

# Director of Engineering Report

April 24, 2013

District staff manages projects, consultants, contractors and equipment suppliers. Consultant reports and Project Managers reports are included in this section and detail the status of the associated study, design, or construction projects.

## Active Projects

**2011 Trestle Improvement Project:** This project includes Replacement of the 4 concrete North Stevens Creek trestles (reusing existing piers) and repair the New Main Interceptor trestle.

- Contractor: ECI; Contract end date: July 20, 2012
- *Work is complete; finalizing the last change order with the contractor*

**2013 Trestle Modifications Project:** This project includes changing the structural support system of the 4 North Stevens Creek trestles.

- Prebid was held 4/17/13; Bid open scheduled for 4/24/13

### **2012 Energy Efficiency Projects:**

*Original grant amount requested was \$538,512, with final actual amount to be established upon certified results at the end of the project. Grant projection was based on:*

- *Replacing two 250 hp centrifugal channel aeration blowers with turbo blowers (1,144,435 kWh/yr savings);*
- *Replacing six 20 hp WAS storage tank mixers with six 10 hp mixers and running only half of the system at a time (588,146 kWh/yr savings);*
- *Modifying primary sludge piping to eliminate a pump system (235,259 kWh/yr savings);*
- *Installing power factor correction equipment (2,519,763 kWh/yr savings).*

*Power factor was stricken from the project due to the uncertain energy savings and potential difficulty in guaranteeing energy savings of the power factor correction. Several project components were added to make-up for the elimination of the power factor correction savings. These include:*

- *Replacing gaskets, expansion joints, and valves in the air delivery system,*
- *Replacing manual DO control system with automatic DO control system, and*
- *Consolidating three blower systems (WAS, Channel Air, Nitrification Aeration).*

*There have been several construction issues addressed, they include*

1. Proposal to use some expansion joints the district has on site	Negotiating Credit
2. WAS effluent valves did not operate and needed to be replaced	\$22,219 T&M
3. Physical expansion of Master Control Panel (MCP) IO slots	\$13,672 LS
4. MCP Panel programming for the Secondary Aeration Tanks	\$17,527 LS
5. Change from level transducer to ultrasonic transducer in WAS tanks	\$ 9,724 LS
a. District is keeping level transducers for use on hypochloride levels	
6. Pipe support of the aeration tank discharge tee	\$13,113 LS
7. WAS air pipe replace and paint	\$ 4,399 LS
8. Install Pipe clips for aeration system suction	Negotiating Price
9. <del>Run additional conduit to the secondary aeration tanks</del>	<del>\$30,142 Rejected</del>

ORIGINAL BID \$1,894,000

Upcoming Changes = 6.1%

- *Blowers are operational, Mixers are operational, the master air control system is being programmed currently.*
- *Expansion Joints are not on site yet... ETA May 1<sup>st</sup>.*

**2013 Digester Complex Improvements Project:** This project consists of upgrades to the primary digesters' mixing systems with 4 Linear Motion Mixers to replace the current Pearth mixing systems; the addition of an electrical building to gain NFPA 820 code compliance in the primary digester complex; installation of automated drip traps and condensate collectors in the digester complex; and replacement of the waste gas burner to a separate location away from the digester complex.

- *Design Engineers: Donohue and Associates*
- *Loan Application and Construction Permits were submitted as planned. We expect EPA's construction permit review and loan application review to be completed within two weeks. At that time, project will go out for bid.*

**2013 Roof Rehabilitation Project:** The project consists of: Rehabilitation of Bldg. 029 roof, repair of Bldg. 117 roof and replacement of Bldg. 112 and Faries Park Pump Station roofs.

- *There is a contract award before the board for consideration*

**2012 Sewer Cleaning and CCTV Project:** *This project consists of cleaning and televising approximately 42,000 LF of District Sewers. The following segments are out for bid. Southeast Sewer (36") Larkdale/Richland Sewer (24, 18, 15") Larkdale Sewer (36, 18, 15") Damon South Sewer (42, 24, 21, 18, 15") Damon North Sewer (18") Country Club Sewer (30, 27, 24, 18")*

- *Project will be rebid this next month.*

**2012 BioMass to Energy Project:** To continue with upgrading the digester complex and reducing the energy needs of the district, the district is evaluating grant opportunities again in 2012 to look at opportunities to tap into DCEO Public Sector Energy Grants, DECO Public Sector Biogas Grants, and an Illinois Clean Energy Foundation Biogas/Biomass Grant. .

- *DECO Public Sector Biomass to Energy grant application was signed off at \$500,000.*
- *500-kW high efficiency combined heat and power (CHP) engine (replacement of 1 co-gen unit)*
- *Installation of gas cleaning system*
- *Review of Preliminary Engineering Design Report complete. District evaluated the alternatives and have elected to continue on with the lowest capital cost alternative of replacing a cogen unit and the required gas cleaning. Last month's update indicated a payback period between 8.2 and 9.1 years (based on variable power rates)*
- *The status of Amyris/T&L with farnesene delivery to the district will have a direct impact on the payback period of this project.*
- *This project is still on hold, staff is reviewing strategic direction.*

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## **INTERGOVERNMENTAL ACTIVITIES**

- NONE

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## **Other Activities:**

**Hickory Point Pump Station:** District staff is preparing for 2013 projects. One of the projects is the rehabilitation of the Hickory Point Pump Station.

- *Initial meeting was held with Clark-Dietz in preparation for the design of this station.*
- *No additional work this period.*

**Water Tower Maintenance Contract:** The water tower is in need of several maintenance items, most notably the interior coating of the tank. Bids documents being developed are for Interior Coating and physical components of the water tower that currently need repair.

- *No work on specifications this last period.*

**South Shores Drive Bridge Replacement:** *Contractor is ready for the transfer of service to the new sewer, SDD will require normal flows from Finley Creek PS (Mount Zion flow) prior to this change taking place.*

**Levee Certification:** Levee certification is a technical finding for floodplain mapping purposes as part of the National Flood Insurance Program (NFIP), which concludes there is reasonable certainty that the levee protecting the area will contain the base 100-year regulatory flood. FEMA does not certify levees; FEMA is the recipient of levee certification determination which is forwarded by the District. If levee certification documentation is found to be in order, FEMA will then accredit the levee and the associated flood insurance rate maps depicting flood hazard will show the floodplain areas as protected from the base flood.

The details of requirements are still being reviewed, however the submittal will at least require by the district is a LOMR, Letter of Map Revision. The LOMR for the SDD LEVEE will require the submittal of 3 FEMA forms.

- A quote has been requested of Stantec, who manages flood plain LOMR submittals, and reviews the same for FEMA on a continual basis. We have not yet received a quote from Stantec.
- FEMA is telling us the State Water Survey has completed hydrology (physical characteristics of the river channels) and only started hydraulic analysis (behavior of the water in the river) on this stretch of the Sangamon River and Stevens Creek. We are working with FEMA/ISWS on how to deal with the dual paths SDD / Illinois State Water Survey (ISWS) are on. If SDD/ISWS don't work together, there is a possibility that any additional hydraulic work SDD submits to IDNR and FEMA for review could be trumped by ISWS and the applicable water surface elevations could then change, causing any levee certification submittals to be re-done.
- *No additional information this period.*

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## **PROPOSED BOARD ACTION**

For the Board's consideration from the Engineering Department this meeting:

- 1. Contract Award – 2013 Roofing Rehabilitation Project**
- 2. Hanson Engineering - Professional Services Agreement Amendment #1**

Further details can be found in the Summary of Motions.

If there are any questions, please contact me by telephone at 422-6931 ext 216, or by email at [DonM@sdd.dst.il.us](mailto:DonM@sdd.dst.il.us)



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April 8, 2013

## ENGINEERING STATUS REPORT

The following is a brief summary of the Projects involving Bainbridge, Gee, Milanski and Associates. Charles Hunsinger will attend the meeting. [chunsinger@bgmengineering.com](mailto:chunsinger@bgmengineering.com)

### **TRESTLE IMPROVEMENTS CONSTRUCTION (09-063)**

The project consists of replacing 4 concrete trestles on the North Stevens Creek Interceptor and repair to the 60" Main Interceptor trestle.

The relocation of the pipe supports has been completed. The original project is now complete. Final payment estimate 10 is before the Board for \$100,000.00. The contractor has been asked of final waivers of liens. We recommend the Board approve final payment subject to receipt of the final waivers.

### **2013 TRESTLE MODIFICATIONS CONSTRUCTION (12-071)**

The project consists of relocating the longitudinal support I-beams for the four trestles and modifying the lateral supports. This work is being done as a separate project from the Trestle Improvements project.

The project has been advertised and bids will be received April 24.

Please notify us immediately if you are not the intended recipient.

**OUTSIDE FACILITIES MONTHLY REPORT**  
**Apr 2013**

TO: Don Miller, Director of Engineering

FROM:

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- **Wyckles Facility**
  - Replacement barge mixer has arrived. Staff is modifying mounting bracket for installation.
  - Wyckles Dredge motor has been returned from Bodine. Waiting to be installed.
  - Wet well needs rehabilitated. Couplings, discharge piping, pump rails/brackets, are rusted and structural integrity is compromised. Replacement of ladder into wet will also be included as part of this work. Access ladders have arrived.
  - Rehabilitation is being scheduled.
  
- **2012 CCTV Project**
  - Project is out for Bid; Open Bids on 2/22/13
  - Bid unit price was higher than expected – rejecting all bids and will re-bid the work.
  
- **DAMON Ave**
  - Preparing to purchase a check valve and gate valve for the pump station. Expected cost ~~ 35,000.
  
- **Country Club #2**
  - Pump failed 2/11/13. Motor on the pump had failed. Taken to DIE for repair.
  - Motor was Not Economical to repair.
  - Motor is being replaced in-kind (150hp) – \$11,224
  - ETA of pump 4/29/13
  
- **7th Ward Mixer**
  - Mixer was seized up. It is an older style and cannot be repaired.
  - Waiting for replacement quotes.
  
- **Stevens Creek Interceptor (42” section) – Exposed section of pipe**
  - There is a section of the 42” interceptor just West of Oakland Ave where the cover dirt over the interceptor has washed away due to storm water over the years (originally installed in 1953).
  - When weather allows, repair will be completed.
  
- **Lake Shore Force Main (FM)**
  - District is working with ADM preparing to replace the air release valves and their isolation valves along the FM.

# Sanitary District Of Decatur

501 Dipper Lane \* Decatur, Illinois 62522 \* 217/ 422-6931

## MONTHLY ACTIVITY SUMMARY

### Main Plant Facility Maintenance Division

**To:** Don Miller

**Fr:** Fred McKinney / Craig Jones

**Date** April 2, 2012

#### **Work Orders:**

For the month of March, these are the totals of work orders completed.

<b>WORK ORDER SUMMARY</b>	<b>Sept-12</b>	<b>Oct-12</b>	<b>Nov-12</b>	<b>Dec-13</b>	<b>Jan-13</b>	<b>Feb-13</b>	<b>Mar-13</b>		
Total # Work-Orders Completed	801	972	673	761	955	776	655		
Total # PM Work Orders Completed	648	813	564	610	799	600	580		
<b>COMPLETED BY TYPE</b>									
Weekly PM's	527	615	496	501	668	536	491		
Safety PM's	11	42	32	15	4	13	14		
6 Month PM's	62	115	24	79	103	37	54		
Yearly PM's	48	41	23	20	10	14	21		

#### **Nitrification Clarifiers:**

Installation of the number two nitrification clarifier scum trough has been put on hold until spring due to valve problems in the center structure.

#### **W.A.S. room 112:**

The new #8 Thickened sludge pump has arrived and has been installed and running .The #3 feed pump has arrived, installed and on line. In the process of removing old feed pumps #4 & #5 to replace with new Netzsch pumps, on order.

#### **D.A.F.-113 bldg:**

The D.A.F. units are all being brought up to proper working order, excluding #1 unit.

#### **D.A.F. #3:**

Work on the new chains, sprockets, shafts and recirculation pump has been completed.

#### **Digester bldg 105:**

Jarvis Boilers has installed new sludge tubes on #3 heat exchanger. Work will continue on the remaining exchangers. Recirculation pump #2 has been replaced with new.

#### **Plant water bldg 325:**

Completely rebuilt #1 strainer & Cla-Val units.

**009 bld:**

Burdick aeration installed 11 new valves in pit.

CC. Monte Cherry  
Kent Newton

**Sanitary District of Decatur**  
501 Dipper Lane \* Decatur, Illinois 62522 \* 217/422-6931

**MEMORANDUM**

**TO:** Don Miller, Project Manager

**DATE:** April 1, 2013

**FR:** Roger Dudley, Engineering Technician

**RE:** 2013 Roof Rehabilitation & Replacement Project

At 10:00 AM, March 22, 2013, sealed bids for the 2013 Roof Rehabilitation & Replacement project were opened. The project consists of: Rehabilitation of Bldg. 029 roof, repair of Bldg. 117 roof and replacement of Bldg. 112 and Faries Park Pump Station roofs.

Three (3) sets of specifications were sent to prospective bidders. The following bids were returned:

<u>Contractor</u>	<u>TOTAL</u>
1. King-Lar Roofing	\$83,400.00
2. Top Quality Roofing	\$70,295.00

After review of the bid documents, it is the recommendation of the Engineering Department that the 2013 Roof Rehabilitation & Replacement project be awarded to Top Quality Roofing located in Mt. Zion, Illinois, the lowest responsive, responsible bidder in the amount of \$70,295.00.

Breakdown of the project is as follows:

Rehabilitation of Bldg. 029 & 117 costs:

1. Labor = \$9,865.00
  2. U.S. Communities materials = \$13,966.00
- TOTAL COST = \$23,822.00

Replacement of Bldg. 112 & Faires Park Pump Station costs:

1. Labor = \$60,430.00
  2. U.S. Communities materials = \$32,299.00
- TOTAL COST = \$93,299.00

FY 2013-14 budget allocations are \$30,000.00 for restoration and \$95,000.00 for replacement of roofs.

Respectfully Submitted

pc: Kent Newton