



ERIE COUNTY WATER AUTHORITY
INTEROFFICE MEMORANDUM
September 10, 2018

To: Terrance D. McCracken, Secretary to the Authority

From: Leonard F. Kowalski, Senior Distribution Engineer

Subject: Emergency Repair Contract
August 1, 2015 to July 31, 2017
ECWA Project No. 201500031

A handwritten signature in blue ink, appearing to be "LFK", is written over the "From" and "Subject" lines.

Attached is a Change Order No. 9 request for the above referenced project. This Change Order is necessary to pay the Contractor, Kandey Company, Inc., for labor and materials associated with the replacement of multiple sections of 42-inch transmission main at the Sturgeon Point Water Treatment Plant (from March 18, 2018 through April 14, 2018).

There was a need for a rapid response and a detailed sequence of the construction procedures necessary to repair and ultimately replace the 42-inch transmission to provide a reliable and stable transmission main for water supply to a substantial portion of the ECWA service area. The attached memorandum from Russell J. Stoll, dated September 10, 2018 provides additional detail regarding the 42-inch transmission main failure and the steps taken to repair and replace the transmission main.

The following documents are attached:

- Blue Authorization Form - this form provides the project name and project number, the action that is being requested of the Board, and it provides a list of approvals that are required prior to being acted on by the Board.
- Three (3) original Change Order requests signed by the Contractor, Kandey Company, Inc.

LFK:jmf
Attachments
cc: R.Stoll
ECWA-736-1501



ERIE COUNTY WATER AUTHORITY
INTEROFFICE MEMORANDUM

September 10, 2018

To: Terrence D. McCracken, Secretary to the Authority

From: Russell J. Stoll, Executive Engineer *RJ Stoll*

Subject: Change Order No.9 – Emergency Repair Contract (August 1, 2015 to July 31, 2017)
Emergency Condition: Failure of the 42-inch Finished Water Transmission Main at Sturgeon Point Treatment Plant
Project No. 201700204 (Emergency Declaration)
Project No. 201700231 (42-inch Watermain Permanent Repair)
Project No. 201700205 (42-inch Main Materials Purchase)
Project No. 201500031 (Emergency Repair Contract)

The following series of events lead to an Emergency Declaration (attached) at the Sturgeon Point Treatment Plant. This memorandum provides additional detail to support the Emergency Declaration. The above referenced Change Order No.9 is necessary to pay the contractor, Kandey Company, Inc., for labor and materials associated with the work required to repair and ultimately replace the 42-inch transmission main.

Water was surfacing adjacent to the High Service Pump Station at Sturgeon Point Water Treatment Plant early Sunday morning, August 6th, 2017 (between 12-1am). There are several watermains in this vicinity, one is a 12-inch line that services the plant, one is a 48-inch transfer line that operates at low pressure and feeds the clear well tanks and the other is a 42-inch transmission main that operates at a high pressure. Any leak at this location is less than desirable since the High Service Pump Station provides approximately 70% of the water to ECWA's distribution system.

Due to the possible severity of the situation, Authority staff were mobilized including the executive engineer, 2 staff engineers, chief operator and chemist, 5 water treatment plant operators, and 2 senior maintenance personal, as well as at least 12 other support personnel. In addition, the emergency contractor (Kandey Company) was also mobilized since they are very experienced with repairing and installing large diameter transmission mains.

It was not clear at the onset of this event to what extent water supply, water quality, availability of water for fire protection, impact to below grade facilities in the area, as well as the stability of the above grade facilities (buildings, storage tanks, etc.) could be impacted. Public health and safety is priority number one in these types of situations.

Since there are numerous water facilities located in this area, careful exploratory excavations were performed to try and identify the location of the leak. Routine excavation depths provided no results and the only other option was to continue to excavate at deeper depths to try and find the leak. The area being searched has numerous below grade utilities, service piping, transmission piping, and electrical conduits, all located in close proximity to the high service pump station.

abrupt changes in elevation of the transmission main, the pipe was assumed to be in an unstable condition. Based on this, it was decided that the work should continue, and Kandey Company should continue working to either provide a stable pipe condition or replace portions of the pipe to provide a stable pipe section that can be relied upon for transmission of finished water to a majority of the Authority's service area.

Consideration was given to using the traditional procurement process for an undertaking of this size, but due to the time it would have taken to develop a bid package, get formal Board approvals and advertise the project, there was just too much risk to public health to use a traditional procurement method. Some other factors were considered too, significant cost would be required to have Kandey Company demobilize all their equipment, materials and labor committed to the project. In addition, sufficient work was in progress that would require completion by another contractor, should Kandey Company demobilize and leave the project. It is likely that a new contractor would not accept the site conditions as is without significant financial assurance that they would not be liable for any work not performed by the new construction company. On a somewhat related note, as the transmission main replacement continued, it became evident that the transmission main was not installed properly and showed signs of distress at other joints. A main component for corrosion protection at the joints of a prestressed concrete cylinder pipe (PCCP) is referred to as a diaper. A diaper encapsulates the steel joint with grout and protects the steel from the surrounding soil. There were several locations where the diapers were not installed on the joints, leaving the steel joint exposed to the surrounding soil. Other joints that were diapered had opened up and settled, therefore exposing the joint to the surrounding soil. Although these conditions were unknown prior to continuing the project with Kandey Company, it was advantageous that we found these problems and corrected them before they caused the next emergency.

Given the unstable nature of the 42-inch transmission main described above, the potential for a catastrophic failure of the transmission main and amount of resources and cost already committed to the project, having Kandey Company continue with the work offered the lowest overall risk to the public health and safety to the ECWA customers affected by this event.

It should also be noted that ECWA had continued and ongoing contact with the Erie County Department of Health regarding the project and the potential for public health risks should the 42-inch transmission main fail completely.

The transmission main ultimately could not be sufficiently stabilized and repaired to provide a reliable main for delivering the finished water supply to ECWA customers. The transmission main instead was replaced in-order to provide a stable and reliable pipe section in the immediate area of the High Service Pump Station.

RJS:jmf

cc: L.Kowalski

SPWA-301-1701

SPWA-301-1702

PUWA-857-1701

ECWA-736-1501

P:\EMERG\201800204\Memo01 Explanation of Emergency.docx

After numerous hours of excavating, it was determined that the leak was located closer to the High Service Pump Station, on a deeper section of the transmission main. This location included a 12-foot wide concrete electrical duct bank and a 48-inch transfer line. Both, along with several water service lines were located between the ground surface and the leaking transmission main. At this location the 42-inch transmission main is approximately 25 feet below grade. Due to the location of the leak, excavation depth and unstable soil conditions, the decision was made to install an excavation protection system (EPS) which consisted of soldier piles, steel sheeting and deadman tiebacks to provide an OSHA/PESH compliant work area. Installation of the EPS took approximately a week. The installation of the EPS was coordinated by Kandey Company.

As the EPS system was being installed, the leak continued to intensify, and it became clear that temporary measures needed to be considered for slowing or stopping the leak prior to reaching the transmission main through traditional excavation methods. The leak was no longer considered stable and it was the consensus of the executive engineer, engineering department and plant staff that an emergency condition continued to be present. Due to the depth of the transmission main, the only viable option at this time was to enter the transmission main from inside the High Service Pump Station. The Authority and Kandey Company had both used internal seals in the past and this was considered a viable option for a temporary fix until more permanent measures could be performed. Installation of the internal seal requires dewatering and entering the transmission main to seal the leak area. A manufacturer from Cincinnati, Ohio, was contacted that can provide the internal seal and a technician for support.

Entering the transmission main requires that it be completely shut down and dewatered. Careful planning is required prior to shutting down a transmission main, water storage tanks need to be filled to capacity, bulk customers need to be notified and water needs to be preserved while the transmission main is out of service. A detailed schedule was prepared to coordinate the work, including filling water storage tanks, dewatering the pipe, preparing entry into the pipe, installing the internal seal, disinfecting the transmission main after the work is complete, refilling the transmission main, testing the water and obtaining EC Heath Department approval prior to placing back into service.

The leak was located at a joint approximately 20 ft from the foundation wall for High Service. The hole in the joint was the approximate size of a baseball. The technician installed the internal seal with support from Authority staff. The internal seal performed well and stopped the leak.

With the leak temporarily fixed, and the EPS in place, excavating subsequently resumed until the transmission main was unearthed and the leaking joint was exposed approximately 25ft below grade.

With the joint exposed the internal seal could be seen slightly protruding out the baseball size hole at the joint. The hole in the joint was encapsulated by welding steel plate over it. The internal seal was replaced since it was possibly over stressed while it was in service and it was unknown if the heat from the welding adversely affected the seal. With the exterior of the joint welded and the interior protected with an internal seal, this was considered a more reliable repair.

The pipe was backfilled Sunday, August 13th. The leak location was visually monitored for several days after backfilling and it appeared that water had started seeping out of the temporary repair. In addition to the leak that resurfaced, the pipe bedding appeared to be compromised and due to the

**Central Purchasing
Declaration of State of Emergency**

Work Order No.: _____

~~EE~~ **OWIP No.:** _____

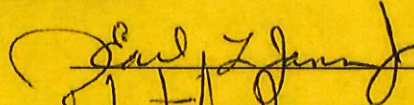
Project No.: _____

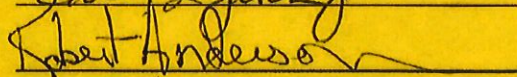
Date of Emergency: 8/6/2017

Detailed Description of Emergency Condition:

MAIN BREAK AT STURGEON POINT WTP

Authorized Signature: Pursuant to the Purchasing Guidelines (Page 17) authorization granted to one or more of the following two (2) individuals: Any Commissioner, the Executive Director, Executive Engineer, and/or the Director of Administration.





To: Purchasing System File

CHANGE ORDER NO. 9

**Erie County Water Authority
295 Main Street, Room 350
Buffalo, New York 14203**

Project No.: 201500031

Date: June 21, 2018

Project: Emergency Watermain Repair Contract
August 1, 2015 through July 31, 2017

Contractor: Kandey Company, Inc.
19 Ransier Drive
West Seneca, New York 14224

Engineer: Erie County Water Authority
295 Main Street, Room 350
Buffalo, New York 14203-2494

DESCRIPTION OF CHANGE:

1. Lump sum extra to pay for labor and materials associated with the replacement of multiple sections of 42" transmission main at the Sturgeon Point Water Treatment Plant. The work period covered is from March 18, 2018 through April 14, 2018.

The work performed during this period includes the following:

- Installing concrete risers to protect exposed piping utilized for bypass pumping.
- Credit for excess piping material that was returned to the vendor.
- Finalizing installation of backflow preventers in high service building.
- Excavation for electrical duct banks.
- Fee for additional bonding due to increase in contract amount (Section 00700, General Conditions, Paragraph 11.01, A.5.i).
- Finalize site cleanup.
- Demobilizing from site.

REASON FOR CHANGE:

1. The existing contract does not contain items for the type of work that is being performed.

COMPENSATION:

1. Lump sum extra of \$28,889.03

CHANGE IN CONTRACT PRICE:

CHANGE IN CONTRACT TIMES:

Original Contract Price

\$1,975,182.00

Original Contract Times

Contract Expiration 07/31/2017

Date:

Net Changes from previous Change Orders

No. 1 to 8

\$1,743,807.23

Net changes from previous Change Orders

No. 1 to 8

Number of days: 243 Days

Contract Price prior to this Change Order

\$3,718,989.23

Contract Times prior to this Change Order

Contract Expiration 3/31/2018

Date:

Net Increase/~~Decrease~~ of this Change Order

\$28,889.03

Net Increase/~~Decrease~~ of this Change Order

Number of days: NA

Contract Price with all approved Change Orders

\$3,747,878.26

Contract Times with all approved Change Orders

Contract Expiration 3/31/2018

Date:

APPROVALS:

OWNER:

Erie County Water Authority

Date:

CONTRACTOR:

Maura Kanleyer
Kandey Company, Inc.

Date:

6/21/18

ENGINEER:

Russell Stolt
ECWA Executive Engineer

Date:

7/18/18