

Storm Water and NDDOT

1. **Municipal Separate Storm Sewer Systems (MS4):** Mandan, Bismarck, West Fargo, Fargo, Grand Forks
2. **Construction:** All construction sites.
3. **Industrial:** All Maintenance Facilities
4. **Mining:** All state owned gravel pits

Who is responsible at NDDOT for MS4 and Storm Water compliance?

- Design

- Construction

- Maintenance/Districts

It is everyone's **responsibility!**

Design Responsibilities

- Coordinate all MS4 activities
- Submit Annual Report to NDDOH
- Design site plan for Erosion Control Measures (ECM).
- Develop a partnership with the five MS4 permittees to address common issues.
- Develop ECM's for post construction runoff water quality control.
- Develop and review construction standards for onsite erosion and sediment control.
- Develop educational material and train personnel on the review of storm water management plans and inspection procedures.
- Develop penalties for contractors failing to comply with the storm water management plan.

Construction Responsibilities

- Pre-construction staking of ECM's
- Weekly and Storm Event Runoff ($\geq .50$ in./24 hrs) inspection of ECM's during construction
- Enforcement of ECM's.
- Submit inspection notes to Design Division
- Maintain inspections until contract has been finalized.

Maintenance/Districts Responsibilities

- Responsible for overseeing compliance for insuring MS4 compliance on all NDDOT projects and properties (State Owned Gravel Pits, Maintenance Yards), and submit reports to the Design Division.
- After the contract has been finalized the Maintenance/Districts will be responsible for maintaining and removing all ECM's until 70% coverage is established on disturbed areas.
- Develop and review construction standards for onsite erosion and sediment control.
- Develop penalties for contractors failing to comply with the storm water management plan.

What has been done to address storm water issues within the NDDOT?

- We have developed a SWPPP (MS4) and currently entering the second year of our SWPPP (MS4).
- Develop an Erosion Control Manual.
- Developing revisions to Standards and Design Manual
- Review materials being used.

Erosion Control Manual

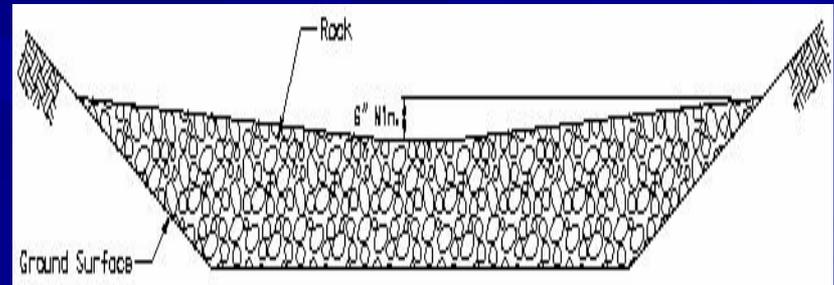
- Does not replace Design Manual
- Reference to Erosion Control Measures and Permit Information
- General Description of Practice
- Materials
- Placement
- Installation
- Maintenance
- Removal



General Description of Practice

■ ROCK DITCH CHECKS

Rock ditch checks operate by intercepting and ponding sediment-laden runoff. Ponding the water dissipates the energy of incoming flow and allows large portions of the suspended sediment to settle out. Water exits the ditch check by flowing over its crest. Rock ditch checks are ideal for ditches that eventually will have a riprap lining. Upon completion of the project, rock ditch checks can be spread out to form a riprap lined channel. Rock ditch checks should have sediment removed when the collected sediment level is one-half the rock height.



Profile of Rock Check

Materials

- Filter fabric should have a minimum width of 36 inches.
- Wood posts should be treated and be a minimum of 6 feet long with minimum dimensions of 2 inches diameter for round posts or 1 ½ inches by 1 ½ inches for rectangular posts
- Steel posts should be a minimum of 5 feet long, weigh a minimum of 1.3 lbs/ft, have a welded plate near the bottom and have projections to aid in fastening the wire or fabric.
- When backing of the silt fence is required, a steel wire fence fabric should be used. The woven wire should be at least 32 inches high, have a maximum opening size of 6 inches by 6 inches, and be a minimum of 14 gauge grade 60.
- Prefabricated silt fences will not be allowed



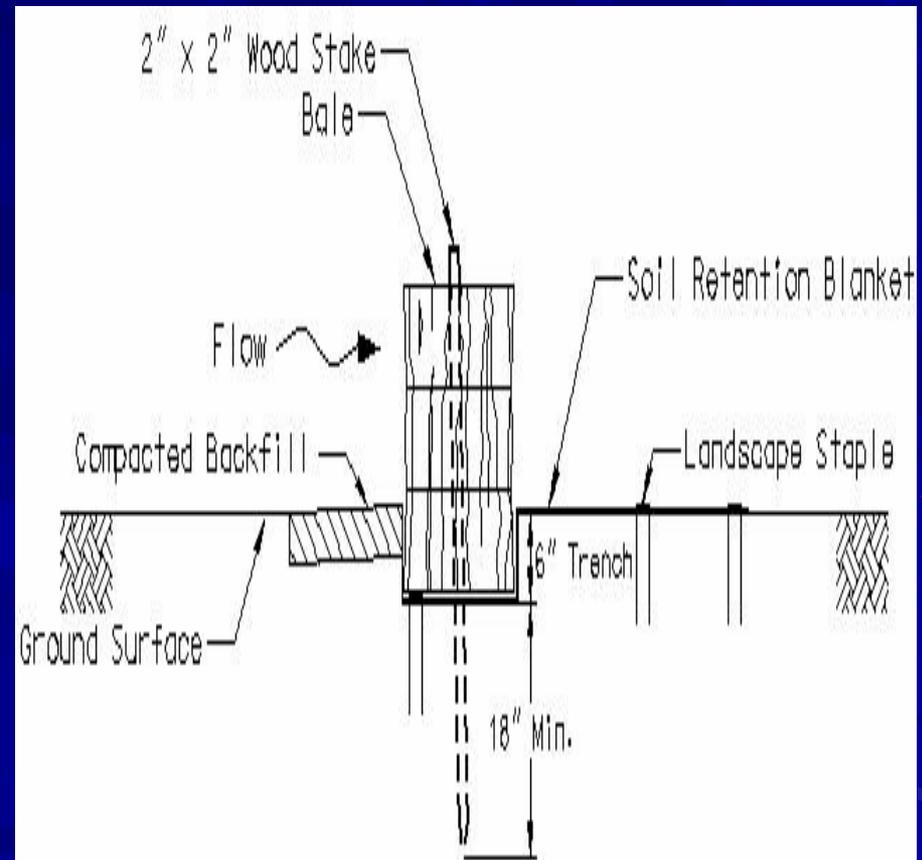
Placement

- The silt fence should extend far enough so that the ground level at the ends of the fence is higher than the top of the low point of the fence. This prevents water from flowing around the check.
- For slope protection the silt fence should follow the contours of the site as closely as possible.
- Checks should not be placed in ditches where high flows are expected. Rock checks should be used instead.
- Silt fence should be placed in ditches with slopes of 4 percent or less. For slopes steeper than 4 percent, rock checks or an appropriate alternative should be used.
- Do not place a silt fence directly in front of a culvert outlet. It will not stand up to the concentrated flow.

Silt Fence Ditch Check Spacing	
Ditch Grade (Percent)	Check Spacing (Feet)
1.0	200
2.0	100
3.0	65
4.0	50
> 4.0	Do not use silt fence

Installation

- Perpendicular to the flow line, excavate a trench that is 6 inches deep and a bales width wide. Place the soil on the upstream side of the trench to save for later use.
- Place the bales in the trench, making sure that they are butted tightly. Two stakes should be driven through each bale, at a slightly upstream angle, along the centerline of the ditch check, approximately 6 to 8 inches in from the bale ends. Stakes should be driven at least 18 inches into the ground.



Maintenance

■ Inlet Protection

- **Problem:** Flooding around or below inlet. Stakes and fabric leaning/falling in toward grate.
Solution: Check grade
Regrade or redesign Check for blockage in culvert or catch basin
- **Problem:** Undercutting of bales or silt fence, bale displacement, torn fabric, etc.
Solution: Replace, rearrange and/or regrade



Removal

■ Removal

After all sediment producing areas have been permanently stabilized, 70 percent soil coverage, all sediment accumulation at the silt fence should be removed, and all sediment excavation should be backfilled and properly compacted. Smooth the site to blend with the terrain.

Inspection Highlights







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QUESTIONS???