Engineers, Surveyors, Planners, Scientists

February 1, 2022

Robert P. Bianchi, P.E., City Engineer
City of Mansfield
Engineering Department
30 N. Diamond Street
Mansfield, Ohio 44902-1702

RE: Proposal for Professional Services – Touby Run Flood Mitigation Project; City of Mansfield, OH.

Dear Bob,

EMH&T is pleased to provide you with this scope of services and fee proposal pertaining to the referenced project. EMH&T, DLZ, and Shaffer, Johnston, Lichtenwalter & Associates (SJL) will be collaborating to provide the required engineering, design and permitting services. The result of this project will be completed engineering plans and related documents in support of obtaining a dam construction permit from the Ohio Department of Natural Resources (ODNR). Some of the permitting required for this project will not be fully completed, due to the current uncertainty regarding the bidding and construction schedule for the project.

SCOPE OF SERVICES

The scope of services for this project is defined in the attached document, dated January 2022. Generally, the consultant team will perform extensive data collection and preparation of a comprehensive project area base map, detailed hydrologic and hydraulic modeling, preparation of a schematic design plan to confirm the alignment and layout of the project improvements, draft and final engineering plans, preparation of preliminary and final engineering reports for submittal to ODNR, and an individual 401/404 permit application for submittal to the Ohio EPA and U.S Army Corps of Engineers. The consultant team will also be providing revised engineering plans for storm sewer improvements along N. Main Street and extending to a new outlet to Rocky Fork, and we will be preparing numerous legal descriptions for easements associated with the new dam embankment and storm sewer improvement projects.

The consultant team will participate in progress and design review meetings and provide other general client coordination throughout the duration of the project, including participation in public/stakeholder involvement presentations. In support of these presentation, we will provide graphic visualization of the proposed dam embankment and surrounding park land.

FEE PROPOSAL

We propose to provide the tasks defined in the attached Scope of Services document for the not-to-exceed fees described in the attached fee proposal spreadsheet. The accumulated maximum fee for the base scope of services is $1,495,410 including reimbursable expenses and a contingency fee of $75,000. There is also an If Authorized task related to potential augmentation of the principal spillway with a moveable gate, for an additional fee of $47,000. We have provided a summary breakdown of the fees per task at the end of this letter. Detailed fee calculation spreadsheets are also attached. Fees will be billed in accordance with our standard hourly rate schedule and will not be exceeded without first obtaining authorization from the City of Mansfield.

ADDITIONAL SERVICES

Any services requested by the City and not included under the attached scope of services can be provided on an hourly basis, or under a separate scope of services and fee proposal. The current scope of services

does not including services related to bidding, construction management and post-construction documentation of the Touby Run dam project, including a Letter of Map Revision (LOMR) application to FEMA. The current scope of services does include bidding support services but does not include construction management and post-construction documentation of the N. Main Street Storm Sewer Redirection and Park Avenue culvert extension projects.

TERMS AND CONDITIONS OF PROFESSIONAL SERVICE

We are providing the attached "Terms and Conditions of Professional Service" as a reference to serve as a contract document between the City and EMH&T. If the City would prefer to use an alternative contract document, we can review and comment on that document. Unless expressly modified or replaced by the City in writing, this proposal and the accompanying Terms and Conditions of Professional Service shall constitute the final agreement between EMH&T and the City. By issuing a Purchase Order for this project and in the absence of any other contract document provided by the City, then the City is affirming they have received and reviewed EMH&T's Terms and Conditions of Professional Service, and agree to be bound by the terms and conditions stated therein.

EMH&T appreciates the opportunity to submit this scope of services and fee proposal to the City and we look forward to working with the City on this project. We are prepared to commence work upon notification to proceed. If you have any questions, please do not hesitate to contact me at (614) 775-4205 or at mhebert@emht.com.

Respectfully submitted,

EVANS, MECHWART, HAMBLETON & TILTON, INC.

Miles F. Hebert, PE, CFM
Director, Water Resources Engineering

Enclosures: Scope of Services and Fee Proposal Spreadsheet
Project Area Exhibit
Terms and Conditions

FEE SUMMARY TABLE

Task Description	Fee	% of Total Fee
Base Scope of Services		
Task 1: Project Management and Meetings	$ 144,655	10%
Task 2 and 3: Topographic Survey and Geotechnical Investigations	$ 354,211	24%
Task 4: Hydrologic and Hydraulic Modeling	$ 148,840	10%
Task 5: Engineering Plans and Specifications (Dam Embankment)		
Schematic Alignment Plans	$ 191,490	13%
Final Engineering	$ 294,954	20%
Task 6: Engineering Plans & Specifications (North Main Street)	$ 33,850	2%
Task 7: Permitting		
ODNR Dam Safety Permitting	$ 67,900	5%
Environmental (Waterway) Permitting	$ 151,460	10%
Task 8: Other Support Services	$ 26,880	2%
Task 9: Bidding Support Services	$ 6,170	0.4%
Task 10: Miscellaneous Engineering Services	$ 75,000	5%
Total Fees =	**$**	**1,495,410**
If Authorized Services		
Final Engineering of Mechanical Gates at Principal Spillway	$ 47,000	
FIRM Name	**Fee (Base)**	**% of Total**
EMH&T	$ 992,040	66%
DLZ	$ 338,691	23%
SJL	$ 144,679	10%
Subsurface Utility Engineering (TBD)	$ 20,000	1%

EVANS, MECHWART, HAMBLETON & TILTON, INC.

Terms and Conditions of Professional Service

These terms and conditions together with any Proposal attached hereto constitute the entire agreement (hereinafter the "Agreement") between Evans, Mechwart, Hambleton & Tilton, Inc. ("EMH&T") and Client as if they were part of one and the same document.

Definitions:

"EMH&T" shall refer to Evans, Mechwart, Hambleton, and Tilton, Inc., an Ohio Corporation, and its sub-consultants. "Client" shall refer to the person, firm, or corporation that has entered into a contractual relationship with EMH&T providing for the performance of professional services. "Proposal" shall refer to the written scope of services, unit prices, and/or fixed fee provided by EMH&T to Client describing, if applicable, the nature of the services to be performed by EMH&T or its sub-consultants, and the amount and type of compensation to be paid for those services.

Authorization as Representative

Client authorizes EMH&T to take all actions on Client's behalf which EMH&T, in its sole discretion, believes to be necessary to perform the services described herein and in the Proposal.

Access to Property/Site Conditions

Client shall obtain, without cost to EMH&T, free right of access for EMH&T personnel to enter upon any land so long as such entry is reasonably necessary to perform said services. Client understands that services provided by EMH&T commonly require drilling, sampling, and other activities that may disrupt use of the premises and may disturb, alter, or damage terrain, crops and/or vegetation. Client waives all claims against EMH&T for any loss or damage to property that is based on EMH&T's disturbance, alteration, or damage to the terrain, crops and/or vegetation, including, but not limited to, the loss of use of property and the cost to restore property. EMH&T also shall have no obligation to restore the site to its original condition.

Client shall provide accurate information to EMH&T as to the size, condition and location of the project site and the location of any underground utilities, utility services, structures, manholes, and underground storage tanks. EMH&T shall be entitled to rely upon the accuracy and completeness of such information.

Standard of Care and Liability

EMH&T shall exercise reasonable care in the performance of its duties under this Contract. EMH&T makes no other warranties or representations, whether express or implied, regarding the quality of its work under this Agreement. Client agrees that the liability of EMH&T, and that of its officers, directors, employees, agents and subconsultants, arising out of EMH&T's performance hereunder shall be limited to the lesser of EMH&T's applicable insurance coverage available at the time of settlement or judgment, or the fee amount paid to EMH&T for work performed under this Agreement. Neither party shall be liable to the other for any incidental, indirect, special, punitive or consequential damages. Client must bring any cause of action arising under this Contract within one year from the time the cause of action accrues.

EMH&T shall not be liable for the acts or omissions of any person who is performing work on the project site, nor for any instructions given by Client to any person who is performing work on the project site. EMH&T shall not be responsible for any construction means and methods or job site safety.

Confidentiality of Information

EMH&T shall utilize reasonable measures to maintain confidentiality of Client information related to services described in the Proposal. Client acknowledges that EMH&T may have past or present contractual relationships with individuals or entities practicing the same or related business in the same geographic area as Client, and/or with government agencies having regulatory authority over Client's project.

Ownership of Documents

Client agrees that all reports, plans, specifications, logs, calculations, estimates, and test data, including electronic media, are EMH&T's instruments of professional service. All such material is and shall remain the sole and exclusive property of EMH&T. Provided Client meets all of its obligations including prompt payment of EMH&T invoices, Client may make and retain hard (i.e. not electronic) copies of such materials solely for use on the project. Such materials are not to be reused, in whole or in part, by Client on any other projects. Client also shall not permit or authorize a third party to use EMH&T's instruments of service on another project without the express consent of EMH&T. EMH&T shall not be required to provide or deliver electronic copies of documents unless specifically required in the Proposal. In the case of any discrepancy between any electronic files and hard copies of drawings or files, hard copies shall control. Due to the easily alterable nature of electronic files, EMH&T makes no warranties, either express or implied, with respect to electronic files if such files are provided.

Indemnity

To the fullest extent permitted by law, Client agrees to defend, indemnify, and hold EMH&T harmless, including the payment of reasonable attorney's fees to or on behalf of EMH&T, from and against any and all claims, demands, and causes of action for damages of any kind that arise out of or relate to EMH&T's performance under this Agreement and that were caused or allegedly caused by any of the following:

a) The Client's negligence;

b) The Client's breach of this Agreement;

c) The Client's modification and/or misuse of EMH&T's Instruments of Service;

d) EMH&T's activities that disturbed, altered, or damaged terrain, crops or vegetation;

e) EMH&T's reliance on geotechnical data provided by Client or its consultant;

f) EMH&T's use of Client's standards for non-public improvements;

g) The construction of any non-public improvements that was not observed and inspected by EMH&T pursuant to a construction phase service contract.

Termination and Suspension

This Agreement may be terminated by either party providing written notice to the other no less than 10 calendar days in advance of the effective date of the termination. Fees, expenses, and other amounts due EMH&T shall be due and payable immediately upon termination including such amounts reasonably incurred by EMH&T in the process of stopping work after the notice of termination is received. If the project is suspended for more than 30 calendar days in the aggregate, EMH&T shall be compensated for services performed and charges incurred prior to receipt of notice to suspend and, upon resumption, an equitable adjustment in fees to accommodate the resulting

remobilization costs. In addition, there shall be equitable adjustment in the project schedule based on the delay caused by the suspension.

Payment

By accepting the Proposal, Client agrees to pay EMH&T, in the manner described therein, the full amount set out in the Proposal. In the event the Proposal does not provide for a fixed fee or hourly rate schedule for specific services provided, billing shall be on a value basis in accordance with EMH&T Billing Policy. Client shall be invoiced and all invoices shall be due and payable within 30 days of issuance. Unless prior agreement is made in writing, Client is liable for timely payment of invoiced amounts without regard to whether Client has received financing, payments, or income from any source, including funds related to the project for which services were provided by EMH&T. In the event payment is not made in a timely manner, the overdue balance shall bear interest at a rate of 1.5% per month. If the Client fails to make payments when due or otherwise is in breach of this Agreement, EMH&T may suspend or terminate performance of services immediately upon notice to Client. EMH&T shall have no liability whatsoever to the Client for any costs or damages as a result of such suspension/termination. In the event legal action is necessary to enforce the payment provisions of this Agreement, EMH&T shall be entitled to collect from the Client any judgment or settlement sums due, and reasonable attorney fees, court costs, and other expenses incurred by EMH&T in connection therewith, together with the value of the time of EMH&T employees and expenses spent in connection with such collection action.

Hazardous Materials

Unless otherwise provided in the Proposal, both EMH&T and Client acknowledge that this Agreement does not contemplate the presence at the project site of any hazardous or regulated substances including asbestos. In the event that the presence becomes known of any hazardous or regulated substances on or near the project site, EMH&T may, at its option and without liability for consequential or any other damages, terminate or suspend performance of services under this Contract.

Soil Conditions

Unless specifically provided for in the Proposal, EMH&T does not provide geotechnical assessment of soil conditions and shall not be liable to Client for any damage or loss related to the soil condition, design of pavement sections, subgrade, underdrainage, backfill, and related items, whether shown or not shown on a plan prepared by EMH&T.

Americans with Disabilities Act (ADA) Requirements

Client acknowledges that ADA requirements and implementation guidelines change over time and may vary by jurisdiction. Client further acknowledges that ADA compliance involves fine tolerances that are governed by the means and methods of construction. EMH&T will exercise reasonable care in the specification of ADA compliant facilities subject to local standards and requirements. EMH&T makes no warranty or representation, either express or implied, that either public or non-public improvements will satisfy ADA requirements, implementation guidelines, and/or local requirements, regardless of whether or not said improvements are constructed in accordance with instruments of service prepared under this Agreement. Client shall verify compliance with all applicable ADA requirements and guidelines prior to accepting constructed improvements.

Opinions of Probable Construction Cost

Opinions of the probable cost of performance in accordance with instruments prepared by EMH&T are not warranted to reflect the actual cost to Client of such work. Unless otherwise specified, the construction cost of an entire project means the probable total cost to Client of those portions of the project designed and specified by EMH&T exclusive of the value and cost of EMH&T services, land, rights of way, interest and financing.

Project Submittals

EMH&T's review of submittals, substitutions, and proposed changes and modifications shall be solely for the purpose of confirming that the submitted information is in general conformance with the design and the project objectives. EMH&T shall not be responsible for variations proposed or implemented by Contractor. Contractor shall remain responsible for satisfaction of all project objectives, codes and criteria.

Performance, Delay, and Force Majeure

If a schedule is agreed to in the Proposal then EMH&T shall use reasonable efforts to perform according to said schedule. Client acknowledges that EMH&T's performance often involves public agencies and other parties that can have substantial impact on scheduling. Neither party shall hold the other responsible for damages or delay(s) in performance caused by events beyond the control of either party. Such acts or events shall include but not be limited to unusual weather, floods, epidemics, strikes, lockouts, protest demonstrations, and unanticipated site conditions.

Notice, Jurisdiction and Venue

Any notice to be given under this Agreement shall be in writing and shall be deemed duly given when delivered personally or by courier, or three business days after transmission by email or deposit in the United States mail with postage prepaid, certified or registered, return receipt requested, addressed to EMH&T or Client agent that signed the Proposal. Disputes that cannot be resolved shall be submitted to mediation prior to the initiation of litigation by either party. Client and EMH&T agree to jurisdiction and venue in Franklin County, Ohio for all actions, proceedings or disputes arising from, relating to, or in connection with this Agreement.

Applicable Law and Survival

The validity, performance, and interpretation of this Agreement shall be according to the laws of the State of Ohio. All obligations arising prior to the completion or termination of this Agreement and all provisions of this Agreement allocating responsibility or liability between EMH&T and Client shall survive the completion of services and the termination of this Contract.

Assignment and Addendum

Neither party shall assign or transfer its interest in this Agreement without the written consent of the other party. Consent to such assignment or transfer shall not be unreasonably withheld. This Agreement may not be amended except in a writing executed by both EMH&T and Client. No alterations or modifications to the Proposal or these terms and conditions shall be effective unless affirmatively agreed to in writing by both parties.

Binding Effect of Agreement

This Agreement shall be binding upon and inure to the benefit of the parties thereto, their successors and assigns. If and to the extent that any court of competent jurisdiction holds any provisions or part thereof of this Agreement to be invalid or unenforceable as a final non- appealable order, then the remainder of the Agreement shall not be affected and each provision of this Agreement shall be valid and enforced to the fullest extent permitted by law.

INTRODUCTION

The project includes the design of a Class I earthen dam embankment along upper Touby Run, for the purpose of flood damage reduction in the downstream reach, within the City of Mansfield, Ohio. The proposed dry dam will be located within North Lake Park and will reduce the potential for inundation of land, buildings and key transportation corridors during the 1% annual chance (100-year) flood event. The project will also include the design of the relocation of the B&O Trail, including a pedestrian bridge, improvements to utilities within the footprint of the dam embankment, as well as storm sewer improvements extending east from N. Main Street to a new outlet to Rocky Fork. As part of the design process, EMH&T will provide services related to obtaining the required permits for the project; however, final acquisition of some of the permits will occur at a later time, coinciding with the City's timeframe for constructing the dam. Similarly, bidding and construction services are not included within this scope of services, as well as pursuing a post-construction Letter of Map Revision (LOMR) from the Federal Emergency Management Agency (FEMA).

The scope of services detailed below begins with a Schematic Design task to allow the consultant team to refine the previous preliminary engineering work and come to consensus with the City and other project stakeholders as to the various design elements of the project. This task will also include early coordination with the Ohio Department of Natural Resources (ODNR) to discuss the dam safety permitting process and prepare them for the design submittals associated with that process. Upon completion of the Schematic Design, we will proceed with final engineering to provide the City with construction drawings for the dam embankment and other stormwater system improvements.

The goal for this project is to provide significantly reduced flood hazards along the downstream reach of Touby Run, to the extent that the 100-year floodplain does not overflow N. Main Street, north of W. 6th Street. This goal will be achieved through the reduction of peak flood discharge values at the proposed dam and the placement of fill on land acquired by the City along the west side of N. Main Street.

SCOPE OF SERVICES

The tasks described below will be performed by the project team. All of the work described below will be overseen by EMH&T's Project Manager; however, some of the work will be performed by DLZ and Shaffer, Johnston, Lichtenwalter & Associates, Inc. (SJL). DLZ will perform the geotechnical (subsurface) investigations, supporting the design of the earthen dam embankment, and design the emergency spillway, currently anticipated to be a reinforced concrete labyrinth weir. SJL will design the relocation of the B&O trail to go around the proposed dam embankment, and will design the relocation/ replacement of the existing water main and sanitary sewers where they conflict with the proposed dam embankment.

Task 1: Project Management

Under this task, we will participate in progress meetings throughout the design process and separate stakeholder meetings and design review workshops at various stages of the project. Provided below are our assumptions regarding the meetings/workshops we anticipate during the course of the project.

A. We anticipate participating in monthly progress meetings during the 2-year duration of this project, except during months where we there are other similar meetings, such as a design workshop. We have accounted for 20 progress meetings, which will be conducted virtually.

B. We anticipate participating in up to four in-person stakeholder meetings, including presentations to City Council and other groups identified by the City Engineer.

C. We anticipate conducting three in-person design workshops to review design submittals with the City Engineer and other staff.

Task 2: Topographic Survey, Project Area Base Map, and Easements

Under this task, we collect the topographic and boundary information necessary to create a project area base map, in support of the design of the dam embankment, and in support of refining the design of the storm sewer redirection project east of N. Main Street. Specifically, we will perform the services described below.

A. We will coordinate with the City in notifying impacted/adjoining property owners of the field work we will be performing for this project. We anticipate providing the City with a mailing list of property owners and understand the City will then mail notification letters.

B. We will complete boundary work for the City's North Lake Park property in support of designating an easement encompassing the dam embankment and spillway. Some this boundary work was previously completed as part of a prior scope of services.

C. We will complete a detailed field topographic survey of the project (dam embankment) area and surrounding utilities, as depicted on the attached exhibit. The survey will include the location and elevation of sewer manholes within proximity to the proposed dam embankment. From this survey, we will create a topographic and boundary base map which will be the basis for preparing detailed engineering plans for the dam embankment. We are not proposing to perform a comprehensive tree survey; instead, the base map will depict a drip line representing the edge of wooded areas based on aerial imagery and limited field data.
    i. Field locate site improvements to include but not limited to: streets, alleys, roads, drives, walkways, sidewalks, paths, street, fences, gates, retaining walls, buildings, structures and sheds within the project limits.
    ii. Field locate utilities such as; storm, sanitary, gas, water, electrical, transformers, pull boxes and communications within the project limits.
    iii. Field locate water courses, ditches, edge of streams, rivers and bodies of water.
    iv. Prior to performing any field work and as required byOhio811, EMH&T will contact Ohio811 regarding field marking existing utilities.
    v. We will not perform a tree survey as part of this effort. The project base map will delineate treed areas based on information derived from aerial imagery.

D. We will perform additional field survey of the new storm sewer outfall to Rocky Fork at the upstream side of the railroad tracks, and will use this information to update the current project area base map for the storm sewer redirection project east of N. Main Street.

E. We will perform additional field survey along Touby Run at various locations to support the floodplain modeling described in Task 4. We have allocated several days of field time to account for this effort.

F. We will prepare legal descriptions for the City-owned land to be encumbered with a perpetual covenant and provide coordination with the City and Bricker & Eckler in getting this covenant recorded. We will also prepare legal descriptions to accompany easements for the realigned public utilities through the project area, including the re-direction of the N. Main Street storm sewer. For the purpose of our fee proposal we have assumed a total of 24 easement descriptions, including the potential for temporary (construction access) easements.

G. EMH&T will provide support to the City in coordinating with private utility owners to vacate private utility easements in the area of the dam embankment?

H. We have included a $20,000 fee for Subsurface Utility Engineering (SUE) to be performed by a sub-consultant, to locate (SUE Level B) and uncover (SUE Level A) utilities along the project corridor.

Task 3: Geotechnical (Sub-surface) Investigations

Under this task, we will perform a subsurface investigation and a design analysis in support of the engineering of the proposed dam embankment and the proposed pedestrian bridge along the relocated B&O Trail. The results of the subsurface investigations and the accompanying design analysis will be documented in a Geotechnical Data Report (GDR) and a Geotechnical Design Memorandum (GDM). Refer to the attached scope of services from DLZ pertaining to their efforts.

Task 4: Hydrologic and Hydraulic Modeling

Under this task, we will refine the hydrologic and hydraulic modeling prepared as part of the Preliminary Engineering study in support of the design of the dam embankment and spillways. The refined modeling will allow us to optimize the design and performance of the spillways in terms of reducing downstream flood hazards while meeting ODNR dam safety design criteria for a Class I dam. Specifically, we will perform the services described below.

A. We will finalize hydrologic modeling in support of the principal and emergency spillway design, including the evaluation of mechanical components to the spillway to optimize performance. We will refine previous hydrologic models of the Touby Run watershed and perform our final model analysis using the HEC-HMS program. This model will be used to estimate peak flood discharges and flow volume discharging to and from the proposed dam, and extending downstream to the confluence with Rocky Fork. The HEC-HMS model will be used to perform level-pool routing to simulate the dam impoundment and will represent the capacity of the principal and emergency spillways. The model will be used to simulate spillway designs with the intent of attenuating 100-year peak flood discharge values within the impounded area and allowing for the minimum amount of freeboard required under ODNR's dam safety design criteria. The HEC-HMS model will also be used to simulate the Probable Maximum Flood (PMF) to determine that it can safely pass through the proposed dam spillways. The peak flood discharge values resulting from this modeling will be applied to the HEC-RAS modeling described below, to estimate downstream flood elevations and flood inundation areas.

   The results of the HEC-HMS model will also confirm flood pool elevations and impoundment areas upstream of the dam embankment. EMH&T has previously established a maximum inundation area based on an estimated top of dam elevation, which was used to establish the extent of flowage easements.

B. We will finalize the hydraulic modeling and mapping to document the flood elevations and inundation areas downstream of the proposed dam embankment. We will refine previous hydraulic models of Touby Run using the HEC-RAS program with various portions of the floodplain modeled using a 2-dimensional analysis approach. The 2-dimensional analysis allows for a more detailed assessment of overbank flood routing across roadways, railroads, and between buildings and other obstructions. The floodplain overbank topography used in the analysis will consist of a grid surface created from the City's current one-foot topographic contour interval (C.I.) dataset supplemented by EMH&T field survey to be performed under this project.

C. We will use the refined modeling to complete a dam failure analysis and inundation mapping in support of the ODNR construction permit for the dam embankment and Emergency Action Plan (referenced below). We expect this work will include simulation of a dam failure under the 100% PMF event, and up to three additional lesser magnitude events as required by ODNR.

D. Using the refined hydrologic and hydraulic modeling, we will update the flood hazard impact study prepared for the proposed mass fill project along the west side of N. Main Street. A revised summary

engineering report will be prepared and provided to the City in conjunction with revisions to that engineering plan, described under Task 6.

E. We will prepare a HEC-RAS model of the Unnamed Tributary to Touby Run at the new B&O Trail bike path bridge. This model will account for backwater from the dam impoundment area and will be used to determine flood hazard impacts associated with the new bridge.

We will provide a summary engineering document representing the completed hydrologic and hydraulic modeling and mapping, which will be provided to the City with the Schematic Design Plans referenced under Task 5, and will be incorporated into the Preliminary and Final Engineering Reports provided to the City and to ODNR reference under Task 7.

Task 5: Engineering Plans and Specifications – Touby Run Dam Embankment and Spillway

Under this task, we will prepare engineering plans in support of the construction bidding process for the Touby Run dam embankment and spillway, and appurtenances. The engineering plans will include the required details, notes and specifications to construct the various improvements. The engineering plans will represent the various improvements described below, designed in accordance with ODNR dam safety criteria for a Class I dam.

a. Earthen Dam Embankment
b. Principal Spillway - box culvert or round pipe (may include an inlet riser structure and may include a mechanical component to optimize the performance of the impoundment during larger flood events)
c. Labyrinth Weir Emergency Spillway
d. Relocation/Replacement/Protection of Existing Utilities
e. Relocation of the B&O Trail, including a pedestrian bridge

A. Schematic/Alignment Plan

We will prepare schematic level plans representing the various dam embankment improvements, for the purpose of confirming the extent and alignment of the improvements with the City and other project stakeholders, as well as to confirm construction costs and to support early coordination with ODNR on compliance with their dam safety design criteria. The schematic design effort will include the items listed below.

1. Complete the model refinements described under Task 4.
2. Refine the embankment grading/spillway alignment plan. As part of this effort, we will evaluate placing the emergency spillway on the north side of the Touby Run channel.
3. Complete the detailed structural design analysis for the concrete labyrinth weir and spillway. Refer to the attached scope of services from DLZ pertaining to their efforts.
4. Evaluate the potential for removing the existing low-head dam along Touby Run and replacing with another structure to feed water to North Lake.
5. Layout/alignment of existing public utilities, including relocating the 20-inch diameter water main along the north side of Touby Run, and replacing the 12- and 36-inch diameter sanitary sewers along the south side of Touby Run. As part of this effort, we will evaluate options for replacing the sanitary sewer lines with modern water-tight pipe material, within a casing pipe where it is beneath the dam embankment, and possibly changing the alignment of those sewers based on the recommended location of the emergency spillway.
6. Layout/alignment of the relocated B&O Trail, including the identification of the preferred pedestrian bridge type. For the purpose of this proposal, we have assumed the new bridge design will be a three-span prefabricated truss superstructure with concrete deck on cast in place reinforced concrete substructures.

7. Perform ODNR coordination related to compliance with dam safety design criteria. We expect to conduct one meeting with ODNR staff to review the schematic design plan and related modeling, and to discuss the process for obtaining a construction permit for the project. A preliminary engineering report will be submitted to obtain formal comments from ODNR (refer to Task 7).
8. Complete a preliminary Engineer's Opinion of Probable Construction Costs (EOPCC).
9. Perform coordination with the City and evaluation of possible amenities within North Lake Park in areas adjacent to the proposed dam embankment. This effort will include the generation of renderings and planning level cost estimates for park improvements. Selected amenities will be included in the project visualization described under Task 1. Due to the uncertain nature of these improvements, we have not accounted for them in the final engineering scope of services.

As part of the Schematic Design Phase of the project, we will prepare graphical visualizations and related presentation materials that will be shared at stakeholder meetings and design workshops, representing the proposed dam along Touby Run, including the surrounding North Lake Park area. The visualizations will include high level of detail and realism similar to items included in the EMH&T portfolio. Visualization deliverables will include:

a. **Video** showing a combination of animated infographics describing the project purpose and animated 3D flythrough graphics showing project after completion, including flooding scenarios.
    i. Approximately two to three minutes in length.
    ii. Will include animation intro and outro graphics with Client branding.
    iii. Can include background music if desired.
    iv. Will include storyboard review and draft video review with Client prior to final deliverable.
    v. Delivered as an MP4 file which can be viewed and downloaded via online link (Vimeo).
b. **Still Imagery** of both info graphics and 3D model views.
    i. Refined 3D model imagery and still shots (raster based infographics), pulled from the video, to be used in presentations.
    ii. Delivered as JPG files.
c. **Visualization Exclusions** – The items listed below are specifically not included as part of the visualization scope but could be included for an additional fee.
    i. Drone video or imagery.
    ii. Video voice over.
    iii. Vector Based maps and infographics delivered as part of the still imagery.
    iv. 360 Image tours

B. Final Engineering

We will prepare detailed engineering plans and specifications for the construction of the earthen dam embankment, and related utility improvements. These plans will be prepared in draft (60%), final draft (90%) and final (100%) format, for the City's review and approval, and to support the permitting process, described under Task 7.

The detailed engineering plans will include the items listed below.

1. Title Sheet, including Sheet Index.
2. General notes with supplemental notes/specifications.
3. Survey benchmark locations and descriptions.
4. Existing topography, planimetric features, utilities, property boundaries and rights-of-way with notes explaining the disposition of existing utilities with respect to the proposed dam embankment and spillway.
5. Limits and extent of regulatory features, including features identified by the ecological survey performed by others, as well as the surveyed OHWM's, and stream setbacks mandated by local, state or federal regulations.

6. Utility easements will be shown as depicted on information provided to us by the utility owners or the City.
7. Construction access, staging area, and stockpile location plan.
8. Demolition plans, including tree removal limits.
9. Plan and profile sufficiently complete to show proposed locations of major items, along with dimensions, clearances, and limits of disturbance associated with the construction of the improvements.
10. Proposed embankment and spillway grading plan.
11. Dam embankment cross-sections at 25-foot intervals and other necessary locations.
12. Seepage control measures, including filter diaphragms and blanket drains, as required per the geotechnical design.
13. Notes and specifications pertaining to the required dam earthen embankment material and required construction methods. We assume the embankment material will consist of borrow material sourced from offsite locations by the Contractor.
14. Notes and specifications regarding streamflow management during construction of the dam embankment and appurtenances.
15. Details, notes and specifications for the principal spillway pipe, inlet structure, and energy dissipation structure.
16. Details, notes and specifications for the emergency spillway, including the labyrinth weir.
17. Details, notes and specifications for permanent embankment crest survey monuments.
18. Plan, profile, details, notes and specifications for the relocation of the 20-inch water main.
19. Plan, profile, details, notes and specifications for the replacement/relocation of the 12- and 36-inch sanitary sewers.
20. Grading plan, profile, notes and specifications for the relocated B&O Trail, including miscellaneous drainage design for swales, ditches, culverts or storm sewers as needed. Abutment design and details, pier design and details, and incorporation of the selected pre-fabricated truss bridge into our plans, and reinforcing steel design and quantities. The plan sheets for the new trail will not include cross-sections.
21. Erosion and sediment control plans, including notes and details.
22. Site restoration plan and details.
23. Site access and staging plans.
24. Miscellaneous detail plans.
25. Maintenance of traffic plan, pertaining to the use of public streets by construction vehicles entering and exiting the project site.
26. Items and quantities for the various construction activities, based on the ODOT Construction and Material Specifications (CMS) manual.
27. Updated EOPCC for each iteration of engineering plans.
28. Construction Phase Emergency Action Plan, details specific responsibilities and actions to be performed in the event of a flood during construction of the work.

The Final Engineering Plans do not include additional active or passive recreational improvements for the project site, beyond those specifically identified in the above list.

C. Final Engineering of Mechanical Gates/Controls (***If Authorized***)

The work under this task will only be performed if authorized by the City, to provide final engineering plans and specifications for gates and the associated mechanical and electrical controls in association with the principal spillway, based on the results of the Schematic Design effort described under Task 5A. Specifically, we will perform the services described below.

1. Prepare plans and specifications for one or more mechanical gates to provide enhanced flow control through the principal spillway.

2. Prepare plans and specifications for mechanical controls and electrical power supply for the operation of the gates. These features include mechanical operator(s), a control panel, primary power supply, and emergency backup power supply.

Task 6: Engineering Plans and Specifications – N. Main Street Mass Fill and Storm Sewer Redirection to Rocky Fork

We will prepare engineering plans and specifications pertaining to the placement of fill on City-owned property along the west side of N. Main Street and the redirection of the existing sewer system in that area to a new outlet to Rocky Fork. We have previously studied this alignment and will use the previous study information and new information acquired under this project to prepare the plans described below.

A. Final Engineering

The previously prepared detailed engineering plans for this area will be revised to account for the new storm sewer redirection and the prepared in final draft (90%) and final (100%) format, for the City's review and approval, and to support the Ohio Public Works Commission (OPWC) grant application process. As part of the fee for this effort, we have included time for potential modifications to the previously prepared plans for the South Park improvement project. We will coordinate with ODOT, District 5 to determine if their final design for the rehabilitation of the Park Avenue culvert will require modifications to the previously prepared engineering plans. If modifications are required, we will provide a revised Final (100%) plan to ODOT and to the City for approval.

We understand the City will be pursuing an OPWC grant for one or both of the N. Main Street and South Park projects. The fee proposal accounts for a small amount of time to support the City in pursuing those grants, assuming the City will prepare the grant application and EMH&T will provide supporting documentation as requested.

Task 7: Regulatory and Permitting Services

Under this task, we will perform the required regulatory and permitting services described below, in support of constructing the proposed dam embankment.

A. ODNR Dam Safety Permitting

The services described below will be performed in support of pursuing a Dam Construction Permit from ODNR. Based on coordination with the City, these services will not include filing and obtaining the construction permit, which will happen at a later date in conjunction with the City proceeding with bidding for construction of the project.

1. We will prepare a preliminary engineering report in support of the dam safety permitting process, for review and approval by ODNR. This report will be provided to ODNR following completion of the Schematic/Alignment Plan.

2. We will prepare a final engineering report, for purposes of review and approval by ODNR. ODNR may not review the final report until the formal Dam Construction Permit application and filing fee are submitted. This report will be available for ODNR review in conjunction with the 90% version of the engineering plans.

3. We will provide coordination with ODNR in conjunction with their review of the preliminary and final engineering reports. For this effort, we anticipate participating in two meetings with ONDR staff.

4. Based on the final EOPCC for the project, we will provide an estimate for the construction permit application fee and the required value of the construction bond.

5. We will prepare a Draft Operation, Maintenance and Inspection (O&M/I) Manual and Emergency Action Plan (EAP) for the dam. We will submit those documents to ODNR for review and comment with the final engineering report. As part of this effort, we will perform coordination with Public Safety officials and other City staff to establish Points of Contact and to obtain consensus on required actions to be documented in both the OM/I Manual and EAP.

B. Environmental (Waterway) Permitting

We will perform the permitting services described below in support of obtaining an Individual 404 Permit and 401 Water Quality Certification from the U.S. Army Corps of Engineers (USACE) and Ohio EPA, respectively. Our scope of services includes obtaining these permits from both agencies, with the expectation we can negotiate an extended permit expiration such that the permits will remain valid for up to 10 years from date of issuance, and can be renewed if necessary.

1. Surface Water Delineation
   A delineation of surface waters (streams and wetlands) within the project area must be completed in support of the permit application. Portions of the project area were previously delineated in 2015; that delineation is now expired. EMH&T will complete a delineation of the ±30.5-acre project area as follows:
   a. Conduct a field investigation to determine the location and extent of Waters of the United States, including wetlands and streams. Identify any potential jurisdictional areas with flagging tape or other such markers.
   b. Survey wetland boundaries using a professional survey grade GPS unit and provide a detailed map showing the location of all identified waters found on the site, suitable for overlay onto a project plan.
   c. Prepare a report including research, data and a summary of findings for the property. This report will be for the use of the USACE to identify jurisdictional waters and wetlands on the site. Report submittal to the USACE will be arranged with verbal or written permission of the City.
   d. Conduct a site visit with a representative of the USACE as needed, to verify the delineation boundaries.
   e. Complete assessments of stream and wetland habitat quality, i.e. the Headwater Habitat Evaluation Index (HHEI), Qualitative Habitat Evaluation Index (QHEI) and Ohio Rapid Assessment Method (ORAM) assessments for all identified surface water resources, as required for the permit application.
   f. Complete a field visit with the Ohio EPA to verify the ORAM scores for any identified onsite wetlands, if needed.

2. USFWS & ODNR Consultation
   To support the review of the permit applications, consultation must be conducted with the Ohio Department of Natural Resources (ODNR) and the U.S. Fish and Wildlife Service (USFWS) to determine whether any listed endangered/threatened species or potential habitat for such species are present, and whether the project will adversely affect any such species or habitat. We will:
   a. Coordinate with the ODNR to request an Environmental Review (ER), including a National Heritage Database search. Prepare an ER request including cover letter with description of work, maps, photographs and site plans.
   b. Review the United States Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) interactive web tool to obtain a list of endangered and threatened species for the project area and evaluate the project area's suitability for these species critical habitat.

Prepare a project review request for submittal to USFWS including cover letter with description of work, maps, photographs and site plans.

3. Mussel Survey Reconnaissance
   All native mussel species are protected in the State of Ohio per the Ohio Revised Code, Section 1533.324. Per the Ohio Mussel Survey Protocol (OMSP) (ODNR/USFWS, April 2020), Touby Run, as an unlisted stream with a watershed greater than 5 square miles, must be surveyed prior to any disturbance. Accordingly, EMH&T will complete a reconnaissance survey to determine if mussels are present within the project area, including:
   a. Prepare the necessary documentation and coordinate with ODNR to receive authorization to proceed with mussel survey reconnaissance efforts.
   b. Conduct the reconnaissance following the most recent OMSP guidelines. The study area will consist of the Area of Direct Impact (ADI), plus a 200-foot buffer upstream and 400-foot buffer downstream from the ADI, per the OMSP. State-qualified mussel surveyors will visually inspect all stream substrates, stream banks, and gravel bars for evidence of mussels. Per the OMSP, if evidence of live or fresh dead mussels is confirmed, the reconnaissance can stop. However, we will review the entire length of the ADI and generally note readily observable mussel populations and density. The following assumptions apply to the fieldwork:
      - Water levels at the site must be normal or below normal, and water clarity must be clear to bottom or have a minimum visibility of one-half meter (approx. 20 inches).
      - All stream substrates within the survey reach must be visible and able to be surveyed.
      - No tactile search or excavation will be performed.
      - The entire length of the survey area is assumed to be wadeable, with the exception of approximately 300' upstream of the low head dam structure, which may be greater than one meter (36 inches) in depth.
      - Surveyors will complete the reconnaissance on all wadeable sections of the stream first. If live or fresh dead mussels are found, the reconnaissance will end once all wadeable areas have been searched.
      - If no live or fresh dead mussels are found in the wadeable areas of the stream, AND it is determined that any portion of the survey area is too deep (greater than one meter) to wade, surveyors will use SCUBA to perform a reconnaissance survey on the portion of the site where depths exceed approximately one meter. It is presumed that approximately 300' (91 meters) near the low head dam structure may meet this criteria.
      - If waters within the survey area are too turbid or have other issues (other than depth) that preclude searching the entire stream bottom, then such reaches cannot be surveyed using the reconnaissance protocol. In these instances, a State or Federally permitted malacologist must survey the site using the Group 1 stream timed search survey protocol as outlined in the OMSP.
      - Per the OMSP, if any federally listed mussel species are found, all survey efforts will be suspended and the USFWS must be contacted immediately.
   c. Document the reconnaissance findings using the Ohio Mussel Habitat Assessment Form from the 2020 OMSP (or subsequent document), including photographs and the location of any mussels observed. EMH&T will submit reconnaissance results directly to ODNR.
   d. If after review by ODNR it is determined that mussels are not present in the study area, then a mussel survey is not required. If it is determined that mussels are present, then a mussel survey and relocation in accordance with the OMSP must be completed prior to stream impacts. <u>Mussel survey and relocation is not included in this scope of services. Note that reconnaissance results are valid for five (5) years.</u>

4. Phase I Cultural Resources Management Investigation
   During the review of the permit, the USACE is required to review the project's potential to impact cultural resources per Section 106 of the National Historic Preservation Act. Accordingly, EMH&T will complete a Phase I Cultural Resources Survey to cover the ±30.5-acre project area. The work area

for the cultural survey consists of approximately 5 acres of open park land and approximately 25 acres of woods. Accordingly, the following services will be provided:

a. Test pit collection of the surveyable project area at no less than 50 ft. intervals.
b. Visual inspection of all areas with obvious soil disturbances, those that are saturated or underwater and those which the slope gradient exceeds 15°.
c. Analysis and interpretation of all artifacts and sites identified during the fieldwork portion of the survey.
d. Record all newly discovered archaeological sites on OAI forms and all architectural properties on OHI forms for archival at the Ohio Historic Preservation Office (OHPO).
e. Prepare a report meeting the OHPO's guidelines including descriptions of the fieldwork conducted, results and recommendations for the proposed construction.
f. Submit a digital copy of the report for the use of the client and one bound copy of the report for coordination with OHPO.

This scope of services does not include providing a Phase II Cultural Resources Survey if one is deemed necessary by OHPO.

5. Individual 404 Permit & 401 Water Quality Certification

To prepare a combined application to the USACE and Ohio EPA for Individual Section 404 Permit authorization and Section 401 Water Quality Certification for impacts to Upper Touby Run, and any other associated wetland/stream impacts, the following services will be provided:

a. Summarize previously performed assessments including the delineation, wetland quality assessments (ORAM), and stream quality assessments (QHEI/HHEI), and assign a provisional aquatic life use designation for the streams.
b. Summarize the results of the ODNR and USFWS coordination (Task 7.B.2).
c. Summarize the results of the cultural resources investigation covering the project area (Task 7.B.4).
d. Summarize the requested impacts and prepare an antidegradation analysis as required by the permit process. This analysis must include an evaluation of practicable project alternatives, based on the project purpose. These alternatives will be prepared by EMH&T as part of the project engineering.
e. Calculate and summarize the stream/wetland mitigation to be provided to offset the impacts. It is assumed such mitigation would be accomplished via purchase of mitigation bank and/or in-lieu fee credits. EMH&T will coordinate with the mitigation providers to reserve the credit; the City is responsible for paying all mitigation fees.
f. Prepare a permit application report in compliance with requirements for a Section 404 Permit, Section 401 WQC and Antidegradation Review. This includes a discussion of technical feasibility and cost effectiveness, social and economic considerations, cumulative impacts within the watershed, secondary impacts, and stormwater management plans.
g. The permit application will be submitted first to the USACE and, upon receipt of the public notice from the USACE, the application will be immediately submitted to Ohio EPA for a completeness review.
h. Upon receipt of notification of completeness by Ohio EPA, EMH&T will submit the prepared public notice and coordinate with Ohio EPA for its publication per ORC division 6111.30(C) requirements.
i. Ohio EPA application and review fees (maximum of $25,200), USACE application fee ($200), and public notice fees (fee to publish notice in newspaper, estimated to be no more than $1,000) have been included in our fee proposal.

6. Response to Comments & Public Hearing

This task includes preparing written responses, exhibits, and other details as necessary for comments generated for the project while the 404/401 Permit application is under technical and public review. This task also includes any necessary preparation and coordination for a public hearing, if required.

A maximum of $7,500 has been budgeted for this task, as the number and intensity of comments to be generated is unknown.

7. Conservation Easement Coordination/Negotiation
   A conservation easement exists along Upper Touby Run, which was executed as a component of the stream mitigation for a prior City project (Reid Industrial Park). EMH&T will assist the City in coordinating with the Ohio EPA, USACE and the Richland SWCD (the conservation easement holder) to abandon this conservation easement and negotiate alternative mitigation. It is assumed this will include purchase of mitigation bank and/or in-lieu fee credits; the City is responsible for paying all mitigation fees. The number of meetings and time required to complete this task is unknown; a maximum of $10,000 has been budgeted for this task. It is assumed that this item will be handled by the agencies as a permit condition on the requested 404 Permit/401 WQC.

   This task does not include any effort to revise/modify the prior permits issued for Reid Industrial Park.

C. Permits to Install (PTI) for water and sewer improvements.

   Based on coordination with the City, our scope of services does not include filing and obtaining PTI application with the Ohio EPA for these improvements, which will happen at a future date in conjunction with the City proceeding with bidding for construction of the project.

D. Stormwater Pollution Prevention Plan (SWPPP) and Notice of Intent (NOI)

   Based on coordination with the City, our scope of services does not include preparing a SWPPP and filing for an NOI with the Ohio EPA, which will happen at a later date in conjunction with the City proceeding with bidding for construction of the project.

Task 8: Other Support Services

Under this task, we will provide support to the City related to the items described below.

A. Ohio Public Works Commission (OPWC) Grant Applications: The City intends to submit OPWC grant applications for the South Park and N. Main Street improvement projects. We will assist the City by providing engineering documents in support of those applications.

B. Removing the B&O trail from the rail banking system: We will participate in coordination with the City and Bricker & Eckler in pursuing this de-banking through the appropriate federal agencies, and will provide supporting engineering documents upon request.

C. Acquiring an easement from the Norfolk & Southern R.R. at N. Main Street: We will participate in coordination with the City and Bricker & Eckler in pursuing this easement for fill/grading within the R.R. right-of-way, and will provide supporting engineering documents upon request.

Task 9: Bidding Support Services

Under this task, EMH&T will provide support to the City of Mansfield pertaining to the construction bidding process for the projects referenced under Task 6. These services will include participation in a pre-bid meeting, addressing questions from contactors, and supporting the City in preparing bid addendums if necessary. EMH&T, at the request of the City, can review the bid tabulation and provide feedback on potential irregularities.

Task 10: Miscellaneous Engineering Services (Contingency)

A contingency fee has been included to account for unforeseen engineering services that may come up during the course of the project design. Separate scoping and fee accounting can be provided to the City prior to authorization of these funds.

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INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
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January 19, 2022

EMH&T Engineers, Surveyors, Planners, Scientists
5500 New Albany Road
Columbus, Ohio 43054

ATTN: Miles F. Hebert, PE, CFM, LEED Green Associate
Director, Water Resources Engineering

RE: Proposal for Geotechnical and Structural Engineering Services
Touby Run Flood Mitigation Project
Mansfield, Ohio
DLZ Proposal No. CL21014030

Mr. Hebert:

DLZ Ohio, Inc. (DLZ) is pleased to submit this proposal to provide drilling, field and laboratory testing, geotechnical engineering, structural engineering, and construction document preparation services for the above-referenced project. Based on the project Request for Qualifications (RFQ) as well as our email communications and telephone discussions, DLZ understands that the City of Mansfield (the City) is considering the construction of a 900-foot long, 37-foot maximum height Class I earthen embankment dam along upper Touby Run for the purpose of flood damage reduction in the City. The proposed earthen embankment will function as a dry dam and will reportedly be located just upstream of North Lake Park and reduce the inundation of land, buildings, and key transportation corridors during the 1% annual chance of exceedence (100-year) flood event. DLZ also understands that the project will include a 190-foot wide and seven-foot tall concrete labyrinth emergency spillway weir.

On December 30, 2021 a representative from DLZ visited the proposed earthen embankment dam site at North Lake Park in order to gain a better understanding of the existing conditions that may influence the design or construction of the project. The general area crosses the north and the south sides of Touby Run, which is situated within a narrow valley that rises quickly to the north and rises in steps to the south. The north end of the project alignment is located along a sloped wooded area that includes a portion of the paved B&O Bike Trail. The earthen embankment dam alignment continues sloping to the south side of the B&O Bike Trail until it reaches Touby Run, which flows west to east. The ground then rises to the south of Touby Run and levels out within North Lake Park. The ground remains level for approximately 150 feet before rising approximately 15 feet to the ground surface of Elmwood Drive. It is important to note that historically the project site was the location of Luna Park, an amusement park that contained numerous structures including a roller coaster, swimming pool, refreshment stands, and a theatre. It should also be noted that Touby Run was realigned

(channelized) through this area in the past and a flood in 1924 reportedly filled in the parks lake with gravel and silt.

Previous work on the project was performed by others between 2014 and 2017. In September of 2016, DLZ issued a geotechnical report, "Proposed Earthen Dam on Touby Run at the North Park Site," that contained the findings of a limited geotechnical exploration performed for the project. The 2016 geotechnical report (2016 Report) contained the findings and recommendations developed from five borings that were performed at the proposed earthen embankment dam site. The subsurface conditions encountered in these five borings generally consisted of fine-grained and granular fill or possible fill soils overlying natural fine-grained and granular soils. The 2016 Report stated that the existing fill/possible fill materials are not considered suitable for the construction of the proposed earthen embankment dam. The 2016 Report also stated that the existing fill/possible fill materials are not considered conducive to providing an appropriate foundation for the proposed earthen embankment dam. DLZ has considered the findings of the 2016 geotechnical exploration during the preparation of this Proposal-Agreement.

It should be noted that the U.S. Army Corps of Engineers (USACE) has specific recommended guidelines for the design of earthen embankment dams. These guidelines are set forth by the USACE in their Engineering Manual (EM) 1110-2-2300, "General Design and Construction Considerations for Earth and Rock-Fill Dams." Similarly, USACE EM 1110-2-2200, "Gravity Dam Design," provides specific recommended guidelines for the design of concrete spillways. DLZ has considered these guidelines during the preparation of this proposal as well.

EMH&T was selected by the City as the prime consultant for final design of this project. Subsequently EMH&T engaged DLZ to provide drilling, field and laboratory testing, geotechnical engineering, structural engineering, and construction document preparation services for the job. DLZ's tasks will specifically focus on the geotechnical exploration for the project, design of the earthen embankment dam, design of seepage mitigation features, and design of the labyrinth emergency spillway.

This proposal presents our anticipated scope of services, schedule, and fee for the proposed work. Based on the information provided above, and our understanding of the work required, we propose the following scope of services.

SCOPE OF SERVICES AND ASSUMPTIONS THERETO

I. Subsurface Exploration

1. For the purposes of this proposal it was assumed that all drilling would take place on property owned by the City. It was also assumed that DLZ will have full access to the project site and that any rights-of-entry or property owner notifications will be provided by others at no additional cost to DLZ.

2. Stake the boring locations in the field. Perform a hand-held GPS survey of the boring locations and provide approximate elevation, latitude, and longitude coordinates. For the purposes of this proposal it was assumed that actual precision surveying of the boring locations, which will be required by DLZ for analysis and design purposes, would be performed by others.

3. Notify the state/local utility locating services whose jurisdiction the project falls under and coordinate with EMH&T and City personnel with respect to any known private utilities in the project area. DLZ assumes no responsibility for utilities unmarked by state/local/private agencies.

4. No effort is included in this proposal for any significant on-site safety training for DLZ field personnel. DLZ assumes that, before commencing fieldwork, we will be made aware of and notified in writing of any site-specific safety hazards, procedural requirements, and other protocols related to this scope of services and project.

5. The cost estimate assumes that the boring locations can be accessed and drilled using one ATV-mounted drill rig under a single field mobilization. However, DLZ has included costs associated with a separate remobilization to the general area to drill and sample potential borrow source locations.

6. Environmental sampling, testing, and engineering are not included with this geotechnical exploration scope of services and cost estimate.

7. As indicated earlier, a limited geotechnical exploration consisting of five borings was performed by DLZ at the site in 2016. DLZ considered the locations and depths of these existing borings when developing the proposed geotechnical exploration for this project. Based on this existing information and our knowledge of the project site, DLZ proposes the following geotechnical exploration program:

Boring	Depth (feet)	Purpose
B-01A	50	Further define variable subsurface conditions encountered in existing borings B-01 and B-02
B-02A	50	Further define variable subsurface conditions encountered in existing borings B-01 and B-02
B-03A	100	Advance existing boring B-03 (previously drilled to a depth of 50 feet) to establish top of rock elevation and explore historic Touby Run alignment
B-06	30	Establish sloping hillside subsurface conditions
B-07	20	Identify any downstream low permeability blanket and explore historic Touby Run alignment
B-08	20	Identify any downstream low permeability blanket
B-09	20	Identify any upstream low permeability blanket
B-10	15	Target existing subsurface historic features
B-11	15	Target existing subsurface historic features
B-12	15	Target existing subsurface historic features
B-13 and B-14	50	Proposed bridge abutment foundations (2)
B-15 and B-16	50	Proposed bridge pier foundations (2)
B-17 through B-19	10	Relocated B&O Trail borings
B-20 through B-25	10	Targeted borings in inundation area to establish soil permeability/infiltration
B-26 through B-35	10	Targeted borings at potential borrow source locations

Existing borings from the 2016 geotechnical exploration are shown on Exhibit A.
Proposed borings are shown on Exhibit B.

8. DLZ anticipates accessing the boring locations north of the Richland B&O Trail from either the trail itself or from the Moritz Concrete facility located just west of the site. As such, costs associated with limited vegetation clearing are included with this proposal.

9. One permanent, open-tube-style monitoring well is proposed to be installed as part of this project. DLZ will also perform field permeability (slug) testing on up to four separate temporary wells (boreholes). DLZ will perform either falling head or constant head testing in these separate temporary wells (boreholes) in order to estimate the in-situ hydraulic conductivity of the foundation materials.

10. Given that all borings will be drilled off of public roadways, no costs associated with traffic control are included with this proposal.

11. DLZ will provide a field geologist to log the borings and samples.

12. The borings will be advanced using conventional hollow stem augering/mud rotary techniques and sampled using a standard 2-inch OD, 1.375-inch ID split spoon sampler in general accordance with ASTM D-1586 Standard Penetration Test (SPT) Method. The borings will be sampled at continuous intervals to depths of up to 15 feet, at 2.5-foot sampling intervals to depths of up to 30 feet, and then at 5-foot sampling intervals to the completion depths of the borings.

13. Ten feet of rock core will be obtained in boring B-03A provided rock is encountered within the planned depth of this boring (100 feet).

14. During drilling standard penetration data will be developed as warranted and representative samples preserved for geotechnical laboratory testing. Up to eight relatively undisturbed (Shelby tube) samples will be obtained for laboratory testing purposes, provided that materials suitable for this type of sampling and testing are actually encountered during drilling.

15. Record water observations during drilling and measure the water levels in the borings at the completion of drilling. DLZ will then make up to four return trips to the site to obtain longer-term groundwater measurements in the proposed monitoring well.

16. Grout the borings at the completion of drilling and remediate the boring areas with grass seed and mulch or as appropriate to match the existing ground cover.

17. Precautions will be taken to minimize ground disturbance at the boring locations and the site will be restored as nearly as possible to its “pre-work” conditions.

18. All field work will be performed Monday through Friday, between the hours of 8 am and 5 pm, excluding State and Federal holidays.

19. DLZ reserves the right to stop work in the event that non-DLZ personnel are on site without proper personal protection equipment (PPE) or if other safety concerns are identified

II. Geophysical Evaluation

As discussed earlier in this proposal, DLZ is aware of several historic structures that previously existed at the site of the proposed earthen embankment dam and concrete spillway. These structures included a roller coaster with potentially significant foundation elements (e.g., wooden piling) that was replaced in the early 1920s with a large music hall (“the Coliseum”). DLZ is also aware that Touby Run was realigned (channelized) through this area in the past. Subsurface man-made features (such as abandoned structures and foundation elements) and uncontrolled fill pose significant risk to dams as the result of potential preferential seepage paths, settlement concerns, and overall stability. Therefore, DLZ proposes to perform both Ground Penetrating Radar (GPR) and Electromagnetic (EM)

detection methods to help identify the location and extent of any abandoned historic subsurface features at the proposed earthen embankment dam and concrete spillway location. This evaluation will help to reduce risk to the project as well as the potential for "differing site conditions" claims by the contractor during construction. However, no effort is included in this proposal for mitigating any subsurface man-made features since the existence and extent of such features is currently unknown.

III. Geotechnical Laboratory Testing

1. In the laboratory, all samples will be classified in accordance with the Unified Soil Classification System (USCS).

2. Laboratory testing will include moisture content determinations, particle-size analyses, and plasticity determinations of a limited number of samples considered to be representative of the subsurface conditions encountered.

3. Permeability, consolidation, and shear strength testing of relatively undisturbed (Shelby tube) samples will be performed, provided that materials suitable for this type of sampling and testing are actually encountered during drilling.

4. Formal boring logs will be prepared using the field logs and the results of laboratory testing.

5. All samples will be stored in our laboratory for six months.

IV. Geotechnical Data Report and Design Memorandum

Upon completion of the field exploration, field testing, and laboratory testing, DLZ will prepare a written Geotechnical Data Report (GDR) that contains the boring logs, laboratory testing results, subsurface exploration narrative, and geophysical evaluation results. DLZ will also prepare a separate Geotechnical Design Memorandum (GDM) that contains the engineering design calculations and recommendations.

The following will be included in the various documents:

1. Results of the borings, geophysical evaluation, field testing, and laboratory testing programs.

2. Slope stability, seepage, settlement, and foundation recommendations associated with the earthen embankment dam and concrete spillway. For the purposes of this proposal it was assumed that the final alignment, overall height, elevations, and other pertinent information associated with the earthen embankment will be provided by others for use in DLZ's analyses. For the purposes of this proposal DLZ has assumed that up to three individual dam cross sections,

geometries, and geotechnical conditions would need to be evaluated (two through the earthen embankment and one through the concrete spillway).

3. Groundwater considerations as they may affect the design or construction of the project. However, for the purposes of this proposal it was assumed that any actual dewatering programs, designs, and specifications will be by others.

4. Other aspects of the soil conditions at the site that may affect the design or construction of the project.

V. Structural Engineering Services

For the concrete labyrinth emergency spillway, DLZ's structural engineering group will:

1. Complete an initial site observation to better understand the terrain and surrounding conditions associated with the proposed spillway construction.
2. Review proposed hydrology as it pertains to the spillway construction and surrounding topography.
3. Review recommendations associated with the subsurface exploration for the proposed concrete spillway and embankment.
4. Develop the overall layout and geometry of the proposed concrete spillway.
5. Perform structural designs for the proposed concrete spillway (estimated to occupy a footprint of approximately 200 feet by 150 feet).
6. Prepare structural plans and details to be used for bidding and construction of the proposed concrete spillway.
7. Prepare specifications associated with concrete, reinforcing steel, and special inspections.
8. Submittal of plans, details, and specifications is anticipated to occur for 50%, 90%, and 100% construction documents.
9. No effort associated with the design of a lake drain structure, low-flow bypass, or other similar structures is included with this proposal.

VI. Hydrologic and Hydraulic (H&H) Services

DLZ's H&H group will work with EMH&T to provide guidance and peer reviews associated with EMH&T's hydraulic modeling of the labyrinth emergency spillway. DLZ anticipates that these efforts will include a review of the site hydrology, the 1% annual chance of exceedence (100-year) flows, and the hydraulics of the spillway structure and relevant downstream areas.

VII. Contract Document Development

Based on discussions with EMH&T, DLZ understands that we will be responsible for preparing and signing-and-sealing (by a Professional Engineer registered in the State of Ohio) the following contract documents:

- Drawings:
  - Earthen Embankment Dam Typical Cross Sections (assume three drawings)
    - Detailed cross sections (e.g., every 50 feet along the dam alignment) by others
  - Seepage Control Features (e.g., cutoffs, filters) and Backfill Details (assume four drawings)
  - Structural drawings associated with the concrete labyrinth spillway (assume four drawings)
  - DLZ will work with EMH&T to ensure that all drawings are compatible and consistent with the overall intent and requirements of the project.

- Specifications (anticipated to be separate bid-book type documents):
  - Site Clearing
  - Excavation, Backfill, and Compaction
  - Seepage Control Features
  - Berm Materials
  - Vegetation
  - Concrete
  - Reinforcing Steel
  - Special Inspections
  - Subsurface Exploration Information (added as appendix to Detailed Specifications)

DLZ will prepare quantity and cost estimates associated with the dam embankment soil materials (including filters and drains), the labyrinth concrete spillway, and all other dam-related items addressed in the GDM. DLZ has included minimal additional time in this proposal to assist EMH&T with the development of quantity and construction cost estimates associated with other project features.

COST ESTIMATE AND SCHEDULE

The total lump sum cost for the scope of services outlined above is $335,192.25. A detailed breakdown of this cost is shown on the attached Cost Estimate (Exhibit C). DLZ will not exceed the total estimated project cost without prior written approval from EMH&T.

The time schedule is anticipated to permit mobilization for geotechnical drilling within four weeks after notice to proceed. However, this schedule is subject to obtaining required authorizations from others (e.g., the City). Field activities are anticipated to take approximately two weeks to complete with the geotechnical exploration

report submitted approximately eight to ten weeks after drilling is completed. Contract Document development and submittals will be phased in coordination with EMH&T.

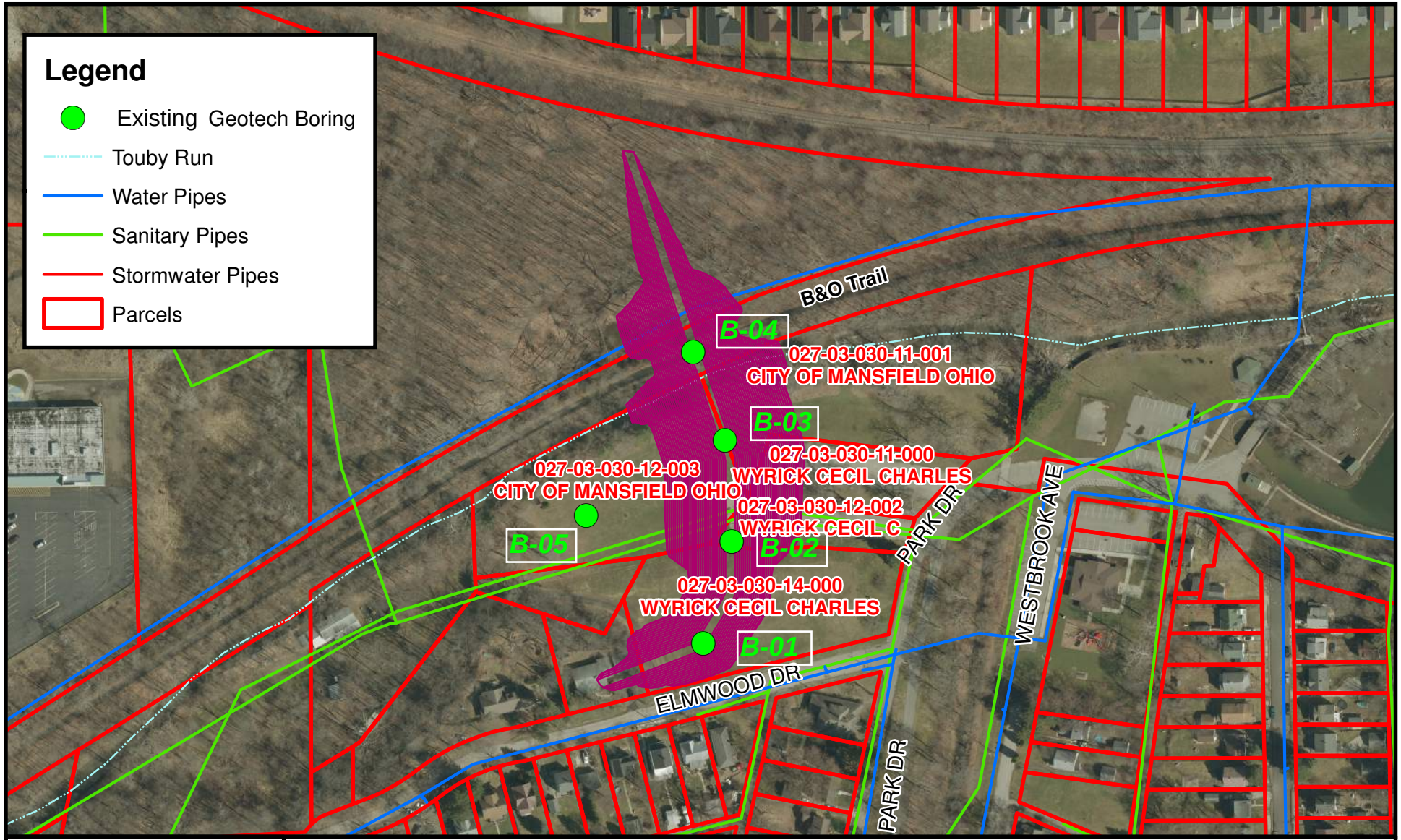
CLOSING

We look forward to working with you, EMH&T, and the City of Mansfield on this project. Please feel free to contact us at your earliest convenience if you have any questions, comments, or need any additional information.

Respectfully submitted,

DLZ OHIO, INC.:

Timothy A. Hampshire, P.E.
Director/Geotechnical Engineering



EMH&T
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43054
Phone: 614.775.4500 Toll Free: 888.775.3648
emht.com

1 " = 200 '

200 100 0 200 Feet

CITY OF MANSFIELD, RICHLAND COUNTY, OHIO

Exhibit A
Existing Boring Location Plan

Source: Aerial: City of Mansfield (2015)

Path: J:\20150536\GIS\GeotechBoringLocations.mxd

Legend

- OwnerList
- Proposed B & O Trail
- Existing B & O Trail
- Existing Communication Easement
- Existing Power Easement
- Existing Sanitary Easement
- Existing Water Easement
- Existing Conservation Easement
- Temporary Easement
- Maintenance Access Easement
- National Hydrography Dataset Flowline
- 2005 Railroads
- Existing Contours (2015)
- Parcel Boundaries (2015)
- Property Acquisition
- Proposed Flowage Easement

Upper Touby Embankment

- Major Contours
- Minor Contours

North Lake Park Utility Points

- Water Hydrant
- Water Fitting
- Water System Valve
- Sanitary Manhole
- Sanitary Fitting
- Storm Catch Basin
- Storm Outfall
- Storm Manhole
- Storm Inlet
- Storm Fitting
- Storm Culvert Point

North Lake Park Utility Mains

- Water Main
- Sanitary Main
- Storm Main
- Storm Culvert

B-16
Bikepath Bridge
B-15
B-14
B-13
Water Main relocate
B-18
Relocated B&O Trail
Replace manhole casting with water tight lid (Typ.)
B-06
B-19
APPROX. REPORTED "HISTORIC" STREAM CHANNEL
B-04
EMBANKMENT
Touby Run
B-07
B-03A
B-09
B-03
B-02A
EMERGENCY OVERFLOW CHANNEL
B-05
B-08
B-02
LABYRINTH SPILLWAY
B-12
B-01A
B-10
Replace/Realign sanitary sewers under dam (in casing pipe)
B-01
CONCRETE SPILLWAY
B-11
B-17

SACKMAN ST
TOMASH BLVD
ELMWOOD DR
W 4TH ST
N LINDEN RD
WEST PARK BLVD
MIDDLE PARK DR
PARK DR
NORTH LAKE PARK DR
WESTBROOK AVE
HOPE RD
PARKWAY DR
WESTERN AVE

Exhibit B
Proposed Boring Location Plan

Path: J:\2021\61\07\GIS\2021\5\10-TeubyRun-Workmap.mxd

Exhibit C
Geotechnical Exploration and Structural Engineering Services Cost Estimate
Touby Run Flood Mitigation Project
Mansfield, Ohio

		Unit	Rate	Qty	Cost
I	**Management, utility clearance, field reconnaissance, and drilling coordination**				
	A. Project Manager/Senior Geotechnical Engineer	hour	$185.00	40	$7,400.00
	B. Senior Structural Engineer	hour	$185.00	16	$2,960.00
	C. Staff Geotechnical Engineer	hour	$140.00	24	$3,360.00
	D. Mileage	mile	$0.585	600	$351.00
				Subtotal	$14,071.00
II	**Meetings (4) (two in the City of Mansfield, two virtual)**				
	A. Project Manager/Senior Geotechnical Engineer	hour	$185.00	24	$4,440.00
	B. Senior Structural Engineer	hour	$185.00	24	$4,440.00
	C. Staff Geotechnical Engineer	hour	$140.00	12	$1,680.00
	D. Mileage	mile	$0.585	600	$351.00
				Subtotal	$10,911.00
III	**Field Exploration**				
	A. Mobilization-Demobilization (ATV Rig and Crew)	lump sum	$500.00	2	$1,000.00
	B. ATV Rig Daily Surcharge	day	$350.00	12	$4,200.00
	C. Drilling & Sampling	foot	$18.00	725	$13,050.00
	D. Rock coring	foot	$40.00	10	$400.00
	E. Drilling & Sampling - Profile, No Sampling (for Shelby Tubes)	foot	$15.00	120	$1,800.00
	F. Thin Wall (Shelby Tube) Samples	each	$75.00	8	$600.00
	G. Cement-Bentonite Grout Backfill	foot	$9.25	825	$7,631.25
	H. Engineer Geologist	hour	$80.00	144	$11,520.00
	I. Mileage	mile	$0.585	1200	$702.00
	J. Monitoring Well and Slug Test Well Installations	foot	$35.00	150	$5,250.00
	K. Riser and Locking Cap	each	$350.00	5	$1,750.00
	L. Per diem (three-person drill crew)	day	$465.00	12	$5,580.00
	M. Traffic Control	per day	$1,200.00	0	$0.00
	N. Standby Time and Clearing	per hour	$250.00	8	$2,000.00
				Subtotal	$55,483.25
IV	**Field Testing**				
	A. Read Monitoring Wells (four trips)				
	1. Engineer Geologist	hour	$80.00	32	$2,560.00
	2. Mileage	mile	$0.585	500	$292.50
	B. Well Development (five wells)				
	1. Staff Geotechnical Engineer	hour	$140.00	24	$3,360.00
	2. Engineer Geologist	hour	$80.00	24	$1,920.00
	3.' Pump and Materials	week	$500.00	1	$500.00
	4. Mileage	mile	$0.585	500	$292.50
	5. Per diem (two-person field crew)	day	$310.00	1	$310.00
	C. Slug Testing (four wells)				
	1. Staff Geotechnical Engineer	hour	$140.00	20	$2,800.00
	2. Engineer Geologist	hour	$80.00	20	$1,600.00
	3.' Pump and Materials	week	$500.00	1	$500.00
	4. Mileage	mile	$0.585	500	$292.50
	5. Per diem (two-person field crew)	day	$310.00	1	$310.00
				Subtotal	$14,737.50
V	**Laboratory**				
	A. Visual classification - soil	each	$10.50	330	$3,465.00
	B. Moisture content	foot	$10.50	165	$1,732.50
	C. Extrude and Log Shelby Tube	each	$57.00	8	$456.00
	D. Sieve Analysis & Short Hydrometer	each	$108.00	82	$8,856.00
	E. Undisturbed Permeability (ASTM D5084)	each	$237.00	4	$948.00
	F. Consolidation	each	$618.00	2	$1,236.00
	G. Unconfined Compression Test (qu)	each	$124.00	6	$744.00
	H. Consolidated Undrained Traixial test (CU)	3 points	$1,236.00	6	$7,416.00
	I. Organic Content of Soils (Loss on Ignition)	each	$82.00	8	$656.00
				Subtotal	$25,509.50
VI	**Geotechnical Engineering Analyses & Report**				
	A. Project Manager/Senior Geotechnical Engineer	hour	$185.00	40	$7,400.00
	B. Senior Geotechnical Engineer	hour	$150.00	180	$27,000.00
	C. Staff Geotechnical Engineer	hour	$140.00	360	$50,400.00
	D. Engineer Geologist	hour	$80.00	40	$3,200.00
				Subtotal	$88,000.00
VII	**Structural Engineering Designs**				
	A. Senior Structural Engineer	hour	$185.00	60	$11,100.00
	B. Staff Structural Engineer	hour	$140.00	120	$16,800.00
				Subtotal	$27,900.00
VIII	**H&H Evaluations**				
	A. Senior H&H Engineer	hour	$185.00	40	$7,400.00
	B. Staff H&H Engineer	hour	$140.00	80	$11,200.00
				Subtotal	$18,600.00
IX	**Contract Document Preparation**				
	A. Project Manager/Senior Geotechnical Engineer	hour	$185.00	8	$1,480.00
	B. Senior Geotechnical Engineer	hour	$150.00	40	$6,000.00
	C. Staff Geotechnical Engineer	hour	$140.00	80	$11,200.00
	D. Senior Structural Engineer	hour	$185.00	40	$7,400.00
	E. Staff Structural Engineer	hour	$140.00	80	$11,200.00
	F. CAD Technician/Engineer Geologist	hour	$80.00	160	$12,800.00
				Subtotal	$50,080.00
X	**Geophysical Evaluation**				
	A. Geophysical Evaluation (Xenon Geosciences, Inc.)	lump	$26,000.00	1.15	$29,900.00
				Subtotal	$29,900.00
				TOTAL I-IV	**$335,192.25**

FEE PROPOSAL

Project: Touby Run Flood Mitigation Project
Location: Mansfield, OH
Date: 2/1/2022
Firm: EMH&T (and subconsultants)

Task	Sub-Task	Total Hours	Position:	Project Manager	Technical Leader	Sr Engineer	Engineer II	Engineer I	Engineering Aide	Technician	Sr Env Scientist	Sr Env Scientist	Env. Scientist II	Env. Scientist I	Survey Crew	Sr. Surveyor	Survey Tech	Sr. Planner	Planner	Sr. Archealogist	Archeaologist	Sr. 3D Visual Artist	3D Visual Artist	Clerical	Sr. Construction Rep.	Labor Costs	Subconsultants	Direct Costs	Total
Task 1: Project Management and Meetings		**694**		**494**	**118**	**42**	**0**	**0**	**10**	**0**	**0**	**14**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**0**	**$ 120,780.00**	**$ 23,555.00**	**$ 320.00**	**$ 144,655.00**
	Kickoff Meeting (Video w/ prep time)	18		4	4	2			2			2				2								2		$ 2,670.00	$ 1,348.00	$ 20.00	$ 4,038.00
	Progress Meetings (20)	100		30	30	16			8			12												4		$ 15,930.00	$ 10,784.00	$ -	$ 26,714.00
	Design Workshops (3)	52		20	20	12																				$ 8,920.00	$ 11,423.00	$ 200.00	$ 20,543.00
	Stakeholder Meetings (4)	60		24	24	12																				$ 10,380.00	$ -	$ 100.00	$ 10,480.00
	General Coordination	464		416	40																			8		$ 82,880.00	$ -	$ -	$ 82,880.00
Task 2 and 3: Topographic Survey and Geotechnical Investigations		**682**		**16**	**72**	**18**	**0**	**0**	**42**	**0**	**0**	**0**	**0**	**0**	**200**	**116**	**218**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ 101,510.00**	**$ 247,701.25**	**$ 5,000.00**	**$ 354,211.25**
	Topographic and Boundary Survey	258		2	8	8									200	20	20									$ 44,220.00	$ -	$ 5,000.00	$ 49,220.00
	Base Map Preparation	118			4	4			30							20	60									$ 14,330.00	$ -	$ -	$ 14,330.00
	Easement Descriptions (24)	216		2	6	6			12							60	130									$ 27,490.00	$ -	$ -	$ 27,490.00
DLZ	Subsurface Investigation (GDR) + Geophysical Evaluation	26		6	20																					$ 4,780.00	$ 139,701.25	$ -	$ 144,481.25
DLZ	Geotechnical Design Analysis (GDM)	26		6	20																					$ 4,780.00	$ 88,000.00	$ -	$ 92,780.00
	Assistance to City on Utility Easement Abandonment	30			6											16	8									$ 4,430.00	$ -	$ -	$ 4,430.00
	SUE Services (Level B & A)	8			8																					$ 1,480.00	$ 20,000.00	$ -	$ 21,480.00
Task 4: Hydrologic and Hydraulic Modeling		**1114**		**46**	**168**	**0**	**0**	**0**	**756**	**140**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**$ 130,240.00**	**$ 18,600.00**	**$ -**	**$ 148,840.00**
	Update and Finalize HEC-HMS Model	108		8	20				60	20																$ 13,040.00	$ -	$ -	$ 13,040.00
	Confirm Inundation Volume and Principal and Emergency Spillways	98		8	10				80																	$ 11,690.00	$ 18,600.00	$ -	$ 30,290.00
	Evaluate use of Spillway Gates to Optimize Dam Performance	88		8	40				40																	$ 13,040.00	$ -	$ -	$ 13,040.00
	Enhance HEC-RAS Model for 2D analysis and Establish Flood Inundation Areas Downstream	320			40				240	40																$ 35,800.00	$ -	$ -	$ 35,800.00
	Dam Break Analysis using 2D model and Inundation Mapping	264		4	20				200	40																$ 28,620.00	$ -	$ -	$ 28,620.00
	Update/revise Flood Hazard Modeling for N. Main Street Mass Fill Project	22		2	4				16																	$ 2,780.00	$ -	$ -	$ 2,780.00
	Prepare HEC-RAS model for UT to Touby Run at new B&O Trail Bridge	44			4				40																	$ 4,940.00	$ -	$ -	$ 4,940.00
	Summary Engineering Report (submitted with Schematic Plans)	170		16	30				80	40														4		$ 20,330.00	$ -	$ -	$ 20,330.00
Task 5: Engineering Plans and Specifications (Dam Embankment)		**2116**		**126**	**396**	**252**	**0**	**0**	**824**	**128**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**60**	**60**	**0**	**0**	**70**	**120**	**40**	**40**	**$ 270,020.00**	**$ 213,324.00**	**$ 3,100.00**	**$ 486,444.00**
A.	**Schematic Alignment Plans**	**714**		**50**	**102**	**20**	**0**	**0**	**232**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**60**	**60**	**0**	**0**	**70**	**120**	**0**	**0**	**$ 90,830.00**	**$ 100,560.00**	**$ 100.00**	**$ 191,490.00**
DLZ	Preliminary Embankment/Spillway Grading Plan	100		4	16				80																	$ 12,080.00	$ 10,000.00	$ -	$ 22,080.00
DLZ	Emergency Spillway Structural Design Calculations	12		4	8																					$ 2,200.00	$ 27,900.00	$ -	$ 30,100.00
	Principal Spillway and Energy Dissipation Structure Concept	58		6	12				40																	$ 7,500.00	$ -	$ -	$ 7,500.00
	Evaluate Removal of Low Head Dam and Extension of North Lake Fill Pipe to Dam	50		4	6				40																	$ 6,030.00	$ -	$ -	$ 6,030.00
SJL	Layout/Alignment of Relocated Public Utilities (Water Main/Sanitary Sewers)	22		4	12				6																	$ 3,570.00	$ 21,950.00	$ -	$ 25,520.00
SJL	Layout/Alignment of Relocated B&O Trail and Bike Path Bridge	20		2	12				6																	$ 3,210.00	$ 40,040.00	$ -	$ 43,250.00
	ODNR Coordination Regarding Dam Safety Design Criteria	16		8	8																					$ 2,920.00	$ -	$ -	$ 2,920.00
DLZ/SJL	Preliminary EOPCC	106		6	20	20			60																	$ 13,780.00	$ 670.00	$ -	$ 14,450.00
	Graphical Visualizations	210		12	8																	70	120			$ 24,240.00	$ -	$ 100.00	$ 24,340.00
	Coordination with City Park Staff and Prelim Planning for Park Improvements	120																60	60							$ 15,300.00	$ -	$ -	$ 15,300.00
B.	**Final Engineering**	**1402**		**76**	**294**	**232**	**0**	**0**	**592**	**128**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**40**	**40**	**$ 179,190.00**	**$ 112,764.00**	**$ 3,000.00**	**$ 294,954.00**
	Plan Sheet Set-up	42		2					40																	$ 4,560.00	$ -	$ -	$ 4,560.00
	Construction Access and Demo Plan, Environmetal Features	100			20				80																	$ 12,100.00	$ -	$ -	$ 12,100.00
DLZ	Refined Embankment/Spillway Grading Plans	52		4	8				40																	$ 6,400.00	$ -	$ -	$ 6,400.00
	Proposed Embankment Cross-sections	72		4	8				60																	$ 8,500.00	$ -	$ -	$ 8,500.00
	Seepage Control Measures	80			20				60																	$ 10,000.00	$ -	$ -	$ 10,000.00
	Layout, Profile, Details for Principal Spillway, including Inlet Structure	100			20				80																	$ 12,100.00	$ -	$ -	$ 12,100.00
	Layout, Profile, Details for Principal Spillway Energy Dissipation Structure	260			20	160			80																	$ 33,700.00	$ -	$ -	$ 33,700.00
	Layout, Profile for New North Lake Feeder	32				8			24																	$ 3,600.00	$ -	$ -	$ 3,600.00
DLZ	Layout, Profile, Details for Emergency Spillway, including Labyrinth Weir	22		6	8				8																	$ 3,400.00	$ 20,000.00	$ -	$ 23,400.00
SJL	Plan, Profile, Details, Notes, Specs for the Water Main Relocation	14		4	6				4																	$ 2,250.00	$ 8,596.00	$ -	$ 10,846.00
SJL	Plan, Profile, Details, Notes, Specs for the Sanitary Sewer Replacement/Realignment	14		4	6				4																	$ 2,250.00	$ 8,596.00	$ -	$ 10,846.00
SJL	Plan, Profile, Details for the B&O Trail Realignment and Bike Path Bridge	20		4	12				4																	$ 3,360.00	$ 50,736.00	$ -	$ 54,096.00
	Site Restoration Plan	32			4				28																	$ 3,680.00	$ -	$ -	$ 3,680.00
	Exhibit of Permanent Easement Boundaries	30			6				24																	$ 3,630.00	$ -	$ -	$ 3,630.00
	Erosion and Sediment Control Plan	104				24				80																$ 9,640.00	$ -	$ -	$ 9,640.00
	Maintenance of Traffic Plan	48			8					40																$ 4,680.00	$ -	$ -	$ 4,680.00
	Notes and Specifications (Dam and Appurtenances)	96			80					8														8		$ 16,040.00	$ -	$ -	$ 16,040.00
DLZ/SJL	Revised EOPCC	80		8	16	16			40																	$ 10,760.00	$ 548.00	$ -	$ 11,308.00
	Internal QA/QC	112		24	24	24																			40	$ 16,400.00	$ -	$ -	$ 16,400.00
DLZ/SJL	Submit Draft (50%) Design Plan to the City	24		4	8				4															8		$ 3,220.00	$ 11,440.00	$ 750.00	$ 15,410.00
DLZ/SJL	Prepare and Submit 90% Plans to the City	24		4	8				4															8		$ 3,220.00	$ 6,440.00	$ 750.00	$ 10,410.00
DLZ/SJL	Prepare and Submit 100% Plans to the City	24		4	8				4															8		$ 3,220.00	$ 5,024.00	$ 750.00	$ 8,994.00
DLZ/SJL	Plan Approval/Signatures	20		4	4				4															8		$ 2,480.00	$ 1,384.00	$ 750.00	$ 4,614.00
C.	**Final Engineering of Mechanical Gates (If Authorized)**	**38**		**6**	**32**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ 7,000.00**	**$ 40,000.00**	**$ -**	**$ 47,000.00**
	Mechanical & Electrical Design Allowance	38		6	32																					$ 7,000.00	$ 40,000.00	$ -	$ 47,000.00
Task 6: Engineering Plans & Specifications (North Main Street)		**278**		**14**	**10**	**90**	**0**	**0**	**164**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ 33,740.00**	**$ -**	**$ 110.00**	**$ 33,850.00**
	Refine Previous Draft Plans for Submittal to the City	132		4		48			80																	$ 15,600.00	$ -	$ 20.00	$ 15,620.00
	Prepare and Submit Final Plans to the City	70		6		24			40																	$ 8,520.00	$ -	$ 20.00	$ 8,540.00
	Coordination of Final South Park Plans	26			6	4			16																	$ 3,330.00	$ -	$ -	$ 3,330.00
	Revised Final Plans for South Park Project	34		2	4	4			24																	$ 4,160.00	$ -	$ 20.00	$ 4,180.00
	Opinion of Probable Cost	12		2		6			4																	$ 1,590.00	$ -	$ -	$ 1,590.00
	Plan Approval/Signatures	4				4																				$ 540.00	$ -	$ 50.00	$ 590.00
		0																								$ -	$ -	$ -	$ -
Task 7: Permitting		**1546**		**12**	**116**	**0**	**0**	**0**	**388**	**64**	**4**	**444**	**232**	**42**	**0**	**0**	**0**	**0**	**0**	**100**	**124**	**0**	**0**	**20**	**0**	**$ 185,280.00**	**$ -**	**$ 34,080.00**	**$ 219,360.00**
A.	**ODNR Dam Safety Permitting**	**572**		**0**	**108**	**0**	**0**	**0**	**380**	**64**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**$ 66,500.00**	**$ -**	**$ 1,400.00**	**$ 67,900.00**
	Preliminary Design Report	224			40				140	40														4		$ 25,600.00	$ -	$ 500.00	$ 26,100.00
	Final Design Report	188			40				120	24														4		$ 22,220.00	$ -	$ 500.00	$ 22,720.00
	EAP w/ Inundation Mapping from Task 4 Modeling	76			8				60															8		$ 8,380.00	$ -	$ 300.00	$ 8,680.00
	OM&I Plan	84			20				60															4		$ 10,300.00	$ -	$ 100.00	$ 10,400.00
		0																								$ -	$ -	$ -	$ -
B.	**Environmental (Waterway) Permitting**	**974**		**12**	**8**	**0**	**0**	**0**	**8**	**0**	**4**	**444**	**232**	**42**		**0**	**0**	**0**	**0**	**100**	**124**	**0**	**0**	**0**	**0**	**$ 118,780.00**	**$ -**	**$ 32,680.00**	**$ 151,460.00**
	Surface Water Delineation	70										5	45	20												$ 7,000.00	$ -	$ 200.00	$ 7,200.00
	Habitat Assessments	32											22	10												$ 3,100.00	$ -	$ -	$ 3,100.00
	FWS/DNR Consultation	15										15														$ 2,100.00	$ -	$ -	$ 2,100.00
	Mussel Reconnaissance	52									4	4	32	12												$ 5,460.00	$ -	$ 440.00	$ 5,900.00
	Phase I CRM Survey	224																		100	124					$ 24,540.00	$ -	$ 2,700.00	$ 27,240.00
	Individual Permit Application	328		12	8				8			200	100													$ 42,480.00	$ -	$ 29,140.00	$ 71,620.00
	Response to Comments & Public Hearing	58										40	18													$ 7,400.00	$ -	$ 100.00	$ 7,500.00
	Conservation Easement Coordination	75										60	15													$ 9,900.00	$ -	$ 100.00	$ 10,000.00
	General Coordination - Permitting	120										120														$ 16,800.00	$ -	$ -	$ 16,800.00
Task 8: Other Support Services		**174**		**90**	**0**	**50**	**0**	**30**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ 26,820.00**	**$ -**	**$ 60.00**	**$ 26,880.00**
	OPWC Grant Applications - Support Services	74		20		20		30	4																	$ 10,170.00	$ -	$ 20.00	$ 10,190.00
	B&O Trail Rail De-Banking - Support Services	20		20																						$ 3,600.00	$ -	$ 20.00	$ 3,620.00
	N&S R.R. at N. Main Street - Support Services	80		50		30																				$ 13,050.00	$ -	$ 20.00	$ 13,070.00
Task 9: Bidding Support Services		**40**		**16**	**0**	**24**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ 6,120.00**	**$ -**	**$ 50.00**	**$ 6,170.00**
	Bidding Support for N. Main Street and South Park projects	40		16		24																				$ 6,120.00	$ -	$ 50.00	$ 6,170.00
Task 10: Miscellaneous Engineering Services		**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ 75,000.00**	**$ -**	**$ -**	**$ 75,000.00**
Totals (Base Scope of Services)		**6644**		**814**	**880**	**476**	**0**	**30**	**2188**	**332**	**4**	**458**	**232**	**42**	**200**	**118**	**218**	**60**	**60**	**100**	**124**	**70**	**120**	**78**	**40**	**$ 949,510.00**	**$ 503,180.25**	**$ 42,720.00**	**$ 1,495,410.25**
																									If Authorized=	**$ 7,000.00**	**$ 40,000.00**	**$ -**	**$ 47,000.00**
																									TOTAL FEES =	**$ 956,510.00**	**$ 543,180.25**	**$ 42,720.00**	**$ 1,542,410.25**

FEE PROPOSAL

Project: Touby Run Flood Mitigation Project
Location: Mansfield, OH
Date: 1/21/2022
Firm: DLZ

Task	Sub-Task	Total Hours	Position:	Project Manager	Technical Leader	Sr Engineer	Engineer II	Engineer I	Engineering Aide	Technician	Clerical	Sr. Construction Rep.	Labor Costs	Direct Costs	Total
Project Management and Meetings		**76**		**38**	**0**	**38**	**0**	**0**	**0**	**0**	**0**	**0**	**$ 14,060.00**	**$ 350.00**	**$ 14,410.00**
	Kickoff Meeting (Video w/ prep time)	4		2		2							$ 740.00		$ 740.00
	Progress Meetings (8) - virtual	32		16		16							$ 5,920.00	$ -	$ 5,920.00
	Design Workshops (3) - in person	40		20		20							$ 7,400.00	$ 350.00	$ 7,750.00
		0											$ -	$ -	$ -
		0											$ -	$ -	$ -
Task 2 and 3: Topographic Survey and Geotechincal Investigations		**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ 227,701.25**	**$ -**	**$ 227,701.25**
	Topographic and Boundary Survey	0											$ -	$ -	$ -
	Base Map Preparation	0											$ -	$ -	$ -
	Easement Descriptions (12)	0											$ -	$ -	$ -
DLZ	Subsurface Investigation (GDR)	0		**Tasks I, III, IV, V, and X from attached DLZ scope of services**									$ 139,701.25	$ -	$ 139,701.25
DLZ	Geotechnical Design Analysis (GDM)	0		**Task VI from attached DLZ scope of services**									$ 88,000.00	$ -	$ 88,000.00
	Assistance to City on Utility Easement Abandonment	0											$ -	$ -	$ -
	SUE Services (Level B & A)	0											$ -	$ -	$ -
Task 4: Hydrologic and Hydraulic Modeling		**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ 18,600.00**	**$ -**	**$ 18,600.00**
	Prepare HEC-HMS Model and Size Principle/Emergency Spillways	0											$ 18,600.00	$ -	$ 18,600.00
	Evaluate use of Spillway Gates to Optimize Dam Performance	0											$ -	$ -	$ -
	Re-run HEC-RAS Model to Establish Flood Inundation Aareas Downstream (2D?)	0											$ -	$ -	$ -
	Dam Break Analysis and Inundation Mapping	0											$ -	$ -	$ -
	Update/revise Flood Hazard Modeling for N. Main Street Mass Fill Project	0											$ -	$ -	$ -
	Prepare HEC-RAS model for UT to Tounby Run at new B&O Trail Bridge	0											$ -	$ -	$ -
	Summary Engineering Report (submitted with Schematic Plans)	0											$ -	$ -	$ -
Task 5: Engineering Plans and Specifications (Dam Embankment)		**120**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ 77,980.00**	**$ -**	**$ 77,980.00**
A.	**Schematic Alignment Plans**	**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ 37,900.00**	**$ -**	**$ 37,900.00**
DLZ	Preliminary Emabnkment/Spillway Grading Plan	0		**Derived from Task IX from attached DLZ scope of services**									$ 10,000.00	$ -	$ 10,000.00
DLZ	Emergency Spillway Design Calculations	0		**Task VII from attached DLZ scope of services**									$ 27,900.00	$ -	$ 27,900.00
	Evaluate Removal of Low Head Dam and Extension of North Lake Fill Pipe to Dam	0											$ -	$ -	$ -
	Layout/Alignment of Relocated Public Utilities (Water Main/Sanitary Sewers)	0											$ -	$ -	$ -
	Layout/Alignment of Relocated B&O Trail and Bike Path Bridge	0											$ -	$ -	$ -
	ODNR Coordination Regarding Dam safety Design Criteria	0											$ -	$ -	$ -
	Preliminary EOPCC	0											$ -	$ -	$ -
	Coordination with City Park Staff and Prelim Planning for Park Improvements	0											$ -	$ -	$ -
B.	**Final Engineering**	**120**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ 40,080.00**	**$ -**	**$ 40,080.00**
	Plan Sheet Set-up	0											$ -	$ -	$ -
	Construction Access and Demo Plan, Environmetal Features	120											$ -	$ -	$ -
	Refined Embankment/Spillway Grading Plans	0											$ -	$ -	$ -
	Proposed Embankment Cross-sections	0											$ -	$ -	$ -
	Seepage Control Measures	0											$ -	$ -	$ -
	Layout, Profile, Details for Principle Spillway, including Inlet Structure	0											$ -	$ -	$ -
DLZ	Layout, Profile, Details for Emergency Spillway, including Labyrinth Weir	0		**Derived from Task IX from attached DLZ scope of services**									$ 20,000.00	$ -	$ 20,000.00
	Plan, Profile, Details, Notes, Specs for the Water Main Relocation	0											$ -	$ -	$ -
	Plan, Profile, Details, Notes, Specs for the Sanitary Sewer Replacement/Realignment	0											$ -	$ -	$ -
	Plan, Profile, Details for the B&O Trail Realignment and Bike Path Bridge	0											$ -	$ -	$ -
	Site Restoration Plan	0											$ -	$ -	$ -
	Exhibit of Permanent Easement Boundaries	0											$ -	$ -	$ -
	Erosion and Sediment Control Plan	0											$ -	$ -	$ -
	Maintenance of Traffic Plan	0											$ -	$ -	$ -
	Notes and Specifications (Dam and Appurtenances)	0											$ -	$ -	$ -
	Revised EOPCC	0											$ -	$ -	$ -
	Internal QA/QC	0											$ -	$ -	$ -
DLZ/SJL	Submit Draft (50%) Design Plan to the City	0		**Derived from Task IX from attached DLZ scope of services**									$ 10,000.00	$ -	$ 10,000.00
DLZ/SJL	Prepare and Submit 90% Plans to the City	0		**Derived from Task IX from attached DLZ scope of services**									$ 5,000.00	$ -	$ 5,000.00
DLZ/SJL	Prepare and Submit 100% Plans to the City	0		**Derived from Task IX from attached DLZ scope of services**									$ 4,000.00	$ -	$ 4,000.00
DLZ/SJL	Plan Approval/Signatures	0		**Derived from Task IX from attached DLZ scope of services**									$ 1,080.00	$ -	$ 1,080.00
C.	**Final Engineering of Mechanical Gates (If Authorized)**	**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ -**	**$ -**	**$ -**
Task 6: Engineering Plans & Specifications (North Main Street)		**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ -**	**$ -**	**$ -**
	Refine Previous Draft Plans for Submittal to the City	0											$ -	$ -	$ -
	Prepare and Submit Final Plans to the City	0											$ -	$ -	$ -
	Revise Final South Park Plans	0											$ -	$ -	$ -
	Plan Approval/Signatures	0											$ -	$ -	$ -
	Revised Final Plans for South Park Project	0											$ -	$ -	$ -
		0											$ -	$ -	$ -
		0											$ -	$ -	$ -
Task 7: Permitting		**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ -**	**$ -**	**$ -**
	USACE Section 404/401 Individual Permit Application	**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ -**	**$ -**	**$ -**
Task 8: Other Support Services		**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ -**	**$ -**	**$ -**
	OPWC Grant Applications - Support Services	0											$ -	$ -	$ -
	B&O Trail Rail De-Banking - Support Services	0											$ -	$ -	$ -
	N&S R.R. at N. Main Street - Support Services	0											$ -	$ -	$ -
Totals (Base Scope of Services)		**196**		**38**	**0**	**38**	**0**	**0**	**0**	**0**	**0**	**0**	**$ 338,341.25**	**$ 350.00**	**$ 338,691.25**

		20		20		30
		50		30		

FEE PROPOSAL

Project: Touby Run Flood Mitigation Project
Location: Mansfield, OH
Date: 1/21/2022
Firm: SJL

Task	Sub-Task	Total Hours	Position:	Project Manager	Technical Leader	Sr Engineer	Engineer II	Engineer I	Engineering Aide	Technician	Clerical	Sr. Construction Rep.	Labor Costs	Direct Costs	Total
Project Management and Meetings		**60**		**30**	**0**	**30**	**0**	**0**	**0**	**0**	**0**	**0**	**$ 9,120.00**	**$ 25.00**	**$ 9,145.00**
	Kickoff Meeting (Video w/ prep time)	4		2		2							$ 608.00	$ -	$ 608.00
	Progress Meetings (20)	32		16		16							$ 4,864.00	$ -	$ 4,864.00
	Design Workshops (3)	24		12		12							$ 3,648.00	$ 25.00	$ 3,673.00
	Stakeholder Meetings (4)	0											$ -	$ -	$ -
		0											$ -	$ -	$ -
Task 2 and 3: Topographic Survey and Geotechnical Investigations		**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ -**	**$ -**	**$ -**
	Topographic and Boundary Survey	0											$ -	$ -	$ -
	Base Map Preparation	0											$ -	$ -	$ -
	Easement Descriptions (12)	0											$ -	$ -	$ -
DLZ	Subsurface Investigation (GDR)	0											$ -	$ -	$ -
DLZ	Geotechnical Design Analysis (GDM)	0											$ -	$ -	$ -
	Assistance to City on Utility Easement Abandonment	0											$ -	$ -	$ -
	SUE Services (Level B & A)	0											$ -	$ -	$ -
Task 4: Hydrologic and Hydraulic Modeling		**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ -**	**$ -**	**$ -**
	Prepare HEC-HMS Model and Size Principle/Emergency Spillways	0											$ -	$ -	$ -
	Evaluate use of Spillway Gates to Optimize Dam Performance	0											$ -	$ -	$ -
	Re-run HEC-RAS Model to Establish Flood Inundation Aareas Downstream (2D?)	0											$ -	$ -	$ -
	Dam Break Analysis and Inundation Mapping	0											$ -	$ -	$ -
	Update/revise Flood Hazard Modeling for N. Main Street Mass Fill Project	0											$ -	$ -	$ -
	Prepare HEC-RAS model for UT to Tounby Run at new B&O Trail Bridge	0											$ -	$ -	$ -
	Summary Engineering Report (submitted with Schematic Plans)	0											$ -	$ -	$ -
Task 5: Engineering Plans and Specifications (Dam Embankment)		**1258**		**207**	**0**	**99**	**480**	**352**	**0**	**0**	**0**	**0**	**$ 135,414.00**	**$ -**	**$ 135,534.00**
A.	**Schematic Alignment Plans**	**529**		**118**	**0**	**45**	**178**	**188**	**0**	**0**	**0**	**0**	**$ 62,660.00**	**$ -**	**$ 62,660.00**
DLZ	Preliminary Emabnkment/Spillway Grading Plan	0											$ -	$ -	$ -
DLZ	Emergency Spillway Design Calculations	0											$ -	$ -	$ -
	Evaluate Removal of Low Head Dam and Extension of North Lake Fill Pipe to Dam	0											$ -	$ -	$ -
SJL	Layout/Alignment of Relocated Public Utilities (Water Main/Sanitary Sewers)	190		55			55	80					$ 21,950.00	$ -	$ 21,950.00
SJL	Layout/Alignment of Relocated B&O Trail and Bike Path Bridge	334		62		44	120	108					$ 40,040.00	$ -	$ 40,040.00
	ODNR Coordination Regarding Dam safety Design Criteria	0											$ -	$ -	$ -
DLZ/SJL	Preliminary EOPCC	5		1		1	3						$ 670.00	$ -	$ 670.00
	Coordination with City Park Staff and Prelim Planning for Park Improvements	0											$ -	$ -	$ -
B.	**Final Engineering**	**729**		**89**	**0**	**54**	**302**	**164**	**0**	**0**	**0**	**0**	**$ 72,754.00**	**$ -**	**$ 72,874.00**
	Plan Sheet Set-up	0											$ 70.00	$ -	$ 190.00
	Construction Access and Demo Plan, Environmetal Features	120											$ -	$ -	$ -
DLZ	Refined Embankment/Spillway Grading Plans	0											$ -	$ -	$ -
	Proposed Embankment Cross-sections	0											$ -	$ -	$ -
	Seepage Control Measures	0											$ -	$ -	$ -
	Layout, Profile, Details for Principle Spillway, including Inlet Structure	0											$ -	$ -	$ -
DLZ	Layout, Profile, Details for Emergency Spillway, including Labyrinth Weir	0											$ -	$ -	$ -
SJL	Plan, Profile, Details, Notes, Specs for the Water Main Relocation	77		19			20	38					$ 8,596.00	$ -	$ 8,596.00
SJL	Plan, Profile, Details, Notes, Specs for the Sanitary Sewer Replacement/Realignment	77		19			20	38					$ 8,596.00	$ -	$ 8,596.00
SJL	Plan, Profile, Details for the B&O Trail Realignment and Bike Path Bridge	417		43		46	250	78					$ 50,736.00	$ -	$ 50,736.00
	Site Restoration Plan	0											$ -	$ -	$ -
	Exhibit of Permanent Easement Boundaries	0											$ -	$ -	$ -
	Erosion and Sediment Control Plan	0											$ -	$ -	$ -
	Maintenance of Traffic Plan	0											$ -	$ -	$ -
	Notes and Specifications (Dam and Appurtenances)	0											$ -	$ -	$ -
DLZ/SJL	Revised EOPCC	4		1		1	2						$ 548.00	$ -	$ 548.00
	Internal QA/QC	0											$ -	$ -	$ -
DLZ/SJL	Submit Draft (50%) Design Plan to the City	12		2		2	4	4					$ 1,440.00	$ -	$ 1,440.00
DLZ/SJL	Prepare and Submit 90% Plans to the City	12		2		2	4	4					$ 1,440.00	$ -	$ 1,440.00
DLZ/SJL	Prepare and Submit 100% Plans to the City	8		2		2	2	2					$ 1,024.00	$ -	$ 1,024.00
DLZ/SJL	Plan Approval/Signatures	2		1		1							$ 304.00	$ -	$ 304.00
C.	**Final Engineering of Mechanical Gates (If Authorized)**	**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ -**	**$ -**	**$ -**
Task 6: Engineering Plans & Specifications (North Main Street)		**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ -**	**$ -**	**$ -**
	Refine Previous Draft Plans for Submittal to the City	0											$ -	$ -	$ -
	Prepare and Submit Final Plans to the City	0											$ -	$ -	$ -
	Revise Final South Park Plans	0											$ -	$ -	$ -
	Plan Approval/Signatures	0											$ -	$ -	$ -
	Revised Final Plans for South Park Project	0											$ -	$ -	$ -
		0											$ -	$ -	$ -
		0											$ -	$ -	$ -
Task 7: Permitting		**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ -**	**$ -**	**$ -**
Task 8: Other Support Services		**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ -**	**$ -**	**$ -**
	OPWC Grant Applications - Support Services	0											$ -	$ -	$ -
	B&O Trail Rail De-Banking - Support Services	0											$ -	$ -	$ -
	N&S R.R. at N. Main Street - Support Services	0											$ -	$ -	$ -
Totals (Base Scope of Services)		**1318**		**237**	**0**	**129**	**480**	**352**	**0**	**0**	**0**	**0**	**$ 144,534.00**	**$ 25.00**	**$ 144,679.00**

Legend

- OwnerList
- Watermain (To Be Relocated)
- Stream To Survey (~840 feet)
- Manholes or Structures to Survey
- Survey Boundary (~21.72 acres)
- Wetland Delineation (~30.60 acres)
- Potential Channel Impacts (~800 feet)
- Proposed B & O Trail
- Existing B & O Trail
- Existing Communication Easement
- Existing Power Easement
- Existing Sanitary Easement
- Existing Water Easement
- Existing Conservation Easement
- Temporary Easement
- Maintenance Access Easement
- National Hydrography Dataset Flowline
- 2005 Railroads
- Existing Contours (2015)
- Parcel Boundaries (2015)
- Property Acquisition
- Proposed Flowage Easement

Upper Touby Embankment

- Major Contours
- Minor Contours

North Lake Park Utility Points

- Water Hydrant
- Water Fitting
- Water System Valve
- Sanitary Manhole
- Sanitary Fitting
- Storm Catch Basin
- Storm Outfall
- Storm Manhole
- Storm Inlet
- Storm Fitting
- Storm Culvert Point

North Lake Park Utility Mains

- Water Main
- Sanitary Main
- Storm Main
- Storm Culvert

Survey Topo/Utilities Within This Boundary

Relocate Watermain

Survey Channel Cross Sections at 40-feet intervals + irregularities

Existing Low Head Dam

Proposed Embankment and Spillway

Touby Run

Existing Lake Feeder Pipe

New B&O Trail Alignment

Replace/protect Sanitary Sewers

Survey Manhole (typ.)

Survey Topo/Utilities Within This Boundary

SACKMAN ST

TOMASH BLVD

ELMWOOD DR

W 4TH ST

N LINDEN RD

WEST PARK BLVD

MIDDLE PARK DR

PARK DR

NORTH LAKE PARK DR

WESTBROOK AVE

HOPE RD

PARKWAY DR

WESTERN AVE

9 8 5 3 15 2 11 12 16 14A 1 14 10 16 3 6

CITY OF MANSFIELD, RICHLAND COUNTY, OHIO

TOUBY RUN FLOOD MITIGATION

UPPER TOUBY REGIONAL DETENTION
EASEMENT, SURVEY, AND LAYOUT EXHIBIT

1

0 30 60 120 Feet

EMH&T
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43054
Phone: 614.775.4500 toll Free: 888.775.3648
emht.com

Date:	January 20, 2022
Scale:	1" = 60'
Job No:	2021-5010
Sheet:	1 of 1

Path: J:\2021\5010\GIS\2021501O TrailyRun-Workmap.mxd