



OTTER CREEK  
ENGINEERING

August 9, 2018

Middlebury Public Works  
1020 South Route 7  
Middlebury, VT 05753

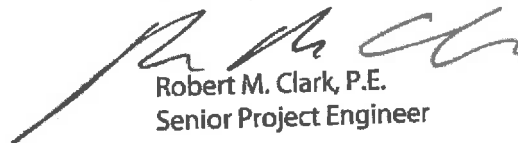
Subject: Middlebury Pump Station Improvement Projects  
Proposal for Engineering Services

Dear Dan,

Otter Creek Engineering, Inc. is pleased to present this proposal for your proposed pump station improvement projects. We appreciate the opportunity to submit and look forward to continuing our relationship with the Town on this project.

If you have any questions about our proposal or firm's qualifications, please don't hesitate to contact me.

Sincerely,



Robert M. Clark, P.E.  
Senior Project Engineer

PO Box 712 404 East Main Street East Middlebury, Vermont 05740 802.382.8522  
110 Merchants Row 4th Floor, Suite 15 Rutland, Vermont 05701 802.747.3080

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# Middlebury Pump Station Improvement Projects

Engineering Services Proposal

August 9, 2018

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# Proposal for Engineering Services



Town of Brattleboro  
120,000 gpd Wastewater Pump Station





## Project Understanding

The Town of Middlebury seeks engineering assistance to evaluate, plan and construct necessary improvements to three sanitary sewer pump stations. Based on the request for proposals, and our pre-proposal site visit, we understand the following:

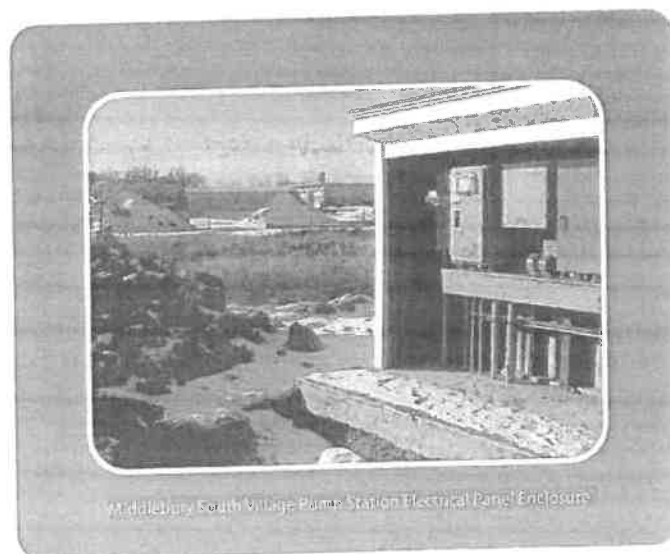
Pump Station #14 (Painter Hills PS) receives the least amount of average daily flow of all three pump stations considered under this evaluation. The existing submersible pumps are in a “tin-can” wet well. The configuration of the pumps is not operator friendly, making routine operation and maintenance tasks difficult. Based on the age of the pump station, it is likely that the cathodic protection (CP) system of the wet well is near the end of its useful life, and replacement of the structure is imminent. A precast concrete structure should be considered for replacement, due to the corrosive environment and likely presence of a high groundwater table. Other improvements to this pump station will include new piping, valves, controls, and a manual transfer switch to allow a mobile generator to be connected in an emergency situation. The check valves will be located in a structure, outside of the wet well, to allow for easy removal of the wastewater pumps during maintenance.

Pump Station #13 (Halpin Road PS) receives wastewater from Painter Hills and the adjoining neighborhoods. The pump station currently has a dry-pit configuration. The Town desires to retrofit the existing structure with new submersible pumps, and if practical, utilize the dry-pit for expanded wet well capacity in emergency situations. We understand the Public Works Department has implemented this successfully at Pump Station #3, and would like a similar setup here. Additional improvements will include new piping, controls, and manual transfer switch so that a generator can be connected in an emergency situation. Design will consider modifying the site access, to allow Town Staff easier access to remove the pumps.

## Proposal for Engineering Services

Pump Station #6, (Seminary Street PS) is the largest of the three wastewater pumping stations considered for improvement with this project, and is located approximately 900 feet from the 5-corners intersection. The existing station consists of dry-pit pumps and force main that connects with the Halpin Road force main at the 5-corners intersection. Engineering evaluation will consider the existing system hydraulics and effect on pumping capacity, if the Halpin Road force main were realigned to discharge down Washington Street, in lieu of its current joint pipeline which discharges on Seminary Street. Similar to pump station #13, the design will consider, if practical, the use of the dry-pit for expanded wet well capacity. Additional improvements will include new piping, controls, and a standby emergency generator. The generator is planned to be housed in an enclosed structure, and both sited and designed to minimize impact on adjoining properties.

All three of the pump stations will need adequate (local) control, and remote telemetry to integrate with the Town's existing SCADA system. We understand that the Town currently uses Tom Allen of LCS Controls in Rochester, Vermont for all control work. Where practical, re-use of existing panels and equipment will be utilized. All control panels and transfer switches will be housed in structures to resist the effects of weather, with equipment specified in Addendum #1. We understand the structures can be wood framed and will be designed to fit the neighborhood.





## Scope of Services

To complete this project, we anticipate the following tasks:

1. **Drawing Review** - We will obtain and review all available information for each pump station site, including drawings, surveys of utilities within the project areas, submittal and shop drawings from the original project, pump curve, pump run time data, and any known maintenance items and issues. We will coordinate a project kickoff meeting with Town staff and Tom Allen of LCS controls. The meeting will confirm the project goals, and allow for a detailed inspection of each pump station to be completed with Town staff.
2. **Permit Requirements** - At this time, we anticipate that a local zoning permit from the Town of Middlebury, Division of Fire Safety and Potable Water Supply & Wastewater Disposal Permits will be required, for each proposed building. We will however, request a project review sheet from the Agency of Natural Resources Rutland Regional office at this stage, which will identify any additional permits, if required.
3. **Preliminary Engineering** - After a detailed inspection of the sites and review of the scope with Town staff, we will provide a preliminary report, outlining the following design parameters:
  - Existing and proposed design flows, including estimates for average daily flow (ADF), maximum daily flow (MDF) and peak hourly flow (PHF).
  - Available wet well capacity and schematic designs for utilizing the dry pits at Pump Station #6 (Seminary) and Pump Station #13 (Halpin) for emergency storage.
  - Proposed pump system at each station, to include:
    - Make, model and anticipated operating point
    - Local control and SCADA integration
    - Schematic layout of valves
  - Estimated construction cost of each pump station rehabilitation and anticipated construction duration.

## Proposal for Engineering Services

We anticipate submitting this report to Town Staff for review and comment. A project meeting has been budgeted to discuss the information and recommendations in the report. Any comments provided by Town staff will be incorporated into the final report. The issued report will be the basis for final design engineering.

4. **Final Design** - Once authorized to proceed into final design, we will prepare contract documents and construction plans for the proposed improvements. Final design will include a topographic survey of each project site, updated with available utility information, and necessary details to complete the anticipated work at each site. Based on our site visit, we understand the Town anticipates completing the work concurrently, and have adjusted our scope and budget to reflect a single construction contract for all three pump stations.

It is presumed that the precast wet well for Pump Station #14 (Painter Hills) will be sited to occupy the footprint of the existing, with bypass pumping as required.

Contract documents will be prepared, utilizing the Engineers Joint Contract Documents Committee (EJCDC) format, and will include (at a minimum):

- An Advertisement for Bid
- Information for Bidders
- Bid Schedule
- General and Special Conditions
- Technical Specifications for the project

Two (2) paper copies of the contract documents and contract drawings will be submitted to Town Staff for review. Upon completion of the Town's review, comments will be addressed and incorporated into the bidding documents and drawings.

Two (2) paper copies and a PDF of final construction plans (to be issued for bidding) will be provided to the Town at the end of this phase of the project.





5. **Cost Estimate** - A final estimate of the construction cost and construction duration will be provided to the Town concurrently with the construction documents and drawings for bidding.

As outlined in the Request for Proposals, this task item allows for a minimum of three meetings with Town staff, to include

- A pre-design (anticipated to occur as the project kickoff meeting and detailed inspection of each pump station)
  - A presentation to the Public Works Committee prior to final design. This is likely to occur after completion of the basis of design report.
  - A final design meeting, to review and discuss comments provided by Town Staff prior to entering into the bid phase portion of the project.
6. **Permit Applications** - As discussed previously, we anticipate that local zoning permits, Division of Fire Safety permits, and Potable Water Supply and Wastewater Disposal permits will be required for each building. We will prepare the necessary permit applications and supporting documentation, and have budgeted to attend one meeting on the Town's behalf to present the project, and address any questions, for each building. All application fees will be paid directly by the Town.
7. **Bid Phase Services** - Once final design is complete, and permit approval is in place, we will transition the project into Bid Phase. An Advertisement for Bid will be prepared and submitted to the Town for distribution. During bid phase, we will work closely with Town officials, and anticipate providing the following services:
- Coordinate and attend a pre-bid meeting, answer questions and prepare meeting minutes.
  - Answer questions posed by contractors during bid phase.
  - Issue one bid addenda.
  - Attend the bid opening.

After the bid opening, we will complete a bid tabulation and review the bids for conformance with the documents. A letter of recommendation will be provided to the Town.

Upon acceptance of a contractor by the Town, we will prepare three (3) copies of conformed contract documents and drawings for agreement execution by the Town and the successful contractor.

8. **Construction Administration** - We will provide construction administration and management services during construction of the project. Construction administration will include:
- Coordinating and attending a preconstruction meeting.
  - Review of shop drawings and submittals
  - Review contractor's applications for payment (pay requests)
  - Issue change orders when appropriate
  - Coordinate and attend project meetings, document meetings, and issue notes

At this time, based on a single construction window, we anticipate that the duration of the construction contract will be 90 calendar days to final completion, and have budgeted for three applications for payment, three contract meetings, and one change order.

9. **Construction Review** - Construction review services will be provided for the duration of the project, through final completion. Based on our experience with similar projects, we have budgeted an appropriate number of hours to allow for both full-time and part-time construction inspection, for a construction duration of 90 calendar days.

Our field representative will prepare written reports during each site visit, and participate in project meetings. In addition, they will maintain contact with adjacent property owners during construction, prepare punch lists of work to be addressed, and participate in reviewing the project at both substantial and final completion. Our budget for field services is based on a 90 day construction duration, and presumes that all of the proposed improvements are completed under a single contract.

10. **Record Drawings** - Upon completion of the project, we will prepare record drawings, in part, based on information provided by the contractor. For these projects, we will also provide the Town with Submittal and Shop Drawing binders for each pump station site. We anticipate providing two paper copies of the drawings, and a PDF for the Town. The Submittal and Shop Drawing binders will be in PDF format only, and provided on a USB flash drive for the Town's use.

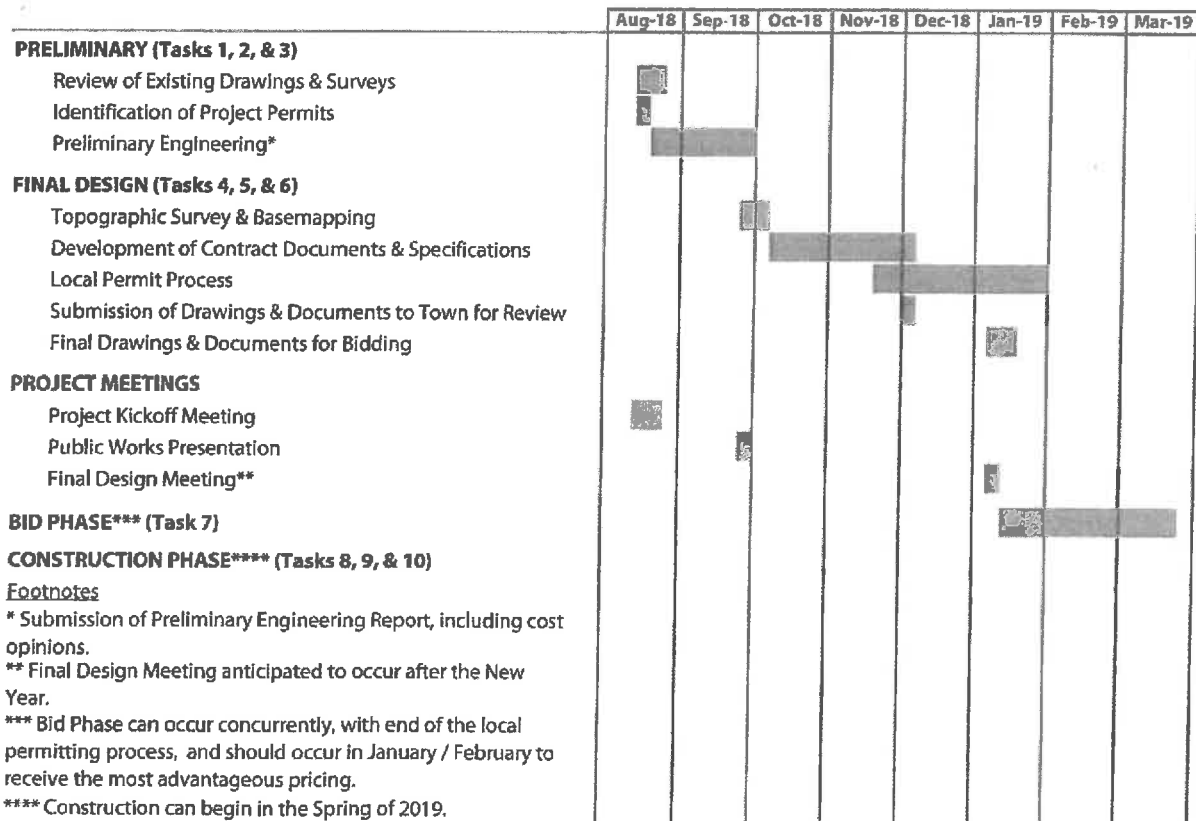


# Project Schedule

Otter Creek Engineering is prepared to proceed with this project upon receipt of your authorization.

Based on our understanding of the project, our scope of services, and the Town's desire to move this project forward, we proposed the following schedule.

We endeavor to meet your design and construction phase schedules; however, the schedule of the permitting review process and procurement of equipment is outside of our control.



# Cost Proposal

OCE will complete the Scope of Services outlined in this proposal for \$93,600.

The fee is based on a detailed man-hour budget estimate broken down by tasks identified in the RFP. This man-hour budget can be found on the following page. Hourly tasks will be invoiced in accordance with Otter Creek Engineering's most current Schedule of Rates and Fees at the time services are provided. We will invoice monthly based upon the work completed at the end of each month. As the project progresses, we will keep the Town informed of the budget status, and discuss any changes from the anticipated scope. Additional services requested by the Town will be provided on an hourly basis, plus expenses, in accordance with Otter Creek Engineering's most current Schedule of Rates and Fees at the time services are provided.

<b>Task</b>	<b>Budget</b>	<b>Basis</b>
1 Drawing Review	\$1,530	Lump Sum
2 Permit Requirements	\$110	Lump Sum
3 Preliminary Engineering	\$3,060	Lump Sum
4 Final Design	\$17,900	Lump Sum
5 Cost Estimate	\$2,200	Lump Sum
6 Permit Applications	\$4,500	Hourly
7 Bid Phase Services	\$6,550	Hourly
8 Construction Administration	\$15,000	Lump Sum
9 Construction Review	\$40,000	Hourly
10 Record Drawings	\$2,750	Lump Sum
<b>Total</b>	<b>\$93,600</b>	



# OTTER CREEK ENGINEERING

Task Number	Task Description	Managing Engineer	Senior Project Engineer	Senior RPR	Eng'g Tech.	Admin. Asst.	Expenses	Cost Per Task
<b>1</b>	<b>Review of existing drawings and surveys</b>							
	Obtain & Review Existing File Information		4		4			\$760
	Project Kickoff Meeting and Inspection		4		4		\$10	\$770
	<b>Subtotal</b>							<b>\$1,530</b>
<b>2</b>	<b>Identification of Project Permits</b>							
	Submit Request for Project Review Sheet		1					\$110
	<b>Subtotal</b>							<b>\$110</b>
<b>3</b>	<b>Preliminary Engineering</b>							
	Preliminary Engineering Report	1	12		4	8	\$40	\$2,280
	Cost Opinions	1	6					\$780
	<b>Subtotal</b>							<b>\$3,060</b>
<b>4</b>	<b>Final Design</b>							
	Topographic Survey & Basemapping		1		32		\$80	\$2,750
	Final Design Drawings	1	16		32		\$4,000	\$8,440
	Technical Specifications	1	12			4	\$20	\$1,700
	Bidding Documents	1	8			16	\$40	\$2,000
	Internal Review	1	1		1	1		\$370
	External Review	1	4		4	1		\$940
	Final Edits and Conformed Documents for Bidding	1	4		8	8	\$20	\$1,700
	<b>Subtotal</b>							<b>\$17,900</b>
<b>5</b>	<b>Cost Estimate</b>							
	Final construction cost and schedule	1	4				\$15	\$575
	Pre-design/Final design meetings (assumes 2)	5	5				\$15	\$1,165
	Public Works Committee presentation	2	2					\$460
	<b>Subtotal</b>							<b>\$2,200</b>
<b>6</b>	<b>Permit Applications</b>							
	Local (for each building)		12			3		\$1,500
	Division of Fire Safety (for each building)		12			3		\$1,500
	Potable Water Supply & Wastewater Disposal (each building)		12			3		\$1,500
	<b>Subtotal</b>							<b>\$4,500</b>
<b>7</b>	<b>Bld Phase Services</b>							
	Advertisement for Bids		2			1	\$20	\$300
	Pre-Bid Meeting / Minutes	2	2			2	\$20	\$600
	Planholder Communication	2	8				\$30	\$1,150
	Addenda	2	8				\$80	\$1,200
	Bid Opening	2	4			2		\$800
	Tabulate Bids / Review References	1	4			4		\$800
	Recommendation for Awards	1	2			2	\$10	\$470
	Conformed Set Plan Distribution	1	2		6	6	\$50	\$1,230
	<b>Subtotal</b>							<b>\$6,550</b>
<b>8</b>	<b>Construction Administration</b>							
	General Project Coordination/Communication	4	24				\$50	\$3,170
	Pre-Construction Conference		4				\$25	\$465
	Contractor Communication	4	16				\$25	\$2,265
	Shop Drawing Submittals	4	24	16		24	\$50	\$6,130
	Pay Requests	2	8					\$1,120
	Monthly Meetings	2	8				\$50	\$1,170
	Change Orders	2	4					\$680
	<b>Subtotal</b>							<b>\$15,000</b>
<b>9</b>	<b>Construction Review</b>							
	Resident Budget			400			\$500	\$38,500
	Substantial Completion		2	4		2	\$30	\$750
	Final Completion		2	4		2	\$30	\$750
	<b>Subtotal</b>							<b>\$40,000</b>
<b>10</b>	<b>Record Drawings</b>							
	As-Built Drawings	1	4	8	16		\$150	\$2,750
	<b>Subtotal</b>							<b>\$2,750</b>
<b>Total Hours</b>		46	248	432	111	92	\$5,360	
<b>Percent of Total Hours</b>		5%	27%	47%	12%	10%		
<b>Hourly Rate</b>		\$120.00	\$110.00	\$95.00	\$80.00	\$60.00		
<b>Subtotals</b>		\$5,520	\$27,280	\$41,040	\$8,880	\$5,520	\$5,360	\$93,600

**TOTAL** **\$93,600**

## Related Project Experience

### **"Golf Course" Wastewater Pump Station, Town of Bradford, VT**

#### **Project Description:**

The Town had a major, very deep, "steel can" wastewater pump station, serving half of the downtown. The pump station was in very poor condition, and required complete replacement in a difficult work area. The new design allowed continuous operation with a quick switchover to a new concrete, duplex station with separate valve vault, generator and controls.



### **Town of Brattleboro, SE VT Welcome Center Pump Station, Guilford, VT**

#### **Project Description:**

Design, permitting, bid and construction review for the rehabilitation of an existing 120,000 gpd wastewater pump station in Guilford, VT, with a unique, high head pump condition, and complex project phasing. The project also included the cleaning of a 6" force main by ice pigging method.



### **Sanitary Sewer Replacement and Interceptor Sewer Rehabilitation, Andover Street, Village of Ludlow, VT**

#### **Project Description:**

Replacement of approximately 1,500 feet of gravity sewer on Andover Street, in addition to new stormwater collection system and complete highway reconstruction. Rehabilitation of 2,900 feet of sewer main along the Black River. Rehabilitation was a cured in-place pipe liner and rehab of 13 sewer manholes



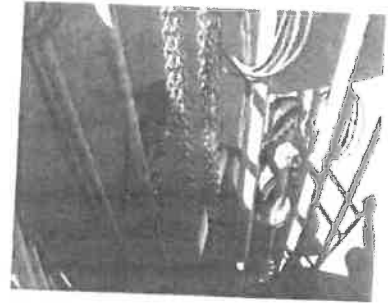


# OTTER CREEK ENGINEERING

## **Middlebury South Village, Middlebury, VT**

### **Project Description:**

Civil/Site design, permitting and construction review of the 32 acre mixed use commercial and residential planned unit, including drives, parking, water supply, wastewater disposal, stormwater treatment and site grading. Wastewater disposal included a 20 foot deep, duplex pump station, with wet well and valve pit, back-up generator, and wood framed controls enclosure. Pump station was designed for wastewater flows of approximately 17,000 gallons per day (gpd).



## **Depot Hill Pump Station, Town of Pittsford, VT (Active Project)**

### **Project Description:**

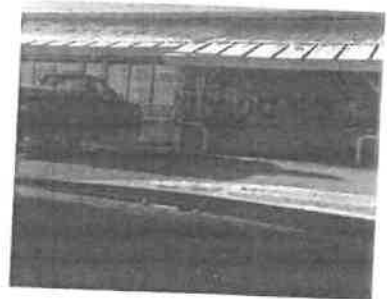
Planning and design of new gravity collection sanitary sewer and a new wastewater pump station to consolidate the existing service area and abandon the 2 existing pump stations, nearing the end of their useful life.



## **Putney Sunoco Pump Station, Town of Putney**

### **Project Description:**

Planning, design and permitting for a new wastewater pump station at the Putney Sunoco Station, along with approximately 3,500 feet of force main to connect to a receiving manhole online the Town of Putney municipal wastewater collection system.



## **Business Route 4 Sewer and Water, Town of West Rutland, VT**

### **Project Description:**

Preliminary planning, design and construction administration of 2-mile water and sewer force main extensions from West Rutland to "Center Rutland," providing much needed municipal services to this section of highway and Town.

