



# WV DEPARTMENT OF ENVIRONMENTAL PROTECTION

Green Infrastructure in Southern WV

CEOI 0313 DEP22000000001

Submitted by:  
The Thrasher Group, Inc.  
August 12, 2021

RECEIVED  
08/12/21 13:07:34  
WV Purchasing Division



August 12, 2021

Attn: Mr. Joseph E Hager III, Buyer  
2019 Washington Street East | Charleston, WV 25305



COMPLEX PROJECTS  
REQUIRE RESOLVE  
**THRASHER'S GOT IT**

*RE: WV Department of Environmental Protection Green Infrastructure in Southern West Virginia*

Dear Mr. Hager and Selection Committee Members:

The New River Gorge is one of the most beautiful regions of West Virginia. The new designation of a national park brings excitement and opportunity to the surrounding communities. With that opportunity also brings concern for how we manage growth and development responsibly and preserve this natural wonder for years to come. The Thrasher team is tremendously excited about the opportunity to be involved in a project in this region and feel we are a great fit for the scope of services needed.

### **Thrasher will bring the right skills and expertise to your project, including:**

- » Thrasher has in-house capabilities for every service required for the scope of work identified in the EOI. We have experienced planners, landscape architects, engineers, environmental staff, and field staff to support your project. In addition to our technical experts, Thrasher also has in-house marketing and outreach specialists that can assist with the community engagement aspects required to deliver a great community plan.
- » Thrasher and the specific team we have identified for this project has a proven track record of delivering successful green infrastructure projects. Our understanding of the region of interest for this EOI is exceeded by no other, and I personally reside in our Beckley office. We currently provide services to several communities within this watershed, including but not limited to, Hinton, Beckley, Mount Hope, Oak Hill, and Fayetteville.
- » Successful projects for public entities often depend on creative funding scenarios and affordable projects, both from a construction and maintenance standpoint. We are working with clients on a weekly basis to determine how to move their projects forward. When the funds are available, it is important that we deliver a design that is of high quality and within the allocated budget. Municipal entities have limited budgets and outside of active volunteer or non-profit organizations do not often have the resources for intensive maintenance. We work with our clients to understand their limitations from the start and produce a project that they are comfortable taking care of.

I will be your Project Manager for this assignment and look forward to potentially being a partner with the community selected for this EOI for years to come. We appreciate the opportunity to present our qualifications to you for this exciting project and look forward to discussing it with you further.

Sincerely,  
The Thrasher Group, Inc.

Samuel Rich, PLA  
Project Manager



**DESIGNATED CONTACT:** Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

Samuel A Rich  
 (Name, Title)  
 Samuel Rich, Project Manager  
 (Printed Name and Title)  
 600 White Oaks Blvd. | Bridgeport, WV 26330  
 (Address)  
 304-624-4108 | 304-624-7831  
 (Phone Number) / (Fax Number)  
 srich@thethrashergroup.com  
 (email address)

**CERTIFICATION AND SIGNATURE:** By signing below, or submitting documentation through wvOASIS, I certify that: I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law.

The Thrasher Group, Inc.  
 (Company)

Chad Riley  
 (Authorized Signature) (Representative Name, Title)

Chad Riley, Principal  
 (Printed Name and Title of Authorized Representative)

08/11/2021  
 (Date)

304-624-4108 | 304-624-7831  
 (Phone Number) (Fax Number)

Revised 07/01/2021



ADDENDUM ACKNOWLEDGEMENT FORM  
SOLICITATION NO.: CEOI 0313 DEP22000000001

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:  
(Check the box next to each addendum received)

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6  |
| <input type="checkbox"/> Addendum No. 2            | <input type="checkbox"/> Addendum No. 7  |
| <input type="checkbox"/> Addendum No. 3            | <input type="checkbox"/> Addendum No. 8  |
| <input type="checkbox"/> Addendum No. 4            | <input type="checkbox"/> Addendum No. 9  |
| <input type="checkbox"/> Addendum No. 5            | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

**The Thrasher Group, Inc.**

Company



Authorized Signature

**08/11/2021**

Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.



STATE OF WEST VIRGINIA  
Purchasing Division  
**PURCHASING AFFIDAVIT**

**CONSTRUCTION CONTRACTS:** Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

**ALL CONTRACTS:** Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

**EXCEPTION:** The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

**DEFINITIONS:**

**"Debt"** means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

**"Employer default"** means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

**"Related party"** means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

**AFFIRMATION:** By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

**WITNESS THE FOLLOWING SIGNATURE:**

Vendor's Name: The Thrasher Group, Inc.

Authorized Signature: *Chad Polk*

Date: 8/11/2021

State of West Virginia

County of Harrison, to-wit:

Taken, subscribed, and sworn to before me this 11 day of August, 2021.

My Commission expires May 4 2026, 20  .



NOTARY PUBLIC

*Caroline E Marion*

Purchasing Affidavit (Revised 01/19/2018)



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION GREEN INFRASTRUCTURE VENDOR QUALIFICATION QUESTIONNAIRE Attachment A			
PROJECT NAME Green Infrastructure (GI) Project for the Lower New River Watershed		DATE (DAY, MONTH, YEAR) August 10, 2021	
1. FIRM NAME The Thrasher Group, Inc.		2. HOME OFFICE BUSINESS ADDRESS 600 White Oaks Blvd. Bridgeport, WV 26330	
3. FORMER FIRM NAME Thrasher Engineering		FEIN 55-0633596	
4. HOME OFFICE TELEPHONE 304-624-4108	5. ESTABLISHED (YEAR) 1983	6. TYPE OWNERSHIP Individual Corporation Partnership Joint-Venture	
7. PRIMARY GI OFFICE: ADDRESS/ TELEPHONE/ PERSON IN CHARGE/ NO. OF GI PERSONNEL IN OFFICE  155 Blue Angel Lane   Beaver, WV 25813    304-431-7800    Samuel Rich    5			
8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM Woody Thrasher, Chad Riley, Ron Stanley, Clay Riley		8a. NAME, TITLE, & TELEPHONE NUMBER - OTHER PRINCIPALS See p. 6 of submission for more information	
9. PERSONNEL BY DISCIPLINE			
3 15 40 40 34 30	CONTRACT ADMINISTRATOR(S) PROGRAM MANAGER(S) PROJECT MANAGER(S) QA/QC MANAGER(S) PROFESSIONAL ENGINEER(S) MODELER(S)	30 10 60 50 5	WATERSHED ANALYST(S) SOILS SPECIALIST(S) TECHNICAL EXPERT(S) TECHNICAL WRITER(S) OUTREACH SPECIALIST(S)
		12 12 40 5	OTHER (LIST BELOW) Stormwater Engineer/MS4 Specialist TMDL Analyst BMP Inspector Green Infrastructure Planners
			300 TOTAL PERSONNEL
10. DO YOU NEED ADDITIONAL EMPLOYEES TO FULFILL THE REQUIREMENTS OF THIS CONTRACT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			



- > Environmental
- > Site Engineering
- > Utility Engineering
- > Architecture
- > Survey
- > Transportation
- > Construction Services
- > Geospatial

## Main Point of Contact:

Samuel Rich, PLA  
Project Manager  
SRich@thethrashergroup.com  
Cell: 304-575-8553  
Office: 304-848-6490



**9**

**OFFICES**  
in five states:  
  
West Virginia  
Virginia  
Pennsylvania  
Ohio  
Maryland



**300+**

## EMPLOYEES

- 34** Licensed Professional Engineers
- 10** Licensed Professional Surveyors
- 8** Licensed Professional Architects
- 2** Licensed Professional Landscape Architects



**38**

**YEARS**  
of delivering  
successful  
projects

## Principals of the Firm:

Randy Watson: 304-326-6129  
Chadwick Biller: 304-326-6127  
Daniel Ferrell: 304-288-7755  
Craig Baker: 304-326-6388  
Robert Milne: 304-326-6141  
Jonathan Carpenter: 304-343-7601  
Clayton White: 304-848-7824  
Kylea Radcliff: 304-326-6116  
Steven Hamit: 330-451-2042  
Jesse Alden: 304-343-7601  
Jason Boyd: 304-343-7601  
Joseph Lowther: 304-326-6386

Diverse services that grow communities.

**THRASHER'S GOT IT.**



11. OUTSIDE KEY CONSULTANTS/SUB-CONSULTANTS ANTICIPATED TO BE USED. Attach "TMDL Vendor Qualification Questionnaire".		
NAME AND ADDRESS: Skelly and Loy, Inc. 449 Eisenhower Boulevard, Suite 300 Harrisburg, PA 17111	SPECIALTY: Karst geology Hydrologic modeling TMDL assessment and analytics	WORKED WITH BEFORE <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE <input type="checkbox"/> Yes <input type="checkbox"/> No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE <input type="checkbox"/> Yes <input type="checkbox"/> No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE <input type="checkbox"/> Yes <input type="checkbox"/> No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE <input type="checkbox"/> Yes <input type="checkbox"/> No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE <input type="checkbox"/> Yes <input type="checkbox"/> No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE <input type="checkbox"/> Yes <input type="checkbox"/> No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE <input type="checkbox"/> Yes <input type="checkbox"/> No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE <input type="checkbox"/> Yes <input type="checkbox"/> No

Established in 1969, Skelly and Loy, Inc. has built a reputation for excellence delivering professional services including environmental, civil, and mining engineering; National Environmental Policy Act (NEPA) compliance; natural resource management; wastewater permitting; noise and air quality investigations; karst studies and investigations; hydrologic assessments; TMDL investigations and assessments; hazardous waste management investigations and remedial design; industrial hygiene studies; archaeology and cultural resources; Geographic Information Systems (GIS); and water, wastewater, and remediation treatment systems. Headquartered in Harrisburg, Pennsylvania, Skelly and Loy is an environmental consulting and engineering services company with more than 50 years serving public- and private-sector clients in the Mid-Atlantic Region. Skelly and Loy recently joined the national consulting firm Terracon Consultants, Inc. Skelly and Loy's offices in Harrisburg, Pittsburgh, and State College, Pennsylvania; and Hunt Valley, Maryland join Terracon's existing offices in the Philadelphia and Washington, DC, metro areas, as well as Charleston, West Virginia, to serve clients throughout the region. Terracon has more than 150 offices across the US providing environmental, geotechnical engineering, materials testing, and building enclosure services.





12. A. Is your firm experienced in organizing and facilitating green infrastructure workshops and GI assessment site visits for local governments and/or other stakeholders?

YES NO

12.A.1 Provide Names and Number of Workshops/site visits.

Please see information on the following pages for answers to 12.A.1. through 12.A.3.

12.A.2 Provide an example GI workshop/site visit

12.A.3 Provide a detailed description of the methodology to be used to implement a GI workshop and site visit as per EOI.

ATTACH ADDITIONAL PAGES AS NECESSARY

12. B. Is your firm experienced in development of low cost, low maintenance green infrastructure concept plans?

YES NO

12.B.1 Provide Names and Number of Plans

Please see information on the following pages for answers to 12.B.1. through 12.B.3.

12.B.2 Provide an example GI concept plans

12.B.3 Provide a detailed description of the methodology to be used to develop this GI concept plan as per EOI.

ATTACH ADDITIONAL PAGES AS NECESSARY

12. C. Is your firm experienced in development of green infrastructure project designs, construction documents, cost estimates, permitting, and development of GI BMP maintenance plans?

YES NO

12.C.1 Provide Names and Number of Project designs, construction docs, maintenance plans

12.C.2 Provide an example GI project design, cost estimate and maintenance plan

12.C.3 Provide a detailed description of the methodology to be used to develop GI project design, construction estimates, cost estimates, permitting and BMP maintenance plan as per EOI.

Please see information on the following pages for answers to 12.C.1. through 12.C.3.

ATTACH ADDITIONAL PAGES AS NECESSARY

12. D. Is your firm experienced in development of green infrastructure projects noted in 12B and 12C in karst?

YES NO

12.D.1 Provide Names and Number of Projects

Please see information on the following pages for answers to 12.D.1. through 12.D.3.

12.D.2 Provide an example GI project designed in karst.

12.D.3 Provide a detailed description of the methodology to be used to design a GI project in karst.

ATTACH ADDITIONAL PAGES AS NECESSARY

12. E. Is your firm experienced in identifying and applying for funding for green infrastructure implementation projects?

YES NO

12.D.1 Provide Names and Number of Projects

12.D.2 Provide an example funding source and application package for a GI project.

12.D.3 Provide a detailed description of the methodology to be used to identify and apply for GI funding as per EO1.

Please see information on the following pages for answers to 12.E.1. through 12.E.3.

ATTACH ADDITIONAL PAGES AS NECESSARY

ATTACH ADDITIONAL PAGES AS NECESSARY



### **12.A.1 – Provide Name and Number of Workshops / site visits.**

Thrasher has been involved with a number of green infrastructure workshops and GI assessment site visits for local governments and other stakeholders. Thrasher completes site visits on multiple occasions throughout each of these projects, including planning, assessment, conceptual design, financial planning, comment review, design progress, public outreach, final design, permitting, construction, and final completion. Frequency of visits may vary from project to project, but it is common to see 15-30 site visits in a 6-12 month window when all of these elements are part of the scope. A sampling of these projects can be found below, with additional details highlighted in the following pages.

1. Town of Bath / Warm Springs Run Watershed Green Infrastructure Plan
2. City of Fayetteville MS4 Permit and Stormwater Management Plan
3. City of Clarksburg MS4 Permit and Stormwater Management Plan
4. City of Oak Hill MS4 Permit and Stormwater Management Plan
5. Tug Fork River Water Trail Master Plan

### **12.A.2 – Provide an example GI workshop / site visit.**

As part of the Town of Bath / Warm Springs Run Watershed Green Infrastructure Plan, Thrasher facilitated several steering committee and public forum workshops to identify opportunities for green infrastructure improvements throughout the watershed. Coupled with the workshops, several days were spent in the field walking all reaches of the watershed to identify impervious areas, new construction, sources of pollution, and opportunities for implementation of green infrastructure techniques either, in new construction or retrofit formats.

Thrasher has also conducted public meetings and workshops associated with MS4 compliance and SWMP implementation in several communities across the state. The MS4 workshops and site visits address the MS4 minimum control measures (MCM) requirements for public education, outreach, participation and involvement, regulatory ordinance development and public readings for stormwater, erosion and sediment, low impact development and design criteria, and illicit discharge detection and elimination, as well as good housekeeping, watershed cleanup, and code enforcement, among others.

### **12.A.3 – Provide a detailed description of the methodology to be used to implement a GI workshop and site visit as per EOI.**

Thrasher's planning and landscape architecture team continually works on projects that require a public engagement process. These meetings range from providing the community an opportunity to provide feedback on projects that are important to them to educating the community on the details or importance of a project. Workshops and public meetings require thoughtful planning with a very direct agenda to be effective and capture the opportunity to engage with community members. Thrasher's outreach team assists with this portion of the work via social media and local coordination to build relationships, share expertise, educate, and increase the visibility of events and information to connect people.

Thrasher's technical team follows the model defined by the Environmental Protection Agency for a successful workshop: Thrasher provides assistance to go beyond fulfilling the grant requirements of documenting progress accomplished on the work plans by identifying watershed projects and planning, providing technical assistance, financial planning assistance and funding venues, information and education, training, demonstration projects, monitoring to assess the success of specific NPS implementation projects, monitoring to assess the effectiveness of NPS controls, watershed restoration action strategy (WRAS) development, and total maximum daily load (TMDL) development. Thrasher develops tracking efforts and documents that provide the Final Project Report to document the location, scope, and progress of projects funded under the Section 319 program. The document captures efforts and milestones for different tasks, such as assessment project reports, watershed reports, information and education reports, and groundwater reports. The reports serve as a tool to facilitate coordination between watershed projects. All parties involved can benefit by sharing resources and information and avoiding duplication of efforts. "The report provides tangible evidence that money was effectively spent. EPA can present data showing improvements in water quality, information on new programs and projects that resulted from the 319 project, and other 319 success stories to Congress to guide future budget allocations for additional NPS projects. A Section 319 final project report can be used to garner support from watershed groups and other potential partners interested in continuing an NPS project after the 319 grant has ended. Results presented in a Section 319 final project report also can be used to support proposals for new grants. It is an excellent means for identifying additional water quality issues in the watershed and for proposing additional studies and programs to address these issues." (SECTION 319 FINAL PROJECT REPORTS WORKSHOP, 2000 EPA) (VIII, 2000)

**Thrasher's strategy is to:**

1. Develop a program that contains explicit milestones for short- and long-term goals, objectives, and strategies to restore and protect surface water and ground water, as appropriate. It identifies navigable waters and potential sources of pollution, and identifies best management practices and measures to control and reduce pollutant loadings as they impact groundwater quality.
2. Assist the municipalities and private entities to strengthen their working partnerships and linkages to appropriate state, interstate, tribal, regional, and local entities (including conservation districts), private sector groups, citizens groups, and federal agencies.
3. Collaborate with stakeholders to identify collaborative efforts with watershed groups to provide an alternative approach that encompasses a combination of statewide programs and on-the-ground projects to achieve water quality benefits. This ensures efforts are well-integrated with other relevant state and federal programs while engaging local and private exerts.
4. Develop a program that describes how resources will be allocated between abating known water quality impairments from NPS pollution and protecting threatened and high-quality waters from significant threats caused by present and future NPS impacts.
5. Identify waters and watersheds impaired by NPS pollution as well as priority unimpaired waters for protection. Thrasher establishes a process to assign priority and to progressively address identified watersheds by conducting more detailed watershed assessments, developing watershed-based plans and implementing the plans.



6. Implement all program components required by section 319(b) of the Clean Water Act, and establish strategic approaches and adaptive management to achieve and maintain water quality standards as expeditiously as practicable. Thrasher reviews and upgrades program components as appropriate. Thrasher supplements the state program that includes a mix of regulatory, non-regulatory, financial and technical assistance, as needed.
7. Collaborate with the stakeholders at local, municipal, regional, and state levels to identify sources of Federal, State, and other assistance and funding. Thrasher helps to manage and implement the NPS management program efficiently and effectively, including the necessary financial management.
8. Collaborate to review and evaluate NPS management programs using environmental and functional measures of success, and revises NPS management program at least every five years, per the regulatory updates.
9. Provide recommendations concerning future programs (including enforcement programs) for controlling pollution from nonpoint sources.



### TOWN OF FAYETTEVILLE Stormwater Management

#### Client Contact:

Ms. Sharon Cruikshank, Former Mayor  
125 North Court St | Fayetteville, WV 25840  
304-663-8575

The Town of Fayetteville, like most areas in the region, needed to meet MS4 compliance. Thrasher was selected to develop a stormwater management plan to satisfy the EPA requirements.

In addition, Thrasher worked with the Town to evaluate pipelines, channels and culverts and identify trouble areas that would have a lasting effect on the Town's drainage system. The Thrasher team evaluated a number of scenarios and presented designs and cost opinions to help the Town plan future projects.





### TOWN OF FAYETTEVILLE

#### MS4 Permitting

##### Client Contact:

Mr. William Lanham, II, Town Superintendent

P.O. Box 298, 125 North Court Street | Fayetteville, WV 25840

304-574-0101

The Thrasher Group began coordinating the Town of Fayetteville's (Town) MS4 permitting and program in 2014. The Town is responsible for maintenance of water supply, watershed, pollution prevention, and stormwater management that falls inside its corporate boundaries, home of the iconic New River Gorge Bridge. The Thrasher Group was hired by Town as a representative with the Department of Environmental Protection.

Thrasher provided services including permit writing, permit implementation, ordinance review, update, scheduling permit requirements, cost estimation, CAD, mapping, and design for hydrology and hydraulics of infrastructure upgrades, and land development plan reviewer. Additionally, Thrasher served as a representative for the Town when meeting with the WVDEP and assisted with applications for NPDES Permitting.





### CITY OF CLARKSBURG

#### NPDES MS4 Permit and Stormwater Upgrades

##### Client Contact:

Mr. Thomas Brown, City Engineer  
222 W. Main Street | Clarksburg, WV 26301  
304-677-1132

Thrasher began coordinating the City of Clarksburg's (City) MS4 permitting in 2009. The City is responsible for maintenance of water supply, watershed, contamination, and stormwater management that falls inside its corporate boundaries. Thrasher was hired by the City to be a partner with the West Virginia Department of Environmental Protection.

Thrasher provided services including permit writing, program implementation, MCM tracking, MS4 program training, sanitary plant upgrades, sanitary and stormwater system upgrades, scheduling permit requirements, cost estimation, CAD, mapping, draft ordinances, City design manual for land development and drainage, workshops, public outreach and education, public comment meetings, and design for hydrology and hydraulics. Additionally, Thrasher served as a representative for the City when meeting with the WVDEP and assisted with applications for NPDES Permitting. Annually, Thrasher meets with the City to review MCMs, the implementation schedule, and the overall SWMP effectiveness.







### TUG FORK RIVER

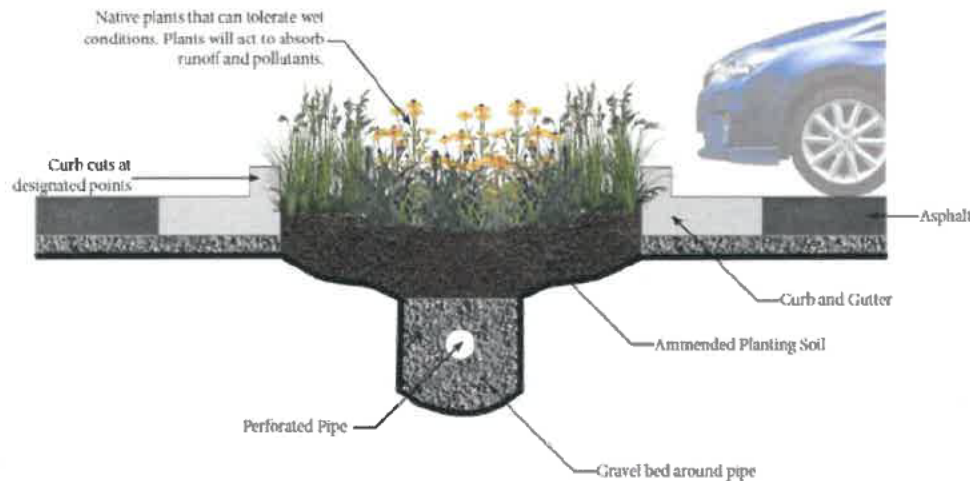
#### Water Access Master Plan

##### Client Contact:

Ms. Christy Bailey, Executive Director  
PO Box 15 | Oak Hill, WV 25301  
304-465-3720

The Tug Fork River is an undiscovered recreation-tourism destination in southern West Virginia. Nestled among the rolling hills, the river encompasses not only portions of the Mountain State but flows into Virginia and Kentucky as well. Thrasher was recently selected by the Coal Heritage Highway Authority to develop a water access master plan for the entire 135-mile length of the Tug Fork to build stakeholder engagement and make the River an outdoor recreation destination.

To achieve this goal, Thrasher will provide complete planning and preliminary design services for access points all along the river. This will start with public engagement, opportunity analysis, market overview, and access point identification. Then, Thrasher will provide site plans and cost estimates for multiple locations and complete the state application for Water Trail designation.



### TOWN OF BATH

#### Warm Springs Run Green Infrastructure Plan

##### Client Contact:

Mr. Larry Lower, Former Streetscape Committee Member  
271 Wilkes St. | Berkeley Springs, WV 25411  
410-371-0442

Thrasher worked with the Town of Bath Streetscape Committee, The Warm Springs Run Watershed Association, and Region 9 to analyze stormwater management deficiencies across a 3,600 acre watershed in Morgan County, West Virginia. The report analysis pointed out areas of concern and how green infrastructure and best management practices could be incorporated into the watershed to not only reduce flooding and improve water quality but create recreational and educational opportunities for the community.

The plan provided sample pilot projects for implementation, the associated costs with those improvements, as well as how they compared with traditional management techniques. The plan also provided a number of generic templates to be used for retrofitting green infrastructure to existing sites or proposed developments.





### 12.B.1 – Provide names and number of plans.

Our firm has been involved with several relevant projects. Please see the projects listed below and highlighted on the following page for samples.

1. Town of Bath / Warm Springs Run Watershed Green Infrastructure Plan
2. Beckley Sanitary Board Convention Center Rain Garden
3. City of Beckley Downtown Parking Lots Green Infrastructure
4. City of Nitro Landscape Master Plan

### 12.B.2 – Provide an example GI concept plans

Thrasher provides on-call services to several municipal clients across the New River Region, including the Beckley Sanitary Board (BSB). BSB provides oversight on stormwater and sanitary sewer utilities in the greater Beckley area. Often their stormwater improvement projects start with alternative concepts to determine the best solution for the problem. Green infrastructure is always incorporated where possible into these concepts.

### 12.B.3 – Provide a detailed description of the methodology to be used to develop this GI concept plan as per EOI.

1. Thrasher will facilitate a meeting with an identified project steering committee made up of community members, public officials, and WVDEP staff. The purpose of this meeting will be to introduce the planning team to the steering committee as well as the community and provide a high-level review of the opportunities for green infrastructure.
2. Thrasher will perform field work in the watershed of interest for the selected community. Field work will involve a comprehensive inventory of the community to identify impervious / developed areas, sources of pollution, new construction, and opportunities where green infrastructure BMPs would be logical.
3. In addition to field work, Thrasher will perform a comprehensive desktop review of the community to verify property ownership, utility mapping, soils mapping, aquatic resource mapping, and historic mapping.
4. Once locations for green infrastructure opportunities have been identified and all mapping has been reviewed, Thrasher will organize and facilitate a community workshop. The purpose of this workshop will be to engage with community members and educate on the importance of these projects for flooding, water quality, and stormwater management in their community. Different types of BMPs will be reviewed on a small- and large-scale to help shape conversation where they think these make most sense in their community. The main goals of this meeting are to capture feedback, identify opportunities, and create action items. Thrasher will utilize a combination of traditional advertisement methods as well as social media and geofencing to advertise and promote the meeting. Depending on the community that is selected, Thrasher will work with WVDEP to select an appropriate venue as well as monitor current recommendations for preventing the spread of COVID-19.
5. Thrasher will then begin to develop preliminary concepts for implementation of Green Infrastructure BMPs throughout the community on both public lands and ROW, as well as private lands where implementation would make sense. Thrasher will review these concepts with the steering committee for feedback and make revisions as necessary in preparation for a follow up community meeting. The follow-up community meeting will be a presentation of ideas and will serve as an opportunity for feedback on the concepts that have been developed.





### BECKLEY SANITARY BOARD

#### Rain Garden

##### Client Contact:

Mr. Jeremiah Johnson, General Manager  
301 S Heber St, Beckley, WV 25801  
304-256-1760

In 2017 Thrasher partnered with the Beckley Sanitary Board to design a rain garden for the grounds of the Raleigh County Convention Center. The project turned vacant green space into a stormwater management facility that treated over an acre of impervious area. The materials for the project were grant funded and the labor was performed as part of a Boy Scouts of America service project during the 2017 National Jamboree in nearby Glen Jean, West Virginia.



Nitro selected Thrasher to prepare a comprehensive Landscape and Beautification Master Plan for the community. This is the first city-wide effort of its type undertaken by the community. Nitro occupies a unique niche in the Kanawha Valley. The town was a U.S. government initiative to build a munitions industry to support fighting in World War I. An entire town was built that included factories, homes, schools, a commercial district, and recreation areas. Shortly after Nitro began the production of munitions in 1917, WWI ended. Over the last 100 years, Nitro prospered through the petrochemical industry. However as that industry declined so did the economic and physical conditions in Nitro. This created an urgency to improve the physical appearance of the community to encourage growth and investment.

Nitro had adopted "A Living Memorial to World War I" as it's brand and reflects this heritage in urban infrastructure such as period lighting and signage. A important goal of this plan is reflecting this theme in the urban environment, physical improvements and landscape themes.

Nitro therefore presented an unusual set of project challenges: prepare a landscape and overall beautification plan that was true to their identity but could also be scalable and affordably implemented. The preferred plan recommended an improved entryway experience that include signs, plantings and historic artifacts, such as an artillery piece. Building facade treatments were period authentic and public spaces were to be improved to reinforce the theme of pride and service to country. An implementation plan was prepared that sequenced improvements over a multi-year time frame that can be financially managed by the city. Implementation actions are underway.

### CITY OF NITRO

#### Landscape and Beautification Master Plan

##### Client Contact:

Mr. Dave Casebolt, Mayor  
304-755-0705





### WVU MEDICINE

#### J82 Parking Lot Green Infrastructure

##### Client Contact:

Mr. Jim Snider, Project Manager  
304-598-4125

Thrasher worked with WVU Medicine to design a much-needed employee parking lot where vacant buildings previously stood. The parking lot included the design of a rain garden to manage stormwater from the impervious surfaces added as part of the parking lot project. The rain garden included only native plant species which are thriving one year after construction and doing their part to cleanse stormwater runoff.







### WEST VIRGINIA UNIVERSITY

#### Creative Arts Center Parking Improvements and Bioswales

Thrasher was hired by West Virginia University to study the effects of adding additional parking at the Creative Arts Center on the Evansdale Campus. The team prepared conceptual design, construction documents, and oversaw the renovation project. Our design increased the CAC parking capacity to 362 spaces with two additional parking bays, one modified parking bay, and a connector road. As a part of the project, three bioswales were added to the parking lot areas as well.



### MARION COUNTY EDA/WV DIVISION OF NATURAL RESOURCES

#### Palatine Park Master Plan and Improvements

Thrasher has had the pleasure of working with the Marion County Economic and Community Development Council on the re-development of Palatine Park in Fairmont. Initially, Thrasher designed amphitheater seating to help revitalize the area and draw in performance artists. From there, Thrasher created the overall master-plan and vision for this riverside park. To date, construction has consisted of a new splash park, site lighting, restroom facilities, vehicular and bike parking, boat launch facility with trailer parking, sidewalk and trail extensions, river access stairs, and an overlook constructed on top of a historic bridge abutment. This project also included a bio retention cell, which required approximately 20 site visits and on-site representation throughout construction.



**12.C.1 – Provide name and number of project designs, construction docs, maintenance plans.**

Thrasher has provided designs, construction documents, and maintenance plans for multiple green infrastructure projects across West Virginia. Please reference the project sheets on the next several pages detailing our green infrastructure experience.

**12.C.2 – Provide an example GI project design, cost estimate and maintenance plan.**

The Town of Bath Green Infrastructure Plan can be reviewed in full online at <https://issuu.com/srichthrasher/docs/full>. This document contains example concept plans and cost estimates.

The attached project sheets include constructed examples of projects where we have provided estimates, designs, and maintenance plans. Thrasher continually bids more projects than any other consulting firm in the state of West Virginia and has great access to industry construction data. We pride ourselves on providing engineering estimates that are typically within 5% of publicly bid prices.

**12.C.3 – Provide a detailed description of the methodology to be used to develop GI project design, construction estimates, cost estimates, permitting and BMP maintenance plan as per EOI.**

1. Thrasher will perform field survey of the areas of interest for the design of these projects. Field survey will identify above-ground utilities, below-ground utility structures, property lines, easements, topography, and existing site features.
2. Thrasher will update the previously developed concepts for the project as it relates to the new survey data received from the field. This preliminary design will be reviewed with

the client for feedback prior to proceeding with construction documents.

3. Design plans are typically submitted in 50%, 75%, and 95% increments for review. These design plan submissions are complete with an updated project estimate to confirm the project remains on budget for the funds allocated for construction. Comments provided by the client will be addressed following each submission for incorporation as the project design moves toward completion.
4. Permitting for the project typically begins following the 75% submission as drawings of that completion percentage are necessary for approval. For projects in excess of one acre of disturbance, Thrasher has significant experience obtaining NPDES Construction Stormwater Permits, including work on calculations, stormwater pollution prevention plans, groundwater protection plans, and erosion and sediment control plans. Thrasher will also work with the local municipality or MS4 to determine local regulations for permitting new development or redevelopment projects.
5. Thrasher's team of landscape architects and engineers will provide a BMP maintenance plan as it pertains to the specific BMP that will be installed for construction. Recommendations for maintenance will be broken into inspection, monthly maintenance, and annual maintenance.



### TOWN OF BATH

#### Washington and Fairfax Streetscape

##### Client Contact:

Mr. Larry Lower, Former Streetscape Committee Member  
271 Wilkes St. | Berkeley Springs, WV 25411  
410-371-0442

The Thrasher Group helped the Town of Bath to develop a master plan for streetscape redevelopment across their downtown to improve the Town's image in main corridors and promote accessibility and public safety. The master plan helped to fund construction with grants from Federal Highways and the Chesapeake Bay Watershed.

The first phase of construction involved the streetscape for Washington and Fairfax Streets which were completely overhauled with new concrete sidewalks with paver accents and a paver street. The project included planter boxes to house ornamental plants and small street trees as well as interpretive signage to educate the community on the green infrastructure techniques that were utilized for the streetscape project. This project utilized permeable pavers and silva cells as a way to manage stormwater in a community that has a longstanding history of flooding issues.

As a follow up to the streetscape master plan the Town of Bath also commissioned a stormwater study of the Warm Springs Run watershed. The purpose of this study was to identify further implementation of green infrastructure usage throughout the watershed to help improve water quality and reduce flooding impacts from urban development.





### **12.D.1 – Provide name and number of projects.**

A sampling of our karst-related projects includes:

1. Berkeley County Public Service Stormwater District Green Infrastructure
2. Rockwool International Stormwater Management Facilities
3. City of Ranson Rockwool International Roadway Bioswale Medians

In addition to our own experience in karst projects, our sub-consultant Skelly and Loy has extensive knowledge on the subject. A sampling of their projects can be found on the following pages.

### **12.D.2 – Provide an example of GI project designed in karst.**

Thrasher has worked on countless projects in karst topography. Our team has completed 100+ municipal and private projects within the eastern panhandle of the state - known for its karst topography - where land development, stormwater quantity, and quality controls are key elements. For example, Thrasher designed rain gardens and bioswales for the Berkeley County Public Service Stormwater District. These facilities were in an industrial area with no on-site stormwater management to prevent runoff and improve water quality. The work completed included watershed assessment, facility inspection, facility feasibility and site selection, concept designs, preliminary design, final design, permitting, bidding, and construction oversight.

### **12.D.3 – Provide a detailed description of the methodology to be used to design a GI project in karst.**

Karst topography presents challenges to green infrastructure implementation as many of these BMPs rely on stormwater infiltration as a way of improving water quality and reducing stormwater runoff. Thrasher has experience mitigating infiltration on these projects through the use of underdrains and impermeable liners that direct stormwater following the infiltration through media and stone of the BMP. When considering projects in karst areas, it is important to maintain the natural drainage paths on the site as much as possible and provide a truly low-impact development design. Thrasher has also designed a number of green infrastructure BMPs on brownfield sites that do not allow for groundwater infiltration.





### BERKELEY COUNTY PUBLIC SERVICE STORM WATER DISTRICT Green Infrastructure

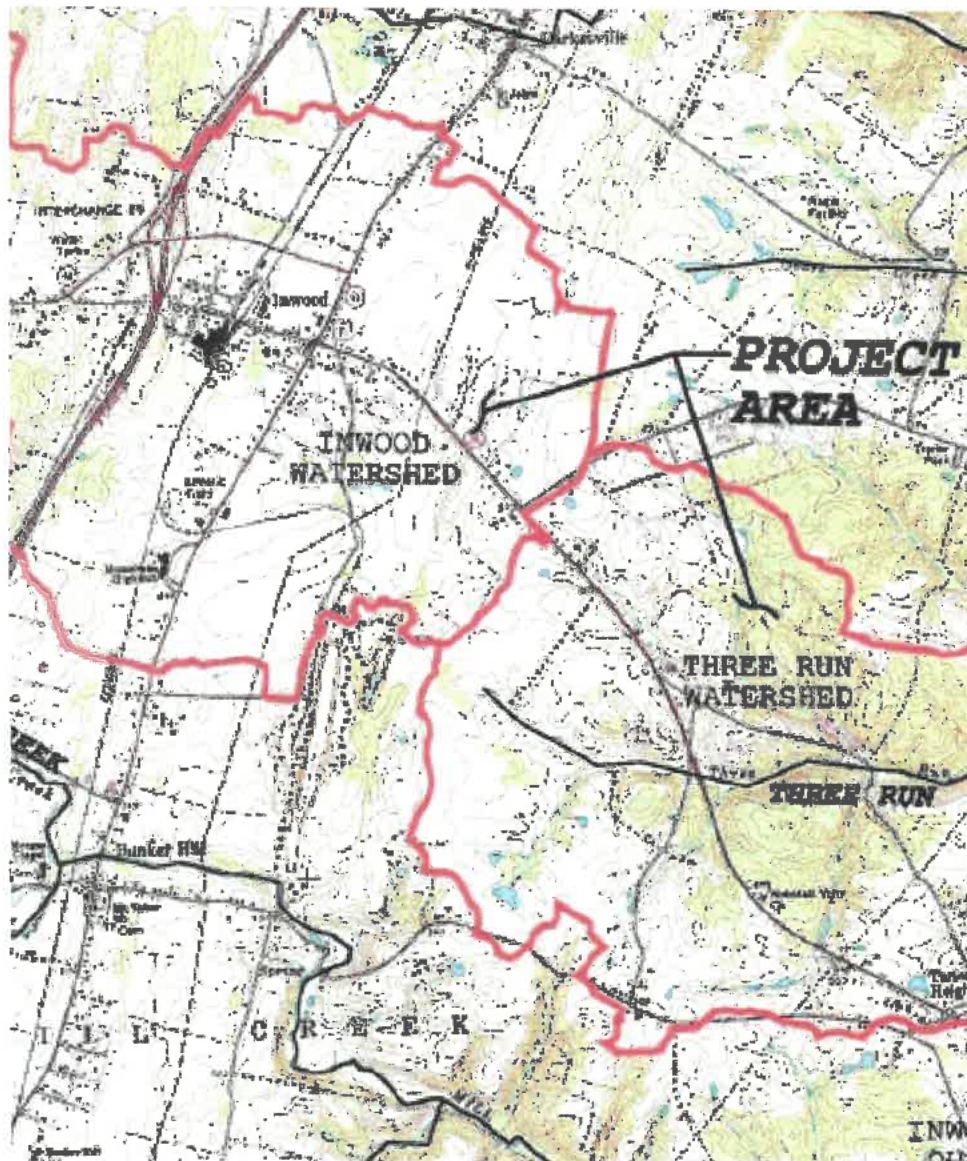
#### Client Contact:

Mr. Curtis Keller, General Manager  
65 District Way | Martinsburg, WV 25404  
304-263-8566

Thrasher has recently worked with the Berkeley County Public Service Storm Water District to address stormwater runoff from privately owned industrial sites that do not currently have on-site stormwater management. To maintain compliance with the Martinsburg MS4 requirements, the PSSD is working in coordination with private property owners to utilize green infrastructure techniques as a way to manage and treat stormwater runoff. The project is located just north of Martinsburg off Mid Atlantic Parkway, which is a primarily industrial part of town with large acreages of impervious area.

Thrasher performed a watershed analysis of this area and worked with the client to identify potential locations and alternative concept plans where green infrastructure could be implemented. The initial phases of work involved property owner coordination, concept designs, and cost estimates. Thrasher also provided detailed designs, stormwater calculations, permitting, construction documents, and specifications necessary to construct the selected alternatives of these facilities. The final plans for the project have been completed and construction is anticipated to take place in 2021.





### BERKELEY COUNTY COMMISSION Inwood Drainage Study

The Inwood area of Berkeley County has experienced severe flooding for decades as it has no natural drainage basin to relieve storm water due to its location within a large watershed. This watershed has no outlet and no surface discharge of storm water runoff. This is a consequence of the limestone (karst) topography of the area. This topography is characterized by sinkholes, solution cavities, and rapid and large fluctuations of the groundwater table.

Thrasher was hired to conduct a thorough study of the area and develop a preliminary engineering report which included two alternate project approaches. The plans developed included altering the drainage area with a system of culverts, channels and detention basins, along with box culverts.



In 2018, Middlesex Township became a new MS4 permittee.

The 26-square-mile Middlesex Township is northeast of the Borough of Carlisle and approximately 16 miles west of the state's capitol, Harrisburg. The Township is predominately rural and suburban. However, the municipality is the nexus of three major highways, the Pennsylvania Turnpike (I-76), Interstate 83, and US 11. This one-mile corridor is known locally as "the Miracle Mile" and is intensely developed with elevated potential for pollutant discharge that could affect water quality in the local waterways. The "Miracle Mile" represents the core of the MS4-regulated area, which encompasses 4.4 square miles of the Township.

Middlesex Township is in a region underlain by limestone geology that has an abundance of sinkholes and enclosed depressions. The features typical of Karst geology create a direct conduit for surface pollution to enter the groundwater supply. The elevated risk of subsidence makes widely distributed small Green Stormwater Infrastructure (GSI) systems, like the one pictured above, an attractive pollution reduction solution since GSI emulate natural landforms that minimize sinkhole formation and subsequent surface collapse.

The distinctively sinuous Conodoguinet Creek is the principal watercourse of Middlesex Township. The 106-mile long Conodoguinet empties into the Susquehanna River just north of Harrisburg and 7.4 miles of the Conodoguinet traverses the Township. The other named streams within the MS4 discharge to the Conodoguinet and include: (1) Letort Spring Run, a high-quality to exceptional value waterway; (2) Wertz Run; and (3) Hogestown Run. Both Wertz Run and Hogestown Run are impaired by siltation, and Hogestown Run also has nutrient and other impairments, as well.


### MIDDLESEX TOWNSHIP, PA Municipal Separate Storm Sewer System



*Continued on next page...*



Skelly and Loy, Inc. assisted Middlesex Township to prepare and submit the Township's first MS4 permit application including the required Pollutant Reduction Plan PRP, and the firm continues to provide key support in implementing programs and tracking compliance. To date, Skelly and Loy's assistance includes the following MS4 services:

- » MS4 application preparation and submission
  - » GIS mapping of the Township's MS4 outfalls, sewersheds, planning areas and storm sewer system. The Township's MS4 includes 409 inlets, 4.3 miles of stormwater pipe, 14.1 miles of swales, 225 pipe discharges and 64 outfalls to surface waters.
  - » GIS analysis of impervious surfaces within the Township, which serves as the basis for upcoming stormwater management fees.
  - » Pollution Reduction Plan creation using the MapShed computer model to generate existing pollutant loads and rates. The Middlesex pollution reduction projects included seven open channels, one rain garden and a stream restoration to reduce the primary pollutant of concern, sediment, by 124,630 pounds per year.
  - » Development of written plans and support documents for the six MCMs including the following:
    - > Combined Public Education and
    - > Outreach and Public Involvement and Participation Plan (MCM#1 and #2)
    - > Illicit Discharge Detection and
    - > Elimination Program (MCM #3)
    - > Lists of permitted Stormwater Control Measures and updates to the Township's Stormwater Management Ordinance to ensure continuation of ongoing maintenance (MCM#5)
- 
- > Standard Operating Procedures for pollution prevention from Township operations in the MS4 and staff trainings with emphasis on detection of illicit discharges and prevention of pollution during routine maintenance procedures.
  - > Public meetings presentations
  - » Mariner 2 Pipeline Water Quality Grant application and award of \$631,600.00 to construct the MS4 pollutant reduction projects
  - » Annual report preparation
  - » Upcoming dry weather screening of the MS4 outfalls

In a region underlain by limestone geology and pock marked with Karst features (enclosed depressions and sinkholes), Skelly and Loy designed and provided construction consultation for new GSI along a main thoroughfare to Carlisle Borough. The West Trindle Road project features a series of three rain gardens and two vegetated slow-release storage trenches adjacent to the south side of West Trindle Road in South Middleton Township and the Borough of Carlisle. Three rain gardens have been constructed on residential properties surrounding Otto Avenue. The two vegetated slow-release storage systems were constructed in the road right of way in an existing grass strip along the northern frontage of a shopping plaza. The site is the first designed and constructed high-priority project identified by the Letort Springs Run Collaborative Stormwater Project -Phase 2 BMP Site Prioritization.

The Letort Springs Run Collaborative consisted of four municipalities (the Borough of Carlisle, Middlesex Township, North Middleton Township, and South Middleton Township) and one major landowner (the US Army Carlisle Barracks) that banded together to address stormwater flooding, water quality and regulatory compliance. Phase 2, funded jointly by PennDOT and PA DEP in early 2013 responded to the stakeholder-identified stormwater problems within the Letort Spring Run Watershed through assessment of the watershed and prioritization of 90 potential Best Management Practice (BMP) opportunities to resolve those areas of concern.

West Trindle Road is a two-lane state highway (S.R. 0641) that slopes from a high point 0.35 miles east of the project area toward the constructed rain gardens. Approximately 81 acres contribute runoff to the excessively flat project site. The existing stormwater piping system that serves the area has insufficient

### CUMBERLAND COUNTY, PA West Trindle Road Green Stormwater Infrastructure Design



capacity. The combination of the large contributory area, flat topography and undersized conveyance system led to flooding of the road in even short, but intense, storm events. The extent of road inundation results in hazardous driving conditions that mandate intervention.

PennDOT, who championed the Letort Springs Run Collaborative Stormwater Project - Phase 2 BMP Site Prioritization project, seized the opportunity to solve the flooding problem using GSI in lieu of a strictly traditional stormwater piping solution. PennDOT is also a non-traditional Municipal Separate Storm Sewer System (MS4) permittee, a permit which requires

*Continued on next page...*



reduction of pollutants in stormwater runoff with special emphasis on decreasing sediment, phosphorus, and nitrogen loads. GSI provides filtration effective for this purpose, and the West Trindle Road project removes approximately 600 pounds of sediment, 5 pounds of nitrogen and 0.2 pounds of phosphorus per year.

The design featured a combination of GSI and traditional methods to accomplish the dual goals of flood reduction and water quality enhancement. The first inch or so of rain (first flush) is captured in the shallow rain gardens and is directed through filtration media or infiltrated into the soil below.

Each rain garden is equipped with a riser pipe that diverts excess runoff to the existing stormwater piping system. In addition to the removal of pollutants from the runoff, appreciable reduction in the severity and duration of flooding is expected.

The West Trindle Road project was particularly challenging. There are numerous underground utility conflicts including sanitary sewer mains and service laterals, domestic water mains and service laterals, a large underground water meter pit, gas lines and laterals, underground telephone, and unusual configurations and locations of the existing stormwater piping system. Additionally, the project is located in two municipalities; three of the rain gardens straddle public right-of-way and private residential parcels; and all proposed stormwater facilities required coordination and consent from the affected landowners and municipal officials.

Along with design, construction cost estimating, specifications, and pollutant reduction calculations, Skelly and Loy provided geotechnical investigations by a certified soil scientist (soil profile description and double-ring infiltrometer testing), before and after graphic exhibits for coordination with the stakeholders and adjacent landowners, and assistance with property owner and municipal outreach. Skelly and Loy also performed construction stakeout and construction oversight for the three rain gardens and two vegetated slow-release storage trenches.



### **12.E.1 – Provide names and number of projects.**

Thrasher has a long history of success in publicly funded projects. We have a strong track record of assisting clients through the funding process, including on the following projects:

1. Town of Bath Washington & Fairfax Streetscape
2. Town of Bath Green Infrastructure Study
3. Beckley Sanitary Board, Various Stormwater and Green Infrastructure Projects

### **12.E.2 – Provide an example funding source and application package for a GI project.**

Thrasher assisted the Town of Bath in securing funding for a streetscape project to completely re-do the public right-of-ways of Washington and Fairfax Street. The grants for the project came from multiple sources, including Alternative Transportation funds administered by the WVDOH and green infrastructure funds administered by the Chesapeake Bay Foundation. Following construction of this project and completion of the Town of Bath Green Infrastructure Plan, funding was also received by the Town of Bath from the Green Streets, Green Jobs, Green Towns program administered by the USEPA, Chesapeake Bay Trust, and Maryland Department of Natural Resources. More details can be found at <https://cbtrust.org/wp-content/uploads/13895-Town-of-Bath-One-Pager.pdf>

### **12.E.3 – Provide a detailed description of the methodology to be used to identify and apply for GI funding as per EOI.**

Thrasher has significant experience in helping municipal clients find funding for projects. Our Water Resources team works with utility providers and municipalities all over the state to secure state and federal funding for infrastructure development. We rely on our solid relationships with the Regional Planning and Development Councils across West Virginia to work together for our communities to find ways to get projects funded. Internally, our business development department tracks funding opportunities and finds ways to apply them to our clients' specific needs. Much of the work we do as a company is an investment in the future of our state and the communities where we live and work. An overview of our funding success can be found later in this section.

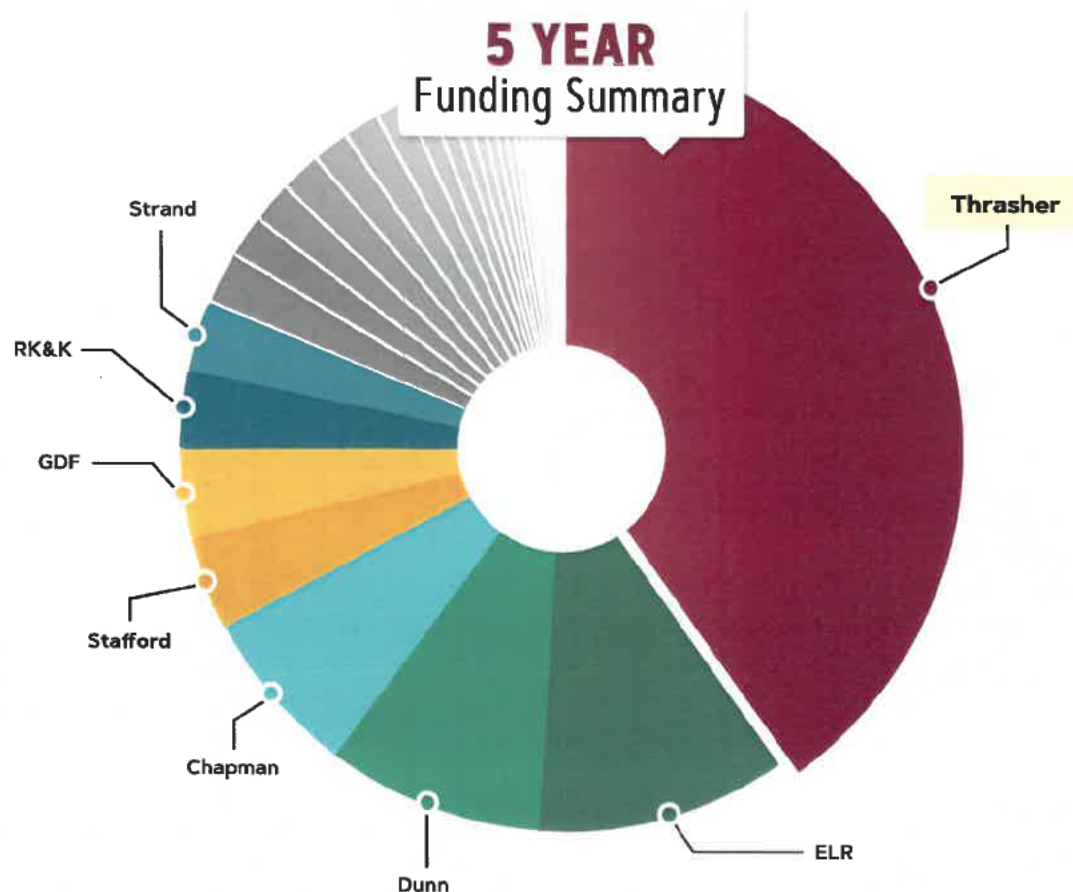


Over the last five years **40%** of West Virginia public funding has been awarded to Thrasher clients



**Thrasher has the most experience within the region working directly with funding agencies:**

US Economic Development Administration (USEDA) Grants, USDA Rural Utilities Services (USDA RUS), Small Cities Block Grant (SCBG), Infrastructure Council, WV Department of Environmental Protection, WV Bureau of Public Health, Drinking Water Treatment Revolving Fund (DWTRF), and Private Funding



Throughout the years, Thrasher has mastered the art of funding projects. Our Project Managers understand the importance of finding the most cost efficient funding for our clients' projects. More importantly, we know that securing funding is competitive. As a service to our clients, we work closely with the Regional Planning and Development Councils, as well as project administrators and the various funding agencies.

The Malden Public Service District's wastewater treatment plant was originally constructed in 1980 and provides wastewater treatment to approximately 3,600 customers. Due to its age, the treatment plant had reached the end of its useful life in terms of both hydraulic capacity and treatment technology and was suffering severe inflow and infiltration problems. Additionally, the plant was not in compliance with a West Virginia Department of Environmental Protection Consent Decree, as it discharged some of its flow directly into Campbells Creek.

Thrasher was selected to provide engineering and construction services for Malden's project, preparing a Facility Plan and evaluating three treatment alternatives that would meet the Consent Decree requirements. To make the plant a modern, effective, compliant facility, Thrasher led Malden PSD through a series of changes.

Today, the Malden Public Service District Wastewater Treatment Plant is a state-of-the-art, operator-friendly facility capable of treating a wide range of wastewater flows while meeting effluent limits required by their NPDES discharge permit. To achieve all of the objectives required by the Consent Decree issued by the WVDEP, the 38-year-old wastewater plant was upgraded to a VLR treatment process featuring a SmartBNR control system for optimum operation efficiency. The upgrade included eliminating a permitted raw sewage overflow, increasing the hydraulic capacity, and reducing inflow and infiltration within the existing collection system. The work done on this project not only made for a beautiful, functional system, it will have a positive impact on the environment in the area.

### MALDEN PUBLIC SERVICE DISTRICT I&I Reduction and Wastewater Plant Upgrades

#### Client Contact:

Mr. Josh Jeffery, General Manager  
PO Box 35 | Tad, WV 25201  
304-925-6997







### CITY OF PADEN CITY Sewer System Upgrade

#### Client Contact:

Mr. Josh Billiter, Director of Public Works  
208 West Main Street, Paden City, WV 26159  
304-337-8581

The City of Paden City needed to upgrade their existing sewer system due to the aging infrastructure of the sewer lines. The City needed to minimize combined sewer systems that impact the efficiency at the wastewater treatment facility by separating sanitary and sewer lines. This approach also impacted the water quality, as it minimized the combined sewer overflows that carry waste discharge into the Wetzel and Tyler Counties' access to the Ohio River during high-intensity rain and other isolated events. The City hired Thrasher to be the engineer of record to address these issues.

**After a preliminary investigation, Thrasher concluded that the City had to:**

- » Remove and replace approximately 6,000 linear feet of gravity sewer line with new 8" PVC sewer line
- » Install approximately 3,000 linear feet of new storm sewer pipe to divert storm water from the sewer system
- » Remove and replace twelve (12) existing sanitary manholes
- » Replace approximately 6,000 linear feet of 4" PVC service lateral piping in City
- » Add new headworks unit at wastewater treatment plant





### CITY OF WESTON SANITARY BOARD

#### Emergency Forcemain and Pump Station Upgrades

##### Client Contact:

Ms. Dee Evans, Manager

171 Main Avenue | Weston, WV 26452

304-269-1300

Thrasher undertook this emergency forcemain and pump station project after a critical deep line failed in Weston's existing sanitary sewer system. The line failure was causing several serious overflows, and an emergency fix was necessary for Weston's customers. The Thrasher team analyzed the situation and developed the most feasible solution given the very limited budget available to the City. Weston had already patched a different section of line before this failure, so funds were tight and the timeline was aggressive.

Thrasher's team designed a creative solution to utilize an existing pump station to bypass the failed line. Also, an existing forcemain was incorporated into the solution to ensure adequate pressure was maintained. The team's resourceful plan enabled the City of Weston to continue serving its customers with safe sanitary service.





**13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR GI DEVELOPMENT PROJECTS** (Insert additional copies as necessary)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	In field of expertise	In GI-related projects
Riley, Chad M.   Principal	26	12

**Brief Explanation of Responsibilities**

Chad Riley, PE has served in a variety of capacities at Thrasher over the years. As a Project Executive, he currently oversees high-level work all across the company, but has a particular specialty in industrial, business, and multi-use developments across the Mid-Atlantic region. Chad has been heavily involved in dozens of economic development projects throughout the state and continues to keep a pulse on the influx of growth in West Virginia.

**EDUCATION (Degree, Year, Specialization)**

Bachelor of Science, 1995, Civil Engineering

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**

WV Economic Development Council Member  
WV State Design Build Board  
WV Nature Conservancy Member

**REGISTRATION (Type, Year, State)**

Professional Engineer: WV, MD

**13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR GI DEVELOPMENT PROJECTS**

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	In field of expertise	In GI related projects
Rich, Samuel Project Manager	9	7

**Brief Explanation of Responsibilities**

Samuel Rich, PLA is a Project Manager at The Thrasher Group working in the Land Development Market. Sam's role includes overseeing the design process for a variety of land development and planning projects in the commercial, residential, municipal, and industrial sectors. His team works with clients to take projects from the development stages all the way through construction, providing site evaluation, master planning, estimating, project marketing, and final design services.

**EDUCATION (Degree, Year, Specialization)**

Bachelor of Science, 2012, Landscape Architecture

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**

American Society of Landscape Architects

**REGISTRATION (Type, Year, State)**

Professional Landscape Architect: WV, VA

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES **RESPONSIBLE FOR GI DEVELOPMENT PROJECTS** (Insert additional copies as necessary)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	In field of expertise	In GI related projects
Patricia Escoriaza MS4 Specialist	15	15

## Brief Explanation of Responsibilities

Patricia Escoriaza is an established project manager within Thrasher's Land Development Market where she works primarily on-site designs, watershed assessments, stormwater system solutions, and project permitting, providing technical support to watershed regulatory compliance programs, quality control measures, and pollutant reduction practices. . Before she began her career with Thrasher, Patricia spent several years serving in the US Marines, educating her peers in electrical and mechanical engineering, as well as associated safety protocols and procedures.

## EDUCATION (Degree, Year, Specialization)

Bachelor of Science, 2012, Civil Engineering

## MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

American Society of Civil Engineers

## REGISTRATION (Type, Year, State)

Inspection and Maintenance Certification for Stormwater Control Measures, OH program  
WVDOH TRET Level III

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES **RESPONSIBLE FOR GI DEVELOPMENTS PROJECTS**

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	In field of expertise	In GI related projects
Wilkes, Samuel Environmental Scientist	25	5

## Brief Explanation of Responsibilities

Sam Wilkes, LRS, PWS is an Environmental Project Manager within Thrasher's Land Development Market. Sam is a Professional Wetland Scientist and a WVDEP certified Licensed Remediation Specialist. He brings over 23 years of consulting experience as a project manager and senior environmental scientist, providing technical support to watershed management, restoration, natural resource conservation, and hazardous materials programs.

## EDUCATION (Degree, Year, Specialization)

Master of Science, 2003, Environmental Science and Policy; Bachelor of Science, 1996, Earth and Environmental Science

## MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

Society of Wetland Scientists

## REGISTRATION (Type, Year, State)

Professional Wetland Scientist  
Licensed Remediation Specialist



13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR GI DEVELOPMENT PROJECTS (Insert additional copies as necessary)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	In field of expertise	In GI-related projects
Wright, Zachary Municipal Client Liaison	21	21
Brief Explanation of Responsibilities		
<p>Zachary Wright is a veteran Project Manager with 20 years of experience preventing and correcting environmental and water compliance issues. Zachary has vast experience working with regulatory agencies such as WV DEP, EPA, the Army Corps of Engineers and others finding solutions that work for both his clients and the agencies. Additionally, Zachary has helped clients negotiate, comply with, and execute the work required by consent agreements related to NPDES and other violations at numerous locations up and down the Mid-Atlantic.</p>		
EDUCATION (Degree, Year, Specialization)		
MBA, 2020, Project Management; Master of Science, 2005, Information Management; Bachelor of Science, 2001, Mathematics		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS		REGISTRATION (Type, Year, State)
n/a		n/a

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR GI DEVELOPMENT PROJECTS

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	In field of expertise	In GI related projects
Cook, Sarah Project Coordinator	5	3
Brief Explanation of Responsibilities		
<p>Sarah Cook serves as an Environmental Scientist and Project Coordinator in Thrasher's Water Resources Market. She brings a background in the public utility sector, having worked on numerous water, sewer, and stormwater projects in her career. She provides environmental and engineering support for clients by assisting with project planning initiatives, including scopes of work, proposals, and cost estimates. Sarah works directly with Thrasher's team of engineers to prepare and review funding applications, permit documents, geological studies, preliminary engineering reports, and other engineering reports.</p>		
EDUCATION (Degree, Year, Specialization)		
Master of Science, 2019, Geology and Environmental Science; Bachelor of Arts, 2016, Environmental Geoscience		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS		REGISTRATION (Type, Year, State)
Water Environment Federation, WV Water Environment Association, Pittsburgh Collaboratory for Water		n/a

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES **RESPONSIBLE FOR GI DEVELOPMENT PROJECTS** (Insert additional copies as necessary)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	In field of expertise	In GI-related projects
Gola, Jeff Civil Engineer	23	12
<p>Brief Explanation of Responsibilities</p> <p>Jeff Gola, PE is an integral part of The Thrasher Group's Land Development Market. He has accrued more than 20 years of experience in the design and construction of public works projects. In that time, Jeff has been a part of a variety of project types, including sidewalks, dams, bridges, roadways, stormwater systems, and retaining walls. He has dedicated much of his career to understanding the structural design elements that govern these infrastructure projects and takes a methodical design process to ensure his work takes these elements into account so that his projects remain safe, stable, and secure throughout their use.</p>		
<p>EDUCATION (Degree, Year, Specialization)</p> <p>Bachelor of Science, 1998, Civil Engineering</p>		
<p>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS</p> <p>American Society of Civil Engineers American Society of Highway Engineers</p>		<p>REGISTRATION (Type, Year, State)</p> <p>Professional Engineer: WV, MD</p>

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES **RESPONSIBLE FOR GI DEVELOPMENT PROJECTS**

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	In field of expertise	In GI related projects
Handley, Heidi Outreach Specialist	10	n/a
<p>Brief Explanation of Responsibilities</p> <p>Heidi Handley, CF APMP has nearly a decade of experience with direct marketing and communications for the engineering, architecture, and construction industry. Through hands on application, Heidi has helped clients of all sizes increase community engagement to create more successful projects. Her knowledge of the A/E consulting world and the Mid-Atlantic region, paired with her marketing and communications background, allows her to effectively garner a high level of project awareness and stakeholder support. From the creation of marketing collateral to the implementation of targeted social media campaigns, Heidi successfully leads a full marketing staff on a vast array of endeavors critical to client success.</p>		
<p>EDUCATION (Degree, Year, Specialization)</p> <p>Bachelor of Arts, 2010, Communication</p>		
<p>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS</p> <p>West Virginia Society for Healthcare Engineering Sponsor Member; Society for Marketing Professional Services</p>		<p>REGISTRATION (Type, Year, State)</p> <p>n/a</p>



13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES **RESPONSIBLE FOR GI DEVELOPMENT PROJECTS** (Insert additional copies as necessary)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE		
	In field of expertise	In GI-related projects	
Lower, Michael Environmental Engineer	25	18	

## Brief Explanation of Responsibilities

Mr. Lower has been actively involved in numerous stormwater planning and retrofit projects for the purposes of improving water quality, managing rates of stormwater runoff, sequestering sediment, treating pollutant loads, and meeting MS4 and TMDL requirements. He participates in all levels of the projects, from initial site assessment into concept design and coordination with approving agencies through final design and construction. Mr. Lower is adept with the most up-to-date engineering and hydrology/hydraulics software programs such as AutoCAD, HEC-RAS, HECHMS, WinTR-55, SSA, HY-8, and Microsoft Office products.

## EDUCATION (Degree, Year, Specialization)

Bachelor of Science, 1996, Chemical Engineering

## MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

Society of American Military Engineers

## REGISTRATION (Type, Year, State)

Professional Engineer: PA and MD

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES **RESPONSIBLE FOR GI DEVELOPMENT PROJECTS**

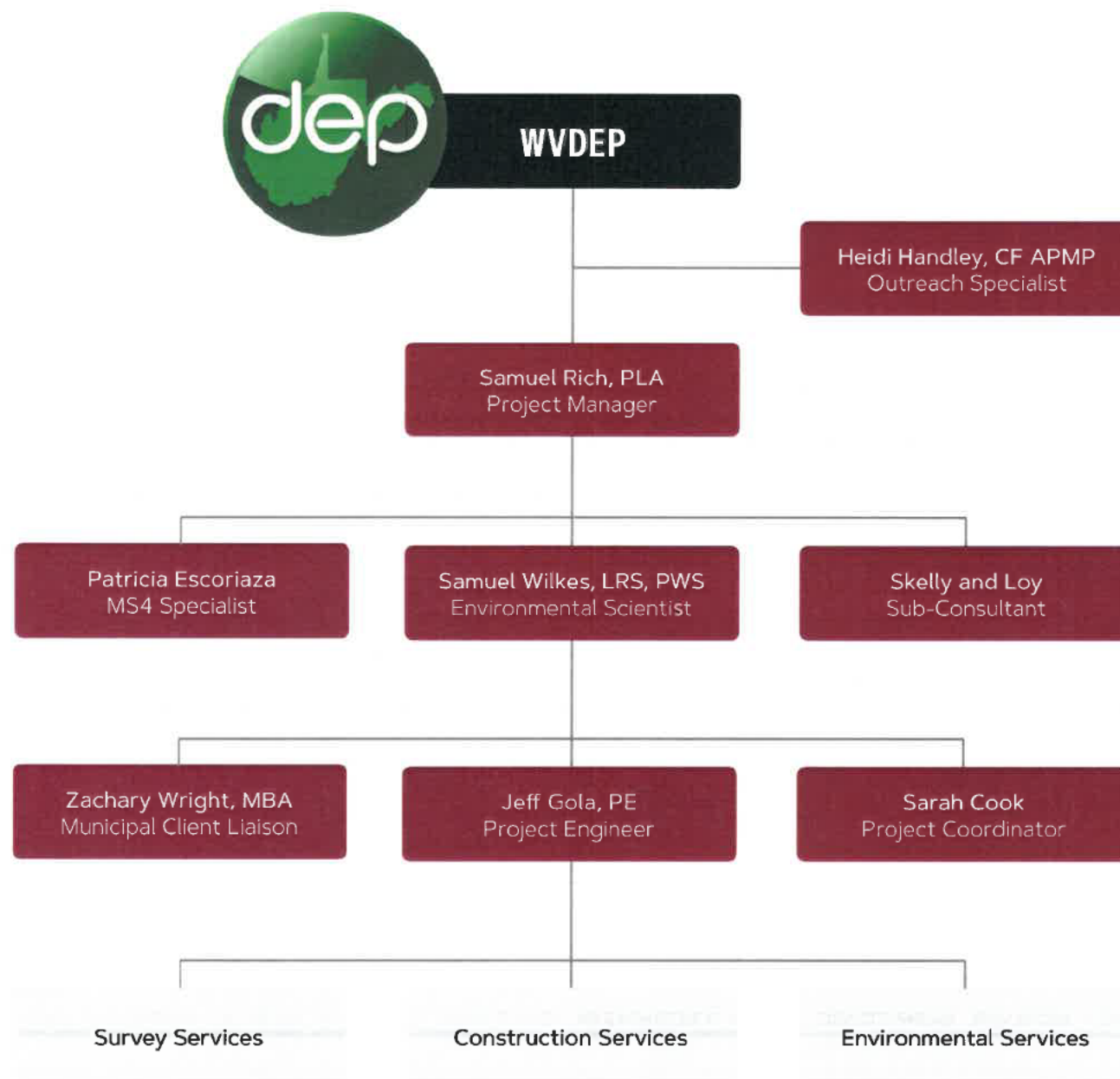
NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE		
	In field of expertise	In GI related projects	
Longenecker, Gerald Senior Principal	40	25	

## Brief Explanation of Responsibilities

A licensed Professional Engineer, Mr. Longenecker has 40 years of experience in the environmental consulting field. This experience has been gained through the management and technical participation in a broad range of projects including stormwater management, stream restoration, watershed assessments, solid waste handling, industrial and sanitary wastewater treatment, dam safety, water resources engineering, and wetland-related evaluations. As a Senior Principal and Department Manager, Mr. Longenecker directs all of Skelly and Loy's engineering services.

## EDUCATION (Degree, Year, Specialization)

Master of Science, 1980, Agricultural Engineering; Bachelor of Science, 1979, Agricultural Engineering





## Project Manager



### Education

Bachelor of Science,  
Landscape Architecture  
West Virginia University

### Registrations

Professional Landscape  
Architect:

- > West Virginia  
#413
- > Virginia

### Affiliations

- > American Society of  
Landscape Architects

Samuel Rich, PLA is a Project Manager at The Thrasher Group working in the Land Development Market. Sam's role includes overseeing the design process for a variety of land development and planning projects in the commercial, residential, municipal and industrial sectors. His team works with clients to take projects from the development stages all the way through construction, providing site evaluation, master planning, estimating, project marketing and final design services. Visualizing and evaluating design alternatives is one of Sam's specialties, enabling him to effectively communicate what a client's project will look like and how it will function long before the finished product is constructed.

In addition to master planning for specific sites, Sam has worked on several projects that have a more regional or community-based planning focus. He has experience with multiple industrial site selection projects, as well as regional recreational trail and water access planning initiatives. In addition to these regional projects, Sam has managed several projects with a focus on Downtown or City-wide beautification efforts in communities of various sizes.

### Experience

#### Town of Bath Green Infrastructure Study

Role: Project Manager

- > Morgan County, WV

#### Town of Bath Streetscape Projects

Role: Landscape Architect

- > Morgan County, WV

#### City of Beckley Fire Station #3 Rain Garden

Role: Landscape Architect

- > Raleigh County, WV

#### WVU Medicine Parking Lots

Role: Landscape Architect

- > Monongalia County, WV

#### Boy Scouts of America Tillerson Leadership Center Rain Garden

Role: Landscape Architect

- > Fayette County, WV

#### Boy Scouts of America New River Trek Master Plan

Role: Landscape Architect

- > Summers, Raleigh, and Fayette Counties, WV

#### I-68 Sheetz Rain Garden

Role: Landscape Architect

- > Monongalia County, WV

#### City of Nitro Landscape Master Plan

Role: Project Manager

- > Kanawha County, WV

#### Beckley Sanitary Board Rain Garden

Role: Landscape Architect

- > Raleigh County, WV

Environmental Scientist



## Education

Master of Science  
Environmental Science & Policy  
Johns Hopkins University

Bachelor of Science,  
Earth & Environmental Science  
Wilkes University

## Registrations

- > Professional Wetland Scientist
- > Licensed Remediation Specialist

## Affiliations

- > Society of Wetland Scientists

Sam Wilkes, LRS, PWS is an Environmental Project Manager within Thrasher's Land Development Market. Sam is a Professional Wetland Scientist and a WVDEP certified Licensed Remediation Specialist. He brings over 23 years of consulting experience as a project manager and senior environmental scientist, providing technical support to watershed management, restoration, natural resource conservation, and hazardous materials programs. Sam is experienced at providing project oversight and managing field teams and contractors collecting wetland, stream quality, environmental media data, and general site condition data for site characterization. He regularly interacts with his clients and manages project budgets and staffing plans, while providing quality control review of project deliverables. Sam understands the importance of delivering projects on time and providing a proactive management style to his clients.

## Experience

### WVDEP Nonpoint

#### Source Program: Piney Creek Watershed Implementation Plan

Role: Project Manager  
> Raleigh County, WV

### WVDEP TMDL Division: Total Maximum Daily Load Development

Role: Environmental Scientist  
> Various Locations, WV

### WVDEP TMDL Division:

#### Upper Kanawha Ionic Strength TMDLs

Role: Project Manager  
> Kanawha County, WV

### WVDEP TMDL Division: Trout Water Iron/ Sedimentation Special Modeling Study

Role: Environmental Scientist  
> Various Locations, WV

### USEPA Conductivity Benchmark Research

Role: Environmental Scientist  
> Various Locations, WV

### Raleigh County Commission

#### Clear Fork Rails to Trails

Role: Project Manager  
> Raleigh County, WV

### City of Bluefield, Exit 1 Site Development

Role: Project Manager  
> Mercer County, WV

### Coalfield Development Corporation Black Diamond Property WVVRP Site Remediation

Role: Project Manager  
> Cabell County, WV

### Kanawha County Regional Transportation Authority

Role: Project Manager  
> Kanawha County, WV



MS4 Specialist



## Education

Bachelor of Science  
Civil Engineering  
Fairmont State University

Associates of Architectural  
Engineering Technology  
Penn State University

Degree of Humanities/Arts  
University of Puerto Rico

## Certifications

- > Transportation Engineering  
Technician WVDOH TRET  
Level III

Patricia Escoriaza is an established project manager within Thrasher's Site Division where she works primarily on-site designs, stormwater system solutions, and project permitting, providing technical support to watershed regulatory compliance programs, quality control measures, and pollutant reduction practices. Before she began her career with Thrasher, Patricia spent several years serving in the US Marines educating her peers in electrical and mechanical engineering, as well as associated safety protocols and procedures.

Currently, Patricia is working with a talented team of in-house engineers to oversee multiple projects for both public and private clientele throughout the region. She is actively involved in the development of various site plans, grading plans, erosion and sediment control measures, CADD drawings, project specifications, and mapping. Patricia is able to utilize her impressive educational background and field experience with the United States military to deliver her clients thorough project solutions.

## Experience

### City of Oak Hill MS4 Permit

Role: Project Manager

- > Fayette County, WV

### City of Mount Hope MS4 Permit

Role: Project Manager

- > Fayette County, WV

### City of Weirton MS4 Permitting

Role: Project Manager

- > Hancock County, WV

### City of Fayetteville 3,566-Acres NPDES MS4 Permit and On-Call Consulting

Role: Project Manager

- > Fayette County, WV

### City of Clarksburg 6,332-Acres NPDES MS4 Permit and On-Call Consulting

Role: Project Manager

- > Harrison County, WV

### City of Westover MS4 Consulting

Role: Project Manager

- > Monongalia County, WV

### WestRidge Development 1,000-Acres NPDES Permit, Site Design Drainage, and Engineering

Role: Project Manager

- > Monongalia County, WV

### Fairmont State University MS4 Permit Program Consulting

Role: Project Manager

- > Marion County, WV

### City of Richwood Oakford Avenue Stormwater FEMA Rehabilitation

Role: MS4 Specialist

- > Nicholas County, WV

## Civil Engineer



### Education

Bachelor of Science,  
Civil Engineering  
West Virginia University

### Registrations

Professional Engineer:  
> West Virginia  
> Maryland

### Affiliations

> American Society of Civil  
Engineers  
> American Society of Highway  
Engineers

Jeff Gola, PE is an integral part of The Thrasher Group's Land Development Market. He has accrued more than 20 years of experience in the design and construction of public works projects. In that time, Jeff has been a part of a variety of project types, including sidewalks, dams, bridges, roadways, stormwater systems, and retaining walls. He has dedicated much of his career to understanding the structural design elements that govern these infrastructure projects and takes a methodical design process to ensure his work takes these elements into account so that his projects remain safe, stable, and secure throughout their use.

In addition to his public works projects, Jeff is also highly experienced in the transportation world. He has built a large portfolio of these projects over the years, having been involved in more than \$100 million worth of critical transportation infrastructure. He has worked alongside the West Virginia Division of Highways for 17 years and has also become an expert in airport design and construction, working directly with the Federal Aviation Administration.

### Experience

#### Town of Bath Green Infrastructure

Role: Project Engineer  
> Morgan County, WV

#### City of Bridgeport Philadelphia Avenue Green Infrastructure

Role: Project engineer  
> Harrison County, WV

#### WVDOH Mineral Wells to Pettyville Upgrades Green Infrastructure

Role: Lead Engineer  
> Wood County, WV

#### McDonald's Restaurant Drainage Study and Stormwater Study

Role: Project Manager  
> Harrison County, WV

#### Fairmont State University MS4 Permitting

Role: Project Engineer  
> Marion County, WV

#### WVU Medicine Lot J82 Green Infrastructure

Role: Project Manager  
> Monongalia County, WV

#### WVU Medicine Women's and Children's Hospital Site Development and Green Infrastructure

Role: Project Engineer  
> Monongalia County, WV

#### WVU Medicine Hospital Parking Garage Expansion and Green Infrastructure

Role: Project Manager  
> Monongalia County, WV



## Licensure Verification

### Search: Details

Name:	JEFFREY L. GOLLA
WV Professional Engineer:	PE License Number: [REDACTED]
	PE License Status: Active
	PE Issue Date: 05/30/2003
	PE Expiration Date: 12/31/2022
Continuing Education Claim:	Qualifying Hours from Last Renewal or Reinstatement: 45.00
	Carryover Hours for Next Renewal: 15.00
	Last Renewal or Reinstatement Date*: 12/26/2020
WV Engineer Intern:	EI Certification Number: [REDACTED]
	EI Issue Date: 07/01/1998
Primary Address of Record:	[REDACTED]
Primary Employer of Record:	THE THRASHER GROUP, INC. 600 WHITE OAKS BOULEVARD PO BOX 940 BRIDGEPORT, WV 26330

\* This date reflects the most recent license renewal (or reinstatement) date for this licensee. Continuing education hours earned prior to this date may not be used for future renewals.

## Municipal Client Liaison



### Education

Master of Business  
Administration,  
Project Management  
West Chester University

Master of Science,  
Information Management  
Marshall University

Bachelor of Science,  
Mathematics  
Concord University

Zachary Wright is a veteran Project Manager with 20 years of experience preventing and correcting environmental and water compliance issues. Zachary has vast experience working with regulatory agencies such as WV DEP, EPA, the Army Corps of Engineers and others finding solutions that work for both his clients and the agencies. Additionally, Zachary has helped clients negotiate, comply with, and execute the work required by consent agreements related to NPDES and other violations at numerous locations up and down the Mid-Atlantic.

Zachary exhibits experience in design and construction related to stormwater, wastewater and other projects. His all-around understanding, from planning, design, and funding to bidding and execution, makes Zachary an asset to any project.

### Experience

#### Town of Rainelle Storm Drain System

Role: Project Engineer  
> Greenbrier County, WV

#### Beckley Sanitary Board Pinecrest Stormwater Improvements

Role: Project Manager  
> Raleigh County, WV

#### Beckley Sanitary Board Whitestick Stormwater Improvements

Role: Project Manager  
> Raleigh County, WV

#### Beckley Sanitary Board Stratton Stormwater Improvements

Role: Project Manager  
> Raleigh County, WV

#### Beckley Sanitary Board Robert C. Byrd Drive Stormwater Improvements

Role: Project Manager  
> Raleigh County, WV

#### Town of Fayetteville Lively Street Drainage Improvements

Role: Project Manager  
> Fayette County, WV

#### City of Mount Hope MS4 Permitting

Role: Project Manager  
> Fayette County, WV

#### City of Ronceverte General Services

Role: Project Manager  
> Greenbrier County, WV

#### Town of Fayetteville MS4 Development

Role: Project Manager  
> Fayette County, WV



Project Coordinator/Environmental Scientist



## Education

Master of Science,  
Geology and Environmental  
Science  
University of Pittsburgh

Bachelor of Arts,  
Environmental Geoscience, West  
Virginia University

## Affiliations

- > Water Environment Federation (WEF) Students and Young Professionals Committee
- > Water Environment Federation (WEF) Water Leadership Institute
- > West Virginia Water Environment Association
- > Pittsburgh Collaboratory for Water
- > Geological Society of America

Sarah Cook serves as an Environmental Scientist and Project Coordinator in Thrasher's Water Resources Market. She brings a background in the public utility sector, having worked on numerous water, sewer, and stormwater projects in her career. She provides environmental and engineering support for clients by assisting with project planning initiatives, including scopes of work, proposals, and cost estimates. Sarah works directly with Thrasher's team of engineers to prepare and review funding applications, permit documents, geological studies, preliminary engineering reports, and other engineering reports. She also has notable experience in data processing, hydrologic modeling, technical writing, and scientific research. Sarah's understanding of hydrology and passion for the water industry empowers her to work on a variety of projects at Thrasher.

## Experience

### Town of Rainelle Storm Drain System

Role: Project Engineer  
> Greenbrier County, WV

### Beckley Sanitary Board Pinecrest Stormwater Improvements

Role: Environmental Scientist  
> Raleigh County, WV

### Beckley Sanitary Board Whitestick Stormwater Improvements

Role: Environmental Scientist  
> Raleigh County, WV

### Beckley Sanitary Board Stratton Stormwater Improvements

Role: Environmental Scientist  
> Raleigh County, WV

### Beckley Sanitary Board Robert C. Byrd Drive Stormwater Improvements

Role: Environmental Scientist  
> Raleigh County, WV

### Town of Fayetteville Lively Street Drainage Improvements

Role: Project Coordinator  
> Fayette County, WV

### City of Mount Hope MS4 Permitting

Role: Environmental Scientist  
> Fayette County, WV

### City of Wellsburg Storm Sewer Improvements

Role: Project Coordinator  
> Brooke County, WV

### Village of Beech Bottom Storm Sewer Lines

Role: Project Coordinator  
> Brooke County, WV

### Beckley Sanitary Board GIS Comprehensive Sewer and Stormwater System Mapping

Role: Environmental Scientist  
> Raleigh County, WV

Public Outreach Specialist



## Education

Bachelor of Arts,  
Communications  
Fairmont State University

## Certifications

- > Foundations Certification  
– Association of Proposal  
Management Professionals

## Affiliations

- > West Virginia Society for  
Healthcare Engineering  
Sponsor Member
- > Society for Marketing  
Professional Services

Heidi Handley, CF APMP has nearly a decade of experience with direct marketing and communications for the engineering, architecture, and construction industry. Through hands on application, Heidi has helped clients of all sizes increase community engagement to create more successful projects. Her knowledge of the A/E consulting world and the Mid-Atlantic region, paired with her marketing and communications background, allows her to effectively garner a high level of project awareness and stakeholder support. From the creation of marketing collateral to the implementation of targeted social media campaigns, Heidi successfully leads a full marketing staff on a vast array of endeavors critical to client success.

## Experience

### City of Lewisburg New Fire Station

Role: Outreach Specialist  
> Greenbrier County, WV

**Greenbrier County  
Board of Education  
New Alderson Elementary**  
Role: Outreach Specialist  
> Greenbrier County, WV

### Town of Williamsport General Engineering

Role: Social Media Outreach  
> Washington County, MD

### Pike County ATV Trail System Conceptual Master Planning

Role: Public Meeting Presentations  
> Pike County, KY

### Davis Health Systems Architecture and Engineering Various Projects

Role: Client Liaison  
> Randolph County, WV

**Clarksburg Water Board Public Relations**  
Role: Public Relations Specialist  
> Harrison County, WV

**Yeager Airport Architecture and  
Engineering Various Projects**  
Role: Client Liaison  
> Kanawha County, WV

Senior Principal/Department Manager - Engineering



## Education

M.S., Agricultural Engineering,  
The Pennsylvania State  
University

B.S., Agricultural Engineering,  
The Pennsylvania State  
University

## Registrations

Professional Engineer:

- > West Virginia
- > Pennsylvania
- > New Jersey
- > Maryland
- > Delaware
- > Tennessee
- > North Carolina

## Trainings

- > Rosgen Level I
- > Rosgen Level II
- > Rosgen Level III
- > Rosgen Level IV

A licensed Professional Engineer, Mr. Longenecker has 40 years of experience in the environmental consulting field. This experience has been gained through the management and technical participation in a broad range of projects including stormwater management, stream restoration, watershed assessments, solid waste handling, industrial and sanitary wastewater treatment, dam safety, water resources engineering, and wetland-related evaluations. As a Senior Principal and Department Manager, Mr. Longenecker directs all of Skelly and Loy's engineering services.

**Stormwater Management Overview:** Managed numerous stormwater planning and conceptual management studies, Stormwater NPDES permit compliance, BMP construction inspection and oversight, CSO stormwater separation and MS4 projects. This project experience has included involvement in public meetings and public education and outreach efforts, volunteer coordination efforts, providing assistance to comply with EPA and state regulatory agency compliance audits, developing watershed improvement plans to meet TMDL pollutant reduction targets, performing BMP concept development and prioritization studies and final design/permitting of stormwater BMPs. Design objectives for these BMPs have been to reduce runoff volume, control peak runoff rates, and meet nitrogen, phosphorous and suspended sediment pollutant removal targets. Mr. Longenecker directed the analysis and design of stormwater control facilities where the analysis was focused on evaluating innovative and alternative techniques which would enhance groundwater recharge

while controlling pollutant loads. He has supervised numerous watershed modeling projects using HEC-RAS, SWMM and HEC-HMS models for stormwater retrofit projects and floodplain analysis, AVGWLF and BayFAST for BMP performance for pollutant removal and developed design bases for culverts and bridge crossings incorporating fluvial geomorphic principles.

## Experience

### West Trindle Road Green Stormwater Infrastructure (GSI) Design

Role: Project Manager

- > Cumberland County, PA

### Fountain Street Stormwater Management

Role: Project Manager

- > Philadelphia, PA

### Harper's Hollow Park Green Streets Construction

Role: Project Manager

- > Philadelphia, PA

### Wakefield Park Green Streets Construction

Role: Project Manager

- > Philadelphia, PA

### Kemble Park Green Stormwater Infrastructure Construction

Role: Project Manager

- > Philadelphia, PA



Senior Principal/Department Manager - Engineering



## Education

B.S., Chemical Engineering, The Pennsylvania State University

## Registrations

Professional Engineer:  
> Pennsylvania

## Trainings

- > Rosgen Level I
- > Rosgen Level II
- > Rosgen Level III
- > Rosgen Level IV

Mr. Lower has been actively involved in numerous stormwater planning and retrofit projects for the purposes of improving water quality, managing rates of stormwater runoff, sequestering sediment, treating pollutant loads, and meeting MS4 and TMDL requirements. He participates in all levels of the projects, from initial site assessment into concept design and coordination with approving agencies through final design and construction. Mr. Lower is adept with the most up-to-date engineering and hydrology/hydraulics software programs such as AutoCAD, HEC-RAS, HECHMS, WinTR-55, SSA, HY-8, and Microsoft Office products. Mr. Lower's scale of project experience also ranges from tight, confined, small-scale projects to county-wide stormwater management planning studies. Mr. Lower also has extensive experience in construction inspection and stormwater facility functionality evaluation. He provides construction oversight to most of his design projects, is adept at permit processing and compliance, and provides expert knowledge and pragmatism to stormwater and water resource projects.

## Experience

### West Trindle Road Green Stormwater Infrastructure (GSI) Design

Role: Engineer-of-Record  
> Cumberland County, PA

### Philadelphia Water Department (PWD) Municipal Stream Restoration and GSI

Role: Project Engineer  
> Philadelphia, PA

### Hunting Park Green Streets Construction

Role: Project Engineer  
> Philadelphia, PA

### Kemble Park GSI Construction

Role: Engineer-of-Record  
> Philadelphia, PA

### Wister's Woods Park GSI Construction

Role: Engineer-of-Record  
> Philadelphia, PA

### Catfish Creek Stream Restoration and Stormwater Management

Role: Engineer-of-Record  
> Washington County, PA

### Letort Spring Run Regional Collaborative Stormwater Management

Role: Project Engineer  
> Cumberland County, PA

### Brightbill Park Stream Restoration and Park Enhancement Plan

Role: Project Engineer  
> Dauphin County, PA

### Stormwater Retrofit Project - Paxton Creek Watershed and Education Association

Role: Project Engineer  
> Dauphin County, PA

## 14. PROVIDE A LIST OF SOFTWARE AND EQUIPMENT AVAILABLE IN THE PRIMARY OFFICE WHICH WILL BE USED TO COMPLETE GI PROJECT DEVELOPMENT SERVICES

Autodesk Civil 3D

US Geological Survey Resources

ESRI ArcMap Suite

Autodesk Infraworks

Adobe Creative Suite

Bluebeam

Trimble Sketchup

Autodesk Revit

Lumion Pro

Microsoft Office Suite

WV Property Viewer

Field Survey Equipment and GPS Units

National Oceanic and Atmospheric Administration Resources

AutoCAD Hydrograph and Express

Storm CAD - Bentley

HEC-RAS Hydrologic engineering Center - Army.mil

Printers and Full-Sized Plotters

15. CURRENT PROJECTS/ACTIVITIES IN WHICH YOUR FIRM IS PRESENTLY INVOLVED				
PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESPONSIBILITY	ESTIMATED PROJECT COST	PERCENT COMPLETE
City of Clarksburg Phase IV Wastewater Plant and Stormwater Separation	City of Clarksburg 222 West Main St. Clarksburg, WV 26301	Designer engineer for improvements/additions to sanitary treatment facility and storm sewer separation	\$7.6 million	85% construction complete
Town of Monongah Phase II Sewer System Improvements	Honorable John E. Palmer 430 Bridge Street Monongah, WV 26554	Improving and adding pump stations, and providing sanitary line replacements	\$4.28 million	95% design complete
Harrison Hills City School District Baseball Fields	Ms. Roxane Harding, Treasurer 100 Huskies Way Cadiz, OH 43907	Land development and architectural work of overall baseball complex with stormwater controls	\$4 million	50% design complete
Mountain Top Beverage Pad Design	Enrout Properties, LLC, 466 Christy Street Morgantown, WV 26505	Land development and E&S design for water controls, stormwater management	\$8 million	100% design complete, construction beginning 8/20/21
North Central West Virginia Airport 100-Acre Industrial Development	Mr. Shawn Long 2000 aviation way, Bridgeport, 26330	Mass earth moving, stormwater controls, ponds and underground detention, and permitting	\$17 million	10% construction complete
City of Beckley Downtown Parking Lots and Green Infrastructure	City of Beckley 409 S Kanawha Street Beckley, WV 25801	Engineering, Landscape Architecture, Construction Management	\$200,000	30% design complete
City of Charleston Slack Plaza Renovations	City of Charleston 501 Virginia St. East, Charleston, WV 25301	Survey, Engineering, Landscape Architecture, Architecture, Bidding	\$3,500,000	50% Construction Complete
TOTAL NUMBER OF PROJECTS: 7+			TOTAL ESTIMATED PROJECT COSTS: \$ 45,000,000+	



16. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS SERVING AS A SUB-CONSULTANT TO OTHERS					
PROJECT NAME, TYPE AND LOCATION	NATURE OF FIRMS RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED COMPLETION DATE	ESTIMATED PROJECT COST	
				ENTIRE PROJECT	YOUR FIRM'S RESPONSIBILITY

N/A

The Thrasher Group serves as the prime consultant on all current related projects.

17. COMPLETED WORK WITHIN LAST 5 YEARS IN WHICH YOUR FIRM WAS THE DESIGNATED FIRM OF RECORD				
PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED PROJECT COST	YEAR	EPA APPROVED?
Town of Bath Streetscape Projects, Streetscape Green Infrastructure, Berkeley Springs, WV	Town of Bath 271 Wilkes St. Berkeley Springs, WV 25411	\$2 million	2016	Yes
Rockwool Access Road, Road Median Bioswales, Ranson, WV	City of Ranson 312 S. Mildred St. Ranson, WV 25438	\$1 million	2019	Yes
City of Beckley Fire Station #3, Rain Garden, Beckley, WV	City of Beckley 409 S Kanawha Street Beckley, WV 25801	\$3 million	2019	Yes
New Parking Lots, Rain Garden, Morgantown, WV	WVU Medicine PO Box 8027 Morgantown, WV 26506	\$1 million	2019	Yes
Erosion and Sediment Controls and Permitting for Natural Gas Distribution Line, Utah	Confidential Client	\$2 million	2020	Yes
Combined Cycle Natural Gas Power Plant, WV	Confidential Client	\$925 million	2020	Yes
Commercial Development Site Design Engineering and Water Quality Drainage BMPs, NPDES Permitting, Inspection and Reporting, WV	Confidential Client	\$57.5 million	2020	Yes
Ashland Resort and Ivy Branch Phase I and II - boat ramp, cabin site development and architecture, resort expansion, WV	Hatfield McCoy Regional Recreation Authority 40 Welcome Center Rd, Logan, WV 25601	\$3.5 million	2020	Yes

18. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM HAS BEEN A SUB-CONSULTANT TO OTHER FIRMS (INDICATE PHASE OF WORK FOR WHICH YOUR FIRM WAS RESPONSIBLE)					
PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF PRIMARY FIRM	ESTIMATED PROJECT COST OF YOUR FIRM'S PORTION	YEAR	EPA APPROVED?	CLIENT NAME AND ADDRESS

N/A

The Thrasher Group serves as the prime consultant on all current related projects.

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the WVDEP's TMDL Program.

The Thrasher Team is highly qualified to perform this work, not only because of our specific technical capabilities, but as an overall package. We have the ability to handle all pieces of this project, with the funding success, software resources, and regional knowledge you need. Above all else, Thrasher will bring an unparalleled knowledge of the project area - with an office in Beckley, projects throughout the watershed, and staff members living in these communities, our team has the regional expertise and personal knowledge to bring your project to life.

20. The foregoing is a statement of facts.

Signature: Chad M. Riley Title: Principal Date: 8/10/2021

Printed Name: Chad M. Riley





# CONSULTING THAT GROWS COMMUNITIES

**THRASHER'S GOT IT**