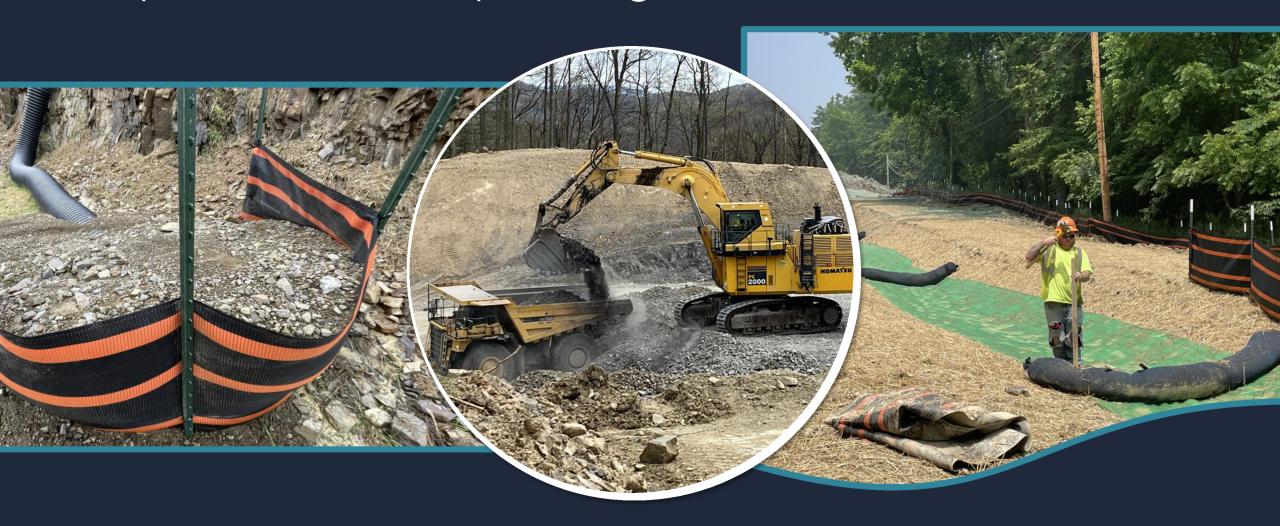
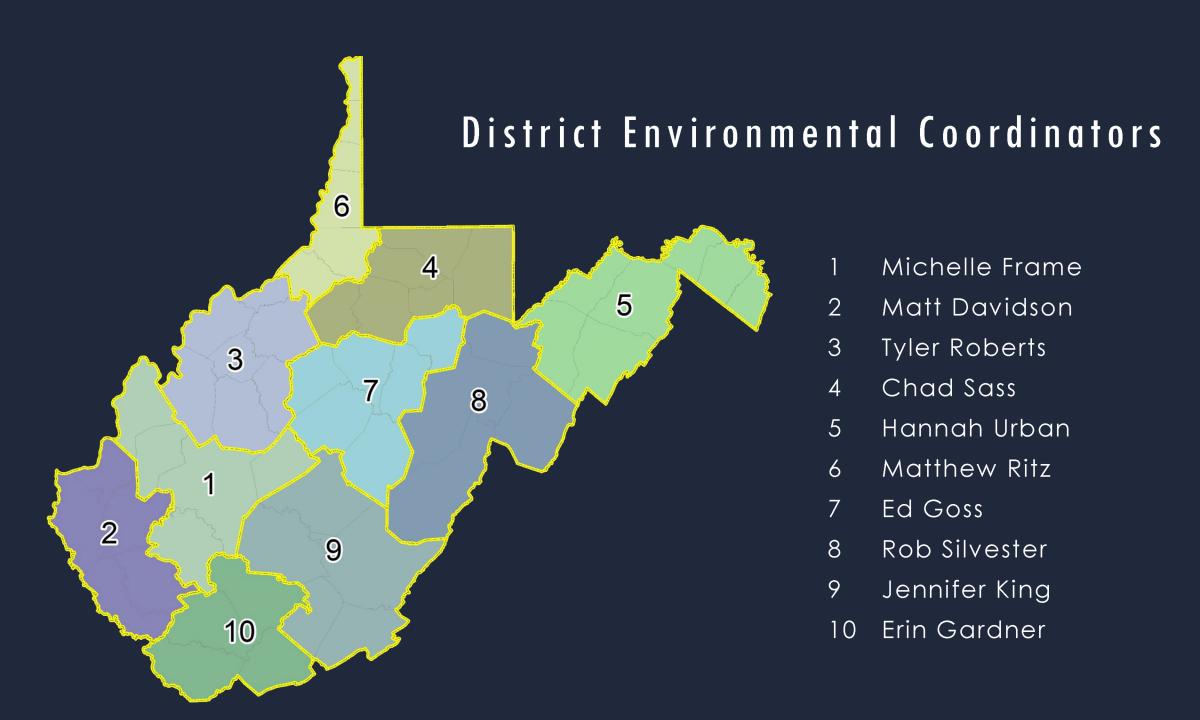
# environmental

Inspection & Reporting





# US-522 5 Berkeley Springs Bypass US-48 Corridor-H US-52 King Coal Highway US-121 Coalfields Expressway

# Regional Environmental Construction Inspectors

#### District 5/District 8:

Tommy George Katrina High Hiring TERPM1

#### District 10:

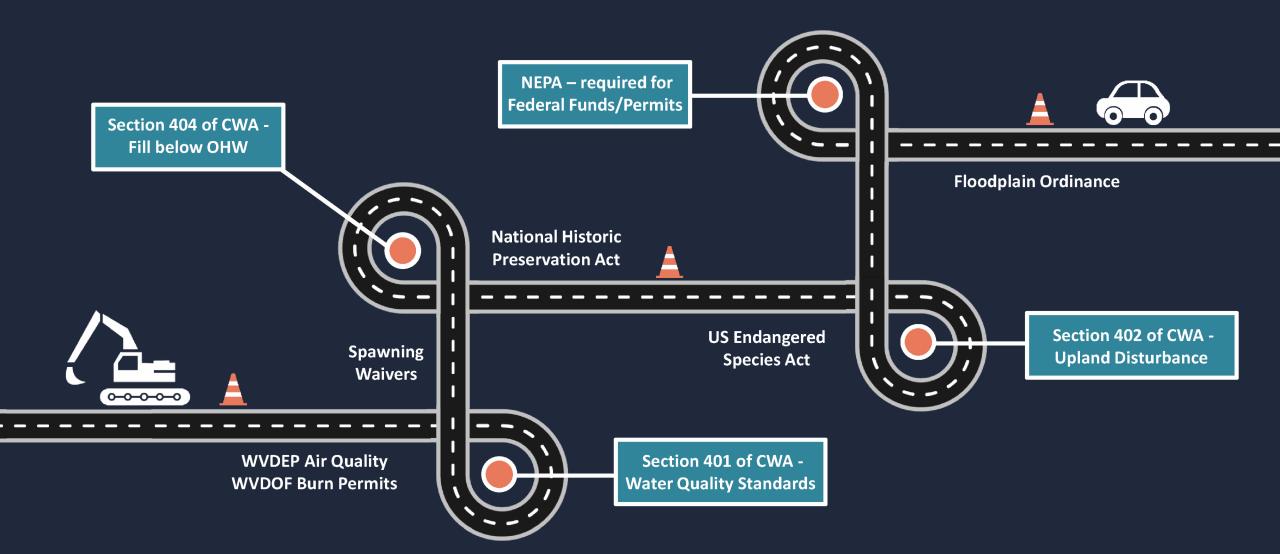
Hiring TERPM1

#### District 2:

Hiring TERPM1

# environmental requirements

are driven by federal and state laws







Whether or not a project requires a permit,

Erosion and Sediment Controls must be used for earth disturbing activities



66

- Perimeter Controls (Silt Fence, SMARTFence)
- Water Bars
- Rock Check Dams
- Inlet Protection
- Stabilized Construction Entrance

"

# getting started on the right foot



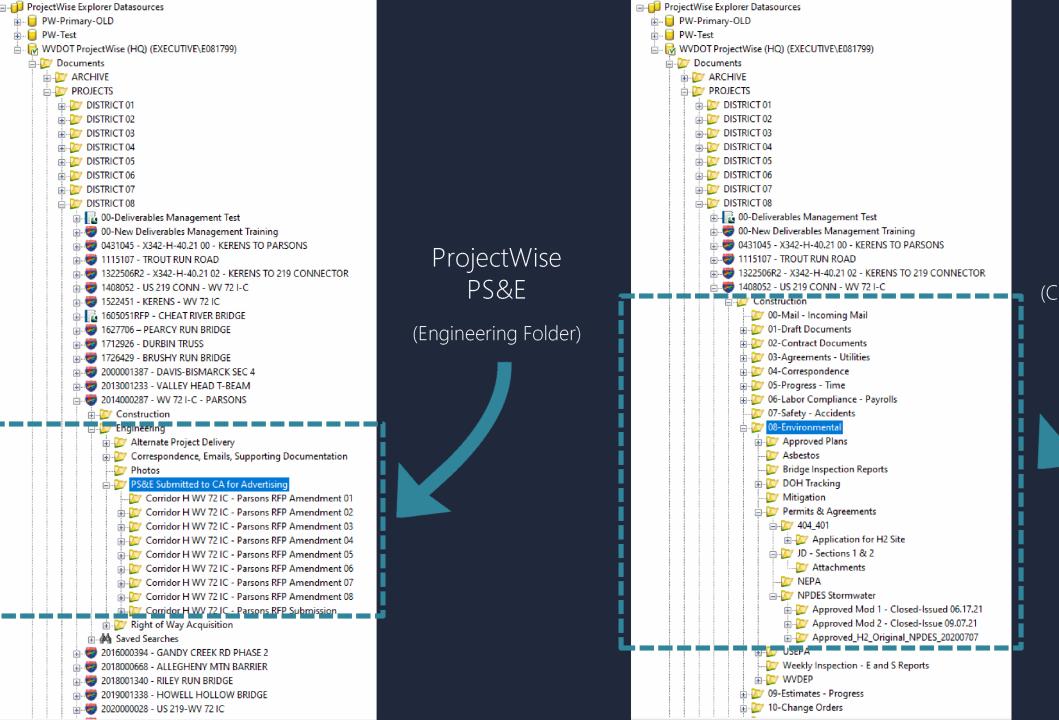
#### PRE-CONSTRUCTION MEETING

Opportunity for the District Environmental Coordinator to discuss the project's environmental elements

- Construction Stormwater Permit:
  - ✓ NPDES Public Notice Sign
  - ✓ SWPPP and GPP
  - ✓ QP inspection
- WVDEP Air Quality Permit for demolition PROJECT WISE
- Contractor responsible for permitting offsite

waste/borrow areas. Review project permits, environmental

- Confeete and the standard seturate parevent groundwater pollution
- WVDEP Water Withdrawal Guidance
- Other Project Specific Concerns



ProjectWise Permits & Agreements

(Construction Folder)

Contract Adjustments Amounts based on # of NOVs and Consent Orders

Post-Bid Items for E&S Controls15% of contract value

The Division of Highways will be implementing contract adjustment amounts based on environmental violations cited in WVDEP Consent Orders (COs) and Notice of Violations (NOVs) that are issued to the CONTRACTOR. The Division of Highways will require payment of these amounts by contract adjustments based on the number of violations that appear on WVDEP NOVs and consent orders that the CONTRACTOR accrues for each instance of inspection. For each inspection, the CONTRACTOR will be allotted ten (10) violations prior to the first adjustment amount being issued. The Division of Highways will also issue an adjustment amount for all COs that result in penalties being issued by the WVDEP. The table below defines the contract adjustment amounts associated with the number of NOVs and COs resulting in a penalty for each inspection. All adjustments are payable to the DOH and are in addition to penalties levied by the WVDEP. Contract adjustment payments may be made after the finalization of the WVDEP NOVs.

Туре	Adjustment Amount	Occurrence	Example
Violation (0- 10)	0	0	Number of Violations up to 10 would result in no adjustment amount.
Violation (11 or more)	\$20,000.00	Per Violation	Inspection cumulates 12 violations which will result in a \$40,000.00 contract adjustment amount.
WVDEP CO resulting in a penalty	The assessed WVDEP Penalty		CONTRACTOR is issued a WVDEP CO resulting in \$100,000 penalty. The Division of Highways will impose an additional contract adjustment amount of \$100,000.00.

As part of this contract, the DOH will set up a post-bid item in the amount of 15 percent of the successful bidder's contract value. This amount will be used as an allowance for Section 642 items and shall not be included in the Contractor's bid.

The Section 642 allowance will follow the table below for payment. Section 642 of the WVDOH Standard Specifications shall apply for all other matters. Items that are not listed in the table below may be used but must be approved by the DOH Environmental Monitor and an additional member of the State Highway Engineers office. Once approved, the DOH and Contractor must reach a mutual agreement on the unit price prior to installation. If a subcontractor is utilized, the primary Contractor will not be eligible for any additional markup on the item added. Items that are not currently covered by the DOH specifications that are considered to be an acceptable BMP by this agreement, the WVDEP E&S Manual, contract documents, or at the discretion of the WVDOT Environmental Monitor must be installed in accordance with the manufacturer's recommendation.

Exhibit A – Agreement
AMENDMENT 03 AMENDMENT 04 AMENDMENT 05 AMENDMENT 07 AMENDMENT 08

#### Relative Value of Temporary Pollution Control Devices

<b>Description</b>	Unit	Value per Unit	
Temporary Berm	(642001-001)	LF	2
Temporary Diversion Ditch	(642001-002)	LF	2
Slope Drain	(642002-001)	LF	21
Seed Mixture, Temporary	(642004-001)	$_{ m LB}$	2
Seed Mixture, B	(642004-002)	$_{ m LB}$	<mark>5</mark>
Seed Mixture, D	(642004-003)	LB	12
Seed Mixture, D	(652003-002)	LB	<del>5</del> -20
Seed Mixture, L	(642004-004)	LB	18
Seed Mixtures, B, C-1, or C-2	(652003-001)	LB	3.50 <mark>20</mark>
Mulch, Straw or Hay	(642005-001)	TN	<mark>450</mark> <mark>600</mark>
Mulch, Straw or Hay	(652004-001)	TN	<mark>200</mark>
Mulch, Wood Cellulose Fiber	(642005-002)	TN	810 2500
Mulch, Wood Cellulose Fiber	(652004-002)	TN	<u>500</u>
Mulch	(642005-003)	TN	<mark>2,500</mark>
Hydraulic Erosion Control Product, functional longevity (1 to < 6 months)		LB	1
Hydraulic Erosion Control Product, functional longevity (> 6 months)	LB	1	
Hydraulically Applied Polymers		LB	1
ProGanics Biotic Soil Media		LB	1
Fertilizer	(642006-001)	TN	850
Fertilizer, 10-20-10	(652002-001)	TN	500
Fertilizer, Urea Formaldehyde	(652002-002)	TN	600
Fiber Matting	(642007-001)	SY	2
Temporary Pipe	(642008-001)	LF LF	73
Contour Ditch	(642009-001)		2
Agricultural Limestone	(642010-001)	TN	68
Coir Wattle, ≥ 8" diameter		LF LF	12
Silt Fence	(642012-001)		3
Super Silt Fence	(642015-001)	LF	10
SMARTFence, 42 IN		LF	10
SMARTFence, 36 IN		LF LF	5 5
Simplified Diversion Fence		LF LF	
Compost Filter Sock, 8 IN	(642016-001)		10
Compost Filter Sock, 12 IN	(642016-002)	LF LF	5 8
Compost Filter Sock, 18 IN	(642016-003)		
Compost Filter Sock, 24 IN	(642016-004)	LF	10
Compost Filter Sock, 32 IN	(642016-005)	LF	11
Rock Check Dam	(642031-001)	EA	93
Sediment Trap	(642033-001)	$\overline{\mathrm{CY}}$	17

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Exhibit A – Agreement
AMENDMENT 03 AMENDMENT 04 AMENDMENT 05 AMENDMENT 07 AMENDMENT 08

Sediment Dam	(642034-001)	$\overline{\text{CY}}$	<mark>17</mark>
Riser	(642035-001)	EA	7,050 <mark>9000</mark>
Skimmer	(642035-002)	EA	1,625 <mark>2800</mark>
Sediment Removal	(642036-001)	$\overline{\mathrm{CY}}$	<mark>7</mark>
Sediment Pond	(642037-001)	$\overline{\mathrm{CY}}$	<mark>6</mark>
Inlet Protection	(642040-001)	EA	<mark>270</mark>
Flocculant Block	(642042-001)	EA	180
Polyacrylamide		LB	1
Premanufactured Ditch Check	(642043-001)	EA	<mark>67</mark>
Turbidity Curtain	(642045-002)	FT	100
Coir Baffles		LF	<mark>4–9</mark>
Dewatering Device	(642050-001)	EA	720
Erosion Control Matting	(642055-001)	$\overline{\text{SY}}$	2
Coconut Matting		SY	4
Non-Woven Geotextile Fabric		$\overline{\text{SY}}$	3
<del>Flexamat</del>		$\frac{SY}{S}$	<mark>45</mark>
<b>Tied Concrete Block Mattress</b>	(655002-002)	SY	90
Impervious Core	(211017-001)	SF	<mark>3.50</mark>
Rock Borrow Excavation	(211008-000)	TN	<mark>75</mark>
<b>Tied Concrete Block Mattress</b>	<del>(655002-002)</del>	$\overline{ ext{SY}}$	<del>90</del>

Units are calculated by multiplying the quantity of temporary pollution control devices installed on project by the rate value

Example: 175 lbs of Seed Mixture, Temporary X 2 = 350 Units

# WV DOH E&S Control Inspection Forms

for District Construction Inspectors

# Old Environmental Inspection Form

# DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS EROSION AND SEDIMENT CONTROL INSPECTION FORM

	State Project:		Feder	ral Project: Weather:		
			Post Monogoment Practi	000 5	Poviou	
2000000	Marco		Best Management Practi			25000000
Silt	Fence	S	Perm. Seed & Mulch	N/A	Areas @ Final Grade >7 Days	N/A
Div	rersions	N/A	Vigor of Grass	or of Grass N/A Areas Unstabilized > 14 Day		N/A
Sed	diment Traps	N/A	Ditch Checks	N/A	Clearing & Grubbing	N/A
Sed	diment Basins	N/A	Stable Const Entrance	s	Perm Waterways Stabilized	s
Ma	intenance	М	Slope Drains/Berms	N/A	Waste Site	N/A
Wa	iter Bars	N/A	Down Slope Areas Protected	s	Borrow Site	N/A
Top	osoil Stockpile	N/A	Timely Installation	М	Other:	N/A
Ter	mp. Seed & Mulch	N/A	Other:	N/A	Other:	N/A
-S	atisfactory <b>U</b> -U	Insatis	sfactory <b>N/A</b> -Not Applica	ble	N/O-Not Observed M-Ma	rgina
lec	ceiving Stream(s)	E∨alu	ation: Muddy? No		Sediment Deposits? No	
Ad	ditional Comment	ts:				

Reviewer

WEST VIRGINIA DIVISION OF HIGHWAYS

#### ENVIRONMENTAL CONSTRUCTION INSPECTION FORM



A. PROJECT INFORMATION				
Project Name:		Inspection Date:		
State Project #		Inspection Time:		
Federal Project #		Inspector Name:		
Rain in last 24 hrs:		Weather Conditions:		

Environmental Protection Measure		omplia	nt?	No. 10 December 10 December 11
		No	N/A	Note or Description of Corrective Action with Risk Rating <sup>1</sup>
Copies of project permit applications				
and approvals onsite (e.g., 404, 401, NEPA,				
construction stormwater, Floodplain).				
All required BMPs installed according				
to plans for current phase of construction.				
3. Perimeter controls installed downslope				
of disturbed areas.				
4. All materials, equipment, and project				
activities are contained within the project				
boundary. 5. BMPs for instream work being				
conducted in accordance with permit				
(e.g., pump around, temp. bypass channel,				
coffer dam).				
Dewatering work area using				
appropriate BMPs to prevent sediment				
laden water from leaving work site (e.g.,				
dewatering bag).				
7. Concrete washouts properly set up and				
maintained.				
8. Storage of petroleum and other				
equipment maintenance products				
properly stored.				
9. Spill kit available onsite.				
10. Project is free of mud on the roads				
outside the project area.				
11. Disturbed areas where no work is				
undertaken are properly stabilized (e.g.,				
stone, seed and mulch).				
12. Project demonstrates good				
housekeeping practices. Solid wastes are				
properly handled and disposed of at an				
approved facility.				
List other environmental protection measu	res if a	pplical	ole.	
13.				
14.				
15.				

C. OFFSITE POLLUTION DISCHARGE			
1. Is there evidence of discharge of sediment or other pollutants outside the project boundary?*	☐ Yes	□ No	
2. Has sediment or other pollutants discharged from the site reached State waters? *	☐ Yes	□ No	
*If yes, the contractor's onsite personnel and project foreman should be notified immediately. Provide a brief description of the communication with the contractor in Section D. Include names, method of communication, and plans for corrective action. WVDEP Spill Hotline: 1-800-642-3074			
D. INSPECTION CLOSEOUT SUMMARY			
Provide a brief description of the current construction activities at the site. Note the effectiveness of any additional BMPs are recommended. If corrective actions are needed, provide a brief description onsite personnel regarding inspection findings. Include names, method of communication, and plans	of your commu	nication with	
Table 1. ACTION RISK RATING SCALE			

Rating	Risk Level	Corrective Action Timeframe	Examples
1	Extreme	Immediate-must be closed out by the end of workday	- Sediment laden water leaving project site - NEPA or 404 permit violation
2	High	Within 24-hours	Critical E&S controls are damaged and need to be reinstalled before a rain event (e.g., perimeter controls washed out)
3	Medium	Within 3 working days	Less critical E&S controls are damaged and need to be reinstalled before a rain event
4	Low	Within 5 working days	Seeding stockpiles

# Erosion & Sediment Control BMPs

# silt fence



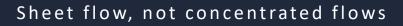




Designed for sheet flow (not concentrated flows)

# concentrated flow vs. sheet flow







Install on the contour perpendicular to the flow of water

# heavy duty fence options



Super Silt Fence

# heavy duty fence options



Stage 2 Belted Silt Fence



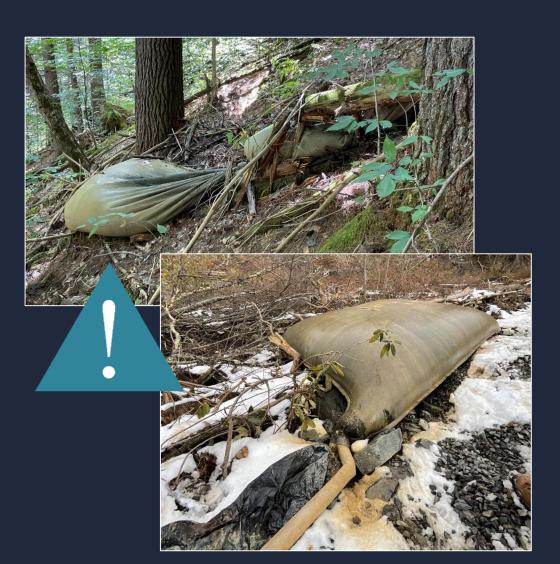
SMARTFence

# filter socks

- Install on contour and perpendicular to the flow of water
- Must have good contact with the ground
- Remove sediment from upslope when it reaches half the effective height of sock



# dewatering — geotextile filter bag



- Install bag on a very slight slope so incoming water flow does not create erosion downhill
- The neck of filter bag shall be tightly strapped to the discharge hose
- Place bag on aggregate or hay bales to maximize water flow through the entire surface of the bag
- Size of filter bag should be capable of handling flow rates from the pump (refer to manufacturer's instructions)

WVDEP BMP Manual Dewatering (Section 3.22)

# dewatering — geotextile filter bag



- Inspect frequently during operation
- The filter bag is full when it can no longer efficiently filter sediment or pass water at a reasonable rate
- Accumulated sediment shall be removed and spread on site and stabilized or disposed of at an approved disposal site

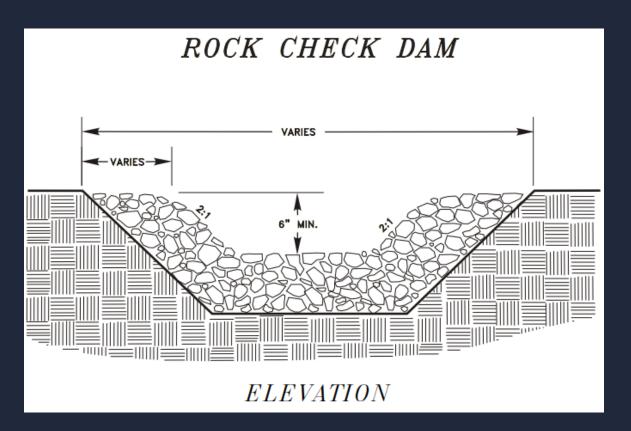
WVDEP BMP Manual Dewatering (Section 3.22)

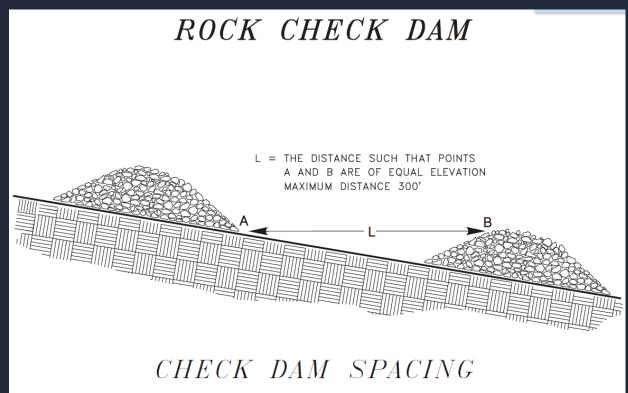
# inlet protection











WVDEP BMP Manual Rock Check Dams (Section 3.05)

# construction entrance



Stabilized Construction Entrance

Track Out on Public Roadways

# Site stabilization



- The #1 most effective method for reducing erosion is to Preserve Existing Vegetation
- Seed and mulch within 7-days\* if the site will not be re-disturbed in 14-days
- Areas that fail to establish within 30-days must be re-seeded (Uniform cover with a density of 70%)

# straw & haybales



# concrete washout

#### Every project shall –

- Identify a specific location for concrete washout area
- Develop a washout procedure for rinsing mobile mixing drums or truck drums





<u>Fun Fact</u>: Concrete wash water has a pH of 12

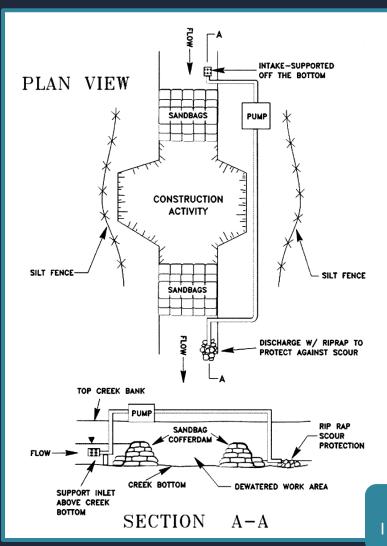
Drano liquid drain cleaner has a pH of 13

# Instream BMPs



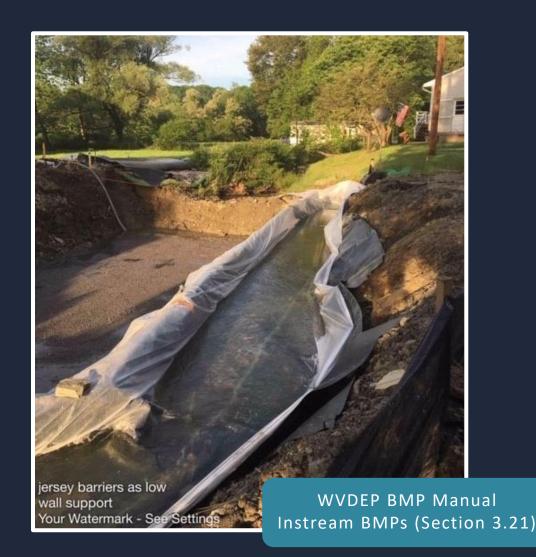
#### MINIMUM STANDARDS

- Schedule construction for low flow periods
- Use appropriate method for isolating the work area
   (eg. pump around, bypass channel, cofferdam)
- Do not use the stream as a vehicular right-of-way



#### **PUMP AROUND**

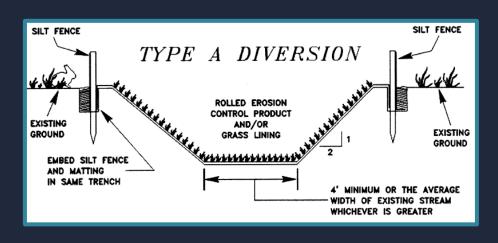
- WVDEP's preferred dewatering technique
- Dam upstream of construction site using non-erodible materials covered with an impervious membrane
- Pump is placed in pool behind dam to move the water around the construction area

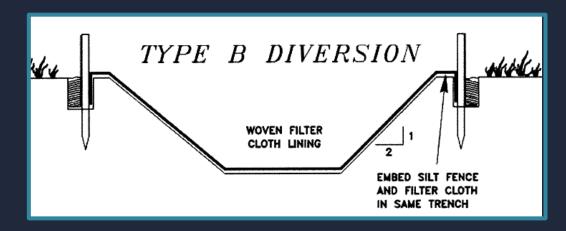


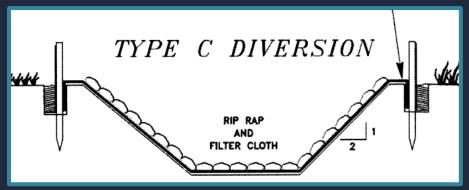
#### STREAM DIVERSION BYPASS

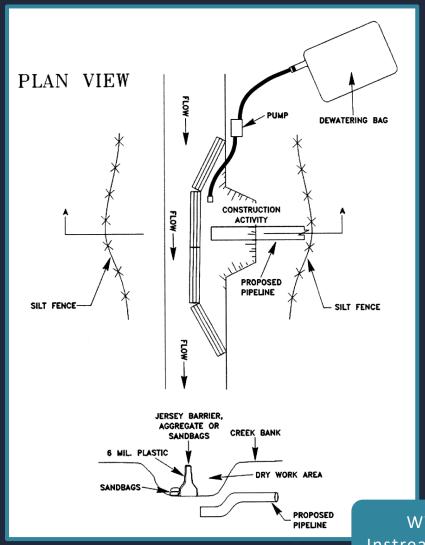
- Construction of bypass channel shall occur "in the dry"
- Minimum bottom width shall be 4' or equal to average width of streambed, whichever is greater
- Maximum steepness of side slopes shall be 2:1
- Grade may be variable, but must be sufficient to ensure continuous flow of water

## STREAM DIVERSION BYPASS





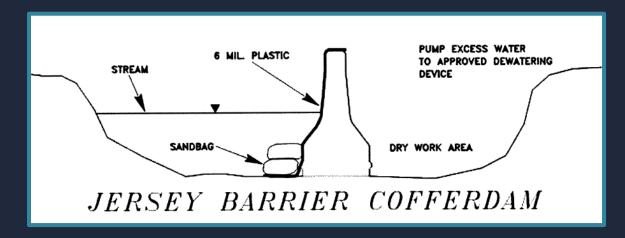


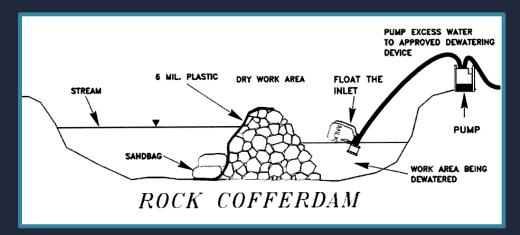


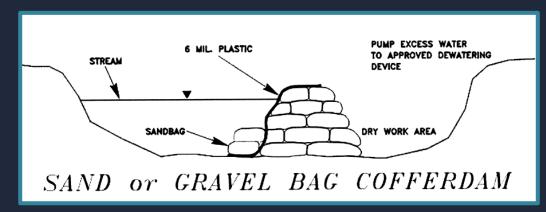
#### COFFERDAMS

- Can be used when stream diversion bypass is not practical
- Stream must be wide enough to make cofferdam practical (10' or wider)
- Cofferdam should not extend beyond 2/3 the width of streambed to allow for flow
- Dewater work area into an approved dewatering device

#### **COFFERDAMS**





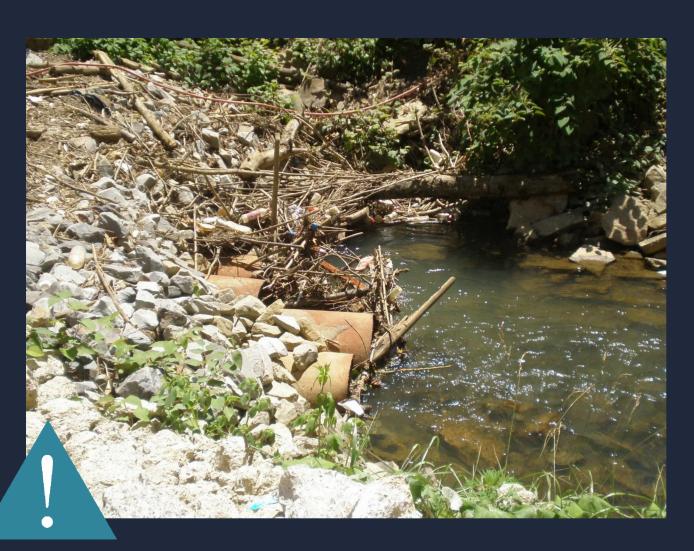




Earthen dams are **NOT** permitted



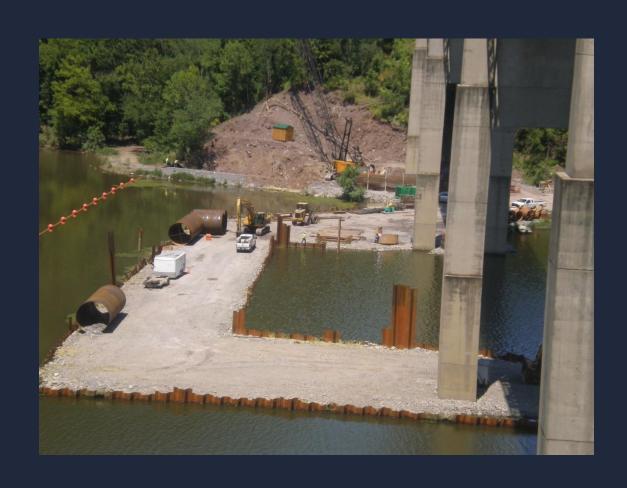




#### Causeways

- MUST maintain stream flow
- Cannot alter flow

### instream construction activities





### instream construction activities

All activities require the use of clean and course non-erodible materials with 15% or less LIKE fines, that is properly sized to withstand expected high flows

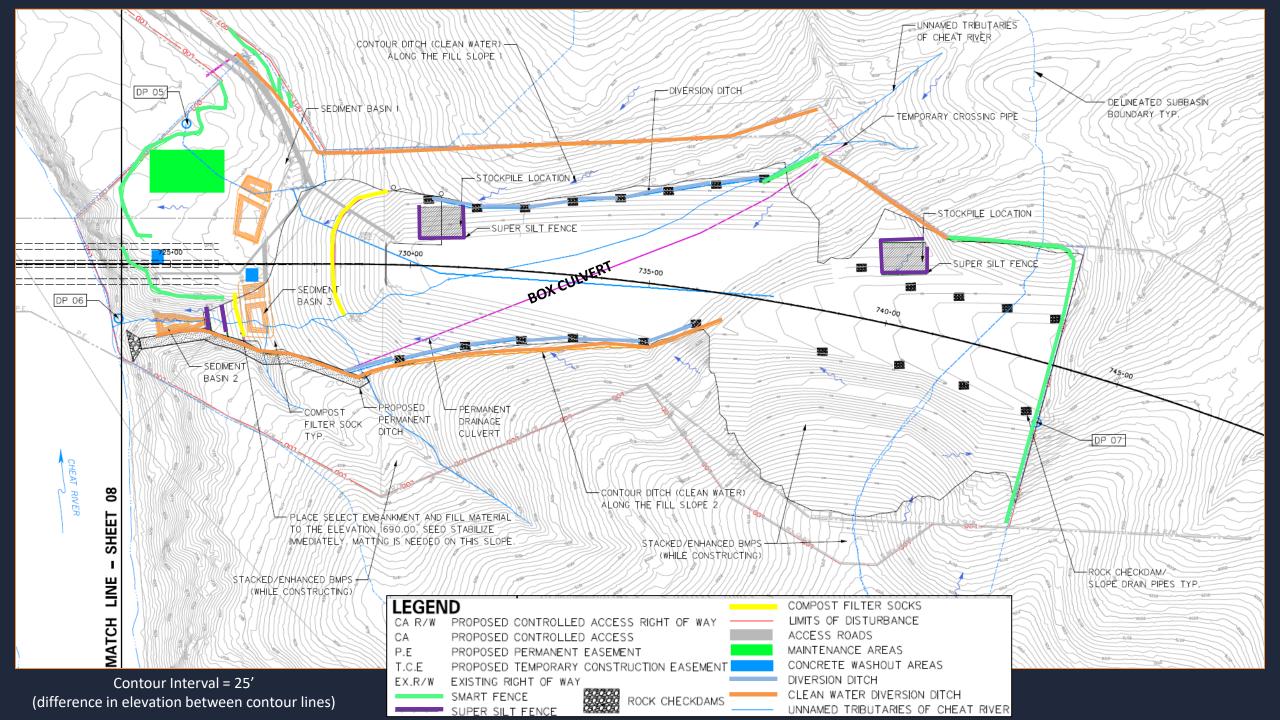




## Steve Sites, Environmental Specialist

Michael Baker International























# questions

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