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Inspecting and Monitoring ESC Measures: there's a new Canadian standard for that

Outline

- What is it and why
- Major clause overview
- How standards are used
- What’s next

What is it and why

What is it?

- 20 page document that focuses specifically on requirements for visually inspecting and quantitatively monitoring the performance of ESC installed on construction sites
  - Harmonization across Canadian jurisdictions
- Developed by a Technical Committee consisting of a balanced matrix of ESC stakeholders including contractors, consultants, and conservation authorities, as well as government representatives from municipal, provincial, and federal agencies
  - Through consensus and subject to a ballot
- Brought to you by CAN-IECA

Standards 101

- Standards are not guidelines or BMP manuals. They are requirement and performance-based documents that use words like ‘shall’ and ‘should,’ whereas guidelines provide options that users ‘could’ or ‘might’ consider in making decisions
  - Not ‘how to’ manuals
- They are concise and often narrowly focused
- They are compliance tools. They are meant to be referenced as part of a contract, permit, or other regulatory instrument where measurable, performance-based targets are needed/required/desired
- They can also complement or supplement local/regional guidance documents

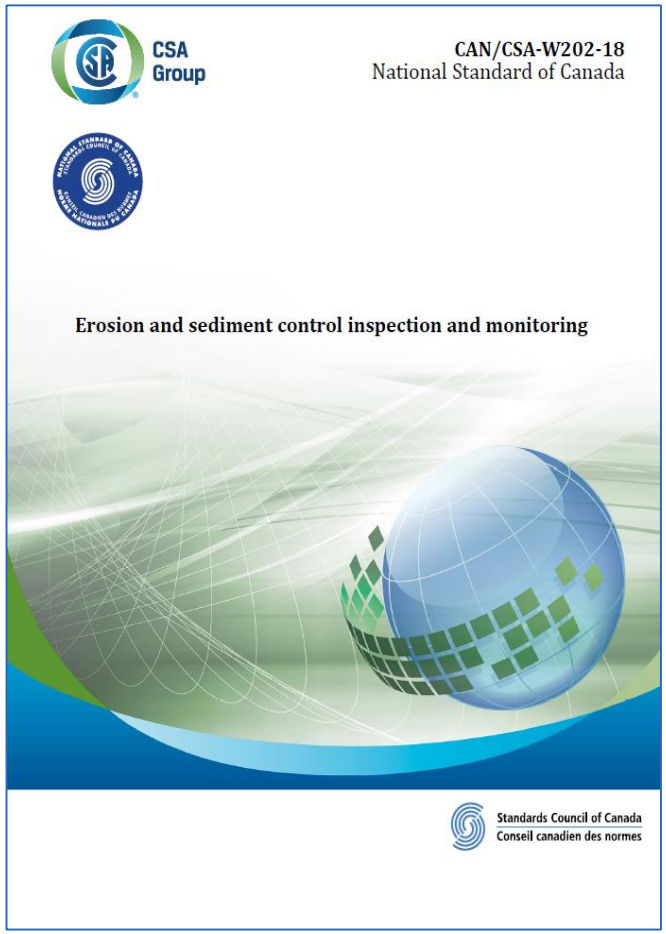
Why write a standard?

- There is a lot of ESC guidance out there, but…
- Industry dealing with ongoing issues related to:
  - Different rules and approaches in every jurisdiction across the country
  - Lack of performance-based criteria (when is enough ESC, enough??)
  - Project teams lacking sufficient knowledge and expertise
- CAN-IECA identified standards as a solution. Developed idea for 3-part series of nationally applicable ESC standards
- Objective of Inspection and Monitoring standard to establish and promote a common set of requirements that industry and regulators can work toward
  - Over time generating consistency and efficiency from one project to the next

Major clause review

Key components of the standard

- Qualification requirements for inspectors
- Construction phase inspection protocols
- Performance-based monitoring targets



Qualified personnel

- Every project team shall have someone qualified (a QESCI) ….they shall possess the education and experience necessary….to meet this requirement, the QESCI shall have
  - a post-secondary degree or technical diploma with relevant focus
  - a minimum of three years of on-site, field experience
  - completed certification courses in erosion and sediment control
  - ability to demonstrate continuing education
  - understanding of relevant environmental statutes and regulations
  - ability to read erosion and sediment control plans, contract drawings, specifications

- However, the Standard:
  - Allows for certifications and professional organization memberships to fill qualification gaps
  - Gives ample flexibility to the regulatory community to require more, less, or different qualifications,

Inspectors in-training

- A qualified erosion and sediment control inspector in-training shall
  - have all the same qualifications as a QESCI, except for the 3 years of field experience
  - function under the direct supervision of a QESCI
- Meeting this criteria allows the QESCI-IT to function in the same capacity as the QESCI

Inspection

Before construction

- All receptors are adequately identified and protected by planned ESC measures
- Establish reference/vantage points and monument for photo documentation
- Date and time stamped photographs and a video record of receptors as they appear before construction
- Prior to the start of grading or soil movement activities, complete an initial inspection to document that any installed ESC measures conform to the ESC plan
- Document according to protocol

During construction

- Inspect installed ESC measures, in place with no noted deficiencies
- Daily inspection during periods of significant rainfall events of duration greater than 24 continuous hours
- Daily inspection during thaw events
- Inspect 24 h prior to and within 24 h after rainfall events
- Inspect weekly during construction
- Inspect monthly while no construction activity is taking place and none of the above conditions have taken place
- Re-inspect areas that have been repaired to verify problem resolution

Post-construction

- Inspect according to protocols for ‘during construction’
- Inspect until regulator provides sign-off, as required
- Inspect until 80% site stabilization achieved, at a minimum
- Stabilization-related inspections carried out progressively over project life
  - Regulator might spell out type of ground cover and amount of coverage in contract, as related to stabilization

Monitoring

Assumptions:

- A site-specific risk assessment has already been done
- The relevant regulatory authority is ultimately responsible for determining frequency and type of water monitoring based on the risk assessment
  - W202 only recommends targets for two types of monitoring
- Monitoring criteria outlined is applicable to design rainfall events up to and including a 5-year design storm

Receiving watercourse monitoring

- Receiving watercourse monitoring refers to TSS and NTU measurements taken from within the receiving watercourse
- Due consideration given to background values
- Standard acknowledges that background values are critical, but that each jurisdiction will have its own approach to coming up with them (i.e. upstream and downstream measurements vs. upstream only)

Receiving watercourse targets

TSS

- Measurements of total suspended solids (TSS) within a receiving watercourse should not exceed 25 mg/L TSS above the receiving watercourse's background levels for short-term exposure periods (e.g. 24h)
- For longer term exposure periods (e.g. 24h – 30 days), the maximum average increase above background should not exceed 5 mg/L
- When the receiving watercourse's background levels are between 25 and 250 mg/L, the maximum increase in TSS above background should not exceed 25 mg/L
- When the receiving watercourse's background levels are greater than 250 mg/L, the increase in TSS above background should not exceed 10% of the background level

NTU

- Where turbidity (NTU) measurements are preferred and allowed by contract or permit, the maximum increase in NTU above the receiving watercourse's background level should not exceed 8 NTU for short-term exposure periods (e.g., 24-h)
- For longer term exposure periods (e.g., 30 days), the maximum average increase above background should not exceed 2 NTU
- When the background level of a receiving watercourse is 80 NTU or less, the maximum increase above background should not exceed 8 NTU
- When the background level in the receiving watercourse is greater than 80 NTU, the maximum increase should not exceed 10% of the background level

Effluent discharge monitoring

- Effluent discharge monitoring means measurements of TSS or NTU at the point of discharge, which this Standard considers to be the point where effluent is released to the receiving stream following treatment (e.g. check dams and ponds)
- Larger municipalities with extensive stormwater systems and/or that are situated within a large river drainage have a harder time regulating the monitoring of receiving watercourses

Effluent discharge targets

- Measurements of effluent water at the point of discharge from the construction site should not exceed 25 mg/L TSS
- If using NTU as a surrogate effluent water quality parameter, the QESCI should consult with the project owner or regulatory authority to determine an acceptable NTU value equivalent to 25 mg/L TSS, based on site specific parameters

Other clauses

- Documentation and communication
- Stormwater management facilities
- Haulage of materials
- In-water work
- Annexes:
  - Monitoring equipment overview
  - Regionally significant rainfall data
  - Sample inspection record
  - Reference publications

How standards are used, and what's next

How standards are used

Standards are compliance tools that can be used in a number of different ways, for instance

- They can be looked to as best practice benchmarks by individuals, companies, or municipalities
- They can be written in to bylaws and organizational processes, tender documents, contracts, and permits
- They can also be adopted and inserted in to codes and legislation

Example 1: contractor applies for a permit with the local authority or project owner, and as part of the permit the issuing party specifies that standard XYZ shall apply, meaning the contractor is obliged to meet the requirements of the standard in satisfying the terms of the permit.

Example 1a: contractor applies for a permit with the local authority or project owner, and as part of the permit the issuing party specifies that only Clauses 123 of standard XYZ shall apply….

Example 2: standard XYZ publishes and eventually becomes widely known as the “go to” standard in the industry. Federal/provincial agencies recognizes support for the standard and decides to reference it, either through a legislative amendment or as part of the directives it gives to its state/provincial offices.

Next steps

- Work with industry and regulatory community to use and reference the standard
- Monitor uptake and functionality over time, collect industry feedback
- Revisit and revise as needed, but no longer than 5 years
- ESC Installation and Maintenance standard to begin in spring 2019

THANK YOU FOR YOUR TIME

Please feel free to reach out with questions at any time.

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