

A RESOLUTION AUTHORIZING THE MAYOR AND FINANCE DIRECTOR TO ENTER INTO AN AGREEMENT WITH CTI ENGINEERS, INC. TO PROVIDE PROFESSIONAL ENGINEERING CONSULTING SERVICES FOR THE DESIGN PHASE OF THE PARTIAL FORCE MAIN REPLACEMENT ON BRECKSVILLE ROAD AND REPLACEMENT OF PUMP STATION NO. 2, AND DECLARING AN EMERGENCY

WHEREAS, the Village intends to develop the most cost-effective solution to repair, replace, or bypass the 16-inch force main along Brecksville Road to minimize frequent force main breaks, as well as improve and eventually replace Pump Station No. 2; and

WHEREAS, CTI Engineers, Inc., a professional engineering firm, was authorized to perform a study on the intended improvements and prepared and presented a report, titled *The Pump Station No. 2 and 16-Inch Force Main Engineering Report* to the Village Administration sometime in February of 2020 that detailed their recommendations; and


WHEREAS, this Council determines that CTI Engineers, Inc. is qualified to study, evaluate, and design the project and to determine a construction budget for the full scope of the project.

NOW, THEREFORE, BE IT RESOLVED by the Council of the Village of Richfield, Summit County, State of Ohio, that:

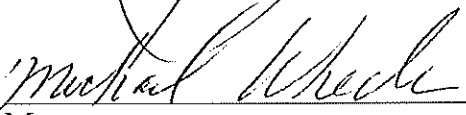
- SECTION 1. The Mayor and the Finance Director are authorized and directed to enter into an agreement with CTI Engineers, Inc. for professional engineering consulting services for the design phase of the partial replacement of the force main on Brecksville Road and replacement of Pump Station No. 2 as described above and pursuant to the proposal submitted by CTI Engineers, Inc. dated October 5, 2020, attached hereto as Exhibit A in an amount not to exceed \$181,280, which represents CTI's quote of \$164,800.00 and a 10% contingency for unknown and unforeseen expenditures.
- SECTION 2. Because the contract for professional engineering services, this Council waives the requirement of competitive bidding pursuant to Section 141.03(f) of the Richfield Codified Ordinances.
- SECTION 3. It is found and determined that all formal actions of this Council concerning and relating to the adoption of this Resolution were adopted in an open meeting of this Council, and that all deliberations of this Council and of any of its committees that resulted in such formal action were in meetings open to the public, in compliance with all legal requirements including Section 121.22 of the Ohio Revised Code.

SECTION 4. This Resolution is declared to be an emergency measure necessary for the immediate preservation of the public health, safety and general welfare and for the further reason that it is immediately necessary in order to allow the Project to move forward at the earliest possible time; wherefore, provided this Resolution receives the affirmative vote of two-thirds of the members of Council elected or appointed, it shall take effect immediately upon its passage and execution by the Mayor; otherwise, it shall take effect and be in force from and after the earliest period allowed by law.

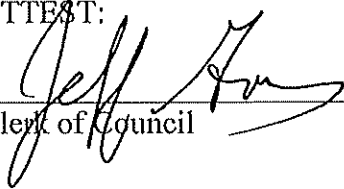
PASSED: 10-20-2020



President of Council



Mayor

ATTEST:


Clerk of Council

Dated: 10-20-2020



CTI ENGINEERS, INC.
One Cascade Plaza
Suite 710
Akron, Ohio 44308
Phone 330.294.5996
Fax 330.315.0945
www.ctiengr.com

October 5, 2020

Mr. Scott Keserich
Village of Richfield, Utilities Division
4410 W. Streetsboro Road
Richfield, OH 44286

Subject: Proposal for Pump Station No. 2 Force Main Replacement and Pump Station
Improvements
CTI Proposal No. EP20026

Dear Mr. Keserich:

In response to comments from Mr. Chris Papp, CTI Engineers has revised our previous force main replacement proposal to include phased improvements to Pump Station No. 2. The initial improvement phase will upgrade the station with variable frequency drives to control the pump motors. The second phase will consist of a station replacement that reuses the variable frequency drive equipment. This design will allow the Village to choose when to commence the second improvement phase.

The Scope of Services and fee calculation spreadsheet from the initial proposal have been revised with estimated hours and costs. The total fee for the design services described will not exceed One Hundred Sixty-Four Thousand Eight Hundred Dollars (\$164,800.00) without prior authorization of the Village of Richfield. This fee includes limited services during the bidding and construction phases of the force main replacement and initial pump station improvement phase.

We appreciate the opportunity to provide services to the Village and look forward to continuing to provide services to you on this project. If you have any questions or desire any changes in the proposed scope of services, please do not hesitate to contact me at 330-294-5996.

Sincerely,

CTI ENGINEERS, INC.

A handwritten signature in black ink that reads 'David B. Kohlmeier'.

David B. Kohlmeier, P.E.
Vice President/Senior Project Manager

Attachments

VILLAGE OF RICHFIELD PUMP STATION NO. 2 FORCE MAIN REPLACEMENT

SCOPE OF SERVICES

The *Pump Station No. 2 & 16-Inch Force Main Engineering Report* (CTI Engineers, Inc., February 2020) recommended partial force main replacement as the first improvement to minimize the frequent force main breaks occurring along Brecksville Road followed by improvements to Pump Station No. 2. An initial 1,500 linear feet (LF) of replacement was recommended based on the locations of past main breaks on the west side of Brecksville Road. The below scope of services is based upon this recommendation. CTI notes the linear footage of replacement may be increased or decreased if the extents of damaged pipe can be more precisely identified by closed-circuit television (CCTV) inspection performed now or during force main construction.

Additionally, the Village of Richfield has decided to implement improvements at Pump Station No. 2 in a two-phased approach. An initial project phase will retrofit the pump station with variable frequency drives (VFDs) to power the existing pump motors. Later, replacement of the station, pumps, and other mechanical equipment will be performed as the second phase. CTI has included design of both phases in this proposal, allowing the Village to implement either phase at an opportune time.

I. Basic Services of CTI Engineers, Inc. (CTI):

Partial Force Main Replacement

1. Gather information and data for the project and attend a kickoff meeting with the CLIENT to determine the CLIENT's requirements and goals for the project. This task will include review of CCTV inspection video of the existing force main if obtained by the Village.
2. CTI and its Subconsultants will perform survey of topography and property for the project within the right-of-way, plus 25 feet on either side of the right-of-way for a survey length of approximately 1,500 LF on Brecksville Road between approximately Station 223+00 to 238+00 as shown in Figure 1. Desired replacement extents will be confirmed with the Village prior to mobilizing the survey crew.

Survey crew field work shall include horizontal and vertical control tied to Ohio coordinate system, North Zone NAD83 (2011 NSRS) and NAVD 88, centerline survey of road right-of-way and property line survey through easement areas. Topographic data collection will be performed within the stated survey areas and will include visible utilities and those marked by OUPS or others. The surveyor will establish benchmarks and centerline control points for the survey.

Surveyor will contact OUPS for utility data, research road right-of-way records, Summit County Auditor ownership data and local utility records. The survey basemap will be prepared in AutoCAD format. Centerline control data will be analyzed for road alignment and easement records provided for easement right-of-way determination. CTI will prepare a Survey Sheet and coordinate table to provide construction layout information.

3. A subsurface exploration will be conducted by CTI Subconsultant Professional Services Industries, Inc. (PSI) to provide geotechnical information needed for the force main replacement project. Standard Penetration Test (SPT) test borings will be performed to a depth of approximately 8.0-feet along the replacement force main alignment at intervals of approximately 500-feet. An additional boring will be performed at Pump Station No. 2 to a depth of 30-feet. The test borings will be sampled at 2.5-foot intervals for the first 10.0 feet and at 5.0-foot intervals thereafter, using conventional truck-mounted drilling equipment, to the planned depth or auger refusal, whichever comes first. The subsurface exploration will include the following services:
 - Sampling and testing of the subsurface materials along the proposed construction route to depths that would significantly affect or be affected by the proposed force main installation.
 - Identification of the physical and engineering characteristics of subsurface materials encountered during the sampling and testing.
 - Observation of the groundwater levels at the boring locations during and upon completion of the boring.
 - Boring logs with provided soil descriptions, strata change depths, Standard Penetration Test data and groundwater data.
 - Recommendations for trench support, pipe bedding, dewatering and excavation procedures.
 - Recommendations for the selection, design, and construction of the foundation systems for any structure proposed at Pump Station No. 2 now or in a later project.
4. Using the survey and subsurface information, CTI will perform preliminary engineering including record research of existing utilities to recommend an alignment for the replacement force main that can be constructed to minimize conflict with other utilities.

CTI will prepare plan/profile construction drawings for approximately 1,500 LF of replacement 16-inch (nominal) force main along the proposed route. Plans will be prepared on 22" x 34" or 24" x 36" sheets based upon Village preference. Plans will show both the plan view at approximately 1"= 20' scale and a profile view at 1"= 5' vertical scale. The improvement drawing sheets will also include a Title Sheet, Survey Sheet, General Notes, and Details.

The force main replacement extents are expected to be in the west side of the Brecksville Road (Ohio State Route 21) right-of-way and are not expected to include Interstate or Turnpike crossings or work that would be expected to severely disrupt traffic on State Route 21. Additional engineering hours can be added for crossing design, permitting, maintenance of traffic planning, etc. if these services are required.

5. Written specifications will be prepared to define the work and materials required for the project. CTI will provide specifications or modify Village standard specifications as appropriate or as requested by the Village.
6. CTI will calculate the quantities of work and prepare an opinion of the probable cost of construction for the project.
7. Design submittals will be provided to the Village at the 30%, 90%, and 100% completion levels. Specifications and cost opinion will be included with the 90% and

100% submissions. CTI will attend design review meetings or conference calls to discuss the development of the design.

8. CTI will assist the Village with bidding the project. Final bid documents for the project including plans, specifications, and an engineer's opinion of probable construction cost. A bid sheet will be developed to assist interested contractors in preparing bid prices for the work. CTI will attend a pre-bid meeting, answer bidder technical questions, and issue addenda during the bidding of the project.
9. CTI will provide limited assistance during construction of the project. Up to 46 hours have been included for these services which are expected to include submittal review, shop drawing review of piping, responses to contractor requests for information (RFIs), etc. and the preparation of record drawings from the contractor's as-built survey and/or Village Inspector's field set and notes made during construction. CTI can provide a proposal for full or part-time construction oversight and administration of the project if requested by the Village.

Phased VFD Retrofit and Station Replacement

10. CTI will attend a planning meeting with the Village to outline requirements for the replacement station and for future station replacements. Since the Pump Station No. 2 replacement is likely to serve as a model for future projects, CTI recommends discussing the following major design items prior to producing draft plans:
 - Pump station type
 - Two versus three pump setups
 - Station bypass connections
 - Back-up power options
 - Station access
 - Station screening and aesthetics
11. CTI will prepare construction drawings for the station replacement in two phases. The first replacement phase will involve installation of variable frequency drives (VFDs) to power the existing pump motors. The VFDs will likely be installed in a new above-grade climate-controlled building. The second project phase will replace the existing pump station. Space may be provisioned in the new building for future installation of pumps or the building may be designed for a future addition. In addition to General plan drawings (Title Sheet, General Notes, etc.), CTI anticipates Civil, Structural, Electrical, Mechanical, and HVAC discipline plan drawings to be produced.

Electrical and HVAC plans will be prepared by CTI's subconsultant PTA Engineering. PTA Engineering assisted with the preliminary engineering report for this project and is familiar with Pump Station No.2, having visited the station in May 2019 with CTI and Village personnel.

12. Written specifications will be prepared to define the work and materials required for the pump station site, building, equipment, piping, and appurtenances. Like the partial force main replacement, CTI will provide specifications or modify Village standard specifications as appropriate or as requested by the Village.

13. CTI will calculate the quantities of work and prepare an opinion of the probable cost of construction for both project phases. The cost opinion will be produced following the 30%-level review of the project to allow the scope to be more narrowly defined.
14. Design submittals will be provided to the Village at the 30%, 90%, and 100% completion levels. Specifications and cost opinion will be included with the 90% and 100% submissions. CTI will attend design review meetings or conference calls to discuss the development of the design.
15. Both pump station replacement phases are likely to require a Permit-to-Install (PTI) from the Ohio EPA. CTI will prepare a PTI application package for submission to the Ohio EPA for the initial VFD retrofit phase. Since the PTI requires construction to begin within 18 months of approval, a PTI application for the station replacement phase will not be performed as part of this project.

The PTI plan review fee will be paid for by the Village.

16. CTI will coordinate with the Village of Richfield Zoning Department if required to obtain approval for modification of the Pump Station No. 2 site. Eight engineering hours have been reserved for this task.
17. CTI will assist the Village with bidding of the initial VFD retrofit project phase. Final bid documents including plans, specifications, and an engineer's opinion of probable construction cost will be produced. A bid sheet will be developed to assist interested contractors in preparing bid prices for the work. CTI will attend a pre-bid meeting, answer bidder technical questions, and issue addenda during the bidding of the project.

CTI will provide a separate proposal for bidding/construction services of the station replacement project phase when this phase is anticipated to be performed.

18. CTI will provide limited assistance during construction of the VFD retrofit project phase. Up to 60 hours have been included for these services which are expected to include submittal review, shop drawing review of materials and equipment, responses to contractor requests for information (RFIs), and the preparation of record drawings from the contractor's as-built survey and/or Village Inspector's field set and notes made during construction. CTI can provide a proposal for full or part-time construction oversight and administration of the project if requested by the Village.

CTI will provide a separate proposal for bidding/construction services of the station replacement project phase when this phase is anticipated to be performed.

II. Responsibilities of the Village of Richfield (CLIENT):

1. Provide all criteria and full information as to its requirements for the project.
2. Upon identification by CTI and approval by the CLIENT of the necessity and scope of information required, furnish CTI all data, reports, surveys, and other materials required for this project, except those included in CTI's Scope of Services.

3. Provide access to the project site and make all provisions for CTI to enter upon public and private lands as required for CTI to perform its services under this Agreement.
4. Provide prompt written notice whenever the CLIENT observes or otherwise becomes aware of any defect in the project.
5. Clean and flush existing sewer lines where required for inspection work.
6. Pay the cost of placing public notices in the local newspaper(s) as required.
7. Pay OEPA PTI, NOI, SWPPP, or other plan review or permit fees as required for the project.

III Additional Services Requiring Authorization in Advance

If authorized in writing by the CLIENT, CTI will furnish or obtain from others Additional Services of the types listed in the following paragraphs. These services are not included as part of the Basic Services.

1. Design, surveying, or geotechnical engineering services beyond those included in the above CTI Basic Services.
2. Wetlands determination, delineation, or other related services.
3. Army Corps 401 or other related permitting assistance.
4. Phase 1 or Phase 2 or other environmental studies.
5. Other governmental permit applications beyond those listed in CTI's Basic Services above.
6. Bidding services beyond those detailed in Part I above.
7. Construction Administration Services beyond those detailed in Part I above.
8. Construction Testing Services. On-site soil, concrete, and material tests and analyses at an independent laboratory for purposes of assuring compliance with the contract documents.
9. Start-up services.
10. Operation and Maintenance Manuals.

**PRELIMINARY FORCE MAIN REPLACEMENT EXTENTS
1,500-LINEAR FEET BETWEEN STA. 223+00 TO STA. 238+00**

PUMP STATION NO. 2

STA. 199+10
PUMP STATION NO. 2
PUMP DISCHARGE/BEGIN FORCE MAIN & SURGE RELIEF VALVE

76" DIP FORCE MAIN FLOW DIRECTION
200+00
BRECKSVILLE ROAD

INTERSTATE 75

STA. 205+35

STA. 213+90

STA. 223+90
FORCE MAIN BREAK
APRIL 2018

STA. 227+70
FORCE MAIN BREAK
DECEMBER 2018

STA. 230+00

STA. 230+75
FORCE MAIN BREAK
DECEMBER 2019

STA. 234+00

STA. 237+30
FORCE MAIN BREAK
OCTOBER 2011

BRUSHWOOD ROAD

BRECKSVILLE ROAD

BERKLEY ROAD

FARNHAM ROAD

BOSTON MILLS ROAD

VALVE WITH EXHAUST REGULATOR

CTI ENGINEERS, INC. PROJECT BUDGET WORKSHEET

Client Code Village of Richfield PROJECT NAME Pump Station No. 2 Force Main and Phased PHASE NUMBER 1 TODAY'S DATE 10/2/2020
 Project Descrip. PS No. 2 FM and PS LS (Lump Sum), CP (Cost Plus), CM (Cost Plus with Max), & PD (Per Diem) Partial Force Main Replacement Phase Description Partial Force Main Replacement Estimated Start (mm-yy) 10/15/2020
 Contract Type LS Notes: Mileage Rate = 0.575 \$/mile 1 OF 1 PAGE 1 Est. Complete (mm-yy) 2/1/2020

TASK NO.	SUB PHASE DESCRIPTION	Project Director Manager RWR	Project Manager DBK	Design Engineer ZSK	Electrical PE	Structural PE	Desg/Dr Technician GLB	RPR	Clerical BRG	Trav.	Comp.	Repro.	Subs	TOTALS HOURS	OTHER COST
1	Review Information and Data Collection and Kickoff Meeting		6	6						\$24.73				12	\$24.73
2	Topographical Survey and Site Info Collection			1			8			\$0.00			\$14,180.00	9	\$14,180.00
3	Geotechnical Investigation			1					1	\$0.00			TGC Engineering	2	\$4,492.00
4	Force Main Replacement Plans (-5 P&P Sheets at 20 scale plus Title Sheet, Notes, Details, Survey Control, etc.)		4	40			178			\$0.00			Intertek PSI	222	
5	Specifications		1	10				16		\$0.00				27	
6	Quantity Takeoffs and Cost Opinion		1	8						\$0.00				9	
7	Village Submittals and Plan Review (30%/90%/100%)		4	12			16			\$49.45		\$217.06	Reproduction Costs	32	\$266.51
8	Bidding Services (Prepare Bid Docs; Address Bidder Questions; Attend Pre-Bid Mtg. etc.)		1	12				2		\$24.73				15	\$24.73
9	Construction Services and Record Drawings		1	8			16			\$0.00				25	
10										\$0.00					
11										\$0.00					
12										\$0.00					
13										\$0.00					
14										\$0.00					
15										\$0.00					
16										\$0.00					

TOTAL HOURS	18	98	218	19
HOURLY RATES	\$220.22	\$181.01	\$91.42	\$85.98
TOTAL COST	\$0.00	\$3,258.24	\$19,929.05	\$1,633.67

PREPARED BY David Kohlmeier DATE 10/2/2020 MGR. OF PROJECTS Kohlmeier MULTIPLIER = 1.0

PHASE	RECAP	Direct Labor	Other Cost	Cost	Cost Plus Mark-up
		\$36,212.04	\$18,987.96	\$55,200.00	\$55,200.00

CTI ENGINEERS, INC.

PROJECT BUDGET WORKSHEET

Client Code Village of Richfield PROJECT NAME Pump Station No. 2 Force Main and Phased PHASE NUMBER 2 TODAY'S DATE 10/2/2020
 Project Descrip. PS No. 2 FM and PS LS (Lump Sum), CP (Cost Plus), CM (Cost Plus with Max), & PD (Per Diem) Mileage Rate = 0.575 \$/mile VFD Retrofit and Station Replacement Estimated Start (mmm-yy) 10/15/2020
 Contract Type LS Notes: _____ MGR. OF PROJECTS Kohlmeier Cost Plus Mark-up
 _____ DATE 10/2/2020 MULTIPLIER = 1.0 RECAP \$ 109,600.00
 PAGE 1 OF 1

TASK NO.	SUB PHASE DESCRIPTION	Project Director Manager	Project Manager	Design Engineer	Electrical PE	Structural PE	Desg/Dr Technician	RPR	Clerical	Trav.	Comp.	Repro.	Subs	TOTALS HOURS	OTHER COST
1	Planning Meeting - Outline Village Requirements for Replacement Station	RWR	DBK	ZSK	6				BRG	\$24.73				12	\$ 24.73
2	Pump Station Replacement Plans (General, Civil, Structural, Electrical, Mechanical, HVAC Sheets)		6	89		40	360			\$0.00		\$ 22,000.00		495	\$ 22,000.00
3	Specifications		6	40		20			16	\$0.00				82	
4	Quantity Takeoffs and Cost Opinion		1	8		2				\$0.00				11	
5	Village Submittals and Plan Review (30%/90%/100%)		10	16		10	36			\$24.73		\$ 200.00		72	\$ 224.73
6	Ohio EPA Permit-to-Install (VFD Improvement Phase)		2	20				4		\$0.00		\$ 245.30		26	\$ 245.30
7	Village Planning / Zoning Department Coordination			4			8		2	\$24.73				14	\$ 24.73
8	Bidding Services (Prepare Bid Docs; Address Bidder Questions; Attend Pre-Bid Mtg, etc.) (VFD Improvement Phase)		2	12				2		\$24.73				16	\$ 24.73
9	Construction Services and Record Drawings (VFD Improvement Phase)		2	8			24			\$0.00				34	
10	Quality Assurance / Quality Control (QA/QC) Internal Project and Design Review		6	6						\$0.00					
11										\$0.00					
12										\$0.00					
13										\$0.00					
14										\$0.00					
15										\$0.00					
16										\$0.00					

TOTAL HOURS	HOURLY RATES	TOTAL COST
6	\$ 181.01	\$ 1,086.06
41	\$ 116.24	\$ 4,765.84
72	\$ 178.19	\$ 12,830.68
24	\$ 85.99	\$ 2,063.76
248	\$ 91.42	\$ 22,472.16
428	\$ 99.12675	\$ 42,446.23
		\$ 87,055.80
		\$ 22,544.20
		\$ 109,600.00

PHASE RECAP
 Direct Labor \$ 87,055.80
 Other Cost \$ 22,544.20
 Cost Plus Mark-up \$ 109,600.00