

**ELEMENTS OF A SUCCESSFUL EROSION &
SEDIMENT CONTROL EXPERIENCE**

MAINTENANCE OPERATIONS



Nate Muenks
MoDOT Design
Environmental & Historic Preservation Section

Why Is Land Disturbance Important to MODOT?

- **Erosion and Sediment Loss Causes Water Pollution**
- **MoDOT Supports Environmental Stewardship**
- **It's The Law**
- **Violations and Penalties Can and Will Be Imposed**

At this time (October 2013) MoDOT is potentially facing significant civil penalties and potential “institutional changes” from the EPA and MDNR resulting from erosion and sediment control violations on construction projects, some dating back to 2010.

The Goals

- **Complete the task while preventing soil from leaving the job site and entering rivers, streams, lakes, ponds, wetlands, and private property.**
- **Compliance with state and federal laws**
 - **Federal Clean Water Act**
 - **State Operating Permit (Land Disturbance)**
 - **Missouri Clean Water Law**
- **Promote the establishment of permanent vegetation ASAP to prevent erosion.**
- **Minimal instability = Reduced vulnerability**

Don't disturb existing vegetation if you don't have to and be sure to cover up (seed and mulch, mulch, rock, etc.) and re-establish vegetation on disturbed soils as quickly as possible. This drastically reduces the risk of losing sediment from a job site.

Understanding The Law

Land Disturbance Regulation

- **1972 Clean Water Act**
 - Requires a permit to discharge water that has contamination in it.
 - In Missouri the permit is called a Missouri State Operating Permit (MDNR & EPA oversight)
 - Nationally it is called National Pollutant Discharge Elimination System (NPDES) (EPA oversight)
- **Effective March 10, 2003 - permits required for land disturbance ≥ 1 acre.**

In 1972 the clean water act was passed to control discharges of polluted waste water from industries and cities. Discharge permits allowed these point sources to discharge treated wastewater.

EPA subsequently delegated Clean Water Authority to Missouri DNR. Since then DNR has issued discharge permits to cities, industries, and other waste water treatment operations.

In 1987 environmental groups sued EPA to regulate non-point source discharges. These are discharges that do not have a single point of discharge.

Land Disturbance Regulation (MoDOT's Permit)

- **MoDOT has been issued a Missouri State Operating Permit (MO-R100007) which authorizes land disturbance activities of **one acre or more**.**
- **Once we disturb **one or more acres** on any job, whether maintenance or construction, we are subject to the requirements outlined within our permit and stormwater pollution prevention plan (SWPPP) which are NUMEROUS!**
- **However, even if we never reach one acre, we are still subject to the Missouri Clean Water Law.**

When we reach 1 acre of land disturbance on a job, we fall under the MoDOT permit and SWPPP, which carries many more requirements with it. Try to minimize your disturbance and limit clearing and soil disturbance to only those areas necessary to complete the task. But keep in mind that even for jobs that disturb less than 1 acre we can't cause pollution as will be seen in the next series of slides.

Prohibited Acts Regardless of Permit (Missouri Clean Water Law)

- **To cause pollution to waters of the state**

EPA continues to demonstrate, through inspection reports and pending enforcement, that “pollution” is whatever they say it is and the subjectivity of it often makes it difficult for us to comply.



This dewatering operation is pumping turbid, brown, contaminated water from a drilled shaft directly into a clear stream. Clearly pollution because the stream is clear as it flows into the job.

Prohibited Acts Regardless of Permit (Missouri Clean Water Law)

- To cause pollution to waters of the state
- **To “put or place” pollutants in proximity to waters where they are reasonably certain to cause pollution**

Note- this says “in proximity to” streams. MODOT does not have to cause contamination to be in violation of this provision in the law. We should always have a BMP barrier between our disturbance and resources that we could possibly impact (e.g., streams, ponds, lakes, wetlands, adjacent property, etc.)



Every bridge and many culvert projects involve some type of work on a stream bank, or in a stream channel. The “put or place” provision in the law is seldom used as the sole reason for enforcement, but is usually referenced as an “add on” in most Notices of Violation (NOVs). Always ensure that a barrier is placed between the potential contaminant and the stream or other resource.

Prohibited Acts Regardless of Permit (Missouri Clean Water Law)

- To cause pollution of streams
- To “put or place” pollutants in proximity to streams where they are reasonably certain to cause pollution
- **To exceed general or specific water quality criteria – the “free froms”**

DNR water quality standards (10-CSR20-7.031(3)) say “waters shall be free from” a number of conditions or pollutants.

These “free from” conditions include:

- unsightly bottom deposits
- oil, scum, floating debris
- unsightly color or turbidity
- harmful effect on human or aquatic life
- physical, chemical, or hydrologic changes that impair natural community



Regulatory enforcement personnel have demonstrated that “unsightly turbidity” is an extremely subjective condition that can be interpreted differently from one individual to the next.

The first example in this slide is from a diamond grinding discharge and is simply intended to show the differential water clarity. The second example is utility bore slurry that traveled down a ditch line and deposited on this stream bottom, negatively affecting aquatic habitat.



Understanding The Methods Of Control

How do we go about controlling erosion and sediment on our projects?

“What’s the Difference?”

“Erosion vs. Sediment Control....It’s the Same Right?”

WRONG!

- **Erosion Prevention/Control** is the act of protecting the soil surface to prevent the displacement of soil particles by water or wind.
- **Sediment Control** is the act of trying to stop the migration of displaced soil particles that result from erosion.

It is extremely important to understand that erosion control and sediment control are not the same thing. We always prefer to utilize proper erosion control when possible, but also that we have sediment control devices in place to limit sediment transport and keep it on our job site.

Erosion Control is Preferred

- **Protect as much existing vegetation as possible.**
 - **Leave a buffer along streams and drainages if possible (also acts as sediment control).**
 - **Avoid impacting vegetated drainage swales and areas of concentrated flow.**
- **Divert water flow away from or around your disturbed area.**
- **Cover up disturbed areas ASAP! (e.g., Seed & Mulch, Rock, Erosion Control Blanket, etc.)**
- **There is no better alternative than avoidance!**

ONLY DISTURB WHAT IS ABSOLUTELY NECESSARY TO COMPLETE THE JOB!!! This will save you time, money and vulnerability!

Common Erosion Control Best Management Practices (BMPs)

- **Existing Vegetation**
- **Berms/Diversion Channels**
- **Energy Dissipaters**
- **Seed & Mulch**
- **Mulch (Wood, Straw, etc.)**
- **Rock Armoring**
- **Erosion Control Blanket (ECB) & Turf Reinforcement Mats (TRM)**

Example erosion control BMPs you can choose to utilize on your projects.

Erosion Control is Preferred



Left Photo: Rock toe protection along this stream bank is erosion control. We need to be sure to seed and mulch down the disturbed ground above it ASAP so we don't lose that soil!

Top Right: You can use chipped wood mulch to temporarily cover disturbed soils. Stockpile the brush clearing and other clearing chippings from roadsides on a lot and use it as needed. It can also be used as a perimeter berm which is covered in the sediment control section. This is especially useful material in the winter, when no grass is going to grow anyway.

Bottom Right: Example of seed and mulch on a slope and a stabilized let down (diversion) ditch with erosion control blanket and ditch checks. This ditch protects against erosion on the steep slope!

Sediment Control is Necessary

- Install **perimeter** and **outfall** BMPs down grade **BEFORE** disturbing any ground.
- Install impounding BMPs, like rock ditch checks, at **outfalls** (places where concentrated water flow leaves your project area, e.g. ditches, swales).
- Install **perimeter** (linear) BMPs, like silt fence, for perimeter protection where sheet flow is expected to leave the project area.

Even with excellent erosion control practices in place, we will likely need to rely somewhat on sediment control devices since we can't hold every soil particle in place.

ALWAYS INSTALL SEDIMENT CONTROL BMPs AROUND YOUR PERIMETER AND AT YOUR OUTFALLS BEFORE YOU TURN ANY DIRT!!!!

Remember to think about whether you are going to have sheet flow or concentrated flow. There are different BMPs for each!

Common Sediment Control BMPs

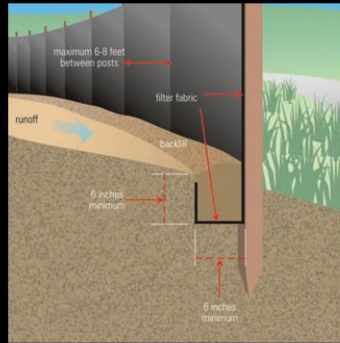
- **Existing Vegetated Filter Strips**
- **Silt Fence** (Geotextile, Mulch Berm, Silt Logs)
- **Ditch Checks** (Rock, Tri-Dike, Silt Logs, etc.)
- **Inlet Protection Devices** (Vary depending on type and location of inlet)
- **Sediment Trap** (Excavated Hole or Oversized Ditch Check)
- **Sediment Basin** (More Common for Larger Construction Jobs)

Example sediment control BMPs for you to consider. There are others out there as well.

“Silt Fence”



Ensure proper installation and remember, silt fence is used in areas of **SHEET FLOW**, not concentrated flow.



GEOTEXTILE SILT FENCE MUST BE KEYED INTO THE GROUND AT LEAST 6 INCHES AND HAVE A FLAP OF APPROXIMATELY 6 INCHES POINTED TOWARD THE UPGRADE SLOPE!!!! If you don't do this, it will likely undermine in short time!

The straw bales in the lower left photo are acting as additional support for the geotextile silt fence, which is the primary BMP. Straw bales should be a last resort and we would prefer to not use straw bales at all, unless for a mulch!

The lower right photo is illustrating the use of a chipped wood mulch berm for perimeter protection.

Ditch Checks

Ditch Checks – For **CONCENTRATED** Flow

- Rock
- Tri-Dikes
- Sand Bags
- Compost or Mulch with ECB Covering
- Wattles/Silt Socks/Silt Logs
- GeoRidge



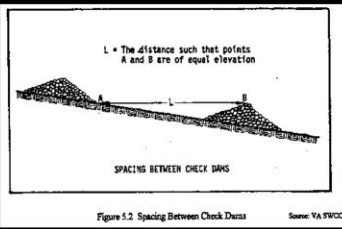
YOU WILL NEED TO UTILIZE DITCH CHECKS ON YOUR PROJECTS!! Ditch checks are probably the most commonly used BMP at MoDOT since we have so many water conveyance channels on our right of way.

I always recommend rock as your very last check before water exits MoDOT property – it tends to withstand higher flows and filters well. Typically 6 – 9 inch rock works well and if you need it to filter out finer soil particles, like clay, you can cap the upgrade side of the check with a smaller stone, such as 1 inch clean.

Whatever you use, be sure to install them properly as demonstrated on the next slides!

Ditch Check Installation

- Be Sure to Properly Space Ditch Checks

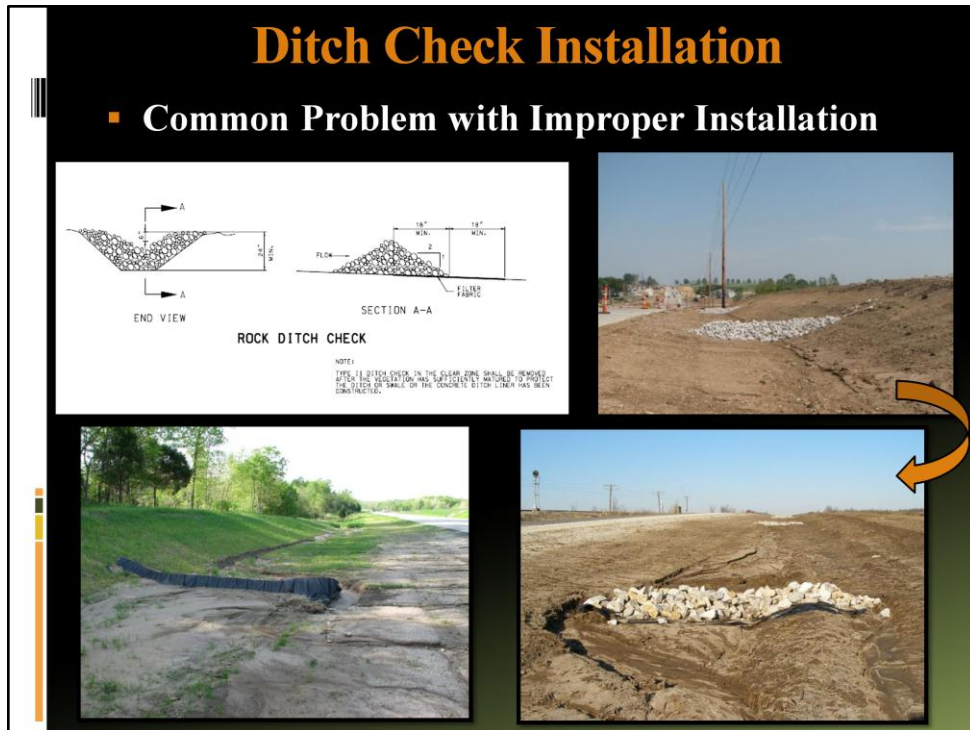


Always try your best to space ditch checks “toe to top” down your ditch grade (the top of the down grade check should be equal in elevation to the toe of the one immediately upgrade from it as shown in Figure 5.2). This will prevent scour and erosion within your ditch line and help limit the likelihood of overwhelming the downgrade checks with sediment.

The photo on the bottom right is a poor installation. The checks are too far apart and the result, even with heavy annual vegetation, is a severely eroded ditch and an overwhelmed and non-functional rock ditch check in the foreground.

Ditch Check Installation

Common Problem with Improper Installation



Also on ditch check installation, always ensure the low point on the check is in the middle. This is the point you want the water to overtop the check, so be sure to direct it there. To do this properly, be sure to go far enough up the inslope and backslope.

The photos show checks where the low point was on the inslope side and as a result, all were bypassed. This is simply a waste of time, effort and money and now the ditch has to be regraded and the checks have to be redone properly.

Inlet Protection

Curb Inlet Protection:

- Sand Bags/Rock Socks
- Wattles/Silt Socks/Silt Logs, etc.
- Various Filter Inserts
- Wood, Steel or Other Barricades

Drop or Pipe/Box Inlet Protection:

- Rock
- Tri-Dikes
- Sand Bags
- Various Filter Inserts or Covers
- Wood, Steel or Other Barricades



You must think about what you are trying to accomplish and select a BMP depending on the type of inlets and terrain you are dealing with.

INSTALL INLET PROTECTION BEFORE YOU TURN ANY DIRT ON THE JOB!!! Inlets should be treated as outfalls at all times!

Inlet Protection

Selected BMP must be capable of withstanding **CONCENTRATED** and possibly large volume flows.

MoDOT NO LONGER ACCEPTS “Silt Fence” materials as inlet protection unless minimal drainage area and flows are expected at the inlet.



Inlets are places of concentrated flow and should never have “silt fence” type devices installed around them that utilize non-reinforced frames, such as these staked geotextiles and straw bales.

There are reinforced (framed) filter devices out there that are much more effective. You can also utilize rock and other BMP listed on the previous slide.

Also, another illustration (top right) of straw bale failure. Use a different BMP if at all possible.

Things to Remember About Sediment Control

- It is easier to prevent soil from moving (**erosion control**) than it is to stop it once it starts moving (**sediment control**).
- Sediment control typically requires much more monitoring and maintenance than proper erosion control.

Proper erosion control is key. It will save you time, money and worry!

Sediment control can become a costly, time consuming maintenance nightmare. Try to re-stabilize areas with grass, rock, etc., quickly!

References for BMP Selection, Descriptions and Installation Guidance

- **EPG 806: Pollution, Erosion & Sediment Control**
- **MoDOT SWPPP**
 - Updated as needed
 - Found under EPG 806 (Printer friendly version!)



Project Planning & Execution

**In order to be successful at erosion and sediment control, you have to plan ahead!
This next section is about giving you the tools to be better prepared.**

Project Planning

- **Conduct a site visit to determine extent of the project footprint.**
- **Make note of the area's topography and direction(s) of stormwater runoff.**
- **Determine what BMPs are present and what BMPs may be needed. Also note where these devices should be installed and how many may be needed to be most effective.**

You have to be aware of how water is going to move on the site and where it will try to leave the site. Where it will try to escape, we need to have a barrier (BMP) in place to filter out the sediment to the best of our ability and release cleaner water offsite.

Be sure to look for tools Mother Nature has given you and utilize existing vegetation where possible. You may have to back it up with some other BMP, but the existing grasses and such will help!

Project Planning

- Fill out the **NEWLY DEVELOPED Erosion & Sediment Control Planning Form for Maintenance** prior to starting the project. (EPG 806)

Missouri Department of Transportation
Erosion & Sediment Control Planning Form - Maintenance

Most of this form should be completed **BEFORE** starting any project where soil will be disturbed. Please coordinate with your district MT land disturbance contact for assistance.

County _____ Route _____ Travel Direction or Median _____
Building _____ Name of Person Submitting Report: _____
Date Work to Begin: _____ Date Work Complete: _____

Description of Work:

Ditching (drainage maintenance or cleanout)
 Tube replacement
 Erosion control around box culvert
 Back slope or in slope maintenance or re-shaping
 Slide repair
 Other: _____

Estimated area of soil to be exposed during work (square feet): _____
(NOTE: If 1 acre (43,560 sq. ft.) or more, coordinate with your district MT land disturbance contact.)

Sediment control devices installed at project limits **PRIOR** to soil disturbance.

Type of outfall protection (e.g., rock ditch check, rock inlet check, etc.): _____
Type of perimeter protection (e.g., geotextile silt fence, mulch berm, etc.): _____
Total number and type of ditch checks (e.g., rock compact, etc.): _____
(NOTE: Geotextile silt fence & straw bales are NOT recommended ditch checks.)
Type of permanent slope protection (e.g., seed & straw, seed & blanket, etc.): _____
Type of seed used to reseed the area (e.g., K31 fescue, perennial rye, etc.): _____
Amount of seed (lbs): _____ Amount of straw mulch (# of bales): _____

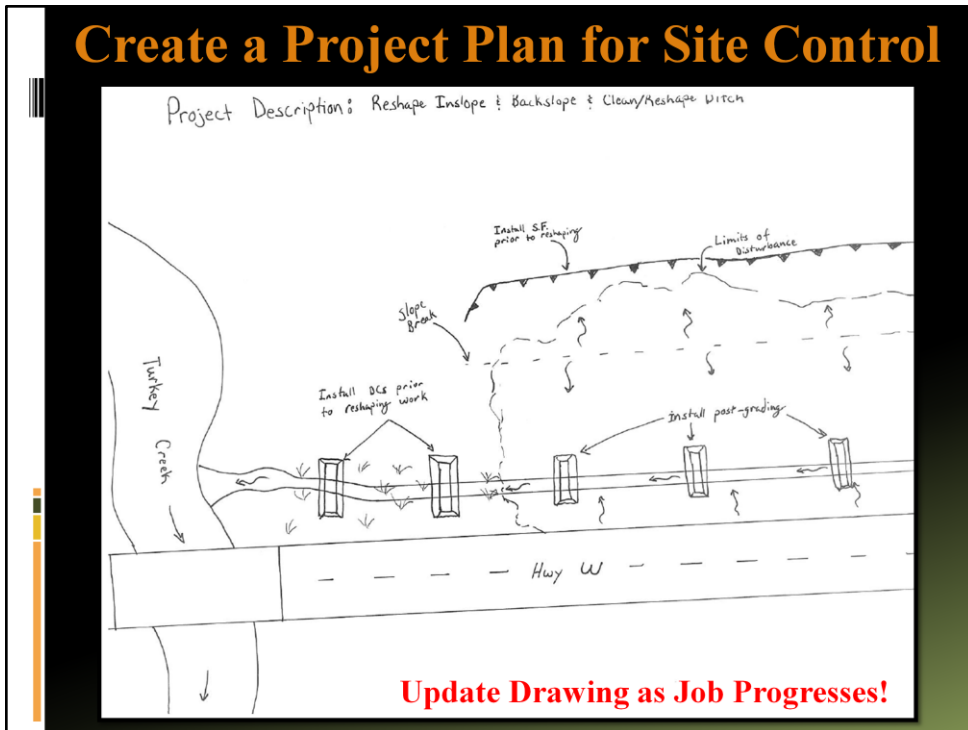
Permanent erosion control measures (seed/mulch, blanketing, rock blanket, etc.) should be completed no later than 7 days after completion of earthwork. Projects should be regularly inspected to check for problems until permanent vegetation is established. Any problems should be corrected within 7 days. Sediment control devices shall be maintained regularly. Please refer to Section 806 of the Engineering Policy Guide for more information.

MoDOT Erosion & Sediment Control Planning Form - Maintenance (Rev. 2/2013)

We developed this form as a tool to help you plan and keep track of your project. It is important that we utilize this form for consistency!

You should fill out much of this form before you turn dirt on the job.

Create a Project Plan for Site Control



You will need to create a site plan to go with the previous form (Erosion & Sediment Control Planning Form – MT).

Draw this up before you begin the job and make changes as necessary as the job progresses.

Keep this with your planning form so all personnel working the job are aware of what is expected on the job.

Project Execution

- **BEFORE** you break ground, establish **perimeter** and **outfall** BMPs.



Ensure you have installed the **proper protection** depending on whether you are fighting sheet or concentrated flows.



INSTALL PERIMETER AND OUTFALL PROTECTION BMPs PRIOR TO TURNING DIRT.

Also, leave yourself some room to work if you can. Put these devices far enough downgrade from your work area so you aren't having to work around them or damaging them. I always recommend leaving a little grass buffer between these devices and your work too, if possible.

Project Execution

- After the work is complete, install BMPs within the project, if necessary, to control runoff, erosion and sediment.



Once you finish your work, you'll have to install BMPs in the area you were working in to control erosion and sediment. Be sure to space the checks properly if using ditch checks!

Project Execution - Inspections

- Both during and after the project we should be inspecting the work area, BMPs, and downgrade of the last BMP to ensure there are no problems and that we are not losing sediment from the site.
 - If problems are observed during inspections, they should be corrected ASAP - not to exceed one week.
 - Inspections should occur until the area has re-stabilized with vegetation or has been covered with a non-erodible material like rock.
- ★ Do a daily “end of day” inspection to be sure your job is adequately protected before you shut down for the day.

You've got to keep an eye on your job. If you start to notice erosion is occurring and/or sediment is moving on or off the site, you should react accordingly and make the proper adjustments to correct the situation.

Don't turn a blind eye to “small” problems, because they will grow with every rain event or snow melt. Correct the problem.

Inspections – If Project Disturbs 1 Acre or More

▪ Inspections every 7 days or within 48 hours of a runoff event on the site.

▪ **NEW INSPECTION RECORD** is a guide to walk inspectors through the inspection process to ensure nothing is overlooked. (EPG 806)

**MISSOURI DEPARTMENT OF TRANSPORTATION
LAND DISTURBANCE INSPECTION RECORD**

Inspection Date: _____ Inspection Record No.: _____
 Project Number: _____ County: _____ Route: _____

Inspection Type: Weekly _____ Post-Runoff _____ Complaint _____ Final _____
 (Total Precip. (in.) _____ / Precip. Duration (hr) _____)

Total Disturbed Acreage on the Project _____ Total Authorized Acreage on the Project _____

Land Disturbance Inspection Checklist

	Yes	No	N/A
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Other: _____

Explanation of checklist items identified above: _____

Describe areas where land disturbance activities have temporarily or permanently ceased. (Excluding weather shutdowns) Describe how these areas have been or will be stabilized. _____

Additional recommendations/notes: _____

Has the job reached final stabilization in accordance with the permit? Yes No

Inspector Name: _____ Inspector Signature: _____ Date: _____
 RE Name: _____ RE Signature: _____ Date: _____

Distribution: Contractor (Hard Copy or Electronic
 Save to V:\Contract Information Archive & keep hard copy with inspector

MoDOT Land Disturbance Inspection Record (Rev. 1/2012)

This inspection form is MoDOT’s inspection form for projects that disturb an acre or more. It is a sort of “checklist to permit compliance”.

This form is used heavily by CM and MoDOT CM personnel are a great resource if you ever have a job disturbing an acre or more.

Any time you have a job disturbing an acre or more of land, contact your district MT erosion and sediment control contact for help with planning and permit compliance.

Inspect, Maintain, Replace & Remove BMPs



Keep sediment control BMPs cleaned out and in a proper working order. They must be functional to be ready to treat stormwater during the next storm event.

Clean out all sediment control devices when they are half full.

Remove BMPs when the area to be revegetated reaches 70% permanent vegetative cover uniformly spread over the area.

- **Remove temporary BMPs when the area has re-stabilized (i.e., 70% permanent vegetative cover uniformly spread over the area, or covered by non-erodible material, like rock).**
- **Keep all project documentation together, where it is accessible for **at least 3 years** for jobs reaching the 1 acre threshold or greater! And at least 1 year for all other jobs.**
- **These items make up your project SWPPP.**
- **They can be stored electronically as long as they are accessible upon request.**

Don't remove your BMPs until you are comfortable that the area is no longer susceptible to erosion.



Common Maintenance Activities Involving Land Disturbance

The following may not be a comprehensive list of MT projects that involve land disturbance, but it gives you an idea of what activities could result in sediment pollution.

Ditch Maintenance & Shaping

- Very common MT activity that has the potential to disturb a lot of ground.



Be very aware of sediment control in ditch work situations, because stormwater is concentrated and can be very erosive.

Ditch Maintenance & Shaping

- Be sure to place BMPs to protect pipes and/or cross drainages that can transport sediment from your job. (Also applies to other MT activities)



NOTE: Some ditches with minimal grades or flow that tend to pond water may not require ditch checks.

Remember, all surface water runoff leads eventually to larger and larger bodies of water. Have protection in place before starting work to retain sediment on MoDOT property.

Ditch Maintenance & Shaping (Re-Establishment)

- Some ditches can be highly erosive after cleanout or shaping, so they may require extra protection in channel.



These ditches have been lined with erosion control blanket (ECB), turf reinforcement mat (TRM) or, in the case of the top right, ScourStop, to ensure the vegetation is either temporarily or permanently reinforced so the ditch can stabilize.

Slopes - Reshaping

- This work can involve long, linear grading of slopes and ditches.
- Again, slopes and ditches are highly erodible once disturbed.
- Outfall and perimeter protection will be important until area re-stabilized.



Slopes, especially steeper slopes, are highly susceptible to erosion and the formation of rills and gullies.

Try to time your work to be completed in a timely manner and stabilize slopes ASAP upon completion of earth work. Don't let these areas stay disturbed and unprotected or we will regret it!

Slopes - Slide Repair



- **Perimeter and outfall protection may still be required even on small slide repairs.**

Slide repairs come in all shapes and sizes. As a rule of thumb, always plan to at a minimum to install outfall and perimeter protection prior to starting your work.

Watch Those Slopes!

- Once slopes reach grade, cover them up promptly or they will quickly begin to form rills.
- On slopes steeper than 3:1, ECB or TRM should be used to ensure proper stabilization.



Stabilize slopes quickly or you'll be dealing with that sediment in your ditch or worse! TRUST ME, THIS I KNOW!

Tube Replacement

- Typically there is very little land disturbance involved.
- It's important that we seed and mulch or install ECB around the tube ends ASAP to quickly re-stabilize.



MT is very proficient at this task and these tube replacements happen fast. One way to quickly cover these areas up so we don't forget about them is to carry some seed, a hand seeder and some bales of straw (mulch) on the back of a truck and just have one or two folks stay behind to seed and mulch it down and then they can catch up at the next pipe and continue the cycle.

Edge Rut Repair

- There is typically very little, linear land disturbance involved.
- If grading, it is important that we seed and mulch ASAP to quickly re-stabilize the shoulder edge and/or inslope.



Edge rut repair can involve a number of various construction techniques. Some will have minimal disturbance, but other techniques may result in more extensive disturbance.

If there is minimal disturbance, you may need to do nothing more than possibly seeding and mulching the disturbed area. If the job results in more extensive disturbance, then you may have to think about installing ditch checks and/or perimeter protection.

Erosion at Culvert Ends

- This activity can directly pollute streams – use clean rock below and just above OHW.
- This could require a Section 404 permit from the Corps.



★ **NO ASPHALT IN STREAMS, ON STREAMBANKS, OR IN WETLANDS**

Always be extra cautious when working around streams, ponds, lakes, wetlands, etc. People quickly take note when a stream or other body of water becomes turbid.

Most of the work around culvert ends will be covered by a Nationwide Section 404 permit, if a permit is required at all.

Borrow or Waste Areas

- Treat these areas the same – re-establish vegetation ASAP.
- These areas will likely require BMPs at outfalls and perimeter.



If you stockpile soil material and don't plan to use it for some time, it is best just to seed it down and establish vegetation on it so it's not constantly a source of potential sediment pollution.

ALWAYS SET UP YOUR PERIMETER AND OUTFALL PROTECTION BEFORE YOU START THE DIRT WORK!

If you are driving out onto pavement from these sites, you may have to establish a stabilized construction entrance (basically a rock lined drive for at least 50 feet) to ensure we are not tracking out sediment onto our roadways. This is an easy source of pollution and can be a hazard to the driving public.

Erosion from MT Lot Outfalls

Maintenance Control

Stormwater Control on Maintenance Lots

Stormwater control is an issue that affects practically every single maintenance lot in Missouri. Stormwater can carry materials from our lots off our property. Erosion also becomes a concern when storm water leaves MoDOT property. Steps must be taken to slow erosion from our facilities to reduce the impact of storm water runoff:

- Rock lined ditches and/or ditch checks will slow water down and effectively drop the sediment load.
- Earthen berms constructed at select locations can help direct storm water to specific points where it can be controlled by ditch checks.
- Gabion baskets can be used to line ditches, line the edges of property, or

be placed where the outfall leaves the property.

Remember to keep your storm water controls cleaned out when sediment builds up. Cleaning them helps the control system function as it should; keeping the materials on our property and not our neighbor's.



Our MT facilities receive a lot of environmental scrutiny both internally and from the regulators. It is important that we do our part to make sure we are comfortable that we are adequately controlling any potential pollutants from these sites.

Other Things to Keep an Eye Out for that You May Come Across on ROW

Illicit Discharges: Any discharge that is not composed of entirely stormwater and is therefore considered a potential pollutant.

Examples:

- Detergents
- Oils or chemicals
- Wastewater from septic systems
- Floatables and debris/litter
- Fertilizers
- Paint



Also, concrete washout, diamond grinding residue and utility bore slurry needs to be controlled on a job site and should never be allowed to reach surface or groundwater.



I stated this in the MT training in Fulton, and I mean it, MT personnel are one of the best, if not the best source of local information at MoDOT. I appreciate the way you all get in tuned with your coverage areas.

That being said, we really need your help with identifying when we have possible contaminants on our right of way. Keep an eye out for potential pollution concerns and inform district leadership or the MoDOT Environmental and Historic Preservation Section so the potential liability can be addressed. Thank you!

Other Things to Keep an Eye Out for that You May Come Across on ROW

If you see discharges that are causing, or are likely to cause pollution:

- Identify the source.
- Report location and pollutant to the **MODOT Environmental & Historic Preservation Section** at **(573) 526-4778**.
- Report the location to the County Health Department if raw sewage or similar wastewater is identified dumping onto our right of way.




Protect Yourself

- **Have a plan before you begin working.**
- **Install sediment capture devices at your outfalls and project perimeter before you begin grading work.**
- **Properly install, monitor, maintain, replace and, if needed, remove BMPs.**
- **Do a daily “end of day” inspection to be sure your job is adequately protected before you shut down for the day.**
- **Coordinate with your district MT land disturbance contacts, district CM or DE personnel, your MT Division contacts, or Nate if you need a little help, especially if your project will involve **1 acre or more** of land disturbance.**

I want you all to be prepared and feel comfortable with your plan for controlling erosion and sediment on your job sites.

I also want you to know that I’m not laying this info on you and then throwing you to the wolves. We’ve set up contacts to help you. Don’t be afraid to seek some input from others who maybe have a bit more experience with this.

How Much Area is an Acre

- 1 Acre = 43,560 square feet
 - A football field, from goal line to goal line (excluding end zones) equals 1.1 acres.
- 
- If you are disturbing 15 feet of road slope on only one side of the road, you will reach an acre when you travel approximately 2,900 feet.
 - If you are disturbing 15 feet of road slope on both sides of the road, you will reach an acre at approximately 1,450 feet.

Try to limit your disturbance where possible to stay under that 1 acre threshold. A lot more requirements and reporting kick in at that point.

Coordinate with your district or CO contacts!!!

Your District Contacts

NW – Dave Scrivens – Asst Dist MT & TR Engineer (816) 387-2429

NE – Jeff Stewart – Roadside Manager (573) 248-2488

**KC – Danny Woods – Roadside Manager (816) 607-2044
Griffin Smith – Asst Dist MT Engineer (816) 607-2132**

CD – Rand Swanigan – Roadside Manager (573) 751-7776

SL – Chuck Wills – Roadside Manager (314) 877-2014

SW – Mike McCormick – Roadside Manager (417) 895-6737

**SE – Mark Aufdenberg – Roadside Manager (573) 794-2891
Amy Bryant – Sr. Pavement Specialist (417) 469-6251**

★ Additional Resources: District CM and DE Personnel

These fine district folks are here to help you through this!

Your Central Office Contacts

Maintenance Division

- **Stacy Armstrong** – Roadside Management Spec (573) 751-8647
- **Ken Warbritton** – MT Liaison Engineer (573) 526-3282

Design – Environmental & Historic Pres. Section

- **Nate Muenks** – Sr. Environmental Specialist (573) 751-2790

These fine CO folks are also here to help you through this!

QUESTIONS?



Nothing worse than cattle that can't follow direction!