



***CRANBERRY TOWNSHIP
STORMWATER MODELING (HEC-HMS) AND
DRAINAGE IMPROVEMENT RECOMMENDATIONS
2022 SOUTHWEST REGION - PROPOSAL***

**PREPARED FOR:
CRANBERRY TOWNSHIP
2525 Rochester Road – Suite 400
Cranberry Township, PA 16066**

**February 10, 2022
20220033**

PVE, LLC
Waterfront Corporate Park III – 2000 Georgetown Drive – Suite 101 – Sewickley, PA 15143
Phone: 724-444-1100 - Fax: 724-444-1104

**Stormwater Modeling (HEC-HMS) and Drainage Improvement Recommendations
2022 Southwest Region of Cranberry Township
Request for Proposal**

General

Cranberry Township has experienced significant growth in our community. The rapid growth in the late 1980's, 1990's and 2000's has resulted in the construction of many stormwater management facilities, both public and private. In the 1990's Cranberry Township hired Partridge Engineering, Inc., currently Partridge Venture Engineering, P.C., to develop a Stormwater Management Plan for watershed planning and modeling. The study reviewed and determined the peak flow timing characteristics of the watersheds and established release rates for the area's most sensitive to avoid potential future impacts downstream resulting from construction of detention facilities. Phase 2 of the study used the United States Army Corps of Engineers (U.S.A.C.E.) Hydraulic Engineer Center (HEC)-1 program to create watershed model for areas in and adjacent to the Township.

The HEC-1 model was created using as-built drawings of detention facilities, information on existing piping systems, topographic information to determine storage volumes upstream of road culverts, etc. The development of the model included the following major elements:

- Obtain/develop stage-storage-outflow data for the major stormwater management facilities and primary road crossings within the study areas, including onsite survey work;
- Ran the model for the desired storm frequencies and analyze the results to identify problem areas, which facilities are of little/great value or may not be functioning to their maximum value, etc.
- Prepare a report which summarizes the results of the modeling and associated recommendations.

Recently, Cranberry Township residents located within the southwestern portion of the Township have been experiencing an increase of flooding on their properties. The Township have received stormwater calls and concerns from many of the residents that have lived within this region of Township for years. The residents have reported increase in flooding impacting their properties. To address their concerns the Township is requesting proposals to update a portion of the Stormwater Management Plan prepared by Partridge Venture Engineering dated December 2001.

This project will consist of converting the existing Cranberry Township HEC-1 watershed model for the southwest region of the Township to U.S.A.C.E. Hydrologic Modeling System (HMS). The hydrologic and mapping data shall be updated to match current conditions using the following primary sources of information that the Township will provide:

- Cranberry Township HEC-1 data files
- Autocad subwatershed map
- A topographic map of the area from 2006 Lidar Data Contours
- Aerial photograph of the areas (2020 PAMAP)
- Digitized impervious areas (2016 Aerial Photograph)

This updated stormwater management model and plan will be used to identify where existing facilities can be modified as needed, and if overcontrolling flows will reduce adverse downstream impacts. This plan can also be used to identify inadequate structures, areas most sensitive to flooding, and areas where regional storage may be possible. This model, in conjunction with pertinent watershed information such as obstruction size and capacity, existing flooding areas and potential sites for regional storage, would be used to develop the stormwater plan for the SW region. The goal and objective of this project is to create a HEC-HMS model that will be used to analyze the subwatershed and provide recommendations that will safely reduce the discharge down streams.

Cranberry Township is requesting proposals for Engineering Design Services for the stormwater study with the costs be treated as not to exceed values. Below is a Scope of Work outline which identifies the specific work elements necessary to meet the Township's needs on this project. We would request that you submit a price proposal and schedule to my attention no later than 2:00 PM on **Friday, February 11, 2022** to include the following items:

Scope of Work

Task 1 - Convert Cranberry Township HEC-1 model to HEC-HMS for areas impacting limits of work.

Task 2 – Review and Update HEC-HMS files using current:

- A topographic map (2006 Lidar Data Contours)
- Aerial photograph (2020 PAMAP)
- Digitized impervious areas Cranberry Township (2016 Aerial Photograph)
- CVS Pharmacy As-Built drawings

Task 3 - Field Survey existing watershed BMPs to confirm facilities location, size, condition of stormwater facilities, outlet structure, orifices sizes, outfall pipes.

- Blue Ridge Estates
- Freedom Woods
- Hampshire Woods
- Berkley Manor
- Woodlands

- Cranberry Pointe
- CVS Pharmacy

Task 4 – Conditions assessment of all existing BMPs within watershed

Task 5 – Provide Analysis of existing conditions using new HEC-HMS model running model using Township Design Storms Return Period for : 1-year, 2-year, 10-year, 25-year, 50-year and 100-year using rainfall depths established from NOAA Atlas 14.

Task 6 – Prepare a Stormwater Management Plan report which summarizes the results, conclusions and recommendations of the studies. The report will include recommendations for the plan implementation, including modifications to the existing BMPs located within this watershed, regional storage may be possible, and site plan.

Task 7 – Identify required approvals, permits and site requirements for recommended alternatives.

Task 8 – Engineers opinion of probable cost.

Task 9 – Review funding aspects - evaluate various funding sources.

Deliverables:

Stormwater Management Plan, HEC-HMS data files, site plans, cost estimate shall be provided in a digital form as directed by Township.


Project Schedule

Provide a schedule detailing the completion times of each Task in the Scope of Work.

Quote Price:

Quote must be based on a not to exceed price for completion of the scope of work as outlined above and detailed in the attached Exhibits.

Quote Price - Not to Exceed Amount

| | | |
|---|--------------|----------------------------|
| | TOTAL | \$ <u>39,900.00</u> |
|  | | <u>2/10/2022</u> |
| Company Representative (Signature) | | Date |
| Andrew L. Banfield, P.E. | | |
| Company Representative (Printed) | | |

Please forward the price proposal and schedule to my attention no later than 2:00 PM on **Friday, February 11, 2021**. Submission may either be by mail to my attention at the below referenced address or e-mailed to Tim.Schutzman@cranberrytownship.org If you have any questions, please call me at 724-776-4806 extension 1163.



Timothy J. Schutzman, P.E.
Waterworks Coordinator
Engineering & Environmental Services

Enclosure

I:\Engineering\000 Township Owned Facilities\2022 SW Region SW Comprehensive Study\SW Region Storwater Study.RFP.1-2022.Docx



February 10, 2022

Mr. Timothy J. Schutzman, P.E., Waterworks Coordinator
 Cranberry Township
 2525 Rochester Road
 Suite 400
 Cranberry Township, PA 16066

**Re: Proposal for Survey and Civil Engineering Services
 Stormwater Modeling (HEC-HMS) and Drainage Improvement Recommendations
 2022 Southwest Region of Cranberry Township - RFP**

Dear Tim:

In accordance with your request, PVE-LLC (PVE) is pleased to submit the following Professional Services Fee Proposal for the referenced project. These services would generally include the Survey and Civil Engineering services outlined below for the Stormwater Modeling (HEC-HMS) and Drainage Improvement Recommendations - 2022 Southwest Region of Cranberry Township, Butler County, Pennsylvania.

Project Understanding & Scope of Work

It is our understanding that the work includes the conversion of the existing Township HEC-1 model, prepared by PVE, to a new HEC-HMS model with updates based on recent land use, topography, and drainage conditions. The new model will be run for the Township Design Storms and will provide peak flow rates at various points in the watershed that are deemed critical either hydrologically/hydraulically, or based on previous experience from the Township and its Residents. Using the updated model, potential modifications of existing Stormwater BMP's, or the addition of new BMP's will also be analyzed with respect to their effectiveness, cost/benefit ratio, and their permissibility with County, State, and Federal review agencies. The work also includes the necessary Field Survey services to provide as-built conditions for several existing Stormwater BMP's focusing on storage volume, outlet control structures, and overflow characteristics.

COMPUTER MODEL CONVERSION (RFP Task #1)

Convert existing HEC-1 model to HEC-HMS

- Obtain most recent HEC-1 model from Township for conversion to the latest, stable version of HEC-HMS as provided by the U.S. Army Corps of Engineers Hydrologic Engineering Center. (Version 4.9 as of the date of this proposal)
- Quality check conversion and compare results to existing and original HEC-1 models.
- Address differences that may occur due to the two models' computation architecture.

Austin

Mopac Center
 8611 N. Mopac Expy
 Austin, TX 7875
 512-615-2150

Hartford

Bushnell on the Park
 100 Wells Street, Ste. 2K
 Hartford, CT 06103
 860-522-3970

Houston

3250 Briarpark Dr.
 Suite 140
 Houston, TX 77042
 713-375-1400

Hudson Valley

48 Springside Ave.
 Poughkeepsie, NY 12603
 845-454-2544

Nashville

1475 Columbia Ave.
 Franklin, TN 37046

New York

25 West 39th St.
 12th Floor
 New York, NY 10018
 646-602-4999

San Francisco

535 Mission St.
 14th Floor
 San Francisco, CA 94105
 628-243-6445



REVIEW AND UPDATE HEC-HMS MODEL (RFP Task #2)

Improve HEC-HMS model based on recent data from Township

- Using data provided from the Township including topography and aerial photogrammetry evaluate previous subwatershed divides and change as necessary. Adjust, and or Add, drainage areas and flow combination points in the HEC-HMS model to accurately define today's conditions.
- From the aerial photogrammetry and impervious area maps from the Township, re-evaluate the hydrologic parameters for all Subwatersheds within the Study Area with respect to Runoff Curve Number and Times of Concentration.
- Input as-built information for Stormwater Management BMP's provided by the Township.
- Update or adjust Stormwater Management BMP parameters from the work performed in RFP Task #3.

FIELD SURVEY – (RFP Task #3)

Existing conditions survey to confirm existing locations, sizes, and outlet structures at 7 specific BMP locations:

Blue Ridge Estates, Freedom Woods, Hampshire Woods, Berkley Manor, Woodlands, Cranberry Pointe, CVS Pharmacy (Subsurface)

- All the aforementioned above ground BMP's will have their inundation/impoundment areas detailed with 1 or 2 foot contours depending on the existing conditions found during the survey.
- The outlet control structures, orifices, weirs, riser tops, secondary outlet pipes, and emergency discharge facilities will be detailed with respect to size and elevation as it relates to the overall facility.
- If the facilities have trash racks or other pre-treatment of stormwater these items will be noted.
- The BMP's will each have a site plan showing the information gathered in the field and processed in the office. The plans will be certified (signed & sealed by a licensed PA PLS) and will be provided in digital format for continued maintenance of the new Stormwater Management Model. All work will be done under the direct supervision of a licensed Professional Land Surveyor.
- Coordinates and Bearings will be based on State Plane Coordinate System (PA South Zone) in North American Datum of 1983. The vertical datum will be in NAVD88.

CONDITIONS ASSESSMENT OF EXISTING BMP'S (RFP Task #4)

Field view and inspection of Stormwater Facilities in Watershed

- Using data taken from the updated HEC-HMS model, as well as information on previous developments entered, or not entered into the latest HEC-1 model, a list of Stormwater BMP's to be considered shall be generated.
- Each BMP from the list shall be field inspected and scrutinized for proper function, maintenance issues, safety, and potential for retrofit or upgrade to increase the Stormwater Management value the BMP currently provides.
- Present BMP's for consideration to be entered into the HEC-HMS model and input the data as directed by the Township.

ANALYSIS OF EXISTING CONDITIONS WITH NEW HEC-HMS MODEL (RFP Task #5)

Compute predicted runoff values throughout Watershed

- The HEC-HMS model will be run with the adjustments in RFP Tasks 1 through 4 to establish a current "Existing Conditions" runoff standard. The model will be run using the 1, 2, 10, 25, 50, and 100 year return frequencies which are the current Township Design Storms.



PREPARE STORMWATER MANAGEMENT PLAN REPORT (RFP Task #6)

Report on the results of the revised HEC-HMS model runs

- Prepare a report summarizing the steps taken in the process of updating the HEC-1 model to the new HEC-HMS model.
- Included in the report will be a detailed analysis of changes in Subwatershed boundaries and Hydrologic changes based on updated data. This will provide a written synopsis of the model changes that will be easy to follow for any future updates of the model.
- Recommendations for the implementation and use of the new model will be stated in the report to provide Township staff guidance on any decisions relating to Stormwater Management.
- The report will also detail any modifications or retrofits that may be possible in the Subwatershed that the Township could consider. The viability of these modifications to be utilized in the Township's MS4 program will also be highlighted.
- Opportunities for possible Regional Stormwater Management BMP's will be identified, if available, and conceptual calculations and plans will be provided.

IDENTIFY REQUIRED APPROVALS, PERMITS, AND SITE REQUIREMENTS FOR ALTERNATIVES (RFP Task #7)

Research what permitting would be needed for Regional Alternatives

- Based on potential regional alternatives, or retrofits of existing structures within Waters of the Commonwealth, prepare a list of permits and approvals that would be needed to go forward with the project.
- Provide a confidence factor for each option with respect to the chances of success in obtaining the necessary approvals.
- Generate a list of construction items that would be required for the alternatives or retrofits.
- Provide a general time line for start to finish construction of the alternatives or retrofits.
- These items would be included in the Stormwater Management Plan Report

ENGINEERS OPINION OF PROBABLE COST (RFP Task #8)

Cost estimate for Regional Alternatives or Retrofits.

- A Professional Engineer's opinion on the potential costs for any modifications to Stormwater BMP's in the Study Area will be provided.
- This item will also be included in the Stormwater Management Plan Report.

REVIEW FUNDING ASPECTS AND SOURCES (RFP Task #9)

Report on potential funding sources and amounts.

- Prepare a summary of known funding sources for potential regional BMP alternatives or retrofits in the Study Area.
- Provide information on amounts of funding along with required Township matches that are typical in this type of funding.
- This summary will also be included in the Stormwater Management Plan Report.

EXCLUSIONS

Only the items specifically mentioned above are included under this proposal. Please see the attached "*Exhibit A – LIST OF EXCLUSIONS*" for those services expressly excluded from this proposal. If any of the previous services are required for the project, PVE will provide the Owner with separate proposals or on an hourly rate based upon the most recent **PVE Fee Schedule**. In addition, any fees incurred from the submission of local, state or federal permits will be the responsibility of the Client.



COMPENSATION

| | |
|--|--------------------|
| Fee for Civil Engineering and Survey Services | |
| TOTAL CIVIL ENGINEERING DESIGN AND PERMITTING FEE | \$39,900.00 |

TERMS AND CONDITIONS

Please see the attached "*Exhibit B – STANDARD TERMS AND CONDITIONS*" for the terms and conditions of this proposal.

Kindly review this proposal and get back to us with any questions or comments that you may have. Otherwise, if the terms and conditions of this proposal meet with your approval, please forward authorization to proceed.

This Proposal remains valid for a period of ninety (90) days from the date of the proposal.

We thank you for your time and consideration and look forward to the opportunity to work with you on this project. If you have any questions or require any additional information, please feel free to call.

Very truly yours,
PVE, LLC

A handwritten signature in blue ink, appearing to read 'Andrew L. Banfield'.

Andrew L. Banfield, P.E.
Senior Engineer



**PVE Proposal
AUTHORIZATION TO PROCEED**

IN WITNESS WHEREOF, the parties have caused this Proposal and Agreement to be executed by their duly authorized representatives, on the date and year first above written.

Client: Mr. Timothy J. Schutzman, P.E., Waterworks Coordinator
Cranberry Township
2525 Rochester Road
Suite 400
Cranberry Township, PA 16066

Re: **Proposal for Survey and Civil Engineering Services
Stormwater Modeling (HEC-HMS) and Drainage Improvement Recommendations
2022 Southwest Region of Cranberry Township - RFP**

Signature: _____

Date: _____



EXHIBIT A – LIST OF EXCLUSIONS

Only the items specifically documented within the Proposal Scope are included under this proposal. This proposal expressly excludes the following services, which may or may not be required for the project:

Survey

- ALTA Survey
- Existing Conditions Survey
- Identification of Utilities un-marked by Utility Companies
- Underground Utility Location
- Setting of Property Monuments (new or missing)
- Subdivision or Lot Consolidation Plan
- Creation of Covenants and Restrictions
- Preparation of lease exhibits, legal descriptions, easement agreements, or other similar documents
- Boring Stake-Out
- Title Search
- As-Built Surveys

Environmental

- Historical, archaeological, endangered species, or other similar cultural studies.
Macro Invertebrate and/ or Ecological Stream Assessment Studies and/or Biological and habitat studies
- Wetland Investigations or Studies
Wetland mitigation Plans, Wetland Mitigation Monitoring, Riparian Buffer Permitting and/or Mitigation
- Environmental studies and/or assessments
- Floodway Studies and/or FEMA Map Amendments & Revisions
- FEMA Elevation Certificate
- National Pollutant Discharge Elimination Systems (NPDES), General Permit
- National Pollutant Discharge Elimination Systems (NPDES), Individual Permit

Geotechnical

- Boring Plans
- Geotechnical Investigation or Engineering
- Pavement Design
- Infiltration Tests

Design

- Off-Site Utility Design. This Proposal assumes that all utilities are available at the perimeter of the site.
- Design Documents
- Construction Documents
- Landscape Design
- Entrance Sign Designs and Details
- Irrigation Design
- Site Lighting Plan
- Retaining Wall Design and Details
- Structural Engineering - including walls, foundations, structural slabs, buildings, below grade vaults and structures and other improvements which are intended to carry vertical and horizontal loads
- Structural Design and Analysis for Building Components
- Loading Distribution and analysis of those components supported by Foundations

- Multiple Construction Packages - Preparation of multiple construction packages, such as for phased construction
- Bid Alternates - Preparation of multiple designs and separate construction documentation for add and deduct bid alternates
- Schedule - Extensions to the duration of design or construction phases of work beyond schedule defined in contract
- Selective Structural Demolition Plans
- Design for Future Modification or Expansion

Engineering Approvals

- Work performed for variances, special exceptions, rezoning, and other similar requests for changes to existing municipal regulations
- Floodway Studies and/or FEMA Map Amendments & Revisions
- City of Pittsburgh Contextual Design Advisory Panel (CDAP) Meetings
- Grading Permit
- US Army Corps of Engineers Section 404 Permit (Joint Permit), This proposal anticipates that the project will not encroach on any jurisdictional wetlands, water courses or floodways.

Construction

- Bidding and Negotiation Coordination and Administration Services
- Construction Inspection and/ or Supervision
- Site Earthwork Monitoring, Inspections and Testing

Other

- Expert Opinion Deposition and/or Legal Proceedings Attendance/Document Preparation
- Additional meeting beyond those identified within the scope above
- Perspective Renderings
- Models and Animation - Physical and/or three dimensional digital models and animations are not included in the Scope of Basic Services
- 3D Color Renderings of Site or Buildings
- Filing, Application, Permit, and Review Fees required for the Project
- Substantial redesign necessitated by value engineering after client acceptance of schematic, design development, or construction documentation phases of work.
- Other engineering services not specifically referenced in the Scope of Services
- Marketing Materials - Materials such as brochures, renderings, etc. are not included in this Scope of Services
- Foundation Design
- Deep Foundation Design
- Special Inspections
- Preparation of lease exhibits, legal descriptions, easement agreements, or other similar documents.

If any of the excluded services are required for the project, PVE, LLC. will provide the Owner with separate proposals or on an hourly rate based upon the most recent PVE Fee Schedule.



EXHIBIT B – STANDARD TERMS AND CONDITIONS

The following Standard Terms and Conditions, together with the attached cost proposal constitute the Agreement” between PVE, LLC (Hereinafter referred to as the Consultant) (For purposes of definition, “Consultant” shall include employees of Consultant) and the entity or person to whom the attached proposal is addressed (Hereinafter referred to as the “Client”) for the performance of basic or additional services.

Performance of Services:

PVE, LLC shall provide consulting services as described under this proposal. Consultant shall render such services and deliver the required reports and other deliverables as outlined in this proposal. The Consultant and its employees will exercise the degree of professional skill and care expected by customarily accepted practices and procedures in the same or similar locality and under the same or similar circumstances. No warranties, expressed or implied, are made with respect to the Consultant’s performance, unless agreed to in writing. The Consultant is not a guarantor of the project to which its services are directed, and its responsibility is limited to work performed for the Client. Consultant will make efforts to perform its services under this Agreement in accordance with applicable laws, rules, or regulations applicable to the engineering services to be provided hereunder. Consultant represents that it is the lawful owner or licensee of any software programs or other materials used by Consultant in the performance of the services called for in this Agreement.

The Consultant is not responsible for acts or omissions of the Client, nor for third parties not under its direct control. Nothing contained in this Agreement shall create a contractual relationship with, or cause of action in favor of, a third-party against either the Client or Consultant. The Consultant shall not be liable for any reasons for any special, indirect or consequential damages including loss of use of any premises and loss of profit. The Consultant may rely upon information supplied by the Client engaging the Consultant, or its contractors or sub-consultants, or information available from generally accepted reputable sources, without independent verification. Client warrants that it owns (or otherwise may lawfully use) all right, title, and interest in and to any plans, programs, systems, data, or materials furnished to Consultant hereunder.

Consultant assumes that the Owner will not request or require “Major or Significant” changes to the project design following approval of the Site Layout Plan. Furthermore, consultant assumes that local, state, and federal reviewing agencies will not require “Major or Significant” revisions to the project. Should revisions be required or requested, invoices for additional services will be submitted and time schedules adjusted accordingly. Consultant will develop the plans and/or reports required for the completion of the work included herein. All application fees shall be paid by the Owner.

Payment

The Client is responsible for payment of all charges for the work indicated on the attached proposal. Invoicing for the work included herein will occur monthly based on the percentage of work completed determined by Consultant. Payment is due upon receipt of invoice and interest is applied at a rate of 1.33% per month (16% annually) for accounts over 30 days past due. If payment is not made within 90 calendar days of submission, the Consultant may suspend work until such time as all payments due have been made. All charges will be billed and invoiced; Client shall have ten (10) days from issuance to dispute any charges. If there is no such dispute, the charges will be deemed valid.

Reimbursable Expenses

Travel costs, transportation (mileage at a rate of \$0.60 per mile for wear and tear on vehicle and gas), long distance communications, photocopies, blueprints, photographs, postage, reproduction and shipping charges; rental equipment, laboratory fees, fees advanced on Client’s behalf; cost of parking and tolls will all be billed at cost plus 10%. Back-up information will be provided upon request.

Instruments of Service:

As between Client and Consultant, all right, title, and interest in and to the Instruments of Service, programs, systems, data, or materials utilized or produced by Consultant in the performance of the services called for in this Agreement shall remain the property of Consultant. All right, title, and interest in and to any programs, systems, data, and materials furnished to Consultant by Client are and shall remain the property of Client. Submission or distribution of Instruments of Service to meet official regulatory requirements or for similar purposes in connection with the Project is not to be construed as publication in derogation of the reserved rights of the Consultant. These documents may not be used for any other purpose without the prior written consent of Consultant. In the event Consultant’s documents are subsequently reused or modified in any material respect without the prior consent of Consultant, the Client agrees to fully defend, hold harmless and indemnify Consultant from any claims advanced on account of said reuse or modification.

Electronic Media

The Consultant may agree to provide materials to the Client stored electronically. The Client recognizes that data, plans, specifications, reports, documents, or other information recorded on or transmitted as electronic media are subject to undetectable alteration, either intentional or unintentional, due to (among other causes) transmission, conversion, media degradation, software error, or human alteration. Accordingly, documents provided to the Client in electronic media are for informational purposes only and not an end product and may not be distributed to third parties without Consultant’s approval.

New York
108 West 39th Street
Suite 500
New York, NY 10018
646.602.4999

Hudson Valley
48 Springside Avenue
Poughkeepsie, NY 12603
845.454.2544

California
535 Mission Street
14th Floor
San Francisco, CA 94105
628.243.6445

Ohio
1156 E. State Street
Salem, OH 44460
330.332.5200

Texas
3250 Briarpark Drive
Suite 140
Houston, TX 77042
713.375.1400., ext. 456



Documents will conform to specifications defined in the attached proposal. The documents are submitted to the Client for an acceptance period of 30 days. Any defects which the Client discovers in that time period shall be reported to the Consultant for correction. The Consultant makes no warranties, either express or implied, regarding the fitness or suitability of the electronic media.

The electronic media are instruments of professional service, and shall not be used, in whole or in part, for any project other than that for which they were created, nor by third parties, without the express written consent of the Consultant and without reasonable compensation. Accordingly, the Client agrees to waive any and all claims against the Consultant resulting in any way from the unauthorized reuse or alteration of electronic media, and to defend, indemnify, and hold the Consultant harmless for any claims, losses, damages, or costs, including attorney's fees, arising out of the reuse of any electronic media.

Services During Construction

If the Consultant's services include the performance of services during the construction phase of the project, it is understood that the purpose of such services, including visits to the Site, will be to enable the Consultant to better perform the duties and responsibilities assigned to and undertaken by it as a design professional, and to provide the Client with a greater degree of confidence that the completed work of the Contractor will conform generally to the Contract Documents. The Consultant can only comment on conditions readily observable during the site visits and cannot be held responsible for the correctness and completeness of all of the Contractor's work. This lies solely with the Contractor. If the Consultant's services during construction include shop drawing review, the Consultant will review (or take other appropriate action with respect to) shop drawings, samples and other data which the Contractors are required to submit, but only for conformance with the design concept of the project and compliance with the information given in the Contract Documents. Such review or other actions shall not extend to means, methods, techniques, sequences or procedures of manufacture (including the design of manufactured products) or construction, or to safety precautions and programs incident thereto. The Consultant's review or other actions, shall not constitute approval of an assembly or product of which an item is a component, nor shall it relieve the Contractor of (a) their obligations regarding review and approval of any such submittals and (b) their exclusive responsibility for the means, methods, sequences, techniques and procedures of construction, including safety of construction. The Contractor is solely responsible for the quality and completeness of the work performed.

The Consultant shall not supervise, direct or have control over the Contractor's work, nor shall the Consultant be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with work on the Project. Consultant shall not be responsible for any contractor's failure to carry out the work in accordance with the contract documents, or for failure of the Contractor to comply with laws, rules, regulations, ordinances, codes or orders applicable to the Contractor furnishing and performing their work. The means, methods, techniques, sequences and procedures of the construction work and the safety precautions and programs are solely the Contractor's rights and responsibilities. Consultant shall be held harmless, indemnified and shall not be held responsible for the acts or omissions of any contractor, subcontractor, any of their agents or employees, or any other persons performing any of the work in connection with the Project.

Limitation of Liability

To the fullest extent permitted by law, Client agrees to limit the liability of the Consultant and its owners, officers, directors, employees and insurers to the sum of the fees for the selected tasks to be executed, but in no case exceeding the total compensation quoted in this proposal for claims, losses, expenses and damages (separately and in the aggregate), including claims of breach of contract, breach of warranty, negligence, misrepresentation, strict liability or other tort, or otherwise. In the event that a court determines that the amount of this limitation of liability is not reasonable, liability shall be limited to the amount of Consultant's fee or the lowest amount that a court determines to be a reasonable limitation of liability. The Client releases Consultant from any liability and agrees to defend, indemnify and hold Consultant harmless from any and all claims, damages, losses, and/or expenses, direct and indirect, or consequential damages, including but not limited to attorney's fees and charges and court and arbitration costs, arising out of, or claimed to arise out of, the performance of the Work or any other matter, excepting liability arising from the sole negligence of Consultant. All time and monies spent by Consultant in defending or providing assistance in any such action shall be compensated by the Client at the Hourly Rates in place at that time.

Dispute Resolution

At the option of either party, any claims, disputes or controversies arising out of or in relation to the interpretation, application or enforcement of this Agreement may be resolved by binding arbitration in the State of Pennsylvania in accordance with the rules of the American Arbitration Association or by litigation in an appropriate court in the State of Pennsylvania pursuant to the laws of the State of Pennsylvania. The Client shall pay all arbitration and court costs, reasonable attorney's fees and legal interest on any award or judgment in favor of the Consultant.

Legal Action

Causes of action between the parties to this Agreement accrue upon final completion of the engineering services provided under this Agreement. In the event that the Client institutes a suit against the Consultant, and if such suit is not successfully prosecuted, or if it is dismissed, or if a verdict is rendered for the Consultant, the Client agrees to pay the Consultant any and all costs of defense, including attorney's fees, expert witnesses' fees, and court costs and any and all other expenses of defense which may be reasonably necessary, immediately following dismissal of the case or immediately upon judgment being rendered in favor of the Consultant.

Suspension of Work and Termination

Upon failure of the other party to perform its obligations under this Agreement, the Client or Consultant may terminate this Agreement upon 7-days written Notice to the other party. In the event of Termination, Consultant shall be entitled to be paid for all services rendered through the effective date of termination plus any expenses incurred as a result of the Termination. No deductions shall be made from the Consultant's compensation on account of sums withheld from payments to contractors, nor shall payment to the Consultant be contingent upon financing arrangements or receipt of payment from any third party.

If the Client fails to make payment when due for services and reimbursable expenses, the Consultant may, upon seven (7) days written notice by certified mail return receipt requested to the Client, suspend performance of services under this Agreement. Unless payment in full is received by the Consultant within seven (7) days of the date of the notice, the suspension shall take effect without further notice. In the event of a suspension of services, the Consultant shall have no liability to the Client for delay or damage to the Client or others because of such suspension of services.



Precedence

These Standard Terms and Conditions shall take precedence over any inconsistent or contradictory provisions contained in any proposal, contract, purchase order, requisition, notice to proceed, or like document.

Severability

If any of these Standard Terms and Conditions are finally determined to be invalid or unenforceable in whole or part, the remaining provisions shall remain in full force and effect and be binding upon the parties. The parties agree to reform these Standard Terms and Conditions to replace any such invalid or unenforceable provision with a valid and enforceable provision that comes as close as possible to the intention of the stricken provision.

Survival

These conditions shall survive the completion of the Consultant's services on this project and the termination of services for any cause and shall be binding on the Client's successors and/or assigns.

Governing Law

This Agreement shall be governed by the internal laws of the State of Pennsylvania without regard to principals of conflict of laws.

Assignment

By this Agreement, the Client and Consultant respectively, bind themselves, their partners, successors, assigns and legal representatives to the other party to this Agreement; and, to the partners, successors, assigns and legal representatives of such other party. Neither the Client nor Consultant shall assign this Agreement without the express written consent of the other party to this Agreement.

Miscellaneous

This Agreement represents the entire and integrated Agreement between the Client and Consultant and supersedes all prior negotiations, representations or agreements, whether they be written or oral, This Agreement may be amended or modified only by a written instrument signed by both the Client and Consultant.

End of Standard Terms and Conditions



EXHIBIT C – SCHEDULE OF FEES (2022) – (01)

Civil Engineering / Land Planning / Structure Design

| | | | |
|---------------------------|----------|---------------------|----------|
| Principal | \$170.00 | Senior Engineer II | \$135.00 |
| Executive Consultant | \$170.00 | Senior Engineer I | \$125.00 |
| Director | \$150.00 | Project Engineer II | \$120.00 |
| Senior Technical Manager | \$140.00 | Project Engineer I | \$115.00 |
| Senior Project Manager II | \$145.00 | Project Designer II | \$110.00 |
| Senior Project Manager I | \$140.00 | Project Designer I | \$105.00 |
| Project Manager II | \$135.00 | Staff Designer II | \$100.00 |
| Project Manager I | \$130.00 | Staff Designer I | \$ 90.00 |
| Assistant Project Manager | \$115.00 | Permit Specialist | \$110.00 |
| Landscape Architect | \$110.00 | Technician III | \$110.00 |
| Land Planner | \$100.00 | Technician II | \$ 95.00 |
| | | Technician I | \$ 80.00 |

Surveying / Mapping

| | | | |
|---------------------------|----------|-----------------------|----------|
| Senior Survey Manager | \$140.00 | Staff Surveyor | \$105.00 |
| Senior Land Surveyor | \$125.00 | Project Technician | \$100.00 |
| Survey Field Crew (3-Man) | \$200.00 | Survey Technician III | \$ 95.00 |
| Survey Field Crew (2-Man) | \$160.00 | Survey Technician II | \$ 85.00 |
| Survey Field Crew (1-Man) | \$120.00 | Survey Technician I | \$ 75.00 |

Environmental / Hydrogeology

| | | | |
|-----------------------------------|----------|----------------------------------|----------|
| Professional Geologist, Principal | \$245.00 | Professional Geologist, Director | \$235.00 |
| Senior Technical Advisor | \$185.00 | Senior Hydrogeologist | \$235.00 |
| Senior Project Manager II | \$145.00 | Senior GIS Specialist | \$140.00 |
| Senior Project Manager I | \$140.00 | GIS Specialist | \$120.00 |
| Project Manager II | \$135.00 | Geologist I | \$120.00 |
| Project Manager I | \$130.00 | Environmental Technician IV | \$125.00 |
| Assistant Project Manager | \$125.00 | Environmental Technician III | \$110.00 |
| Scientist | \$120.00 | Environmental Technician II | \$100.00 |
| | | Environmental Technician I | \$ 90.00 |

Reimbursable Expense

There will be no itemized hourly charges for Administrative & Clerical Staff Work. Reimbursable expenses such as printing, copying, mailing fees, special delivery fees, travel and mileage will be charged separately based upon the amount of work completed on a project.

Austin

Mopac Center
 8611 N. Mopac Expy
 Austin, TX 7875
 512-615-2150

Hartford

Bushnell on the Park
 100 Wells Street, Ste. 2K
 Hartford, CT 06103
 860-522-3970

Houston

3250 Briarpark Dr.
 Suite 140
 Houston, TX 77042
 713-375-1400

Hudson Valley

48 Springside Ave.
 Poughkeepsie, NY 12603
 845-454-2544

Nashville

1475 Columbia Ave.
 Franklin, TN 37046

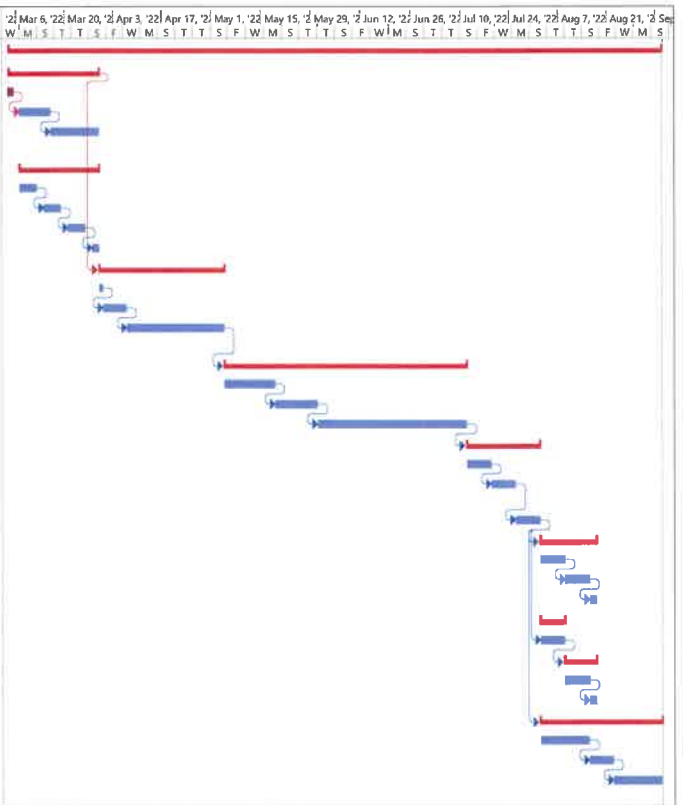
New York

25 West 39th St.
 12th Floor
 New York, NY 10018
 646-602-4999

San Francisco

535 Mission St.
 14th Floor
 San Francisco, CA 94105
 628-243-6445

| ID | Task Mode | Task Name | Duration | Start | Finish | |
|----|-----------|---|-----------------|------------------|------------------|--|
| 1 | | SW REGION SWM ANALYSIS | 132 days | 3/4/2022 | 9/5/2022 | |
| 2 | | Task 1 - Convert Computer Model | 18 days | 3/4/2022 | 3/29/2022 | |
| 3 | | Receive "final" existing conditions model from Township | 1 day | 3/4/2022 | 3/4/2022 | |
| 4 | | Convert HEC-1 Model to HEC-HMS - Straight Transformation | 7 days | 3/7/2022 | 3/15/2022 | |
| 5 | | Quality Control Check on Conversion Issues (Hydrographs, Hydrologic Parameters, etc.) | 10 days | 3/16/2022 | 3/29/2022 | |
| 6 | | Task 3 - Field Survey of BMP's | 17 days | 3/7/2022 | 3/29/2022 | |
| 7 | | Field Survey 8 BMP's Identified by Township | 5 days | 3/7/2022 | 3/11/2022 | |
| 8 | | Prepare Topographic Plans of BMP's | 5 days | 3/14/2022 | 3/18/2022 | |
| 9 | | Prepare Outfall Data for BMP's | 5 days | 3/21/2022 | 3/25/2022 | |
| 10 | | Assemble Photographic Record of BMP's | 2 days | 3/28/2022 | 3/29/2022 | |
| 11 | | Task 2 - Review and Update Subwatersheds | 26 days | 3/30/2022 | 5/4/2022 | |
| 12 | | Receive Topography, Land Use, & Aerials from Township | 1 day | 3/30/2022 | 3/30/2022 | |
| 13 | | Re-Delinate Subwatershed Boundaries | 5 days | 3/31/2022 | 4/6/2022 | |
| 14 | | Revise Hydrologic Parameters (Drainage Area, CN, Tc, Hydrograph Combination Points) | 20 days | 4/7/2022 | 5/4/2022 | |
| 15 | | Task 4 - Conditions Assessment of All BMP's in Watershed | 48 days | 5/5/2022 | 7/11/2022 | |
| 16 | | Field inspect all existing BMP's currently in HEC-1 Model | 10 days | 5/5/2022 | 5/18/2022 | |
| 17 | | Field inspect all new BMP's added since last HEC-1 Model Update | 8 days | 5/19/2022 | 5/30/2022 | |
| 18 | | Input surveyed, revised, and new BMP's to new HEC-HMS Model | 30 days | 5/31/2022 | 7/11/2022 | |
| 19 | | Task 5 - Analyzed Existing Conditions in HEC-HMS | 15 days | 7/12/2022 | 8/1/2022 | |
| 20 | | Run new HEC-HMS model for 1, 2, 10, 25, 50, and 100 year storms | 5 days | 7/12/2022 | 7/18/2022 | |
| 21 | | Quality Control Check new models (Hydrographs, Hydrologic Parameters, etc.) | 5 days | 7/19/2022 | 7/25/2022 | |
| 22 | | Run calibrations of model if Township has Rainfall and Stream Data | 5 days | 7/26/2022 | 8/1/2022 | |
| 23 | | Task 7 - Identify Alternative Solutions and Permitting Requirements | 12 days | 8/2/2022 | 8/17/2022 | |
| 24 | | Review HEC-HMS model for opportunities for Retrofit of BMP's | 5 days | 8/2/2022 | 8/8/2022 | |
| 25 | | Review Township Topography for Regional BMP possibilities | 5 days | 8/9/2022 | 8/15/2022 | |
| 26 | | Summarize Permitting Requirements of any Alternative BMP's | 2 days | 8/16/2022 | 8/17/2022 | |
| 27 | | Task 8 - Provide Cost Estimate and Engineer's Opinion of Alternatives | 5 days | 8/2/2022 | 8/8/2022 | |
| 28 | | Prepare Cost Estimates and Assessment of any Alternatives | 5 days | 8/2/2022 | 8/8/2022 | |
| 29 | | Task 9 - Review Funding Aspects and Sources | 7 days | 8/9/2022 | 8/17/2022 | |
| 30 | | Research potential Funding Streams for Township | 5 days | 8/9/2022 | 8/15/2022 | |
| 31 | | Summarize Funding Opportunities and Costs to Township | 2 days | 8/16/2022 | 8/17/2022 | |
| 32 | | Task 6 - Prepare SWM Plan Report | 25 days | 8/2/2022 | 9/5/2022 | |
| 33 | | Develop Exhibits from HEC-HMS for Design Storm Analyses | 10 days | 8/2/2022 | 8/15/2022 | |
| 34 | | Setup Geospatial Model in HEC-HMS | 5 days | 8/16/2022 | 8/22/2022 | |
| 35 | | Write Narrative Report on Hydrologic Modeling and inclusion of items from Tasks 7, 8, and 9 | 10 days | 8/23/2022 | 9/5/2022 | |



Project: Cranberry SW Region - Date: 2/8/2022

| | | | | | | | | | |
|-----------|--|--------------------|--|-----------------------|--|--------------------|--|-----------------|--|
| Task | | Project Summary | | Manual Task | | Start-only | | Deadline | |
| Split | | Inactive Task | | Duration-only | | Finish-only | | Progress | |
| Milestone | | Inactive Milestone | | Manual Summary Rollup | | External Tasks | | Manual Progress | |
| Summary | | Inactive Summary | | Manual Summary | | External Milestone | | | |