



E&M Engineers and Surveyors, PC
 Phone: 716-592-2851
 E-mail: ernst@emengineers.com
 Web: www.emengineers.com
 Contact: Christopher Ernst

CORPORATE SPONSORS



KHEOPS
 ARCHITECTURE, ENGINEERING & SURVEY, DPC
 Phone: 716-849-8739
 E-mail: jsawyer@kheopsdpc.com
 Web: www.kheopsdpc.com
 Contact: Jill Sawyer



MRB Group
 Phone: 585-381-9250
 E-mail: colin.diehl@mrbgroup.com
 Web: www.mrbgroup.com
 Contact: Colin Diehl

CORPORATE SUPPORTER



GERNATT ASPHALT PRODUCTS, INC.
 Phone: 716-532-3371
 E-mail: bphillips@gernatt.com
 Web: www.gernatt.com
 Contact: Bill Phillips

PROGRAM EXHIBITORS

AMERICAN EXCELSIOR COMPANY
 Phone: 716-329-0343
 E-mail: hdickson@curlex.com
 Web: www.curlex.com
 Contact: Harvey Dickson

**KISTNER CONCRETE/
 ENVIRONMENT 21, LLC**
 Phone: 585-815-4714
 E-mail: dino.pezzimenti@env21.com
 Web: www.env21.com www.kistner.com
 Contact: Dino Pezzimenti

**TOTAL CONTROL SYSTEM
 SERVICES, INC.**
 Phone: 716-941-9510
 E-mail: markb@totalcontrolnys.com
 Web: www.totalcontrolnys.com
 Contact: Mark Boswell

CLARK PATTERSON LEE
 Phone: 800-274-9000 ext 1304
 E-mail: bkulpa@clarkpatterson.com
 Web: www.clarkpatterson.com
 Contact: Brian J. Kulpa

NUSSBAUMER & CLARKE, INC.
 Phone: 716-699-2220
 E-mail: msendor@nussclarke.com
 Web: www.nussclarke.com
 Contact: Michael J. Sendor

TRUEGRID PAVERS
 Phone: 832-723-0236
 E-mail: sbaker@truegridpaver.com
 Web: www.truegridpaver.com
 Contact: Nathan Wood

**ENVIRONMENTAL FINANCE
 CENTER**
 Phone: 315-443-8818
 Email: kdodson@syracusecoe.org
 Web: www.efc.syracusecoe.org
 Contact: Khristopher Dodson

**PANAMERICAN
 ENVIRONMENTAL, INC.**
 Phone: 716-821-1650
 E-mail: pgorton@panamconsultants.com
 Web: www.panamenv.biz
 Contact: Peter J. Gorton

UNILOCK, INC.
 Phone: 716-822-6074
 E-mail: steve.simon@unilock.com
 Web: www.unilock.com
 Contact: Steve Simon

GREENMAN-PEDERSEN, INC. (GPI)
 Phone: 716-633-4884
 E-mail: jmanzella@gpinet.com
 Web: www.gpinet.com
 Contact: James C. Manzella

HOSTED BY

*Southern Tier West RP&DB
 Cattaraugus County Department of Public Works
 STW Regional Watershed Coalition*



Grand Opening of the Southern Tier West Stormwater Outdoor Demonstration Training Facility

**MAY 22, 2014
 CATTARAUGUS COUNTY DPW
 LITTLE VALLEY, NY**



Practical Solutions for Site Stabilization and Stormwater Management

PROGRAM AGENDA

8:00 AM Registration - Continental Breakfast - Visit with Exhibitors (Highway Barn)

9:00 AM Welcome and Opening Remarks (Highway Barn)

Richard Zink, Executive Director of Southern Tier West
Joseph Pillittere, Commissioner of Cattaraugus County Department of Public Works
Ginger Malak, Senior Regional Development Coordinator, Southern Tier West

9:15 AM Introduction to the Stormwater Demonstration Training Facility (Highway Barn)

Brian Davis, District Field Manager, Cattaraugus County Soil & Water Conservation District
Andrew Johnson, Principal Engineer, EcoStrategies Civil Engineering

9:45 AM Stormwater, Erosion, & Sediment Control BMP Demonstration Schedule (OUTSIDE)

<u>Practice Number & Description</u>	<u>Installed/To be Demonstrated</u>	<u>Presenters</u>
--	-------------------------------------	-------------------

Sediment Control Practices

1. Stabilized Construction Entrance	Previously Installed	B. Davis
2. Silt Fence	Previously Installed/Demonstration	B. Davis
3. Inlet Protection	Previously Installed	B. Davis
4. Fiber Roll Sediment Control	Partially Installed/Demonstration	P. Gorton

Runoff Control/Soil Stabilization Practices AM Break in the Field

5. Stormwater Diversion	Previously Installed	B. Davis
6. Seeding	Hydroseeder Demonstration	D. Wilson
7. Erosion Control Fabrics	Installation Demonstration	H. Dickson

11:45 AM - 1:00 PM LUNCH – Visit With Exhibitors (Highway Barn)

Channel Protection/Armoring Practices

8/9. Ditches & Waterways	Previously Installed	B. Davis
10. Check Dams – Rock & Alternatives	Partially Installed/Demonstration	B. Davis
11/12. Lined Waterways & Outlets	Previously Installed	B. Davis
13. Check Dam – Concrete Block	Previously Installed	A. Johnson
14. Rock Plunge Pool Outlet Protection	Previously Installed	B. Davis

Stormwater Infiltration Practices – Alternatives to Detention

15. Pervious Pavement – Parking Areas	Partially Installed/Demonstration	P. Miller
16. Stormwater Recycling – Rain Barrels	Demonstration	C. Waters
17. Pervious Surfacing – Sidewalk	Previously Installed	S. Simon/Bill Bigelow
18. Bio-Infiltration – Rain Gardens	Proposed Installation	A. Johnson/C. Waters

SOUTHERN TIER WEST REGIONAL WATERSHED COALITION MEMBERS

Kier Dirlam, Planner
Allegany County Office of
Development and Planning
585-268-7472
dirlamk@gmail.com

Paul Bishop, Senior Planner
James Isaacson, Senior Planner
Cattaraugus Co Dept. EDPT
716-938-9111 ext.
2369prbishop@catt.org
jhisaacson@cattco.org

Mark Geise, Deputy Director
Chautauqua Co Dept. of Planning
& Economic Development
716-661-8915
diersj@co.chautauqua.ny.us

Guy James, Superintendent
Allegany County DPW
585-268-9230
jamesgr@alleganyco.com

Joseph Pillittere, Commissioner
Cattaraugus County DPW
716-938-2483
jtpillittere@cattco.org

George Spanos, Director
Chautauqua County DPF
716-661-8400
spanosg@co.chautauqua.ny.us

Kevin “Fred” Demick, President
Allegany Co Town Highway
Superintendents Association
585-466-7749
angelicahighway@stny.rr.com

Tom Benz, President
Cattaraugus Co Town Highway
Superintendents Association
716-257-9071

Mel Peterson, President
Chautauqua Co Town/Village
Highway Superintendents Assoc.
716-664-4901
bustihighway@windstream.net

Scott Torrey, Field Manager
Allegany Co Soil & Water
Conservation District
585-268-5840
scott.torrey@alleganyctyswcd.org

Brian Davis, Field Manager
Cattaraugus Co Soil & Water
Conservation District
716-699-2326
briandavis47@hotmail.com

Dave Wilson, Field Technician
Chautauqua Co Soil & Water
Conservation District
716-664-2351 Ext 3
dwilson@soilwater.org

Al Ormond, Chair
Town of Little Valley Planning Board
716-640-8963
ajormondlv@aol.com

Jay Bray
Seneca Nation of Indians
Dept of Community Planning
716-532-4900
Jay.Bray@sni.org

Kim Sherwood
Private Consultant
716-665-8694
ripguy@windstream.net

Brian Hourigan
NYS Dept of Environmental
Conservation
716-851-7220
bvhourig@gw.dec.state.ny.us

Kenneth Smith
NYS Dept of State Local and
Regional Programs
518-473-3373
Kenneth.Smith@dos.state.ny.us

Lallman Rambali and John Quinn
NYS Department of Transportation
716-847-3202 & 716-847-3727
lrambali@dot.state.ny.us
jqinn@dot.state.ny.us

Khristopher A. Dodson,
Associate Director
Environmental Finance Center
315-443-8818
kdodson@syracusecoe.org

Geoffrey Scott, TA Engineer
Cornell Local Roads Program
607-255-8033
grs78@cornell.edu

**Andrew Johnson, Principal
Engineer**
EcoStrategies Civil Engineering
716-664-5602 ext. 400
ajohnson@ecostrategiespllc.com

Rick Constantino, Sr. Biologist
FORECON, Inc.
716-664-5602 ext. 326
rconstantino@foreconinc.com

Paul Miller, Sales Rep.
Suit-Kote
585-268-7127
pmiller@suit-kote.com

Scott Rybarczyk
Wendel Companies
716-688-0766
srybarczyk@wendelcompanies.com

PROGRAM PRESENTERS

Brian Davis, District Field Manager
Cattaraugus Co Soil & Water Conservation District
716-699-2326
briandavis47@hotmail.com

Andrew Johnson, Principal Engineer
EcoStrategies Civil Engineering
716-664-5602 ext. 400
ajohnson@ecostrategiespllc.com

Peter J. Gorton, President
Panamerican Environmental, Inc.
716-821-1650
pgorton@panamconsultants.com

Paul Miller, Sales Representative
Suit-Kote
585-268-7127
pmiller@suit-kote.com

Steve Simon, CSI, CDT, Territory Manager
Unilock, Inc.
716-822-6074
steve.simon@unilock.com

Courtney Waters, GIS Project Coordinator
Southern Tier West RP&DB
716-945-5301 ext.2232
cwaters@southerntierwest.org

Dave Wilson, Field Technician
Chautauqua Co Soil & Water Conservation District
716-664-2351 ext. 3
dwilson@soilwater.org

Bill Bigelow, Assistant Professor
Alfred State College
585-610-0764
amityhwy@gmail.com

Harvey Dickson
American Excelsior Company
716-329-0343
hdickson@curllex.com

SPECIAL THANKS

Southern Tier West would like to extend our heartfelt gratitude to the individuals listed below for far exceeding our expectations of assistance towards this effort.

Brian Davis, District Field Manager
Cattaraugus County Soil & Water Conservation District

Fred Demick, Highway Superintendent
Town/Village of Angelica

Andy Johnson, Principal Engineer
EcoStrategies Civil Engineering

Paul Miller, Sales Representative
Suit-Kote

Joe Pillittere, Commissioner
Cattaraugus County DPW

Jeff Reid, Operations Manager
Cattaraugus County DPW

Practical Solutions for Stormwater, Erosion, & Sediment Control

Key to Best Management Practices

The following is a reference to the best management practices (BMP's) on the Program Agenda and Site Map (with corresponding numbers) with brief descriptions of their applicability and sequence of installation.

1. Stabilized Construction Entrance: *This should be the first practice installed at any construction site. It helps reduce sediment tracked out onto public highways from trucks and construction equipment.*

2-4. Sediment Controls: *After the stabilized construction entrance is in place, the next phase prior to any land disturbance should be to install sediment control practices anywhere where sediment could leave the construction site. Various measures will be showcased, including silt fence along the perimeter of the site, along watercourses, and at surface inlets, as well as around soil stockpiles.*

5. Stormwater Diversion: *Once sediment controls are in place, the next phase will be to divert runoff coming onto the site and around the area of disturbance.*

6 & 7. Soil Stabilization: *During construction, any exposed areas where active grading is not occurring should be seeded with a temporary seeding if site is dormant for more than 14 days, or a permanent seeding when final grading is complete, or construction is shut down for the season. Temporary seedings should also be applied to soil stockpiles that will not be used for an extended period of time. Hydroseeding is an effective and efficient method of seeding application. On more severe slopes, various erosion control blankets and fabrics are available to help protect the soil and the seeding until establishment.*

8 & 9. Drainage Waterways: *Waterways should be constructed to effectively and safely convey runoff from the site. They may be constructed in the shape of a "V", parabolic (rounded bottom), or trapezoidal (flat bottom with side slopes). Shape and size should be determined based on estimated runoff and soil stability.*

10-14. Channel & Outlet Protection: *Channels and outlets may be vulnerable to scouring from high runoff events, and there are several BMP's available to help reduce channel erosion. These include check dams made of stone, concrete blocks, and other materials; channel and outlet linings consisting of stone, concrete, or asphalt; and lined "plunge pools" at culvert outlets to dissipate erosive concentrated flows.*

15-18. Green Infrastructure: *Permeable Pavement is designed to convey rainfall through the pavement surface into an underlying reservoir where it can infiltrate, thereby reducing stormwater runoff from a site. Examples include pervious asphalt and concrete and pervious pavers such as reinforced turf, interlocking modules, and pavers. Rain Barrels are storage tanks that collect rain from rooftops typically utilized in residential settings. Bioretention Systems are shallow vegetated depressions often referred to by a variety of names, such as bioinfiltration areas, biofilters, rain gardens, bioswales, or recharge gardens. They are very effective at removing pollutants and reducing stormwater runoff. These systems are designed to collect water in the depression where it ponds on the surface. This water is then used by the vegetation in evapo-transpiration and infiltrated into the soil.*

BMP COST ESTIMATES

MP Name	Material & Quantity	Cost/Unit	Total Material Cost
1. Stabilized Construction Entrance Approx. 20'x30'x1'	Oversize stone 20 tons #2 stone 5 tons Const. Fabric 800 SF	\$13/ton \$13/ton \$.50/SF	\$260.00 \$65.00 \$400.00 \$725.00 total
2. Silt Fence	75 Linear ft. Silt Fence with reinforced backing & stakes	\$5/ft. installed	\$375.00
3. Inlet Protection Block & Gravel	8 - 8' Concrete Blocks #2 Stone 10 tons	\$20 \$13/ton	\$20.00 + \$130.00 =\$150.00
3. Inlet Protection Filter Sock	10 linear feet	\$10/ft. installed	
4. Filter Sock Sediment Control Products	100 linear feet	\$10/LF installed	
5. Stormwater Diversion (existing)	1000 linear feet	\$5/LF Installed	
6. Hydroseeding	1 acre (4 loads per ac.)	\$600/load	
7. Erosion Control Blankets	50'x100' - 5000 sq.ft.	/sq. ft.	
8 & 9. Ditches	200 linear feet		
10. Check Dams 15 Linear Feet/Dam	0.5 tons/LF, 7.5 tons Filter fabric 100 sq. ft. #2 stone 1 ton	\$21/ton .50 sq. ft. \$13/ton	\$157.50 rock \$50.00 \$13.00
11. Rock Lined Ditch	50 linear feet, 50 tons Filter fabric 1000 SF	\$21/ton .50/sq. ft.	\$1,050.00 \$500.00
12. Rock Outlet Protection 2@ 25'x25'=625 SF	40 tons riprap Filter fabric 700 sq. ft.	\$21/ton .50/sq. ft.	\$840.00 \$350.00 \$1,190.00 total
13. Check Dam Concrete Block	18 linear ft. (3 blocks)	\$50-100 per block	\$150-300
14. Rock Lined Plunge Pool	15'x25'x1' - 375 cu. ft. 25 tons riprap	\$30/ton	\$750.00
15. Geogrid Porous Surfacing	1,536 sq. ft. pavers	\$1.75 per sq. ft.	\$2,688
16. Rain Barrel	Barrel and pipes		\$60.00
17. Pervious Paver Blocks	500 sq. ft. pavers 120 ft. granite curbing	\$8/sq. ft. pavers	\$4,000 pavers
18. Rain Garden			

THANKS TO OUR SITE WORK CREW

ALFRED STATE COLLEGE

Bill Bigelow - Instructor

Students – John Mallen, Ryan Johnson, Jimmy Kick, Mike Franklin, Ryan Ashman, Nate Destephen, Karl Voltman, Jonathan Prendergast, Tyler Perry, Ian Kickbush, Joe Dembick, Devon Cork, Ethan Livernash

CATTARAUGUS COUNTY DEPARTMENT OF PUBLIC WORKS

Joe Pillittere - Commissioner

Jeff Reid – Operations Manager

Five Points Highway

Doug Steffenhagen – Supervisor

Brad Conklin - Assistant Supervisor

Crew - Kris Kenneson, Kevin Pilon, Brian Welka, Randy Parker, Gretchen Horth, Josiah Skeels

Bridge Crew

Mark Faulkner - Supervisor

Crew: Gabe Duhan, Jim Poling, Brandon Gassman, Sean Hensel, Mark Finch, Al Tomsack

CATTARAUGUS COUNTY SOIL & WATER CONSERVATION DISTRICT

Brian Davis - District Field Manager

Bob Shenk - District Technician

SUIT-KOTE

Paul Miller - Sales Representative

TOWN/VILLAGE OF ANGELICA

Fred Demick - Highway Superintendent

SOUTHERN TIER WEST REGIONAL PLANNING & DEVELOPMENT BOARD

Courtney Waters - GIS Project Coordinator

Ginger Malak - Program Manager

SPECIAL THANKS TO OUR CONTRIBUTORS

FUNDING

Appalachian Regional Commission
Environmental Finance Center

ENGINEERING & DESIGN

EcoStrategies/ FORECON

DEMONSTRATIONS

American Excelsior Company
Chautauqua County Soil &
Water Conservation District
Panamerican Environmental, Inc.
TrueGrid Pavers
Unilock, Inc.

MATERIALS

A. L. Blades
Allegany County Department of Public Works
Buffalo Crushed Stone, Inc.
Chemung Supply Corporation
Gernatt Asphalt Products, Inc.
Little Valley Sand & Gravel
Town of Angelica
Town of Belfast
Union Concrete

EQUIPMENT

Vantage Equipment
Admar Construction Equipment and Supplies
Cattaraugus County Department of Public Works

HAULING

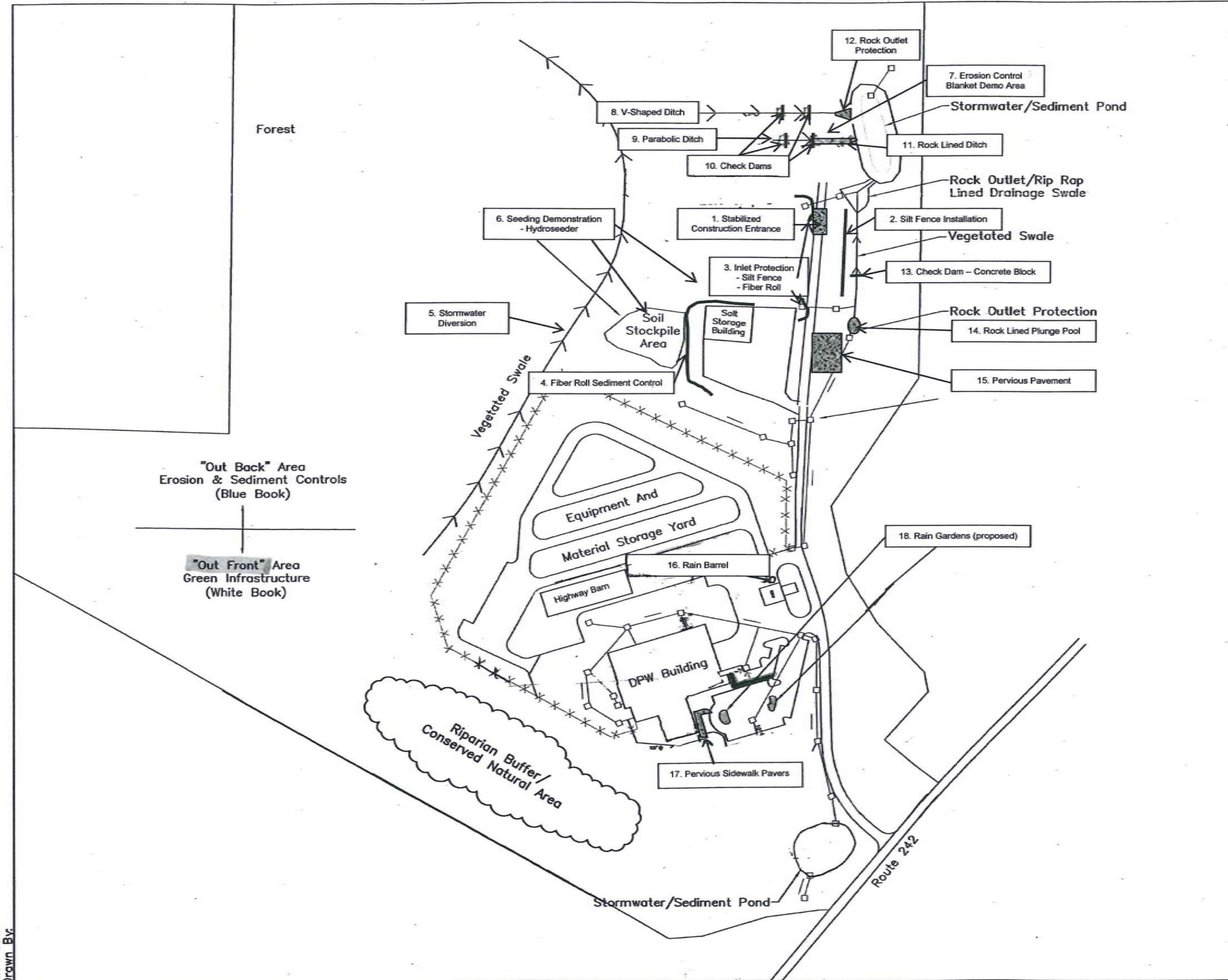
Allegany County Department of Public Works
Cattaraugus County Department of Public Works
Boehmer Transportation

**THANKS TO
Little Valley VFW Post 8734
for Great Food!**



BMP COST ESTIMATES

Labor/Equipment	Rate/Hour	Total Labor/Equip Cost	BMP Total Cost
1.5 hours excavator 0.5 hours loader 1.0 hours labor	\$100/hr. average \$25/hr.	\$300.00 +\$25.00 =\$325.00 total	\$1,050.00
			\$375.00
0.5 hours loader 1.0 hours labor	\$100/hr. \$25/hr.	\$50.00 +\$25.00 =\$75.00 total	\$225.00
			\$100
			\$1,000.00
			\$5,000.00
			\$2,400.00
2.0 hour labor	\$25/hr.	\$50.00	
2.0 hours excavator	\$150/hr.	\$300.00	\$300.00
1.0 hours excavator 0.5 hours loader 0.5 hours labor	\$100/hr. average \$25/hr.	\$162.50	\$383.00
4.0 hours excavator	\$150/hr.	\$600.00	\$2,150.00
2.0 hours excavator	\$150/hr.	\$300.00	\$1,490.00
2.0 hours excavator	\$150/hr.	\$300.00	\$450.00 - 600.00
2.0 hours excavator	\$150/hr.	\$300.00	\$1,050.00
			\$2,688.00
			\$60.00
			\$4,000.00



Forest

"Out Back" Area
Erosion & Sediment Controls
(Blue Book)

"Out Front" Area
Green Infrastructure
(White Book)

Vegetated Swale

6. Seeding Demonstration - Hydroseeder

5. Stormwater Diversion

Soil Stockpile Area

4. Fiber Roll Sediment Control

Equipment And
Material Storage Yard

Highway Barn

DPW Building

Riparian Buffer/
Conserved Natural Area

Stormwater/Sediment Pond

Route 242

8. V-Shaped Ditch

9. Parabolic Ditch

10. Check Dams

1. Stabilized Construction Entrance

3. Inlet Protection - Silt Fence - Fiber Roll

Soil Storage Building

4. Fiber Roll Sediment Control

16. Rain Barrel

17. Pervious Sidewalk Pavers

12. Rock Outlet Protection

7. Erosion Control Blanket Demo Area

Stormwater/Sediment Pond

11. Rock Lined Ditch

Rock Outlet/Rip Rap Lined Drainage Swale

2. Silt Fence Installation

Vegetated Swale

13. Check Dam - Concrete Block

Rock Outlet Protection

14. Rock Lined Plunge Pool

15. Pervious Pavement

18. Rain Gardens (proposed)



Legend:

- Drain Inlet/Catch Basin
- x x x x Chain Link Fence
- Swale or Ditch

Note:
Dimensions and locations of proposed features are approximate.

Scale: 1.0" = 250'
(approximate)

Southern Tier West
Salamanca, New York
Stormwater Demonstration Site
Little Valley, New York

