

# Board of Public Utilities

## Regular Meeting Agenda

Monday, November 28, 2016  
4:00 p.m., DPW Conference Room  
1199 8<sup>th</sup> Avenue



1. Call to Order
2. Roll Call
3. Approval of Agenda
4. Approval of Minutes for the Record
  - A. October 31, 2016 Regular Meeting Minutes
5. Interested Citizens in the Audience Will be Heard on Items Not on the Agenda

### REPORTS

6. Cost of Energy from Indiana-Michigan Power Company (AEP)
  - A. 2016 Billings – All Charges
  - B. 2015 Billings – All Charges
7. Financial Reports
  - A. Electric Fund – Financial Statement
  - B. Electric Fund – Review of Percentage Billed
  - C. Water Fund – Financial Statement
  - D. Water Fund – Review of Percentage Billed
  - E. Sewer Fund – Financial Statement

### NEW BUSINESS

8. Board will be requested to review the North Beach Improvement plans and provide comments.
9. Board will be requested to make a recommendation of award for the Wastewater Treatment Plant Digester Mixing Improvements.
10. DPW Director Comments
11. Board Member Comments

## **12. Adjourn**

RESPECTFULLY SUBMITTED,

William Hunter  
DPW Director

## Board of Public Utilities

### Regular Meeting Minutes

Monday, October 31, 2016  
4:00 p.m., DPW Conference Room  
1199 8<sup>th</sup> Avenue



#### 1. Call to Order by Stickland at 4:00 p.m.

#### 2. Roll Call

Present: Bob Burr, Mike Henry, Ross Stein (ex-officio), Barry Winkel, Bob Stickland  
Absent: Alan Overhiser (ex-officio), Bill Roberts, Barbara Rose (ex-officio)

Also present: Wendy Hochstedler

Burr questioned how long Barbara Rose's term lasts and Stein explained that after the election the winner will have to be sworn in by November 20, 2016.

#### 3. Approval of Agenda

Motion by Burr, second by Winkel to approve the October 31, 2016 Regular Meeting Agenda as presented.

All in favor. Motion carried.

#### 4. Approval of Minutes for the Record

A. August 29, 2016 Regular Meeting Minutes

Motion by Henry, second by Winkel to approve the August 29, 2016 Regular Meeting Minutes for the record as written.

All in favor. Motion carried.

#### 5. Interested Citizens in the Audience Will be Heard on Items Not on the Agenda

None at this time.

### REPORTS

#### 6. Cost of Energy from Indiana-Michigan Power Company (AEP)

- A. 2016 Billings – All Charges
- B. 2015 Billings – All Charges

Discussion ensued regarding the true-up.

## 7. Financial Reports

- A. Electric Fund – Financial Statement
- B. Electric Fund – Review of Percentage Billed

Burr noted that the city set a record for kilowatt hours sold. Stickland noted losses were less than five percent Burr requested that after the audit, Hochstedler provide how much the electric fund made.

- C. Water Fund – Financial Statement

Burr stated it looks like we may have set a record for water sales. Discussion ensued regarding the amount of water sold to Bohn Aluminum, which Burr pointed out was year round.

- D. Water Fund – Review of Percentage Billed

- E. Sewer Fund – Financial Statement

Burr asked if “other revenues” is bond money. Hochstedler responded that it is the bond money, which the city hasn’t gotten yet. Stickland asked where assessments go and Hochstedler noted they will go into the appropriate areas, sewer, water, etc. Hochstedler said when we set up the 2017 budget; we set it up as if these borrowings will all be done in one year, so there will be some adjustments to split those out. Burr asked about the rate study, the SAW grant and the bonds. Hunter said he will get back with our financial advisor for the bonds and get the board caught up on that.

## 8. 2016 3<sup>rd</sup> Quarter Electric Outage Report

Burr noted tree contacts went up from last year. Stickland noted the three most common problems are squirrels, trees and devised and asked Hunter to have Jim come in and talk about what he is seeing with devices.

## NEW BUSINESS

### 9. Board will be requested to make a recommendation of award for conduit installation for the North Shore Dr. electric rebuild project.

Hunter explained that this is a request to award the North Shore Drive Electric Line Rebuild conduit installation to Milbocker & Sons, Inc. in the amount of \$23,938.50. Hunter noted that this can be done simultaneously with the street work they are doing on site. Stickland questioned whether the city is paying double for this installation, which Hunter clarified is separate from the other work being done and the city it not paying twice.

Burr asked about telephone and cable and Hunter said they are required to go underground and there were three pre-bid meetings. Burr asked if Comcast's conduits will run parallel with the other utilities, which Hunter confirmed.

Motion by Burr, second by Henry to

All in favor. Motion carried.

#### **10. Board will be informed on changes to the Safe Water Drinking Act –Part 14.**

Hunter explained this is just informational for the board, changes the EPA directed to the DEQ. Changes to part 14, cross-connection control, onto a water system with non-potable water that could be drawn into a drinking system. Hunter explained that this spells out all customer types. Hunter plans to go out for bids and see how much it will cost to do all of our connections. After a question by Burr, Hunter's plan is to submit a revised plan to the state, only to residential customers every 15 years, residential are low hazard, the other part is you buy the gross of vacuum protectors, new faucets have them built in, the older faucets there is a screw on connection.

Stickland sprinkling system back-flow inspections – Hunter said that has to be tested once every three years. Hunter said installers are supposed to test and turn that in to the state; is that happening? I don't know. Hunter noted that there are actually classes to train people to test these connections, but there is a two-year wait to get into the classes.

Hunter said there is an agreement between the plumbing code and the MDEQ; as long as a municipality has a cross-connection program. That is better than the plumbing code which says a testable device will be tested once a year. This is cheaper than the alternative.

#### **11. Board will be informed on the Covert Township Boil water event time-line.**

Hunter noted that he was told at the board meeting that we need to improve our communication. Hunter explained that he is looking into alternatives for communicating. The question was asked why Covert should be treated any different as they are not a wholesale customer any more. Burr inquired whether there was anything that could prevent the water tank from emptying when a hydrant is hit. Hunter suggested an altitude valve, but said it would still empty. Stickland noted when you look at the time frame, a good job was done. Hunter said the guys went above and beyond; we even delivered bottles of water to the Covert Schools. Discussion ensued regarding how long it will take to get your pressure back which Hunter said it shouldn't take too long, but it depends on demand at the time you are trying to fill the water tank. Hunter said maybe 3 to 5 hours.

#### **12. Board will be updated on the SAW grant project.**

Hunter stated this is just an update of where we are. Televising will begin and the city will be out with our vector truck, coordinating with them. We will be concentrating on san lines up to 12" ahead of the camera. Due to size of our truck. Burr said it shows that the revenue structure will be taking place June – August 2017. Stickland noted it is on schedule.

Stickland asked if Kalamazoo Street reconstruction is on schedule which Hunter stated that it is, it is a very deep sewer so there is a lot of 15 – 18' deep.

### **13. DPW Director Comments**

None

### **14. Board Member Comments**

Stein asked what progress is being made at the Waste Water Treatment Plant. Hunter said he can forward the progress report – part of the pond is dug out, started to put some of the pilings in, working on coordinating (joint meeting scheduled with 2 separate contractors) the water line going in.

Hunter said he can forward the progress report.

Winkel asked if Lakeshore is going to be done this fall or next spring. Discussion ensued. Hunter will get a detailed plan on both of those with time frames. Burr questioned, “It is supposed to be done in spring, Memorial Day?” Hunter noted it just went out for bid.

Burr asked about 45 foot pilings going down the road to the plant and wondered when that will be occurring. Hunter said there will be a de-watering contractor on site throughout.

Discussion ensued due to a query from Henry about the duration of the Consumers plant. Noted that the Covert Generating Plant is on the auction block, again.

Stickland noted the meeting regarding our future power supply from I & M. Spoke about the possibility of buying power from more than one source. Discussion ensued regarding cost of power, fracking, directional drilling.

### **15. Adjourn**

Motion by Henry, second by Winkel at 5:10 p.m.

All in favor. Motion carried.

RESPECTFULLY SUBMITTED,

Marsha Ransom  
Recording Secretary

CITY OF SOUTH HAVEN																				
Cost of Electric Energy from Indiana-Michigan Power Company (AEP)																				
2016																				
Date	ACTUAL				BILLING			COST				PJM Open Access Transmission Tariff						Total Cost	cts/ KWHR	
	KW Demand	KVAR Demand	KVA	Power Factor	KW Demand	KVAR Demand	KWHR	\$ KW Demand	\$ KWHR	\$ Fuel Charge	\$ Fuel Adjust	Actual Fuel True-up	Sch 1A \$ KWHRS	\$ Network	RTO Start-up \$	Other	Credits			Total PJM
Main	16,090	5,313	16,944	0.9496	16,090	5,313	6,905,472	\$309,989.65	\$71,049.71											
Welder	319	266	415	0.7687	319	266	156,599	\$6,149.71	\$1,611.23											
Phoenix	14,284	5,463	15,293	0.9340	14,284	5,463	5,903,967	\$275,195.26	\$60,745.32											
Sep-16	30,693	11,042	32,619	0.9410	30,693	11,042	12,966,037	\$591,334.61	\$133,406.26	\$213,048.85	\$31,821.25	\$106,772.70	\$1,237.57	\$76,530.85	\$160.58	\$16,691.15	(\$640.46)	\$93,979.69	\$1,170,363.36	9.026
Main	17,425	6,028	18,438	0.9450	17,425	6,028	8,613,703	\$335,709.38	\$88,625.53											
Welder	294	191	351	0.8387	294	191	206,553	\$5,669.98	\$2,125.20											
Phoenix	16,067	6,377	17,286	0.9295	16,067	6,377	7,630,196	\$309,542.29	\$78,506.33											
Aug-16	33,786	12,596	36,058	0.9370	33,786	12,596	16,450,452	\$650,921.65	\$169,257.06	\$270,302.32	(\$20,469.30)	(\$23,100.97)	\$1,570.15	\$79,081.88	\$165.93	\$16,522.63	(\$771.47)	\$96,569.12	\$1,143,479.88	6.951
Main	16,839	5,631	17,756	0.9484	16,839	5,631	8,378,893	\$324,419.89	\$86,209.59											
Welder	351	304	465	0.7555	351	304	167,021	\$6,762.37	\$1,718.46											
Phoenix	15,101	5,781	16,170	0.9339	15,101	5,781	7,565,172	\$309,929.80	\$77,837.30											
Jul-16	32,291	11,717	34,351	0.9400	32,291	11,717	16,111,086	\$622,112.05	\$165,765.35	\$264,726.09	(\$47,232.87)	(\$36,558.93)	\$1,537.76	\$79,081.88	\$165.93	\$16,015.58	(\$810.91)	\$95,990.24	\$1,064,801.93	6.609
Main	13,497	4,285	14,161	0.9531	13,497	4,285	6,885,896	\$260,035.71	\$70,846.24											
Welder	146	255	294	0.4971	146	255	212,771	\$2,810.91	\$2,189.18											
Phoenix	13,110	4,341	13,810	0.9493	13,110	4,341	5,953,731	\$252,579.76	\$61,257.34											
Jun-16	26,753	8,881	28,189	0.9491	26,753	8,881	13,052,198	\$515,426.38	\$134,292.76	\$214,464.58	\$26,860.12	\$197,920.03	\$1,280.89	\$76,701.79	\$160.58	\$13,423.87	(\$605.67)	\$90,961.46	\$1,179,925.33	9.040
Main	11,909	3,200	12,331	0.9657	11,909	3,200	6,071,150	\$211,944.12	\$68,726.63											
Welder	431	326	540	0.7976	431	326	156,353	\$7,663.39	\$1,769.95											
Phoenix	10,814	3,369	11,327	0.9547	10,814	3,369	5,101,502	\$192,463.52	\$57,750.02											
May-16	23,154	6,895	24,159	0.9584	23,154	6,895	11,329,006	\$412,071.03	\$128,246.61	\$167,297.69	\$42,199.41	\$46,010.69	\$1,111.78	\$70,510.79	\$162.61	\$12,905.56	(\$570.53)	\$84,120.21	\$879,945.64	7.767
Main	10,055	1,999	10,252	0.9808	10,055	1,999	5,734,491	\$178,949.01	\$64,915.58											
Welder	373	315	489	0.7642	373	315	196,032	\$6,645.40	\$2,219.12											
Phoenix	7,413	1,634	7,591	0.9766	7,413	1,634	4,476,314	\$131,924.00	\$50,672.77											
Apr-16	17,841	3,948	18,273	0.9764	17,841	3,948	10,406,836	\$317,518.41	\$117,807.47	\$153,679.84	\$9,193.40	\$29,374.01	\$1,021.29	\$68,236.25	\$157.36	\$12,684.90	(\$598.07)	\$81,501.73	\$709,074.86	6.814
Main	10,772	1,820	10,925	0.9860	10,772	1,820	6,175,345	\$191,709.55	\$89,906.14											
Welder	312	276	417	0.7483	312	276	208,084	\$5,547.32	\$2,355.55											
Phoenix	7,851	1,251	7,950	0.9875	7,851	1,251	4,676,007	\$139,715.62	\$52,933.33											
Mar-16	18,934	3,348	19,228	0.9847	18,934	3,348	11,059,436	\$336,972.49	\$125,195.03	\$163,316.90	\$15,184.61	\$44,308.72	\$1,085.33	\$70,510.79	\$162.61	\$12,663.84	(\$576.34)	\$83,846.23	\$768,823.98	6.952
Main	10,991	2,028	11,177	0.9834	10,991	2,028	6,302,889	\$195,606.20	\$71,349.97											
Welder	139	282	314	0.4416	139	282	149,844	\$2,466.66	\$1,696.27											
Phoenix	8,486	1,133	8,561	0.9912	8,486	1,133	4,734,776	\$151,024.72	\$53,598.62											
Feb-16	19,616	3,443	19,915	0.9849	19,616	3,443	11,187,510	\$349,097.59	\$126,644.85	\$165,208.19	\$509.03	\$28,825.21	\$1,097.90	\$65,961.70	\$152.12	\$12,663.84	(\$782.56)	\$79,093.00	\$749,377.87	6.698
Main	11,894	2,299	12,114	0.9818	11,894	2,299	7,171,623	\$211,677.84	\$81,184.21											
Welder	290	355	458	0.6323	290	355	147,920	\$5,152.23	\$1,674.49											
Phoenix	8,211	1,158	8,292	0.9902	8,211	1,158	4,864,669	\$146,129.60	\$55,069.02											
Jan-16	20,394	3,812	20,748	0.9830	20,394	3,812	12,184,212	\$362,959.67	\$137,927.72	\$179,926.69	(\$7,579.80)	\$39,241.29	\$1,195.71	\$70,559.06	\$162.61	\$12,616.31	(\$892.92)	\$83,640.77	\$796,116.34	6.534

Year to Date 2016: 114,746,774 \$432,793 \$8,461,909 7.374

Notes: \* Includes 2015 Annual Rate True-Up of \$125,821.32  
 \*\* Adjustment Includes Correction of \$7,072.97 for 1st 5 Months of 2016. In PJM Open Access Trans Charge, NSPL wasn't updated at end of 2015 per Formula. See Invoice.

	Old	2016 New	% Change	39,300	\$476,126	Jun-16 \$515,426 \$KW
\$/KW	17.797	19.266	8.3%	39,300	\$476,126	\$515,426 \$KW
\$/Kwh	0.01132	0.0102889	-9.1%	-13,461	\$147,753	\$134,293 \$KWHR
		Composite	4.14%		Old rate	New rate

CITY OF SOUTH HAVEN																				
Cost of Electric Energy from Indiana-Michigan Power Company (AEP)																				
2016																				
Date	ACTUAL				BILLING			COST				PJM Open Access Transmission Tariff						Total Cost	cts/ KWHR	
	KW Demand	KVAR Demand	KVA	Power Factor	KW Demand	KVAR Demand	KWHRs	\$ KW Demand	\$ KWHR	\$ Fuel Charge	\$ Fuel Adjust	Actual Fuel True-up	Sch 1A \$ KWHRS	\$ Network	RTO Start-up \$	Other	Credits			Total PJM
Main	11,246	3,080	11,660	0.9645	11,246	3,080	6,252,627	\$216,665.03	\$64,332.66											
Welder	376	362	522	0.7198	376	362	199,088	\$7,238.24	\$2,048.40											
Phoenix	8,995	2,587	9,360	0.9610	8,995	2,587	4,991,670	\$173,304.99	\$51,358.80											
Oct-16	20,617	6,029	21,481	0.9598	20,617	6,029	11,443,386	\$397,208.26	\$117,739.85	\$188,029.69	\$9,261.13	\$53,782.67	\$1,092.24	\$79,081.88	\$165.93	\$16,410.41	(\$635.56)	\$96,114.90	\$862,136.50	7.534
Main	16,090	5,313	16,944	0.9496	16,090	5,313	6,905,472	\$309,989.65	\$71,049.71											
Welder	319	266	415	0.7687	319	266	156,599	\$6,149.71	\$1,611.23											
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Phoenix	7,413	1,634	7,591	0.9766	7,413	1,634	4,476,314	\$131,924.00	\$50,672.77											
Apr-16	17,841	3,948	18,273	0.9764	17,841	3,948	10,406,836	\$317,518.41	\$117,807.47	\$153,679.84	\$9,193.40	\$29,374.01	\$1,021.29	\$68,236.25	\$157.36	\$12,684.90	(\$598.07)	\$81,501.73	\$709,074.86	6.814
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Phoenix	8,486	1,133	8,561	0.9912	8,486	1,133	4,734,776	\$151,024.72	\$53,598.62											
Feb-16	19,616	3,443	19,915	0.9849	19,616	3,443	11,187,510	\$349,097.59	\$126,644.85	\$165,208.19	\$509.03	\$28,825.21	\$1,097.90	\$65,961.70	\$152.12	\$12,663.84	(\$782.56)	\$79,093.00	\$749,377.87	6.698
Main	11,894	2,299	12,114	0.9818	11,894	2,299	7,171,623	\$211,677.84	\$81,184.21											
Welder	290	355	458	0.6323	290	355	147,920	\$5,152.23	\$1,674.49											
Phoenix	8,211	1,158	8,292	0.9902	8,211	1,158	4,864,669	\$146,129.60	\$55,069.02											
Jan-16	20,394	3,812	20,748	0.9830	20,394	3,812	12,184,212	\$362,959.67	\$137,927.72	\$179,926.69	(\$7,579.80)	\$39,241.29	\$1,195.71	\$70,559.06	\$162.61	\$12,616.31	(\$892.92)	\$83,640.77	\$796,116.34	6.534

Year to Date 2016: 126,190,160 486,575 \$9,324,046 7.389

Notes: \* Includes 2015 Annual Rate True-Up of \$125,821.32  
 \*\* Adjustment Includes Correction of \$7,072.97 for 1st 5 Months of 2016. In PJM Open Access Trans Charge, NSPL wasn't updated at end of 2015 per Formula. See Invoice.

	2016		% Change		Jun-16	
	Old	New		Old rate	New rate	
\$/kW	17.797	19.266	8.3%	39,300	\$476,126	\$515,426 \$KW
\$/kwh	0.01132	0.0102889	-9.1%	-13,461	\$147,753	\$134,293 \$KWHR
	Composite		4.14%			

City of South Haven  
Electric Fund - Fund 582  
For the period ended October 31, 2016

Col 6 & 11

Revenues:	Month Actual	Monthly Budget	Prior year MTD	MTD Variance to Budget	MTD Variance to Prior Year	YTD Actual	YTD Budget	Prior YTD Actual	Variance to Budget	Variance to Prior Year	2016-17 Adopted Budget	% of Annual Budget
Electric Sales	\$ 1,185,215	\$ 1,249,221	\$ 1,200,176	\$ (64,007)	\$ (14,961)	\$ 5,741,634	\$ 4,996,886	\$ 4,873,642	\$ 744,749	\$ 867,992	\$ 14,990,657	38%
Charges for Service	\$ 1,255	\$ 12,500	\$ 8,961	\$ (11,245)	\$ (7,706)	\$ 75,552	\$ 50,000	\$ 44,645	\$ 25,552	\$ 30,907	\$ 150,000	50%
Interest Income	\$ 9,094	\$ 2,500	\$ 5,426	\$ 6,594	\$ 3,669	\$ 17,425	\$ 10,000	\$ 13,859	\$ 7,425	\$ 3,566	\$ 30,000	58%
Other Revenue	\$ 42,835	\$ 3,333	\$ 3,818	\$ 39,502	\$ 39,017	\$ 52,220	\$ 13,333	\$ 14,183	\$ 38,887	\$ 38,037	\$ 40,000	131%
Transfers In	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
<b>Total Revenues</b>	<b>\$ 1,238,399</b>	<b>\$ 1,267,555</b>	<b>\$ 1,218,380</b>	<b>\$ (29,155)</b>	<b>\$ 20,019</b>	<b>\$ 5,886,831</b>	<b>\$ 5,070,219</b>	<b>\$ 4,946,329</b>	<b>\$ 816,612</b>	<b>\$ 940,502</b>	<b>\$ 15,210,657</b>	

Expenses	Month Actual	Monthly Budget	Prior year MTD	MTD Variance to Budget	MTD Variance to Prior Year	YTD Actual	YTD Budget	Prior YTD Actual	Variance to Budget	Variance to Prior Year	2016-17 Adopted Budget	% of Annual Budget
Purchased Power	\$ 862,137	\$ 852,679	\$ 663,069	\$ 9,457	\$ 199,067	\$ 4,240,782	\$ 3,410,718	\$ 3,869,313	\$ 830,064	\$ 371,469	\$ 10,232,153	41%
Other Operating Expenses	\$ 166,901	\$ 181,784	\$ 177,461	\$ (14,882)	\$ (10,560)	\$ 640,459	\$ 727,135	\$ 584,672	\$ (86,677)	\$ 55,787	\$ 2,181,406	29%
Property Tax Equivalents	\$ 63,288	\$ 63,288	\$ 60,700	\$ (0)	\$ 2,588	\$ 253,153	\$ 253,153	\$ 242,800	\$ (0)	\$ 10,354	\$ 759,460	33%
Energy Optimization Costs	\$ 39,498	\$ 22,749	\$ 119	\$ 16,748	\$ 39,378	\$ 64,406	\$ 90,996	\$ 68,586	\$ (26,590)	\$ (4,179)	\$ 272,989	24%
Capital Outlay	\$ 53,182	\$ 85,417	\$ 13,334	\$ (32,234)	\$ 39,848	\$ 116,254	\$ 341,667	\$ 65,456	\$ (225,413)	\$ 50,797	\$ 1,025,000	11%
Transfer Out	\$ 14,071	\$ 14,071	\$ 14,066	\$ 0	\$ 5	\$ 56,285	\$ 56,285	\$ 56,263	\$ 0	\$ 22	\$ 168,854	33%
Depreciation	\$ 57,500	\$ 57,500	\$ 55,917	\$ -	\$ 1,583	\$ 230,000	\$ 230,000	\$ 223,667	\$ -	\$ 6,333	\$ 690,000	33%
Administrative Expenses	\$ 55,387	\$ 69,253	\$ 64,962	\$ (13,866)	\$ (9,575)	\$ 264,309	\$ 277,010	\$ 286,588	\$ (12,702)	\$ (22,279)	\$ 831,031	32%
<b>Total Expenses</b>	<b>\$ 1,311,964</b>	<b>\$ 1,346,741</b>	<b>\$ 1,049,629</b>	<b>\$ (34,777)</b>	<b>\$ 262,336</b>	<b>\$ 5,865,647</b>	<b>\$ 5,386,964</b>	<b>\$ 5,397,344</b>	<b>\$ 478,683</b>	<b>\$ 468,303</b>	<b>\$ 16,160,893</b>	

Net Fund Change \$ (73,565) \$ (79,186) \$ 168,752 \$ 5,622 \$ (242,317) \$ 21,184 \$ (316,745) \$ (451,015) \$ 337,929 \$ 472,199 \$ (950,236)

**AS OF JUNE 30, 2016**

Retained Earnings	\$ 16,597,632
Less Net Capital Assets	\$ (13,771,107)
Net Undesignated Reserves	\$ 2,826,526

**Breakdown:**

Cash/Investments	\$ 2,594,845
Current Assets	\$ 2,643,940
Current Liabilities	\$ (2,412,259)
<b>Net Working Capital</b>	<b>\$ 2,826,526</b>

**AS OF CURRENT MONTH END**

Retained Earnings-FYE	\$ 16,597,632
Less Net Capital Assets	\$ (13,541,107)
Net Undesignated Reserves	\$ 3,056,526
Net Income Per Income Statement Revenue > Expenses	\$ 21,184
Add back Non-cash Depreciation Expense	\$ -
	\$ 3,077,709

**Breakdown:**

Cash/Investments	\$ 3,309,434
Current Assets	\$ 1,746,388
Current Liabilities	\$ (1,978,113)
<b>Net Working Capital</b>	<b>\$ 3,077,709</b>

**PROJECTED BALANCE AT JUNE 30, 2017**

Based on Adopted Annual Budget

Beginning Retained Earnings-July 1, 2016	\$ 16,597,632
Less Projected Net Capital Assets	\$ (14,032,982)
Net Income Per Income Statement Revenue > Expenses	\$ (950,236)
	\$ 1,614,414

**Net Working Capital \$ 1,614,414** Projected thru 6/30/17

The Net Working Capital is shown here for June 30, 2016, Current Month Ended, and Projected at June 30, 2017. The amounts represent what is left over after all of the short-term obligations have been met and represents the relatively liquid portion of the Utility's retained earnings or reserves that can be used for future expenditures.

CITY OF SOUTH HAVEN  
ELECTRIC FUND  
KWH COMPARISONS  
ROLLING TWELVE MONTHS

		KWH PURCHASED	KWH BILLED	KWH STREET LTS	STREET LTS 12 MO AVE.	TOTAL KWH BILLED AND STREET LTS	PERCENTAGE BILLED AND STREET LTS TO PURCHASED (ROLLING 12 MOS)	PERCENTAGE BILLED AND STREET LTS TO PURCHASED CURRENT MONTH	
<b>FISCAL 2014</b>									
July	2013	14,702,976	12,364,189	37,740	52,213	12,401,929	94.64%	84.35%	31
August	2013	13,559,712	13,582,248	42,342	52,126	13,624,590	94.42%	100.48%	31
September	2013	11,670,399	12,462,283	48,796	52,143	12,511,079	95.03%	107.20%	30
October	2013	10,945,398	10,453,792	54,475	52,125	10,508,267	94.91%	96.01%	31
November	2013	10,657,150	9,502,492	58,511	51,866	9,561,003	94.96%	89.71%	30
December	2013	11,962,287	10,244,088	71,063	52,032	10,315,151	94.68%	86.23%	31
January	2014	12,608,593	10,959,716	65,878	51,791	11,025,594	94.12%	87.45%	31
February	2014	11,410,071	12,066,200	59,636	51,790	12,125,836	94.72%	106.27%	29
March	2014	11,773,033	10,878,414	54,626	51,925	10,933,040	94.54%	92.87%	31
April	2014	10,374,016	10,020,033	48,541	51,953	10,068,574	94.63%	97.06%	30
May	2014	11,203,732	10,614,984	44,334	51,971	10,659,318	94.97%	95.14%	31
June	2014	12,746,940	11,082,867	39,220	52,097	11,122,087	93.90%	87.25%	30
		<u>143,614,306</u>	<u>134,231,306</u>	<u>625,162</u>		<u>134,856,468</u>			
<b>FISCAL 2015</b>									
July	2014	13,717,651	12,578,551	38,129	52,129	12,616,680	96.41%	91.97%	31
August	2014	14,486,040	12,740,027	42,644	52,154	12,782,671	94.07%	88.24%	31
September	2014	11,824,906	13,323,234	48,696	52,146	13,371,930	94.64%	113.08%	30
October	2014	11,327,065	11,109,952	55,667	52,245	11,165,619	95.09%	98.57%	31
November	2014	11,400,971	10,662,987	62,443	52,573	10,725,430	94.71%	94.07%	30
December	2014	12,007,610	11,126,842	67,163	52,248	11,194,005	95.06%	93.22%	31
January	2015	12,646,269	11,962,202	63,831	52,078	12,026,033	95.27%	95.10%	31
February	2015	11,642,781	11,272,243	59,367	52,055	11,331,610	95.05%	97.33%	29
March	2015	11,611,940	10,475,991	55,391	52,119	10,531,382	94.93%	90.69%	31
April	2015	10,409,946	10,889,321	49,374	52,188	10,938,695	95.50%	105.08%	30
May	2015	11,362,501	10,551,097	43,678	52,134	10,594,775	95.38%	93.24%	31
June	2015	12,140,981	10,457,881	38,776	52,097	10,496,657	95.29%	86.46%	30
		<u>144,578,660</u>	<u>137,150,328</u>	<u>625,159</u>		<u>137,775,487</u>			
<b>FISCAL 2016</b>									
July	2015	14,677,143	13,243,711	38,312	52,112	13,282,023	93.91%	90.49%	31
August	2015	14,339,662	13,784,516	43,194	52,158	13,827,710	93.48%	96.43%	31
September	2015	12,441,903	13,414,247	48,002	52,100	13,462,249	94.04%	108.20%	30
October	2015	11,188,839	11,094,437	54,768	52,025	11,149,205	94.43%	99.65%	31
November	2015	10,684,266	9,455,848	61,411	51,939	9,517,259	94.57%	89.08%	30
December	2015	11,590,762	9,764,754	67,711	51,985	9,832,465	94.49%	84.83%	31
January	2016	12,184,212	11,882,513	62,508	51,855	11,945,021	94.16%	98.04%	31
February	2016	11,187,510	10,966,030	59,563	51,849	11,025,593	94.39%	98.55%	29
March	2016	11,059,436	10,905,400	53,548	51,759	10,958,948	94.48%	99.09%	31
April	2016	10,406,837	10,376,409	47,900	51,706	10,424,309	94.67%	100.17%	30
May	2016	11,329,005	9,214,689	43,807	51,662	9,258,496	94.48%	81.72%	31
June	2016	13,052,198	12,169,496	37,317	51,503	12,206,813	94.97%	93.52%	30
		<u>144,141,773</u>	<u>136,272,049</u>	<u>618,041</u>		<u>136,890,090</u>			
<b>FISCAL 2017</b>									
July	2016	16,111,086	13,534,627	37,151	51,407	13,571,778	95.18%	84.24%	31
August	2016	16,450,462	15,575,578	42,043	51,311	15,617,621	94.42%	94.94%	31
September	2016	12,966,038	14,925,981	47,252	51,248	14,973,233	95.22%	115.48%	30
October	2016	11,443,385	10,917,866	53,941	51,179	10,971,807	95.29%	95.88%	31
		<u>56,970,971</u>	<u>54,954,052</u>	<u>180,387</u>		<u>55,134,439</u>			
Prior Year-to-date		52,647,547	51,536,911	184,276		51,721,187			
Two Years Prior		51,355,662	49,751,764	185,136		49,936,900			

City of South Haven  
Water Fund - Fund 591  
For the period ended October 31, 2016

Col 6 & 11

Revenues:	Month Actual	Monthly Budget	Prior year MTD	MTD Variance to Budget	MTD Variance to Prior Year	YTD Actual	YTD Budget	Prior YTD Actual	Variance to Budget	Variance to Prior Year	2016-17 Adopted Budget	% of Annual Budget
Sales	\$ 334,893	\$ 369,892	\$ 325,998	\$ (34,999)	\$ 8,895	\$ 1,298,030	\$ 1,479,568	\$ 1,203,949	\$ (181,538)	\$ 94,081	\$ 4,438,705	29%
Charges for Service	-	8,000	14,235	(8,000)	(14,235)	27,478	32,000	30,160	(4,522)	(2,682)	96,000	29%
Interest Income	78	667	94	(588)	(16)	3,950	2,667	3,408	1,284	542	8,000	49%
Special Assessment Revenue	-	11,495	-	(11,495)	-	-	45,980	-	(45,980)	-	137,941	0%
Other Revenue	3,940	70,517	5,305	(66,578)	(1,365)	10,595	282,069	17,040	(271,474)	(6,445)	846,208	1%
<b>Total Revenues</b>	<b>\$ 338,911</b>	<b>\$ 460,571</b>	<b>\$ 345,631</b>	<b>\$ (121,660)</b>	<b>\$ (6,720)</b>	<b>\$ 1,340,054</b>	<b>\$ 1,842,285</b>	<b>\$ 1,254,557</b>	<b>\$ (502,231)</b>	<b>\$ 85,496</b>	<b>\$ 5,526,854</b>	

Expenses:	1	2	3	4	5	6	7	8	9	10	11	% of Annual Budget
	Month Actual	Monthly Budget	Prior year MTD	MTD Variance to Budget	MTD Variance to Prior Year	YTD Actual	YTD Budget	Prior YTD Actual	Variance to Budget	Variance to Prior Year	2016-17 Adopted Budget	
Operating Expenses	\$ 148,228	\$ 137,776	\$ 133,769	\$ 10,453	\$ 14,459	\$ 501,697	\$ 551,102	\$ 456,239	\$ (49,405)	\$ 45,458	\$ 1,653,307	30%
Property Tax Equivalents	16,701	16,701	16,701	-	-	66,805	66,805	66,805	-	-	200,415	33%
Capital Outlay	334,266	99,542	8,921	234,725	325,345	349,182	398,167	10,919	(48,985)	338,263	1,194,501	29%
Debt Service	-	128,163	-	(128,163)	-	4,883	512,650	5,163	(507,768)	(280)	1,537,951	0%
Transfers Out	-	1,157	-	(1,157)	-	-	4,627	-	(4,627)	-	13,882	0%
Depreciation	52,583	52,583	16,307	-	36,276	210,333	210,333	65,228	-	145,105	631,000	33%
Administrative Expenses	17,431	24,582	18,038	(7,150)	(607)	91,642	98,328	100,734	(6,685)	(9,091)	294,983	31%
<b>Total Expenses</b>	<b>\$ 569,211</b>	<b>\$ 460,503</b>	<b>\$ 193,737</b>	<b>\$ 108,707</b>	<b>\$ 375,474</b>	<b>\$ 1,224,542</b>	<b>\$ 1,842,013</b>	<b>\$ 705,087</b>	<b>\$ (617,471)</b>	<b>\$ 519,456</b>	<b>\$ 5,526,039</b>	

Net Fund Change                    \$    (230,300)    \$            68    \$    151,894    \$    (230,367)    \$    (382,194)    \$    115,511    \$            272    \$    549,471    \$    115,240    \$    (433,959)    \$            815

**AS OF JUNE 30, 2016**

Retained Earnings	\$ 8,276,210	
Less Net Capital Assets, minus related LT debt	\$ (5,722,489)	
Less Restricted Cash-Debt	\$ (60,743)	
Net Undesignated Reserves	\$ 2,492,978	

Thru 06/30/16

**Breakdown:**

<b>Cash/Investments</b>	<b>\$ 2,537,859</b>
<b>Current Assets</b>	<b>\$ 1,257,741</b>
<b>Current Liabilities</b>	<b>\$ (1,302,622)</b>
<b>Net Working Capital</b>	<b>\$ 2,492,978</b>

Thru 06/30/16

**AS OF CURRENT MONTH END**

Retained Earnings-FYE	\$ 8,276,210	
Less Net Capital Assets, minus related LT debt	\$ (5,512,155)	
Less Restricted Cash-Debt	\$ (60,763)	
Net Undesignated Reserves	\$ 2,703,291	
Net Income Per Income Statement    Revenue > Expenses	\$ 115,511	

Thru 10/31/16

**Breakdown:**

<b>Cash/Investments</b>	<b>\$ 3,046,449</b>
<b>Current Assets</b>	<b>\$ 1,017,139</b>
<b>Current Liabilities</b>	<b>\$ (1,244,786)</b>
<b>Net Working Capital</b>	<b>\$ 2,818,802</b>

Thru 10/31/16

**PROJECTED BALANCE AT JUNE 30, 2017**                    **Based on Adopted Annual Budget**

Beginning Retained Earnings-July 1, 2016	\$ 8,286,023	
Less Projected Net Capital Assets, minus related LT debt	\$ (5,501,016)	
Less Restricted Cash-Debt	\$ (60,743)	
Net Income Per Income Statement    Revenue < Expenses	\$ 815	
	\$ 2,725,079	

Projected thru 6/30/17

**Net Working Capital**    **\$ 2,725,079**    Projected thru 6/30/17

The Net Working Capital is shown here for June 30, 2016, Current Month Ended, and Projected at June 30, 2017. The amounts represent what is left over after all of the short-term obligations have been met and represents the relatively liquid portion of the Utility's retained earnings or reserves that can be used for future expenditures.

CITY OF SOUTH HAVEN  
WATER FUND  
CuFt COMPARISONS  
ROLLING TWELVE MONTHS

		GALLONS PUMPED TO MAINS	CuFt PUMPED TO MAINS	CuFt PLANT TAP UNBILLED	CuFt WATER QUALITY FLUSHING	CuFt BILLED	PERCENTAGE BILLED PLUS PLANT TAP TO PUMPED TO MAINS (ROLLING 12 MOS)	PERCENTAGE BILLED PLUS PLANT TAP TO PUMPED TO MAINS CURRENT MONTH
<b>FISCAL 2014</b>								
July	2013	70,321,000	9,401,203	62,968	127,844	6,705,606	88.48%	72.00%
August	2013	62,517,000	8,357,888	48,003	196,427	8,322,168	88.81%	100.15%
September	2013	52,536,000	7,023,529	43,984	192,916	7,118,311	89.52%	101.98%
October	2013	35,699,000	4,772,594	41,176	182,891	5,303,775	90.51%	111.99%
November	2013	28,029,000	3,747,193	37,834	99,473	3,426,297	90.79%	92.45%
December	2013	28,262,000	3,778,342	37,166	178,083	2,904,054	90.43%	77.84%
January	2014	36,931,000	4,937,299	40,642	145,998	3,089,262	89.82%	63.39%
February	2014	36,711,000	4,907,888	36,230	128,741	3,454,550	89.24%	71.13%
March	2014	36,506,000	4,880,481	37,567	40,914	3,251,264	89.19%	67.39%
April	2014	29,869,000	3,993,182	33,957	57,952	3,321,979	89.46%	84.04%
May	2014	40,638,000	5,432,888	31,283	70,598	4,278,590	89.10%	78.75%
June	2014	53,611,000	7,167,246	37,032	100,575	5,543,066	85.86%	77.34%
		<u>511,630,000</u>	<u>68,399,733</u>	<u>487,843</u>	<u>1,522,412</u>	<u>56,718,922</u>		
<b>FISCAL 2015</b>								
July	2014	64,316,000	8,598,396	38,503	126,739	6,932,597	89.25%	81.07%
August	2014	66,789,000	8,929,011	42,246	34,492	7,841,235	88.61%	88.29%
September	2014	44,601,000	5,962,701	36,096	100,277	6,663,068	89.65%	112.35%
October	2014	33,430,000	4,469,251	34,492	117,932	4,619,497	90.26%	104.13%
November	2014	29,363,000	3,925,535	34,091	102,686	3,359,059	90.37%	86.44%
December	2014	28,908,000	3,864,706	35,294	67,388	3,125,243	90.02%	81.78%
January	2015	31,306,000	4,185,294	35,561	83,432	4,170,131	90.74%	100.49%
February	2015	28,322,000	3,786,364	34,091	81,219	4,470,432	91.70%	118.97%
March	2015	31,937,000	4,269,652	34,091	40,910	3,087,632	91.99%	73.11%
April	2015	29,525,000	3,947,193	31,551	56,153	3,393,749	92.42%	86.78%
May	2015	39,633,000	5,298,529	35,963	54,549	3,758,939	91.60%	70.94%
June	2015	47,141,000	6,302,273	30,749	60,965	4,655,896	90.38%	73.88%
		<u>475,271,000</u>	<u>63,538,904</u>	<u>422,727</u>	<u>926,742</u>	<u>56,077,478</u>		
<b>FISCAL 2016</b>								
July	2015	61,946,000	8,281,551	38,503	78,614	6,437,314	84.12%	78.20%
August	2015	62,360,000	8,336,898	36,364	94,657	7,097,043	83.07%	85.56%
September	2015	46,519,000	6,219,118	31,150	94,659	6,645,302	83.99%	107.35%
October	2015	35,558,000	4,753,743	29,947	93,054	4,625,971	84.62%	97.94%
November	2015	29,110,000	3,891,711	28,743	89,845	3,606,818	85.68%	93.42%
December	2015	28,456,000	3,804,278	28,743	91,450	2,847,372	85.91%	75.60%
January	2016	29,466,000	3,939,305	15,775	93,053	3,223,960	86.57%	82.24%
February	2016	27,269,000	3,645,588	18,717	94,657	2,991,478	86.56%	82.57%
March	2016	30,166,000	4,032,888	4,011	99,470	2,906,571	86.43%	72.17%
April	2016	28,664,000	3,832,086	2,139	93,053	3,119,071	86.78%	81.45%
May	2016	42,083,000	5,626,070	11,096	94,657	3,424,837	85.70%	60.87%
June	2016	54,533,000	7,290,508	29,947	99,470	5,473,039	84.50%	75.07%
		<u>476,130,000</u>	<u>63,653,743</u>	<u>275,134</u>	<u>1,116,639</u>	<u>52,398,776</u>		
<b>FISCAL 2017</b>								
July	2016	74,955,000	10,020,722	37,032	93,053	7,365,793	88.49%	73.88%
August	2016	68,778,000	9,194,920	34,358	104,283	8,487,481	88.22%	92.68%
September	2016	49,396,000	6,603,743	29,813	97,866	7,264,074	89.48%	110.45%
October	2016	36,344,000	4,858,824	27,540	94,657	4,735,697	90.09%	98.03%
		<u>229,473,000</u>	<u>30,678,209</u>	<u>128,743</u>	<u>389,859</u>	<u>27,853,045</u>		
Prior Year-to-date		206,383,000	27,591,310	135,963	360,984	24,805,630		
Two Years Prior		209,136,000	27,959,358	151,337	379,440	26,056,397		

City of South Haven  
Sewer Fund - Fund 592  
For the period ended October 31, 2016

Col 6 & 11

Revenues:	Month Actual	Monthly Budget	Prior year MTD	MTD Variance to Budget	MTD Variance to Prior Year	YTD Actual	YTD Budget	Prior YTD Actual	Variance to Budget	Variance to Prior Year	2016-17 Adopted Budget	% of Annual Budget
Sales	\$ 211,766	\$ 256,705	\$ 210,488	\$ (44,939)	\$ 1,278	\$ 768,493	\$ 1,026,820	\$ 745,579	\$ (258,327)	\$ 22,915	\$ 3,080,460	25%
IPP Revenues	3,105	6,608	2,685	(3,504)	420	31,730	26,433	22,273	5,297	9,457	79,300	40%
Interest Income	98	417	2	(319)	96	1,891	1,667	4,207	224	(2,316)	5,000	38%
Special Assessment Revenue	-	58,680	-	(58,680)	-	-	234,722	-	(234,722)	-	704,165	0%
Grant Revenue	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
Other Revenue	7,633	857,933	2,196	(850,300)	5,437	19,593	3,431,731	5,869	(3,412,138)	13,723	10,295,193	0%
<b>Total Revenues</b>	<b>\$ 222,601</b>	<b>\$ 1,180,343</b>	<b>\$ 215,370</b>	<b>\$ (957,742)</b>	<b>\$ 7,231</b>	<b>\$ 821,707</b>	<b>\$ 4,721,373</b>	<b>\$ 777,928</b>	<b>\$ (3,899,666)</b>	<b>\$ 43,779</b>	<b>\$ 14,164,118</b>	

Expenses	Month Actual	Monthly Budget	Prior year MTD	MTD Variance to Budget	MTD Variance to Prior Year	YTD Actual	YTD Budget	Prior YTD Actual	Variance to Budget	Variance to Prior Year	2016-17 Adopted Budget	% of Annual Budget
Operating Expenses	\$ 131,051	\$ 148,655	\$ 142,443	\$ (17,604)	\$ (11,393)	\$ 472,908	\$ 594,619	\$ 472,374	\$ (121,712)	\$ 534	\$ 1,783,858	27%
Property Tax Equivalents	8,712	8,733	8,733	(21)	(21)	34,849	34,932	34,932	(82)	(82)	104,795	33%
Capital Outlay	502,078	918,922	7,371	(416,844)	494,707	894,552	3,675,688	19,281	(2,781,137)	875,271	11,027,065	8%
Transfers Out	16,667	41,733	16,667	(25,066)	-	66,667	166,930	66,667	(100,263)	-	500,790	13%
Depreciation	33,333	33,333	20,379	-	12,955	133,333	133,333	81,515	-	51,818	400,000	33%
Administrative Expenses	24,485	31,048	28,574	(6,563)	(4,089)	124,109	124,193	126,397	(84)	(2,288)	372,579	33%
<b>Total Expenses</b>	<b>\$ 716,326</b>	<b>\$ 1,188,327</b>	<b>\$ 224,167</b>	<b>\$ (472,001)</b>	<b>\$ 492,160</b>	<b>\$ 1,726,418</b>	<b>\$ 4,753,309</b>	<b>\$ 801,165</b>	<b>\$ (3,026,891)</b>	<b>\$ 925,252</b>	<b>\$ 14,259,928</b>	

Net Fund Change \$ (493,725) \$ (7,984) \$ (8,797) \$ (485,741) \$ (484,928) \$ (904,711) \$ (31,937) \$ (23,237) \$ (872,775) \$ (881,474) \$ (95,810)

**AS OF JUNE 30, 2016**

Retained Earnings	\$ 7,727,029
Less Net Capital Assets (Net of related Debt)	\$ (5,828,290)
Net Undesignated Reserves	\$ 1,898,739

**Breakdown:**

Cash/Investments	\$ 1,385,430
Current Assets	\$ 1,006,502
Current Liabilities	\$ (493,193)
<b>Net Working Capital</b>	<b>\$ 1,898,739</b>

**AS OF CURRENT MONTH END**

Retained Earnings-FYE	\$ 7,727,029
Less Net Capital Assets	\$ (5,694,956)
Net Undesignated Reserves	\$ 2,032,073
Net Income Per Income Statement Revenue > Expenses	\$ (904,711)
Add back Non-cash Depreciation Expense	\$ 1,127,361

**Breakdown:**

Cash/Investments	\$ 1,101,523
Current Assets	\$ 418,947
Current Liabilities	\$ (393,109)
<b>Net Working Capital</b>	<b>\$ 1,127,361</b>

**PROJECTED BALANCE AT JUNE 30, 2017**

Based on Adopted Annual Budget

Beginning Retained Earnings-July 1, 2015	\$ 7,727,029
Less Projected Net Capital Assets, minus related LT debt	\$ (5,918,276)
Net Income Per Income Statement Revenue < Expenses	\$ (95,810)
<b>Net Working Capital</b>	<b>\$ 1,712,943</b>

**Net Working Capital** \$ 1,712,943 Projected thru 6/30/17

The Net Working Capital is shown here for June 30, 2016, Current Month Ended, and projected at June 30, 2017. The amounts represent what is left over after all of the short-term obligations have been met and represents the relatively liquid portion of the Utility's retained earnings or reserves that can be used for future expenditures.



## **Agenda Item #9**

### North Beach Improvements'-Update

#### **Background and Project Scope**

As part of the approved City Council priorities adopted the Fiscal Year 2014-15, the City Council sought to plan and develop improvements to the public infrastructure at the North Beach Park. Applications to the MNRTF for the North Beach Park project were submitted multiple times until \$300,000 in funding was awarded in 2015. The intent of the North Beach Park improvements is to provide improvements to the city's sidewalks, streets, and beach areas for residents and visitors to the North Beach Park.

The project is finishing its design phase, and plans and specifications will be submitted to the DNR for review before anticipated bidding in December 2016. The scope will include the DNR funded elements, as well as some additional items that were anticipated for a Phase II stage of the project, but are more practical and cost effective to include now. These items include a dumpster enclosure, beach shower, drinking fountain, volleyball improvements and additional steel bollards.

#### **Grant Elements**

The grant funded improvements to North Beach Park fall into two primary categories, beach enhancements and access improvements with an emphasis on little to no disruption to the existing natural resources. This will increase accessibility and recreational opportunities, add environmentally friendly components, improve safety and visitor experience.

Beach and water access will be enhanced through the installation of seasonal, ADA beach mats and transfer platform on both the north and south end of the beach. A beach mat to the water's edge will allow kayak launching and connection to the Lake Michigan Water Trail. A new beach promenade will include the construction of a 12' concrete walk. The playground area will have an accessible walkway mat and play equipment to replace the current equipment. An accessible connection to the pier will provide for emergency, service vehicles, and pedestrian walkway access connecting the beach and parking lot to the channel walk. A drop off lane at the park entrance will allow

kayakers to unload equipment, and serve as a safe drop off point for the mobility impaired.

Environmental improvements will be made through the use of recycling bins placed next to trash bins, native species of dune grass planted on curbed islands, new landscaped areas to help prevent soil erosion, high-efficient street lights replacing existing lights, and beach mats made of 100% recycled and recyclable polyester.

The proposed entryway/parking improvements will improve traffic flow within the park, add parking, add a kayak/patron drop off lane, and increase pedestrian safety by reducing conflicts. These include curb bump outs, crosswalks, additional and reconstructed sidewalk, light improvements, and a new park entry sign.

The North Beach paving improvement project is planned to be bid the same time as the park improvements as a separate contract.

### **Project Budget**

The anticipated bid scope of the North Beach Park Improvements project is estimated to cost \$910,312.50. The MNRTF grant is providing \$300,000.00 toward the project.

### **Project Timeline**

#### North Beach Park Improvements Schedule

- November – Draft drawings submitted to MDNR
- December– Plans out for bid (pending MDNR approval)
- January 2017 – Bids Due and Award Contract
- March 2017 – Construction Begins
- May 2017 - Final Completion by Memorial Day



City of South Haven

## Agenda Item #9

### Digester Mixing Improvements – Award of Contract

#### Background Information:

The City operates a primary digester as part of its biosolids treatment system. The primary digester at South Haven was originally equipped with three propeller mixers installed inside of a draft tube (at the third points around the center) but since the influent screening was somewhat ineffective and they may not have been truly a rag-less type of impeller, they routinely ragged up and produced excessive amp draws and eventually had to be pulled and removed.

Just prior to 1990, the existing Perth Type gas-lift Mixer system was installed. The Perth system is a multi-lance mixer which utilizes a compressor and a multi turret valve to rotate through each of the lances and discharge compressed biogas through each lance so that each zone of the digester is mixed using the fluidizing action of the gas through the lance. Each port of the multi-turret valve, which is located on the roof of the digester building, also has a drain line to drain and transport the condensate that develops in the lower portion of the valve. Since the housing for the valve is outside on the roof, there is a sizeable amount of condensate collected. These condensate drain lines are also pressurized by the compressor when the system is in operation. Through the years, the condensate, being quite acidic, has caused these lines to periodically develop leaks. Since these lines run through the occupied part of the digester building, leaks of biogas have caused explosive atmospheres to develop within the building and may have been a partial cause of an explosion experienced within this building in 2007.

In April of 2016, Hubbell, Roth & Clark, Inc. (HRC) completed a study in order to consider removing the Perth, multi-lance mixing system which will eliminate the necessity for the condensate lines and allow for their removal from the building. Removing the condensate lines will improve operator safety by removing a potential source of explosive biogas. HRC has also completed an asset management plan for the WWTP. The asset management plan includes a probability of failure worksheet. The existing Perth, multi-lance mixing system has served 7 years beyond its life expectancy of 20 years. In addition, this equipment has no redundancy. As a result, the equipment has a very high consequence of failure and a high probability of failure. This results in a Business Risk of 18.00 on a scale of 1 to 25, with 25 being the highest risk.

The study reviewed several alternatives for replacement of the Perth, multi-lance mixing system including replacement with linear motion mixers or propeller mixers. Because the digester cover is a proprietary structure, the study reached the conclusion that a new structural bridge is required to span across the cover to support the mixing equipment.

The structural bridge will be supported on the tank walls so that the integrity of the cover will not be adversely affected. The study also considered the capital project cost and the annual power cost of the various equipment types. The study concluded that a linear motion mixer offers a superior type of mixing due to lower energy use. Installing a single linear motion mixer located in the center of the cover is desirable since the mixing energy is most efficiently provided in the center of a circular tank. In addition, the Capital Project Cost and the 20 year Total Present Worth including the cost of energy consumption, is lowest for the center mounted single linear motion mixer.

HRC estimates the Capital Project Cost to install a single linear motion mixer at the center of the cover, supported by a bridge system to be \$298,600. The City has budgeted this amount in the current fiscal year budget.

On November 17, 2016, sealed bids were received for the Digester Mixing Improvements project. The City received two bids. The low bid was from Franklin Holwerda Company of Wyoming, Michigan in the amount of \$361,700.00. Franklin Holwerda is already serving as the mechanical subcontractor on the Main Pump Station Improvements and is familiar with the other work occurring at the WWTP site.

The low bid is approximately 20% higher than the engineer's estimated construction cost. HRC discussed the bid with Franklin Holwerda and they provided the following reasons for the cost difference:

1. There is a current labor shortage which is driving up project costs.
2. They perceive a difficulty in working within the digester because it is a confined space. The selected equipment needs to be partially assembled within the digester.
3. Cleaning the digester to permit work will be costly.
4. The project will require a large crane to place the bridge and mixer because construction of the new equalization basin is restricting access to the site.

Staff has reviewed the available funding sources to determine if sufficient funds are available to complete the work. Recently, the City completed the borrowing process for the SRF sewer projects. This borrowing includes \$500,000 in supplemental contingency funding. In addition, approximately \$160,000 in cost has been removed from Contract 3 by eliminating storm sewer work in Black River Park.

Although the project cost is beyond the estimated amount, there are still some efficiencies in completing the project during the next year. HRC already has a representative on site to perform construction observation of the Main Pump Station Improvement project. Thus, professional services on this project will be minimal (\$4,800). In addition, delaying the project until a future date will only increase the probability of failure of the existing equipment. Finally, delaying the project until a future date will likely result in an even higher capital cost.

**Recommendation:**

Board should pass a motion recommending that Council award the contract for Digester Mixing Improvements to Franklin Holwerda Company of Wyoming, Michigan in the amount of \$361,700.00.

**Support Material:**

Digester Mixing Study  
Drawings – Digester Mixing Improvements  
Award Recommendation Letter

**PRINCIPALS**

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 Keith D. McCormack  
 Nancy M. D. Faught  
 Daniel W. Mitchell  
 Jesse B. VanDeCreek  
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 Thomas G. Maxwell  
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**HUBBELL, ROTH & CLARK, INC.**

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April 4, 2016

City of South Haven  
 539 Phoenix Street  
 South Haven, MI 49090

Attn: Mr. David Mulac, Wastewater Treatment Plant Superintendent

Re: Digester Mixing Improvements Study

HRC Job No. 20160026

Dear Mr. Mulac:

**INTRODUCTION**

The City operates a primary digester as part of its biosolids treatment system. The primary digester at South Haven was originally equipped with three propeller mixers installed inside of a draft tube (at the third points around the center) but since the influent screening was somewhat ineffective and they may not have been truly a rag-less type of impeller, they routinely ragged up and produced excessive amp draws and eventually had to be pulled and removed.

Just prior to 1990, the existing Perth Type gas-lift Mixer system was installed. The Perth system is a multi-lance mixer which utilizes a compressor and a multi turret valve to rotate through each of the lances and discharge compressed biogas through each lance so that each zone of the digester is mixed using the fluidizing action of the gas through the lance. Each port of the multi-turret valve, which is located on the roof of the digester building, also has a drain line to drain and transport the condensate that develops in the lower portion of the valve. Since the housing for the valve is outside on the roof, there is a sizeable amount of condensate collected. These condensate drain lines are also pressurized by the compressor when the system is in operation. Through the years, the condensate, being quite acidic, has caused these lines to periodically develop leaks. Since these lines, run through the occupied part of the digester building, leaks of biogas have caused explosive atmospheres to develop within the building and may have been a partial cause of the explosion previously experienced within this building.

This study was initiated in order to consider removing the Perth, multi-lance mixing system which will eliminate the necessity for these condensate lines and allow for their removal from the building.

In recent years, most Cities that operate Anaerobic Digesters utilize mechanical mixers to mix their digesters. It has been found in other plants that mechanical mixers create an environment where biogas production is optimized. Therefore, mechanical mixing appears to be the most logical choice for replacement of the existing Perth Mixing system.

**MIXING OPTIONS**

There are different types of mechanical mixers available for digesters. The two most prominent types are rag-less propeller mixers and linear motion mixers. The rag-less impeller types are usually installed within draft tubes so that the flow is circulated since these types of impellers are not typically far reaching with regard to their mixing energy but are more efficient at directing their energy in line axially along the impeller shaft.

Accordingly, these rag-less impeller type mixers are usually installed within draft tubes either suspended from the roof or floor of the tank or beyond the tank wall in the earth with holes in the wall at the top and the bottom to allow the flow to exit and enter the tank at two points before flowing along the length of the draft tube.

The linear motion mixers utilize significantly less energy and have almost minimal potential for ragging up since the linear motion tends to shed off solids material. This type of mixer, which uses a gentle up and down motion to impart a gentle roll to the tank, has been used successfully in digester tanks for the last several years. Its success has been due to the appropriate level of mixing provided with limited energy consumption. There are basically two manufacturer's that we are aware of that are making this type of mixer. One (Ovivo) refers to them as Linear Motion (LM) mixers and the other (Envirodyne) refer to them as Vertical Motion Mixers (VMM). Both essentially perform the same function.

Propeller mixers are manufactured by Ovivo (formerly Eimco) as well as Envirodyne and possibly a few others. In addition, several types of chopper pumps and submersible propeller mixers are also on the market but are not the preferred type of replacement mixer for this application since they are fairly costly and more difficult to maintain. In addition, replacement with mechanical impeller mixers installed in the earth outside of the tank are not expected to be cost effective due to the additional difficulties of installing outside of the tank considering the weak bearing capacity soils at the site.

In order to assess the options for replacing the existing mixer system, the following alternatives were investigated:

1. Removal of the existing lance type mixer system and replacement with a single LM or VMM type Mixer.
2. Removal of the existing lance type mixer system and replacement with three LM or VMM type Mixers, each installed at the third points (in-line with the location of the original locations of the impeller mixers).
3. Removal of the existing lance type mixer system and replacement with three mechanical impeller mixers, each installed at the third points (in-line with the location of the original locations of the impeller mixers).

For Alternative 1, since the original covers were designed with the mixers supported at the third points it is not likely, without an extensive analysis of the structural integrity of the covers, to install the new mixers at this location. One solution is to install a new support bridge across the tank (from wall-to-wall) that would provide support for the mixer and not impart any additional new loads to the tank cover. This would also require that the existing pressure relief valve and flame arrestor currently installed at the center of the tank be relocated to one of the other access flanges on the top cover. The estimated project cost for this alternative is \$298,600 and a breakdown of this estimate is included as an attachment to this letter report.

Alternative 2 would involve installation of the mixers supported at the third points of the covers at the same location as the existing. It is assumed that the mixers could be inserted through the covers using the current access flanges. Since they are likely larger than these openings, it is assumed that they could be inserted into the tank and then assembled in the tank below for connection to the operating shafts. An analysis of the structural integrity of the covers was not performed but it was assumed that, based on the mixers that were originally installed at these locations, that the covers should provide adequate support since the weight of the LMM or VMM mixers appear to be similar to those originally installed at these locations. This would need to be confirmed if this alternative is selected. The estimated project cost for this alternative is \$460,200 and a breakdown of this estimate is included as an attachment to this letter report.

Alternative 3 would involve the construction of two mechanical mixers roughly at opposite sides of the tank. Each of the mixers would be installed inside of a draft tube, which would be buried in the earth outside of the tank or they could be installed within the tank but the costs would likely be comparable due to the complications of cutting and resealing the existing covers in different locations. In addition, the mixing might not be as efficient since the tubes themselves would obstruct the mixing flow paths. The external draft tubes would likely each require a new pile foundation due to the weak bearing capacity soils. The estimated project cost for this alternative is \$457,900 and a breakdown of this

estimate is included as an attachment to this letter report.

Table 1 provides a summary of the expected Project (Capital), Annual Operation Cost (Power Only) and a computed 20 Year Total Present Worth for each of the three alternatives based on a 3.0 percent interest rate.

**Table 1**  
**Summary of Primary Digester Mixing Replacement Alternatives**

Mixing Alternative	Capital Project Cost	Annual Power Cost	Total Present Worth
1. Single Bridge-Mounted LM or VMM Mixer	\$298,600	\$3,307	\$347,800
2. Three Cover-Mounted LM or VMM Mixers	\$460,200	\$6,614	\$558,600
3. Two Side-Mounted Mechanical Mixers	\$457,900	\$4,409	\$523,495

**FUTURE CONSIDERATIONS**

As part of the Master Plan Study prepared in 2010, it was suggested that this plant eventually abandon the use of anaerobic digestion and build additional storage in order to accommodate the required 6 months of liquid storage capacity for land application. While mixing will not be as important for holding of non-digesting sludge, there is still benefit to providing a certain level of mixing for reduction of odors. Other plants have utilized the LM or VMM Mixers for this purpose as well.

**CONCLUSIONS AND RECOMMENDATIONS**

Based on the above analysis, the following conclusions can be drawn:

1. The LM or VMM Mixers offer a superior type of mixing for digesters due to their lower energy use while still providing an adequate level of energy input to maintain quality gas production.
2. Installing a single LM or VMM Mixer located in the center of the cover is desirable since the mixing energy is most efficiently provided in the center of a circular tank at this location.
3. The total Present Worth Cost of Alternative 1, a single LM or VMM

Installation of a single LM or VMM Mixer in accordance with Alternative Number 1 is recommended.

We appreciate this opportunity to be of service to the City of South Haven. If you have any questions or require any additional information, please feel free to call.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.



Dennis J. Benoit, P.E.  
 Senior Associate

DJB/djb  
 Attachments

ec: South Haven – R. Huff, L. Halberstadt  
 HRC –File



Engineering. Environment. Excellence.

**ENGINEER'S OPINION OF PROBABLE PROJECT COST**

801 Broadway NW, Suite 215, Grand Rapids, MI 49504

Telephone: (616) 454-4286

Fax: (616) 454-4278

PROJECT: Primary Digester Mixing ImprovementsDATE: 4/4/2016LOCATION: South Haven, MIPROJECT NO. 20160026BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINALESTIMATOR: DJBWORK: Alternative 1 - Single Center Mounted LM or VMM Mixer with BridgeCHECKED BY: DJB

CURRENT ENR: \_\_\_\_\_

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	New center-mounted LM or VMM Mixer	1	EA	\$ 163,000	\$ 163,000
2	Access Bridge Over Digester	1	EA	\$ 45,000	\$ 45,000
3	Install Mixer and Bridge	1	LS	\$ 25,000	\$ 25,000
4	Electrical	1	LS	\$ 15,000	\$ 15,000
5	Misc Demolition	1	LS	\$ 5,000	\$ 5,000
6				\$ -	\$ -
7				\$ -	\$ -
8				\$ -	\$ -
9				\$ -	\$ -
10				\$ -	\$ -
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26				\$ -	\$ -
27				\$ -	\$ -
28				\$ -	\$ -
29				\$ -	\$ -
30				\$ -	\$ -
31				\$ -	\$ -
32	Subtotal				\$ 253,000
33	Engineering	8	%		\$ 20,300
34	Contingencies	10	%		\$ 25,300
<b>TOTAL PROJECT COST</b>					<b>\$298,600</b>



Engineering. Environment. Excellence.

**ENGINEER'S OPINION OF PROBABLE PROJECT COST**

801 Broadway NW, Suite 215, Grand Rapids, MI 49504

Telephone: (616) 454-4286

Fax: (616) 454-4278

PROJECT: Primary Digester Mixing ImprovementsDATE: 4/4/2016LOCATION: South Haven, MIPROJECT NO. 20160026BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINALESTIMATOR: DJBWORK: Alternative 2 - Three LM or VMM Mixers at third pointsCHECKED BY: DJB

CURRENT ENR: \_\_\_\_\_

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	New LM or VMM Mixers	3	EA	\$ 120,000	\$ 360,000
2	Electrical	1	LS	\$ 25,000	\$ 25,000
3	Misc Demolition	1	LS	\$ 5,000	\$ 5,000
4				\$ -	\$ -
5				\$ -	\$ -
6				\$ -	\$ -
7				\$ -	\$ -
8				\$ -	\$ -
9				\$ -	\$ -
10				\$ -	\$ -
11				\$ -	\$ -
12				\$ -	\$ -
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26				\$ -	\$ -
27				\$ -	\$ -
28				\$ -	\$ -
29				\$ -	\$ -
30				\$ -	\$ -
31				\$ -	\$ -
32	Subtotal				\$ 390,000
33	Engineering	8	%		\$ 31,200
34	Contingencies	10	%		\$ 39,000
<b>TOTAL PROJECT COST</b>					<b>\$460,200</b>



Engineering. Environment. Excellence.

## ENGINEER'S OPINION OF PROBABLE PROJECT COST

801 Broadway NW, Suite 215, Grand Rapids, MI 49504

Telephone: (616) 454-4286

Fax: (616) 454-4278

PROJECT: Primary Digester Mixing ImprovementsDATE: 4/4/2016LOCATION: South Haven, MIPROJECT NO. 20160026BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINALESTIMATOR: DJBWORK: Alternative 3 - Two Impeller Draft Tube Mixers at opposite endsCHECKED BY: DJB

CURRENT ENR: \_\_\_\_\_

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	New Draft Tube Mixers Mixers	2	EA	\$ 160,000	\$ 320,000
2	Electrical	1	LS	\$ 20,000	\$ 20,000
3	Earthwork	148	CY	\$ 20	\$ 2,963
4	Dewatering	1	LS	\$ 6,000	\$ 6,000
5	Pile Foundation	2	EA	\$ 10,000	\$ 20,000
6	Core holes in the concrete/masonry walls	4	EA	\$ 2,500	\$ 10,000
7	Install sleeves around the masonry openings (above grade) a	2	EA	\$ 2,000	\$ 4,000
8	Misc Demolition	1	LS	\$ 5,000	\$ 5,000
9				\$ -	\$ -
10				\$ -	\$ -
11				\$ -	\$ -
12				\$ -	\$ -
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26				\$ -	\$ -
27				\$ -	\$ -
28				\$ -	\$ -
29				\$ -	\$ -
30				\$ -	\$ -
31				\$ -	\$ -
32	Subtotal				\$ 388,000
33	Engineering	8	%		\$ 31,100
34	Contingencies	10	%		\$ 38,800
<b>TOTAL PROJECT COST</b>					<b>\$457,900</b>

10/26/2016 4:13 PM

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**LIST OF DRAWINGS**

SHEET NO.	SHEET TITLE
COVER	COVER SHEET
1	SITE PLAN
2	EXISTING DIGESTER MIXER DEMOLITION PLAN
3	PROPOSED DIGESTER MIXER PLAN, SECTION AND DETAILS
4	ELECTRICAL PLAN AND DETAILS

# WASTEWATER TREATMENT PLANT DIGESTER MIXING IMPROVEMENTS

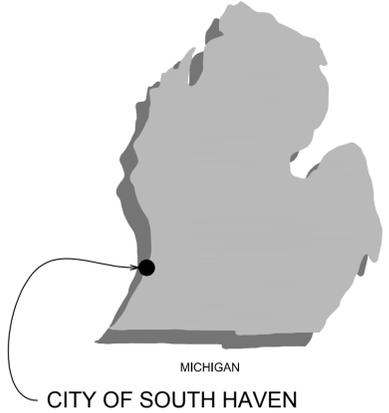


## CITY OF SOUTH HAVEN, MICHIGAN

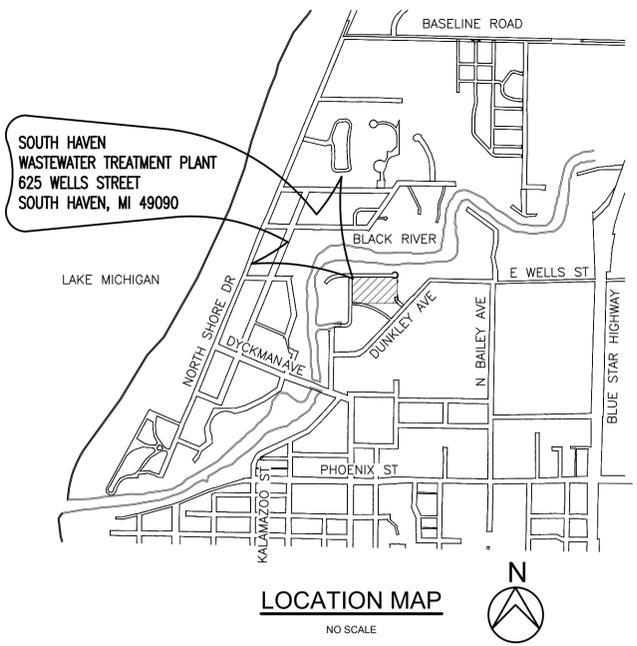
ISSUED FOR BIDS  
OCTOBER 2016

PREPARED BY:

**HRC**  
HUBBELL, ROTH & CLARK, INC  
CONSULTING ENGINEERS SINCE 1915  
801 BROADWAY NW SUITE 215  
GRAND RAPIDS, MI 49401  
PHONE: (616) 454-4286  
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www.hrc-engr.com



HRC JOB NO. 20160026



MICHIGAN DEPARTMENT  
OF ENVIRONMENTAL QUALITY  
  
PERMIT NO. \_\_\_\_\_  
DATE \_\_\_\_\_

HUBBELL, ROTH & CLARK, INC.  
JOB NO. 20160026  
PREPARED UNDER THE SUPERVISION OF:  
MICHAEL J. VANDER PLOEG  
REGISTERED PROFESSIONAL ENGINEER  
MICHIGAN REGISTRATION NO. 62084



V:\201600\20160026\CoverSheet.dwg VanderPloeg, Mike

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HRC\_OIW\_Chr.CTB

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VanderPloeg, Mike

### CONSTRUCTION NOTES

1. ALL WORK AS DESCRIBED BELOW AND IN THE SPECIFICATION SHALL BE PERFORMED AND ACCOUNTED FOR AS PART OF THE CONTRACTORS LUMP SUM BID UNLESS OTHERWISE NOTED. IT IS INTENDED THAT THE CONTRACTOR SHALL NOT INTERFERE OR INTERRUPT NORMAL FACILITY OPERATIONS AS A RESULT OF ANY WORK REQUIRED BY THIS CONTRACT. HOWEVER, IN CASES WHERE THE OWNER AGREES THAT AN INTERRUPTION IS ABSOLUTELY NECESSARY, ALL PROVISIONS OF THE FLOW INTERRUPTIONS/PLANT SHUTDOWN REQUIREMENTS SHALL BE COORDINATED WITH THE OWNER.
2. THIS WORK WILL BE PERFORMED WHILE A SIGNIFICANT CONSTRUCTION PROJECT IS UNDERWAY AT THE WWTP. THE CONTRACTOR SHALL COORDINATE WITH DAVIS CONSTRUCTION IN A PROFESSIONAL MANNER FOR ANY WORK THAT MAY AFFECT THE "WASTEWATER TREATMENT PLANT PUMP STATION" CONTRACT. NOTABLE WORK IS SHOWN ON AS FUTURE WORK BY OTHERS ON THIS DRAWING. NO GUARANTEE IS MADE ON THE CONDITION OF THE SITE OR WHAT WORK WILL BE COMPLETED WHEN THE CONTRACTOR IS ON SITE. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE CITY PRIOR TO PERFORMING ANY WORK THAT COULD INTERFERE WITH WORK OF THE OTHER CONTRACT.
3. THE SOILS NEAR THE WWTP ARE POOR AND GENERALLY CONSIST OF SURFACE TOPSOIL OVERLYING SAND AND CLAY FILL, UNDERLAIN BY ORGANIC SILT. THE CONTRACTOR SHALL USE ROAD PLATES OR EQUAL TO DISTRIBUTE THE LOAD OF ALL CONSTRUCTION EQUIPMENT IN GRASSY AREAS TO PREVENT POTENTIAL DAMAGE TO UNDERGROUND UTILITIES. ANY DAMAGE TO EXISTING UNDERGROUND UTILITIES SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.
4. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS AND PLANS, CITY STANDARDS, CITY ORDINANCES AND ALL APPLICABLE FEDERAL, STATE, AND COUNTY CODES AND REGULATIONS.
5. THE CONTRACTOR WILL BE COMPLETELY RESPONSIBLE FOR REPLACEMENT AND RESTITUTION WORK OF WHATEVER NATURE TO ADJACENT STRUCTURES AND CONSTRUCTION DAMAGED BY HIS OPERATIONS.
6. ALL FENCES, POSTS, SIGNS, VEGETATION AND THE LIKE REMOVED OR DAMAGED DUE TO CONTRACTOR OPERATIONS SHALL BE RESTORED OR REPLACED AT NO COST AND TO THE SATISFACTION OF THE OWNER.
7. THE CONTRACTOR AND SUBCONTRACTOR(S) SHALL PROVIDE THE OWNER WITH MATERIAL SAFETY DATA SHEETS (M.S.D.S.) FOR MATERIALS BROUGHT ON SITE.
8. PLANT ROADS MUST BE ADEQUATELY MAINTAINED & THE CONTRACTOR SHALL CONTROL DUST REGULARLY BY A METHOD ACCEPTABLE TO THE OWNER. DUST CONTROL SHALL BE INCLUDED IN THE CONTRACTORS LUMP SUM BID.
9. CONTRACTOR SHALL VISIT AND THOROUGHLY INSPECT SITE PRIOR TO SUBMITTING A BID.
10. THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED DURING THIS PROJECT TO ORIGINAL CONDITION OR BETTER. ALL DISTURBED AREAS SHALL BE RESTORED WITH 3" TOPSOIL AND PREMIUM SEED MIX OR SOD. CONTRACTOR SHALL REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS (I.E. SEED, MULCH, TOPSOIL, DRAINAGE, ETC.).
11. THE CONTRACTOR SHALL FOLLOW MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ACT (MIOSHA) APPROVED CONFINED SPACE ENTRY PROCEDURES.

### CITY REQUIREMENTS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CITY CONSTRUCTION PERMIT(S), PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ANY INSPECTION OR OTHER ACTIVITIES REQUIRED BY THE CITY.

### STAGING AREA

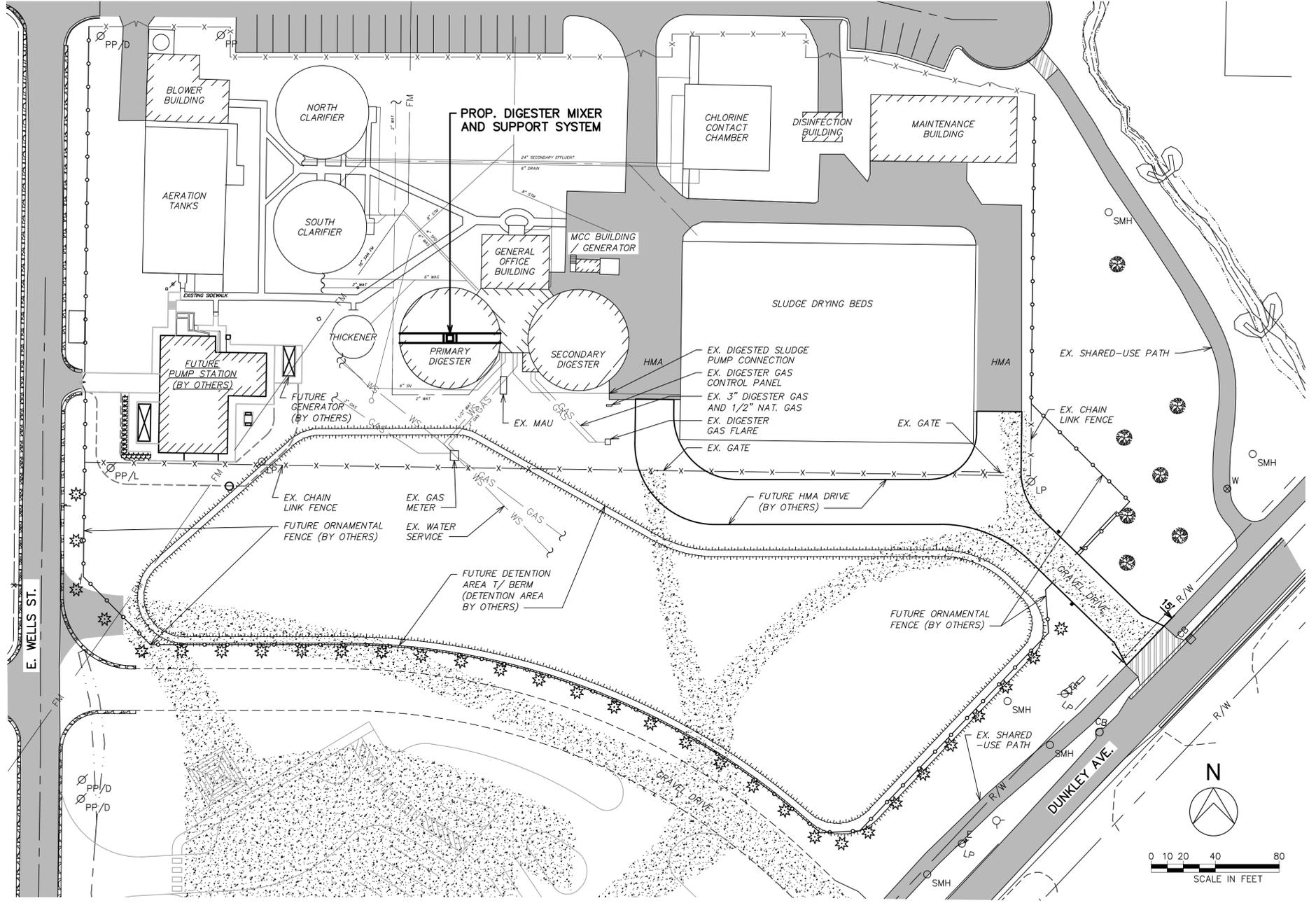
1. THE CONTRACTOR'S STAGING AREA SHALL BE CONFINED TO THE AREA IDENTIFIED PRIOR TO COMMENCING CONSTRUCTION. THIS AREA SHALL INCLUDE ALL STORAGE OF STOCK PILING MATERIALS AND ALL CONSTRUCTION EQUIPMENT & VEHICLES.
2. TEMPORARY UTILITIES SUCH AS POWER, WATER, SEWAGE, TELEPHONE, GAS, ETC. AS NECESSARY TO PROCEED WITH THE WORK UNDER THIS CONTRACT SHALL BE PROVIDED BY THE CONTRACTOR.
3. DEMOLITION MATERIALS SHALL BE SUITABLY STORED OR REMOVED AS SPECIFIED. TEMPORARY STOCKPILED MATERIALS SHALL REMAIN ONSITE FOR NO LONGER THAN A WEEK PERIOD UNLESS APPROVED BY OWNER.
4. SITE RESTORATION SHALL INCLUDE ALL AREAS IMPACTED BY THE CONTRACTORS OPERATIONS. AT THE CONTRACTORS EXPENSE.

### TRAFFIC / SITE ACCESS

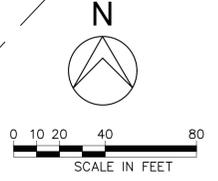
1. THE OWNER MUST HAVE ACCESS TO ALL AREAS OF THE SITE THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL PROMPTLY MOVE AND/OR RELOCATE ANY EQUIPMENT, MATERIALS, ETC. FROM ANY OPERATIONAL AREA OF THE EXISTING SITE FACILITIES.
2. THE CONTRACTOR, SUBCONTRACTORS AND RELATED SHIPMENT SHALL ONLY ACCESS AND LEAVE SITE VIA THE DESIGNATED ENTRANCE BY OWNER.

### SEQUENCE OF CONSTRUCTION

1. THE CONTRACTOR SHALL ARRANGE FOR THE WORK TO BEGIN AFTER THE CITY'S BIOSOLIDS HAULER HAS EMPTIED THE DIGESTERS. THE BIOSOLIDS HAULER IS CURRENTLY SCHEDULED TO PERFORM THE WORK IN THE BEGINNING OF JUNE. THE CONTRACTOR SHALL COORDINATE EQUIPMENT INSTALLATION DATE WITH THE OWNER AND THE BIOSOLIDS HAULER TO CONFIRM WHEN THE WORK MAY BEGIN.
2. ONCE THE BIOSOLIDS HAULER HAS EMPTIED THE DIGESTERS, THE CONTRACTOR SHALL HAVE A MAXIMUM OF 17 DAYS FROM THAT DATE TO COMPLETE THE WORK BEFORE THE DIGESTER WILL NEED TO BE FILLED WITH WASTEWATER SLUDGE. IF THE WORK IS NOT COMPLETED WITHIN 17 DAYS, THE CONTRACTOR SHALL PAY TO HAVE THE WASTEWATER SLUDGE REMOVED FROM THE SECONDARY DIGESTER AND LEGALLY DISPOSED OF OFFSITE AT NO ADDITIONAL COST TO THE OWNER.
3. GENERAL SUGGESTED SEQUENCE OF CONSTRUCTION
  - 3.1. PUMP OUT AND REMOVE THE REMAINING SLUDGE AND SOLIDS IN THE DIGESTER AND DISPOSE OF IN THE SLUDGE DRYING BEDS AT THE WWTP.
  - 3.2. CLEAN INTERIOR OF THE EX. DIGESTER AS NECESSARY IN ORDER TO WORK WITHIN THE DIGESTER.
  - 3.3. REMOVE EX. DIGESTER GAS MIXER SUCTION AND DISCHARGE PIPING AS SHOWN ON SHEET 2. REMOVE AND REINSTALL EX. FLAME ARRESTOR / RELIEF VALVE.
  - 3.4. CUT HOLE IN THE EX. DIGESTER COVER AND WELD PROPOSED 24" FLANGED PIPE TO THE CENTER OF THE COVER. VISUALLY INSPECT AND TEST WELD BETWEEN 24" PIPE AND DIGESTER COVER TO MAKE SURE IT IS GAS TIGHT.
  - 3.5. INSTALL THE DIGESTER BRIDGE MOUNTING SYSTEM AND ELECTRICAL CONDUIT.
  - 3.6. INSTALL THE DIGESTER MIXER ACCORDING TO MANUFACTURERS INSTRUCTIONS. THE MIXER'S HYDRO-DISK SHALL BE BROUGHT INSIDE THE DIGESTER THROUGH ONE OF THE EX. OPENINGS IN THE COVER AND ASSEMBLED INSIDE THE DIGESTER AND THEN COUPLED TO THE MIXER SHAFT PER MANUFACTURER'S INSTRUCTIONS.
  - 3.7. ARRANGE FOR THE QUALIFIED MANUFACTURER'S TECHNICAL REPRESENTATIVE TO INSPECT THE COMPLETED INSTALLATION, PERFORM START-UP AND OWNER TRAINING.
  - 3.6. FINISH PAINT DIGESTER BRIDGE MOUNTING SYSTEM AND TOUCH-UP EX. DIGESTER COVER.
  - 3.7. REFILL THE EXISTING DIGESTER WITH SLUDGE FROM THE SECONDARY DIGESTER.
  - 3.8. RESTORE ANY LAWN AREAS THAT HAVE BEEN DAMAGED AS PART OF THE CONTRACTORS OPERATION AND CLEAN UP THE SITE.



SITE PLAN



**HRC**  
 HUBBELL, ROTH & CLARK, INC  
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 GRAND RAPIDS, MI 49504  
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 www.hrc-engr.com

10/2016	ISSUED FOR BIDS
10/2016	ISSUED FOR PERMIT
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	MJV
DRAWN	MJV
CHECKED	DJB
APPROVED	

**CITY OF SOUTH HAVEN**  
**WASTEWATER TREATMENT PLANT**  
**DIGESTER MIXING IMPROVEMENTS**

SITE PLAN

HRC JOB NO. 20160026	SCALE AS SHOWN
DATE OCTOBER 2016	SHEET NO. <b>1</b> OF



**HRC**  
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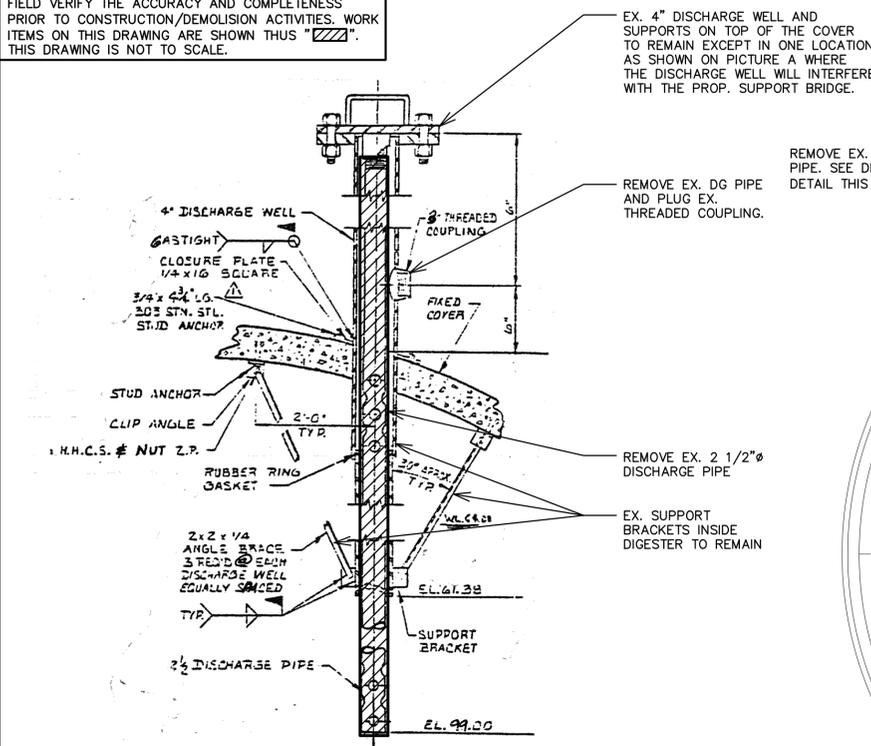
**NOTICE:**  
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**GENERAL NOTES:**

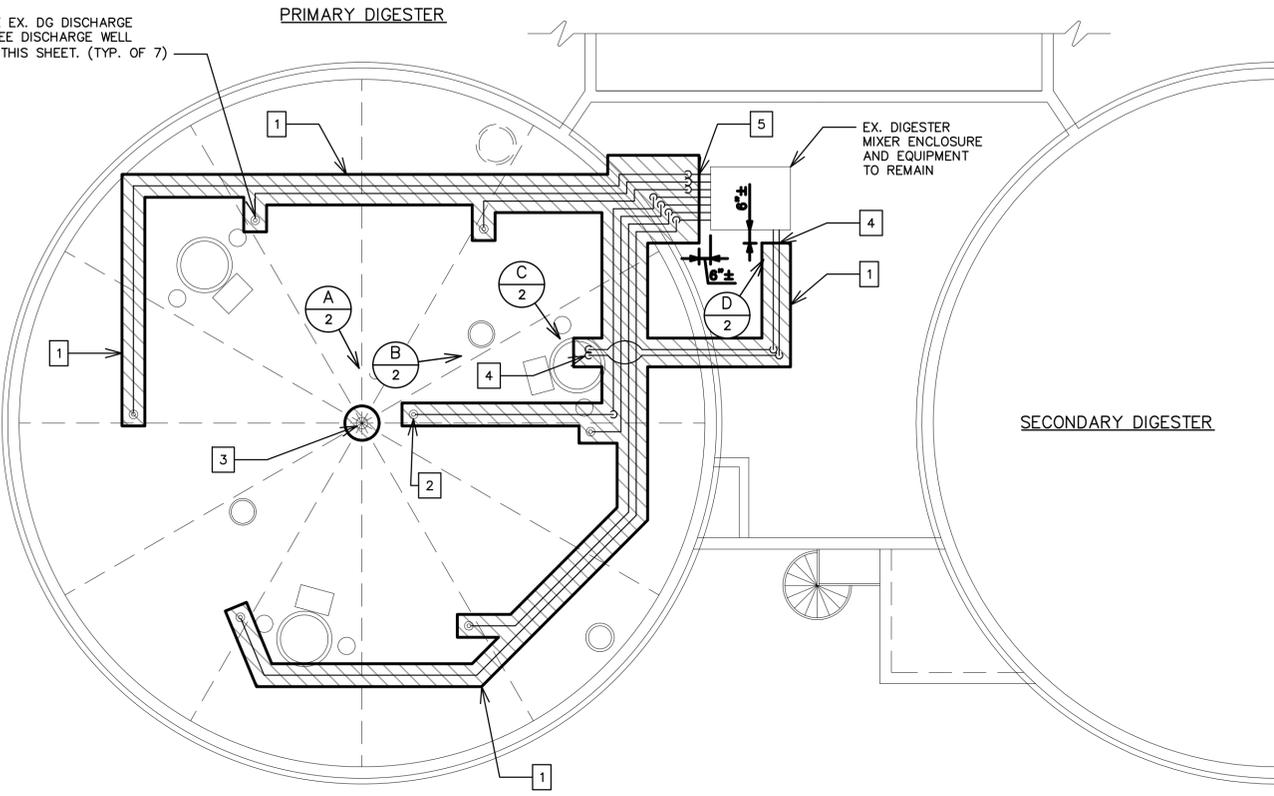
1. WARNING: DIGESTER GAS CAN BE EXPLOSIVE. EXTREME CARE SHALL BE USED WORKING ON OR AROUND THE EX. DIGESTER. DO NOT USE OPEN FLAMES OR SPARKS NEAR THE DIGESTERS UNLESS THE TANK HAS BEEN PROPERLY VENTILATED.
2. THE CONTRACTOR MUST PLAN THE DEMOLITION ACTIVITIES IN CLOSE COORDINATION WITH THE OWNER AND SEQUENCE OF CONSTRUCTION TO ALLOW
3. THE DIGESTER CONTAINS WASTEWATER SLUDGE. THE OWNER WILL LOWER THE LEVEL OF SLUDGE IN THE DIGESTER DOWN TO 8 - 10 FEET ABOVE THE DIGESTER FLOOR. THE REMAINING SLUDGE SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF IN THE SLUDGE DRYING BEDS. THE SLUDGE LOCATED IN THE BOTTOM OF THE DIGESTER WILL BE DIFFICULT TO PUMP AND WILL LIKELY CONTAIN RAGS AND OTHER DEBRIS. ADDITIONAL WATER MAY NEED TO BE ADDED BY THE CONTRACTOR TO PUMP THE WASTEWATER SLUDGE. THE EXISTING DIGESTER PUMP CONNECTION MAY BE USED TO ATTACH THE CONTRACTORS PUMP IN ORDER TO CONVEY THE .
2. MAJOR PENETRATIONS AND EQUIPMENT ARE SHOWN IN THE GENERAL WORK AREA ONLY. THE DRAWINGS DO NOT NECESSARILY REFLECT ALL ITEMS LOCATED ON THE EX. DIGESTER COVER AND THE ROOF. THE CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY VERIFY THE EX. FIELD CONDITIONS AND SEQUENCING REQUIREMENTS PRIOR TO SUBMITTING A BID.
3. THE CONTRACTOR SHALL PREPARE AND TOUCH-UP PAINT CUT PIECES OF THE EX. DIGESTER COVER TO MATCH THE EXISTING.

**DEMOLITION NOTES:**

1. REMOVE EX. 3" DIGESTER GAS (DG) DISCHARGE PIPING AND INSULATION AND EX. 4" AND 1" DG SUCTION PIPING AND INSULATION.
2. CUT EX. DISCHARGE WELL BELOW THE SUPPORT BRIDGE ELEVATION AND CAP PIPE. REMOVE SUPPORTS AS REQUIRED TO THE TOP OF THE COVER. TOUCH-UP PAINT CUT EDGES TO MATCH EXISTING.
3. REMOVE AND RELOCATE EX. DG PRESSURE RELIEF VALVE/FLAME ARRESTOR. CUT HOLE IN EX. COVER AS REQUIRED FOR NEW MIXER MANWAY. SEE SHEET 3 FOR ADDITIONAL DETAILS.
4. REMOVE EX. 4" FLANGED DG PIPING AND INSTALL BLIND FLANGE. CUT AND CAP EX. 1" DG PIPING.
5. CUT AND CAP EX. 3" DG PIPING 6"± OUTSIDE OF THE EX. MIXER ENCLOSURE.



**DISCHARGE WELL DETAIL**  
NOT TO SCALE



**ROOF DEMOLITION PLAN**

SCALE IN FEET



PICTURE A  
NOT TO SCALE

PICTURE B  
NOT TO SCALE

PICTURE C  
NOT TO SCALE

PICTURE D  
NOT TO SCALE

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DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	MJV
DRAWN	MJV
CHECKED	DJB
APPROVED	

**CITY OF SOUTH HAVEN**  
**WASTEWATER TREATMENT PLANT**  
**DIGESTER MIXING IMPROVEMENTS**

EXISTING DIGESTER MIXER DEMOLITION PLAN

HRC JOB NO. 20160026	SCALE AS SHOWN
DATE OCTOBER 2016	SHEET NO. 2 OF

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VanderPloeg, Mike

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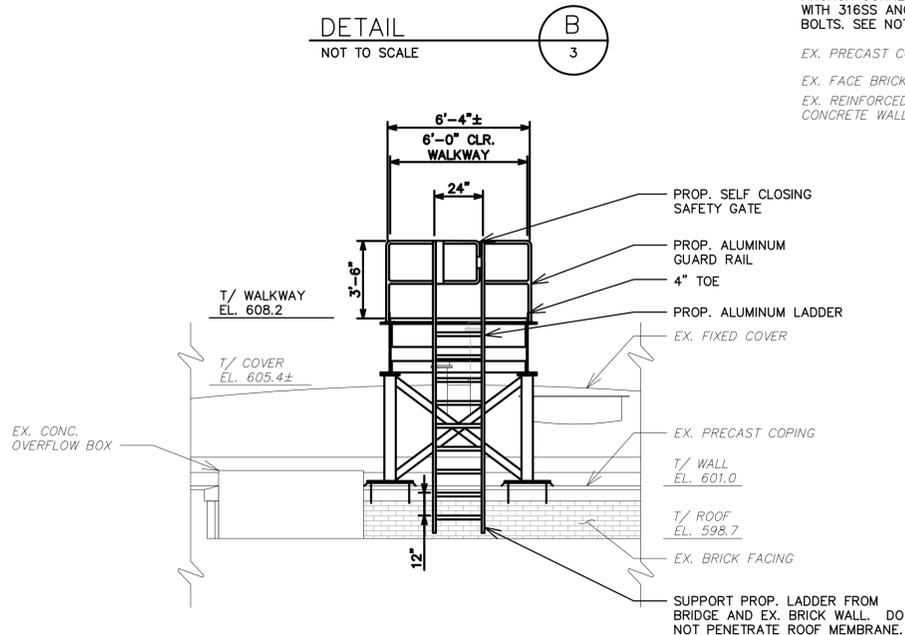
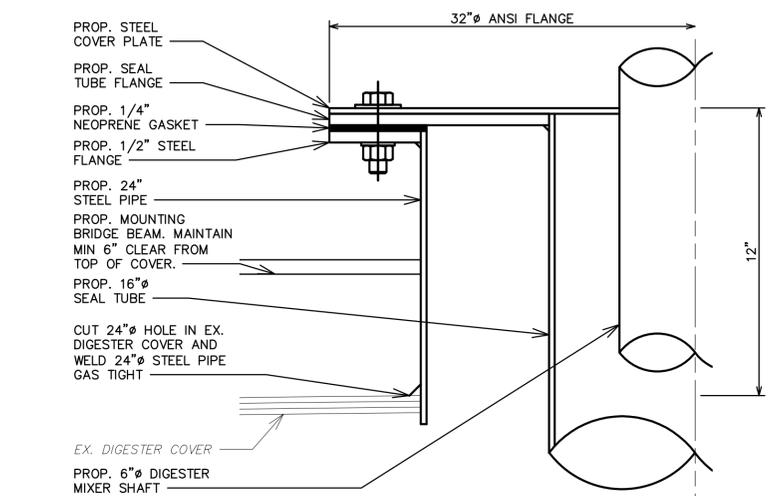
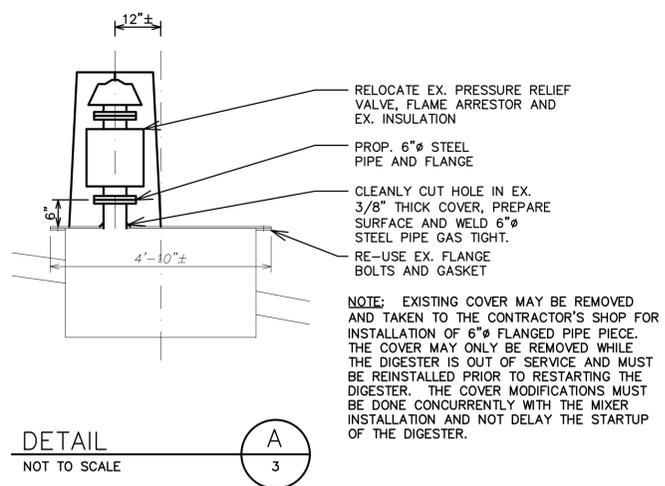
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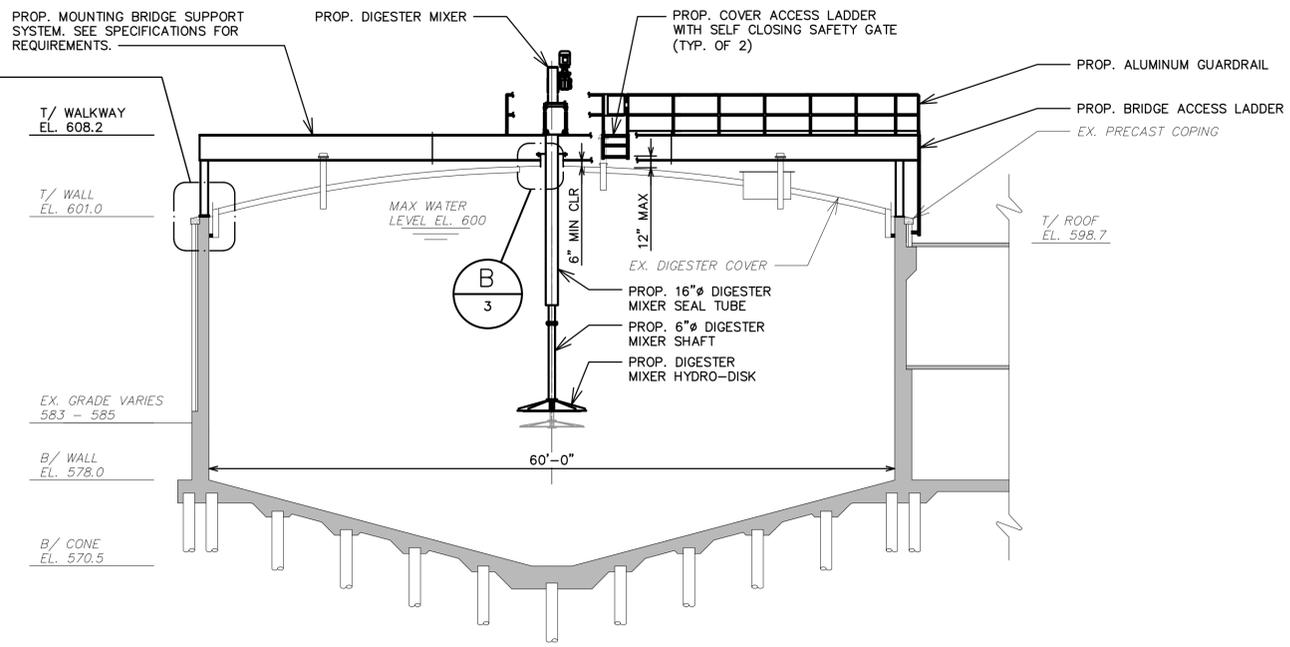
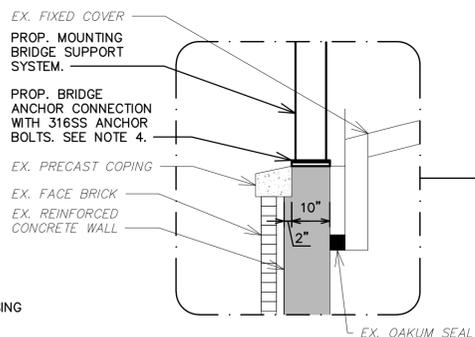
VanderPloeg, Mike

**NOTES:**

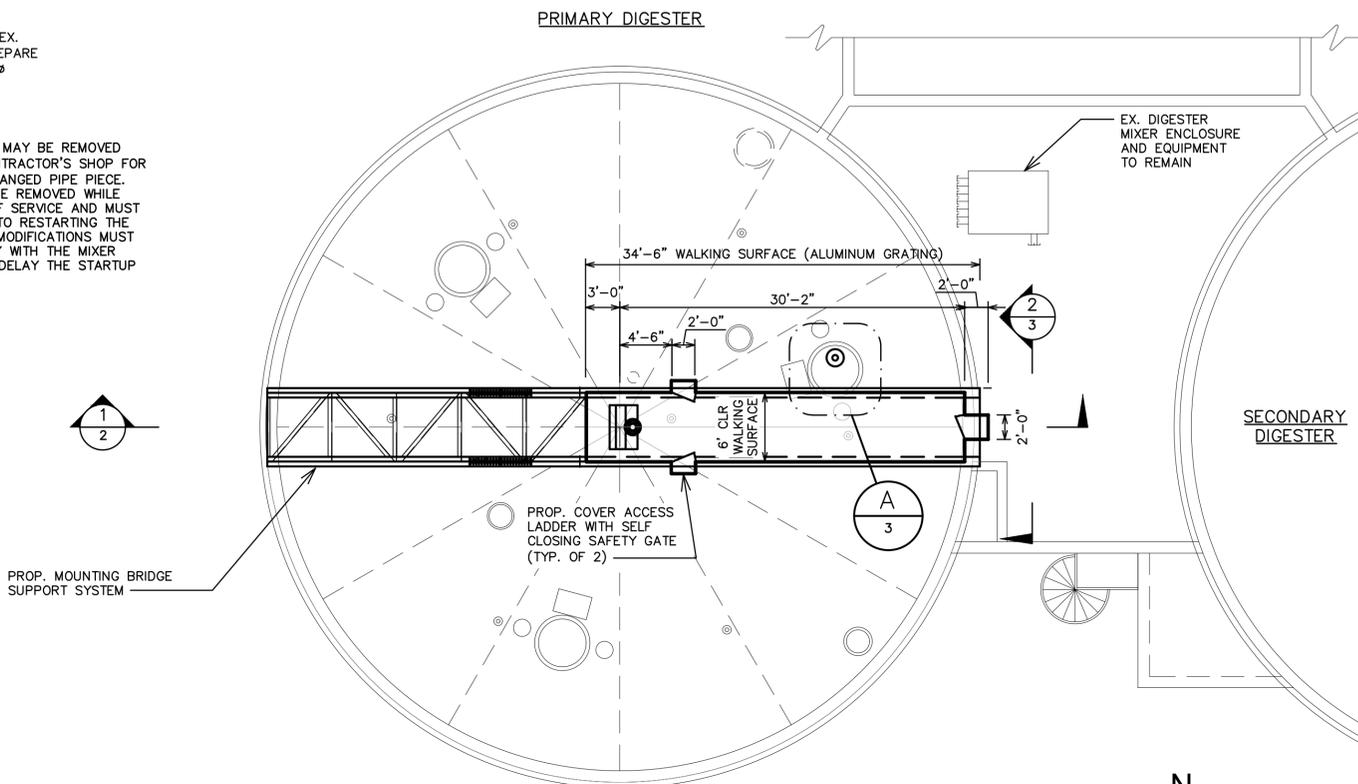
1. WARNING: DIGESTER GAS CAN BE EXPLOSIVE. EXTREME CARE SHALL BE USED WORKING ON OR AROUND THE EX. DIGESTER. DO NOT USE OPEN FLAMES OR SPARKS NEAR THE DIGESTERS UNLESS THE TANK HAS BEEN PROPERLY VENTILATED.
2. THE PROP. DIGESTER MIXER AND MOUNTING BRIDGE SUPPORT SYSTEM SHALL BE DESIGNED TO BE COMPLETELY INDEPENDENT FROM THE EX. DIGESTER COVER. THE BRIDGE SUPPORT SYSTEM SHALL MOUNT TO THE TOP OF THE EX. DIGESTER TANK WALL.
3. THE MOUNTING BRIDGE SUPPORT SYSTEM SHALL BE DESIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER IN THE STATE OF MICHIGAN. THE BRIDGE SHALL BE DESIGNED TO ADEQUATELY SUPPORT ALL DEAD, LIVE, ENVIRONMENTAL, DYNAMIC, AND HARMONIC LOADS AND DEFLECTION LIMITS PER APPLICABLE LOCAL BUILDING CODES. DESIGN CRITERIA MUST BE STIPULATED IN THE SHOP DRAWINGS.
4. THE ANCHOR CONNECTION FOR THE MOUNTING BRIDGE SUPPORT SYSTEM SHALL BE DESIGNED TO FIT THE EXISTING CONCRETE WALL OF THE DIGESTER. ANY MODIFICATION REQUIRED TO THE CONCRETE WALL OR DIGESTER COVER FOR ANCHORING THE BRIDGE SHALL BE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE BEARING PAD SHALL BE A MINIMUM OF 24" LONG DISTRIBUTE THE LOAD ONTO THE EXISTING WALL.
5. THE MOUNTING BRIDGE SUPPORT SYSTEM SHALL BE MANUFACTURED WITH ASTM STRUCTURAL STEEL MEMBERS, PREPARED AND COATED IN ACCORDANCE WITH THE SPECIFICATIONS.
6. DISSIMILAR MATERIALS MUST BE ISOLATED FROM EACH OTHER BY MEANS OF AN ISOLATING MATERIAL APPROPRIATE TO THE APPLICATION.
7. ALL WELDING, BOTH SHOP AND FIELD, SHALL BE SHIELDED ARC WELDING AND SHALL CONFORM TO THE LATEST EDITION OF THE AMERICAN WELDING SOCIETY (AWS) D1.1 "STRUCTURAL WELDING CODE - STEEL" FOR GASTIGHT WELDING.



**SECTION 2**  
SCALE IN FEET



**SECTION 1**  
SCALE IN FEET



**DIGESTER ROOF PLAN**

SCALE IN FEET



**HRC**  
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DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	MJV
DRAWN	MJV
CHECKED	DJB
APPROVED	

**CITY OF SOUTH HAVEN**  
**WASTEWATER TREATMENT PLANT**  
**DIGESTER MIXING IMPROVEMENTS**

PROPOSED DIGESTER MIXER PLAN, SECTION AND DETAILS

HRC JOB NO. 20160026	SCALE AS SHOWN
DATE OCTOBER 2016	SHEET NO. <b>3</b> OF



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DESIGNED	MJR
DRAWN	MJR
CHECKED	MAO
APPROVED	

**CITY OF SOUTH HAVEN**  
**WASTEWATER TREATMENT PLANT**  
**DIGESTER MIXING IMPROVEMENTS**

**ELECTRICAL PLAN AND DETAILS**

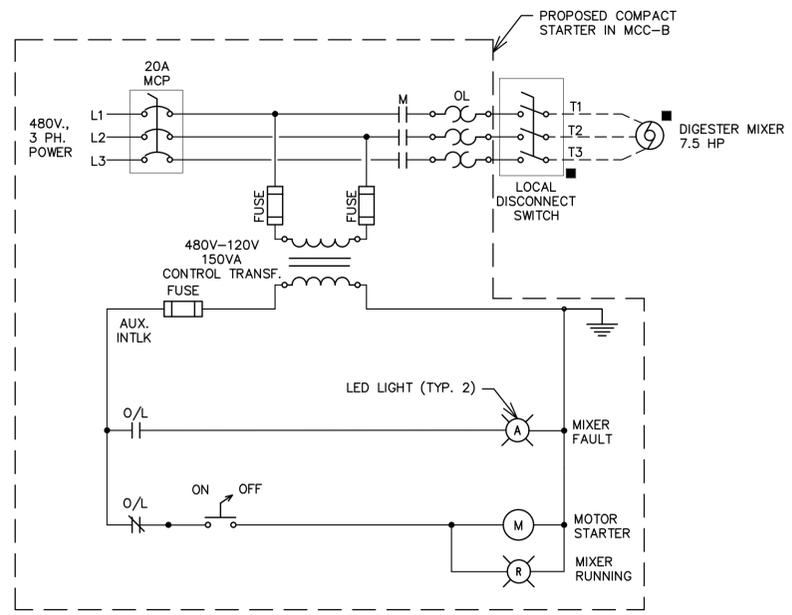
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DATE	SHEET NO.
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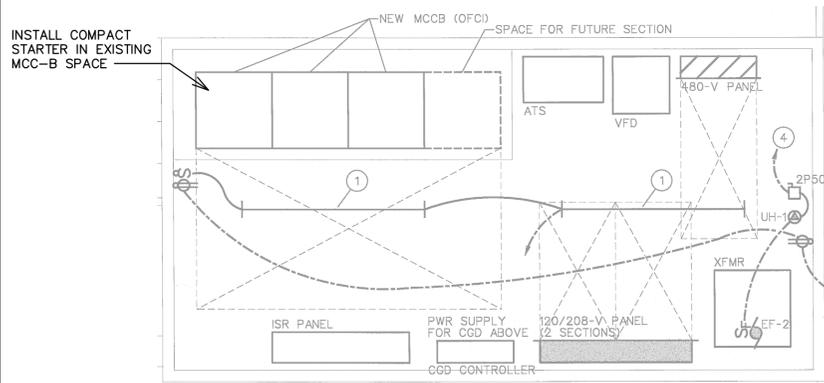
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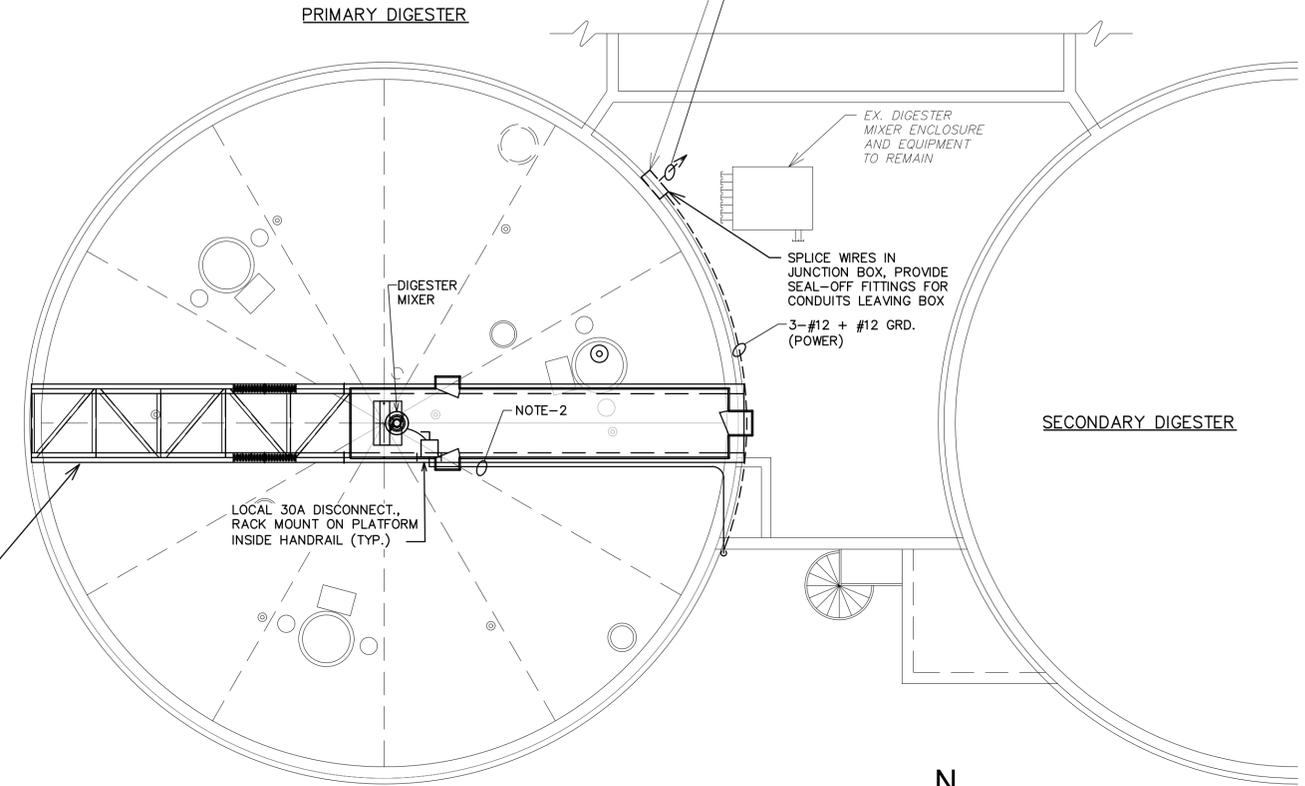
Roskelley, Michael J.



**DIGESTER MIXER STARTER DIAGRAM**



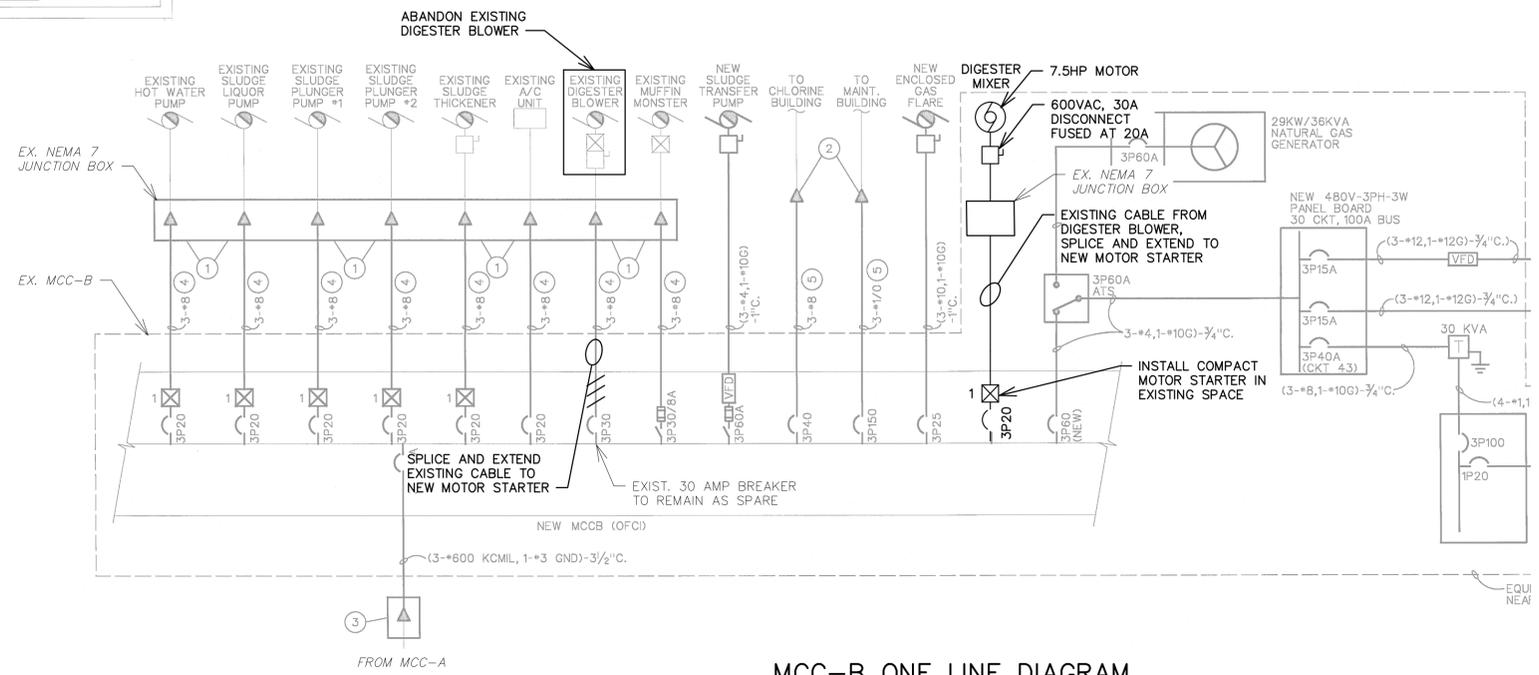
**MCC BUILDING**



**DIGESTER ROOF PLAN**



- NOTES:**
1. WARNING: DIGESTER GAS CAN BE EXPLOSIVE. EXTREME CARE SHALL BE USED WORKING ON OR AROUND THE EX. DIGESTER. DO NOT USE OPEN FLAMES OR SPARKS NEAR THE DIGESTERS UNLESS THE TANK HAS BEEN PROPERLY VENTILATED.
  2. ROUTE CONDUIT ALONG THE MOUNTING BRIDGE SUPPORT SYSTEM AND DIGESTER TANK WALLS TO THE EDGE OF THE ROOF, THEN DOWN THE DIGESTER BUILDING WALL TO BELOW THE CEILING AND OVERHEAD TO THE EXISTING NEMA 7 JUNCTION BOX. PROVIDE SEAL-OFF FITTINGS AS REQUIRED FOR CONDUIT ENTRY AND EXIT FROM EXPLOSIONPROOF AREAS



**MCC-B ONE LINE DIAGRAM**

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**PRINCIPALS**

George E. Hubbell  
 Thomas E. Biehl  
 Keith D. McCormack  
 Nancy M. D. Faught  
 Daniel W. Mitchell  
 Jesse B. VanDeCreek  
 Roland N. Alix  
 Michael C. MacDonald  
 James F. Burton

**SENIOR ASSOCIATES**

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 Randal L. Ford  
 William R. Davis  
 Dennis J. Benoit  
 Robert F. DeFrain  
 Thomas D. LaCross  
 Albert P. Mickalich  
 Timothy H. Sullivan

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 Charles E. Hart  
 Colleen L. Hill-Stramsak  
 Bradley W. Shepler  
 Karyn M. Stickel  
 Jane M. Graham  
 Thomas G. Maxwell  
 Todd J. Sneathen  
 Aaron A. Uranga

**HUBBELL, ROTH & CLARK, INC.**

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November 18, 2016

City of South Haven  
 1199 8th Avenue  
 South Haven, MI 49090

Attn: Larry Halberstadt, P.E., City Engineer

Re: Wastewater Treatment Plant Digester Mixing Improvements  
 Recommendation of Award

HRC Job No. 201560026

Dear Mr. Halberstadt:

Sealed bid proposals were received by the City on November 17, 2016 at 2:00 PM for the above referenced project. A total of two bids were received and are summarized as follows:

- |                                |              |
|--------------------------------|--------------|
| 1. Franklin Holwerda Company   | \$361,700.00 |
| 2. L.D. Docsa Associates, Inc. | \$409,000.00 |

The lowest responsive bidder is Franklin Holwerda Company (FHC) of Wyoming, MI with a total bid of \$361,700.00. This amount is 20% higher than our final estimate of \$300,000 for this work. Based on a conversation with FHC, the difference in the final estimate and the total bid resulted from the following factors:

1. There is a current labor shortage which is driving up project costs.
2. They perceive a difficulty in working within the digester which is a confined space and the difficulty of the installation required inside the digester.
3. The expense of cleaning the Digester.
4. They anticipate this project will require a larger crane (than what will be on site for the other project) in order to place the bridge and mixer from the WWTP driveway, due to not having access from the south of the Digester because of the excavation for the Detention Area.

While the bid amount is higher than our estimate, the low bid is 13% below the second bid, which indicates that a competitive bid was submitted by FHC for this project. In addition, the cost of the mixer package was in line with what we were expecting during design. As a result, it is not expected that, if this project were to be bid at a later date, significant savings would be realized.

HRC is familiar with FHC and believe they are capable of performing the work of this project. They are the Mechanical Sub-Contractor on the Wastewater Treatment Plant Pump Station project which will minimize coordination issues between the two projects occurring on site at the same time. Therefore, we recommend that the City award this contract to FHC for the amount of \$361,700.00 provided that adequate funds are available to finance the project.

Thank you for this opportunity to be of service to the City of South Haven. Please feel free to contact us should you have any questions or comments regarding this recommendation.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael J. Vander Ploeg, P.E.  
 Staff Engineer

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