

August 2017 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, in construction, or in the planning stage.

Contract No.	Description	Status
Contract No. 1	Compost Facility Demolition	Complete
Contract No. 2	FEMA Mechanical	Substantial Completion Date July 2016 Anticipated Completion Date October 2017
Contract No. 3	BAF Facility Demolition	Complete
Contract No. 4	MCC HH Emergency Replacement	Substantial completion in December 2016. Awaiting completion of punch list work. Anticipated final completion September 2017
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	Project substantial Completion achieved on December 30, 2016
Contract No. 10 13	Solids Handling Renovation	Bids were opened March 16, 2017. NTP issued July 20, 2017.
Floodwall	Floodwall and New Diversion Structure	Currently in construction. Anticipated Completion Date December 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 of the lower portion of the Compost Building cleared 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. The cost of the work associated with this contract is being reimbursed by FEMA due to the flood of 2011.

Status: Blue Heron has completed all of the work not deleted by change with exception of installation of the elutriate pumps. It was determined that it would be better to replace the elutriate pumps than to rehabilitate the pumps as included in the contract documents.

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 included 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.

Contract Status: 100% Complete

Contract No. 4 - MCC - HH Emergency Replacement

Contract 4 replaced the original existing Motor Control Center (MCC) in the Head House (HH). 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 was both critical to keeping the BJCJSTP in service, and because the original MCC was extremely unreliable due to the age and deteriorated condition of the gear. MCC HH Emergency replacement also replaced 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 included replacement of the existing raw sewage variable frequency drives that were located in the existing MCC HH. The new drives installed are more reliable, more efficient, and will provide better performance of the existing raw sewage pumps.

Status: All work on the MCC HH project has been completed except some final reports.

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, new chemical storage building, 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 CNBAF 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 placement of concrete for all of the base slab segments of the new Backwash Tank has been completed, and the tensioning of the rock anchors that resist the buoyant force under the slab are complete. Issues relative to the installation of the reinforcing steel for intermediate columns and interior walls has caused some delays, but the work is now nearing completion.

The placement of the shotcrete walls stopped, when the installation subcontractor walked off the job due to wet wall conditions from minor leaks in the Secant Wall. The issues have been addressed and this work is scheduled to be resumed in September. The BAF Backwash tank is about 90% complete.

The contractor completed excavation for the new Headworks and BAF Backwash Treatment facility and the concrete work is progressing in the Backwash Treatment portion of the area. Work is poised to begin in the Courtyard area with the removal and replacement of underground large diameter piping connecting the primary influent pumps to the new Headworks. This is an area congested with electrical ductbanks and underground utilities. Special care will be taken to avoid undermining the existing Courtyard substation during the pipe replacement work.

The temporary force main installed to convey the influent sewage flows from Johnson City has been removed and the interim bypass connections to Primary Settling Tanks #1 and #6 have been redirected utilizing a portion of the pre-existing 30" piping.

The temporary disinfection facilities provided by PC are now in service with acceptance testing in progress. These temporary disinfection facilities will allow the Contractor to take the existing chlorine building out of service and begin converting the building to control the new methanol systems. In conjunction with this, the Contractor will take existing Chlorine Contact tank #3 out of service to allow the Contractor to begin work on the new methanol tank and containment structure. Temporary mixing equipment has been installed in Chlorine Contact #2 to compensate for the chlorine contact time being lost by the removal of tank #3.

The contractor has been preparing the existing Regulator vault to accept temporary pumps and course screening which will bypass the existing primary influent pumps and the course screen for a period of up to 4 months. The bypass is expected to begin in September, 2017 and is needed to allow the facilities being bypassed to be rehabilitated. Plant operations will have all four of the primary influent pumps be removed one at a time and be refurbished by Flygt, the manufacturer. One of the two new course screening units will be used by the contractor during this interim period for service within the Regulator vault and then the manufacturer will refurbish and re-certify the unit before it is installed in the Screening facility for permanent service.

The re-construction of Primary Settling tanks #7-10 is progressing well with much of the new concrete work being completed. The installation of the new equipment associated with these tanks has not yet begun. The reinforcing steel issues pertaining to the CN Cells 1-8 areas have been resolved and the construction of the concrete demising walls has begun.

Demolition work in the area of the new UV treatment facility is substantially completed and work has begun to construct this new facility. The contractor has installed the valve which will direct the flow to the outfall structure and the river after it passes through the UV facility. Yard piping and utility replacement construction activities are continuing around the site.

The construction of the new Chemical Building is well underway. The concrete block walls are up and brick is being installed. The walls are up for the new Pump Station #4 and the structure is

being water tested. Backfill will begin in early September and this will set the stage for the new Blower building work to begin in earnest.

Plant staff has cleared most of their equipment and material out of the West end of the Generator building (formerly the Blower building) and demolition work is now proceeding at an accelerated pace. Holes are being cut into the grade level slab in preparation for placement of structural concrete infills needed to support the installation of the new and heavy electrical generators and switchgear.

Kruger equipment submittals are complete and the final detailed reviews are in progress. Bi-weekly telephone conference calls with the Kruger, PC, GHD, and the CM have proven helpful in progressing the work. The casting of nozzle decks is complete and has progressed satisfactorily. PC has stored the nozzle decks near the-site. We have received the preliminary BAF Operations and Maintenance manuals as well as the startup and testing plan from Kruger.

The metal roof deck for the Administration Building has been installed and insulation board will soon be installed. The building is expected to be made weather tight within the next month. The installation of interior metal stud walls has begun as well as the installation of metal ductwork, plumbing and electrical items. The brick work is continuing. Much of the Sewage Treatment staff is operating out of an off-site temporary facility, with core maintenance and system operators remaining on site.

PC has installed the permanent 72" effluent outfall pipe and structure, however it is not yet in service. PC will need to complete then new 72" outfall system by November 18th to provide the required flood protection from Susquehanna river. This temporary connection will replace another temporary connection being installed by the Floodwall contract to allow the final segments of their flood wall to be installed.

Contract Status: 25% 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. All of the manholes and the associated duct bank work for the new dual primary service have been installed. The first of the new feeds to the plant has been connected and was energized in late August. Electrical control and circuit conduit installation is proceeding at various locations, including the West Sludge pumping station. Conduit installation of circuits, alarms and communication at the administration building is progressing

The pre-existing NYSEG power feed conductors have been taken out of service and have been removed from the underground ductbanks during August 2017. This was a priority activity as it was needed to clear the area of the new Contract 10 Solids Handling facility Contract for upcoming deep excavation work. Much of the large electrical transformer and switchgear equipment is in storage in a local warehouse. The two new 2 MW permanent generators were also delivered during August and have been placed in local storage until the Generator Building is made ready for installation of this equipment.

The new Courtyard substation is expected to be delivered next month. The Courtyard is a utility congested area with major underground piping and extensive electrical ductbanks. The contractor is expected to be working in earnest next month with the installation of new ductbanks and the beginning of installation activities associated with the new substation equipment. Contract 5 will be removing and installing a 42 inch diameter underground pipe in the area during the early part of September. This work will need to be completed before the electrical work activities can proceed unhindered.

Contract Status: 24% 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 continued working on ductwork installation in the Maintenance Building, the East Scrubber Building, the Headhouse and the Chemical Storage Building. J&K has provided supporting information for the development of the CPM Schedule. They are coordinating with PC Construction and the other prime contractors. They have acknowledged they can meet the required milestones of the Consent Order. Rough-in is ongoing at the new Administration Building with various other work proceeding throughout the site.

Contract Status: 33% 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 continues working on plumbing pipe installations in the new Administration Building, the Maintenance Building and the East Scrubber Building. Danforth has installed the under slab piping in the Chemical Storage Building and have completed the under slab piping in East Scrubber Building. They are coordinating with PC Construction and the other prime contractors and they have confirmed that they can meet the

required milestones of the Consent Order. Rough-in at the new Administration Building is ongoing and the new oil/water separator installation is near completion.

Contract Status: 34% 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. One of the two items from the punch list for project was completed this month. The surfacing of the columns has been completed, and the leaks in the secant piles are being sealed as they become known. To accelerate the project, PC Construction progressed with the placement of the concrete floor of the backwash tank while Welliver addressed the punch list items.

There are some issues with alignment of reinforcing bars for columns in the backwash tank which are being resolved.

Contract Status: 100% Complete

Contract No. 10 - 13 -Solids Handling Renovation

Contracts No. 10-13 are intended to renovate and improve the solids handling systems including the existing digester control building, existing digesters, solids dewatering systems, and all ancillary equipment. The scope was further developed during the design progresses. The constructability review was completed on the 100% design documents.

Status: Bids were received on March 16, 2017. GHD has evaluated the bids and recommended awarding the contracts. The contracts were awarded on May 4, 2017. The NTP's were issued on July 20, 2017. Pre-construction meetings were held on August 2, 2017. Because of the necessity to have the Solids Handling equipment operational before Phase 1 is complete, the Sewage Treatment Plant staff has relocated their administration offices off site. Quandel has begun installing the support of excavation for a new building on the south side of the Digester Building. They have also been submitting submittals for their support of excavation for the Solids Handling Building and other ancillary critical early submittals. They got off to a late start but appear to be accelerating their work progress.

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 sides of the STP. The project also includes two new pump stations to pump up stream out of the plant during the storm events. The new floodwall system works in conjunction with new floodwall features included in Contract No.5 BAF General Civil Construction. The floodwall systems are being funded by a FEMA recovery grant.

Status: Construction is proceeding with the concrete work on the floodwall. The concrete work for the floodwall is complete with the exception of the work on the west end near the existing 84” outfall. Construction of the Vestal sewer line relocation is temporarily on hold until coordination with Contract 5 is complete. The remaining concrete floodwall will be complete after the existing 84” outfall is removed.

The concrete work for Pump Stations No 1 and 2 are complete. The contractor has continued installing the pump and pipework for the two pump stations. The contractor is anticipating that they will be complete with the floodwall by December 2017, and will complete the work associated with Manhole #3 on the 54” trunk sewer line from Binghamton east of the floodwall during the fall. The completion of the gate installation in the sampling manhole will occur approximately three weeks after manhole #3 is completed.

Streeter has been tasked with installing a temporary outfall so that they can complete their work associated with the west end of the floodwall as well as removing and capping the existing abandoned 84 inch diameter outfall. A plan has been developed to tap the north east corner of Chlorine Contact Tank #2 and run a short term temporary out fall east of existing outfall and above the floodwall footing. This allows the existing 84 inch outfall to be permanently removed from service.

Rehabilitation of the digesters is underway. Scaffolding has been installed and surface cleaning is complete in Digester 3. Repairs to joints and deteriorated concrete in Digester #3 are complete and the coating is being applied in Digester #3. The work in Digesters 1 and 2 will follow.

All permit requirements regarding the SEQR and the USACE permit have been complied with. We are currently projecting the Contractor to complete the floodwall within the allowed contract completion date in the Consent Order milestones. Streeter has submitted a price to construct a temporary at shore outfall for bypass.

Contract Status: 75% Complete

NOTES:

1. SWPPP measures continue to be maintained by all contracts. Any deficiencies noted during daily or weekly inspections are promptly 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 are continuing the submittal process for all equipment and materials. They are being reviewed and processed as they are submitted.
4. Contracts 10-13 have begun submittals and are preparing the CPM Schedule.

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

Administration Building Upper Level Topping Placement



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

BAF Backwash Treatment Facility Wall Reinforcing Installation

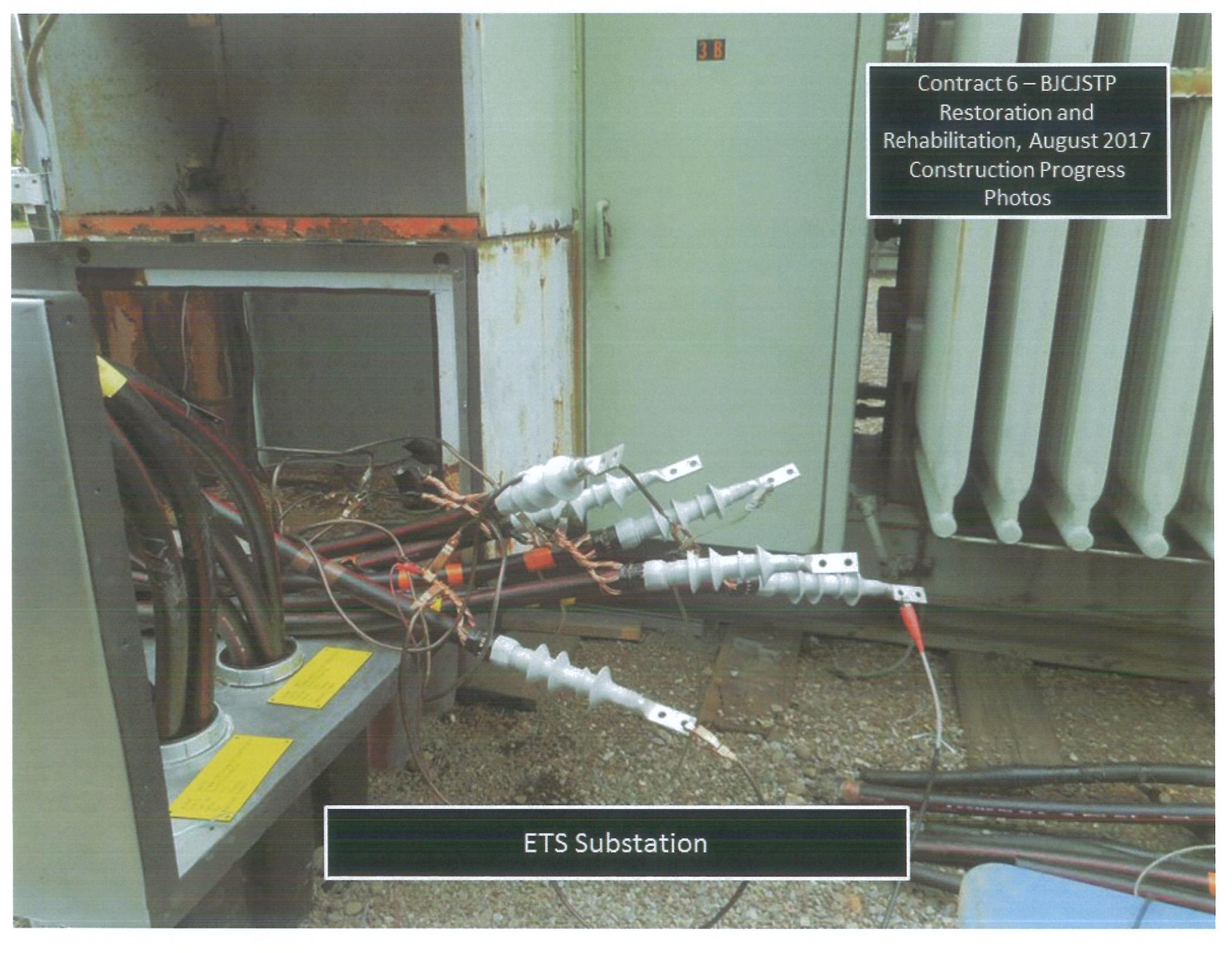




Contract 5 – BJCJSTP
Restoration and
Rehabilitation, August 2017
Construction Progress
Photos

CN 9-14 Center Cell Slab North Center

Contract 6 – BJCJSTP
Restoration and
Rehabilitation, August 2017
Construction Progress
Photos



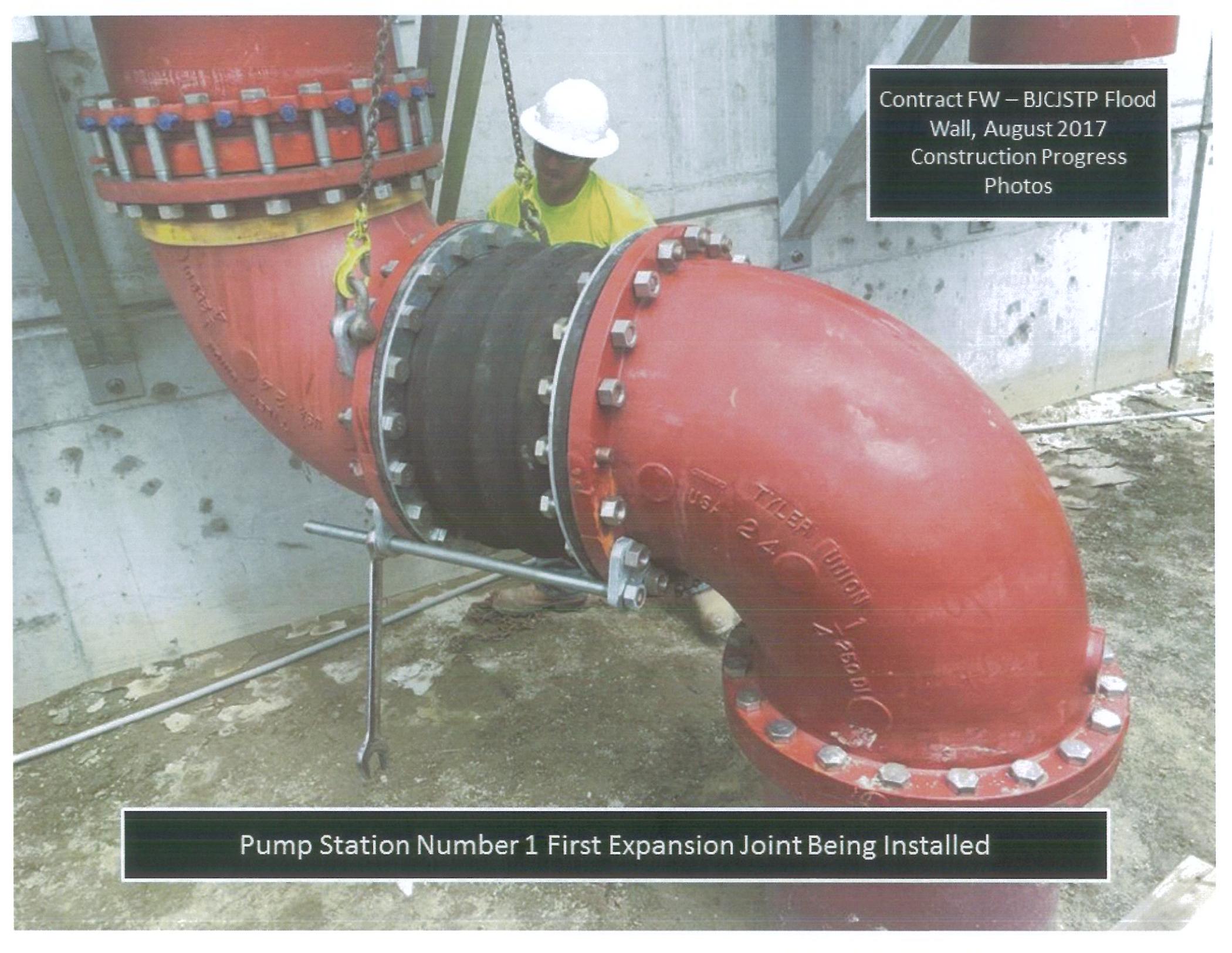
ETS Substation

Contract 6 – BJCJSTP
Restoration and
Rehabilitation, August 2017
Construction Progress
Photos

Duct Bank AMB2



Contract FW – BJCJSTP Flood
Wall, August 2017
Construction Progress
Photos



Pump Station Number 1 First Expansion Joint Being Installed



Contract FW – BJCJSTP Flood
Wall, August 2017
Construction Progress
Photos

Manhole 3 Excavation with Slide Rail Shoring in Place and
Sheet Piles Being Placed on the West Side

Contract FW – BJCJSTP Flood
Wall, August 2017
Construction Progress
Photos



84 Inch Bypass Preparation for 40 Inch Diameter Pipe Placement