Construction Site Erosion and Sediment Control In South Dakota: A Sioux Falls Overview.

2023 ESC WORKSHOP

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Construction General Permit

- Discharges Covered:
  - Storm water from construction sites greater than 1 acre.
  - Construction support activities.
  - Larger common plan of development.
  - Designated sites.
  - Construction Dewatering with appropriate controls.
- Discharges NOT Covered:
  - Post construction discharges.
  - Dredge or fill activities (Section 404 Permitting).
  - Discharges threatening water quality.
  - Discharges of regulated substances (spills).
  - Discharges threatening Endangered Species.
- NOTE:
  - If you adhere to Chapter 12 of Sioux Falls EDS you are compliant with SDDANR Construction Stormwater Permit.
  - Chapter 12 can still be enforced even if state permit is closed.
Silt Fence

• Design:
  • Not suitable for concentrated flows.
  • Functionality severely impacted at slope lengths of 200’+ and slopes steeper than 50% (2:1).
  • Ideal to design for sediment storage at bottom of a slope.
  • If grades won’t direct water to an area there is no need to install silt fence.

• Construction:
  • Ensure fence is trenched into ground.
  • Wire-backed.
  • Maintenance needed at 50% full.
Wattles

• **Design:**
  • Can be utilized in swales and ditches as checks if properly installed.
  • Note slope to call out proper spacing.
  • Again, don’t need to install if water will never get to them!

• **Construction:**
  • Ensure trenched as standard dictates.
  • Wattles must now be staked at an angle pointing upslope.
  • Overlap of wattles on the contour is important.
Inlet Protection

- **Design:**
  - Consider inlet type and location and adjust accordingly.
  - Multiple types of IP on the market.
  - Overflows are critical during high flows.

- **Maintenance:**
  - IP is last line of defense.
  - Maintain site controls upstream especially VTC.
  - Make sure IP is regularly cleared of sediment.
  - IP not to be used as dewatering BMP.
Vehicle Tracking

• Design:
  • Make sure to specify 3 to 4” + angular aggregate.
  • Geotextile under aggregate.

• Construction:
  • All points of site egress need VTCs.
  • VTCs are needed on individual lots as well.

• Maintenance
  • Aggregate
  • ROW Sweeping
MICS – Who's Responsible

• MICS does not relieve developers of their overall responsibility to maintain the development.

• Developer - Regional controls
  • Inlet Protection, Sediment Basins etc.

• Property Owner (PRP) – Site specific controls
  • VTC, Perimeter Controls etc.

• A MICS project will remain active until the site meets the City’s stabilization requirement of 70% live cover.
Minor Impact Construction Site, Erosion and Sediment Control Plan

Narrative:
1. Individual lots involving less than one acre of disturbed area shall not be considered whole. These sites will be classified as a Minor Impact Construction Site (MIC) if they MIESCP will not need a separate stormwater construction permit or erosion sediment control plan.

2. Individual lots may appoint their general contractors to be responsible for train

   - Defining limits of construction and the method and location of physical site
   - Defining limits of erosion control areas if present on site
   - Removal of sediment collection leaving site
   - Locations of stabilized areas to fit construction requirements if propos
   - Construction use of vehicles and equipment is to be kept out of unstaffed areas
   - Protection of concrete washout and erosion control
   - Use of structural erosion and stabilization measures that should not be disturbed

3. Any vehicle BMF or fence, vehicle tracking control shall be inspected
   - Precipitation of rainwater should be surface erosion, sediment transport and
   - Construction of fencing shall be properly to prevent damage to
   - Construction of property is within their approved limits of construction. Any individual lot owner that
   - Limits of construction are required
   - Limits of construction shall be at the property lines or no more than ten (10) feet
   - Authorized limits of construction must be physically demonstrated on the property
   - At a minimum the limits of construction must be marked with at least a four (4) feet
   - The corners of each authorized limit line

4. On building site less than 1 acre in size, a vehicle washout station is not required

5. After construction begins apply soil surface stabilization within 14 days to all disturb
   - Stabilization measures shall include, but are not limited to:
     - Surface roughening
     - Temporary or permanent vegetation
     - Mulching
     - Sodding
     - Landscaping
     - Erosion control blankets

6. Fresh concrete washout areas are not required, but are encouraged on individual
   - Be allowed to wash off fresh concrete in the street or in any area where the washout
   - Vehicle tracking station is not limited to:
     - Stabilized staging area (Typical location)
     - Vehicle tracking station (Typical location)
Diversion/Silt Ditch

**Design:**
- Diversion dikes have limitations that can be corrected for by using a silt ditch.
- If you see where extra water might be getting to a common point call for a silt ditch.
- Dike is roughly 9” berm with 9” cut while ditch is minimum 18” berm by 18” cut at 5’ width.

**Construction:**
- Fix blowouts immediately to avoid bigger issues.
- If there is an area consistently failing, consider a redline to include silt ditch or utilizing check dams.
Sediment Basins/Traps

• Design:
  • Make sure to think of existing grades and design simple traps/basins for beginning phase of work.
  • Horseshoe filters are preferred over riser filters.
    • Easier maintenance due to proximity to access bench.
    • Less likely to fail during an overflow situation.

• Construction:
  • Should always be the first item installed.
  • Maintenance required at 50%.
  • **Even when an outfall structure is in place you still need a horseshoe filter!**
Soil Stabilization

• Chapter 12.2 Erosion Control:

"After construction begins, soil surface stabilization shall be applied within fourteen (14) days to all disturbed areas that may not be at final grade but will remain dormant (undisturbed) for periods longer than 21 calendar days. Within fourteen (14) days after final grade is reached on any portion of the site, permanent or temporary soil surface stabilization shall be applied to disturbed areas and soil stockpiles. When the initiation of stabilization measures is stopped due to snow cover or arid conditions, stabilization measures shall be initiated as soon as possible..."
Mulching

• Our observation:
  ◦ Uniform surface roughening prior to mulch application roughly 2–4-inch clumps.
  ◦ Clean (weed/seed free) long stemmed grass hay or cereal grain straw with at least 50 percent of the mulch being 10 inches or more in length.
  ◦ Even application of mulching materials at a rate of two tons per acre.
  ◦ Mechanically anchoring material by crimping/disking it about 4 inches into the soil without cutting it.

• All areas of a site that are seeded MUST be protected with mulch.

• Slopes with 3:1 or greater hydraulic mulching spread at a rate of 1,500 lbs. per acre may be the best option.

• Per EDS 12.2.1, surface roughening can be used to temporarily stabilize soils for up to one month.
Final Stabilization

• Chapter 12.11 Final Stabilization:
  • All erosion and sediment control measures accepted in the Erosion and Sediment Control Plan must be maintained until final stabilization is reached which means that either:
    • All planned soil disturbing activities at the site have been completed and a uniform perennial vegetative cover with a density of 70 percent of the native cover or an equivalent permanent stabilization measure has been employed on any pervious areas of the site; or
    • A specific alternative to final stabilization as described in this chapter; or
    • A specific alternative approved by the S.D. DANR general permit for storm water discharges associated with construction activities.
Disposal of Temporary Measures

All temporary erosion and sediment control measures shall be removed and disposed of within 30 days \textit{after final stabilization has been achieved}, or \textit{after the temporary measures are no longer needed}, whichever occurs earliest, or as authorized by the Office of the City Engineer.
Chapter 12.7

"All temporary and permanent erosion and sediment control practices shall be maintained and repaired by the responsible party during the construction phase as needed to assure continued performance of their intended function. Silt fences and wattles may require periodic replacement and all sediment accumulated behind them shall be removed and disposed of properly. Sediment traps and basins will require periodic sediment removal when the design storage level is half full. All facilities shall be inspected in accordance with Section 12.9 by the responsible party or their representative. If sediment escapes the construction site, removal of the offsite accumulations to minimize impacts shall be initiated by the end of the same work day. If new erosion and sediment controls or repairs are necessary, work must be completed before the next anticipated storm event or no later than seven (7) calendar days, whichever comes first..."
Other Items

- Phasing and intermediate controls

- SWPPP adherence is critical to avoid downstream mitigation

- Clarify PRP and GC on every permitted project.
Questions?

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