

# Construction to Maintenance Handoff December 5<sup>th</sup>, 2019

# Center for Environmental Excellence

- Promotes environmental stewardship and encourages innovative ways to streamline the transportation project delivery process.
- Provides technical assistance, training, information exchange, partnership-building opportunities, and quick and easy access to environmental tools.
- Provides a variety of products and services to assist transportation agencies in achieving environmental excellence including:
  - Peer Exchanges
  - Practitioner's Handbooks
  - Communities of Practices
  - Webinars
  - Databases

<https://environment.transportation.org>



# AASHTO and FHWA



**Melissa Savage**

*AASHTO Center for  
Environmental Excellence*



**Oscar Bermudez**

*AASHTO Center for  
Environmental Excellence*



**Susan Jones, PE**

*Federal Highway  
Administration*



# Community of Practice Presenters



**Pete Riegelhuth**

*California Department of  
Transportation*



**Heather Voisin**

*Vermont Department of  
Transportation*



**Jennifer Callahan**

*Vermont Department of  
Transportation*



**Scott McGowen (Moderator)**

*Michael Backer International*

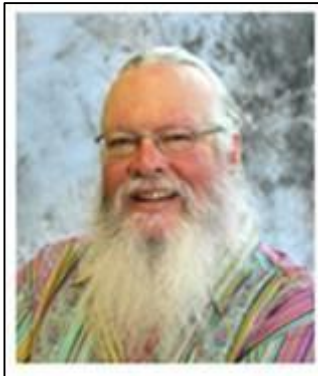


# Community of Practice Forum Overview

- I. 90% Walkthrough Construction to Maintenance Handoff
  - Pete Riegelhuth, *California Department of Transportation*
- II. The Flow of Stormwater on Vtrans Projects An Evolving Process
  - Jennifer Callahan, *Vermont Department of Transportation*
  - Heather Voisin, *Vermont Department of Transportation*
- III. Community of Practice Forum
  - Scott McGowen, *Michael Baker International*
- IV. Closing



# 90% Walkthrough Construction to Maintenance Handoff



**Pete Riegelhuth**

D-5 NPDES Coordinator

*California Department of Transportation*

# 90% Walkthrough Construction to Maintenance Handoff

Presentation by: Pete Riegelhuth



# Construction Policy Bulletin 13-1

- Effective July 27, 2013
- Due to projects ending with... “elements such as structural treatment best management practices (BMPs), drainage systems, and permanent erosion and sediment controls that were not functional or maintainable.”



# CONSTRUCTION MANUAL



**Caltrans**  
CALIFORNIA DEPARTMENT OF TRANSPORTATION

# Maintenance Reviews Sec 5-006

- Requires a project field review with Maintenance at approximately 90% completion.
- To identify items necessary to comply with the NPDES Permit and the Construction General Permit

## Final Inspection and Contract Acceptance Sec 3-523

- Resident Engineer schedules a final inspection review with Maintenance and other Caltrans divisions.





- During the 90 percent field review meeting, the resident engineer and district maintenance stormwater coordinator will complete Form MTCE-0023, “Construction to Maintenance 90% BMP Completion Walkthrough.”



**CONSTRUCTION TO MAINTENANCE 90% BMP COMPLETION WALKTHROUGH**

MTCE-0023 (REV 10/2018)

Page 1 of 6

Project ID Number	EA Number	Inspection Attendees		
Date				
Project Information (Statement of Ongoing Contracts <a href="http://www.dot.ca.gov/hq/construc/statement.html">http://www.dot.ca.gov/hq/construc/statement.html</a> )				
Project Limits Co - Route - PM1 to PM2	Estimated Completion Date	Estimated Acceptance Date	EFIS Unit	District Cost Center

**1. List the New, Removed, and Modified Treatment BMPs Within the Project Limits.** If none, select "NONE" in the TBMP Type field and delete the remaining rows. (Note: Final approval includes receipt of an O&M manual if applicable)

#	TBMP Type	County	Route	Direction of Travel	Begin PM End PM	Begin Latitude Begin Longitude	End Latitude End Longitude	CCO Filed?	State Any Corrective Actions Needed on the Treatment BMP
<input type="checkbox"/> 1								<input type="checkbox"/> YES <input type="checkbox"/> NO	<input checked="" type="checkbox"/>
<input type="checkbox"/> 2								<input type="checkbox"/> YES <input type="checkbox"/> NO	<input checked="" type="checkbox"/>
<input type="checkbox"/> 3								<input type="checkbox"/> YES <input type="checkbox"/> NO	<input checked="" type="checkbox"/>
<input type="checkbox"/> 4								<input type="checkbox"/> YES <input type="checkbox"/> NO	<input checked="" type="checkbox"/>
<input type="checkbox"/> 5								<input type="checkbox"/> YES <input type="checkbox"/> NO	<input checked="" type="checkbox"/>

**2. Drainage System.** ONLY identify locations where additional work is needed prior to acceptance. If none is needed enter "NONE" in the Additional work needed field and delete the remaining rows.

#	County	Route	Direction of Travel	Postmile	Latitude	Longitude	Additional work needed prior to acceptance
<input type="checkbox"/> 1							
<input type="checkbox"/> 2							
<input type="checkbox"/> 3							
<input type="checkbox"/> 4							
<input type="checkbox"/> 5							

# Walkthrough Topics

- Post Construction Runoff Control TBMPs
- Drainage System
- Illegal Connection/Illicit Discharge IC/ID
- Temporary Construction Site BMPs
- Permanent Erosion Control (Slope Stability)
- Plant Establishment
- Offsite Contractor Facility Cleanup

# Where is the Bioswale?





# How about this bioswale?





# Current Day





# Current Day





# Identify Deficiencies



**Go over  
maintenance  
requirements  
with field staff.**



**Caltrans Stormwater Quality Handbook  
Maintenance Staff Guide**

**CTSW-RT-18-314.20.1  
May 2018**

California Department of Transportation  
Division of Environmental Analysis, Stormwater Program  
1120 N Street  
Sacramento, California 95814  
<http://www.dot.ca.gov/hq/env/stormwater/>





**Table C.23.1-2 Biofiltration Swales Systems Maintenance Activities**

Maintenance Indicator	Inspection Frequency	Maintenance Activity
Evidence of significant channeling, erosion, seeps, or ponding	Annually in late wet season	Correct channelized, eroded, seeped, or ponded areas using additional fill and vegetation depending on coverage and/or by removing accumulated sediment. Complete prior to next wet season.
Average vegetation height exceeds 12 inches, emergence of trees, or woody vegetation	Semi-Annually, once during wet season, once during dry season (depending on growth)	Cut vegetation to a minimum height of 6 inches; cuttings may be removed at discretion of District Maintenance.
Less than 70 percent background coverage in swale invert and swale side slope	Semi-Annually, once late wet season and once late dry season	Assess quantity needed and reseed/revegetate barren spots by November. Contact environmental or landscape architect for appropriate seed mix. Scarify area to be restored, to a depth of 2- inches. Restore side slope coverage with hydroseed mixture. If growth is unsuccessful after 2 applications (2 seasons) of reseeding/revegetating, consult with District Landscape Architect for potential solutions. Maintain shrubs and trees that were installed in the original design
Debris/trash present	Inspect during routine trash collection. Minimum twice per year during inspections.	Remove litter, and debris per routine District schedule.
Sediment at or near vegetation height, channeling of flow within swale and energy dissipaters, inhibited flow due to change in slope	Annually in the dry season	<ul style="list-style-type: none"> <li>Remove sediment. If flow is channeled, determine cause and take corrective action. If sediment becomes deep enough to change the flow gradient, remove sediment during dry season, characterize and properly dispose of sediment, and revegetate. Refer to Activity Cut-Sheet Page B-72.</li> <li>Notify engineer or District Maintenance Storm Water Coordinator to determine if regrading is necessary.</li> <li>If regrading is necessary, regrade to design specification and revegetate swale/strip. Regrading should start in May. Revegetate strip/swale by</li> </ul>

# Common Issues

- Infiltration Areas-Vegetated or non-vegetated and Compaction
- Bio-swales/strips use vegetation and infiltration to remove pollutants from runoff. (70% Vegetative Cover Requirement)
- Maintaining the vegetation in the bio-strip/swale is the key to success.
- It is important to maintain the bio-strips/swales as originally designed. (width & side slopes)
- Walk staff through the parts of Detention/Infiltration Basins.
- **Trash**

# Pesticide Use- No No No





# Vegetation Control

- **DO NOT use herbicide to kill the grasses.**
- **DO NOT use court referral labor to remove the grasses.**

**It's okay if the grass looks dead. Leave it as is. □**

❖ Per Maintenance Staff Guide

## San Luis Obispo- NB-101 Shoulder





# San Luis Obispo- NB-101 LOVR to Prado Road





# San Luis Obispo- NB-101 LOVR to Prado Road









# Temporary Construction Site BMPs





# Temporary Construction Site BMPs





# Learn from mistakes- Mulch vs...





# Native grass sod









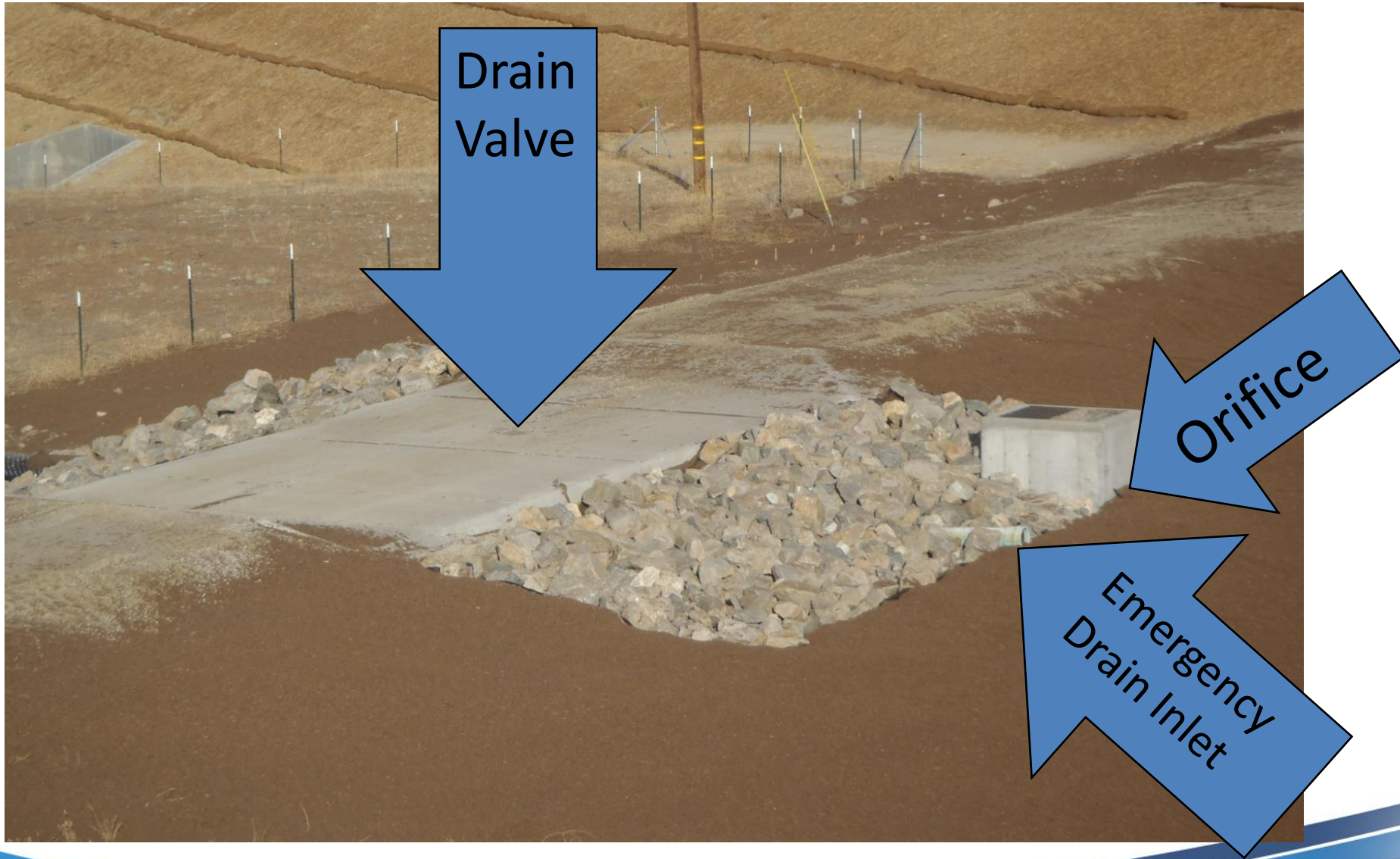


**Detention Basin- Hwy 46**





# Talk about how they work- the parts





# Maintain the Orifice





# Maintain the Orifice





# Maintain the Orifice





# Look at Slope Stabilization





# Look for scour problems





# Look for conflicts





# Access Points

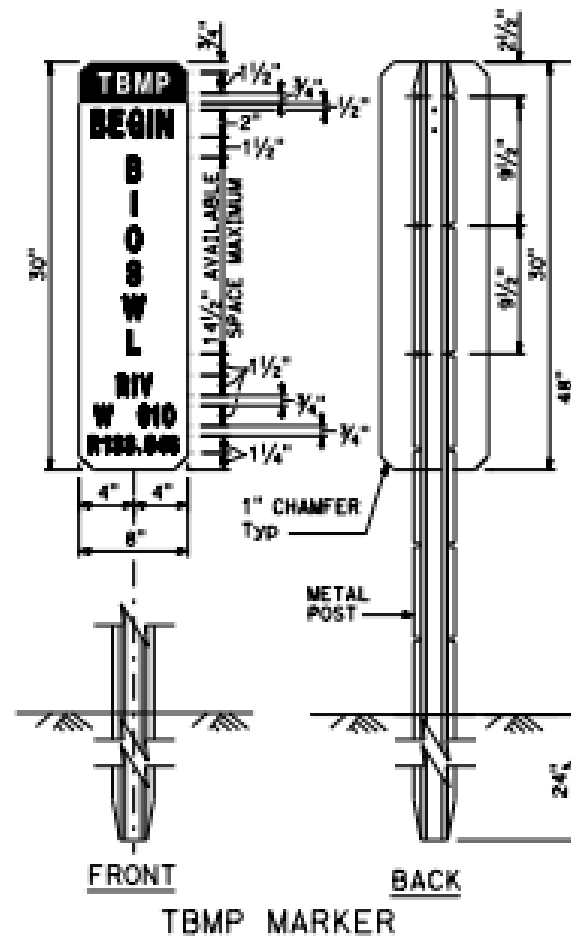




# Do they drain properly



## TBMP Markers



### TREATMENT BEST MANAGEMENT PRACTICE (TBMP) MARKER

#### NOTES:

1. The marker header shall be green (non-reflective) background with white (non-reflective) Series C letters.
2. The marker body shall be white (non-reflective) target plate with black Series C numbers and letters.
3. "BEGIN" or "END" shall apply as directed by the Engineer.
4. TBMP abbreviations shall be Series D letters up to a maximum of 2" tall, to fit within the available maximum space of 14.5".
5. See Project Plans for TBMP abbreviations.



# Finalize TBMP Inventory



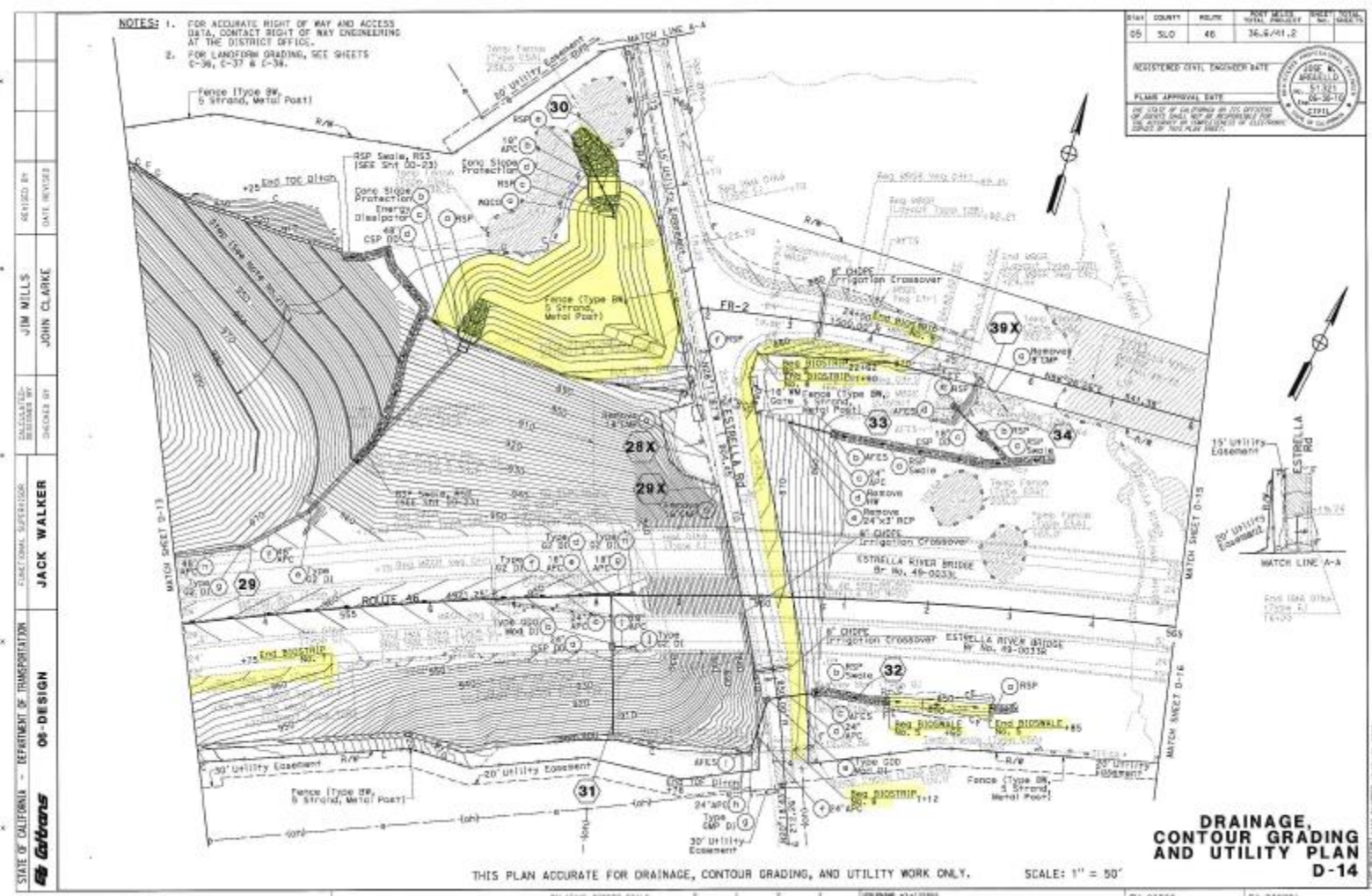
# Provide list and calcs- As Builts

## TREATMENT TYPE AND LOCATIONS

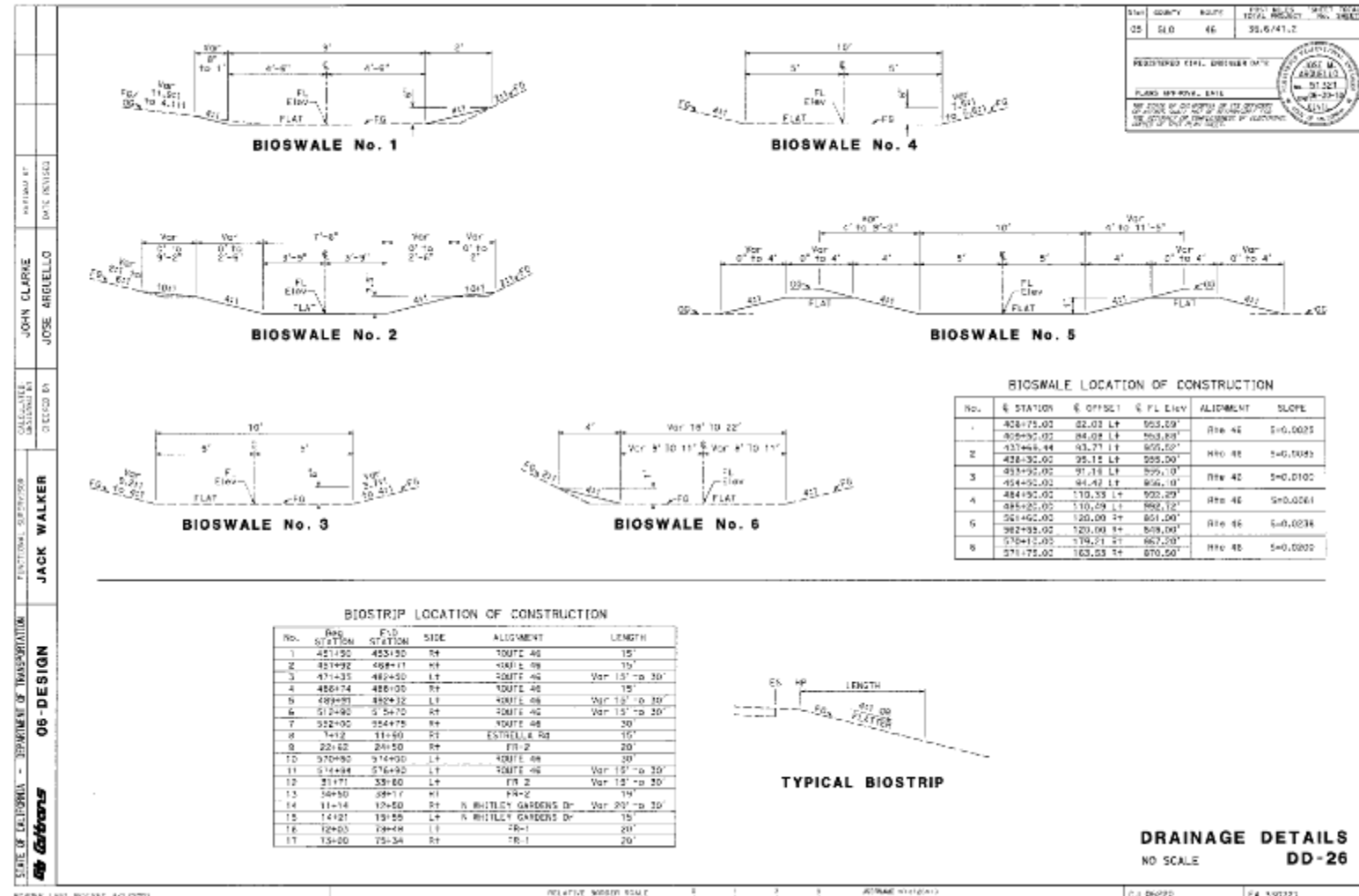
No.	Treatment BMP	County	Route	Direction of Travel	Begin PM	Begin Lat	Begin Long	Ending PM	Ending Lat	Ending Long	Tributary Area (sqft)	BMP Size (sqft)	WQV	Length ft	Width ft	Begin Station	End Station
	DPP Infiltration																
	BMP-1	MON	101	SB	87.520	36.680874	-121.642465	87.740	36.68312	-121.645143	44,308.00	17,519	1,086	1,200		10 264+50	276+50
	DPP Infiltration																
	BMP-2	MON	101	SB Median	88.470	36.688833	-121.655709	89.150	36.69613	-121.663712	164,484.00	53,584	4,030	3,550		10 315+00	350+50
	DPP Infiltration																
	BMP-3	MON	101	NB Median	88.470	36.688833	-121.655709	88.970	36.69371	-121.662135	106,208.00	16,678	2,602	2,600		10 315+00	341+00
	DPP Infiltration																
	BMP-4	MON	101	SB Off	89.394	36.69923	-121.66608	89.450	36.70001	-121.66609	9,440.00	5,829	231	400		10 372+00	376+00
	DPP Infiltration																
	BMP-5	MON	101	SB Median	89.350	36.698937	121.665019	89.580	36.7021	-121.666281	51,990.00	18,204	1,274	1,200		10 361+50	373+50
	DPP Infiltration																
	BMP-6	MON	101	NB Shoulder	89.480	36.700691	-121.65827	89.580	36.70945	-121.664087	188,141.00	72,179	4,610	4,754		10 367+96	415.5
	DPP Infiltration																
	BMP-7	MON	101	SB Median	89.600	36.702395	-121.666329	89.760	36.70473	-121.666189	31,660.00	9,537	776	850		10 374+50	383+00
	DPP Infiltration																
	BMP- 8	MON	101	SB Shoulder	89.840	36.705833	-121.665767	90.964	36.72175	-121.66143	230,195.00	89,099	5,640	3,000		10 387+00	417+00
	DPP Infiltration																
	BMP-9	MON	101	NB Shoulder	90.780	36.718721	-121.660721	90.910	36.72058	-121.660228	25,185.00	9,779	617	650		10 443+50	437+00
	DPP Infiltration																
	BMP-10	MON	101	SB Shoulder	90.810	36.71915	-121.660721	90.910	36.72058	-121.660228	20,647.00	7,525	506	500		10 438+50	443+50
	DPP Infiltration																
	BMP-11	MON	101	NB Off	90.891	36.72016	-121.65967	90.947	36.72984	-121.65901	13,497.00	5,310	331	350		10 442+50	446+00
	DPP Infiltration			NB On Loop													
	BMP-12	MON	101	Ramp	90.969	36.72164	-121.65893	90.999	36.72136	-121.65964	17,792.00	7,272	436	600		10 440+00	446+00
	DPP Infiltration																
	BMP-13	MON	101	NB On Shoulder	91.058	36.72239	-121.65836	91.130	36.72391	-121.65878	7,380.00	4642	180	328		10 449+00	452+28
	DPP Infiltration																
	BMP-14	MON	101	SB Shoulder	91.060	36.722724	-121.659656	91.080	36.72301	-121.659578	4,185.00	1,505	103	100		10 431+50	432+50
	DPP Infiltration																
	BMP-15	MON	101	NB On Shoulder	91.169	36.72426	-121.65879	91.226	36.72505	-121.65867	6,992.00	4415	171	300		10 454+00	457+00
	DPP Infiltration																
	BMP-16	MON	101	SB Off Shoulder	91.152	36.72435	-121.66026	91.255	36.72589	-121.65924	13,911.00	8825	341	600		10 471+00	477+00
	DPP Infiltration																
	BMP-17	MON	101	SB Shoulder	91.170	36.724297	-121.659229	91.210	36.72487	-121.659073	9,666.00	3000	237	200		10 457+50	459+50
	DPP Infiltration																
	BMP-18	MON	101	NB Shoulder	91.270	36.725728	-121.65884	91.480	36.72871	-121.658034	63,513.00	9535	1,556	1150		10 462+50	474+00
	DPP Infiltration																
	BMP-19	MON	101	SB Shoulder	91.280	36.725871	-121.658801	91.480	36.72871	-121.658034	53,145.00	15980	1,302	1,060		10 463+40	474+00



# Maintenance needs mapping



# They need the details





# Structural TBMP- STBMP Form

IMMS

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION				
STBMP DATA ENTRY FORM		PAGE 1 of		
IMMS Appurtenance Number Request				
Use this form when requesting a new Structural Treatment BMP (STBMP) appurtenance number from IMMS. Send completed form to Eric_Uyana@dot.ca.gov				
REQUESTER INFORMATION				
REQUESTED BY:	PHONE NUMBER	DATE REQUESTED	ENTERED INTO IMMS BY:	
STBMP INFORMATION				
DISTRICT	COUNTY	ROUTE	*POST MILE	DIRECTION OF TRAVEL
TYPE (SEE DESCRIPTIONS BELOW)		ASSIGNED COST CENTER	LOCATION (RHS, CD, Ramp Etc.)	
FIELD VERIFIED? (Y/N)				
DESCRIPTIVE LOCATION (Any other information not included above)				
*If the STBMP is located in a Maintenance Station, enter the part mile nearest the facility. Six digit number required. (xxx.xxx)				
Is this STBMP in Caltrans Facility? Y/N				
Additional Information If Available:				
STORMWATER COORDINATOR	LENGTH	WIDTH	HEIGHT	DATE INSTALLED
ASST. SW COORDINATOR	DATE SENT TO IMM:	DATE PUT INTO INVENTORY		
COMMENTS:				
IMMS Treatment Drain Reference				
IMMS CODE	DESCRIPTION			
BIOSTP	BIOFILTRATION-BIO-STRIP			
BIOSWL	BIOFILTRATION-BIO-SWALE			
CNTBOX	GSRD - CONCRETE BOX INCLINED SCREEN			
CNTDEEF	CONT. DEFLECTION SEPARATION			
DETBAS	DETENTION BASIN			
DRINLT	DRAIN INLET INSERT			
INDBAS	INFILTRATION DEVISE - BASIN			
INDTRE	INFILTRATION DEVISE - TRENCH			
LNGTBE	GSRD - (LONG TUBE) LINEAR RADIAL			
MCTT	MULTI CHAMBERED TREATMENT TRAIN			
MF-ADS	MEDIA FILTER-AUSTIN/DELAWARE SAND			
MF-CMP	MEDIA FILTER-COMPOST FILTERS			
OILWTR	OIL/WATER SEPARATOR			
ST-FLT	STORM FILTER			
TR2FFV	TR2000 FABRIC FILTER VAULT			
TRCSND	TRACTION SAND TRAPS			
VSCREEN	GSRD-(V-SCREEN)			
WETBAS	WET BASIN			



# Enter TBMPs into Database

**Appurtenance Inventory**

Appurtenance ID: SWMON068-W011002  
Description: 05 MON 068 PM 011.002 W  
Address:   
Truck Stalls #:   
Car Stalls #:   
BMP Type: DETBAS  
Septic Sys Type:   
Kiosk Loc:   
Date Built/Rehab:   
Acres of Landscaping:   
Restroom Stalls #:   
RV Dump:   
Mobile Scale:   
Fixed Scale:   
Weigh in Motion:   
Building:   
Landscaped:   
Irrigation:   
Water:   
Water Potable:   
Water Treatment:   
Utilities:   
Meter #:   
CT ID #:   
Address:   
Power Co.:   
Water Co.:   
Vend:   
Phone:   
Workshop:   
RV Dump:   
Location: Structural Associated Assets Comments Main Details

**Initiated Date**

**Type of STBMP**

**Maintenance cost center responsible for monthly inspections, any required clean up or repair, and IMMS reporting.**

Appurtenance	Description	BMP Type	Service Status	Initiated Date
SWMON068-W011002	05 MON 068 PM 011.002 W	DETBAS	Initiated	07/01/2011
SWMON101-N01153	05 MON 101 PM 011.530 N	TBMP	Initiated	07/01/2011
SWMON101-N01168	05 MON 101 PM 011.660 N	TBMP	Initiated	07/01/2011
SWMON101-N01234	05 MON 101 PM 012.340 N	TBMP	Initiated	07/01/2011
SWMON101-N06900	05 MON 101 PM 069.000 N	TBMP	Initiated	06/30/2005
SWMON101-N07620	05 MON 101 PM 076.200 N	TBMP	Initiated	06/29/2009
SWMON101-N08040	05 MON 101 PM 080.400 N	TBMP	Initiated	06/29/2009
SWMON101-N08110	05 MON 101 PM 081.100 N	TBMP	Initiated	06/29/2009
SWMON101-N08151	05 MON 101 PM 081.510 N	TBMP	Initiated	06/29/2009
SWMON101-N08270	05 MON 101 PM 082.700 N	TBMP	Initiated	06/29/2009
SWMON101-N08439	05 MON 101 PM 084.390 N	TBMP	Initiated	06/29/2009
SWMON101-N08539	05 MON 101 PM 085.350 N	TBMP	Initiated	03/01/2012
SWMON101-N08538	05 MON 101 PM 085.380 N	TBMP	Initiated	03/01/2012
SWMON101-S00200	05 MON 101 PM 002.000 S	TBMP	Initiated	07/14/2011
SWMON101-S02120	05 MON 101 PM 021.200 S	TBMP	Initiated	07/14/2011
SWMON101-S08100	05 MON 101 PM 081.000 S	TBMP	Initiated	07/14/2011
SWSBT101-S000590	05 SBT 101 PM 000.590 S	TBMP	Initiated	07/14/2011
SWSBT156-E000700	05 SBT 156 PM 000.700 E	TBMP	Initiated	07/14/2011
SWSBT156-W00270	05 SBT 156 PM 002.700 W	TBMP	Initiated	07/14/2011
SWSBT156-W01840	05 SBT 156 PM 018.400 W	TBMP	Initiated	07/14/2011
SWSCR001-N01660	05 SCR 001 PM 016.600 N	TBMP	Initiated	07/14/2011
SWSCR001-S01660	05 SCR 001 PM 016.600 S	TBMP	Initiated	07/14/2011
SWSLO046-E033970	05 SLO 046 PM 033.970 E	TBMP	Initiated	07/14/2011
SWSLO046-E034590	05 SLO 046 PM 034.590 E	TBMP	Initiated	07/14/2011
SWSLO046-E044800	05 SLO 046 PM 044.800 E	TBMP	Initiated	07/14/2011
SWSLO046-W03241	05 SLO 046 PM 032.410 W	TBMP	Initiated	07/14/2011
SWSLO046-W03258	05 SLO 046 PM 032.580 W	TBMP	Initiated	07/14/2011
SWSLO046-W03304	05 SLO 046 PM 033.040 W	TBMP	Initiated	07/14/2011
SWSLO046-W03397	05 SLO 046 PM 033.970 W	TBMP	Initiated	07/14/2011
SWSLO046-W03463	05 SLO 046 PM 034.630 W	TBMP	Initiated	07/14/2011
SWSLO046-W03471	05 SLO 046 PM 034.710 W	TBMP	Initiated	07/14/2011



# Questions?

# The Flow of Stormwater on Vtrans Projects

## An Evolving Process



**Jennifer Callahan**

Stormwater Technician

*Vermont Department of  
Transportation*



**Heather Voisin**

Green Infrastructure Engineer

*Vermont Department of  
Transportation*





# The Flow of Stormwater on VTrans Projects An Evolving Process

Jennifer Callahan & Heather Voisin



How VTrans gets from construction...





...to maintenance







# Regulations

- ACT 64 – VERMONT'S CLEAN WATER ACT
- A BROAD SUITE OF PROGRAMS AND REGULATIONS TO ADDRESS WATER QUALITY INCLUDING:
- TRANSPORTATION SEPARATE STORM SEWER GENERAL PERMIT (TS4)
  - MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)
  - MULTI-SECTOR INDUSTRIAL GENERAL PERMIT (MSGP)
  - STATE OPERATIONAL STORMWATER DISCHARGES (STATE OSW)
  - TOTAL MAXIMUM DAILY LOAD(TMDL)
- CONSTRUCTION STORMWATER DISCHARGES (NOT PART OF TS4)



# Regulations

## STATE OPERATIONAL PERMIT

- STATEWIDE PROGRAM REQUIRED ON PROJECTS THAT CREATE AN ACRE OR MORE OF IMPERVIOUS SURFACE.
  - **THIS THRESHOLD WILL BE LOWERED TO ½ ACRE IN 2021.**
- AVERAGE FOR VTRANS IS **10 PROJECTS** PER YEAR OBTAIN UNDER THIS PROGRAM
  - EXPECTING THAT TO AT LEAST DOUBLE WITH THE THRESHOLD LOWERING
- CURRENTLY **86 PROJECTS** CONSTRUCTED AND BEING MAINTAINED (AND GROWING).
- ANOTHER **54 PROJECTS** UNDER DESIGN DEVELOPMENT, PERMITTING OR CONSTRUCTION.

## TMDL IMPLEMENTATION

- REQUIRES THE CONSTRUCTION OF STORMWATER TREATMENT ON NEW AND EXISTING IMPERVIOUS SURFACES.
- IDENTIFY AND IMPLEMENT SW RETROFITS TO ADDRESS TMDLS/WQRPS
  - LAKE CHAMPLAIN PHOSPHORUS
  - STORMWATER IMPAIRED WATERSHEDS
  - OTHERS....
- ABOUT 60 PRACTICES PLANNED FOR SW-IMPAIRED WATERSHEDS, EXPECTING MANY MORE FOR LCTMDL
  - CURRENTLY HAVE 17 CONSTRUCTED, 20 DESIGNED AND PLANNED FOR CONSTRUCTION NEXT SEASON





# Regulations

## CONSTRUCTION GENERAL PERMIT

- STATEWIDE PROGRAM REQUIRED ON PROJECTS THAT HAVE AN ACRE OR MORE OF EARTH DISTURBANCE.
- TIERED PROGRAM BASED ON ASSESSMENT “RISK”
  - LOW RISK GENERAL PERMIT
  - MODERATE RISK GENERAL PERMIT
  - INDIVIDUAL PERMIT
- ON AVERAGE 30 VTRANS PROJECTS PER YEAR NEED THIS PERMIT





# Staffing

## VTRANS IS.....

- ◆ STRENGTHENING ITS STORMWATER PROGRAMS
- ◆ BUILDING PARTNERSHIPS TO IMPROVE WATER QUALITY THROUGHOUT THE STATE
- ◆ MAKING WATER QUALITY PROTECTION FUNDAMENTAL TO THE AGENCY'S WAY OF DOING BUSINESS



**2003**  
**The Beginning!**  
Stormwater Engineer

**2003**  
Construction Environmental Engineer

**2007**  
Maintenance Stormwater Coordinator

**2012**  
Maintenance Stormwater Technician

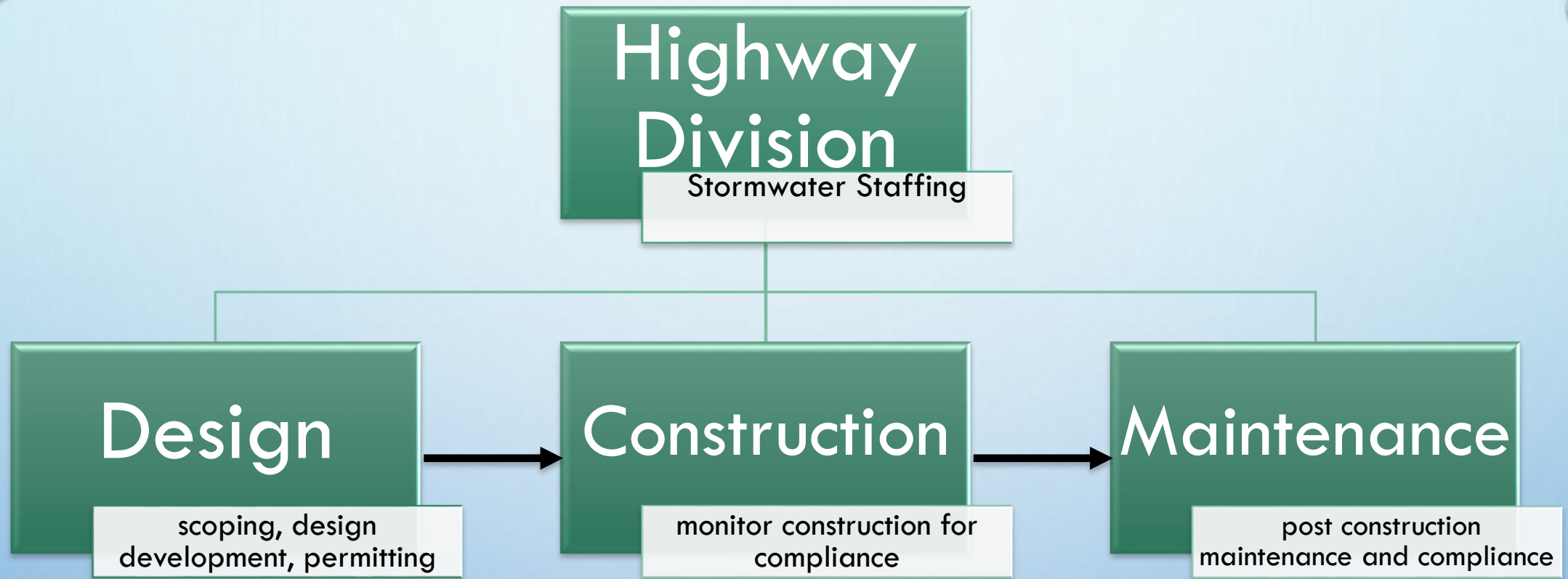
**2014**  
2<sup>nd</sup> Maintenance Stormwater Technician

**2015**  
3<sup>rd</sup> Maintenance Stormwater Technician

**2017**  
4<sup>th</sup> and 5<sup>th</sup> Maintenance Stormwater Technician

**2018**  
2<sup>nd</sup> Stormwater Engineer





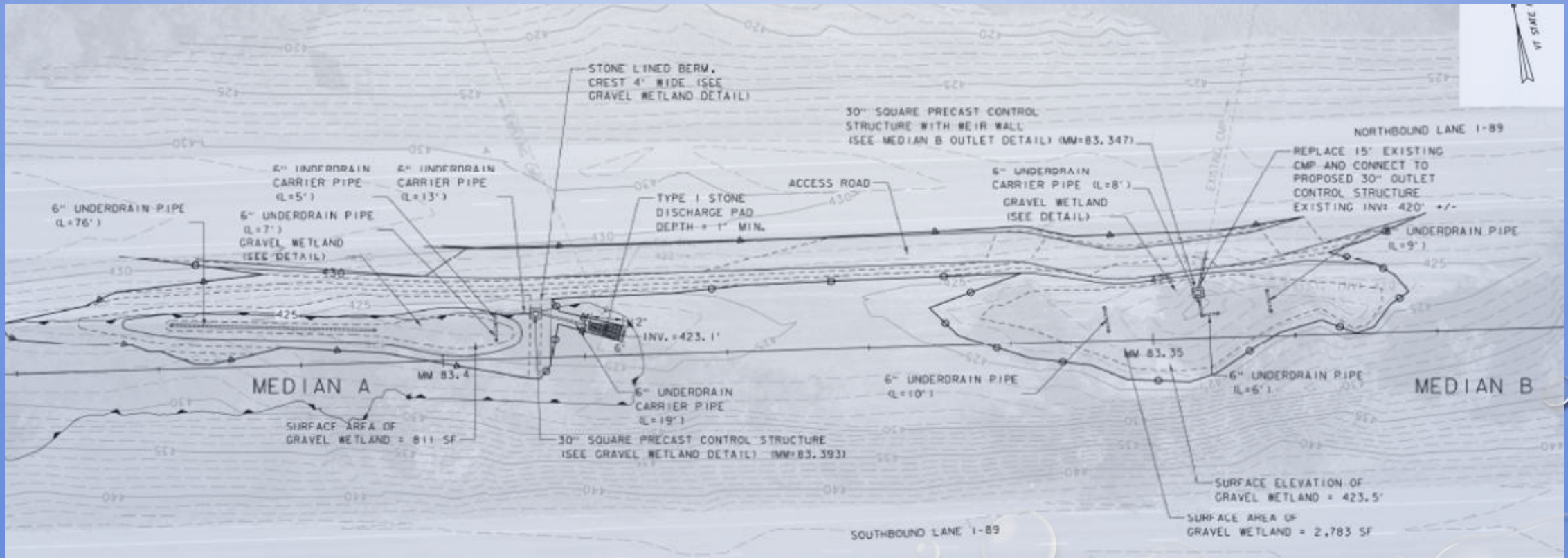


# Design

## Online Shared Reviews

Preliminary Plans – Constructability Meeting

Final Plans – PS & E Pre-contract Meeting



# Construction

Special Provisions for: Williston STP IM SWFR(1)

November 14, 2018  
Page 5

- (e) All stationary signs shall be mounted on two 3 lb/ft flanged channel posts or 2-inch square steel inserted in 2-4" galvanized square steel anchors. No sign posts shall extend over the top edge of the sign installed on said posts.
- (f) Construction signs shall be installed so as to not obstruct the view of existing traffic control sign installed on said distance and corner sight distance of highways.
- (g) Speed zones, if used, should be a maximum of posted speeds. Temporary speed limit control by the Chief Engineer.

19. **NOTICE TO BIDDERS.** All retroreflective sheeting to remain after the project is completed) shall be 4956 Type III sheeting, unless otherwise shown.

20. **NOTICE TO BIDDERS - CONCURRENT CONSTRUCTION.** of the following VTRANS construction project to the west of this project during its construction activities:

Project	Contractor
Richmond-Colchester IM SURF(63)	TBD
Williston STP PPWF(10)	TBD
Waterbury-Richmond IM SURF(58)	TBD

The Contractor shall coordinate control with the work required for. There will be no extra expense inconvenience caused by working.

21. **ENVIRONMENTAL.**

(a) Threatened, Endangered, a

- (1) This project shall measures to protect long-eared bat, a Time-of-Year (TOY) suitable bat habi 2 3" and/or habi

(2) It is anticipated trees 23" in part of the v in a finding bridge rela' without any

(3) The Contr restrict! Cutting limits Waste,

## Notice of Authorization Under Vermont Construction General Permit 3-9020 For Moderate Risk Projects



### Permittee Directions for Posting:

This notice shall be placed near the construction entrance at a location visible to the public. If displaying near the main entrance is infeasible, the notice shall be posted in a local public building such as the town hall or public library. For linear projects, the notice shall be posted at a publicly accessible location near the active part of the construction project (e.g., where a pipeline project crosses a public road).

### Project Name:

Williston IM SWFR (1)

### Permittee Name(s):

Vermont Agency of Transportation

### NOI Number:

8264-9020

### Date of Authorization:

November 13, 2018

### Date of Expiration:

November 12, 2023

The project listed above has received authorization under General Permit 3-9020 to discharge stormwater from the following construction activities:

installation of new operational stormwater BMPs along the interstate median with associated access roads and drainage infrastructure and a retrofit of the existing wet pond at the northbound rest area with associated access road and drainage infrastructure.

### This authorization includes the following requirements:

- Implementation of the authorized site-specific Erosion Prevention and Sediment Control Plan as prepared by: VHB; Sheet 1 of 54, "Cover Sheet", dated October 2018; Sheet 2 of 54, "Index of Sheets", dated 10/2/2018; Sheet 3 of 54, "Conventional Symbol Legend Sheet", dated 10/2/2018; Sheet 4 of 54, "General Notes Sheet", dated 10/2/2018; Sheet 5 of 54, "Typical Sections and Details Sheet 1", dated 10/2/2018; Sheet 6 of 54, "Typical Sections and Details Sheet 2", dated 10/2/2018; Sheet 7 of 54, "Quantity Sheet (1 of 2)", dated 10/2/2018; Sheet 8 of 54, "Quantity Sheet (2 of 2)", dated 10/2/2018; Sheet 9 of 54, "Layout Plan Sheet (1 of 10)", dated 10/2/2018; Sheet 10 of 54, "Layout Plan Sheet (2 of 10)", dated 10/2/2018; Sheet 11 of 54, "Layout Plan Sheet (3 of 10)", dated 10/2/2018; Sheet 12 of 54, "Layout Plan Sheet (4 of 10)", dated 10/2/2018; Sheet 13 of 54, "Layout Plan Sheet (5 of 10)", dated 10/2/2018; Sheet 14 of 54, "Layout Plan Sheet (6 of 10)", dated 10/2/2018; Sheet 15 of 54, "Layout Plan Sheet (7 of 10)", dated 10/2/2018; Sheet 16 of 54, "Layout Plan Sheet (8 of 10)", dated 10/2/2018; Sheet 17 of 54, "Layout Plan Sheet (9 of 10)", dated 10/2/2018; Sheet 18 of 54, "Layout Plan Sheet (10 of 10)", dated 10/2/2018; Sheet 19 of 54, "EPSC Narrative (1 of 2)", dated 10/2/2018; Sheet 20 of 54, "EPSC Narrative (2 of 2)", dated 10/2/2018; Sheet 21 of 54, "EPSC Detail Sheet (1 of 3)", dated 10/2/2018; Sheet 22 of 54, "EPSC Detail Sheet (2 of 3)", dated 10/2/2018; Sheet 23 of 54, "EPSC Detail Sheet (3 of 3)", dated 10/2/2018; and all supporting information.
- All areas of disturbance must have temporary or final stabilization within 7 days of the initial disturbance. After this time, all disturbed soil must be stabilized at the end of each work day. Between October 15 and April 15 all disturbed soil must be stabilized at the end of each work day. The following exceptions apply:
  - Stabilization is not required if the work is to continue in the area within the next 24 hours and there is no precipitation forecast for the next 24 hours.
  - Stabilization is not required if the work is occurring in a self-contained excavation (i.e. no outlet) with a depth of 2 feet or greater (e.g. house foundation excavation, utility trenches).
- The total authorized disturbance is 4.57 acre(s).
- No more than 2 acres of land may be disturbed at any one time.
- Inspections shall be conducted at least once every (7) calendar days and within twenty-four (24) hours of the end of a storm event resulting in discharge of stormwater from construction site.
- If there is a discharge of visibly discolored stormwater from the construction site or from the construction site to waters of the State, the permittee shall take immediate corrective action. If, after completing corrective action, there continues to be a discharge of sediment from the construction site to waters of the State, the permittee shall notify DEC by submitting a report within 72 hours of the discharge.
- The On-site Plan Coordinator shall have a copy of the approved EPSC Plan and all amendments available at a central location on-site for the use of all those identified as having responsibilities under this authorization whenever they are on the construction site. If an on-site location is unavailable to store the EPSC Plan when no personnel are present, notice of the EPSC plan's location shall be posted near the main entrance at the construction site.

To request information on the authorization, or to report compliance concerns, please contact:  
Vermont DEC, Watershed Management Division  
Main Building, Second Floor  
One National Life Drive  
Montpelier, VT 05602

Construction General Permit dated 11.13.18

## Contract Review for Environmental Commitments & Permit Conditions Kick-off Meeting & Preconstruction Conference



# Construction

Conduct Pre-construction Meeting for Projects with Individual Construction Stormwater Permits





# Construction

## FIELD VISITS

























# Construction

Conduct Pre-final Site Visit





# Construction

## Final Inspection





# Construction

Follow Up Visits, As Needed





# Maintenance

- ◆ CONSULTATION DURING THE DESIGN PROCESS
- ◆ PRE-FINAL MEETING WITH CONSTRUCTION
- ◆ CREATE MAINTENANCE PLAN
- ◆ MEET WITH DISTRICT STAFF
- ◆ ANNUAL INSPECTIONS
- ◆ RENEWALS EVERY 5 YEARS
- ◆ MAINTENANCE AS NEEDED





# CHALLENGES

- TIME OF YEAR





# CHALLENGES

- TIME OF YEAR





# CHALLENGES

- TIME OF YEAR





# CHALLENGES

- DIFFERING SITE CONDITIONS





# CHALLENGES

- “TOO LATE TO FIX IT”





# BRIGHT SPOTS AND SUCCESSES!

- Enhanced Communication And Coordination Between Highway Division Stormwater Staff
  - Regular Check-Ins on Projects





# BRIGHT SPOTS AND SUCCESSES!

- Enhanced Communication And Coordination Between Highway Division Stormwater Staff
  - Regular Check-Ins on Projects
  - Conducting Pre-final Inspection





# BRIGHT SPOTS AND SUCCESSES!

- Enhanced Communication And Coordination Between Highway Division Stormwater Staff
  - Regular Check-Ins on Projects
  - Conducting Pre-final Inspection
  - Monthly Meetings For All Highway Division Stormwater Staff





# BRIGHT SPOTS AND SUCCESSES!

- Enhanced Communication And Coordination Between Highway Division Stormwater Staff
  - Regular Check-Ins on Projects
  - Conducting Pre-final Inspection
  - Monthly Meetings For All Highway Division Stormwater Staff
  - Participating In Shared Reviews During Design





**QUESTIONS???**





# CoP Questions/Discussion



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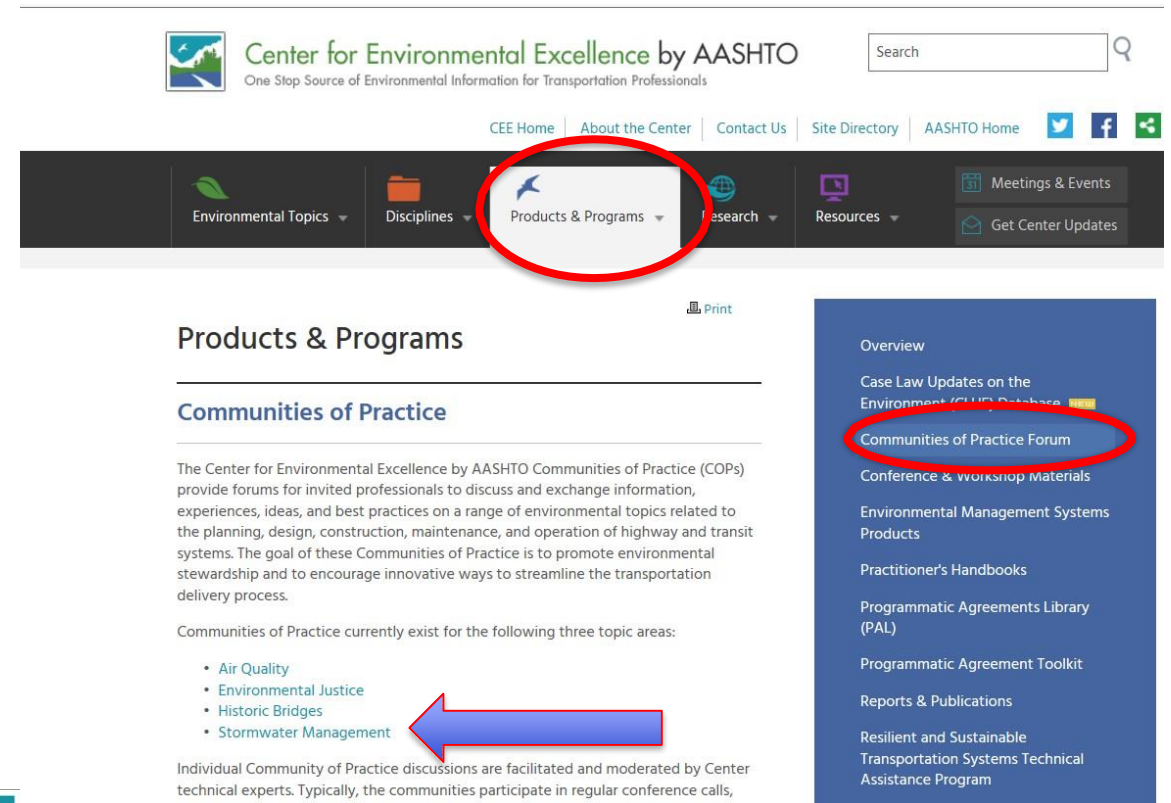


# Closing

A recording of this webinar will be available on the Center for Environmental Excellence by AASHTO Website.

<http://environment.transportation.org>

Products & Programs → Communities of Practice → Stormwater Management



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## Products & Programs

### Communities of Practice

The Center for Environmental Excellence by AASHTO Communities of Practice (COPs) provide forums for invited professionals to discuss and exchange information, experiences, ideas, and best practices on a range of environmental topics related to the planning, design, construction, maintenance, and operation of highway and transit systems. The goal of these Communities of Practice is to promote environmental stewardship and to encourage innovative ways to streamline the transportation delivery process.

Communities of Practice currently exist for the following three topic areas:

- Air Quality
- Environmental Justice
- Historic Bridges
- Stormwater Management**

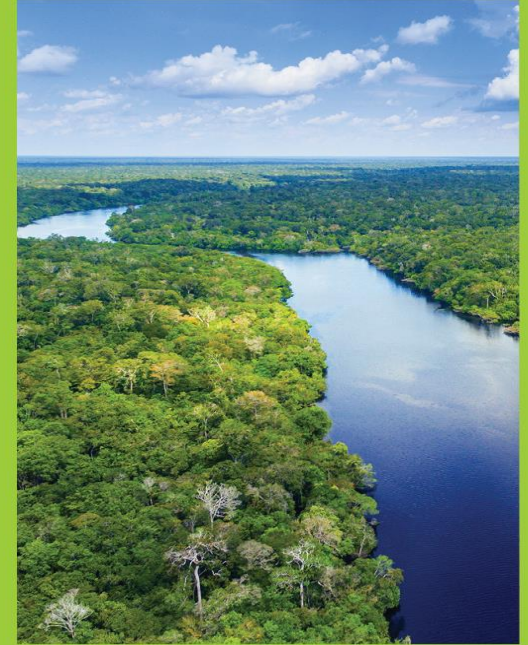
Individual Community of Practice discussions are facilitated and moderated by Center technical experts. Typically, the communities participate in regular conference calls,

Overview

- Case Law Updates on the Environment (CLUE) Database
- Communities of Practice Forum**
- Conference & Workshop Materials
- Environmental Management Systems Products
- Practitioner's Handbooks
- Programmatic Agreements Library (PAL)
- Programmatic Agreement Toolkit
- Reports & Publications
- Resilient and Sustainable Transportation Systems Technical Assistance Program







# Thank You for Attending