Dirt, Gravel, and Low Volume Road Program

2023 Project Showcase

WEBINAR

1/25/24

Starts 9am

SCC

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2024 ESM Training – Registration Open Now!

https://dirtandgravel.psu.edu/education-training/esm-course/in-person-esm-trainings/

Cambria County – March 20-21, 2024
Johnstown, PA 15906

Schuylkill County – April 2 – 3, 2024
Ashland, PA 17921

Armstrong County – April 24 – 25, 2024
Kittanning, PA 16201

McKean County – May 15 – 16, 2024
Port Allegany Veteran Memorial Social Hall
Port Allegany, PA 16743

Wayne County – June 5 – 6, 2024
Honesdale, PA 18431

Clinton County – July – 10 – 11, 2024
Lock Haven University – Durrwachter Conference Center
Lock Haven, PA 17745

Beaver County – July 31 & August 1, 2024
Beaver Station Cultural & Event Center/Penn Bistro Catering
Beaver, PA 15009

Perry County – August 14 – 15, 2024
Central Penn College
Summerdale, PA 17093

Crawford County – September 11 & 12, 2024
Cross Creek Resort, Inc.
Titusville, PA 16354

Bradford County – September 25 – 26, 2024
Best Western Grand Victorian Inn
Sayre, PA 18840

Fulton County – October 23 & 24, 2024
Forbes Road Conference Center/ Holiday Inn & Express
Breezewood, PA 15533

Lancaster County – November 6 – 7, 2024
DoubleTree Resort by Hilton Hotel Lancaster
Lancaster, PA 17602

2024 Admin and Financial Trainings – Registration Open Now!

Admin Training

- **9-3:30 PM**
- **Required for CD staff involved in the DGLVR Program at least once every 3 years**
- **Online registration required**

https://dirtandgravel.psu.edu/education-training/program-administration/admin-training/

Dates and Locations

March 13 (Berks County)
May 21 (Westmoreland County)
July 23 (Centre County) – *Tentative*
October 15 (Luzerne County)
December 3 (Venango County)

Financial Training

- **9-3:30 PM**
- **Recommended for any CD staff involved in tracking/spending DGLVR funds**
- **3-year certification**

https://dirtandgravel.psu.edu/education-training/program-administration/financial-training-registration/

Dates and Locations

March 14 (Berks County)
May 22 (Westmoreland County)
July 24 (Centre County) – *Tentative*
October 16 (Luzerne County)
December 4 (Venango County)

2023 QAQC Project Showcase

Examples include:

- “Classic” Drainage and Fill
- French Mattress
- Stream Crossing Replacement
- Stormwater Basin
- Permeable Pavement
- DSA
- Combining Funding Sources
- Highwater Bypass
- Underdrain
- Drainage Disconnection
- Off Right-Of-Way

Rader School Road, Butler CCD

DGR funds: $95,000.00
In-kind: $16,792.99

Problem being addressed:
The road was entrenched with insufficient stormwater drainage outlets.

Rader School Road, Butler CCD

Project Description: (Site Length: 1,196 ft)
"classic" fill and drainage project

- 7 new cross pipes and 1 cross pipe replaced
- 3,050 tons of road fill was placed to raise the road out of entrenchment and provide downslope sheet flow off the road.
- The project site was chip sealed by the township following completion of the project.

Rader School Road, Butler CCD

- Stable inlets
  - No bank gouging
  - Solid headwall material stacked well
  - Inlet of pipe cut to help direct water into it
- Frequent, stable outlets
- Road fill elevates surface high enough to achieve sheet flow

Rader School Road, Butler CCD

Yonai Road, Somerset CCD

DGR funds: $160,692
In-kind: $35,970

Problem being addressed:

- Yonai Road traverses an expansive floodplain in the head waters region of the Stonycreek River.
- During even modest rain events and snow melts, the floodplain fills with water, ponding on the road.

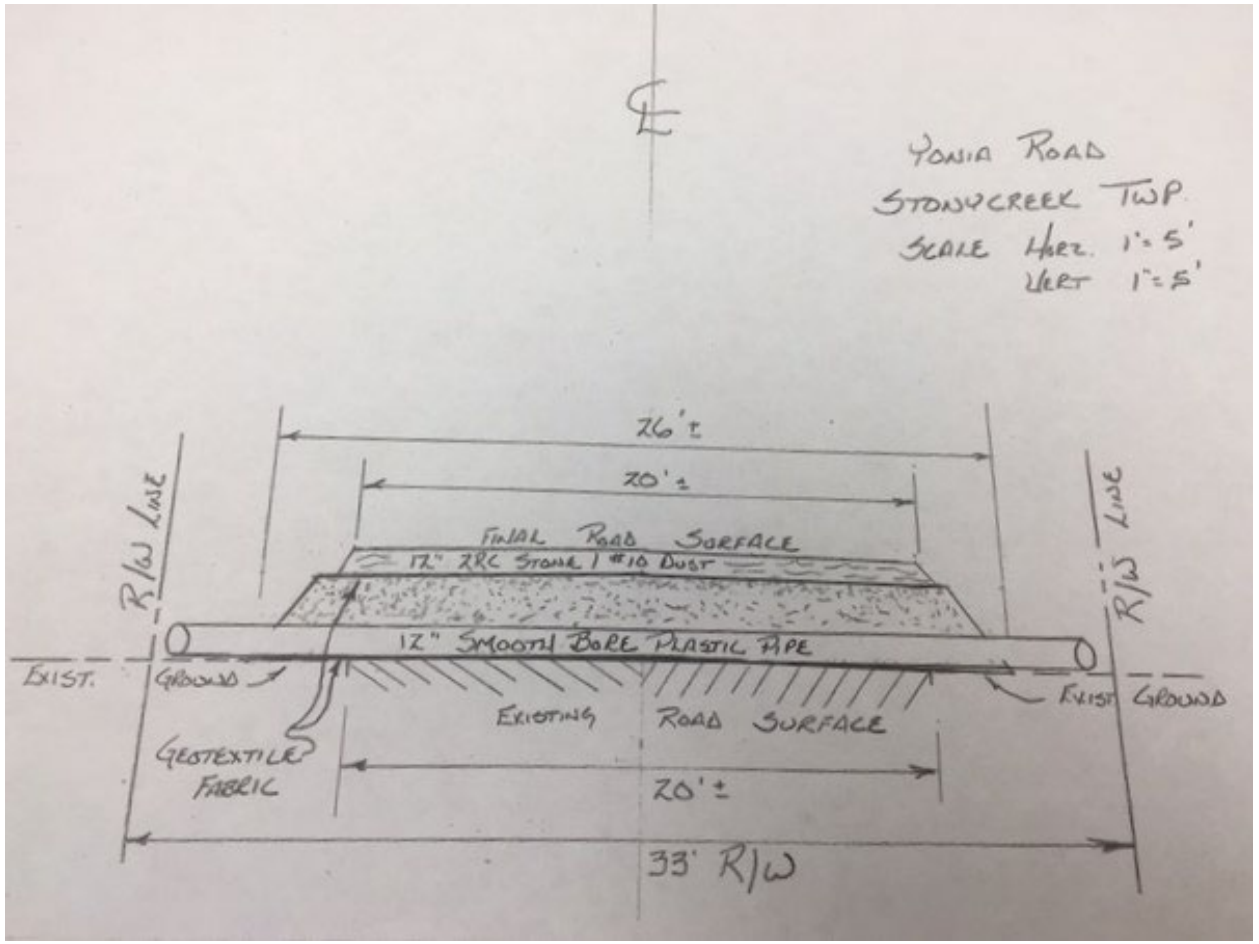
Yonai Road, Somerset CCD

DGR funds: $160,692
In-kind: $35,970

Project Description:

- The Township installed a 500' x 24' x 3' thick French Mattress with twelve (12") relief pipes through the mattress.
- Roadside ditches turned out to discharge away from the stream and mattress

Yonai Road, Somerset CCD



Yonai Road, Somerset CCD

Yonai Road, Somerset CCD

Wilhelm Road, Washington CCD

DGR funds: $106,600.00
In-kind: $19,405.79

Problem being addressed:

- The existing stream crossing was multiple pipes
- the stream's bankfull width is 12.9 ft

Wilhelm Road, Washington CCD

Project details:

- A 16’ W x 4’3” H aluminum bottomless box culvert on express foundations was installed.
- Road ditch turnouts were also installed to disconnect road drainage from the stream crossing.

Wilhelm Road, Washington CCD

Project details:

- The district worked closely with the CDGRS to incorporate updated guidance into the stream crossing design.

- Bank margins, a low flow channel, and 3 riffles were constructed to establish a stable, continuous stream channel upstream, through, and downstream of the road crossing.

Wilhelm Road, Washington CCD

Excavation, pump around, and setting footings

Wilhelm Road, Washington CCD

Stream bed reconstructed between footers

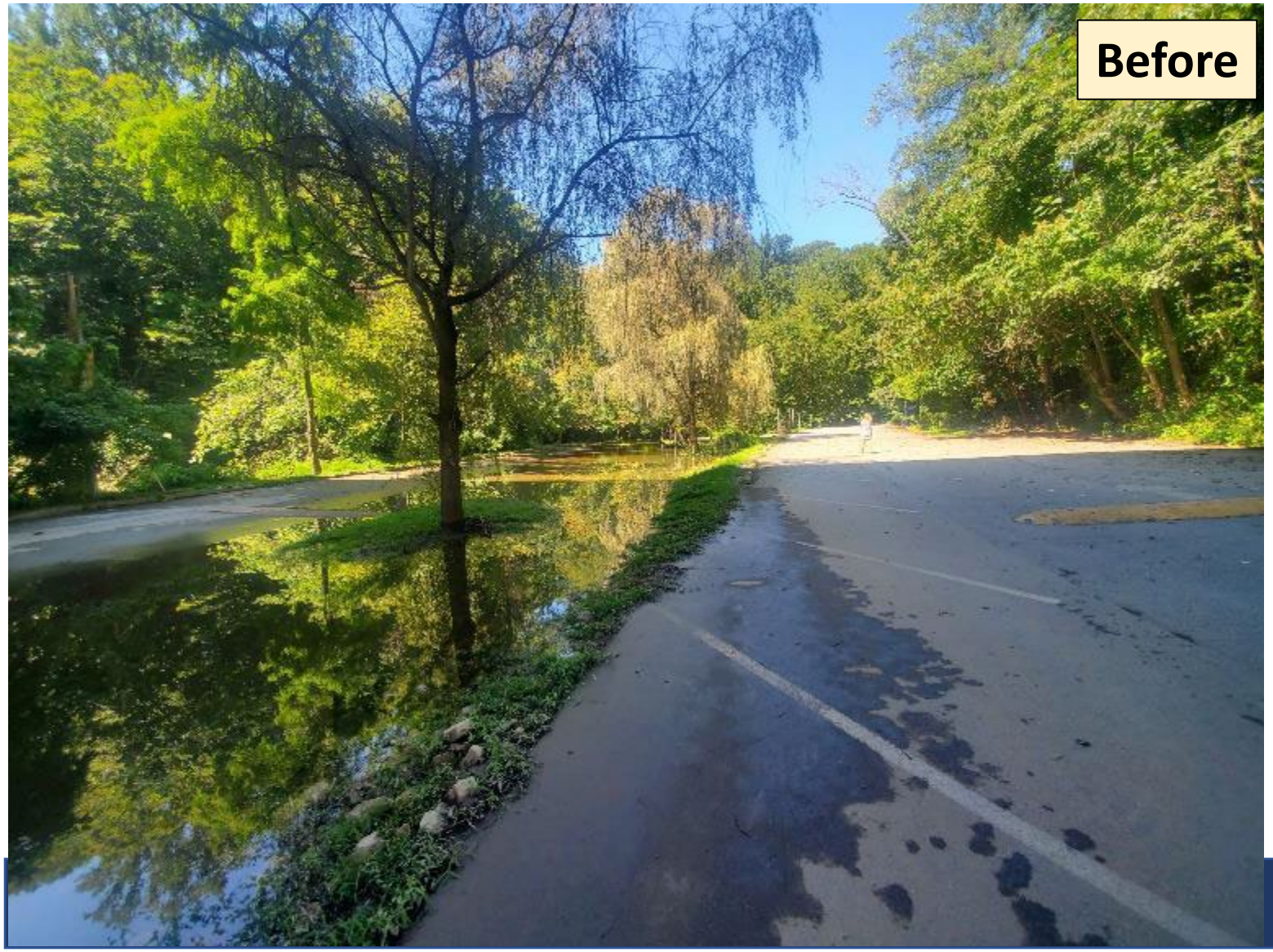
- Note:
  - Large rock is used to build riffles (grade control) and is intended to be stable during storms
  - The rest of the stream bed is a mix of big stone/rip rap and fine material
    - Mixed before being placed
    - Fines help “glue” the bed material

Wilhelm Road, Washington CCD

Back fill being placed and compacted

- ~6-10” thick layers (“lifts”)
- Fill both sides of structure evenly
- Headwall tie-backs

Paper Mill Road, Delaware CCD



LVR funds: $69,280.05
In-kind: $83,387.95

Problem being addressed:

- An existing stormwater basin collected water from a looped road but was not functioning properly.

- Before photos show Sept 2021 flooding

Paper Mill Road, Delaware CCD

Paper Mill Road, Delaware CCD

Excavated basin (Sept 2022)

- Re-graded the existing basin back to the original contours
- installed a 24” outlet riser with trash rack
- installed an 18” drainpipe with a backflow preventer valve and riprap apron at the outlet
- re-vegetated the basin.
- Guiderail was installed around the basin to prevent vehicle traffic from entering the basin.

Paper Mill Road, Delaware CCD

The basin now functions

- Promotes water infiltration
- Captures sediment
- Provides water detention
- filters out pollutants before water enters Crum Creek

Paper Mill Road, Delaware CCD

24” outlet riser with trash rack

Paper Mill Road, Delaware CCD

installed an 18” drainpipe with a backflow preventer valve and riprap apron at the outlet

Aster Road and Wister Drive, Delaware CCD

LVR funds: $44,750
In-kind: $64,010

Problem being addressed:

- Stormwater flowed down Aster Road along the curb line to city inlets in Wister Drive.
- The storm sewer system outfalls directly to Cobbs Creek.

Aster Road and Wister Drive, Delaware CCD

LVR funds: $44,750
In-kind: $64,010

Problem being addressed:

- Due to the slope of Aster Road, much of the stormwater did not follow the curb line to the inlet, but rather crossed Wister Drive and ponded along the curb.

Aster Road and Wister Drive, Delaware CCD

Improvements:

- Replaced 2 city inlets with type "C" inlets
- replaced 65 LF of reinforced concrete class 3 pipe
- Permeable pavement on both road edges
- Proper road crown directs stormwater to permeable pavement and storm sewer inlets

Aster Road and Wister Drive, Delaware CCD

Improvements:

- Permeable pavement strips along the curb line on each side of the street capture stormwater flowing along the curb (25 sq yd total)
- installed 100 LF of perforated pipe in a stone bed underneath the porous paving

Aster Road and Wister Drive, Delaware CCD

After

Benefits:

- Slows stormwater velocity
- Sediment and debris captured in in the debris sumps of the new inlets
- Stormwater carried through the stone bed is cooled before reaching the stream
- Regular maintenance of the permeable pavement strips removes sediment and fines

Bear Run Road, Lycoming CCD

(2 Contracts)
DGR Funds: $238,828
In-Kind: $183,208

Background:

- PGC-owned dead-end road opened seasonally
- 13,203’ site length
- Adjacent to HQ, Class A Wild Trout Stream (Bear Run)

Problem Being Addressed:

- Traditional drainage issues:
  - Lack of ditch outlets, groundwater influences, entrenchment, erosive outlets
- Stream overtopping the road

Bear Run Road, Lycoming CCD

Scope of Work

- 20 new cross pipes, 13 replacement cross pipes
  - Stacked stone end treatments
  - Solid outlet protection
- 1,544’ of underdrain
- 15,770 tons of road fill
  - 2,040 SY of geo-fabric
- Highwater bypass

Bear Run Road, Lycoming CCD

Highlights:

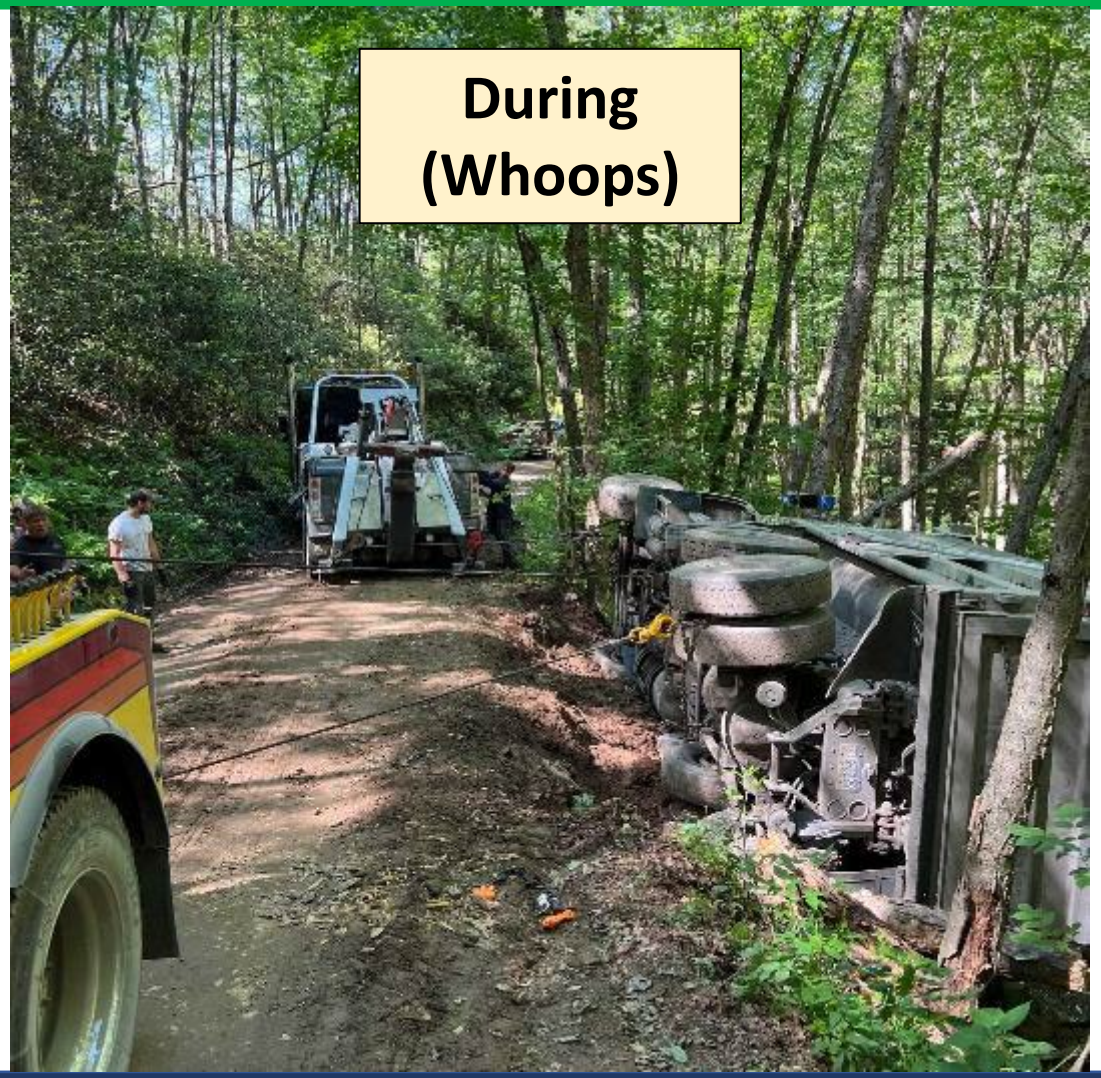
- Elimination of ditch erosion
- Stabilization of erosion channels
- Protection of new road base from groundwater influences
- Alleviation from entrenchment (sheet slow)
- Relief from flooding
- Overall large reduction of sediment to Bear Run

Bear Run Road, Lycoming CCD

Bear Run Road, Lycoming CCD

Jerry Run Road, Cameron CCD

(4 Contracts)
DGR Funds: $533,484
In-Kind: $392,788



Background:

- Road owned by 2 townships through State Forest Land
- 26,986’ (5.1 mi) site length
- Immediately adjacent to HQ, Class A Wild Trout Stream (Upper Jerry Run)

Problem Being Addressed:

- Unavoidable road/stream interaction, surface drainage issues, sediment-heavy road surface material

Jerry Run Road, Cameron CCD

Scope of Work

- 2 new cross pipes
  - most drainage improvements completed through previous projects
- 2,000 tons of road fill
- 10,000 tons of DSA placed

Jerry Run Road, Cameron CCD

Highlights:

- 2 townships
- Utilized 4 different funding sources
- Overcame site challenges
  - bridge postings, road width, location
- Excellent location for DSA use

Jerry Run Road, Cameron CCD

Pine Creek Road, Luzerne CCD

(2 Contracts)
DGR Funds: $140,482
In-Kind: $57,572

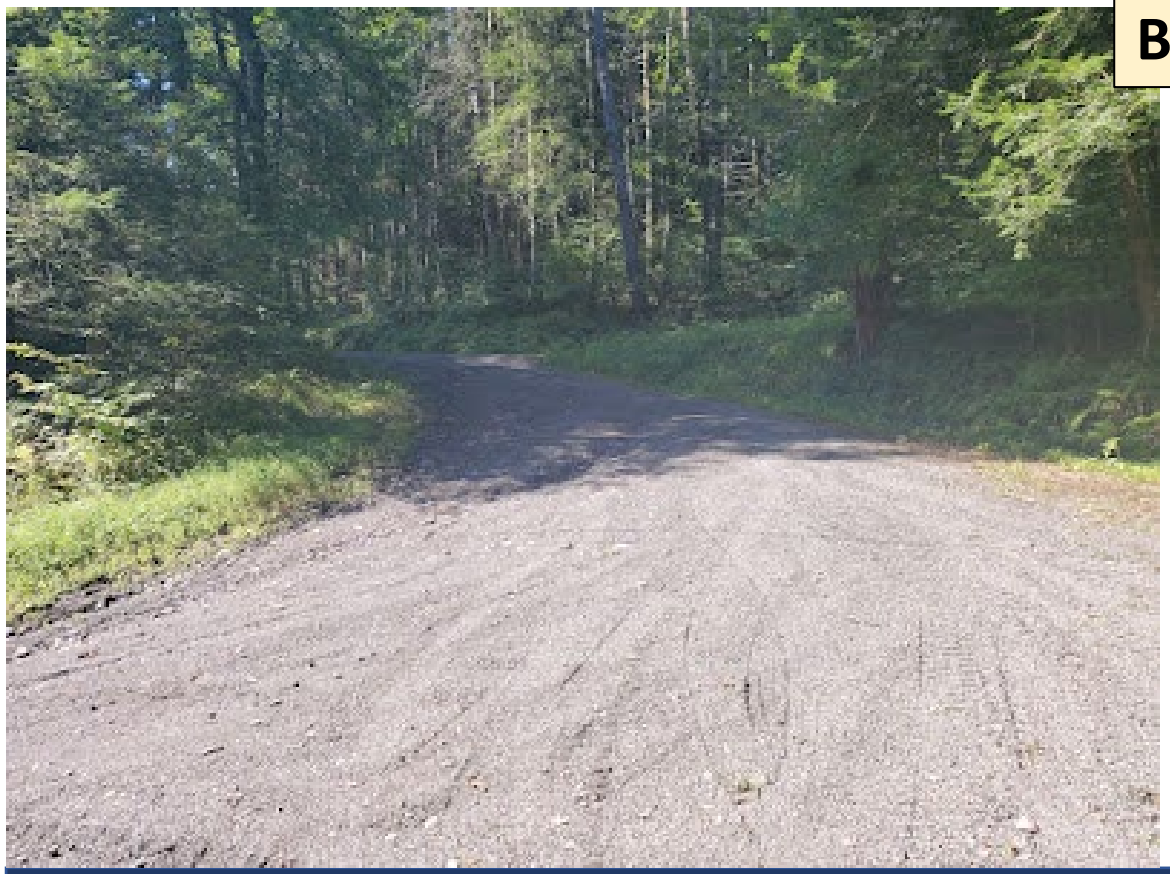
Background:

- Fairmount Township unpaved road
- Stream crosses road twice
- 3,600’ site length
- Direct ditch connection to Pine Creek at base of slope

Problem Being Addressed:

- Lack of ditch outlets, eroded ditches, saturated/flowing ditches, entrenchment, poor road base

Pine Creek Road, Luzerne CCD



Before

Pine Creek Road, Luzerne CCD

Scope of Work

- 7 new cross pipes, 3 replacement pipes
  - Solid outlet protection
- 640’ of underdrain
- 700 tons of road fill
- 2,000 tons of DSA

Pine Creek Road, Luzerne CCD

Pine Creek Road, Luzerne CCD

Highlights

- Comprehensive project
  - drainage>fill>surface
- Drainage disconnection
- Great outlet stabilization
- Simple, effective solution to erosion and drainage issues

Burrell Road, Clinton CCD

(2 Contracts)
DGR Funds: $45,355
In-Kind: $3,211

Background:

- Steep section of road with township line ¾ of the way up hill
- 991’ site length

Problem Being Addressed:

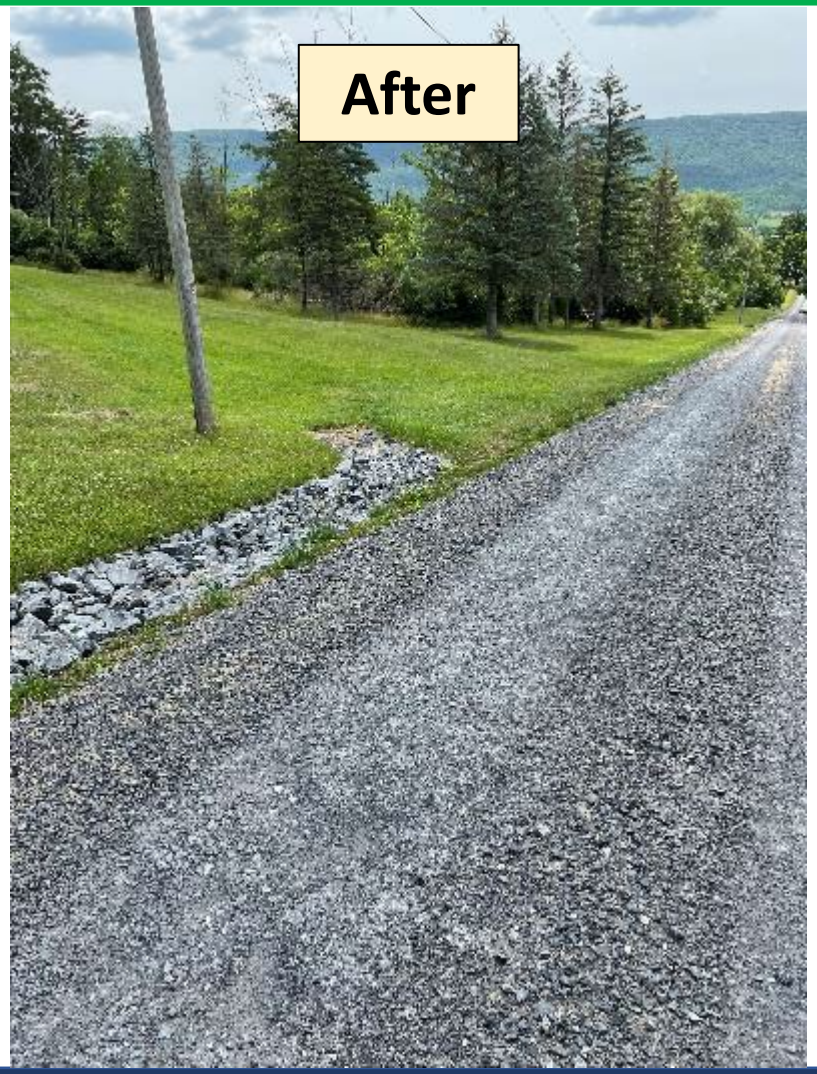
- Steep, entrenched road
- No drainage outlets with entire road and driveway draining to stream crossing
- Off-ROW drainage issues
- Groundwater issues

Burell Road, Clinton CCD

Scope of Work

- 1 new cross pipe
- 305’ of underdrain
- 1 diversion swale
- 390 tons of road fill
- 623 tons of DSA
- Work completed by a combination of township and contractor work

Burell Road, Clinton CCD



Highlights

- Fantastic drainage disconnection from stream
- Utilized existing topography/terrain features
- Durable wearing surface
- Protection of investment through grade break
- Cost effective, long-term solution
- CDGRS involvement
- Staffing changes

Burrell Road, Clinton CCD

Burrell Road, Clinton CCD

Washington Road, Berks CCD

LVR Funds: $47,010
In-Kind: $60,337

Background:

- Existing asphalt LVR road
- 722’ site length
- Affected Stream: Schuylkill River

Problem Being Addressed:

- The roadway and the adjacent fields and driveway would flood in larger storm events due to the area being a low point in the topography
- No drainage

Washington Road, Berks CCD

Aerial View

Washington Road, Berks CCD

Scope of Work

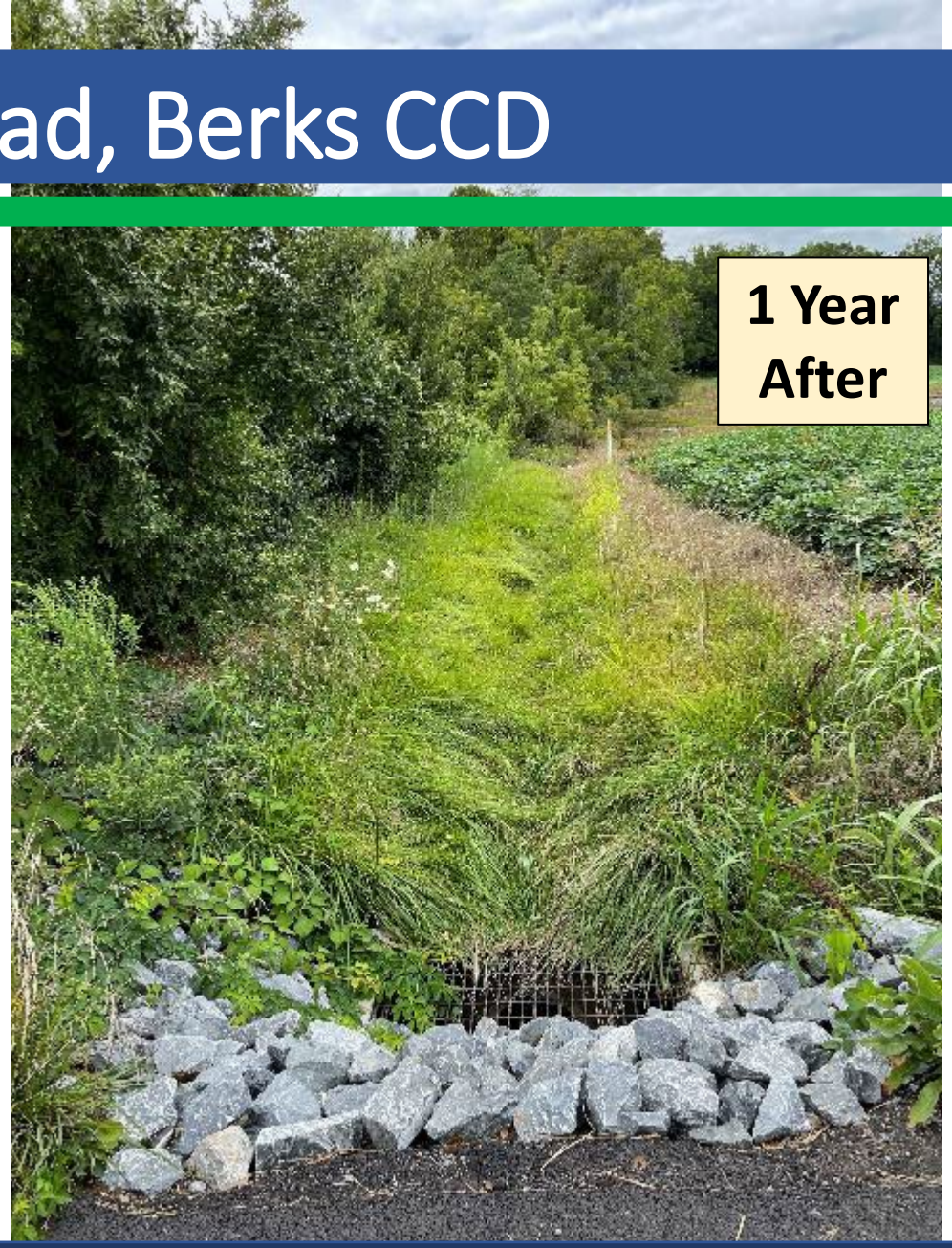
- 1 infiltration/bioswale
- 2 inlet boxes
- 800’ of off-ROW 18” HDPE pipe
- 360’ underdrain
- Rock sump/energy dissipation
- Repaving

Washington Road, Berks CCD

Highlights

- Innovative solution to unique problem
- Landowner cooperation
- Outlet protection

Washington Road, Berks CCD



And Remember…

…Save DSA and LEAVE THE RATTLESNAKES BE!

THANK YOU

Conservation Districts for doing great work!