January 2018 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 Consent Order has been amended to extend several interim milestones, and DEC has been made aware of the likely finish of the Phase 1 Milestone after the August 1, 2018.

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 February 2018.
Contract No. 3	BAF Facility Demolition	Complete
Contract No. 4	MCC HH Emergency Replacement	Substantial completion in December 2016. Anticipated final completion February 2018.

Contract No. 5	BAF Restoration and Rehabilitation Civil Contract	Notice to Proceed (NTP) Issued May27, 2016. Projected Phase 1 Substantial Completion November 2018. Projected Phase 2 Substantial Completion May 2019.
Contract No. 6	BAF Electrical	NTP Issued May 27, 2016 Projected Phase 1 Substantial Completion November 2018. Projected Phase 2 Substantial Completion May 2019.
Contract No. 7	BAF HVAC	NTP Issued May 27, 2016 Projected Phase 1 Substantial Completion November 2018.
Contract No. 8	BAF Plumbing	NTP Issued May 27, 2016 Projected Phase 1 Substantial Completion November 2018.
Contract No. 9	Secant Pile Contract	Project Final Completion achieved on October 2017.
Contract No. 10	Solids Handling Renovation Civil Contract	NTP issued July 20, 2017. Substantial Completion #1 – April 15, 2018; Substantial Completion #2 – November 12, 2018; Substantial Completion #3 – February 20, 2019; Final Completion - July 10, 2019.
Contract No. 11	Solids Handling Electrical	See Contract #10 Completion Dates
Contract No. 12	Solids Handling HVAC	See Contract #10 Completion Dates
Contract No. 13	Solids Handling Plumbing	See Contract #10 Completion Dates
Floodwall	Floodwall and New Diversion Structure	Currently in construction. Anticipated Completion Date April 2018.

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 Closed

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. The elutriate pumps were deleted from the scope of work and will be performed under Contract #5. Blue heron will complete the repairs of the defective mag meter for the centrifuges. This will allow us to process the final change order and begin preparing the final closeout documents.

Contract Status: 100% 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 Closed

Contract No. 4 - MCC - HH Emergency Replacement

Contract No. 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. Close out and archiving should be completed by the end of February 2018.

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 recent weather in January has had an impact on the construction concrete activities for the project. The extreme cold weather is making it difficult to be productive with the concrete and other outdoor activities. Continued extreme weather could have a significant impact to the concrete work throughout the site.

Shotcrete is no longer a significant concern to the execution of the work for CN Cells 9-14. The remaining shotcrete is on the south end of the upper level of CN Cells 9-14. KHM should be able to complete the shotcrete work within two weeks when weather permits them to resume work. We are anticipating that the upper level shotcrete to be completed in February 2018. Construction work for the walls for CN Cells 9-14 continued this month, and will continue for several months.

The contractor continued the concrete work for the walls for the new Headworks. PC is nearing completion on the walls for the BAF Backwash Treatment Facility and passed their water leak test. They continued the upper level walls of the BAF Backwash Treatment Facility. They are now able to resume the backfill up to the middle level of the structure this month. They should complete the lower level walls for the Headworks and the walls for the BAF Backwash Treatment Facility in February.

Concrete work for the distribution box resumed last month when PC began having one of their subcontractors drill replacement dowels into the existing concrete slab that currently supports the tower crane at the Headworks. Quality control problems with the dowel installation rework was rejected. A revised plan has been developed that allowed PC to begin removal and replacement of the existing dowels that were improperly installed. GHD has agreed to allow all dowels that do not meet specification to be removed and replaced in accordance with the recommendations by Stopen Engineering.

The Courtyard work area has been turned over to Matco to install their ductbanks for the courtyard electrical equipment. Asbestos containing material was encountered in the ductbank and on the walls of the existing Blower Building and Headhouse. Abatement is underway and will continue into February. Due to the poor condition of the existing courtyard switchgear, the Owner has rented a backup generator to provide backup power to the plant in the event of a total NYSEG power failure. We have extended the generator rental six months via change order. We will be maintaining the emergency generator until the new generators are installed and operational.

The new long term temporary outfall has been installed by PC and is operational. It is meeting the 35 MGD limits imposed by the Consent Order.

The contractor continued installing the pump piping in the existing Headhouse. PC is intending to return the flow to the existing Binghamton raw sewage pumps in the middle of February. During the construction of the pump piping installation, PC failed to keep the temperature in the lower level of the Headhouse at 60 degrees Fahrenheit as required by contract, and the cooling water jacket for Pump Number 2 froze and broke. PC is in the process of procuring a replacement for the cooling water jacket. The debris has been removed from the influent flume, and PC has completed installing the isolation gates for the coarse screens that will be installed in the influent channels.

The reconstruction of Primary Settling tanks #7-10 is progressing well. The concrete coating applications are progressing and PC has begun installing the effluent troughs and the chain and flight equipment. The work is weather dependent and should be completed within two months. The initial leakage test has started. PC continues to do the leak test in advance of the coating applications.

The reinforcing steel issues pertaining to the CN Cells 1-8 areas have been resolved and the construction of the concrete walls, beams, and columns continued this month. It is critical that the work in the CN Cells be expedited because they are now on or near the critical path for the project. They share a similar length of construction duration with the DN Cells and the Headworks. Work on the west end of the DN Cells continued with the reinstallation of the dowels for the slab. The concrete slab on the west end of the structure has been placed. Concrete work for the walls began. The contractor is alleging that the CN Cells 1-8 are now on the critical path and not the Headworks. This is a concern because the Contractor may allege that the CN and DN cells have extended the contractual completion dates. We disagree with their assertion on the critical path and believe that it is still the Headworks facility that will control the completion date of the contract.

Construction work in the area of the new UV Treatment Facility continued this month with the concrete work for the elevated slabs for the UV Facility. PC did not meet their required completion date for the flood protection by November 18, 2017. They have expressed a commitment to expediting the exterior walls with the intent of providing flood protection of the plant in the northwest corner of the plant, but they have not appeared ready to execute the exterior walls in the new UV reactor basin. The greatest exposure for flooding of the plant is on the west end of the DN Cells.

Very little work on the yard piping and utility replacement construction activities happened this month, due to the weather conditions. The new gas supply was turned on to the plant on January 2, 2018.

Construction of the new Chemical Building is well underway. The coatings for the concrete walls are being completed, and PC is planning to set the chemical storage tanks this month. As soon as they set the chemical storage tanks they will complete the final elements of the roofing system. The plan is for the equipment and conduit installation to begin in February.

The caisson installation was completed in January. The depth to the bedrock appears to be about 8 feet deeper than PC stated that the geotechnical report reflects. We are not in agreement with their interpretation of the geotechnical report. After the caissons are installed, the concrete work can begin for the slab in the Blower Building. Completion of the slab for the Blower Building is essential for achieving flood protection for the plant.

The electrical feed from the new generators to the transformers will not fit as originally designed by GHD. We have received a response to the remaining issues with the change. For further discussion of this issue see Contract #6.

Kruger equipment submittals are complete and the final detailed reviews are in progress. Bi-weekly telephone conference calls with Kruger, PC, GHD, and the CM have proven helpful in progressing the work. Much of the Kruger supplied equipment is in storage locally or in appropriate storage facilities at Kruger's direction. We have received the preliminary BAF Operations and Maintenance manuals as well as the startup and testing plan from Kruger. Installation of the precast slabs is scheduled to begin in early 2018.

The work for the interior of the Administration Building is progressing. They are now projecting the occupancy to be on February 19, 2018. The remaining interior finishes continued in January, including ceramic tile, electrical, plumbing, etc. The metal ductwork, plumbing and electrical items are complete. The HVAC system was tested in the middle of January. The final air flow balancing will be performed after the entire ceiling system and doors are complete. PC is now stating that the only doors that will not be installed by the time the plant is scheduled to occupy the facility are the doors to the green roof area. They will install temporary doors to allow the facility to be occupied. A Conditional Certificate of Occupancy will be applied for with the Town of Vestal. All life safety systems will be complete, and the only significant item that will not be complete will be the elevator from the upper level of the Administration Building to the Maintenance Building. We are projecting that the date for occupancy of the lower area will more likely be in March. The green roof got delayed in January due to a failure of the contractor to properly install the roof membrane. The new roof membrane will be removed and reinstalled when weather permits this spring. Much of the Sewage Treatment staff is operating out of an off-site temporary facility, with core maintenance and system operators remaining on site.

Contract Status: 47% 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: The manholes and the associated ductbank work for the new dual primary service are complete. The first of the new feeds to the plant has been connected and was energized in late August. The second feeder has been reinstalled by MATCO. Installation of the major conduits for

the generators continued now that we have a modified design by GHD. The modified design layout for the conduit includes a new conduit support system that we received the design layout for in late December. MATCO is actively installing the conduit for the new generators in the new Generator Building, where they can.

Conduit installation of circuits, alarms and communication at the Administration Building is continuing. The permanent 50 pair telephone and internet systems are being installed in early February for occupancy of the new Administration Building. MATCO continued mobilizing crews to begin work in the Chemical Storage Building, East Odor Control Building, and the Headhouse this month. MATCO is preparing for installation of the conduit and wiring for the courtyard switchgear. We are looking at options for the installation of the conduit in other locations to advance the electrical work to avoid overly congested work areas at the end of construction. PC has opened up additional areas for MATCO work in the Chemical Building, the northwest Electrical Building, and is planning to expedite work for the east portion of the DN Cell Electrical Building.

The new Courtyard substation was delivered and put into storage locally, pending completion of the new concrete ductbanks in the courtyard in February. The Courtyard is a utility congested area with major underground piping and extensive electrical ductbanks. PC finally completed backfill for the pipework in the courtyard early this month. MATCO 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. Work in the courtyard has been delayed due to the asbestos abatement issues in the courtyard.

Contract Status: 47% 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. J&K continued installing the HVAC equipment in the new Administration Building this month. Installation of the ductwork is nearing completion in support of PC's push to have the building ready for move in by February 2018. J&K continued rough-in HVAC systems with various other work areas around the site.

Contract Status: 51% 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. 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. Danforth continued installing the plumbing in the new Administration Building this month. Danforth is on schedule to support the March occupancy of the building.

Contract Status: 52% 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. Close out documents have been prepared and are being submitted to close out this project.

Contract Status: 100% Complete

Contract No. 10 -Solids Handling Renovation Civil

Contract No. 10 is intended to renovate and improve the solids handlings systems including the existing digester control building, existing digesters, solids dewatering systems, and all ancillary equipment. As part of the improvement to the solids handling process the following components will be constructed or installed. The new structures include a new Solids Handling Building, a new Gas Conditioning Building, and a new Sludge Loading Facility. The new equipment being installed includes new centrifuges, new mechanical thickeners, new gas processing equipment, new microturbines, and new scum screening equipment. The scope was further developed during the design processes to include sludge blend tanks. Additionally, the contract renovates the existing laboratory facilities at the STP. The contract was bid as a multi-prime contract consistent with New York State Construction Contract Requirements.

Status: No significant work was completed by Quandel this month, largely due to the weather conditions and their improper installation of the construction joints at the Solids Handling Building. Quandel completed the asbestos abatement at the new sludge holding tank area this month.

Quandel got off to a late start and their progress stalled the last two months. Quandel's schedule shows them failing to complete milestone #1 on time, and they will also need a recovery schedule to complete the work for the Solids Handling Building in compliance with the contract milestones.

Contract Status: 12% Complete

Contract No. 11 - Solids Handling Building - Electrical

The Solids Handling Electrical Contract supports the Solids handling General Civil Contract and includes installation of electrical for the new and existing facilities included in Contract No. 10.

Status: The electrical contractor is MATCO, as it is on the BAF Contract No. 6. MATCO continues to support the General Civil Contractor's schedule.

Contract Status: 5% Complete

Contract No. 12 - Solids Handling - HVAC

The Solids Handling HVAC Contract supports the Solids handling General Civil Contract and includes installation of HVAC systems for the new and existing facilities included in Contract No. 10.

Status: The HVAC contractor is J&K Plumbing, as it is on the BAF Contract No. 7. J&K continues to support the General Civil Contractor's schedule.

Contract Status: 11% Complete

Contract No. 13 - Solids Handling - Plumbing

The Solids Handling Plumbing Contract supports the Solids Handling General Civil Contract and includes installation of plumbing systems for the new and existing facilities included in Contract No. 10.

Status: The plumbing contractor is JW Danforth, as it is on the BAF Contract No. 8. Danforth continues to support the General Civil Contractor's schedule.

Contract Status: 16% Complete

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 has resumed with the concrete work on the west end of the floodwall. The concrete work for the floodwall footing west of the previously removed 84" pipe was completed in December. Construction of the Vestal sewer line relocation was completed last month. The remaining concrete floodwall should be complete in February 2018.

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 in February 2018 and will complete the work associated with Manhole #3 on the 54" trunk sewer line from Binghamton east of the floodwall during the spring of 2018. The concrete base has been completed and the precast concrete riser pieces are installed. Streeter is now able to install the 54" overflow and also install the Binghamton University Line.

PC Construction's raw sewage bypass pumping effort was put into service during the last full week of October. Streeter will not be able to complete the gate installation until after the bypass pump operation is complete. The completion of the gate installation in the sampling manhole will occur approximately 2 months after manhole #3 is completed. PC Construction is projecting completion of the raw sewage bypass pumping by February 16, 2018, thereby allowing Streeter to proceed.

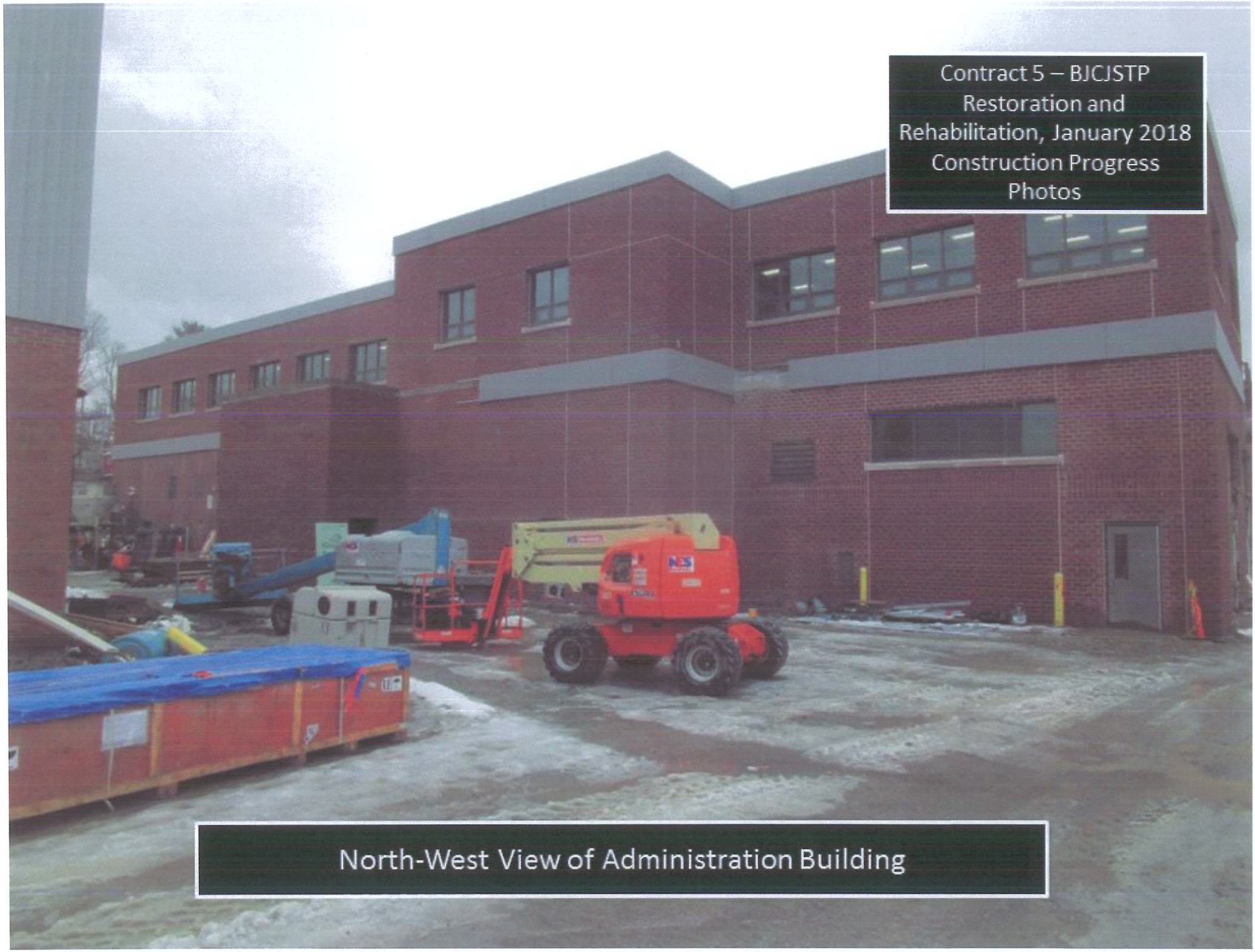
Rehabilitation of Digester No. 3 is nearing completion. The repairs have been completed and the coatings have been applied. Scaffolding has been removed from inside the digester and we are performing the leakage test of the digester. Streeter began water blasting to remove the old coatings in Digester No. 1 & 2. More material has been coming off than anticipated by the Design Engineer. It has been agreed that the best course of action would be to have Streeter complete the removal of the coatings and have Quandel coat the inside of Digesters No. 1 &2. The concrete repairs for Digester No. 3 overran the quantities include in Streeter's proposal. A change order will be needed to pay for the extra concrete repairs. We are negotiating with Streeter to determine the final concrete repair costs for the change order. We are currently projecting the Contractor to complete the floodwall concrete work and pump station work in February of 2018.

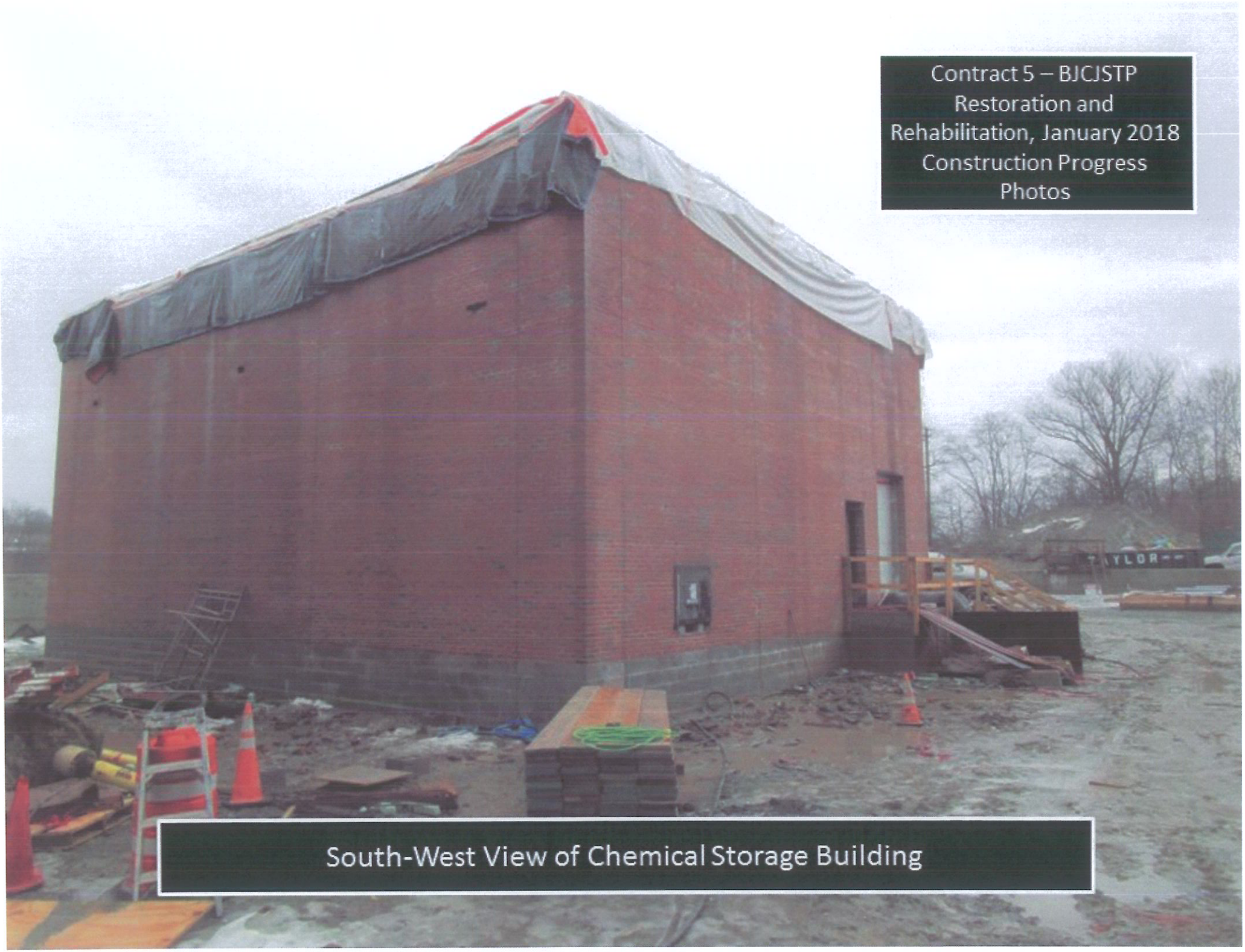
Contract Status: 87% Complete

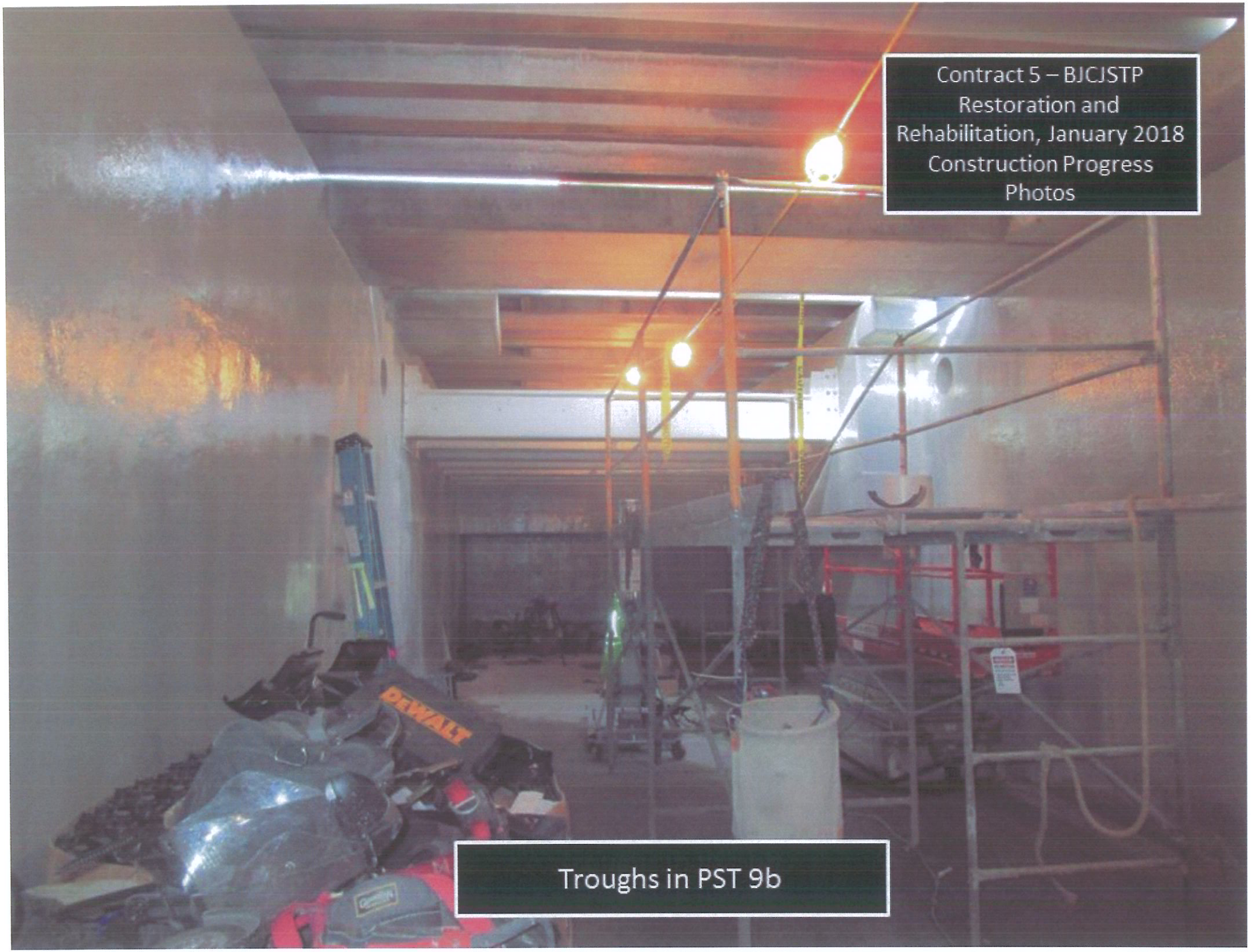
NOTES:

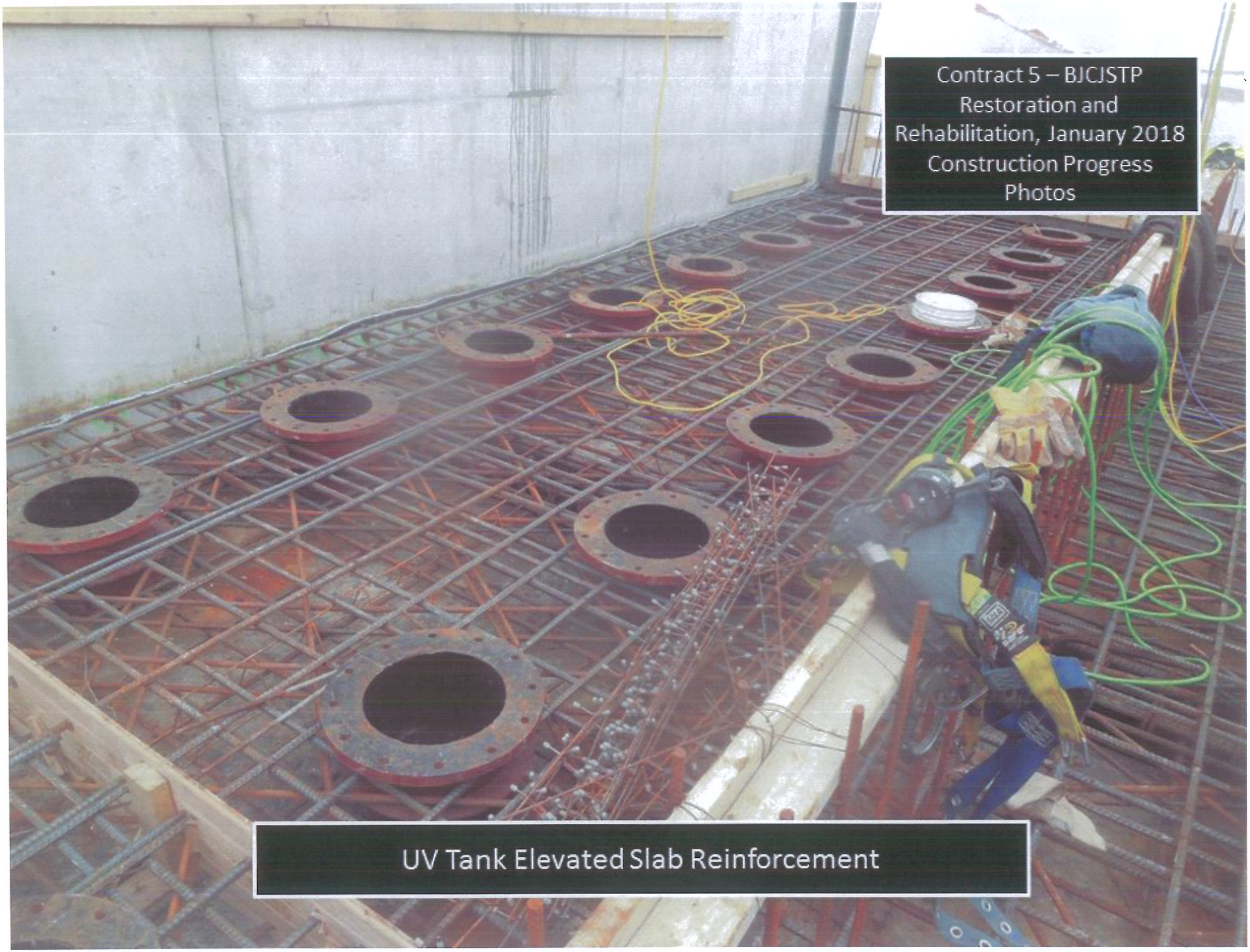
1. SWPPP measures continue to be maintained by all contracts. Any deficiencies noted during daily or weekly inspections are promptly remedied. Additional truck trap entrances have been now been installed at the new entrances. In early December, we will be installing asphalt millings from the truck traps to the undisturbed asphalt pavement inside the plant to reduce tracking mud off site.

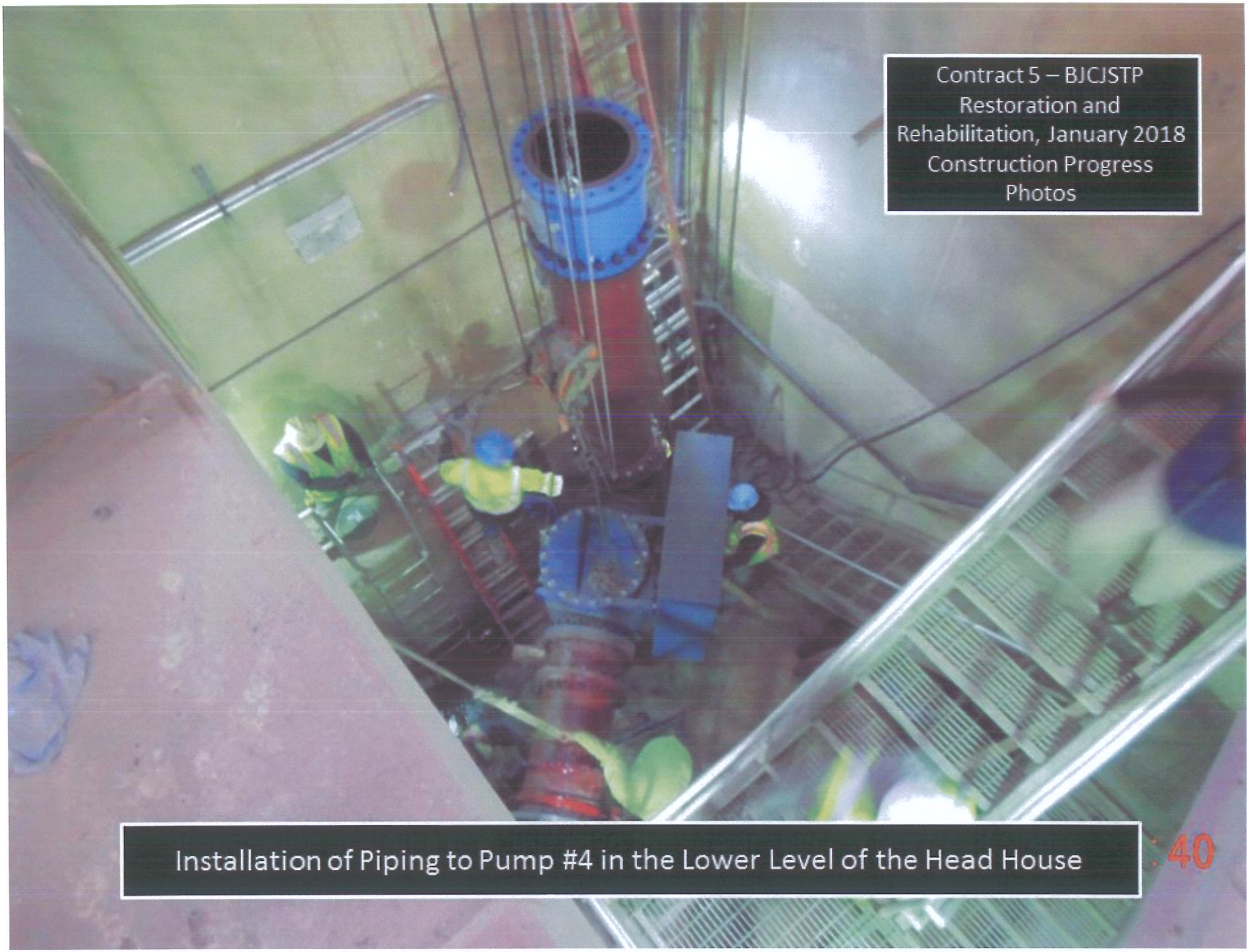
2. Weekly meetings are held for each contract to discuss the progress of the work and identify and resolve issues and problems. Meetings between contractors on the various contracts are held as necessary to facilitate any concerns and coordinate work between all contracts.

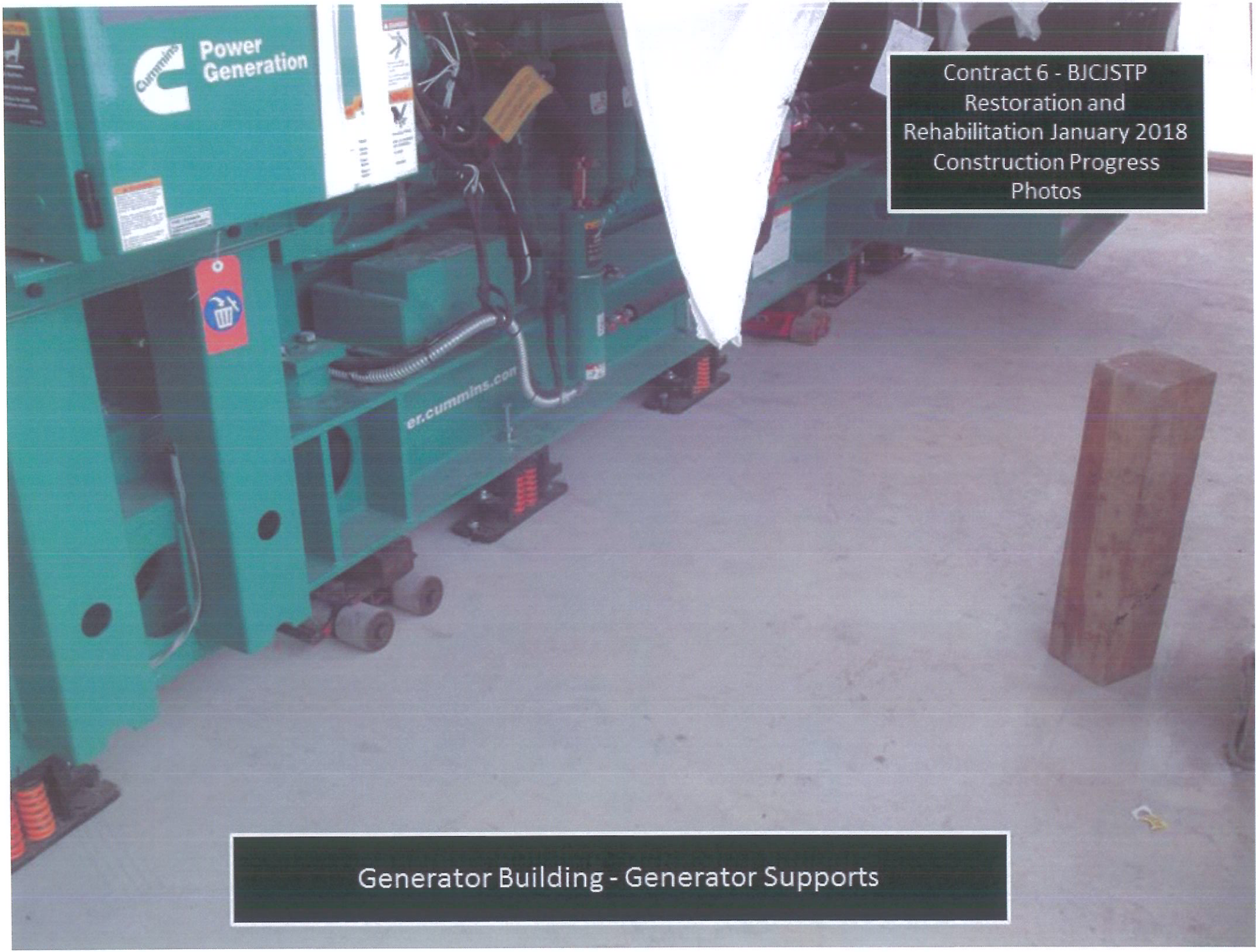

Contract 5 – BJCJSTP Restoration and Rehabilitation, January 2018 Construction Progress Photos
North-West View of Administration Building


Contract 5 – BJCJSTP Restoration and Rehabilitation, January 2018 Construction Progress Photos
South-West View of Chemical Storage Building

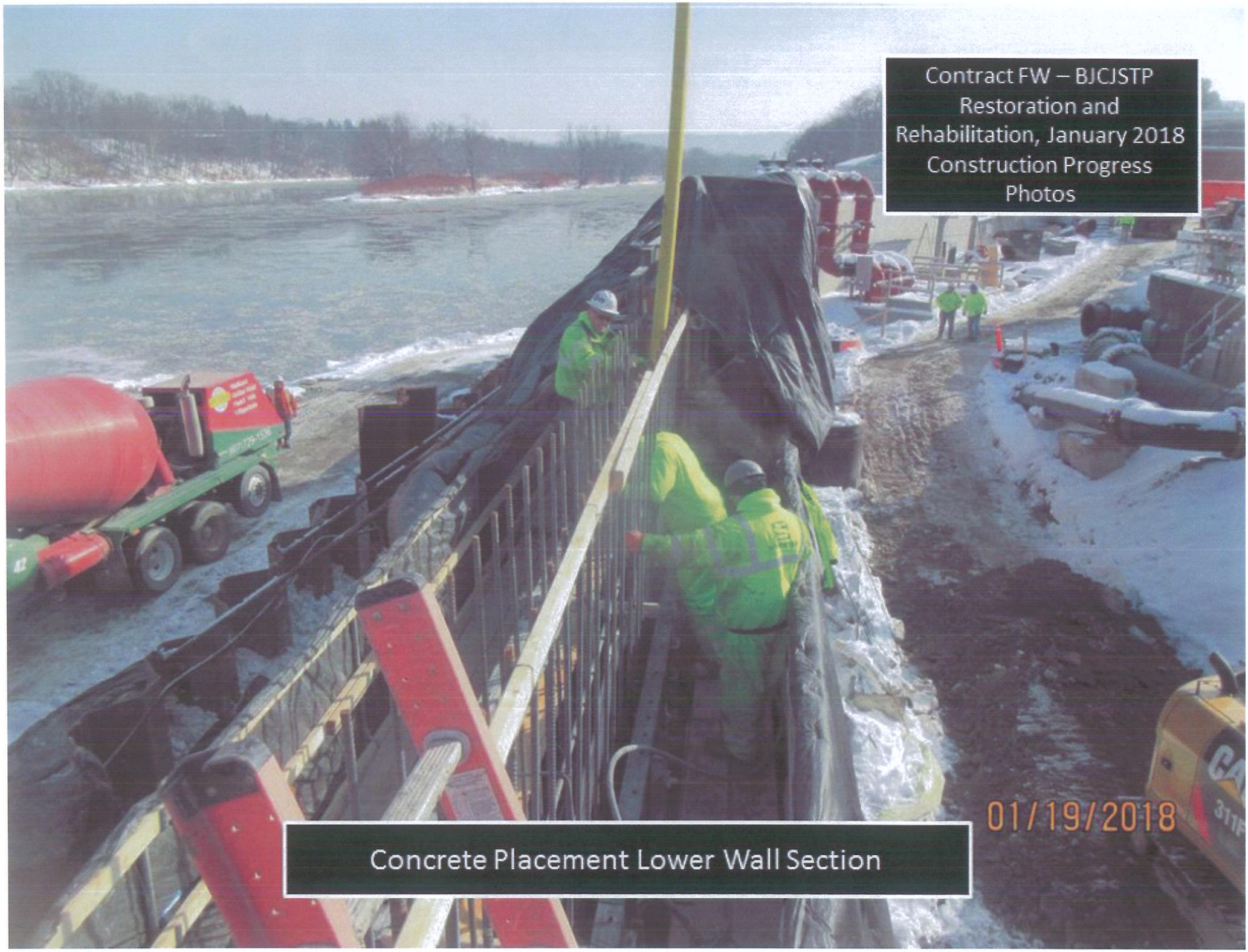

Contract 5 – BJCJSTP Restoration and Rehabilitation, January 2018 Construction Progress Photos
DEWALT
Troughs in PST 9b


Contract 5 – BJCJSTP Restoration and Rehabilitation, January 2018 Construction Progress Photos
UV Tank Elevated Slab Reinforcement


Contract 5 – BJCJSTP Restoration and Rehabilitation, January 2018 Construction Progress Photos
Installation of Piping to Pump #4 in the Lower Level of the Head House
40


Power Generation
Contract 6 - BJCJSTP Restoration and Rehabilitation January 2018 Construction Progress Photos
Generator Building - Generator Supports


Contract 10 – BJCJSTP Restoration and Rehabilitation, January 2018 Construction Progress Photos
01/22/2018
Solids Handling Slab Ground Heaters and Snow Removal


Contract FW – BJCJSTP Restoration and Rehabilitation, January 2018 Construction Progress Photos
01/19/2018
Concrete Placement Lower Wall Section