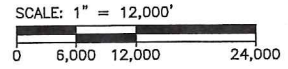
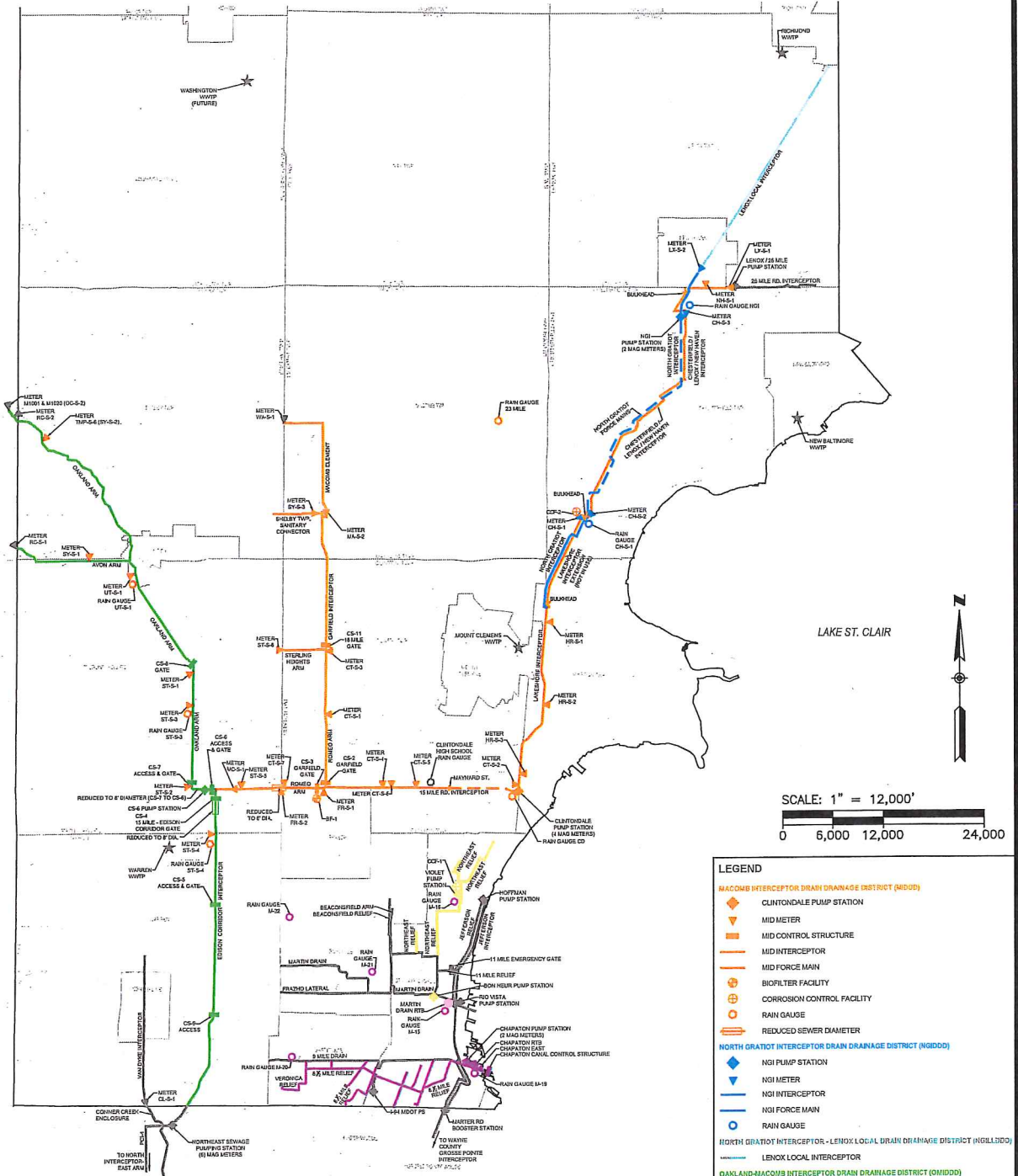


EIGHT AND ONE-HALF MILE RELIEF DRAIN
INTRA-COUNTY DRAINAGE BOARD
SEPTEMBER 9, 2019
10:15 A.M.
AGENDA

| | Page |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| 1. Call of meeting to order and roll call | |
| 2. Approval of Agenda for September 9, 2019 | |
| 3. Approval of Minutes for August 12, 2019 | 3 |
| 4. Public Participation | |
| 5. Project Updates – Vince Astorino | |
| 6. Total Residual Chlorine (TRC) Monitoring Project Phase 2 – Vince Astorino | 5 |
| Motion: To approve the Hamlett Environmental Technologies quote for three SWAN units at a not to exceed amount of \$20,048 and the Colville Electric quote for the required electrical work at a not to exceed amount of \$33,260 | |
| 7. Design of Chapaton Laboratory Relocation & Second Floor Operational Improvements – Vince Astorino | 12 |
| Motion: To approve the proposal from Fishbeck, Thompson, Carr & Huber (FTC&H) for the design of Chapaton operational improvement project in the not to exceed amount of \$86,000 | |
| 8. Consideration for approval of invoices (see attached) | 23 |
| 9. Financial Report – Bruce Manning | 24 |
| 10. Adjourn | |

MACOMB COUNTY WASTEWATER SYSTEMS



- LEGEND**
- MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT (MIDDD)**
 - ◆ CLINTONDALE PUMP STATION
 - ◇ MID METER
 - ◇ MID CONTROL STRUCTURE
 - MID INTERCEPTOR
 - MID FORCE MAIN
 - ⊕ BIOFILTER FACILITY
 - ⊕ CORROSION CONTROL FACILITY
 - RAIN GAUGE
 - ⊖ REDUCED SEWER DIAMETER
 - NORTH GRATIOT INTERCEPTOR DRAIN DRAINAGE DISTRICT (NGIDD)**
 - ◆ NGI PUMP STATION
 - ◇ NGI METER
 - NGI INTERCEPTOR
 - NGI FORCE MAIN
 - RAIN GAUGE
 - NORTH GRATIOT INTERCEPTOR - LENOX LOCAL DRAIN DRAINAGE DISTRICT (NGLLDD)**
 - LENOX LOCAL INTERCEPTOR
 - OAKLAND-MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT (OMIDD)**
 - ◆ CS-6 PUMP STATION
 - ◇ OMD METER
 - OMD CONTROL STRUCTURE
 - OMD INTERCEPTOR
 - REDUCED SEWER DIAMETER
 - 8 1/2 MILE RELIEF DRAIN DRAINAGE DISTRICT**
 - ◆ CHAPATON WEST PUMP STATION
 - ◇ CHAPATON RETENTION TREATMENT BASIN
 - ◇ CHAPATON CANAL CONTROL GATE
 - 8 1/2 MILE INTERCEPTOR
 - RAIN GAUGE
 - SEMCOWS INTERCEPTOR DRAIN DRAINAGE DISTRICT (SEMCDD)**
 - ◆ SEMCOWS PUMP STATION
 - ◇ CORROSION CONTROL FACILITY
 - SEMCOWS INTERCEPTOR
 - MARTIN DRAIN DRAINAGE DISTRICT (MDD)**
 - ◇ MARTIN DRAIN RETENTION TREATMENT BASIN
 - OTHER SYSTEMS**
 - ◆ PUMP STATION
 - ◇ METER
 - ★ WWTP
 - INTERCEPTOR

Candice S. Miller
 MACOMB COUNTY PUBLIC WORKS COMMISSIONER



An adjourned meeting of the Intra-County Drainage Board for the **EIGHT AND ONE-HALF MILE RELIEF DRAIN** was held in the Office of the Macomb County Public Works Commissioner, 21777 Dunham, Clinton Township, Michigan, on August 12, 2019, at 10:10 A.M.

PRESENT: Candice S. Miller, Chair
Veronica Klinefelt, Member

ABSENT: Bryan Santo, Member

ALSO PRESENT: Harold Haugh, Marvin Sauger, Robert Mijac, Josph Romano, Macomb County Board of Commissioners; Brian Baker, Chief Deputy, Vince Astorino, Operations & Flow Manager, Dan Heaton, Communications Manager, Kellie Kource, Drain Account Specialist, Karen Czernel, Deputy, Bruce Manning, Financial Manager, Tom Stockel, Construction Engineer, Jeff Bednar, P.E., Environmental Resources Manager, Stephen Downing, Construction & Maintenance Manager, Denise Harwood, Accountant, Macomb County Public Works

The meeting was called to order by Chair, Candice Miller. A motion was made by Ms. Klinefelt, supported by Ms. Miller to approve the agenda as presented.

Adopted: YEAS: 2
NAYS: 0

Minutes of the meeting of July 8, 2019 were presented. A motion was made by Ms. Klinefelt, supported by Ms. Miller to approve the minutes as presented.

Adopted: YEAS: 2
NAYS: 0

The meeting was opened to public participation, then closed, there being no comments from the public.

Mr. Astorino updated the board that we are moving along with the two large Chapaton projects. The Phase I canal expansion 30% draft drawings will be done August 12, and 60% drawings should follow after that. In system storage is moving along well also. They are in the pipe doing the 3D scan survey this week.

A motion was made by Ms. Miller, supported by Ms. Klinefelt to receive and file the project update given by Mr. Astorino.

Adopted: YEAS: 2
NAYS: 0

A motion was made by Ms. Klinefelt, supported by Ms. Miller to approve the 2019/20 Eight and One-Half Mile Relief Drain budget and revenue requirement for the fiscal year beginning October 1, 2019.

Adopted: YEAS: 2
NAYS: 0

The Chair presented the invoices totaling \$203,458.64 to the board for review and approval.

A motion was made by Ms. Klinefelt, supported by Ms. Miller to approve the invoices as presented.

Adopted: YEAS: 2
NAYS: 0

A motion to receive and file the financial report given by Mr. Manning was made by Ms. Klinefelt and supported by Ms. Miller.

Adopted: YEAS: 2
NAYS: 0

There being no further business, it was moved by Ms. Klinefelt, supported by Ms. Miller, that the meeting of the Eight and One-Half Mile Relief Drain Board be adjourned.

Adopted: YEAS: 2
NAYS: 0

The meeting was adjourned at 10:21 a.m.



Candice S. Miller, Chair
Macomb County Public Works Commissioner

STATE OF MICHIGAN
COUNTY OF MACOMB

I certify that the foregoing is a true and correct copy of proceedings taking by the Intra-County Drainage Board for the Drainage District shown on the attached set of minutes, on August 12, 2019 the original of which is on file in the Public Works Commissioner's Office. Public notice of the meeting was given pursuant to Act No. 267, Public Acts of Michigan, 1975, including, in the case of a special or rescheduled meeting or a meeting secured for more than 36 hours, notice by posting at least 18 hours prior to the time set for the meeting.



Candice S. Miller, Chair
Macomb County Public Works Commissioner

DATED: 8/12/19



Candice S. Miller

Public Works Commissioner
Macomb County

To: Candice Miller, Macomb County Public Works Commissioner

CC: Brian Baker, Chief Deputy

From: Vincent Astorino, Operations & Flow Manager

Date: August 24, 2019

Subject: Real-Time Total Residual Chlorine Monitoring Phase 2 Update and Recommendation

The Macomb County Public Works Office (MCPWO) has been working with the consulting firm OHM Advisors (OHM) to perform a pilot study at the Chapaton Retention Basin (RTB) for real-time total residual chlorine (TRC) monitoring. OHM was key in vetting out the various technologies currently out in the market today and ultimately recommended testing with the SWAN Analytics TRC unit.

The MCPWO staff acquired and installed all of the equipment to perform this pilot study. This equipment has been in full operation since the Fall of 2018 and has far exceeded expectations. Previously operators were required to take grab samples around the basin and manually test for TRC. This process is labor extensive and time consuming. With the new unit the controlling operator during a wet weather event is provided updates every 10 minutes through the SCADA system. This provides the operators with critical data that can be used to ultimately provide better water quality if a treated discharge occurs to Lake St. Clair and helps to ensure we stay within our mandated TRC limits of the NPDES permit.

Implementation of the SWAN sensor is an innovative approach to TRC monitoring. With this pilot at the Chapaton RTB, the project team demonstrated that automating TRC monitoring was possible even under the challenging conditions of high turbidity and suspended solids loading. Macomb County became the first wastewater system manager in the state to use this system to optimize their decision-making process. With this forward-thinking solution, the Chapaton team has met their treatment targets in real-time, reduced staff stress and staffing costs previously linked to manual testing and streamlined and optimized treatment processes while continuing to ensure the public health and safety of their local communities. MCPWO has already presented the success of the project with GLWA and neighboring RTB facilities. The project team has also submitted to present at the 2020 Great Lakes Water Infrastructure Conference.

Now that the project has been proven to be successful it is now time to move into Phase 2 of the project. Phase 2 consists of installing three additional units at key points across the RTB to provide the operators with full visibility of how TRC is mixing throughout it. It also includes additional sample pumps at each location with 3 different elevations to pull the

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samples from. In the 2018/2019 budget, \$100,000 was budgeted for this task. Attached to this recommendation are two quotes. The first one is for the additional SWAN TRC units in the total amount of \$20,048.00. The second quote is to provide electrical service for the new sampling locations in the total amount of \$33,260.00. There is \$46,692.00 remaining which will be used by the MCPWO to purchase the sample pumps and piping. The MCPWO will also be installing all of the piping in the RTB, the SWAN units, and the new pumps in an effort to keep costs down.

I recommend moving forward with the Hamlett Environmental Technologies quote for the SWAN units in the NTE amount of **\$20,048.00** and the Colville Electric quote for the required electrical work in the NTE amount of **\$33,260.00**.

Attachments: Hamlett Environmental Technologies (SWAN Units) Quote 9-4-19
 Colville Electric Quote 8-20-19

Figure 1 - SWAN Unit



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Hamlett Environmental Technologies

Project: **Chapaton- Macomb County**

Quote #: **9419JW**

Date: **9/4/2019**

Terms: **Net 30 days**

Pricing: **Valid 60 days**

Contact: **Vincent Astorino**

Freight: **FOB Factory**

Page 1 of 1

Proposal

| <i>Item #</i> | <i>Part Number and Description</i> | <i>QTY</i> | <i>Unit Price</i> | <i>Ext Price</i> |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------|--------------------|
| 1 | A-25.441.600.0 Analyzer AMI Codes-II TC AMI transmitter/controller in aluminum case on mounting panel with fotometer and flow cell for determination of total chlorine. Power supply 100-240 VAC,50/60 Hz or 24 VDC | 3 | \$5,000.00 | \$15,000.00 |
| 2 | A-85.410.120 Reagent Set Oxycon Online DPD, 8 sets | 1 | \$420.00 | \$420.00 |
| 3 | A-85.419.200 Reagent Set Oxycon Online Kl, 8 sets | 1 | \$255.00 | \$255.00 |
| 4 | A-81.420.020 AMI Option Profibus-, Modbus Interface PCB Amicom RS485 with M12x1 socket and wiring | 3 | \$460.00 | \$1,380.00 |
| 5 | A-87.127.020 Option pH for AMI Codes. | 3 | \$685.00 | \$2,055.00 |
| 6 | A-85.119.010 pH-Calibration set (1x pH 7, 1x pH 9, each 40 ml) | 3 | \$46.00 | \$138.00 |
| 7 | Product Start Up Contract Cost of travel and labor for the startup, commissioning, calibration, and training of plant personnel on 3 AMI CODES II TC analyzers. | 1 | \$300.00 | \$300.00 |
| 8 | Freight and Insurance Costs UPS Ground Estimate to zip code 48036. Please note this is only an estimate and final charges may vary. | 1 | \$500.00 | \$500.00 |
| | | | TOTAL | \$20,048.00 |

- Notes:
- 1. This price does not any applicable tax or any installation service.**
 - 2. Freight is included to the jobsite.**
 - 3. Wiring, piping or anything not specifically indicated above are not included.**
 - 4. Lead time is estimated at 2-3weeks after release.**

Signed: **Jennifer L Wagner**
Hamlett Environmental Tech. Co.
Ph #517-545-2500

Colville Electric Co., LLC

23416 Gratiot Ave.
Eastpointe, MI 48021

Estimate

| | |
|-----------|------------|
| Date | Estimate # |
| 8/20/2019 | 19-1066 |

| |
|------------------------------------------------------------------------|
| Name / Address |
| Macomb County DPW 23001 Nine Mile Rd. St. Clair Shores, MI 48080 |

| |
|-----------------|
| Job Location |
| Chapton Station |

| | |
|--------|------|
| Terms | Tech |
| Net 30 | |

| Description | Total |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Install rigid conduit and motor conductors for two pumps in east building to existing buckets. Install single stub through floor into basement ceiling with seal off fitting and splice box for motor leads at convenient location. | 2,160.00 |
| Total \$2,160.00 | |

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| Colville Electric Co., LLC proposes to perform the described work above. Work shall include all labor and materials, unless indicated otherwise. Payment terms are indicated and all past due invoices are subject to 1.5% per month finance charge. | Approval Signature: Date: |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|

*Estimates are valid for 45 days.
Please send signed approval to (586)774-3897 or dave@colvilleelectric.com.*

Colville Electric Co., LLC

23416 Gratiot Ave.
Eastpointe, MI 48021

Estimate

| | |
|-----------|------------|
| Date | Estimate # |
| 8/20/2019 | 19-1067 |

| |
|------------------------------------------------------------------------|
| Name / Address |
| Macomb County DPW 23001 Nine Mile Rd. St. Clair Shores, MI 48080 |

| |
|-----------------|
| Job Location |
| Chapton Station |

| | |
|--------|------|
| Terms | Tech |
| Net 30 | |

| Description | Total |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| North Side of Basin Build rack and install customer supplied SCADA panel Build rack for starters. Install 3 combination starters with key switch, run and fault indicators. Install one 3/4 and one 2" PVC coated rigid conduit with seal off through basin ceiling for control and motor leads. Install 1" conduit between SCADA panel and motor starters. Install box for splicing of control and motor leads outside of basin. Install 30 amp feed from flushing building. All starters, disconnects and enclosures to be stainless steel or mailable iron. All hardware and strut to be stainless steel. All conduit outside of basin to be Galvanized Rigid. Conduit run along flushing system wall. | 15,340.00 |

| | | |
|--|--------------|--------------------|
| | Total | \$15,340.00 |
|--|--------------|--------------------|

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| Colville Electric Co., LLC proposes to perform the described work above. Work shall include all labor and materials, unless indicated otherwise. Payment terms are indicated and all past due invoices are subject to 1.5% per month finance charge. | Approval Signature: Date: |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|

*Estimates are valid for 45 days.
Please send signed approval to (586)774-3897 or dave@colvilleelectric.com.*

Colville Electric Co., LLC

23416 Gratiot Ave.
Eastpointe, MI 48021

Estimate

| | |
|-----------|------------|
| Date | Estimate # |
| 8/20/2019 | 19-1068 |

| |
|------------------------------------------------------------------------|
| Name / Address |
| Macomb County DPW 23001 Nine Mile Rd. St. Clair Shores, MI 48080 |

| |
|--------------|
| Job Location |
| |

| | |
|--------|------|
| Terms | Tech |
| Net 30 | EN |

| Description | Total |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <p>South Side of Basin Build rack and install customer supplied SCADA panel Build rack for starters. Install 3 combination starters with key switch, run and fault indicators. Install one 3/4 and one 2" PVC coated rigid conduit with seal off through basin ceiling for control and motor leads. Install 1" conduit between SCADA panel and motor starters. Install box for splicing of control and motor leads outside of basin. Install 30 amp feed from flushing pit. All starters, disconnects and enclosures to be stainless steel or mailable iron. All hardware and strut to be stainless steel. All conduit outside of basin to be Galvanized Rigid. Conduit to be run underground between starters and basin. Install bolted steel bollard in front of basin penetrations to protect from vehicle traffic.</p> | 15,760.00 |

| | | |
|--|--------------|--------------------|
| | Total | \$15,760.00 |
|--|--------------|--------------------|

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <p>Colville Electric Co., LLC proposes to perform the described work above. Work shall include all labor and materials, unless indicated otherwise. Payment terms are indicated and all past due invoices are subject to 1.5% per month finance charge.</p> | <p>Approval Signature: Date:</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|

*Estimates are valid for 45 days.
Please send signed approval to (586)774-3897 or dave@colvilleelectric.com.*



Candice S. Miller

Public Works Commissioner
Macomb County

To: Candice Miller, Macomb County Public Works Commissioner

CC: Brian Baker, Chief Deputy

From: Vincent Astorino, Operations & Flow Manager

Date: August 24, 2019

Subject: Chapaton Second Floor Laboratory & Operational Improvements – Phase 2 Design
Recommendation

The Macomb County Public Works Office (MCPWO) has been working with the 8 ½ Mile Relief Drain Board approved as-needed engineering firm Fishbeck, Thompson, Carr & Huber (FTCH) to evaluate the laboratory and office space within the Chapaton Pump Station. This facility went online in 1968 and the office areas which include the lab, sleeping quarters, toilet/locker area, kitchen, and miscellaneous office space are original to that. This facility is a 24/7 operated facility and the central hub for operations across all districts for MCPWO operations. There are currently 14 employees who report to this facility on a daily basis.

Some of the benefits/reasons for these improvements are as follows:

1. Gaining operational efficiencies with relocating the lab to the East Building. Water quality samples are taken at the East Building location and therefore this will save time and effort of transporting samples to the west building. We are also reutilizing all of the existing lab equipment and moving it to the new location so there will be no additional incurred costs
2. Current SCADA control center at Chapaton is too small. Operators do not have the ability to properly monitor the entire system. New room will allow for increased visibility of assets across the system. This will allow the operations staff to have the ability to easily monitor the entire system and react to changing conditions more quickly.
3. Chapaton has become a 24/7 operations hub with additional staff now reporting there. Conference room and additional office space will allow for cross-training opportunities and the ability for staff to input data into the Nexgen asset management system. There are currently 2 computers that staff have to share in order to process Nexgen tasks, time sheets, e-mails, order parts/equipment, and various other activities.
4. Living quarters is original to this facility. Since this facility is a 24/7 operation, there is staff always there and they do have a down period from 4:00 pm to 7:00 am. During this period, they are required to answer any SCADA alarms or phone calls, so it is very similar to a fire station. This room is in need of updates.

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ENGINEERING • Phone: 586-469-5910 • Fax: 586-469-7693 ♦ **SOIL EROSION** • Phone: 586-469-5327 • Fax 586-307-8264

Phase 1 of this project consisted of developing conceptual plans and budgetary estimates for the renovation of the second floor which includes everything listed above at the Chapaton Pump Station and relocating the water testing laboratory to the East Building. This also included the addition of a SCADA control center, new meeting/training room, and office area. The executive cost summary from that evaluation is attached. The 2018/2019 budget includes \$250,000 for relocation of the lab. The 2019/2020 budget includes \$500,000 for the second-floor improvements. \$250,000 is also budgeted for HVAC improvements which can be used to address HVAC replacements required within these areas instead of waiting for the larger HVAC project and duplicating efforts.

Phase 2 of this project consists of the full design and preconstruction bidding services. MCPWO has continued to work with FTCH to provide a design proposal for this effort. This proposal is attached and is in the NTE amount of \$86,000. Total project cost is projecting to be close to \$1 million, so the design fees are well within the anticipated 10% of project cost.

I recommend moving forward with FTCH for Phase 2 design of Chapaton Office Improvement project in the NTE amount of \$86,000.

Attachments: Proposal for Professional Architecture and Engineering Services – 8-16-19
Phase 1 Executive Cost Summary and Proposed Layouts



August 16, 2019

Mr. Vincent Astorino
Operations and Flow Manager
Macomb County Public Works
21777 Dunham Road
Clinton Township, MI 48036

Re: Proposal for Professional Architecture and Engineering Services
Chapaton Pump Station Building – Second Floor

Dear Mr. Astorino:

Fishbeck is pleased to submit the following proposal to provide professional architecture and engineering (A/E) services for the Macomb County Public Works Office (MCPWO) to provide design services for remodeling of the second floor mezzanine and new lab on the Chapaton Pump Station Building Complex.

Scope of Work

Phase 1 – Completed

Phase 1 includes conceptual plans and budgetary estimates for the upgrade of the second floor of the Chapaton Pump Station Building and relocation of water testing laboratory. Renovations will include updated kitchens, sleeping quarters, toilet/locker room, addition of new SCADA control center, new meeting room, and office area. The new lab will be relocated to an existing area on the East Building; approximately 272 square feet (sf). The goal is to assist the Owner in establishing budgets for upcoming financial years. Fishbeck proposes to develop architectural schematic concepts with opinions of probable construction cost. A final report shall be generated to identify challenges, opportunities, and construction phases.

Phase 2

Following the completion of Phase 1, MCPWO has selected to proceed with design services and approved Scheme 1 Option 2 (encl.), laboratory layout and work proposed on the Narrative for Phase 1 and 2. It is understood that required funding is assured and approximates Fishbeck’s estimates. We will provide construction documents and assist the MCPWO with bidding the project.

Phase 2 – Basic Design Services. Design Development and Construction Documents

Fishbeck will develop construction documents (drawings and specifications) for bidding by a general contractor/construction manager (GC/CM). The scope of work shall include architectural, interior design, mechanical, electrical, plumbing (MEP) and structural:

- Demolition plans (A/MEP/S).
- Floor plans.
- Lab equipment plans.
- Interior material and finishes boards for Owner’s initial approval.
- Cost estimate progress update at 60% of design.
- Interior finish plans and finish schedule.



- Construction details, door/window schedule, wall types, roof plans where required to be modified.
- Enlarged toilet and locker room plans.
- Casework elevations and details.
- Structural details addressing roof openings, enlarging existing window opening in SCADA room.
- HVAC new equipment and ductwork.
- Plumbing new equipment and piping for hydronics, storm and sanitary.
- Electrical power and lighting plans.
- Equipment schedules and details.
- Code review of area of work. Hold a preliminary discussion with the Building Official to identify major code concerns, if any.
- Specification book, excluding Division 00 Procurement and Contracting Requirements and Division 01 General Requirements.

Additional Services

Preconstruction Bidding Services

During bidding, Fishbeck will assist in one prebid meeting, bid opening and evaluations, and provide responses to Requests for Information (RFI's). We will assist MCPWO to post bidding documents on the MITN website.

Project Management

The Project Manager for Fishbeck will organize, lead, and be responsible for interaction and communications between MCPWO and the Fishbeck design team.

Agency Review

The construction documents will be prepared for review by the appropriate permitting authorities. The Architect will assist with preparing the application for plan review.

Assumptions

The following services are not currently anticipated and are not included in our scope or fees. Additional work associated with these items can be completed by Fishbeck upon request:

- Existing MEP, structural systems have adequate capacity to supply new systems and layouts.
- Hazardous materials study or environmental report shall be prepared by Fishbeck. Following the study, the Fishbeck Environmental Group will develop an additional proposal to assist MCPWO with the abatement of hazardous materials, if necessary.
- No acoustical analysis.
- Removal or addition of safety equipment features.
- Owner will provide desired layout of lab equipment.
- A shower and eyewash are required in the new lab. Existing tiles on wall to remain.



- No HVAC work in existing east building, beyond the new HVAC unit dedicated to the lab.
- At second floor, individual room cooling is not anticipated.
- Work in the existing lobby or first floor is beyond the scope of work.
- IT/AV design for network cabling, outlets, hardware software, wifi, and similar items required for the SCADA room, lab, offices, conference room will be by Owner's IT/AV vendor. Fishbeck may assist with the design, as needed.
- Fire protection to the existing building is not provided or will not be required.
- Equipment selection will be provided by Owner.
- Fishbeck will work with Owner's Furniture vendor to coordinate furniture requirement with Architectural and Electrical requirements. Office furniture package will be provided by Owner's Vendor.
- Specification Division 00 Procurement and Contracting Requirements, Division 01 General requirements will be provided by MCPWO.
- Additional Services beyond Bidding, such as Construction Administration (CA) Services shall be provided on as needed basis. Compensation for such services shall be in accordance with the approved MCPWO 2019 Fishbeck special rates.

Schedule

- The Design Phase shall be approximately three months to complete after receiving authorization to proceed. Refer to the tentative schedule below:
 - Project Awarded — August 31, 2019
 - Design Duration: Design Development (DD) through CDs — September 1- December 20, 2019 (16 weeks)
 - DD October 18, 2019 – a 60% submittal to the Owner for preliminary review
 - Owner Review — October 18-25, 2019
 - CDs 90% Review — November 4-December 6, 2019
 - Owner 90% Review — December 6-13, 2019
 - CDs 100% issued for Bidding and Permits — December 20, 2019
 - Bidding on January 6, 2019 — 4 weeks
 - Construction Contract Awarded — February 28, 2019

Compensation

Proposed Lump Sum Fee: Eighty-Six Thousand Dollars (\$86,000)

The professional fees are based on typical costs and budgets from recent project experience. We are not able to predict meeting outcomes and unique circumstances; therefore, a written notice with detailed explanation will be provided immediately should the proposed lump sum fee be inadequate, or significant project changes be required or requested.



Mr. Vincent Astorino
Page 4
August 16, 2019

If you have any questions or require additional information, please contact me at 616-464-3897 or email ybodinaku@ftch.com We look forward to working with you.

Sincerely,

FISHBECK, THOMPSON, CARR & HUBER, INC.

Ylli Bodinaku, AIA

Maria E. Sedki, PE

slr

Attachments: Scheme 1 Option 2 Mezzanine Plan.
By email

FTCH Cost Information

The following is FTCH's comprehensive schedule with hourly rates for each of the applicable staff classifications. The hourly rates include overhead and profit. These rates apply to all the engineering fields we are submitting on and will remain for the duration of the 1-year contract.

| Category | Role | 2019 Rate |
|---------------------------------------------------------------------------------|---------------------------------|-----------|
| Project Management | Project Manager | \$164 |
| Engineering (Civil, Mechanical, Electrical, Structural, Process) | Senior Engineer | \$164 |
| | Engineer | \$130 |
| | Staff Engineer | \$110 |
| Inspection | Senior Technician | \$115 |
| | Technician | \$94 |
| | Staff Technician | \$73 |
| Surveying | Senior Surveyor | \$130 |
| | Surveyor | \$115 |
| | Survey Specialist | \$105 |
| GIS Mapping/CADD | Senior Technician | \$136 |
| | Technician | \$105 |
| | Staff Technician | \$89 |
| Environmental Scientist | Senior Environmental Specialist | \$157 |
| | Environmental Specialist | \$115 |
| | Staff Environmental Specialist | \$94 |
| Specialist | Senior Engineering Specialist | \$152 |
| | Senior Estimator | \$163 |
| Architecture | Senior Architect | \$164 |
| | Architect | \$130 |
| | Staff Architect | \$110 |
| Administrative | Clerical/Production Support | \$70 |



Invoices are rendered every four weeks and payment is due upon receipt.

Direct Expenses

| Category | Rate |
|-------------------------------|--------------------------------|
| Mileage/Passenger Vehicles | \$0.56/mile |
| Field and Services Vehicles | \$0.95/mile (\$37/day minimum) |
| Global Positioning Unit | \$50/hour |
| Survey Robot | \$35/hour |
| Flow Monitor | \$650/month |
| Equipment Schedule | Separate Schedule |
| Expenses and Outside Services | Cost plus 10% |



**Preliminary Construction Cost Estimate
Chapaton Pump Station Second Floor & Lab**

St. Clair Shores, MI

Fishbeck, Thompson, Carr & Huber, Inc. - Construction Division

August 26, 2019

ESTIMATE EXECUTIVE SUMMARY

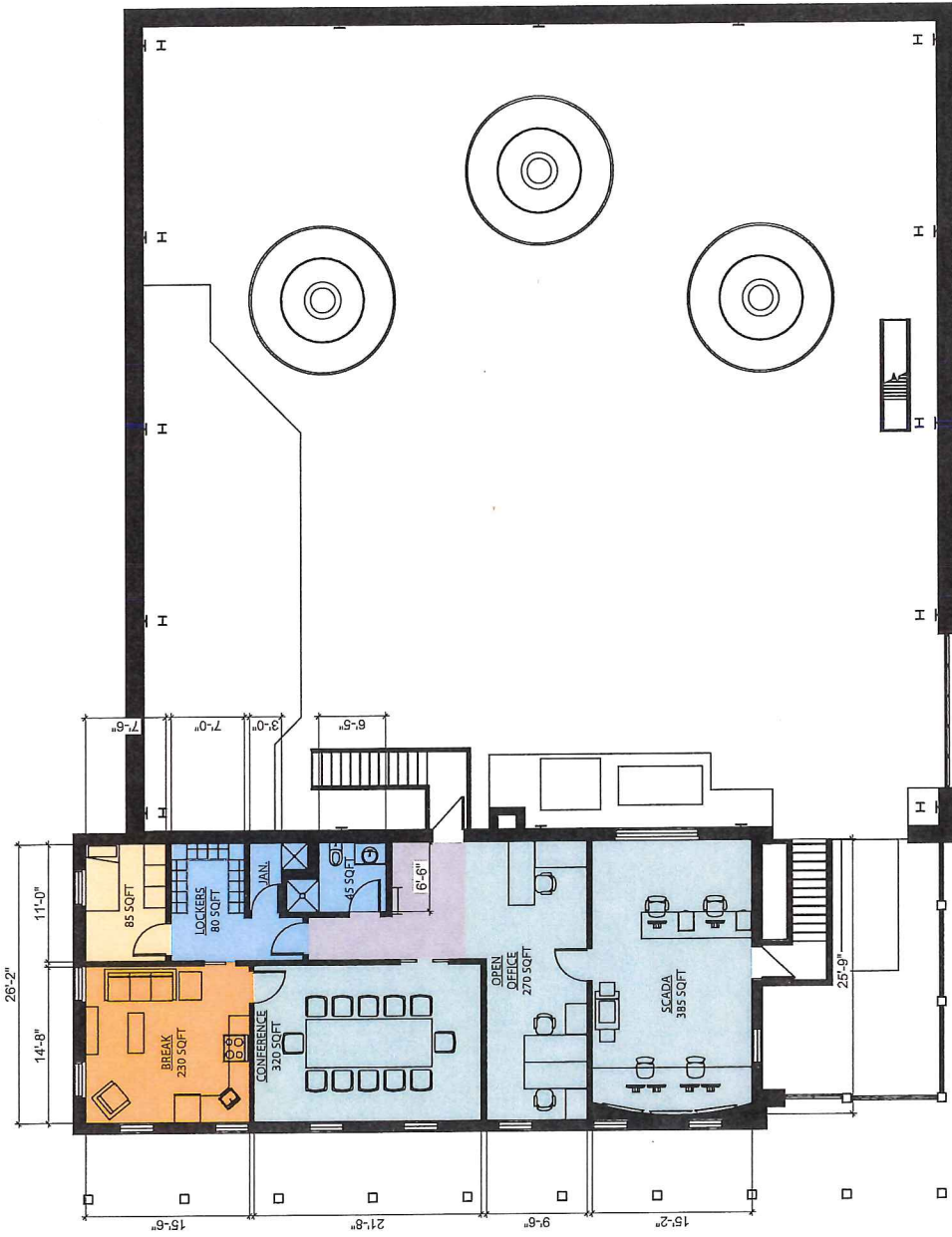
| PHASE 1: LAB RELOCATION | |
|-------------------------------------------------|------------------|
| BARE CONSTRUCTION COST: | \$104,034 |
| DESIGN AND ESTIMATING CONTINGENCY (15%): | \$15,606 |
| BUILDING PERMITS (1%): | \$1,041 |
| GC OVERHEAD, PROFIT & GENERAL CONDITIONS (20%): | \$24,137 |
| CONSTRUCTION CONTINGENCY (8%): | \$11,586 |
| Total for Phase 1: Lab Relocation: | \$156,500 |

| ALTERNATES | | | |
|---------------------------------------------|---|----|---------|
| Fiberglass Panels on Walls Instead of Epoxy | 1 | LS | \$1,000 |

| PHASE 2: SECOND FLOOR REMODEL | |
|-------------------------------------------------|------------------|
| BARE CONSTRUCTION COST: | \$291,935 |
| DESIGN AND ESTIMATING CONTINGENCY (15%): | \$67,445 |
| BUILDING PERMITS (1%): | \$4,103 |
| GC OVERHEAD, PROFIT & GENERAL CONDITIONS (20%): | \$101,319 |
| CONSTRUCTION CONTINGENCY (8%): | \$50,924 |
| Total for Phase 2: Second Floor Remodel: | \$515,800 |

| MECHANICAL SCOPE | |
|-------------------------|-----------|
| BARE CONSTRUCTION COST: | \$118,270 |

| ARCHITECTURAL/ENGINEERING FEE | |
|--------------------------------------|----------|
| PROPOSED LUMP SUM: | \$86,000 |



2

08.16.2019

SCHEME 1
OPTION 2

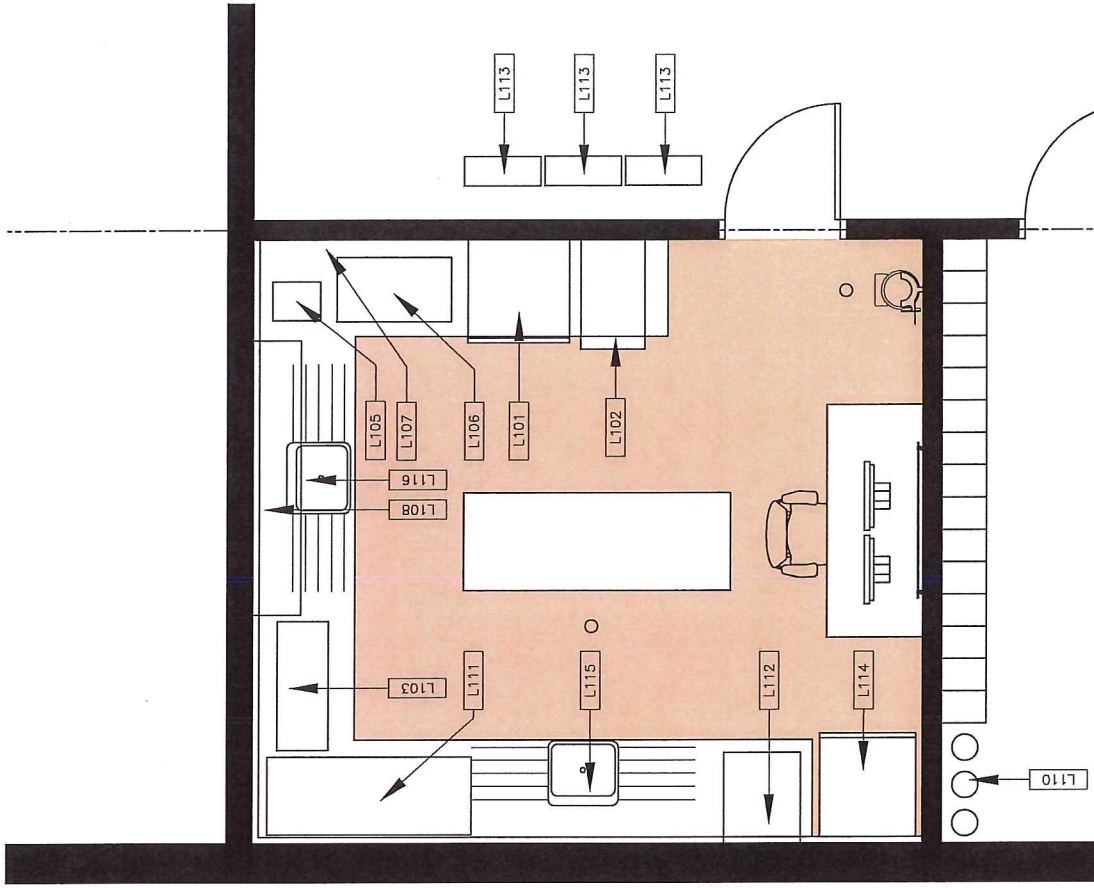
23001 E 9 Mile Rd.
St. Clair Shores, MI 48080

Chapaton Pump Station



LAB EQUIPMENT SCHEDULE

| EQUIPMENT DESCRIPTION | DIMENSIONS | | |
|-------------------------------|------------|--------|--------|
| | L | W | H |
| L101 DRY INCUBATOR | 2'-8" | 2'-8" | 2'-8" |
| L102 QUANTI-TRAY SEALER | 1'-8" | 2'-10" | 1'-3" |
| L103 WATER BATH | 3'-4" | 1'-4" | 2'-0" |
| L104 TITRATOR & STIR PLATE | 1'-4" | 1'-8" | 3'-4" |
| L105 QUANTI-TRAY READER | 1'-3" | 1'-0" | 1'-0" |
| L106 YSI | 3'-0" | 1'-8" | 0'-5" |
| L107 TIMER | 0'-5" | 0'-3" | 0'-4" |
| L108 GLASSWARE | 7'-1" | 1'-3" | 3'-4" |
| L109 pH BUFFERS | 2'-3" | 0'-10" | 1'-4" |
| L110 LAB PURE WATER EQUIPMENT | 3'-0" | 1'-4" | 4'-2" |
| L111 BENCH TOP LAP EQUIPMENT | 5'-4" | 2'-0" | 1'-8" |
| L112 AUTOCLAVE | 2'-0" | 2'-4" | 1'-8" |
| L113 SWAN | 2'-0" | 0'-9" | 2'-11" |
| L114 REFRIGERATOR | 2'-6" | 2'-8" | 5'-10" |
| L115 LAB PURE SINK | 2'-0" | 1'-4" | 2'-6" |
| L116 SINK | 6'-0" | 2'-6" | 2'-10" |
| L118 MONITOR | 3'-0" | 0'-4" | 2'-0" |
| L119 WORK STATION | 2'-6" | 11'-0" | 2'-0" |
| L120 EYEWASH SHOWER | 2'-0" | 2'-0" | 7'-0" |



Chapaton Pump Station

23001 E 9 Mile Rd.
St Clair Shores, MI 48080

Relocated Lab

EIGHT AND ONE HALF MILE RELIEF DRAIN 8/20/19 - 9/3/19

| Funding Source | Apportionment | Manager | Vendor | Amount | Invoice Detail | Project Summary | Project Balance | |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------------------|---------------|--------------------------------|-----------------------------------------------------------------------------|-----------------|--|
| 8 1/2 Mile Relief | Chapter 20 State of MI - 16.04% County of Macomb - 2.25% Dept. of Roads - 2.25% Eastpointe - 54.33% St. Clair Shores - 25.13% | Manning | Bank of New York Mellon, N.A. | \$ 323,716.13 | Invoice #19-370 - 08.05.19 | SRF Debt Service | | |
| | | Astorino | Cummins Bridgeway | \$ 4,713.30 | Invoice #SG-28256 - 08.20.19 | Generator Repair | | |
| | | Astorino | De-Cal, Inc. | \$ 771.20 | Invoice #WO19001052 - 08.09.19 | Preventative Maintenance | | |
| | | Astorino | DTE Energy | \$ 6,602.77 | Invoice #19-374 - 08.08.19 | Monthly Electric - 07.10.19 - 08.08.19 | | |
| | | Astorino | Fishbeck, Thompson, Carr & Huber, Inc. | \$ 9,628.50 | Invoice #385135 - 08.19.19 | As Needed Services Through 08.09.19 | | |
| | | Astorino | Grainger | \$ 21,408.80 | Invoice #9254274724 - 08.06.19 | Grinder Pumps | \$ 123,681.25 | |
| | | Astorino | JCI Jones Chemicals | \$ 2,040.32 | Invoice #797338 - 08.15.19 | Hypochlorite Solution - 2,244 gallons for Chapaton | | |
| | | Manning | Macomb County Treasurer | \$ 207,005.45 | Invoice #AR190648 - 06.30.19 | Reimbursement to Macomb County for 2nd Quarter Personnel/Operating Expenses | | |
| | | Astorino | Marino's Landscape | \$ 1,100.00 | Invoice #7411 - 07.31.19 | Lawn Care July 2019 | \$ 3,850.00 | |
| | | Astorino | Tetra Tech, Inc. | \$ 5,891.00 | Invoice #51471309 - 08.02.19 | In-System Storage Project | \$ 475,207.00 | |
| | | Astorino | Wonderware North | \$ 6,343.50 | Invoice #80144 - 08.19.19 | Software Renewal Through 09.30.2020 | | |
| | | Total | | | \$ 589,220.97 | | | |

Budget to Actual
 8.5 Mile Relief
 As of August 31, 2019 = 92%

| DESCRIPTION | 2019 FINAL BUDGET | ENCUMBERED | ACTUAL | REMAINING BUDGET | PCT UTILIZED |
|----------------------------------------------------|----------------------|------------|------------------|---------------------|---------------|
| REVENUE ACCOUNTS | | | | | |
| Interest Earned | 26,000 | | 85,620 | (59,620) | 329.3% |
| Other Revenue | 1,500 | | 27,660 | (26,160) | 1844.0% |
| State Grant | - | | 3,000,000 | (3,000,000) | 100.0% |
| 8.5 O&M/Charge Required Revenue | 3,898,266 | | 3,898,266 | - | 100.0% |
| PY Revenue-Fund Balance | 1,946,000 | | | 1,946,000 | 0.0% |
| Rental Fee | 15,360 | | 14,266 | 1,094 | 92.9% |
| Total Revenue Accounts | 5,887,126 | - | 7,025,812 | (1,138,686) | 119.3% |
| EXPENSE ACCOUNTS | | | | | |
| Application/Permit Fee | 3,000 | | 3,000 | - | 100.0% |
| Dues, Training, Conf, Subs. | 5,750 | | 13,258 | (7,508) | 230.6% |
| Engineering | | | | | |
| Chapaton East Disinfection System Improvement | 50,000 | | 17,937 | 32,063 | 35.9% |
| Disinfection Systems Improvement Study | 120,000 | | 74,279 | 45,721 | 61.9% |
| RTB/PS Ventilation Design | 120,000 | | | 120,000 | 0.0% |
| Design of Improvements | 50,000 | | | 50,000 | 0.0% |
| As Needed Engineering | 75,000 | | 53,978 | 21,022 | 72.0% |
| Chapaton Improvements-Office Space | 250,000 | | | 250,000 | 0.0% |
| Phase 1 TRC Basin Equipment | 100,000 | | 990 | 99,010 | 1.0% |
| 9 Mile & 8 1/2 Mile Rehab | 100,000 | | | 100,000 | 0.0% |
| Basin Structural Integrity Study | 60,000 | | | 60,000 | 0.0% |
| Basin Expansion Design | 1,000,000 | | 175,097 | 824,903 | 17.5% |
| In-System Storage Design(Gates on 8.5 Tunnel) | 500,000 | | 5,891 | 494,109 | 1.2% |
| New Equipment | 161,500 | | 83,708 | 77,792 | 51.8% |
| Office Supplies | 750 | | 508 | 242 | 67.7% |
| Operating Supplies | 82,750 | | 76,459 | 6,291 | 92.4% |
| Other Professional Svcs | 47,920 | | 38,726 | 9,194 | 80.8% |
| Personnel Services | 875,405 | | 796,402 | 79,003 | 91.0% |
| Repair & Maintenance | 100,615 | | 98,908 | 1,707 | 98.3% |
| Switch gear | 45,000 | | | 45,000 | 0.0% |
| Painting interior and garage facade | 20,000 | | | 20,000 | 0.0% |
| Instrumentation all buildings | 30,000 | | | 30,000 | 0.0% |
| Canal seawall sheeting | 5,000 | | | 5,000 | 0.0% |
| Driveway grate | 12,000 | | | 12,000 | 0.0% |
| Pumping and screening improvements | 1,250,000 | | 61,854 | 1,188,146 | 4.9% |
| CHA-EB Chem Flow Meter - Basin Gates (Pumps 4-5) | 10,000 | | | 10,000 | 0.0% |
| Security Fence Structures Around Gate Actuators | 60,000 | | | 60,000 | 0.0% |
| Electrical Upgrade Program | 10,000 | | | 10,000 | 0.0% |
| Pump Station Exterior Wall Upgrades-Basin Kneewall | 4,000 | | | 4,000 | 0.0% |
| 9 Mile Dewatering Gate | 5,000 | | | 5,000 | 0.0% |
| SRF Replacement Reserve | 259,215 | | | 259,215 | 0.0% |
| Scada System | 190,073 | | 166,485 | 23,588 | 87.6% |
| Utilities | 284,148 | | 96,558 | 187,590 | 34.0% |
| Total Expense Accounts | 5,887,126 | - | 1,764,038 | 4,123,088 | 30.0% |

| | O&M Balance 9/30/2018 | O&M | Total 8/31/2019 |
|---------------------|--------------------------|-----------|--------------------|
| Cash - Operating | 4,445,246 | 5,261,774 | 9,707,020 |
| Accounts Receivable | | | 0 |
| Assets | | | 0 |
| Liabilities | | | 0 |
| Revenues | | 7,025,812 | 7,025,812 |
| Expenditures | | 1,764,038 | 1,764,038 |
| | | | 0 |
| Equity* | 4,445,246 | | 9,707,020 |

Detail of 2018 Equity*

| | | | |
|--------------------------------------------------|---------|--------------------------------------|-----------|
| 5 year maintenance of switchgear | 38,000 | Instrumentation all buildings | 30,000 |
| 9 Mile Dewatering Gate | 5,000 | Outfall Gate Reserve | 7,000 |
| Canal seawall sheeting | 5,000 | Painting interior and garage facade | 20,000 |
| CHA-EB Chem Flow Meter - Basin Gates (Pumps 4-5) | 10,000 | Pump Station Exterior-Basin Kneewall | 4,000 |
| Chapaton East disinfection system improvement | 50,000 | Pumping and screening improvements | 1,250,000 |
| Design of Improvements | 50,000 | RTB/PS Ventilation Design | 60,000 |
| Disinfection Systems Improvement Study | 120,000 | Sampling Pumps | 2,500 |
| Driveway grate | 12,000 | Scada Reserve | 80,000 |
| Electrical Upgrade Program | 10,000 | Security Fence Structures -Gate Act | 60,000 |
| Emergency Reserve | 818,956 | Spare Rain Gauge | 2,500 |
| Flow Meter | 150,000 | SRF Replacement Reserve | 1,555,290 |
| HVAC Design | 60,000 | Switch gear(Label and maintenance) | 45,000 |