Legislation Details (With Text)

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Title: Resolution to Approve Change Order No. 1 to a Construction Contract with Liquiforce Services (USA), Inc. in the Amount of $314,700.42 for the Nichols Arboretum Sewer and Siphon Rehabilitation

Sponsors:

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Attachments: 1. liquiforce - resolution awarding contract - approved - 161220.pdf, 2. liquiforce - signed change order no 1 - 170920.pdf

Date	Ver.	Action By	Action	Result
11/9/2017	2	City Council	Approved	Pass

Resolution to Approve Change Order No. 1 to a Construction Contract with Liquiforce Services (USA), Inc. in the Amount of $314,700.42 for the Nichols Arboretum Sewer and Siphon Rehabilitation Attached for your review and approval, please find a resolution that will approve Change Order No. 1 for the Nichols Arboretum Sewer and Siphon Rehabilitation Project in the amount of $314,700.42. The change order was necessitated by several differing site conditions that were discovered during the course of construction of this project.

The Southside Interceptor Sewer is a 36” trunk line sanitary sewer that services a large portion of downtown Ann Arbor, the University of Michigan’s Medical Campus, and other areas further downstream such as Geddes Avenue and E. Huron River Drive on its way to the Waste Water Treatment Plant. A portion of this sewer contains a 624 foot long, double-barrel, 24” diameter inverted siphon with cast-in-place concrete junction chambers at each end. One of the barrels of the inverted siphon was plugged and inoperable for some time. The cast-in-place junction chamber walls also had a moderate to severe level of hydrogen sulfide damage due to the turbulence within the inverted siphon. Sanitary sewer overflows have occurred within the section of the sewer within the Arboretum intermittently over the last many years.

The Nichols Arboretum Sewer and Siphon Rehabilitation Project is part of a multi-phase project that has been systematically rehabilitating the Southside Interceptor over the course of the last five years. Subsequent phases of the project are planned into the future to complete the rehabilitation of this sewer.

As the project name indicates, this project is rehabilitating the portion of the Southside Interceptor that is under the wooded portion of the Nichols Arboretum from the entrance gate on Nichols Drive to a point approximately 600 feet east of the prairie in the Arboretum. Due to the extremely difficult location of this sewer, the steeply sloping terrain above it, the sensitivity of flora in the Arboretum, and the very heavy flows within the sewer, maintenance of this sewer has been virtually impossible for at

least the last 40 years.

In 2016 the City sought to undertake a project to rehabilitate the existing sewer, clean and inspect the inverted siphon, inspect the junction chambers, and place a cured-in-place structural liner in the sewer. During the performance of the project a series of differing site conditions became apparent that forced Staff to add work to the project in order to properly complete the rehabilitation and restore the sewer to an acceptable level of operation.

The first differing site condition that was discovered was that the manhole in which the work was planned to terminate, was not located on the existing 36” sanitary sewer, but was located alongside the existing 36” sewer and contained a “blind-tapped” 10” diameter pipe into the top of the 36” pipe. It was not possible to determine this blind-tap existed during the design phase of the project because the very heavy flows within the 36” sewer made it impossible to televise the sewer to see the connection. Also, the manhole alongside the 36” sewer contained outflows from a large segment of the University of Michigan Hospital Complex that were heavy and was located on the 90-foot high slope leading from E. Medical Center Drive down to the Southside Interceptor. The net result of this differing site condition was that it was necessary to revise the sewer lining sequence, timeline, and add approximately 320 lineal feet of 36” sewer lining to the project, and add thickness to this portion of the liner due to the depth of the pipe in this location.

Another differing site condition that was found during the cleaning operations was that the pipe did not follow the alignment as shown on the as-built plans and contained a sharp bend and a “radiused” section of sanitary sewer that required the construction of a new manhole in order to allow the cured-in-place liner to be inserted into the sewer through this bend. Further compounding this issue was the fact that this bend was located on a steep slope above a regulated wetland in which construction equipment could not travel through or around. All elements of the work had to be lifted over the wetland with a rubber-tired crane; also, the excavation for the manhole needed to be performed by vacuum extraction methods.

It was also discovered during the performance of the work that the section of the sanitary sewer that was located immediately downstream of the termination point of the project was in very poor condition, contained holes, and was close to collapsing. This segment of sewer was about 270 lineal feet in length and needed to be added to the project as well in order to avoid serious consequences. This segment of sewer was not contained within the original scope of the project and it was not possible to televise the sewer due to the extremely heavy flows within the 36” diameter pipe during the design phase of the project and a lack of access to the sewer itself.

It was also discovered during the performance of the work that a portion of the University of Michigan -owned 10” diameter sewer mentioned above contained a defect that was causing sewage to leak out of the ground during our by-pass pumping operations. Consequently, it was necessary to have vactor trucks on-site while this segment of sanitary sewer was being by-passed in order to prevent raw sewage from entering the Huron River.

Finally, once the cast-in-place junction chambers of the inverted siphoned were cleaned, it was determined that they were not in as poor condition as originally believed. Staff negotiated a reasonable price with the Contractor to place a 1” thick, silica-fume modified concrete, repair layer to replace the concrete that was lost due to hydrogen sulfide damage and then place an epoxy coating over that concrete to help prevent future hydrogen sulfide damage. The Contractor was also directed to place a new access hatch on the chamber to replace the unsecured, loose, steel plate that

covered the opening to prevent harm to users of the Arboretum. This work was performed at this time in order to minimize future disturbance to the Arboretum and reduce future costs associated with the needed repairs to the concrete junction chambers by performing them with the on-going work.

There were many sensitive areas that were necessary to work around during the performance of this work and it was necessary to add other items of work to the project in order to comply with the terms of our Access Agreement with the U of M that added costs to the project. An example of this was that the University of Michigan has student caretakers living in the Caretaker's House located within the Arboretum. Nichols Drive is the only legal means of vehicular ingress and egress to the residence. Consequently, during two of the lining operations due to the differing site conditions, it was necessary to house the caretakers in a hotel for two nights while the work was on-going in order to ensure that issues with emergency access did not arise during the performance of the work.

Staff also agreed to grant the Contractor a sixty (60) calendar day time extension in order to complete the additional work and to revise their original work plan due to the differing site conditions.

In total, it is now necessary to add $314,700.42 of work to this project to properly complete all needed work to restore full functionality to the existing Southside Interceptor sewer and minimize future work to this segment of sewer for the foreseeable future. With Council's approval of the construction contract (R-16-484), an $89,100.00 contingency amount was established for the work. Thus, an additional $225,600.42 will need to be approved to fund the work of this change order.

Given the nature of this project and the differing site conditions that were encountered during the performance of the work, it was not possible to stop the work and negotiate all costs and terms of the work as that would have led to additional expenses (equipment downtime and increased by-pass pumping costs) and significant additional delays to the work. Consequently, staff negotiated with the contractor to resolve all costs and requests for extra compensation. All extra costs associated with the project are accounted for in Change Order No. 1. With approval of this change order, the final payment will be made to the Contractor and the project will be closed out.

As provided in City Code 1:316, the Engineering Unit of the Public Services Area sought and received approval of an emergency authorization from the City Administrator on June 12, 2017 to continue the work of the project pending submittal to, and approval from, City Council (copy attached).

Funds exist within the Sewage Disposal Capital Budget to pay for this work.
Prepared by: Nicholas S. Hutchinson, P.E., City Engineer
Reviewed by: Craig Hupy, Public Services Area Administrator
Approved by: Howard S. Lazarus, City Administrator
Whereas, A portion of the Southside Interceptor Sanitary Sewer that lies within the Nichols Arboretum was in poor condition, had leaking joints, and sanitary sewage spills;

Whereas, Due to the extremely difficult access to this particular run of sanitary sewer, routine maintenance activities in the past have been very challenging and extremely difficult to perform on this section of sanitary sewer;

Whereas, The approved CIP contained project UT-SN-14-06 known as the Nichols Arboretum Sewer and Siphon Rehabilitation Project;

Whereas, The Ann Arbor City Council approved Resolution R-16-484 that approved a contract with Liquiforce Services (USA), Inc. in the amount of $890,900.00 for the Nichols Arboretum Sewer and Siphon Rehabilitation;

Whereas, During the course of the work, several differing site conditions were discovered that necessitated revising the manner in which the planned work was to be performed, the time frame that the work was to be performed within, and the amount of work of performed;

Whereas, Staff analyzed the differing site conditions and determined that the most prudent course of action was to add additional work to the contract in order to properly complete the rehabilitation of the sewer and allow it to safely resume operation without the fear of sanitary sewer overflows;

Whereas, Staff has negotiated the needed additional expenses to effectively and efficiently complete the work of the project and are presenting them for Council's review and approval in Change Order No. 1;

Whereas, The approval of the original contract with Liquiforce Services (USA), Inc. contained a contingency amount of $89,100.00 to cover the cost of change orders as approved by the City Administrator; and Change Order No. 1 will exceed the previously approved contingency amount and requires additional council authorization; and

Whereas, Funds for the cost of this change order are available in the approved FY 17 Sewage Disposal Capital Budget;

RESOLVED, That Change Order No. 1 in the amount of $314,700.42 with LiquiForce Services (USA), Incorporated of Romulus Michigan is approved by Council;

RESOLVED, That the City Administrator be authorized and directed to sign Change Order No. 1 to the contract with LiquiForce Services (USA), Inc.;

RESOLVED, That the City make the following declaration for the purpose of complying with the reimbursement rules of Treasury Regulations 1.150-2 pursuant to the Internal Revenue Code of 1986, as amended, that the City reasonably expects to reimburse itself for expenditures for the costs of the project with proceeds of Bonds; and

RESOLVED, That Council authorize the City Administrator to take the necessary administrative actions to implement this resolution.