

## April Monthly Report

### BJCJSTP Rehabilitation and Restoration Project

#### Background

The Binghamton-Johnson City Joint Sewage Treatment Plant (BJCJSTP) processes 18 million gallons per day with the capability of processing up to 60 million gallons per day (MGD) of wet weather flow. This plant is jointly owned by the City of Binghamton and the Village of Johnson City and managed by the Binghamton-Johnson City Joint Sewage Board (BJCJSB).

The BJCJSTP has suffered several catastrophic events since 2006. In 2006, the BJCJSTP was flooded by a 500 year flood that affected many of the processes in operation. In May of 2011, a concrete structure suffered structural failure, and in September 2011, the BJCJSTP suffered another 500 year flood that critically damaged equipment and rendered the secondary treatment fundamentally inoperable. The secondary process system is still largely inoperable today. A Consent Order was negotiated between the City of Binghamton, the Village of Johnson City, the BJCJSB and the NYSDEC to develop a plan to restore treatment operations at the BJCJSTP. The Consent Order requires the BJCJSTP to restore secondary treatment functionality and be able to fully treat 35 MGD of wet weather flow by August 1, 2018. To achieve this level of treatment, the reconstruction and testing of the Secondary Treatment Process must be completed as necessary to achieve treatment of 35 MGD. To comply with the Consent Order, the Sewage Treatment Plant must then be fully operable by May, 1, 2019, including the remainder of the secondary treatment process. There are also several interim milestones included in the Consent Order.

The project is being constructed in accordance with Wicks Law, which requires that the project be bid as multiple prime contracts. More specifically, Wicks Law requires that the bulk of the construction work, consisting of the secondary treatment biological filtration filters (BAF), be divided into a General Civil Construction Contract, an Electrical Contract, an HVAC Contract and a Plumbing Contract. The following projects are either nearing completion or in construction.

Contract No.	Description	Status
Contract No. 1	Compost Facility Demolition	Complete
Contract No. 2	FEMA Mechanical	Substantial Completion Date July 2016 Anticipated Completion Date May 2017
Contract No. 3	BAF Facility Demolition	Complete
Contract No. 4	MCC HH Emergency Replacement	Complete
Contract No. 5	BAF Restoration and Rehabilitation Civil Contract	Notice to Proceed (NTP) Issued May 27, 2016
Contract No. 6	BAF Electrical	NTP Issued May 27, 2016
Contract No. 7	BAF HVAC	NTP Issued May, 27, 2016
Contract No. 8	BAF Plumbing	NTP Issued May 27, 2016

Contract No. 9	Secant Pile Contract	Substantial Completion by November 30, 2016
Contract No. 10 - 13	Solids Handling Renovation	Bids were opened March 16, 2017 Anticipate NTP in June 2017
Floodwall	Floodwall and New Diversion Structure	Currently in Construction. Anticipated Completion Date September of 2017

### *Contract Descriptions*

#### **Contract No. 1 - Compost Facility Demolition**

Demolition of the upper portion of the compost facility was performed to accommodate the construction of the new Administration Building to house the plant staff as well as provide the new control room to operate the new facilities. Demolition in the lower portion of the Compost Building clears the way for the construction of a new maintenance facility.

**Contract Status: 100% Complete**

#### **Contract No. 2 - FEMA Mechanical**

The FEMA Mechanical Project replaces valves, equipment and other miscellaneous items damaged in the 2011 flood. It includes equipment in both the East and West Primary Sludge Pumping Stations, valves and equipment located in the Head House, and equipment associated with Sludge Thickener Pumping Station Nos. 1 and 2. Work associated with this contract is being reimbursed by FEMA due to the flood of 2011.

**Status:** Blue Heron has installed two of the three grinders and has requested outages to install the valves in the east sludge pump station the first week of January 2017. We are negotiating with Blue Heron to delete some of the valve replacements and also equipment installations that GHD has determined should no longer be performed under this contract.

**Contract Status: 85% Complete**

#### **Contract No. 3 - BAF Facility Demolition**

The BAF Demolition Contract removed the existing structures and utilities that conflict with the new construction work included in the BAF Rehabilitation and Restoration Project. Demolition efforts include selective demolition in the existing process tanks (C-Filters, N-Filters, and DN-Filters) and buildings and mechanical equipment and piping to ready the site for new construction.

**Status:** LeChase has completed the demolition on the BAF Facility. They have removed the methanol from the methanol tanks that are to be disposed of in Contract No. 5. They have completed the repair of the over cuts in the CN and DN cells. During the work associated with the repairs of the overcuts, additional rebar was discovered to have been cut during the original



construction. Additional repair work was performed by LeChase to repair these additional damaged bars. GHD has recommended the repairs to the rebar that were damaged during the original construction of the DN cells. The scope of work for the contract was increased with five change orders. Change Order One modified the contract to demolish and remove the existing Blower Building to improve construction on Contracts 5-8 at the C-N cells 1-8. Change Order Two demolished the known concrete in the C-cell area inside the secant pile area below the elevation 825 (the original limit of demolition indicated on the contract documents). Change Order Three removed the additional concrete pile caps and steel H piles not originally included in the contract documents and also backfilled from elevation 825 to 831. The Fourth Change Order compensated the Contractor for demolition of approximately 3600 CY of additional concrete within the secant pile area not known to exist. The removal of the additional concrete eliminated a delay in excess of four months on the overall project, and reduced the cost to avoid having a future contractor remove the concrete. The Fifth and final change order compensated LeChase for repairing defective rebar from the original construction while LeChase was repairing the rebar that they over cut at their own expense.

**Contract Status: 100% Complete**

#### **Contract No. 4 - MCC - HH Emergency Replacement**

Contract 4 replaces the original existing Motor Control Center (MCC) in the Head House. The MCC is 50 years old and is identified as MCC-HH. The contract was bid as an emergency contract because the electrical system in the Head House is both critical to keeping the BJCJSTP in service, and because the original MCC is extremely unreliable due to the age and condition of the gear. MCC HH Emergency replacement also replaces the existing raw sewage pump drives of the existing 50 year old equipment including new electrical feeders from the HH to the Johnson City Grit House No. 1, a new feeder from the HH to the Thickened Sludge Pump Station No. 1, and various other panel boards. The emergency work also includes replacement of the existing raw sewage variable frequency drives that were located in the existing MCC HH. The new drives will be more reliable, more efficient, and will provide better performance of the existing raw sewage pumps.

**Contract Status: 100% Complete**

#### **Contract No. 5 - BAF Restoration and Rehabilitation Civil Contract**

When combined with the other BAF contracts (Nos. 6, 7 & 8), Contract No. 5, the General Civil contract, is intended to provide a functioning automated plant using a BIOSTYR system that can be modified to fit current plant configurations. It is also intended to provide functioning automated headworks and primary clarification processes upstream of the BIOSTYR system and solid handling processes downstream of the BIOSTYR system.

Major components of the work under Contract No. 5 include new coarse screens and ancillary equipment, new piping and valves for the influent pumps, new metering equipment, new fine screens and grit removal with ancillary equipment, a new primary distribution box, new mechanical equipment for primary clarifiers 1-10, new chemical equipment for primary



treatment, modification of the primary clarifier structural components to replace the aged and deteriorated mechanical equipment, new secondary influent pumps for the new BAF system, a new BAF backwash tank, new CN-BAF and DN-BAF facilities, a new methanol system that will feed the DN-BAF cells, new Ultra Violet Light disinfection system to replace the existing chlorine disinfection system, new sludge thickening equipment and systems, a new administration building, new odor control equipment, two new 2MW electric generators, and a new plant outfall to the river.

**Status:** The NTP for Contract No. 5 was issued on May 27, 2016, which complied with the milestone requirements in the revised Consent Order. The Contractor has now completed the temporary bypass of both the Binghamton and Johnson City (JC) Flows directly to Primary Clarifiers 1 through 6. CEPT has been relocated and is operational. Demolition on the Binghamton grit house and the Johnson City Grit House is complete. The mass excavation for the new Headworks continues and will create significant challenges for access around the site. The existing JC line has several unknown conflicts that prevent the installation of the JC line as originally specified. GHD has determined that the existing pipe is in good condition and can be used in place. PC Construction is in the process of preparing for installation of an east tower crane.

Work continued on demolition of the primary clarifiers 7-10, and is continuing in the CN Cells 1-8. PC Construction began installing concrete walls in the PST's 7-10. Concrete work in the BAF Backwash Tank is progressing with the placement of the slab. The floor slab is complete. The rock anchor installation is complete and they will be tensioned after the slab reaches the intended design strength. The shotcrete concrete walls are being installed in the lower level.

Structural work is continuing on the Administration Building with the installation of concrete for the elevator on the north side of the building and the stairwell area on the south side of the building. The concrete curb for the walls of the new Administration Building are complete and block work is beginning. The mock-up panels are complete and the plumbing and electrical contractors are preparing to install the slab penetrations from the Administration Building to the lower level of the building. STP staff has relocated from the existing administration off-site to allow the existing Administration Building to be removed to make way for the new Solids Handling Building.

The master schedule is being updated to show the status of the work through the month of April. The latest draft shows that the Phase 1 Milestone is scheduled to complete on June 18, 2018, and the Phase 2 Milestone is scheduled to complete 23 days ahead of the required date. Some of the intermediate milestones have changed and have been approved by NYSDEC.

We continue to resolve issues with the Kruger equipment submittals, and have implemented bi-weekly telephone conference calls with Kruger, PC Construction, GHD, the CM and the City. The equipment and materials associated with the Kruger package are valued at almost 20% of the project and the submittals are in the final stages of review.

Work continues on the new Chemical Storage Building. The foundation and the slab are complete. Work has begun on the concrete wall. The Contractor has acknowledged that they



can meet the Phase I and Phase 2 milestones. Some of the intermediate milestones have been changed and approved by NYSDEC. The Disputes Resolution Board will have its first meeting on May 9, 2017. GHD has obtained the NYSDEC Permit for the at-shore outfall.

**Contract Status: 18% Complete**

**Contract No. 6 - BAF Electrical**

The BAF Electrical contract supports the BAF General Civil Contract and includes all electrical and instrumentation associated with the BAF contracts. The components include installation of the new UV disinfection system, installation of the new generators, installation of the electrical feed throughout the plant, as well as installation of the instrumentation and SCADA System throughout the plant.

**Status:** Contract No. 6 was bid and awarded in compliance with the May 27, 2016 milestone for issuing the NTP in the Consent Order. The contractor is nearing completion of the underground electrical manholes and duct work around the site. NYSEG has identified their requirements for the cable, equipment, and duct banks to be installed within their sub-station east of the STP site. Some of the overhead conduit has been installed. A problem was identified with the PVC coated conduit supplied to MATCO and that conduit has been rejected. The final disposition of this matter is being reviewed. MATCO has provided input for the Project CPM baseline schedule. Equipment and material shop drawings are being submitted for review and approval.

**Contract Status: 17% Complete**

**Contract No. 7 - BAF HVAC**

The BAF HVAC contract supports the BAF General Civil Contract and includes installation of all HVAC Systems in all STP Facilities as well as revisions to the odor control systems throughout the plant. The odor control improvements are intended to alleviate the odors that have been prevalent in the past in and around the plant.

**Status:** Contract No. 7 was awarded on May 27, 2016 in compliance with the DEC milestones in the Consent Order. The Contractor has mobilized and has been submitting material submittals for the HVAC equipment for the project. They have provided supporting information for the development of the CPM Schedule. They have acknowledged they can meet the required milestones of the Consent Order. They are installing the HVAC Unit for the electrical room in the Headhouse, and have begun removing the permanent ductwork in the East Scrubber Building.

**Contract Status: 16% Complete**

**Contract No. 8- BAF Plumbing**

The BAF Plumbing Contract supports the BAF General Civil Contract and includes installation of plumbing systems for the new and existing facilities included in Contract No. 5.

**Status:** Contract No. 8 Notice to Proceed was issued in compliance with the May 27, 2016 milestone for issuing the NTP in the Consent Order. The contractor is mobilizing and has provided the supporting information for the overall CPM Schedule. They have confirmed that they can meet the required milestones of the Consent Order. They contractor is mobilizing and has provided the supporting information for the overall CPM Schedule. They have confirmed that they can meet the required milestones of the Consent Order. They have continued installing the plumbing in the new Maintenance Building and the East Scrubber Building. They also intend to install the new potable water backflow preventer that will allow the potable water to be used as a back-up of the existing non-potable plant water system.

**Contract Status: 14% Complete**

### **Contract No. 9 - Secant Pile Contract**

The Secant Pile contract includes installation of the secant piles that support the excavation for the new BAF Backwash tank as well as supporting the new CN Cells 9-14. Construction also includes excavation to the final grade for the BAF backwash tank. This project was bid separately from Contracts 5-8. In doing so, a minimum of four months on the critical path schedule was saved.

**Status:** The installation of the secant pile wall is complete. The contractor has completed the wales and struts and they have completed the excavation to the required elevation for work to begin under Contract 5. Two items from the punch list for the project remain to be completed. The two items are sealing of the final leaks in the secant pile walls and the resurfacing of the columns in the interior of the CAF Backwash Tank.

**Contract Status: 99% Complete**

### **Contract No. 10 - 13 -Solids Handling Renovation**

Contract Nos. 10-13 are intended to renovate and improve the solids handlings systems including the existing digester control building, existing digesters, solids dewatering systems, and all ancillary equipment. The scope was further developed during the design processes. The constructability review was completed on the 100% design documents.

**Status:** The contract documents were advertised for bidding in accordance with the DEC milestones. This project was advertised on January 20, 2017 and a pre-bid meeting was held February 3, 2017. Five addenda were issued prior to the bid opening on March 16, 2016. We anticipate issuing a NTP in June 2017. The NYSDEC has approved changing the Notice to Proceed Milestone for this project to June 16, 2017. There were delays in awarding the contracts because of funding issues which have been resolved. The STP staff is relocating their administration offices off-site to clear the way for the removal of the existing Administration Building. The STP staff is scheduled to be relocated by April 28, 2017 to allow PC Construction to remove the existing Administration Building.



## **Floodwall**

The new floodwall being constructed at the STP is intended to protect the plant to an elevation 1.5 feet above the 2011 flood level. The floodwall includes concrete walls on the east and north side of the STP. The project also includes two new pump stations to pump rainwater out of the plant during the storm events that might overwhelm the existing storm drain system. The new flood wall system works in conjunction with new flood wall features included in Contract No.5 BAF General Civil Construction. The flood wall systems are being funded by a FEMA recovery grant.

**Status:** Construction is proceeding with the concrete work on the flood wall both east and west of the sludge thickeners. They continue the concrete work for Pump Stations 1 and 2. Pipe work for the two pump stations is expected to begin in May. The Contractor is anticipating that they will be complete with the flood wall by May 2017 and will complete the work associated with Manhole #3 on the 54" trunk sewer line from Binghamton east of the flood wall during the summer. The completion of the gate installation in the sampling manhole will occur approximately three weeks after manhole #3 is completed.

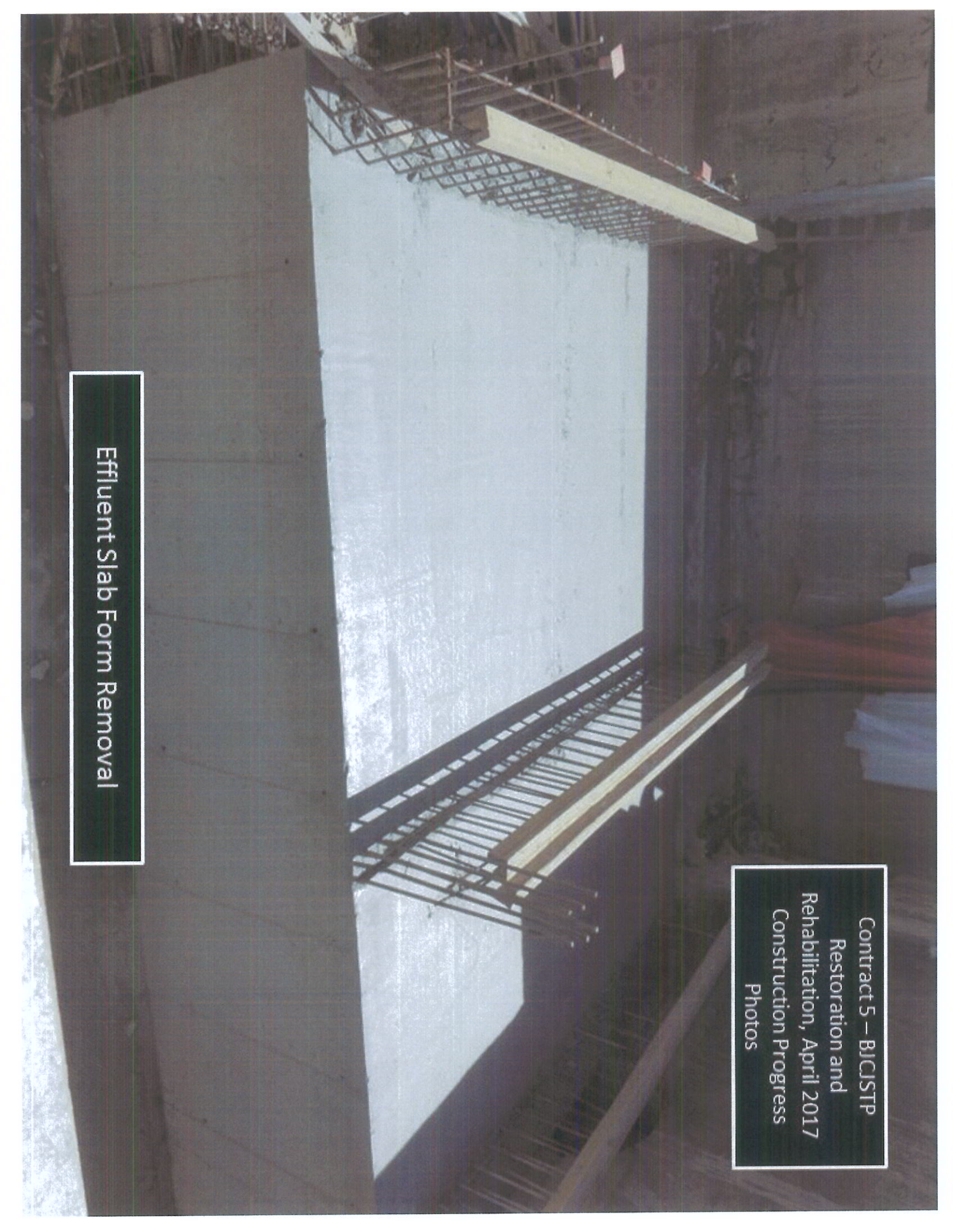
Work on the digester rehabilitation has begun. Scaffolding is being erected for the rehabilitation. The subgrade condition is being assessed as excavation areas are exposed. Work has begun to relocate the 10" sanitary sewer that serves a portion of the Town of Vestal. All permit requirements regarding the SEQR and the USACE permit have been complied with. We are currently projecting the Contractor to complete the flood wall within the allowed contract completion date in the Consent Order Milestones.

**Contract Status: 67% Complete**

## **NOTES:**

1. SWPPP measures continue to be maintained by all contracts. Any deficiencies noted during inspections are quickly remedied.
2. Weekly meetings are held for each contract to discuss the progress of the work and identify and resolve issues and problems. Meetings between contractors on the various contracts are held as necessary to facilitate any concerns and coordinate work between all contracts.
3. Contracts 5-8 and 10 are continuing the submittal process for all equipment and materials. They are being reviewed and processed as they are submitted.





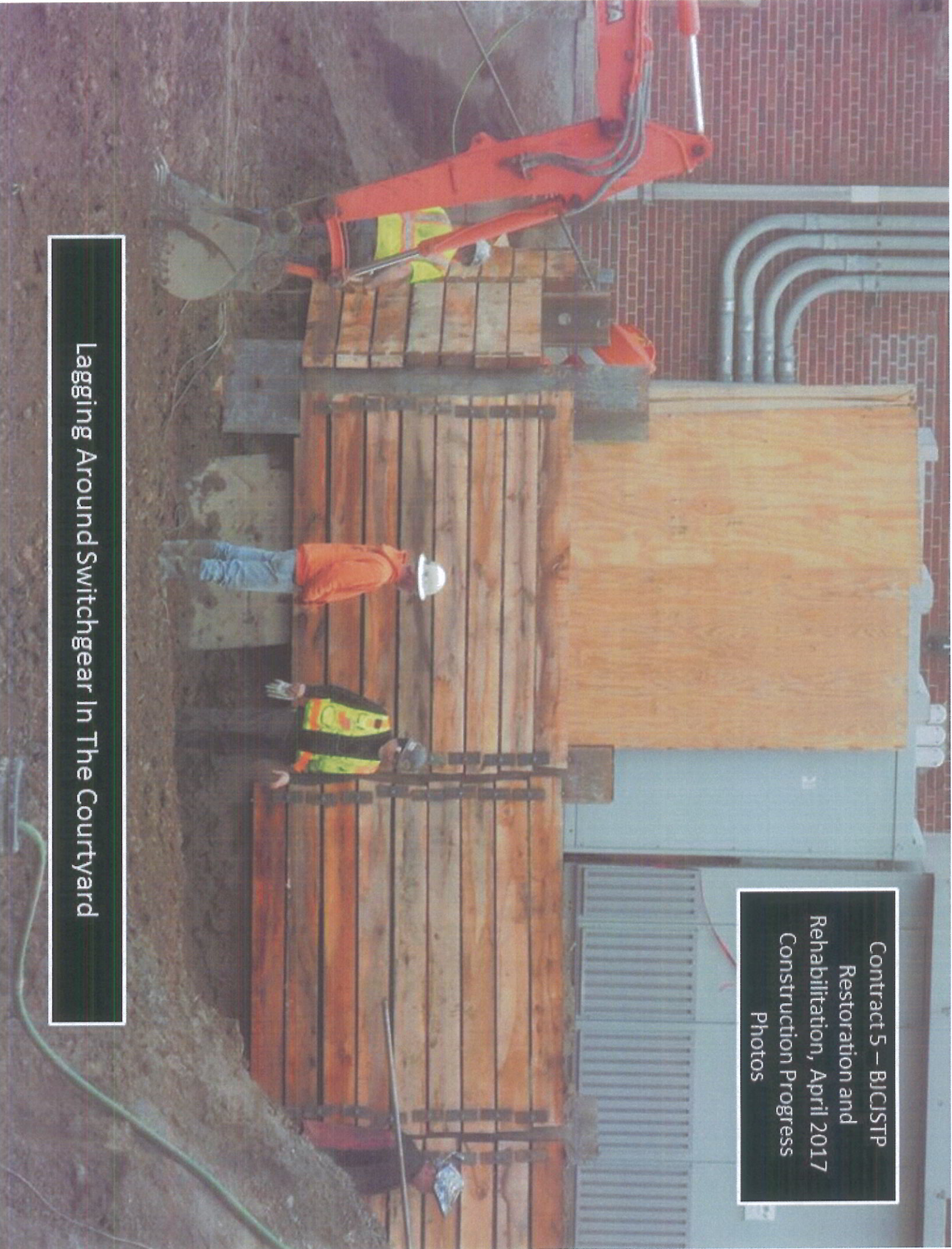
Contract 5 – BJCSTP  
Restoration and  
Rehabilitation, April 2017  
Construction Progress  
Photos

Effluent Slab Form Removal



Contract 5 – BJCJSTP  
Restoration and  
Rehabilitation, April 2017  
Construction Progress  
Photos

Lagging Around Switchgear In The Courtyard





Contract 5 – BICISTP  
Restoration and  
Rehabilitation, April 2017  
Construction Progress  
Photos

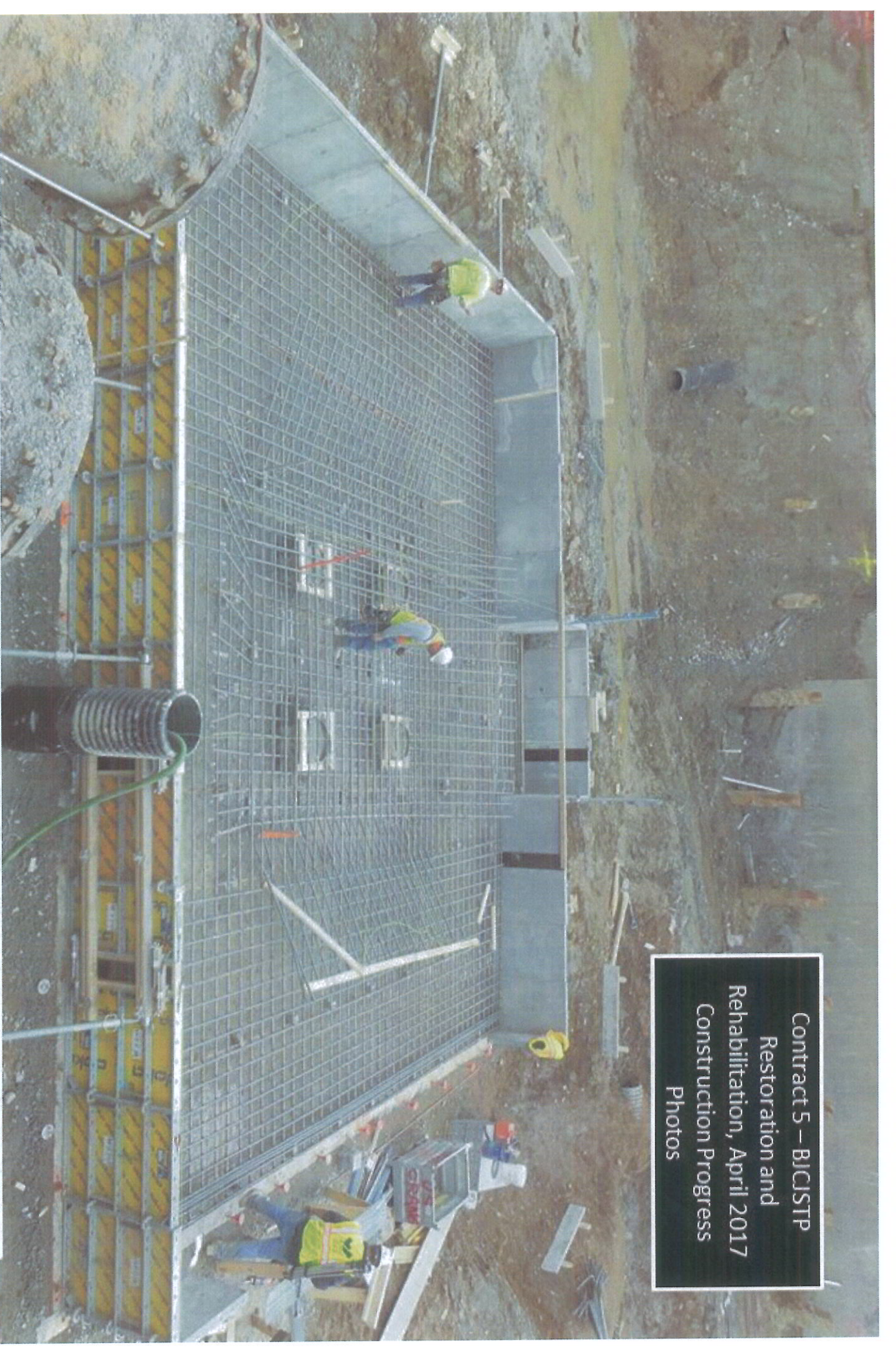


Chemical Storage Bldg. Masonry installation



Contract 5 – BJCSSTP  
Restoration and  
Rehabilitation, April 2017  
Construction Progress  
Photos

Reinforcing installation for the Primary Distribution Box





Contract 6 – BJCISTP  
Restoration and  
Rehabilitation, April 2017  
Construction Progress  
Photos

Temporary Power at Courtyard





Contract 7 – BJCSTP  
Restoration and  
Rehabilitation, April 2017  
Construction Progress  
Photos

Administration Building Ductwork

