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Engineering Report

STATUS OF CONSTRUCTUION ACTIVITIES
CUTLER STREET and SCRIBNER PLACE, CITY OF CLIFTON, NJ
Photo Addendum Attached
January 23, 2015

While the Passaic Valley Sewerage Commission (PVSC) has been actively preparing for the rehabilitation of our 100+/- year old Main Interceptor Sewer in the vicinity of Cutler Street and Scribner Place within the City of Clifton, delays in completing this project have been encountered during construction, specifically related to significant amounts of bedrock and groundwater at both access shaft locations.

The project incorporates the scope of work activities on PVSC's Main Interceptor Sewer as follows:

A. CIPP/Slip-Lining
   a. Hope Avenue to Cutler Street (Access Shaft) within the City of Clifton (MH MI-141 to MH MI-142)
      i. 977 linear feet of 6'-9" diameter circular concrete pipe from Station No. 707+25 to Manhole No. MI-141 (Station No. 697+48.09) with **slip-lining**
   b. Cutler Street (Access Shaft) to Scribner Place (Access Shaft) within the City of Clifton (MH MI-142 to MH MI-143)
      i. 620 linear feet of 6'-9" diameter circular concrete pipe from Station No. 707+25 to Station No. 713+45 with **cured-in-place liner (CIPP)**
   c. Scribner Place (Access Shaft) to Hamilton Avenue within the City of Clifton (MH MI-143 to MH MI-145)
      i. 1,610 linear feet of 6'-9" diameter circular concrete pipe from Manhole No. MI-145 (Station No. 729+54.89) to Station No. 713+45 with **slip-lining**

Refer to the attached location map for reference.

By way of historical background, the PVSC Main Interceptor Sewer for the identified scope of work scheduled for rehabilitation herein was originally constructed in the mid-1910s via tunnel method as a result of the depth needed (in excess of 40-feet deep) and the significant amounts of gravel, boulders, and bedrock encountered from the soil boring information logs. The combination of the needed depth, the geology (i.e. soil boring information logs), and the surrounding Block & Lot layout & configuration made open-cut trench excavations virtually impractical. In addition, the PVSC Main Interceptor Sewer was also construction through (i.e. tunneled under) several properties requiring easements from the property owners.

Regarding PVSC's current construction project, PVSC's Construction Contractor (Cruz Contractors, LLC) began construction activities for the Cutler Street (Access Shaft) on or about April 14, 2014 and on or about October 9, 2014, the Cutler Street (Access Shaft) was completed. The Cutler Street (Access Shaft) is located

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within private property and required a temporary construction easement from the property owner. The duration for the construction of the Cutler Street (Access Shaft) was just under 6-Months.

Cruz began construction activities for the Scribner Place (Access Shaft) on or about June 30, 2014 and on or about December 3, 2014, the Scribner Place (Access Shaft) was completed. The Scribner Place (Access Shaft) is located within the public right-of-way and required the Contractor to file for a road opening permit. The duration for the construction of the Scribner Place (Access Shaft) was a little over 5-Months.

Significant delays were encountered with the excavation for the access shaft at these locations as a result of the depths needed to the PVSC Main Interceptor Sewer, the quantity of bedrock encountered, and the significant amounts of groundwater encountered during the excavations.

In between completing the access shafts, Cruz was able to perform and complete other needed and necessary tasks (i.e. cleaning operations, CCTV / Sonar inspections) on the Main Interceptor Sewer.

As of December 19, 2014, Cruz completed the slip-lining associated with Hope Avenue to Cutler Street (Access Shaft) within the City of Clifton (MH MI-141 to MH MI-142).

Currently, Cruz is in the process of completing the slip-lining associated with Scribner Place (Access Shaft) to Hamilton Avenue within the City of Clifton (MH MI-143 to MH MI-145). The slip-lining is anticipated to be completed by January 30, 2015.

When the rehabilitation of the two (2) slip-lining sections (noted above) have been completed, the remaining section scheduled for rehabilitation will be the CIPP section between the Cutler Street (Access Shaft) and the Scribner Place (Access Shaft). However, in the Summer of 2013, Cruz informed PVSC that they were preliminarily evaluating a Value Engineering Construction Proposal (VECP) for the CIPP rehabilitation section of the Main Interceptor Sewer [i.e. between the Cutler Street (Access Shaft) and the Scribner Place (Access Shaft) within the City of Clifton (MH MI-142 to MH MI-143)] and that they would be preparing and submitting the proposal to PVSC and our consulting engineer (Charles A. Manganaro, Consulting Engineers - CAMCE) for review and approval.

For purposes of additional discussions associated with the VECP, this section has been termed the "S Curve" as this section of the Main Interceptor Sewer was originally constructed with an offset of about 75-feet connected by two (2) curved segments. Refer to the attachments for the location of the "S Curve".

The intent of the VECP will modify the original design intent from a CIPP rehabilitation method with bypass pumping and piping to a slip-lining rehabilitation method without the need for bypass pumps and piping. Currently, the CAMCE design documents for the CIPP rehabilitation method requires the Contractor to construct a bypass pumping and piping arrangement consisting of:

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- dividing bulkheads within each of the Access Shafts for the pumps, suction piping, and discharge piping;
- two (2) overhead bridge bypass piping crossings on Clifton Avenue and Cutler Street;
- two (2) pedestrian bridge bypass piping crossings on Cutler Street;
- Furnish and installation of three (3) 36-inch diameter bypass pipes; and
- Furnish, installation, and operation of sufficient bypass pumping capable of pumping a minimum of 76-million gallons per day (MGD) of sewage.

As part of the preliminary VECP that Cruz presented to PVSC in 2013, Cruz will be responsible to demonstrate their alternative rehabilitation method will be equivalent to the original design; will provide PVSC (and our ratepayers) with a cost savings to the rehabilitation project; and will have a less impact on the public health and the environment.

Between the Summer of 2013 and the Summer of 2014 (while Cruz was rehabilitating two other separate sites and sections of the Main Interceptor Sewer within the City of Paterson), Cruz performed additional tasks (i.e. CCTV / Sonar / 3D Laser Scanning) in the Main Interceptor Sewer within the City of Clifton in order to verify and confirm the actual existing conditions, layout, and orientation of the "S Curve". Cruz also coordinated the actual existing conditions with the pipe manufacturer in order to verify the slip-lined pipes flexibility and deflection of joints would be within appropriate tolerances without degrading the structural integrity of the rehabilitation. The pipe supplier recommended the lengths be shortened from 20-foot lengths to 4-foot lengths in order to provide the additional flexibility and joint deflection as the slip-lined pipe meanders through the "S Curve".

On or about November 14, 2014, Cruz attempted to perform mandrel test (with same size 72-Inch Diameter pipe as the utilized for the adjacent slip-lining sections) for the CIPP section of the Main Interceptor Sewer. While the mandrel test with the 72-Inch Diameter pipe was unsuccessful, Cruz was able to coordinate with another pipe supplier of equivalent dimensions. On or about December 22, 2014, Cruz performed a successful re-mandrel test based on the other pipe supplier. PVSC and Cruz are proceeding with the VECP based on slip-lining operations associated with the successful mandrel test. This VECP will not require the bypass pumping and piping arrangement previously discussed and thus will significantly reducing the impact to the local residents, the public health, and the environment.

Based on Cruz's construction schedule, the removal of the liner plate and backfill of both the Cutler Street (Access Shaft) and the Scribner Place (Access Shaft) will commence on or about April 6, 2015 and completed on or about May 1, 2015. Site Restoration at both the Cutler Street (Access Shaft) and the Scribner Place (Access Shaft) locations will commence on or about April 20, 2015 and completed on or about May 16, 2015. PVSC will monitor the construction schedule and work with Cruz to ensure they stay on schedule.

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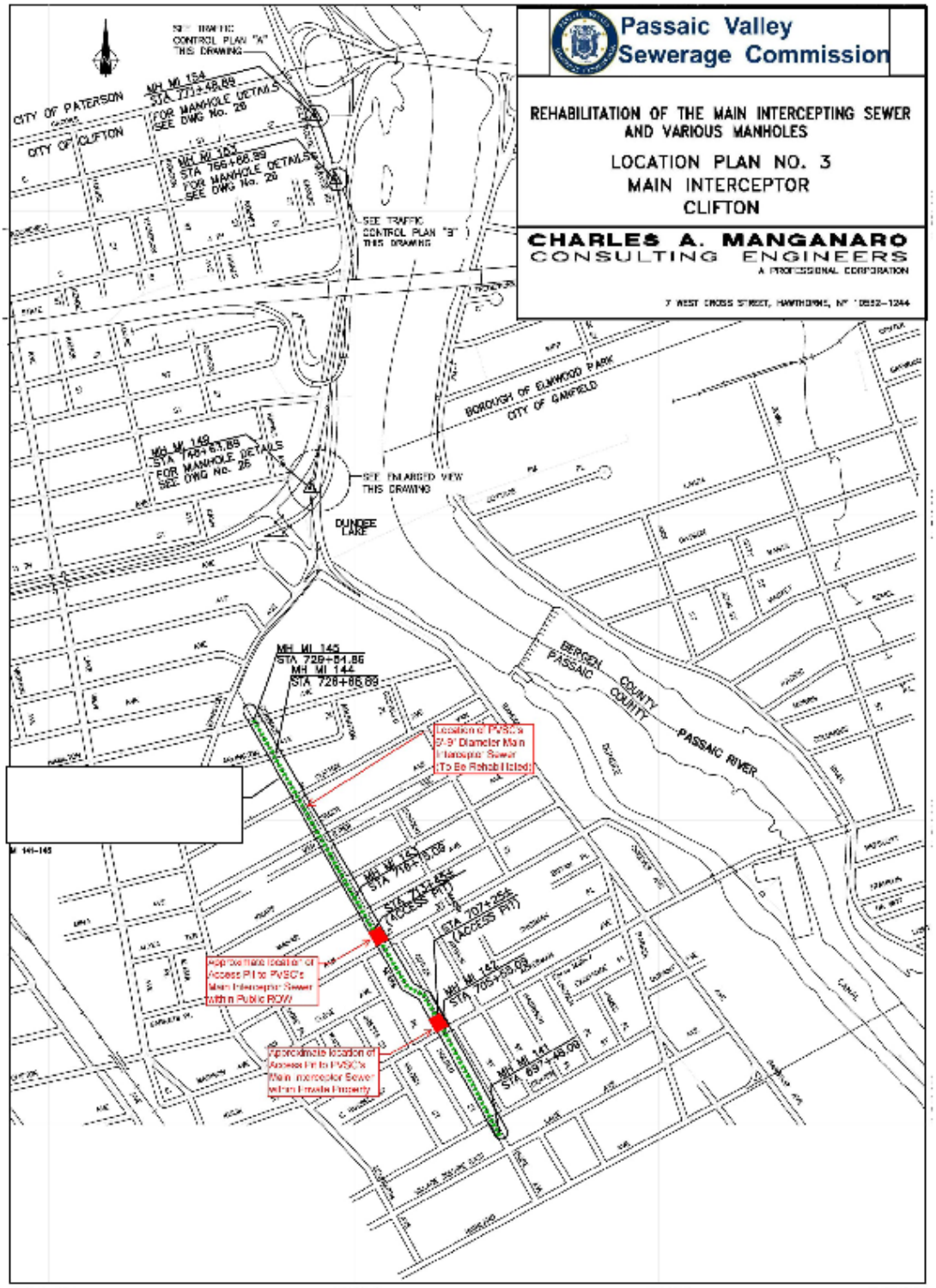
While this project has had some minor impacts on the local community, we apologize for the delays and any residual problems associated with the rehabilitation project that the City of Clifton and the local community has endured.

The Main Interceptor Sewer within the City of Clifton scheduled for rehabilitation is located within several residential properties and public right-of-ways. The rehabilitation project will improve the structural integrity, reliability, and operation of the PVSC Main Interceptor Sewer while ensuring the protection of these residential properties as well as protecting the public health and the environment.

As the construction activities draw to a close, PVSC will continue to provide the City of Clifton with updates. However, the precise timing of the work is subject to change due to weather or other factors.

Finally, we realize that these issues have caused delays to the public and commuters. At this time, we are confident that the rehabilitation of the Main Interceptor Sewer can continue and be completed without any additional significant delays impacting the construction schedule. We will be working with our Contractor to expeditiously complete the rehabilitation work at this location of this project. Over the next couple of months, our Contractor will be working to complete the remaining construction related tasks to complete the rehabilitation of the PVSC Main Interceptor Sewer at this location of this project.

ADDEDENDUM



Photograph No. 01 – Location Plan.

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Photograph No. 02 – Cutler Street Access Shaft (within private property). [Approximately 31-feet deep]

Photograph No. 03 – Cutler Street Access Shaft (within private property) – Significant Bedrock Encountered During Excavation. [Approximately 31-feet deep]

Photograph No. 04 – Scribner Place Access Shaft (within public right-of-way) between Clifton Avenue and Mahr Avenue – Significant Bedrock and Groundwater Encountered During Excavation. [Approximately 28-feet deep]

Photograph No. 05 – Bedrock Encountered during Excavation of both Access Shafts.

Photograph No. 06 – Perspective Point of View of the Size of the Slip-Lined Pipe (72-Inch Diameter).

Photograph No. 07 – Cutler Street Access Shaft Slip-Lining Pipe Installed to MH MI-141 (Hope Avenue).

Photograph No. 08 – Scribner Place Access Shaft Slip-Lining Pipe Installed towards MH MI-145 (Hamilton Avenue).

KENNETH J. LUCIANIN
THOMAS TUCCI, JR.
Commissioners

MICHAEL DeFRANCISCI
Executive Director

GREGORY A. TRAMONTOZZI
General Counsel and Acting Clerk

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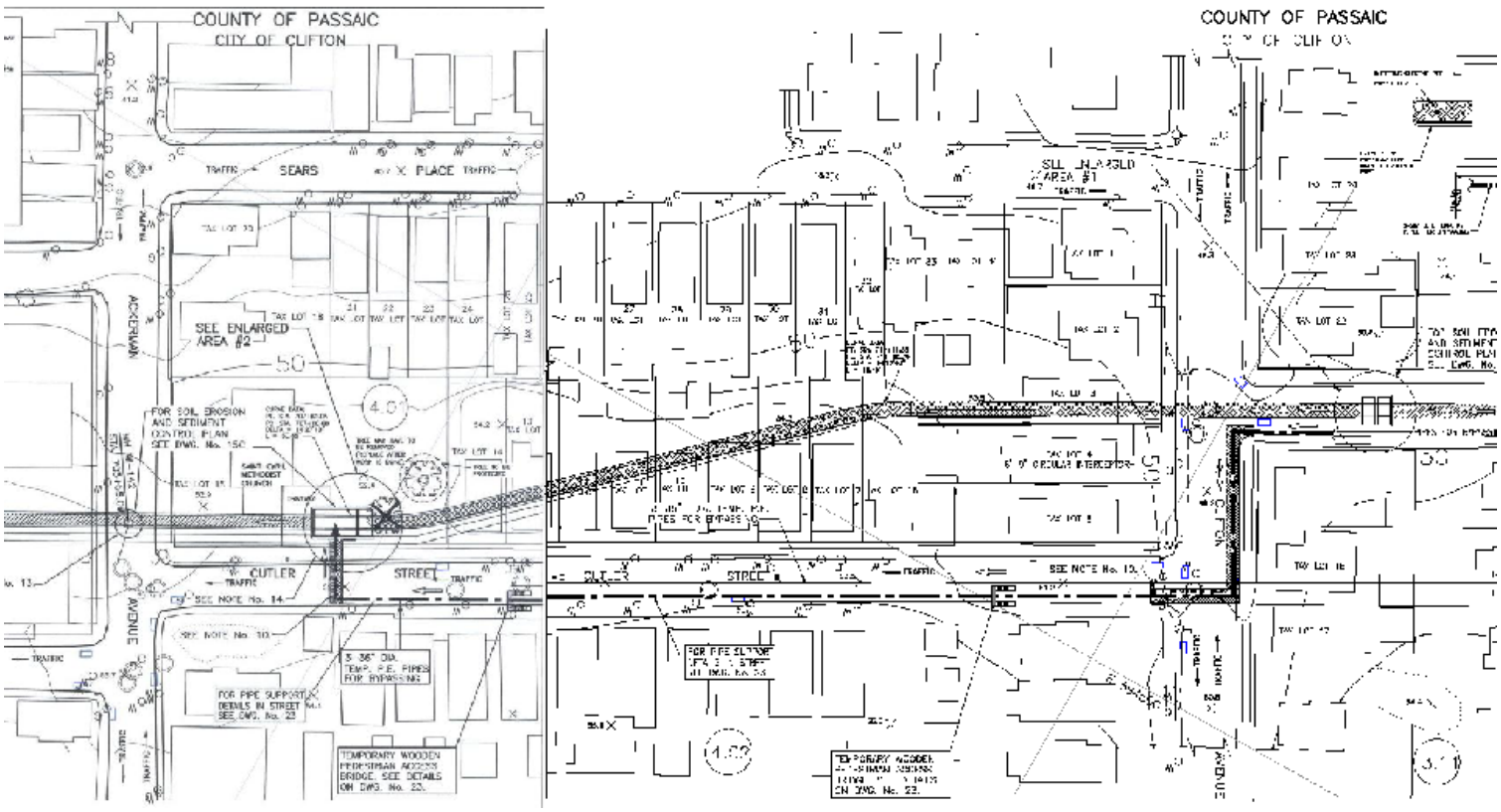
Photograph No. 09 – Scribner Place Access Shaft Slip-Lining Pipe Staging Area.



Photograph No. 10 – "S Curve" between Cutler Street Access Shaft and Scribner Place Access Shaft (Part of Cruz's VECP).

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Photograph No. 11 – Public and Commuter Sign at each Project Site Location (i.e. Cutler Street Access Shaft and Scribner Place Access Shaft).