April 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	Complete
Contract No. 3	BAF Facility Demolition	Complete
Contract No. 4	MCC HH Emergency Replacement	Complete
Contract No. 5	BAF Restoration and Rehabilitation Civil Contract	Projected Phase 1 Substantial Completion November 2018. Projected Phase 2 Substantial Completion May 2019.

Contract No. 6	BAF Electrical	Projected Phase 1 Substantial Completion November 2018. Projected Phase 2 Substantial Completion May 2019.
Contract No. 7	BAF HVAC	Projected Phase 1 Substantial Completion November 2018.
Contract No. 8	BAF Plumbing	Projected Phase 1 Substantial Completion November 2018.
Contract No. 9	Secant Pile Contract	Complete
Contract No. 10	Solids Handling Renovation Civil Contract	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 July 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.

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), buildings, 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.

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 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 weather in April was better than March allowing concrete work to be advanced throughout the project. The below grade exterior walls for the Headworks and the BAF Backwash Treatment Facility are complete. PC is nearing completion on the interior walls and columns to support the slab at grade at both the Headworks and at the BAF Backwash Treatment Facility. PC continued installing the sludge drain pipes and 36" diameter primary influent pipe to PST 1-6. PC has three PST's left to scan and install the sludge piping in for PST's 1-6. Backfill around both the BAF Backwash Treatment Facility and the Headworks continued this month.

The plan to correct the problems at the Distribution Box is now complete and interior wall forms for the walls have been erected. PC is preparing to install the rebar in the walls for the exterior walls and anticipate disassembly of the tower crane installed inside the distribution box in June. They believe they will be done with the concrete work and building shells in this area by June 2018.

Work on CN Cells 1-8 is being advanced, but the half walls on the south and north side of the gallery that were expected to be completed in March are still not done. PC was working on the second placement of the half walls on the south side of the gallery for CN Cells 1-8 this month, and they worked on the first set of half walls on the north side this month. PC continued installing air pipe and backwash drain pipe in the CN 1-8 gallery this month, and installed structural steel for the platform above the backwash drain.

CN Cells 9-14 walls are also being advanced. The concrete walls forming flood protection on the south and west sides of CN Cells 9-14 continued this month. PC should complete the concrete walls to protect the STP to elevation 838 in late May. The flood protection walls around the outside of the U.V. building are complete, and PC is continuing to place the concrete walls on the west side of DN Cells. They have about three more wall segments to place at DN Cell west wall to complete the protection to elevation 838 at the DN Cells. The remaining portion of the work for flood protection to elevation 845 will be at CN Cells 9-14 and the south flood wall. These flood protection measures will likely be completed in July.

In the Courtyard area, the asbestos containing material in the ductbank and along the walls of the existing Headhouse and Blower Building has been remediated and Matco has extended the conduits from the Generator Building into the courtyard. The owner continues to maintain the emergency generator rental to provide back-up power to the Plant.

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 having the cooling water jacket replaced. Pump No. 2 is at the Flyght repair facility to have the water jacket replaced. While it is at Flyght, the pump is being repaired similar to the repairs previously done by the STP on Pumps 1 and 3. PC has completed installation of the isolation gates for the coarse screens that will be installed in the influent channels. The concrete columns have been placed in the coarse screen building, and PC continued to do concrete work for the elevated deck and miscellaneous walls in the coarse screen building. PC is preparing to install the coarse screen in the building. We anticipate PC installing the first of two coarse screens in May.

The reconstruction of Primary Setting Tanks 7-10 is nearly complete. The concrete coating applications are complete and PC is continuing to install the chain flight equipment in PST's 7-10. The initial leakage test is complete with minor repairs implemented at joints. The equipment should be ready for startup and testing in late May or early June. This is several months before the Headworks will be completed.

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. They should complete exterior building walls at U.V. in May.

Very little work on the yard piping and utility replacement construction activities happened this month, due to the weather conditions.

Construction of the new Chemical Building is well underway. The coatings for the concrete walls are complete. The tanks and equipment are installed, and the electricians and HVAC crews are proceeding with their work in the building. The building should be ready for testing in late May 2018. Work in the East Odor Control Building is nearing completion. Startup and testing of the equipment is underway, and we should be able to run the odor control systems on local automatic control by the end of April. STP staff is working with the DEC to get the chemical tanks in the East Odor Control Building registered so that the chemicals can be loaded into the chemical storage tanks in early May.

Completion of the slab for the Blower Building is essential for achieving flood protection for the plant. This work was delayed due to conditions at the site in January and because the contractor failed to properly protect the ground during the excavation phase. We anticipate that PC will place the slab for the Blower Building in May. PC installed nozzle decks in CN Cells 2, 4, 6, and 8 this month. This was necessary to allow the common wall on the North side of the Blower Building to be completed.

PC resumed work on dowels for the DN Gallery half walls this month. The coordination has been completed on the DN Gallery and work is progressing for the plumbing and process pipe installation.

PC continued working in the Methanol containment structure and also in the Methanol Control Building. The replacement roof has been installed on the Methanol Control Building and the mason is actively working on block and brick work in the building. The HVAC work and electrical work will follow closely behind the mason's work.

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. Installation should begin in May. The structural steel has been approved for fabrication. Matco has subcontracted the structural steel to J&K. We are waiting on pricing from Matco to get an authorization to proceed with the change order work.

Kruger equipment submittals are complete and the final detailed reviews are complete except for the UV netting. 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 nozzle deck slabs began in April, 2018.

The work in the upper floor of the Administration Building is complete with the final punch list and Fire Protection System testing complete. STP Staff moved into the building this month. The conditional certificate of occupancy has been received from the Town of Vestal, and the electrician is completing the final work for the lower level of the building. This work is scheduled to be completed by the end of April or early May. STP Staff will begin moving materials and equipment into the lower floor (maintenance area) on Monday 4/30/18.

Contract Status: 60% 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 in the new Generator Building, where they can.

MATCO continued work in the Chemical Storage Building, East Odor Control Building, and the Administration Building upper and lower levels. MATCO continued installing 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 northwest Electrical Building, the methanol control building CN Cells 1-8 gallery, and DN Cells.

The new Courtyard substation was delivered and put into storage locally, pending completion of the new concrete ductbanks in the courtyard in May. The Courtyard is a utility congested area with major underground piping and extensive electrical ductbanks. MATCO began working in earnest in March with the installation of new ductbanks and the beginning of installation activities associated with the new substation equipment. Work in the courtyard has been slow due to weather.

Contract Status: 56% 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: The contractor continued working on ductwork installation in the Maintenance Building, the East Scrubber Building, the Headhouse and the Chemical Storage Building. PC finally placed the slab for the HVAC equipment located between the East Odor Control Building and the new Chemical Storage Building. New areas for work in the near future include the Methanol Building, DN Gallery, CN 1-8 Gallery, and SIPS. J&K has provided supporting information for the development of the CPM Schedule. They are coordinating with PC Construction and the other prime contractors.

Contract Status: 57% 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: The contractor continues working on plumbing the Maintenance Building, new Chemical Storage 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.

Contract Status: 59% 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: Concrete work for the new Solids Handling Building is progressing. The below grade walls are nearing completion. Quandel has begun shoring and rebar installation for the slab at grade. The concrete for the slab at grade should be complete the first week in May. Concrete walls and the slab at grade for the new sludge holding tank are complete. Concrete walls for the gas conditioning equipment building should be completed in May. CMU walls for the solids handling building should also be complete in May. The concrete work for the truck loading area of the solids handling building has begun, and should be complete in May.

Quandel is still not making much progress on the removal and recertification of the gas conditioning equipment. They are alleging that they are not responsible for reconditioning the equipment. We are requesting a cost proposal from Quandel to recoat the inside of digesters 1 & 2, which are the two smaller digesters.

Contract Status: 22% Complete

Contract No. 11 - Solids Handling - 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. We anticipate having a resolution on the size of the hydronics pipe this week, which will allow J&K to resume installation.

Contract Status: 24% 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. Danforth installed the underslab piping for the base slab for the gas conditioning building, and continued work within the Digester Control Building.

Contract Status: 31% 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: The concrete floodwall under Streeter's contract has been completed. The concrete work for Pump Stations No. 1 and 2 are complete. The contractor has completed installing the pump and pipework for the two pump stations. Startup and testing of the first storm water pump station has started. Startup and testing for the second storm water pump station is scheduled for the first week in May. The concrete base has been completed and the precast concrete riser pieces are installed on the new MH #3. Streeter has installed the 54" overflow and has started installing the Binghamton University Line. Delivery of the two 54" gates for the Binghamton Line was achieved during the last week in April. We are evaluating the impacts of the delayed delivery of the two 54" gates.

The completion of the 54" gate installation on the Binghamton line in MH #3 is now scheduled for May, and the installation of the 54" gate in the sampling manhole is now scheduled to occur in June due to the delayed delivery dates for the gates.

Rehabilitation of Digester No. 3 is complete. The leakage test was successful. Streeter completed water blasting to remove the old coatings in Digester Nos. 1 & 2. More material came 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 Nos. 1 & 2. The concrete repairs for Digester No. 3 overran the quantities included 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.

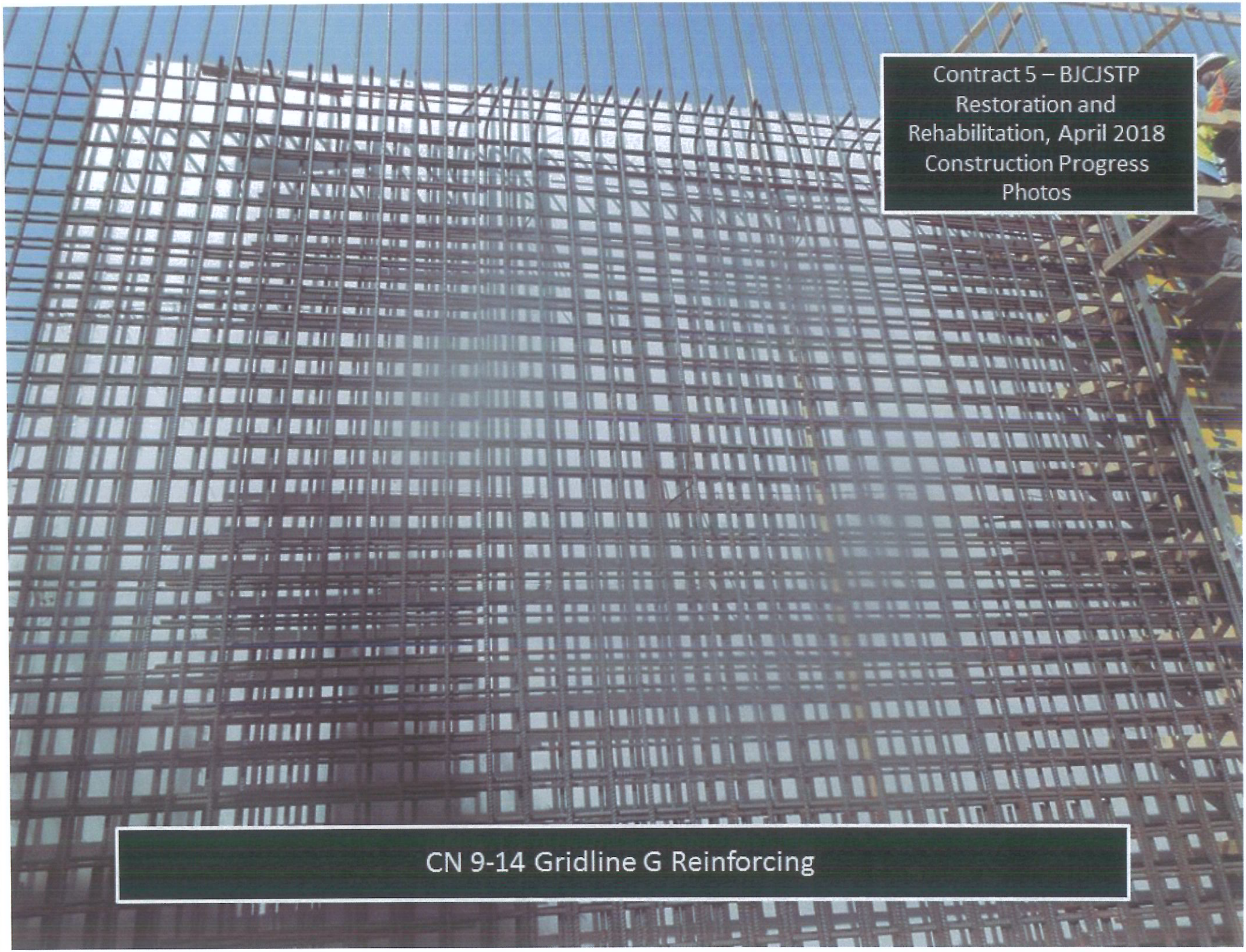
Contract Status: 91% Complete

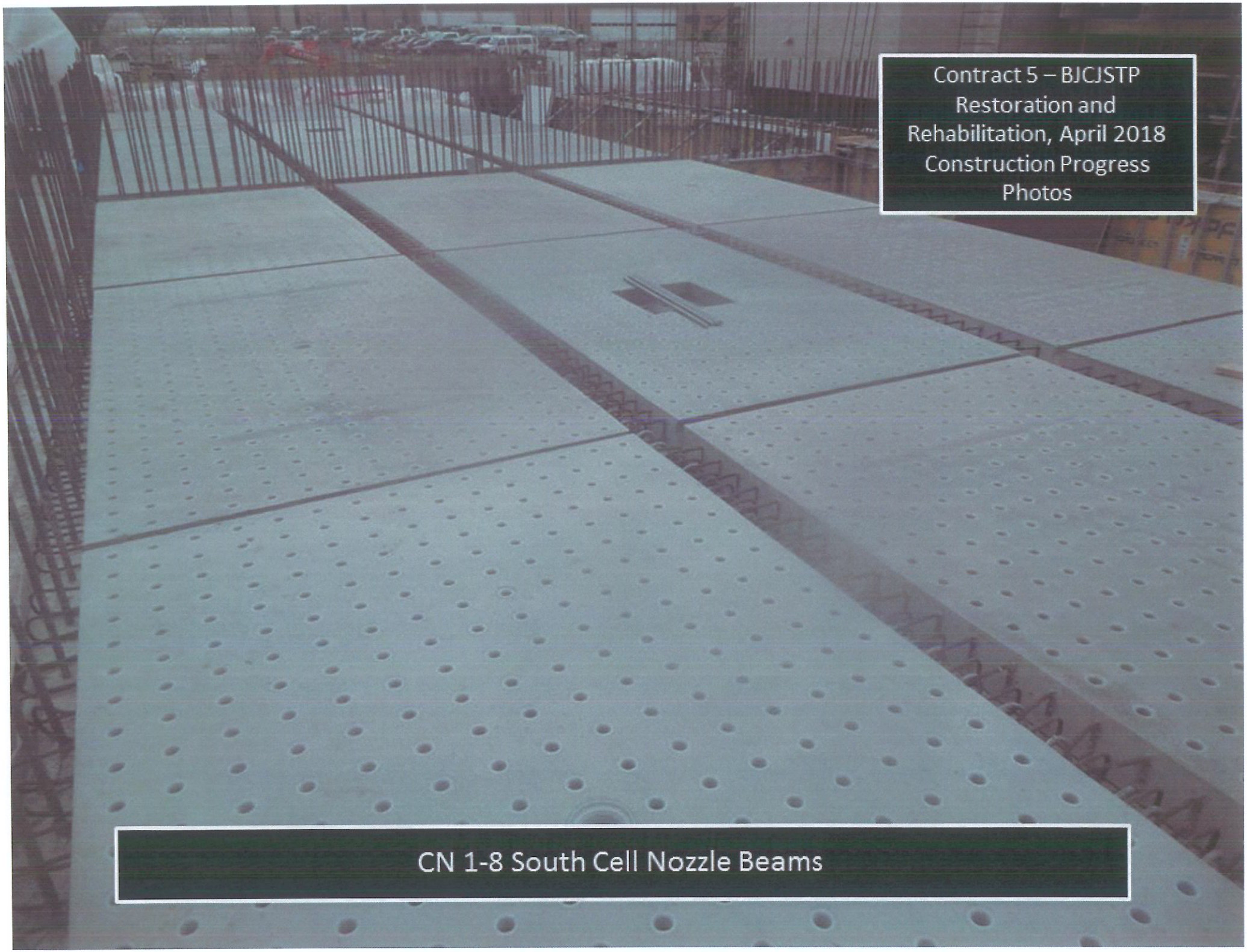
NOTES:

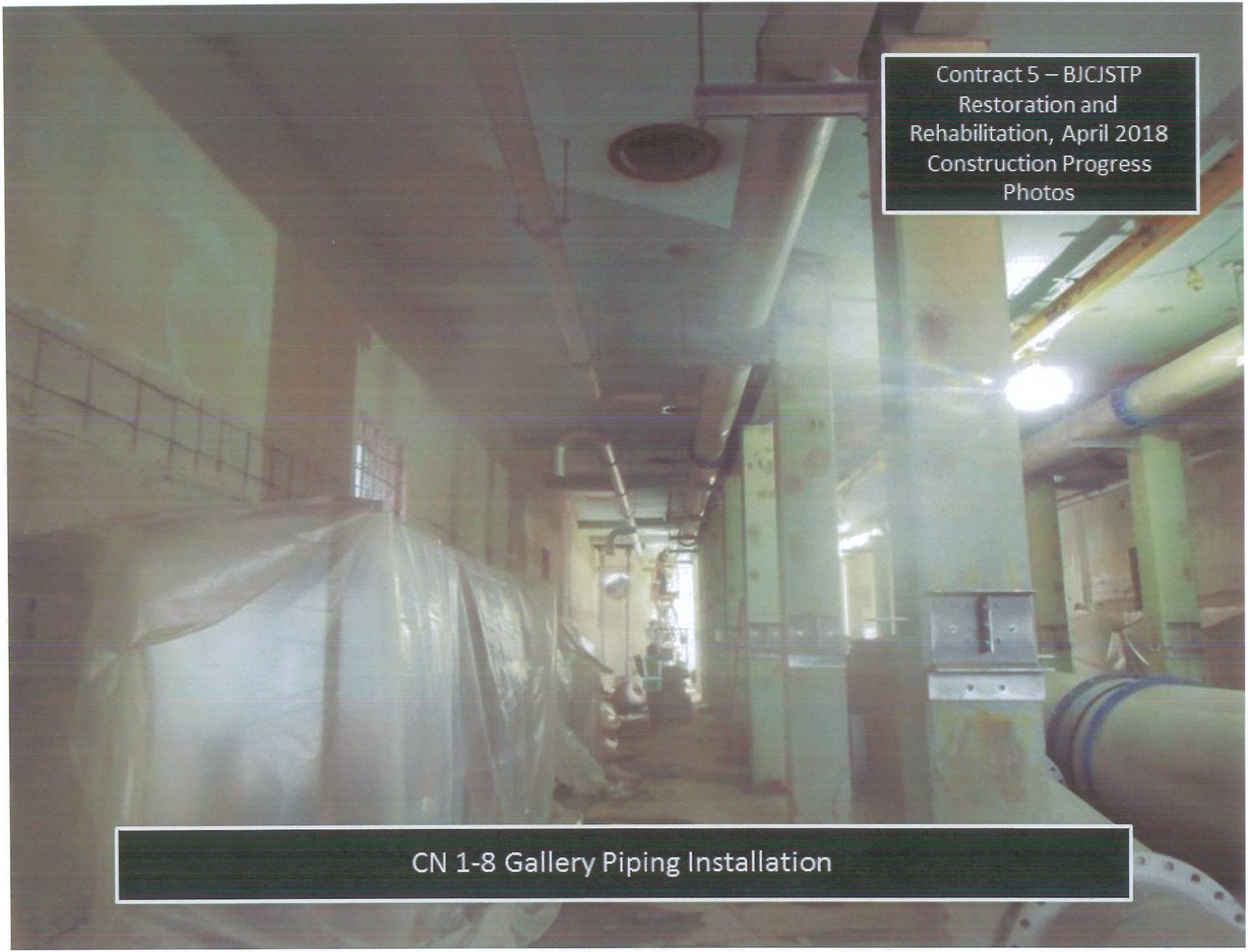
1. SWPPP measures continue to be maintained by all contracts. Any deficiencies noted during daily or weekly inspections are promptly remedied. Additional truck trap entrances have been now been installed at the new entrances. In early December, we will be installing asphalt millings from the truck traps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

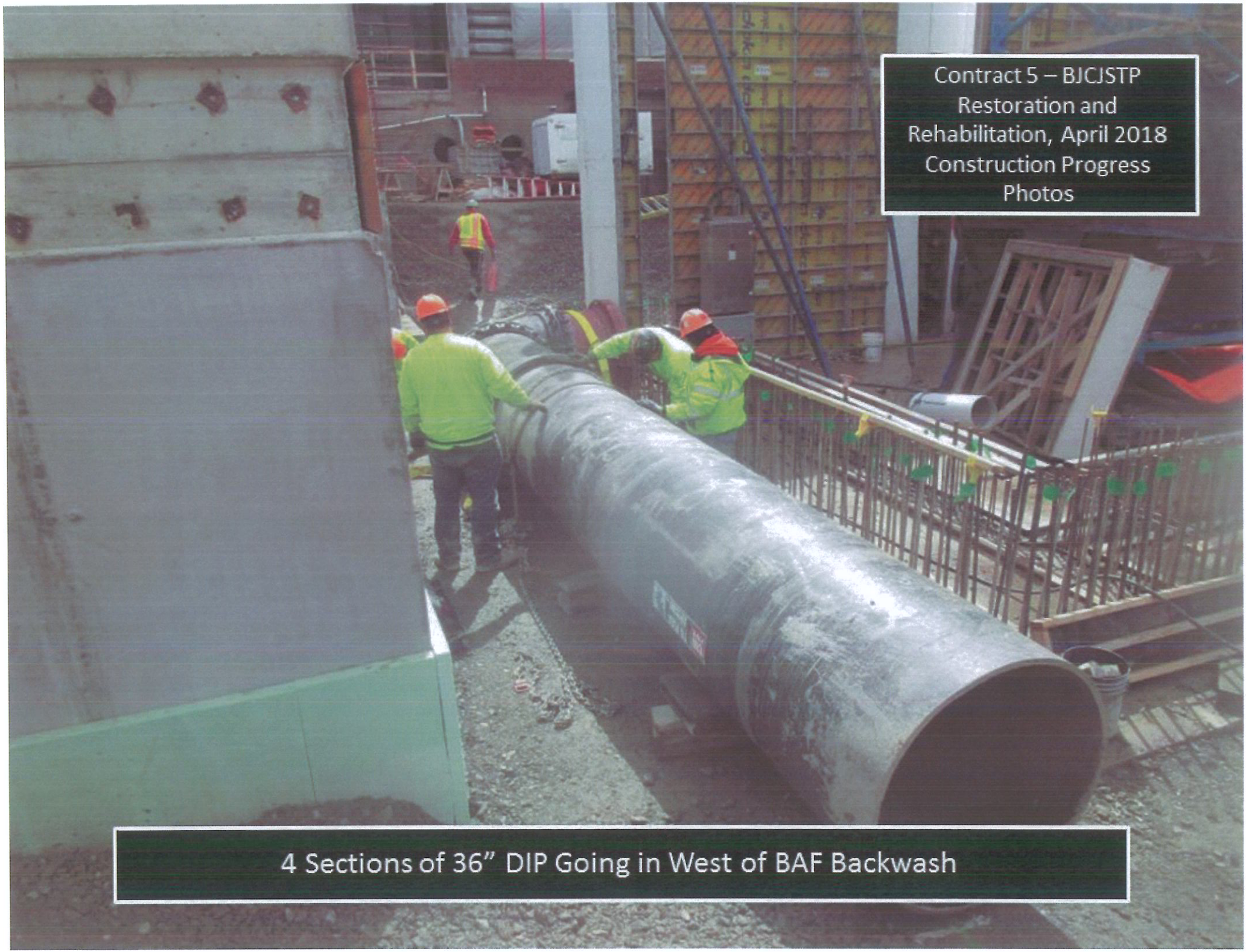
2. Weekly meetings are held for each contract to discuss the progress of the work and identify and resolve issues and problems. Meetings between contractors on the various contracts are held as necessary to facilitate any concerns and coordinate work between all contracts.

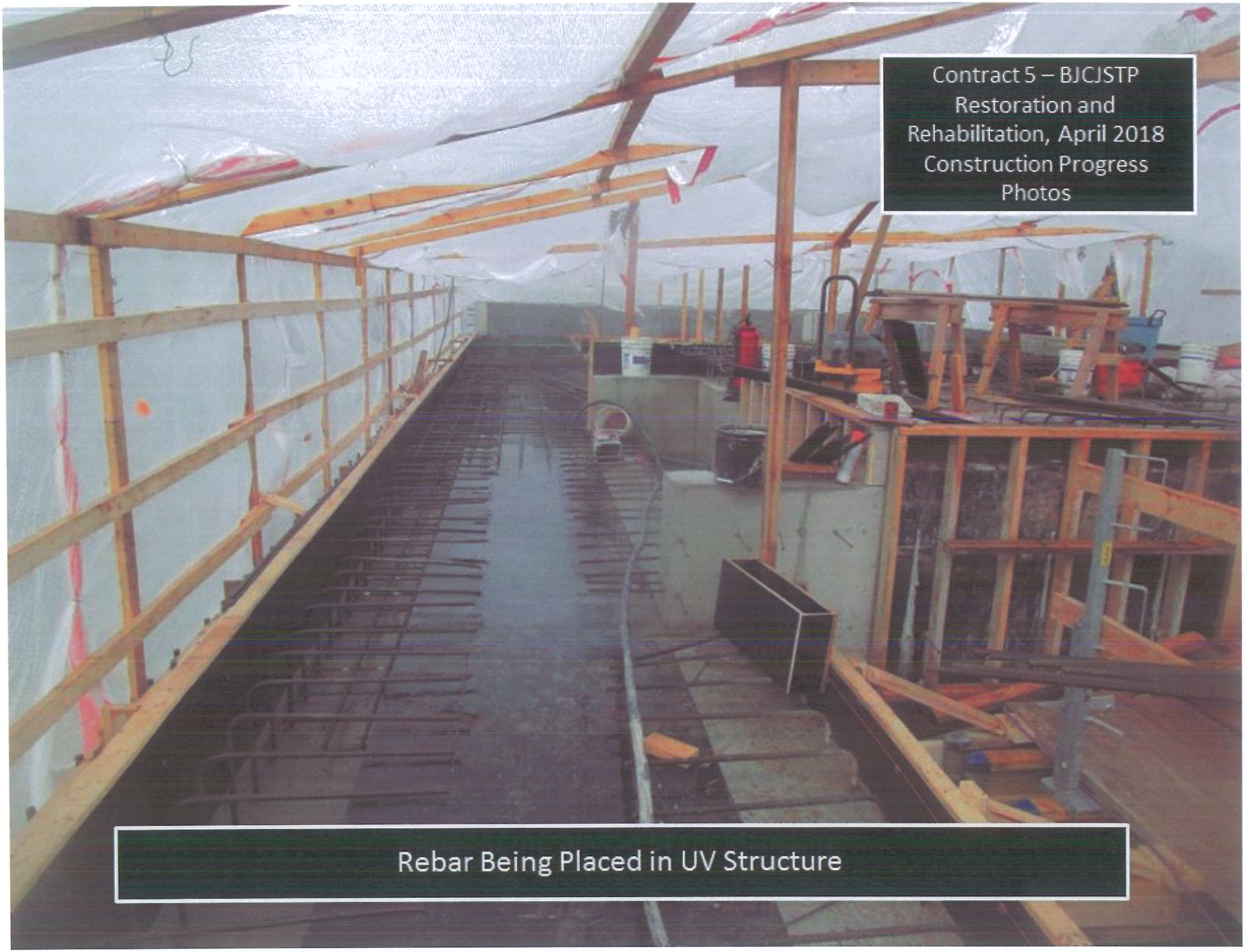
Contract 5 – BJCJSTP Restoration and Rehabilitation, April 2018 Construction Progress Photos
First Sections of 36" DIP Being Placed East of Distribution Box 1

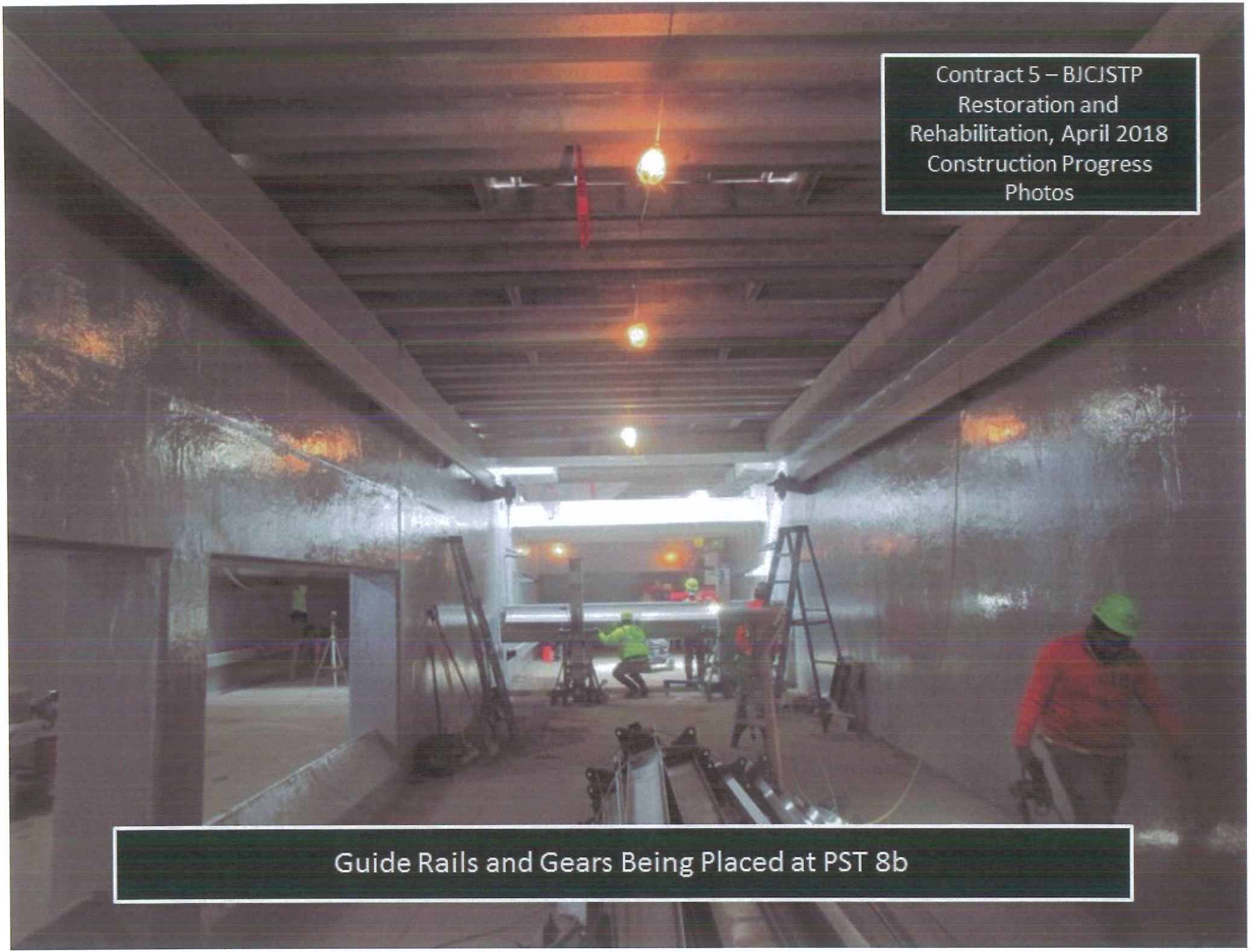

Contract 5 – BJCJSTP Restoration and Rehabilitation, April 2018 Construction Progress Photos
CN 9-14 Gridline G Reinforcing


Contract 5 – BJCJSTP Restoration and Rehabilitation, April 2018 Construction Progress Photos
CN 1-8 South Cell Nozzle Beams

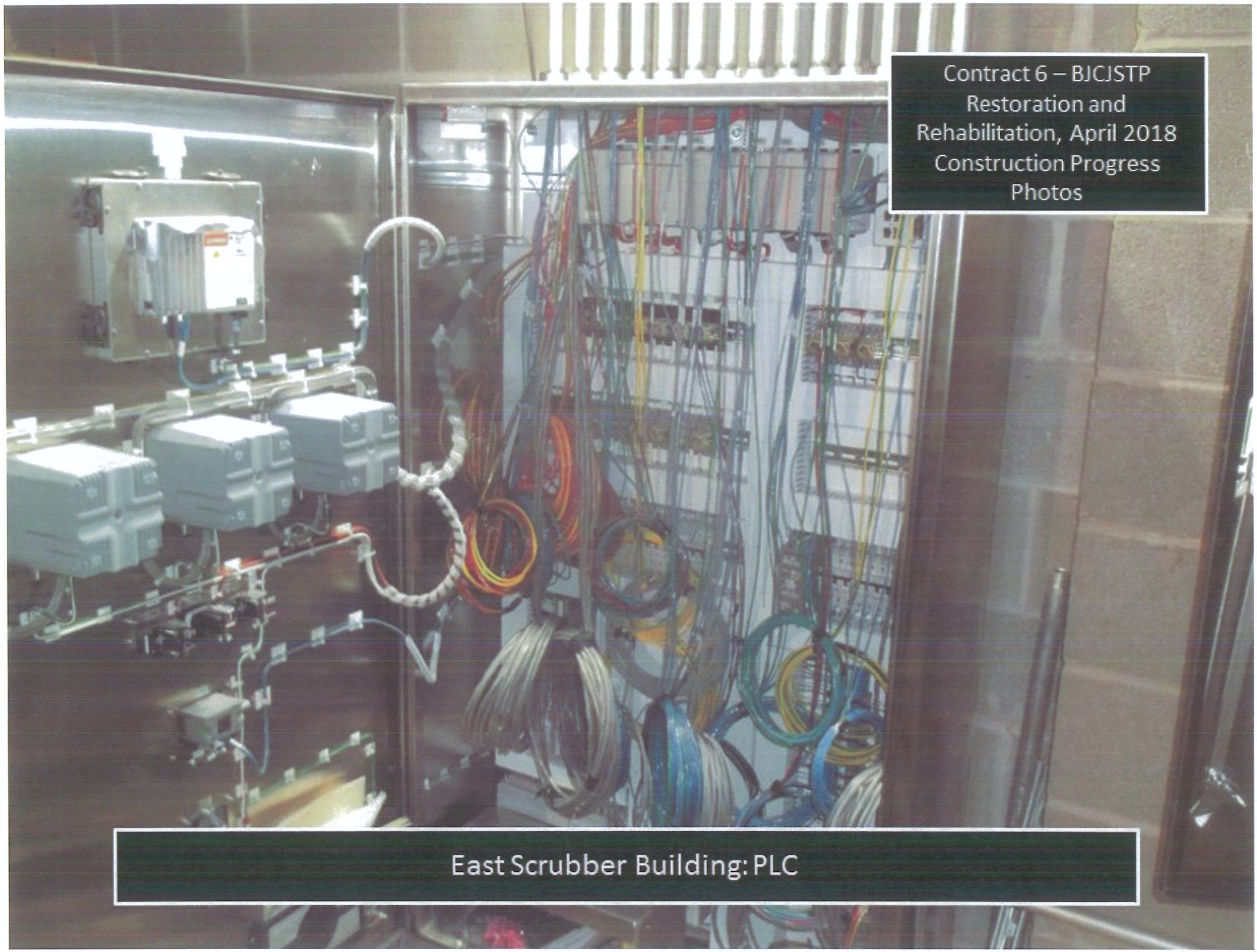

Contract 5 – BJCJSTP Restoration and Rehabilitation, April 2018 Construction Progress Photos
CN 1-8 Gallery Piping Installation


Contract 5 – BJCJSTP Restoration and Rehabilitation, April 2018 Construction Progress Photos
4 Sections of 36" DIP Going in West of BAF Backwash

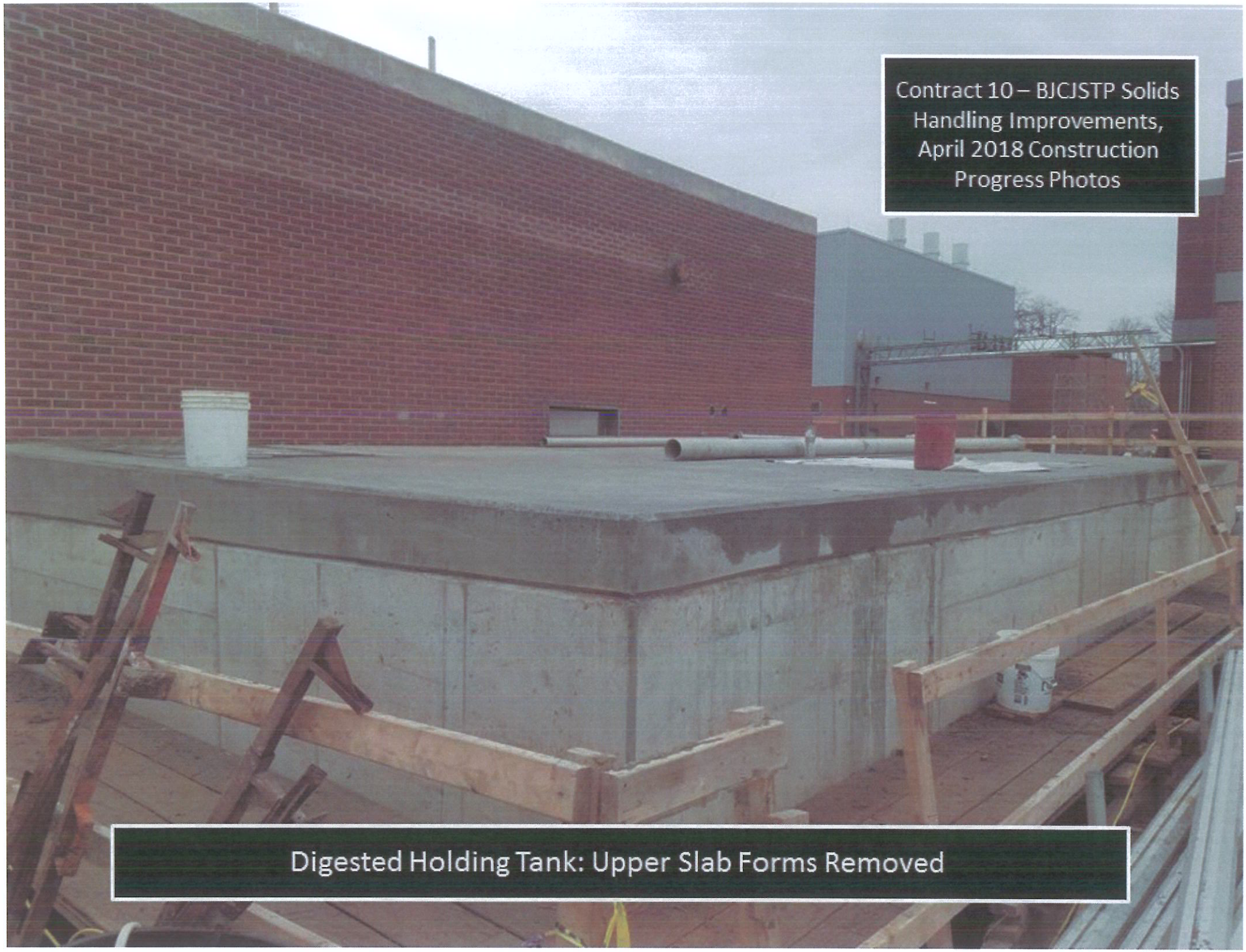

Contract 5 – BJCJSTP Restoration and Rehabilitation, April 2018 Construction Progress Photos
Rebar Being Placed in UV Structure


Contract 5 – BJCJSTP Restoration and Rehabilitation, April 2018 Construction Progress Photos
Guide Rails and Gears Being Placed at PST 8b

Contract 5 – BJCJSTP Restoration and Rehabilitation, April 2018 Construction Progress Photos
Chinking and Compacting 57 Stone Under 42" DIP West of Generator Building


Contract 6 – BJCJSTP Restoration and Rehabilitation, April 2018 Construction Progress Photos
East Scrubber Building: PLC

Contract 10 – BJCJSTP Solids Handling Improvements, April 2018 Construction Progress Photos
Solids Handling Scaffolding Installation


Contract 10 – BJCJSTP Solids Handling Improvements, April 2018 Construction Progress Photos
Digested Holding Tank: Upper Slab Forms Removed

Contract FW – BJCJSTP Flood Wall, April 2018 Construction Progress Photos
Headwall 1: 54" Bedding and Piping Installation