

DESIGN REPORT

Date: **November 12, 2014**

Project No.: **0301-0144**

Construction District: **1A**

Town: **New Haven**

Reimbursable Funds: **State of Connecticut
FTA**

Project: **New Haven Rail Yard Facilities
Improvements – Yard Power Upgrade**

Final maintenance responsibilities: **State of Connecticut Office of Rails
Metro-North Railroad (MNR)**

1.0 DESCRIPTION OF PROJECT

The improvements to the New Haven Rail Yard are increasing the electrical demand to it as more new facilities are constructed and commissioned. Currently, the rail yard is served by two United Illuminating (UI) 8 MW feeders. The existing feeders originate at the UI Water Street Substation and run through a series of underground conduits and along a wooden pole line to the Hallock Substation which is located within the rail yard immediately east of the Church Street Overpass. One of the two feeders is fully dedicated to the rail yard while the second is shared with nearby commercial customers in the Long Wharf area. The rail yard will exceed the effective capacity of the shared feeder before the completion of all of the anticipated projects in the rail yard.

In order to provide the necessary capacity to the rail yard, UI will supply two 10 MW fully dedicated feeders from their Water Street Substation. The new feeders will run within Water Street and into the rail yard beneath the Route 34 Overpass. A new Point of Entry (POE) Switchgear facility will be constructed immediately west of Route 34 just north of the existing Vision Trail. The POE will consist of an incoming UI cubicle, a metering cubicle and an outgoing MNR cubicle for each feeder on a platform constructed above the 500 year flood elevation. UI's construction will end at a splice chamber immediately east of the POE.

New cables will run from the POE to the Hallock Substation through a combination of new and existing duct banks. New duct banks will run from the POE across former USPS Parcel 1 and connect with the existing duct banks within Long Wharf Street. The

Hallock Substation will be upgraded so that both sides of the switchgear are consistent in order to provide the required capacity.

In addition, two security gates will be installed to prevent unauthorized access into the 152 Water Street property and USPS Parcel #1. Each of these sliding gates will be activated by access cards and have security camera coverage monitored by MNR.

Lastly, a new concrete sidewalk will be constructed along the west side of Long Wharf Street to replace the existing discontinuous sidewalk that is currently in place. The new sidewalk will begin at Brewery Street and extend to the rail yard security entrance.

2.0 PUBLIC UTILITIES AFFECTED BY PROJECT

WATER

Regional Water Authority (RWA) is installing a new 16 inch main through the project site under a separate project. The new water main will originate at Water Street and end at the intersection of Long Wharf Street and Brewery Street. The duct bank alignments on this project have been fully coordinated with the RWA water line in order to avoid conflicts.

POWER

United Illuminating is a partner on this project in that they will construct the duct bank up to the splice chamber east of the POE, install or contract the installation of the metering devices and jointly operate the POE with MNR. UI cable and construction standards are being used for much of the project. UI will jointly review many of the submittals to ensure compatibility with their system requirements.

3.0 SALVAGABLE ITEMS

There is a small amount of old rail that will be generated by the project. The age and condition of the rail makes it likely that the only viable option will be to gain the scrap value.

A very significant amount of copper cables will be removed from the existing duct banks. Removal has the potential to damage the integrity of the insulation and make the cables fit only for scrap value.

4.0 PERMITS

There is a Coastal Consistency Review Form and a DEP Flood Management Certification required for this project. Permit applications have been submitted and approved by each respective governing authority. A Stormwater Discharge Permit is not required for this project because the total disturbed area is less than 1 acre.

Additionally, Storage of materials that could be injurious to human health or the environment in the event of flooding is prohibited below the elevation of the 500 year flood. Other material or equipment may be stored below the 500 year flood elevation provided that such material or equipment is not subject to major damage by floods, and provided that such material or equipment is firmly anchored, restrained or enclosed to prevent it from floating away or that such material or equipment can be removed prior to flooding.

5.0 PROJECT SPECIFIC DESIGN/CONSTRUCTION ISSUES

5.1 STAGING

A large portion of the work required for this project is within the USPS Parcel 1 and cannot be constructed until the Component Change Out (CCO) Shop Contractor has moved their construction trailers and laydown area. The work in Long Wharf Street must be coordinated with the City of New Haven to avoid conflicts. The project must be complete and operational in advance of the commissioning of the West End Yard Standby Power Substation which will overrun the capacity of the current feeders. Cutover of the new feeders must be completed and coordinated so as to not interrupt yard and shop operations.

5.2 DEWATERING

Dewatering effluent required to install utilities and the foundation for the Switchgear must be handled via a temporary dewatering plant located within the rail yard supplied by the Department. Effluent will need to be captured and pumped to the dewatering plant through piping to be installed by the Contractor.

5.3 RIGHT-OF-WAY

The Contractor must provide space for parking for its employees in a manner that does not obstruct access to the rail yard.

5.4 FORCE ACCOUNT SUPPORT

MNR Power Department will be actively engaged in this project. All of the work within the Hallock Substation must be performed by or actively supervised by MNR Power. Testing of devices and the system is also anticipated to require extensive MNR Power support during construction.