

Crosslake WWTF Improvement Project

Date: January 3, 2018
To: Public Works Committee/City Council
From: John Graupman, Mike Rardin, Phil Martin
Cc: Ted Strand - Public Works Director
Subject: Monthly Project Update

Project Description

The Project can generally be described as follows:

1. Pretreatment improvements including replacing the existing mechanical fine screen, addition of a self-priming grit pump, adding a new blower for the aerated grit removal system, and adding a new handrail and grating system.
2. Construct a new 82,000 gallon equalization basin.
3. Construct a new rapid mix manhole with ferric chloride addition.
4. Construct a new control structure to feed the final clarifiers.
5. Construct a new effluent metering manhole.
6. Miscellaneous electric actuator valve replacements.
7. Re-routing the existing WAS line into the biosolids storage tanks.
8. Furnish and install new blowers for the existing aerated biosolids storage tank
9. Furnish and install a new backwash blower
10. Construct a 30,000 gallon backwash supply water storage tank.

Work Progress - Second Project Update

On September 15, 2017 the City of Crosslake awarded the 2017 Waste Water Treatment Plant Improvement Project to Eagle Construction Company, Inc. of Little Falls, MN for the amount of \$2,227,000.00. The contractor began to mobilize equipment and materials to the site on October 5 in order to prepare for the construction of the treatment plant improvements.

During October excavation for the new water storage tank and also the new equalization basin was completed. Dewatering equipment was used to pump down the ground water in order for the contractor to work in a dry trench. With the trench dry, concrete forms and tied rebar for the main slabs for both tanks were placed.

During November the contractor focused on concrete work for the equalization basin and the water storage tank. They poured the main slabs and sump areas for both tanks. The contractor used a concrete pump truck to effectively place the concrete. A heat tent was used to protect the concrete from the cold weather to allow for it to properly cure. Concrete forms and tied rebar for the water tank walls were placed by month's end with the concrete pour scheduled to be done in December. Field Order #1, adding rebars to the Water Storage Tank base slab was issued. Details and costs for BMI Proposal Request #1, RAS piping relocation, and Eagle Proposal Request #1, oxidation ditch drain piping relocation, were developed.

During December the contractor continued progress on the two tanks. Concrete was poured at the beginning of the month for the walls of both structures along with the lid for the equalization basin. Installation of process piping was started and various plant upgrades were made which will continue to progress throughout the winter. These changes are necessary to begin to incorporate the new equalization basin into the existing treatment system and to improve the operation and functionality of the current plant. A cost of \$2,464.93 for BMI Proposal Request No. 2 to replace three (3) RAS pump inlet valves was obtained. These

valves were recently identified as failing when the RAS pumps were replaced as part of the basement flood work (expected to be covered by insurance). These valves were found to be corroded beyond use. The corrosion is thought to be based on previous ferric chloride overdosing and not a result of the flood, therefore not insurance eligible; the current project revises the ferric chloride feed to prevent overdosing. Overdosing is problematic as it wastes chemical (increasing costs) and is very corrosive to metal at high concentrations. A proposal was sent to Eagle to replace these since they are on-site. The proposed cost is considered reasonable for replacement of these three valves.

Contract changes are summarized in the “Costs” section below.

Project Schedule

Based on the contractor’s proposed schedule (attached), construction is estimated to take about forty (40) weeks - with a projected substantial completion date of August 31, 2018. Based on the contractor’s proposed schedule, the following is a brief summary of future construction activities:

January - construction of top slabs of EQ Basin and Water Storage Tank, filter room valve replacements, and process piping.

February - filter room valve replacements, EQ Basin pumps and piping, and blower and air piping.

March - Pre-Treatment Building piping modifications, Mechanical Fine Screen installation, and Pre-Treatment Building stairs, railings, and grating.

April - Pre-Treatment Building piping modifications, Mechanical Fine Screen installation, 6" water main from Water Storage Tank to loadout, and water main from Water Storage Tank to clarifier, and 4" water main from well to Water Storage Tank.

May - Water Storage Tank pump installation and control structure concrete and piping.

June - Rapid Mix Manhole and piping construction, Meter Manhole and piping construction, and Sludge Storage Tank piping and modifications.

July - blower and air piping, Sludge Storage Tank piping and modifications.

August - Site Grading/ Fencing/ Restoration and punchlist items.

Scheduling of the SCADA and control system remains to be determined. A meeting with the contractor, electrician, engineer and City staff is planned to be scheduled in January to review the SCADA schedule and coordination. Site piping for the water storage tank and filter back wash are expected to be completed in spring 2018. Finally, the contractor’s goal is to have the EQ Basin in operation for the St. Patrick’s Day weekend in the City.

The contractor generally appears to be on the schedule they proposed for this project. No schedule concerns are noted at this time.

Completion Dates

The contract calls for substantial completion (defined as operation of all new structures and equipment with the ability to treat wastewater as intended) by August 31, 2018.

The Equalization Basin is planned to be fully functional by St. Patrick’s Day of 2018. The rest of the project is planned to be completed by August 31, 2018.

Costs

Construction costs to date for the waste water portions of the project have increased approximately \$10,591 due to the following:

Item	Cost
1 - Field Order #1 - Add Rebar: Water Storage Tank Base Slab	\$ 424.00
2 - BMI Proposal Request #1 - RAS Piping Relocation to EQ Basin	\$ 11,923.13
3 - BMI Proposal Request #2 - Remove and Replace Three (3) Four Inch Plug Valves	\$ 2,464.93
4 - Eagle Proposal Request #1 - Relocate 6" Oxidation Ditch Drain Line	\$ (4,221.27)
5 - Relocate 6" RW Piping to South Oxidation Ditch	TBD

The following information is provided for the items identified above:

1. During construction review of the Water Storage Tank plans, additional rebars were needed for the base slab - cost determined to be \$424.00.
2. Staff found the existing 6" RW piping to be improperly installed and full of solids. As a result, it was decided the existing RAS piping should be relocated / extended to the EQ Basin to avoid future use of this piping - cost estimated at \$11,923.13.
3. RAS pump inlet isolation valves (3) have been identified by staff as failing. These can be replaced as a part of the project - cost determined to be \$2,464.93.
4. The oxidation ditch drains are being relocated to a location which avoids a building conflict - contractor has offered a credit (deduct) of \$4,221.27 for this change.
5. The new 12" EQ basin pipe appears to conflict with the existing 6" RW pipe to the south oxidation ditch. No records from the original construction plan were found during design or by City staff that show the RW pipe elevation. The 6" RW pipe will be raised / reinstalled when it is encountered - cost to be determined at that time.

All of the above changes were either requested or found to be acceptable to City staff. These changes, after review by the City Council, will be authorized by BMI and incorporated into respective pay requests. A construction allowance of \$75,000 was incorporated into the construction contract for this project. So far, \$10,590.79 has been charged towards that allowance.

Well construction has been completed and final costs are \$67,940, which is \$455 less than contracted for.

Engineering services for the project have been continuing as agreed to according to the existing "Not to Exceed" contract. No cost changes are anticipated at this time.

Total project costs to date and estimated final costs can be summarized as follows:

Total Estimated Project Cost	Original Cost	Changes	Costs to Date	Estimated Final Amounts
WWTF Construction	\$ 2,152,000	\$ 10,590	\$ 453,810	\$ 2,162,590
Well Construction	\$ 68,395	\$ (455.00)	\$ 67,940	\$ 67,940
Engineering	\$ 198,400	\$ (514.00)	\$ 153,614	\$ 197,886
Totals	\$ 2,418,795	\$ 9,621.79	\$ 675,364	\$ 2,428,416
Other City Costs (pre 2018)			\$188,016	\$2,616,433

Please see attached Project Cost Summary, dated January 3, 2018, for project cost details.

Attachments

1. Project Schedule - 11.21.17
2. Project Cost Summary - 01.03.18



Schedule

Project Name: Crosslake WWTF Improvements	Project No:	Page 1 of 1
Proposed Start:	Prepared by: Eagle Construction	
Completion: August 30, 2018	Date: November 21, 2017	Revised:

No.	Work Item	2017																2018																															
		SEPTEMBER				OCTOBER				NOVEMBER				DECEMBER				JANUARY				FEBRUARY				MARCH				APRIL				MAY				JUNE				JULY				AUGUST			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
	Concrete EQ Basin																																																
	Piping; Oxidation Ditch Penetrations																																																
	12" Pipe to Oxidation Ditches																																																
	Oxidation Ditch 6" Drainlines																																																
	Water Storage Tank Concrete																																																
	Existing Filter/ Pump Room Valve Replacement																																																
	EQ Basin Pump Installation/ Piping																																																
	Pre-Treatment Bldg Piping Modifications																																																
	Mech. Fine Screen Installation																																																
	Pre-Treatment Bldg Stairs, Railings, Grating																																																
	Blower & Air Piping																																																
	6" WM Water Storage to Loadout																																																
	WM; Water Storage to Clarifier																																																
	4" WM; Well to water Storage																																																
	Water Storage Pump Installation																																																
	Control Structure Concrete / Piping																																																
	Rapid Mix Manhole & Piping																																																
	Meter Manhole & Piping																																																
	Sludge Storage Tank Piping & Modifications																																																
	Site Grading/ Fencing/ Restoration																																																
	Punchlist																																																
	Owner Training/ Start-up																																																
	Substantial Completion																																																

*** Disclaimer: Construction schedule is for informational purposes only subject to alterations by contract amendment. Contractual dates are as specified in the Contract Agreement. Interim activities and their durations are an approximation and not contractual.

City of Crosslake
Waste Water Treatment Facility Project
 BMI Project # - M25.113425

Project Cost Summary
 January 3, 2018

Item	Contract Amounts	Changes	Estimated Final Amounts	
Eagle - Construction Costs				
Construction	\$ 2,152,000.00		\$ 2,152,000.00	
Allowance	\$ 75,000.00			
Contract Changes				
1 - Field Order #1 - Add Rebar: Water Storage Tank Base Slab		\$ 424.00	\$ 424.00	
2 - BMI Proposal Request #1 - RAS Piping Relocation to EQ Basin		\$ 11,923.13	\$ 11,923.13	
3 - BMI Proposal Request #2 - Remove and Replace Three (3) Four Inch Plug Valves		\$ 2,464.93	\$ 2,464.93	
4 - Eagle Proposal Request #1 - Relocate 6" Oxidation Ditch Drain Line		\$ (4,221.27)	\$ (4,221.27)	
5 - Relocate 6" RW Piping to South Oxidation Ditch		TBD	TBD	
Totals	\$ 2,227,000.00	\$ 10,590.79	\$ 2,162,590.79	
Pay Request # / Date				
	#4 - 12/29/17			
Eagle - Work Completed to Date	\$ 453,810.00			
Eagle - Paid to Date	\$ 255,876.80			
Eagle - Retainage	\$ 22,690.50			
Eagle - Pay Requests	\$ 175,242.70			
Blue Water Wells - Construction Costs				
Construction	\$ 68,395.00	\$ -	\$ 68,395.00	
Contract Changes				
1 - Test Pump		\$ (2,000.00)	\$ (2,000.00)	
2 - Water Analysis		\$ (1,750.00)	\$ (1,750.00)	
3 - Casing		\$ (1,080.00)	\$ (1,080.00)	
4 - Open Hole		\$ (1,125.00)	\$ (1,125.00)	
5 - Increase Pump and Casing Sizes (to 500 gpm capacity)		\$ 5,500.00	\$ 5,500.00	
Totals	\$ 68,395.00	\$ (455.00)	\$ 67,940.00	
Pay Request # / Date				
	#1 (Final) - 9/18/17			
			\$ 67,940.00	
BMI - Design Costs				
Task 1 - Site Work Design	\$ 8,400.00	\$ (9.00)	\$ 8,391.00	\$ 8,391.00
Task 2 - Waste Water Facility Design	\$ 82,000.00	\$ -	\$ 82,000.00	\$ 82,000.00
Task 3 - Bidding Services	\$ 8,000.00	\$ (505.00)	\$ 7,495.00	\$ 7,495.00
Task 4 - Water Supply Well and Storage Tank Design (Alternate)	\$ 30,000.00	\$ -	\$ 30,000.00	\$ 30,000.00
BMI - Construction Observation Costs	\$ 70,000.00	\$ -	\$ 25,728.40	\$ 70,000.00
Totals	\$ 198,400.00	\$ (514.00)	\$ 153,614.40	\$ 197,886.00
Total Estimated Project Cost				
WWTF Construction	\$ 2,152,000.00	\$ 10,590.79	\$ 453,810.00	\$ 2,162,590.79
Well Construction	\$ 68,395.00	\$ (455.00)	\$ 67,940.00	\$ 67,940.00
Engineering	\$ 198,400.00	\$ (514.00)	\$ 153,614.40	\$ 197,886.00
Totals	\$ 2,418,795.00	\$ 9,621.79	\$ 675,364.40	\$ 2,428,416.79
Other Related City Costs:				
City costs prior to 2016 - WIP at 12/31/2016			\$ 142,416.61	\$ 142,416.61
Other 2017 City Costs - USA Bluebook, Fiber Upgrades, Elite Fence and Deck, Etc			\$ 45,599.90	\$ 45,599.90
		TOTAL COSTS	\$ 863,380.91	\$ 2,616,433.30