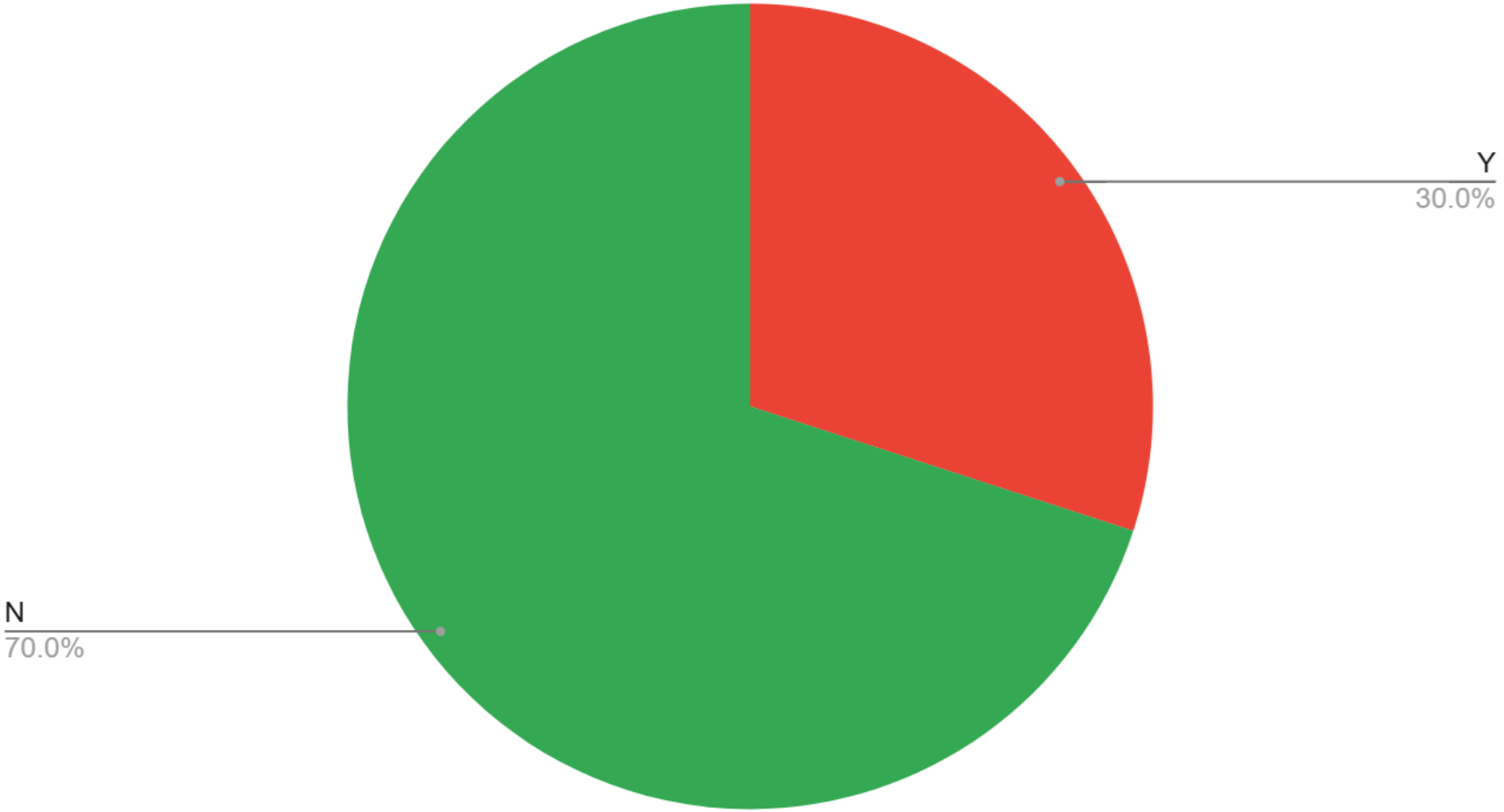
Discussion: Can Conservation Authorities Manage Conflicting Interests of Ecology, Engineering and Aesthetics?

Shorewall Replacement Type



Shorewall Permits with Non Compliance



Public Education

Pre-Consultation

Enforcement

Public Education

- Make resources, such as the *Shorewall Standards* document, accessible for waterfront property owners
  - Website
  - Mail
- Collaborate with municipal departments for public open houses and information events
- Communicate technical data and recommendations in accessible formats
  - Brochures
  - Inquiries by email or phone
- Encourage pre-consultation
- Increase public awareness of non-compliance penalities

Pre-Consultation

- Review drawings and plans ***ahead*** of submitting for permit approval
  - Chance to recommend and encourage non-structural naturalization or bioengineering methods
- Communicate site-specific technical data with the applicant
- Determines any addition studies required to support the proposal
  - ie. slope stability assessment
- Engages applicant in the review process

Enforcement

- Regular site inspections on waterfront property access roads
- Increase visibility of NVCA inspection vehicles
- Communication with municipal by-law enforcement
- Pursue non-compliance penalties
    - 2x permit fee charges
    - Stop work orders
    - Orders to restore
    - Permit cancellation
    - Court charges

Although not legislatively required, Conservation Authorities *can* manage conflicting interests of ecology, engineering and aesthetics using regulatory tools, primarily pre-consultation, supported by public education and enforcement efforts with municipal partners.

Thanks!

NVCA Planning & Regulations

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https://www.nvca.on.ca/planning-permits/understanding-natural-hazards/