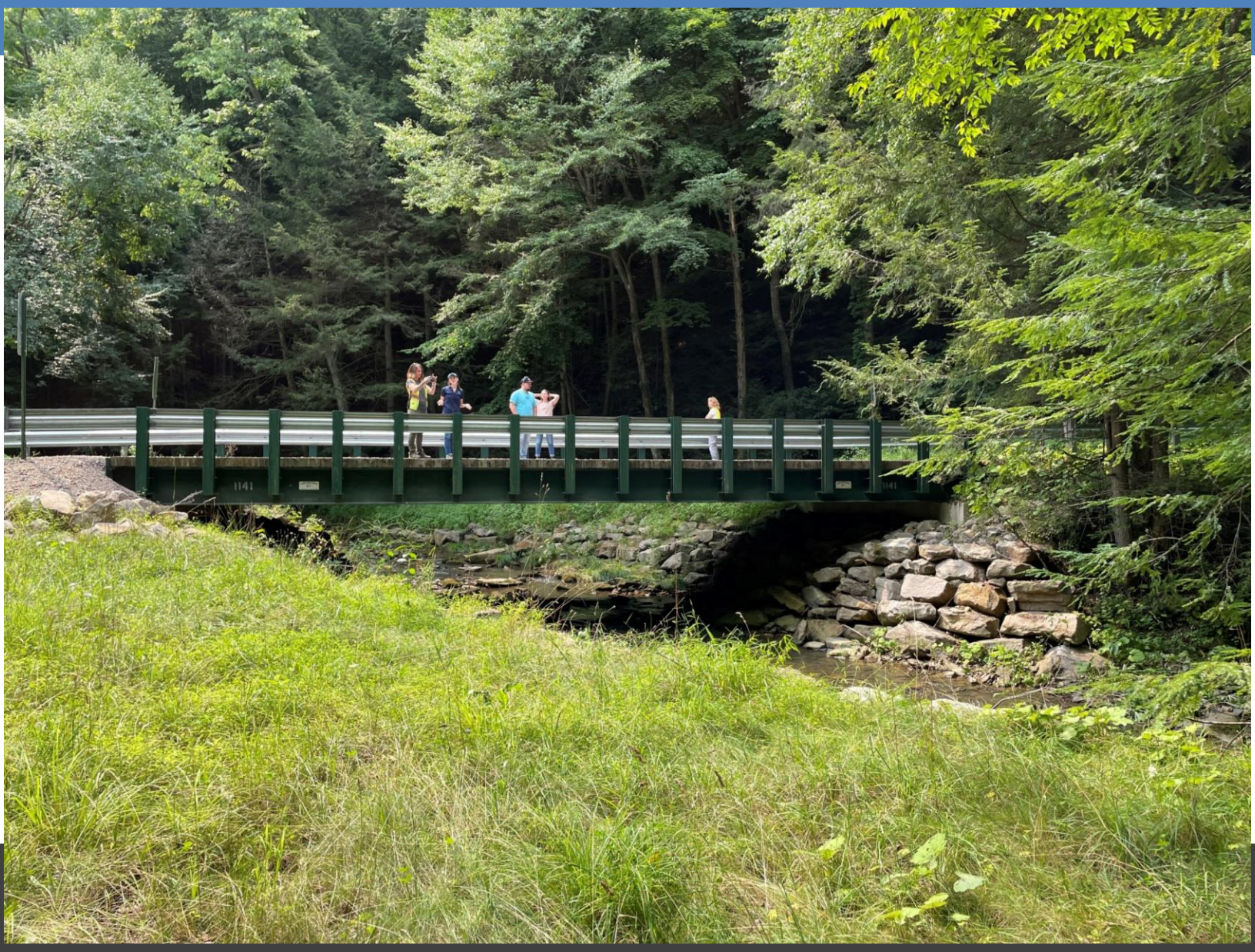
Indiana County Conservation District

Quality Assurance / Quality Control Visit

July 31- August 2, 2023



Round 4 QAQC Final Report
Dirt, Gravel, and Low Volume Road Program
State Conservation Commission

Introduction

QAQC Participants

Doug Beri, Jr.: Indiana County Conservation District Executive Director
Brooke Russick: Indiana County Conservation District Conservation Program Manager, QAB non-voting Chair
Tammie Robinson: Indiana County Conservation District Office Administrator
Monica Lee: Indiana County Conservation District Educator
Matthew Heffner: NRCS QAB Voting member
John Somonick: District Board Member and QAB Voting member
Susannah Harris: DEP Conservation District Field Representative
Eric Nevel: PSU Center for Dirt and Gravel Road Studies
Maria Dreese: PSU Center for Dirt and Gravel Road Studies
Sherri Law: State Conservation Commission

QAQC Process

The Round 4 QAQC process entails a remote meeting and a site visit to the county held with representation from the District Board, QAB Board, District Manager and/or District Technician responsible for program administration. The review team consists of members from the State Conservation Commission, Center for Dirt and Gravel Road Studies and may include participation from Trout Unlimited a collaborative partner.

The QAQC process overviews three major areas of the program: Financial, Administration/Functionality, and Projects. Each major section receives a rating from Does Not Meet Expectations through Exceptional. These ratings are also used to provide one overall rating for the county's DGLVR program evaluation. For explanation and examples of items that would meet particular ratings please see the QAQC Round 4 Ratings Overview provided to you with your pre-visit documentation.

In addition to the rating categories for the three major areas of the program, a section of this report is dedicated to constructive feedback summarized as Commendations, Recommendations and Required Actions. This section is located following the Executive Summary. These headings are defined as:
Commendations are reserved for special recognition of something that a District is doing particularly well.
Recommendations are suggestions from the QAQC group for the District Board, QAB, District Manager, and Technician to consider in improving the Dirt Gravel and Low Volume Road Program.
Required Actions are presented if shortfalls exist in the County's Program that must be corrected. Required actions will require follow up from the Commission to ensure that the action has been completed.

The report concludes with specific details for each of the three major categories of the Financial, Administration/Functionality and the Projects Section.

Round 4 QAQC Executive Summary

Financial Review Rating: Exceptional

Administration/Functionality Review Rating: Exceptional

Project Sites Review Rating: Exceeds Expectations

Dirt and Gravel Road Project Site Rating Summary

Project Name	Grant Funds	Project Site Rating
Braughler Road, Grant Township	$69,392.00	Exceeds Expectations
Hetzler Road, Grant Township	$31,992 + $12,286.96	Exceeds Expectations
Magnolia Road, Grant Township	$82,218.75 + $96,752	Exceptional
Barr Road, Green Township	$74,423.26 + $111,006.40 in CDGRS demo funds	Exceptional
Twolick Road, Green Township	$111,872.34	Exceeds Expectations
Myers Hill Road, Rayne Township	$50,500.57	Meets Expectations
Steele Road, East Mahoning Township	$128,355 + $7,248.08	Exceptional

Low Volume Road Project Site Rating Summary

Project Name	Grant Funds	Project Site Rating
Johnson Road, Center Township	$52,193.51	Exceeds Expectations
Littletown Road, Brush Valley Township	$92,735.57	Exceeds Expectations
Kirkland Road, Rayne Township	$32,531.42	Meets Expectations
Pollock Road, East Mahoning Township	$70,329.00	Meets Expectations

QAQC Round 4 Overall Rating: Exceptional

Overall, Indiana County Conservation District is implementing the DGLVR Program exceptionally. Financial staff maintain detailed and accurate financial documentation that is easily transferred to quarterly reports. Funds are spent on eligible expenses and administrative and education funds are prioritized to support talented staff. Project files are detailed and include helpful documentation beyond what is required. Local road owners eagerly participate in the Program and compete for funding, and funds are appropriately directed to sites with high environmental impact. Environmentally Sensitive Road Maintenance (ESM) Practices are properly utilized to reduce road erosion and sedimentation to streams. Local policies are implemented as needed to address local concerns, and district staff work closely with the Center for Dirt and Gravel Road Studies and SCC to ensure funds are spent appropriately. Indiana CCD's DGLVR Program exemplifies how the DGLVR Program should be administered throughout Pennsylvania. The QAQC Team thanks Indiana CCD for the exceptional work.

Commendations, Recommendations, Required Actions

"Commendations" are reserved for special recognition of something that a District is doing particularly well. **"Recommendations"** are suggestions from the QAQC group for the District and QAB to consider in improving the Dirt and Gravel Road Program. **"Required Actions"** are presented if shortfalls exist in the County's Program that must be corrected. Required actions will require follow up from the Commission to ensure that the action has been completed.

Commendations

- Indiana CCD was cooperative and helpful during the financial review.
- Financial documentation was clear, thorough, and well-organized.
- District staff track and document expenses with effective spreadsheets and excellent attention to detail.
- Alternate voting members are appointed for all QAB voting members.
- The QAQC Team commends Indiana CCD for incorporating local priorities into Indiana CCD's DGLVR QAB Standards and Administrative Policy, such as requiring pre-application meetings, prioritizing stream crossings based on a letter of intent, and establishing guidance for phased projects.
- Pre-application and pre-construction meetings are required for all Indiana CCD DGLVR Projects. These meetings are great ways to maintain communication with grant participants and to ensure DGLVR Program goals and policies are being met.
- Indiana CCD staff completed the Stream Crossing Replacement Certification Training in 2022, well in advance of the requirement to complete this training by 7/1/2023.
- The hard files are exceptionally well organized and easy to follow.
- District staff maintain informative notes throughout project lifecycles.
- Updated project sketches are generated when project changes are made, and as-built drawings are included in project files.
- Indiana CCD receives many more applications than they are able to fund each year, which is a good indication that the district is completing adequate education and outreach as well as maintaining good relationships with local road owners.
- Great selection of priority sites with water quality impacts.
- Excellent use of ESM practices to break up stormwater and direct it to stable outlets away from streams.
- Indiana CCD installed stream crossings that maintain stream bed material through the structure with limited guidance provided before the 7/1/2022 policy updates. District staff have done an exceptional job incorporating updated guidance before it was required, including more detailed site assessments, in-stream work needed to stabilize the channel, and allowing for floodplain connectivity.

Recommendations

- Project recommendations:
    - Strive to install more grade changes and sectional road fill to help shed water from roads, especially roads that are entrenched and/or have long ditch runs on hills.
    - Cross pipes are recommended to have endwalls in addition to outlet scour protection and headwalls. Endwalls serve not only to prevent erosion, but also to protect the pipe and prevent traffic from hitting or crushing the ends of the pipe. Note that for contracts signed after 7/1/2022, Inlets and outlets of all cross pipes must have erosion protection, such as headwalls, endwalls, drop inlet boxes, and/or rip rap. All stream crossing structures must have a headwall and endwall.
    - Continue evaluating project sites for bed and bank coming to the road or upslope ditch, and complete stream crossing site assessment and policy exemptions prior to funding projects as much as possible. Great work documenting channels discovered during construction and working with the Center and SCC on these sites.

Required Actions

- none

Financial Review

Rating: Exceptional

District Financial Review

Yes	No	
☒	☐	Are DGR and LVR funds separately accounted for?
☒	☐	Does the district keep itemized accounting for Administration, Education/Training, Projects, and Interest for both DGR & LVR?
☒	☐	Is interest accrued on DGR funds (including admin, edu, and project funds) used only for DGR projects?
Comment: DGLVR funds are kept in one account and interest is divided monthly. When interest is negligible (generally under $20/month), it was divided 75% DGR and 25% LVR. Now that interest rates are higher, the district determines the ratio of DGR to LVR funds within the DGLVR checking account and divide the interest proportionately.		
☒	☐	Is interest accrued on LVR funds (including admin, edu, and project funds) used only for LVR projects?
Comment: See comment above for how interest is determined.		
☒	☐	Is appropriate documentation available to document how program funding was utilized? (invoices, receipts, etc.)
☒	☐	Is spending kept within the required limits? • Maximum 10% of allocation can be spent on administrative expenses • Maximum 10% of allocation can be spent on education/training expenses • Minimum 80% of allocation must be spent on projects
☒	☐	Have administrative funds been spent on eligible expenses according to the DGLVR Administrative Manual?
Comment: Starting in 2023, Indiana CCD uses DGLVR administrative funds primarily for staff salary, benefits, and mileage. Before 2023, Indiana CCD utilized DGLVR administrative funds for office and overhead expenses as well. Occasionally, a portion of overhead expenses may still be paid with DGLVR administrative funds as needed.		
☒	☐	Have education funds been spent on eligible expenses according to the DGLVR Administrative Manual?
Comment: Indiana CCD uses DGLVR education funds primarily for staff salary, benefits, mileage, and direct educational expenses. Direct expenses include travel expenses to attend trainings, supplies for a municipal workshop and legislative bus tour, and folders, notebooks, and promotional items for educational events.		
☒	☐	Does the District supply sufficient evidence that all DGLVR project funding was spent on eligible expenses? (ie, ESM practices, labor, materials) Receipts must be kept in the contract file showing grant money was spent on eligible expenses. Receipts must total to final grant amount paid to grant recipient.
☒	☐	Have DGLVR project funds been spent within 2 years?
☒	☐	Is an appropriate cost allocation method utilized for shared expenses?

Describe cost allocation method: Indiana CCD utilizes several cost allocation methods. The district has 5 main programs: DGLVR, Ch102/Ch105, Watershed, Agriculture (nutrient/manure management), and ACAP. Until 2023, ¼ of shared district office and overhead expenses were paid with DGLVR funds since the district did not yet have the ACAP Program. The DGLVR portion of shared expenses was divided 75% DGR/25% LVR based on how much of the district's annual DGLVR funding was DGR vs LVR. This resulted in 19% of office-wide expenses being paid with DGR funds, and 6% of office-wide expenses being paid with LVR funds. DGLVR expenses are divided 75% DGR/25% LVR. These percentages are reasonable based on how much staff time is spent on the DGLVR Program out of the total district staff time.

Starting in 2023, Indiana CCD stopped utilizing DGLVR funds for a portion of office and overhead expenses to ensure adequate funding is available for DGLVR salary, benefits, and mileage. If Indiana CCD intends to utilize DGLVR funds for a portion of shared expenses moving forward, the district should update the cost allocation method to accurately reflect the percentage of total staff time spent on the DGLVR Program. The district has stated that the percentage of office-wide expenses paid with DGLVR funds would be reduced to 20%.

Staff track exact time spent on DGR admin, DGR edu, LVR admin, and LVR edu activities. Salary and benefits are paid for exact amounts of time spent in each category with appropriate funding. Salary and benefits for administrative activities common to all Indiana CCD programs are paid 1/5 with DGLVR funds since DGLVR is one of 5 main district programs. The DGLVR portion is further divided such that 75% of the time is DGR and 25% is LVR.

Indiana CCD has a district truck that is primarily used for DGLVR activities. Direct vehicle expenses are paid with DGR administrative and education funds. When the truck is available and used for other district programs, those programs reimburse the DGR program for truck use by paying mileage to the DGR Program for use on DGR projects. The payments to the DGR Program become project funds and are properly reported in quarterly reports.

☒	☐	Documented expenses accurately reflect figures entered into quarterly reports.
☒	☐	Local and GIS account balances match

Overall Financial Review Comments: Indiana CCD utilizes DGLVR funds properly. Detailed spreadsheets track Program income and expenses and match quarterly reporting. An appropriate cost allocation method is utilized for shared expenses, and the district recently started utilizing alternate funding for overhead expenses to better focus DGLVR administration and education funds on salary and benefits. Tammie Robinson excels at tracking and documenting Program funds and helping ensure that they are spent appropriately. Project funding was easily tracked with copies of checks and entered into the GIS system properly. The QAQC Team appreciates Indiana CCD's cooperation during the financial review, and that documentation was clear, thorough, and well-organized. Overall, Indiana County Conservation District finances are exceptional.

Administration and Functionality

Rating: Exceptional

Hard File & GIS Review

The chart below is an overview of the files that were reviewed during the QAQC process.

Yes	No	Application
☒	☐	Are applications complete and signed?
☒	☐	Are applicants ESM certified?
☒	☐	Are cost estimates and total grant amount accurate?
		Project Work Plan
☒	☐	Do the workplans provide enough detail (quantities, materials, footage, # of practices)?
☒	☐	Project location identified?
		Contract Documents
☒	☐	Contracts complete and signed by both parties?
☒	☐	All attachments as outlined in Admin Manual are included with contract?
☒	☐	Copies of checks paid to the applicant / Evidence of Payments to Project Participant
☒	☐	Receipts total more than or equal to grant amount & consistent w/ Completion Report
☒	☐	Optional: In kind receipts
☒	☐	Signed Project Completion Report
		If Applicable:
☒	☐	Prevailing Wage Certified Payroll
☒	☐	Traffic Count Forms
☒	☐	Stream Crossing Evaluation Form(s)
☒	☐	Off Right-of-Way Landowner Consent Form(s)
☒	☐	Properly completed contract amendments
☒	☐	DSA Certification Form(s)
☒	☐	Evidence of Applicable Permits
☒	☐	Erosion and Sediment Pollution Control Plans
☐	☒	PA 1-Call Serial # Included
		Optional:
☒	☐	Before and After photos
☒	☐	Meeting notes (pre-construction, pre-bid, etc.)
☒	☐	Technical Assistance documentation

Overall Hard File Review Comments: Overall, the project hard files in Indiana County are exceptional. Each file contains the required documentation as well as ample project notes, including correspondence, a timeline of communications and inspections, and updated project plans. Ensure PA One-Call serial numbers are included in project files. Files are thorough and well-organized. Keep up the great work.

Quality Assurance Board & QAB Policy Review

Yes	No	
☒	☐	Do the members understand the role of the QAB?
☒	☐	Has the QAB attended DGLVR program trainings:
Comment: John attends ESM training almost every year and attends all of the district's outreach events. Matt has been to ESM training, and Brooke maintains ESM Certification.		
☒	☐	Is the QAB active as a whole or individually?
☒	☐	Does the QAB meet Sunshine Act requirements?
		How are projects ranked for funding?
Ranking: District staff share photos and maps of each proposed project site during QAB meetings. QAB members discuss and rank projects based on this information, grant applications, and individual site visits.		
☒	☐	Does the QAB visit each project for ranking, during construction or post completion?
Visits: District staff provide a list of project sites to QAB members before ranking, and Matt and John visit the sites independently. Occasionally they are also able to visit sites during other stages of completion as well.		
☒	☐	Are the members aware of QAB policies: conflict of interest, Enviro Standards, etc.? Is the District's local policy in line with DGLVR Program policies?
Comment: Indiana CCD's QAB policies include all of the required sections, as well as several local policies, which is excellent. Local policies are well thought out to target workload and funds on the most environmentally beneficial projects such as requiring pre-application meetings, prioritizing stream crossings based on a letter of intent, and establishing guidance for phased projects.		
☒	☐	Is the relationship and lines of communication of the QAB to District Board good?
☐	☒	Issues or Suggestions Identified by QAB for CDGRS or SCC?

Education / Outreach

Yes	No		
☒	☐	Is the District conducting adequate outreach and education activities?	
		Outreach Completed since previous QAQC visit:	
		☒Workshops	☒Mailings
		☐Demo Days	☒Website/Social Media/Emails
		☒Municipal Visits	☒Municipal COG meetings
☒	☐	Does the District notify all potential applicants of available funding / application periods?	
☒	☐	Do all eligible entities have equal access to the funding and receive advertisements about the program?	
☒	☐	Does the District get more applications than they have funding for?	
Comment: Indiana CCD hosts an annual Legislative Bus Tour and Municipal Workshop, and district staff present about the DGLVR Program at both. District staff also attend the annual Township Convention each spring and are able to discuss the DGLVR Program in a 5-10 minute presentation. The district's Annual Report and semi-annual newsletter both feature DGLVR projects and updates. Funded projects are included in the paper each year, accompanied by information about the grant program. Brooke maintains a mailing and email list of program participants, and sends information about ESM Trainings and grant application deadlines to these lists. Program information is also hosted on the district's website.			

District Staff

Name: Brooke Russick, Conservation Program Manager		
Program Role: Brooke is the main contact for the DGLVR Program and runs the day to day operations of the program.		
Name: Doug Beri, Jr., Executive Director		
Program Role: Doug looks at big picture aspects of the Program, such as budgeting and program design. He is also involved with day-to-day administration as needed.		
Name: Tammie Robinson, Office Administrator		
Program Role: Tammie handles DGLVR finances.		
Name: Monica Lee, District Educator		
Program Role: Monica promotes the DGVLR program and provides education and outreach.		
Yes	**No**	
☒	☐	District staff attended required trainings: *Admin Training – Once Every 3 Years* *ESM Training – Every 5 Years*
Additional Training Attended: • Various DGLVR Program Webinars • Brooke attended the stream crossing certification training in 2022 • Annual Maintenance Workshop		
☒	☐	Is the District dedicating adequate staff time to the Program?
☒	☐	Has District staff shown they are administering the program effectively?
☒	☐	District staff shown reasonable knowledge and adherence to the programs policies, goals, & objectives?
☒	☐	Are staff adequately versed and involved with environmental permitting for projects?
☒	☐	Is staff ensuring 10% cap on engineering/consulting funds is being adhered to for project funds?
☒	☐	Has the District met all spending requirements as outlined in the administrative manual?
District Staff comments: Indiana CCD does a great job involving multiple staff members in the DGLVR Program to ensure there is adequate staff time available for the Program. District staff appear to work well together, and each staff member involved in the DGLVR Program does their tasks well. Brooke is an exceptional technician who administers the DGLVR Program with great skill. Hard files are complete, well organized, and include detailed information about project timelines and changes. Brooke maintains regular communication with grant recipients to make sure projects are implemented properly. She ensures complete projects are installed with appropriate ESM practices and that construction meets all DGLVR requirements or is not paid for with DGLVR funds. The large number of applications received each year by Indiana CCD is a testament to the effective education and outreach as well as the positive relationships between district staff and local road owners. District staff work with the QAB and District Board to update local policy in response to observed needs. Indiana CCD's DGLVR Program exemplifies how the DGLVR Program should be administered throughout Pennsylvania. The QAQC Team deeply appreciates the high-quality district staff and recommends the district continue all of the excellent work.		

Pre-project planning, Construction Oversight, & Final Inspections

Yes	No		
☒	☐	Does staff complete adequate pre-planning & design assistance of projects?	
		Types of pre-project planning completed by the District:	
		☒Preapplication meetings	☒Pre-Permit application meetings
		☒Bid meetings / site showings	☒Pre-construction meetings
Comments: Pre-application meetings and pre-construction meetings are required in Indiana County. Brooke provides feedback and guidance on competitive sites and project design, and applicants generally incorporate district recommendations. Brooke assists with bidding as needed and ensures that bid packages reflect DGLVR requirements. The district is commended for being so involved in application development as district involvement is the best way to ensure DGLVR applications propose appropriate ESM practices, meet Program policy, and are completed properly.			
☒	☐	Is staff doing effective construction oversight and inspection of active projects:	
		☒Onsite a sufficient amount of time during construction	☒ Ensuring ESM practices are installed according to program policy, goals, and objectives
		☒Provides adequate assistance to project participants with implementing the project	
Comments: Brooke tries to be on site during the first day of construction. Frequency of inspections depends on the project and experience of the road crew or contractor. For newer program participants and more complicated ESM practices such as DSA and stream crossings, Brooke spends more time on site. When a project component is not installed correctly, the district provides guidance on changes needed to meet DGLVR requirements. If the road owner does not want to make those changes, the district ensures that that project component is not paid with DGLVR funds. Any changes to the project are well documented in project hard files.			
☒	☐	Is staff completing effective project completion site inspections?	
		☒Walk project site with project participant	☒Provide a list to participant of corrections needed prior to finalization
		☒Ensuring funding was utilized for equipment/materials/labor for the project site	☒Fill out completion report with the project participant
Comments: There are usually multiple final inspections. When the township says they are ready for final inspection, the district often identifies changes to be made and conducts another inspection to be sure they are completed. Brooke completes as-built drawings for all projects to document final conditions. Grant recipients submit invoices to the district, who reviews them and fills out the completion report. Although some grant recipients do not provide completion paperwork that is timely or well organized, the district ensures all required documentation is received and final payment is held until then.			

Project Site Visits
Rating: Exceeds Expectations

The intent of site visits during the QAQC process is to see how effectively Program principles are put into practice. Ultimately the PA Dirt and Gravel Road Program is a technology transfer initiative. Long term success of the Program relies on the acceptance and use of Environmentally Sensitive Maintenance Practices by the municipal officials tasked with maintaining the network of public roads.

Dirt and Gravel Roads

Rd Name: Braughler Road	Rd Owner: Grant Township
☐Completed in: ☒Under Contract ☐Potential Site	
Contract: (2022) $69,392	In-Kind: TBD
Describe the existing conditions (problem being addressed): entrenched road with insufficient outlets	

Practices Used: (site length 763 ft) 6 new cross pipes, 2,200 tons slate fill (605' x 24' x 2'), 440 tons DSA

Project Logistics				
Yes	**No**	**NA**		
☒	☐	☐	Do field conditions match application, contract, completion report, receipts & GIS data?	
☒	☐	☐	Did the road have impacts to a stream or water quality?	
☒	☐	☐	Was the project cost effective and were project expenditures within normal ranges?	
Program Policy				
☒	☐	☐	Was the project implemented within the policy/guidelines set by the program?	
☒	☐	☐	Drainage and base addressed prior to investing in surfacing?	
☒	☐	☐	DSA meets SCC specifications and verified by the CDGRS Clearinghouse?	
☐	☐	☒	Was Off Right-of-way work within program guidelines or have prior SCC written approval?	
☐	☐	☒	Traffic count completed properly and verifies under 500 ADT?	
☐	☐	☒	Full depth reclamation completed within program guidelines?	
☐	☐	☒	Was stream crossing replacement completed in accordance with Program guidelines?	
Check if Yes			☐Meet replacement criteria	☐Designed & constructed to accommodate AOP
			☐100% bankfull width structure	☐Considered floodplain connectivity
			☐Properly aligned with channel	☐Written waiver granted by SCC?
Project Effectiveness				
☒	☐	☐	Have ESM principles of "drainage disconnection" been used? There should be a lower volume of water, and less sediment, reaching the stream as a result of the project.	
Describe how well the project addressed the existing issues:				

This project was reviewed during construction and DSA was planned for the week after review. Pipe inlets have headwalls constructed of stacked stone and appear stable. Rip rap aprons at pipe outlets will help prevent potential erosion. This project is a good example of a "classic" road fill and drainage project. Great work.
Describe ESM practice implementation, including whether appropriate ESM practices were chosen to address existing conditions and if their installation follows best practices.
ESM practices are installed appropriately on this project. Cross pipes allow frequent ditch outlets, and road fill is crowned well.

☒	☐	☐	Are there any recommendations that would improve this project or similar future projects?

Recommendations: Consider grade breaks or sectional road fill, especially over shallow cross pipes. All cross pipes are recommended to have endwalls. They serve not only to prevent erosion, but also to protect the pipe and prevent traffic from hitting or crushing the ends of the pipe.

Project Rating: Exceeds Expectations

Rd Name: Hetzler Road	Rd Owner: Grant Township
☐Completed in: ☒Under Contract (2022 contracts) ☐Potential Site	
Contract: $31,992 and $12,286.96	In-Kind: $4,806.18 and $2,033.91
Describe the existing conditions (problem being addressed): Insufficient outlets	

Practices Used: (site length 2,174 ft)
2 turnouts and 5 new cross pipes
7 new cross pipes, 740 ft under drain

Project Logistics

Yes	No	NA	
☒	☐	☐	Do field conditions match application, contract, completion report, receipts & GIS data?
☒	☐	☐	Did the road have impacts to a stream or water quality?
☒	☐	☐	Was the project cost effective and were project expenditures within normal ranges?

Program Policy

☒	☐	☐	Was the project implemented within the policy/guidelines set by the program?
☒	☐	☐	Drainage and base addressed prior to investing in surfacing?
☐	☐	☒	DSA meets SCC specifications and verified by the CDGRS Clearinghouse?
☐	☐	☒	Was Off Right-of-way work within program guidelines or have prior SCC written approval?
☐	☐	☒	Traffic count completed properly and verifies under 500 ADT?
☐	☐	☒	Full depth reclamation completed within program guidelines?

☐	☐	☒	Was stream crossing replacement completed in accordance with Program guidelines?	
Check if Yes			☐Meet replacement criteria	☐Designed & constructed to accommodate AOP
			☐100% bankfull width structure	☐Considered floodplain connectivity
			☐Properly aligned with channel	☐Written waiver granted by SCC?

Project Effectiveness

☒	☐	☐	Have ESM principles of "drainage disconnection" been used? There should be a lower volume of water, and less sediment, reaching the stream as a result of the project.

Describe how well the project addressed the existing issues:

The new pipes break up road drainage, and underdrain manages subsurface flows. Underdrain is outlet frequently. This project was reviewed during construction and final grading to ensure water enters pipes was not yet completed.

Describe ESM practice implementation, including whether appropriate ESM practices were chosen to address existing conditions and if their installation follows best practices.

Pipe spacing is good. Headwalls and outlet rip rap aprons appear stable. Turnouts are near pipe outlets. The conservation district discovered that a small drainage with bed and banks entered one of the pipes, and chose not to pay for this pipe since the installation did not meet DGLVR policy for stream crossing structures. The district is commended for their expert knowledge of DGLVR policy and their dedication to spending Program funds on eligible expenses. The district still worked with the township to ensure this pipe was installed well and the inlet was stabilized.

☒	☐	☐	Are there any recommendations that would improve this project or similar future projects?

Recommendations: Consider separating turnouts from cross pipe outlets when possible and adding road fill to achieve sheet flow and/or grade changes allow.

Project Rating: Exceeds Expectations

Rd Name: Magnolia Road	Rd Owner: Grant Township
☒Completed in: 2021 and 2023 ☐Under Contract ☐Potential Site	
Contract: $82,218.75 + 96,710.45	In-Kind:$17,843.24 + $1,752.23

Describe the existing conditions (problem being addressed): Road had insufficient outlets and was entrenched. An undersized stream crossing was installed straight across the road (90 degrees) with scour at the outlet.

Practices Used: (site length: 2,600 ft)

Phase 1: 7 new cross pipes, 4 replaced cross pipes, 2,840 tons of road fill, 1,000 sq yd geo fabric, 420 ft under drain, stream crossing replacement (1.5' existing round pipe in 4.8' BF stream replaced with a 5.9' squash pipe)

Phase 2: 1 new cross pipe installed, 310 ton road fill, 1,458 tons DSA

Project Description: This project comprehensively addresses drainage, base, and surface issues. At the time of the QAQC, the DSA was not yet placed and was planned to be placed in the next month.

Project Logistics

Yes	No	NA	
☒	☐	☐	Do field conditions match application, contract, completion report, receipts & GIS data?
☒	☐	☐	Did the road have impacts to a stream or water quality?
☒	☐	☐	Was the project cost effective and were project expenditures within normal ranges?

Program Policy

☒	☐	☐	Was the project implemented within the policy/guidelines set by the program?
☒	☐	☐	Drainage and base addressed prior to investing in surfacing?
☐	☐	☒	DSA meets SCC specifications and verified by the CDGRS Clearinghouse?
☒	☐	☐	Was Off Right-of-way work within program guidelines or have prior SCC written approval?
☐	☐	☒	Traffic count completed properly and verifies under 500 ADT?
☐	☐	☒	Full depth reclamation completed within program guidelines?
☒	☐	☐	Was stream crossing replacement completed in accordance with Program guidelines?

Check if Yes		
	☒Meet replacement criteria	☒Designed & constructed to accommodate AOP
	☒100% bankfull width structure	☐Considered floodplain connectivity
	☒Properly aligned with channel	☐Written waiver granted by SCC?

Project Effectiveness

☒	☐	☐	Have ESM principles of "drainage disconnection" been used? There should be a lower volume of water, and less sediment, reaching the stream as a result of the project.

Describe how well the project addressed the existing issues:

The many new cross pipes outlet the ditch flow frequently. Under drain conveys groundwater away from the road base to prevent saturation. Road fill established a stable road base and sheet flow. The small stream crossing replacement is installed well as described below.

Describe ESM practice implementation, including whether appropriate ESM practices were chosen to address existing conditions and if their installation follows best practices.

The district and township worked hard on the stream crossing installation to ensure it is stable. The streambed was hand built, including bank margins and low flow channel. A grade control structure was installed at the inlet and outlet of the pipe as well. Drainage and road base are installed appropriately. The original plan was to cap the road fill with 2RC, but the material was poor and exhibited a plastic quality. The district halted delivery and consulted with the Center for Dirt and Gravel Road Studies to confirm, then switched the plan to capping the road fill with DSA. The district awarded significant additional funding to this project in order to place an adequate road surface material. The district is commended for their exceptional technical skills and dedication to quality projects.

☒	☐	☐	Are there any recommendations that would improve this project or similar future projects?

Recommendations: Use road base material to build crown instead of DSA.

Project Rating: Exceptional

Rd Name: Barr Road	Rd Owner: Green Township
☒Completed in: 2020 ☐Under Contract ☐Potential Site	
Contract: $74,423.26	In-Kind:$111,978.96 (includes $111,006.40 in CDGRS demo funds)
Describe the existing conditions (problem being addressed): undersized stream crossing structure (5' round pipe in 27' bankfull width stream)	

Practices Used: 4 new cross pipes, 336 tons road fill, 2 in-stream stabilization structures (J-hooks), 27' spread footing bridge

Project Description: (site length: 1,166 ft) When the district realized this site had a 27' bankfull width, they reached out to the Center for assistance with such a large stream crossing. The district and Center partnered to install a spread footing bridge as a demonstration project. Planning for this project took place in 2019 and included assistance from Trout Unlimited as well. One J-hook was installed upstream of the crossing, and the other J-hook is downstream.

Project Logistics

Yes	No	NA	
☒	☐	☐	Do field conditions match application, contract, completion report, receipts & GIS data?
☒	☐	☐	Did the road have impacts to a stream or water quality?
☒	☐	☐	Was the project cost effective and were project expenditures within normal ranges?

Program Policy

☒	☐	☐	Was the project implemented within the policy/guidelines set by the program?
☒	☐	☐	Drainage and base addressed prior to investing in surfacing?
☐	☐	☒	DSA meets SCC specifications and verified by the CDGRS Clearinghouse?
☒	☐	☐	Was Off Right-of-way work within program guidelines or have prior SCC written approval?
☐	☐	☒	Traffic count completed properly and verifies under 500 ADT?
☐	☐	☒	Full depth reclamation completed within program guidelines?
☒	☐	☐	Was stream crossing replacement completed in accordance with Program guidelines?

Check if Yes		
	☒Meet replacement criteria	☒Designed & constructed to accommodate AOP
	☒100% bankfull width structure	☒Considered floodplain connectivity
	☒Properly aligned with channel	☐Written waiver granted by SCC?

Project Effectiveness

☒	☐	☐	Have ESM principles of "drainage disconnection" been used? There should be a lower volume of water, and less sediment, reaching the stream as a result of the project.

Describe how well the project addressed the existing issues:			
This spread footing bridge was a great choice for this site. The new cross pipes ensure ditches are stable and disconnected from the stream.			
Describe ESM practice implementation, including whether appropriate ESM practices were chosen to address existing conditions and if their installation follows best practices.			
ESM practices are properly implemented.			
☐	☒	☐	Are there any recommendations that would improve this project or similar future projects?

Stream Crossing Replacement Review

The DGLVR Program has learned a lot about improving stream crossing projects in order to be more stable/erosion resistant, be more resilient to flooding, maximize structure longevity, and reduce routine maintenance needs. This checklist reflects the Program's current best practices for stream crossing replacements, which have been gradually added to optional training offerings and are incorporated into the DGLVR Policy effective for DGLVR contracts signed on or after 7/1/2022. The Program has learned that these items are necessary to achieve the aquatic organism passage (AOP) required by previous DGLVR stream crossing replacement policy but acknowledges that these items were not all common practice for DGLVR stream crossings at the time reviewed projects were designed.

YES	NO	NA (waived)	
☒	☐	☐	All direct drainage to the stream diverted to a stable outlet
☒	☐	☐	Appropriate structure chosen for project
☒	☐	☐	Longitudinal profile survey completed and used to inform design/structure selection
☒	☐	☐	Stable streambed above, though, and below the crossing
☒	☐	☐	Structure installed at appropriate grade, elevation, and alignment
☒	☐	☐	Stable grade controls spaced appropriately
☒	☐	☐	Proper bank margins and low flow channel
☒	☐	☐	Appropriate depth and size of material to properly account for scour
☒	☐	☐	Appropriate cover over the structure
☒	☐	☐	District completed sufficient construction oversight

Project Rating: Exceptional

Rd Name: Twolick Hill Road	Rd Owner: Green Township
☒Completed in: 2021 ☐Under Contract ☐Potential Site	
Contract: $111,872.34	In-Kind:$1,097.20
Describe the existing conditions (problem being addressed): undersized stream crossing structure was plugged and not functioning: 3’ round pipe in an 11” bankfull width stream.	

Practices Used: 158 sq yd French mattress, 3 in-stream stabilization structures, 77 sq yd bioengineering, 50 ft selective thinning, stream crossing replacement: 14.7’ wide box culvert with bottom, 1 other practice (wetland crossing – 4’ squash pipe)
Project Description: (site length: 580 ft) This project included not just a stream crossing replacement, but a comprehensive solution to a saturated road in a wetland setting, including disconnecting road ditches, installing a French mattress to stabilize the saturated road, and coordinating with the SCC to install a wetland overflow pipe.

Project Logistics				
Yes	**No**	**NA**		
☒	☐	☐	Do field conditions match application, contract, completion report, receipts & GIS data?	
☒	☐	☐	Did the road have impacts to a stream or water quality?	
☒	☐	☐	Was the project cost effective and were project expenditures within normal ranges?	
Program Policy				
☒	☐	☐	Was the project implemented within the policy/guidelines set by the program?	
☒	☐	☐	Drainage and base addressed prior to investing in surfacing?	
☐	☐	☒	DSA meets SCC specifications and verified by the CDGRS Clearinghouse?	
☒	☐	☐	Was Off Right-of-way work within program guidelines or have prior SCC written approval?	
☐	☐	☒	Traffic count completed properly and verifies under 500 ADT?	
☐	☐	☒	Full depth reclamation completed within program guidelines?	
☒	☐	☐	Was stream crossing replacement completed in accordance with Program guidelines?	
Check if Yes			☒Meet replacement criteria	☒Designed & constructed to accommodate AOP
			☒100% bankfull width structure	☒Considered floodplain connectivity
			☒Properly aligned with channel	☒Written waiver granted by SCC?
Project Effectiveness				

☒	☐	☐	Have ESM principles of "drainage disconnection" been used? There should be a lower volume of water, and less sediment, reaching the stream as a result of the project.

Describe how well the project addressed the existing issues:

Indiana CCD and Green Township implemented a comprehensive project to address all issues on this site, including replacing an undersized stream crossing, providing floodplain connectivity with a wetland overflow pipe, and correcting road base and drainage issues. Well done.

Describe ESM practice implementation, including whether appropriate ESM practices were chosen to address existing conditions and if their installation follows best practices.

ESM practices are well installed. The only issue observed on site is that the stream crossing structure was placed at too high of an elevation, which district staff pointed out and were able to explain why this is problematic. District staff demonstrates that they have learned from this experience and are preventing similar issues from occurring on other project sites. Additionally, this project incorporates updated stream crossing guidance, such as using a wider than bankfull structure and installing instream grade control. Great job.

☒	☐	☐	Are there any recommendations that would improve this project or similar future projects?

Recommendations: Continue to implement updated stream crossing guidance on future sites, and continue completing comprehensive projects that adequately address road base, drainage, and stream crossing issues. Keep up the excellent work.

Stream Crossing Replacement Review

The DGLVR Program has learned a lot about improving stream crossing projects in order to be more stable/erosion resistant, be more resilient to flooding, maximize structure longevity, and reduce routine maintenance needs. This checklist reflects the Program's current best practices for stream crossing replacements, which have been gradually added to optional training offerings and are incorporated into the DGLVR Policy effective for DGLVR contracts signed on or after 7/1/2022. The Program has learned that these items are necessary to achieve the aquatic organism passage (AOP) required by previous DGLVR stream crossing replacement policy but acknowledges that these items were not all common practice for DGLVR stream crossings at the time reviewed projects were designed.

YES	NO	NA (waived)	
☒	☐	☐	All direct drainage to the stream diverted to a stable outlet
☒	☐	☐	Appropriate structure chosen for project
☒	☐	☐	Longitudinal profile survey completed and used to inform design/structure selection
☐	☒	☐	Stable streambed above, though, and below the crossing
Comment: Stream bed material has started to wash out of the structure due to the structure being installed at too high of an elevation.			
☐	☒	☐	Structure installed at appropriate grade, elevation, and alignment
Comment: This structure was installed at too high of an elevation. The district explained to the QAQC team how this is problematic and demonstrated a commitment to prevent future similar issues from occurring.			
☒	☐	☐	Stable grade controls spaced appropriately
☒	☐	☐	Proper bank margins and low flow channel
☐	☒	☐	Appropriate depth and size of material to properly account for scour
Comment: Stream bed material has started to wash out of the structure due to the structure being installed at too high of an elevation.			
☒	☐	☐	Appropriate cover over the structure
☒	☐	☐	District completed sufficient construction oversight
Comments: Excellent work incorporating updated guidance.			

Project Rating: Exceeds Expectations

Rd Name: Myers Hill Road	Rd Owner: Rayne Township
☒Completed in: 2023 ☐Under Contract ☐Potential Site	
Contract: $50,500.57	In-Kind:$33,367.45
Describe the existing conditions (problem being addressed): The very steep, long slope did not have adequate ditch outlets.	

Practices Used: 7 new cross pipes, 4 replaced cross pipes, 1,620 tons road fill, 500 ft underdrain, 300 ft select thinning, 67 sq yd seed/mulch

Project Description: (site length: 2,046 ft) This is a "traditional" drainage project. Cross pipes are installed with small grade breaks over them. Road fill is 3' deep in places. There is some legacy erosion on the upslope road banks from the way the road was originally constructed.

Project Logistics

Yes	No	NA		
☒	☐	☐	Do field conditions match application, contract, completion report, receipts & GIS data?	
☒	☐	☐	Did the road have impacts to a stream or water quality?	
☒	☐	☐	Was the project cost effective and were project expenditures within normal ranges?	

Program Policy

☒	☐	☐	Was the project implemented within the policy/guidelines set by the program?	
☒	☐	☐	Drainage and base addressed prior to investing in surfacing?	
☐	☐	☒	DSA meets SCC specifications and verified by the CDGRS Clearinghouse?	
☒	☐	☐	Was Off Right-of-way work within program guidelines or have prior SCC written approval?	
☐	☐	☒	Traffic count completed properly and verifies under 500 ADT?	
☐	☐	☒	Full depth reclamation completed within program guidelines?	
☐	☐	☒	Was stream crossing replacement completed in accordance with Program guidelines?	
Check if Yes			☐Meet replacement criteria	☐Designed & constructed to accommodate AOP
			☐100% bankfull width structure	☐Considered floodplain connectivity
			☐Properly aligned with channel	☐Written waiver granted by SCC?

Project Effectiveness

☒	☐	☐	Have ESM principles of "drainage disconnection" been used? There should be a lower volume of water, and less sediment, reaching the stream as a result of the project.

Describe how well the project addressed the existing issues:

This project successfully added new ditch outlets and used underdrain appropriately in wet roadside ditches. The small grade breaks installed over cross pipes have been smoothed out some after complaints from residents with a trailer. Some loose dirt was observed in roadside ditches.
Describe ESM practice implementation, including whether appropriate ESM practices were chosen to address existing conditions and if their installation follows best practices.
Cross pipes were installed shallowly when possible, although a gas line limited pipe depth in places. Headwalls are constructed of 12" thick concrete waste blocks with custom 6" thick slabs used to cap headwalls and help stabilize the bank at pipe inlets. Underdrain is bedded in 2B aggregate on this site, although larger aggregate such as AASHTO #1 is typically recommended.

☒	☐	☐	Are there any recommendations that would improve this project or similar future projects?

Recommendations: Use larger clean aggregate for underdrain and ensure all ditches are stabilized so no loose material washes out of them.
Project Rating: Meets Expectations

Rd Name: Steele Road	**Rd Owner: East Mahoning Township**
☒Completed in: 2022 ☐Under Contract ☐Potential Site	
Contract: $128,187.55 + $7,248.08	In-Kind:$12,187.55
Describe the existing conditions (problem being addressed): entrenched road, inadequate outlets, and 3 undersized stream crossings	

Practices Used: 7 new cross pipes, 2 replaced cross pipes, 6,400 tons road fill, 3,500 sq yd geo fabric, 1,680 ft underdrain, 3 stream crossing replacements:			
Existing structure:	18" round pipe	24" round pipe	3.2'round pipe
Bankfull Width:	3'	4.2'	4.1'
New structure:	3.5' squash pipe	4.75' squash pipe	6.6' arch with bottom

Project Description: (site length: 4,200 ft) This comprehensive project is well implemented. The road was filled up to 2' in places. Drainage is adequately addressed. The district worked hard to replace small stream crossings with updated guidance. DSA is funded as the next phase for this project. Excellent work.

Project Logistics

Yes	No	NA	
☒	☐	☐	Do field conditions match application, contract, completion report, receipts & GIS data?
☒	☐	☐	Did the road have impacts to a stream or water quality?
☒	☐	☐	Was the project cost effective and were project expenditures within normal ranges?

Program Policy

☒	☐	☐	Was the project implemented within the policy/guidelines set by the program?
☒	☐	☐	Drainage and base addressed prior to investing in surfacing?
☐	☐	☒	DSA meets SCC specifications and verified by the CDGRS Clearinghouse?
☒	☐	☐	Was Off Right-of-way work within program guidelines or have prior SCC written approval?
☐	☐	☒	Traffic count completed properly and verifies under 500 ADT?
☐	☐	☒	Full depth reclamation completed within program guidelines?
☒	☐	☐	Was stream crossing replacement completed in accordance with Program guidelines?

Check if Yes	☒Meet replacement criteria	☒Designed & constructed to accommodate AOP
	☒100% bankfull width structure	☒Considered floodplain connectivity
	☒Properly aligned with channel	☐Written waiver granted by SCC?

Project Effectiveness

☒	☐	☐	Have ESM principles of "drainage disconnection" been used? There should be a lower volume of water, and less sediment, reaching the stream as a result of the project.

Describe how well the project addressed the existing issues:

This project thoroughly addressed existing issues.

Describe ESM practice implementation, including whether appropriate ESM practices were chosen to address existing conditions and if their installation follows best practices.

ESM practices are well installed. The district especially did a great job incorporating updated guidance into the small stream crossing replacements. Longitudinal profiles were conducted for each stream crossing. The 6.6 ft wide stream crossing included extensive upstream and downstream work: 10 riffles spaced 14.2 ft apart and each is 6.8 ft long. The reconstructed reach slope is 5.3%.

☐	☒	☐	Are there any recommendations that would improve this project or similar future projects?

Stream Crossing Replacement Review

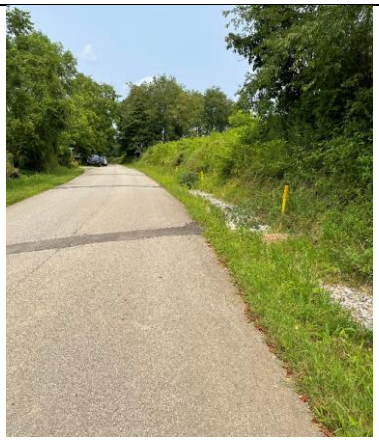
The DGLVR Program has learned a lot about improving stream crossing projects in order to be more stable/erosion resistant, be more resilient to flooding, maximize structure longevity, and reduce routine maintenance needs. This checklist reflects the Program's current best practices for stream crossing replacements, which have been gradually added to optional training offerings and are incorporated into the DGLVR Policy effective for DGLVR contracts signed on or after 7/1/2022. The Program has learned that these items are necessary to achieve the aquatic organism passage (AOP) required by previous DGLVR stream crossing replacement policy but acknowledges that these items were not all common practice for DGLVR stream crossings at the time reviewed projects were designed.

YES	NO	NA (waived)	
☒	☐	☐	All direct drainage to the stream diverted to a stable outlet
☒	☐	☐	Appropriate structure chosen for project
☒	☐	☐	Longitudinal profile survey completed and used to inform design/structure selection
☒	☐	☐	Stable streambed above, though, and below the crossing
☒	☐	☐	Structure installed at appropriate grade, elevation, and alignment
☒	☐	☐	Stable grade controls spaced appropriately
☒	☐	☐	Proper bank margins and low flow channel
☒	☐	☐	Appropriate depth and size of material to properly account for scour
☒	☐	☐	Appropriate cover over the structure
☒	☐	☐	District completed sufficient construction oversight

Project Rating: Exceptional

Low Volume Roads

Rd Name: Johnson Road	Rd Owner: Center Township
☒Completed in: 2022 ☐Under Contract ☐Potential Site	
Contract: $ 52,193.51	In-Kind: $14,145.39
Describe the existing conditions (problem being addressed): Roadside springs and multiple field drains outlet in cut road bank.	


Practices Used: (site length: 2,316) 6 new cross pipes, 4 replaced cross pipes, 1 access drainage improvement, 1,020 ft underdrain, 4 other practices (field drain piping)

Project Description: The district discussed various options for managing the field drains before deciding to pipe them and direct them to inlets of cross pipes. The access drainage improvement is placing shale and 2A to a driveway. Cross pipes were also installed on either side of the driveway to convey drainage away from the township road as much as possible.

Project Logistics

Yes	No	NA	
☒	☐	☐	Do field conditions match application, contract, completion report, receipts & GIS data?
☒	☐	☐	Did the road have impacts to a stream or water quality?
☒	☐	☐	Was the project cost effective and were project expenditures within normal ranges?

Program Policy

☒	☐	☐	Was the project implemented within the policy/guidelines set by the program?
☐	☐	☒	Drainage and base addressed prior to investing in surfacing?
☐	☐	☒	DSA meets SCC specifications and verified by the CDGRS Clearinghouse?
☒	☐	☐	Was Off Right-of-way work within program guidelines or have prior SCC written approval?
☒	☐	☐	Traffic count completed properly and verifies under 500 ADT?
☐	☐	☒	Full depth reclamation completed within program guidelines?
☐	☐	☒	Was stream crossing replacement completed in accordance with Program guidelines?

Check if Yes		
	☐Meet replacement criteria	☐Designed & constructed to accommodate AOP
	☐100% bankfull width structure	☐Considered floodplain connectivity
	☐Properly aligned with channel	☐Written waiver granted by SCC?

Project Effectiveness

☒	☐	☐	Have ESM principles of "drainage disconnection" been used? There should be a lower volume of water, and less sediment, reaching the stream as a result of the project.

Describe how well the project addressed the existing issues:			
This project adequately addresses drainage issues on the road.			
Describe ESM practice implementation, including whether appropriate ESM practices were chosen to address existing conditions and if their installation follows best practices.			
ESM practices are properly installed. Great job ensuring the field drain outlets were stabilized and considering various options on how to accomplish this.			
☐	☒	☐	Are there any recommendations that would improve this project or similar future projects?
Project Rating: Exceeds Expectations			

Rd Name: Littletown Road	**Rd Owner: Brush Valley Township**
☒Completed in: 2021 ☐Under Contract ☐Potential Site	
Contract: $92,735.57	In-Kind: 4,992.01
Describe the existing conditions (problem being addressed): undersized stream crossing (2.5' round pipe in a 9.2' bankfull width stream)	

Practices Used: (site length: 354 ft) stream crossing replacement: new 10' box culvert with bottom, 5 in-stream stabilization structures, 1 other practice (demo of upstream obstruction)
Project Description: This concrete box culvert installation incorporated some updated stream crossing guidance, such as using a structure wider than bankfull width and installing 5 rock cross vanes as grade control. Trout Unlimited assisted with in-stream work. The stream is approximately 7% slope, and 6-12" of streambed material is placed inside the structure. The off right-of-way work included demolition and removal of upstream culvert and shed necessary for the project (cost less than 35% of the contract).

Project Logistics			
Yes	**No**	**NA**	
☒	☐	☐	Do field conditions match application, contract, completion report, receipts & GIS data?
☒	☐	☐	Did the road have impacts to a stream or water quality?
☒	☐	☐	Was the project cost effective and were project expenditures within normal ranges?
Program Policy			
☒	☐	☐	Was the project implemented within the policy/guidelines set by the program?
☒	☐	☐	Drainage and base addressed prior to investing in surfacing?

☐	☐	☒	DSA meets SCC specifications and verified by the CDGRS Clearinghouse?	
☒	☐	☐	Was Off Right-of-way work within program guidelines or have prior SCC written approval?	
☒	☐	☐	Traffic count completed properly and verifies under 500 ADT?	
☐	☐	☒	Full depth reclamation completed within program guidelines?	
☒	☐	☐	Was stream crossing replacement completed in accordance with Program guidelines?	
Check if Yes			☒Meet replacement criteria	☒Designed & constructed to accommodate AOP
			☒100% bankfull width structure	☐Considered floodplain connectivity
			☒Properly aligned with channel	☒Written waiver granted by SCC?

Project Effectiveness

☒	☐	☐	Have ESM principles of "drainage disconnection" been used? There should be a lower volume of water, and less sediment, reaching the stream as a result of the project.

Describe how well the project addressed the existing issues:

There is still streambed material throughout the structure, which is a good sign. The district clearly strives to restore natural stream channels as demonstrated by their work with the upstream landowner to remove obstructions that would have prevented a stable stream channel from being established.

Describe ESM practice implementation, including whether appropriate ESM practices were chosen to address existing conditions and if their installation follows best practices.

This project incorporated some updated guidance on establishing channel continuity upstream, through, and downstream of stream crossings.

☒	☐	☐	Are there any recommendations that would improve this project or similar future projects?

Comments: The DGLVR Program has learned that for stream crossing projects with a steep slope, bottomless structures and deeper streambed material help achieve long term channel stability. These features are now required by the updated DGLVR Stream Crossing Replacement Policy and Design and Installation Standard for stream crossing projects contracted after 7/1/2022 with a reconstructed reach slope of 4% or greater.

Stream Crossing Replacement Review

The DGLVR Program has learned a lot about improving stream crossing projects in order to be more stable/erosion resistant, be more resilient to flooding, maximize structure longevity, and reduce routine maintenance needs. This checklist reflects the Program's current best practices for stream crossing replacements, which have been gradually added to optional training offerings and are incorporated into the DGLVR Policy effective for DGLVR contracts signed on or after 7/1/2022. The Program has learned that these items are necessary to achieve the aquatic organism passage (AOP) required by previous DGLVR stream crossing replacement policy but acknowledges that these items were not all common practice for DGLVR stream crossings at the time reviewed projects were designed.

YES	NO	NA (waived)	
☒	☐	☐	All direct drainage to the stream diverted to a stable outlet
☒	☐	☐	Appropriate structure chosen for project
☒	☐	☐	Longitudinal profile survey completed and used to inform design/structure selection
☒	☐	☐	Stable streambed above, though, and below the crossing
☒	☐	☐	Structure installed at appropriate grade, elevation, and alignment
☒	☐	☐	Stable grade controls spaced appropriately
☒	☐	☐	Proper bank margins and low flow channel
☒	☐	☐	Appropriate depth and size of material to properly account for scour

☒	☐	☐	Appropriate cover over the structure
☒	☐	☐	District completed sufficient construction oversight

Project Rating: Exceeds Expectations

Rd Name: Kirkland Road	Rd Owner: Rayne Township
☒Completed in: 2023 ☐Under Contract ☐Potential Site	
Contract: $ 32,531.42	In-Kind: $27,137.65

Describe the existing conditions (problem being addressed): This is an incredibly wet site with one developed spring and at least 6 other springs along the road.

Practices Used: 2 new cross pipes, 4 replaced cross pipes, 1,725 ft of underdrain, 6 sq yd sealed surface

Project Description: (site length: 2,284 ft) Cross pipes and underdrain were utilized to convey the significant spring seeps under the road. Two of the cross pipes are upslope of where the springs start. In some sections, 8" diameter underdrain pipe is used due to the large amount of water. One spring forms a channel with bed and bank coming to the road and crossing through a pipe. The district worked with the Center to fill out an automatic waiver from following the DGLVR stream crossing standard for this pipe.

Project Logistics			
Yes	**No**	**NA**	
☒	☐	☐	Do field conditions match application, contract, completion report, receipts & GIS data?
☒	☐	☐	Did the road have impacts to a stream or water quality?
☒	☐	☐	Was the project cost effective and were project expenditures within normal ranges?
Program Policy			
☒	☐	☐	Was the project implemented within the policy/guidelines set by the program?
☐	☐	☒	Drainage and base addressed prior to investing in surfacing?
☐	☐	☒	DSA meets SCC specifications and verified by the CDGRS Clearinghouse?
☒	☐	☐	Was Off Right-of-way work within program guidelines or have prior SCC written approval?
☒	☐	☐	Traffic count completed properly and verifies under 500 ADT?
☐	☐	☒	Full depth reclamation completed within program guidelines?
☐	☒	☐	Was stream crossing replacement completed in accordance with Program guidelines?

Comment: Since this project was contracted after 7/1/2022, pipes where bed and banks come to the road must follow the DGLVR Stream Crossing Replacement policy that includes the Stream Crossing Design and

Installation Standard. During construction, bed and banks were discovered coming to one of the 18" diameter cross pipes installed. Indiana CCD consulted with the Center and determined that the site qualified for an automatic waiver from following the stream crossing Standard. Crossings waived from meeting the full Standard must still meet the requirements in Admin Manual section 7.1.3.3 Details for Exemptions from the DGLVR Stream Crossing Standard. One of these requirements is that the new structure must be at least 125% of the bankfull width. For this site, the pipe installed should have been at least 18.75" wide to be 125% of the bankfull width. The district, Center, and SCC discussed that due to the unique circumstances here, the new 18" pipe did not have to be replaced. The QAQC Team appreciates that Indiana CCD worked closely with the Center and SCC on this site. Moving forward, strive to identify bed and banks coming to the road earlier in the project lifecycle and ensure new structures meet all DGLVR requirements. Keep up the great work.

Project Effectiveness

☒	☐	☐	Have ESM principles of "drainage disconnection" been used? There should be a lower volume of water, and less sediment, reaching the stream as a result of the project.

Describe how well the project addressed the existing issues:

Underdrain was the correct ESM practice for the amount of springs impacting this road. The frequent pipe outlets help ensure that neither surface nor subsurface water become erosive.

Describe ESM practice implementation, including whether appropriate ESM practices were chosen to address existing conditions and if their installation follows best practices.

Overall, the practices were installed properly on this road. Good rip rap stabilization at cross pipes outlets. For one pipe near the bottom of the project, the landowner requested a tail ditch at the outlet of the pipe. The district did not pay for this pipe since the program promotes eliminating tail ditches from cross pipes. The district also did not pay for a pipe that outlet to a drop inlet box.

☒	☐	☐	Are there any recommendations that would improve this project or similar future projects?

Recommendations: Consider installing animal guards on underdrain outlets and switching to solid wall pipe where underdrain outlets on the surface to help prevent potential crushing. Continue working closely with the Center and SCC on stream crossing exemptions. For one pipe near the bottom of the project, the landowner requested a tail ditch at the outlet of the pipe. The district did not pay for this pipe.

Project Rating: Meets Expectations

Rd Name: Pollock Road	Rd Owner: East Mahoning Township
☒Completed in: 2022 ☐Under Contract ☐Potential Site	
Contract: $70,329.00	In-Kind:$194,11386 ($179,696.66 from DCED Multimodal for paving)
Describe the existing conditions (problem being addressed): Entrenched road needed ditch outlets and had had spring seeps in the road base	

Practices Used: 5 new cross pipes, 4 replaced cross pipes, 4,330 tons road fill, 770 ft of underdrain, 6 sq yd sealed surface, 576 sq yd French mattress, 9,740 sq yd sealed surface

Project Description: (site length: 4,871 ft) LVR funds paid for drainage features installed and the sealed surface was paid for in-kind. The thin surface is already cracking, and potential reasons for this was discussed on site.

Project Logistics

Yes	No	NA	
☒	☐	☐	Do field conditions match application, contract, completion report, receipts & GIS data?
☒	☐	☐	Did the road have impacts to a stream or water quality?
☒	☐	☐	Was the project cost effective and were project expenditures within normal ranges?

Program Policy

☒	☐	☐	Was the project implemented within the policy/guidelines set by the program?
☐	☐	☒	Drainage and base addressed prior to investing in surfacing?
☐	☐	☒	DSA meets SCC specifications and verified by the CDGRS Clearinghouse?
☒	☐	☐	Was Off Right-of-way work within program guidelines or have prior SCC written approval?
☒	☐	☐	Traffic count completed properly and verifies under 500 ADT?
☐	☐	☒	Full depth reclamation completed within program guidelines?
☐	☐	☒	Was stream crossing replacement completed in accordance with Program guidelines?

Project Effectiveness

☒	☐	☐	Have ESM principles of “drainage disconnection” been used? There should be a lower volume of water, and less sediment, reaching the stream as a result of the project.

Describe how well the project addressed the existing issues:

The cross pipes appear to be managing ditch flow. There was some discussion as to whether the French mattresses may be overwhelmed, but that would not explain the widespread extent of cracking in the sealed surface. Road fill raised the road to achieve sheet flow.

Describe ESM practice implementation, including whether appropriate ESM practices were chosen to address existing conditions and if their installation follows best practices.

ESM practices appear to be properly installed. French mattresses are 12” thick with 12” of slate and 2A on top. The slate road fill used throughout the project came from a supplier who has provided road fill for other projects, although this particular fill came from a different pit. The district typically places 2A over slate fill, but in this case the township paved the road in-kind.			
☒	☐	☐	Are there any recommendations that would improve this project or similar future projects?
Recommendations: Consider topping road fill with 2A before a sealed surface is placed.			
Project Rating: Meets Expectations			

The QAQC group thanks the Indiana Conservation District for their hospitality during the visit. This is Indiana County’s Round 4 QAQC Final Report. If you have any questions, please do not hesitate to contact Program or Center Staff (717-787-2103 and 814-865-5355 respectively).

Sincerely,

Sherri Law
Conservation Program Specialist
State Conservation Commission
DGLVR Program

Roy Richardson
Program Coordinator
State Conservation Commission
DGLVR Program