



**CITY of NOVI CITY COUNCIL**

**Agenda Item 5  
November 13, 2018**

**SUBJECT:** Approval to award civil engineering services to OHM Advisors for construction engineering services associated with the Nine Mile Road Sewer project (Evergreen Court to Kensington) in the amount of \$494,892.54.

**SUBMITTING DEPARTMENT:** Department of Public Works, Water & Sewer Division

**CITY MANAGER APPROVAL:** *[Signature]*

<b>EXPENDITURE REQUIRED</b>	<b>\$ 494,892.54</b>
<b>AMOUNT BUDGETED</b>	<b>\$ 4,151,582</b>
<b>APPROPRIATION REQUIRED</b>	<b>\$ 0</b>
<b>LINE ITEM NUMBER</b>	<b>592-592.00-976.029</b>

**BACKGROUND INFORMATION:**

A recent analysis of the Park Place pump station and the downstream force main serving Nine Mile between Napier Road and Beck Road indicated there are capacity concerns in this area of the sanitary sewer system. In addition to the capacity, there is also a major concern regarding redundancy for the 1.6-mile long force main. For further information, refer to the attached memo from Ben Croy dated April 18, 2016. After reviewing the options available to resolve capacity and redundancy concerns, it was determined replacing the majority of the existing force main with a gravity sewer would be the best option. Mitigating factors for replacement include system operation, maintenance, and future residential service connections.

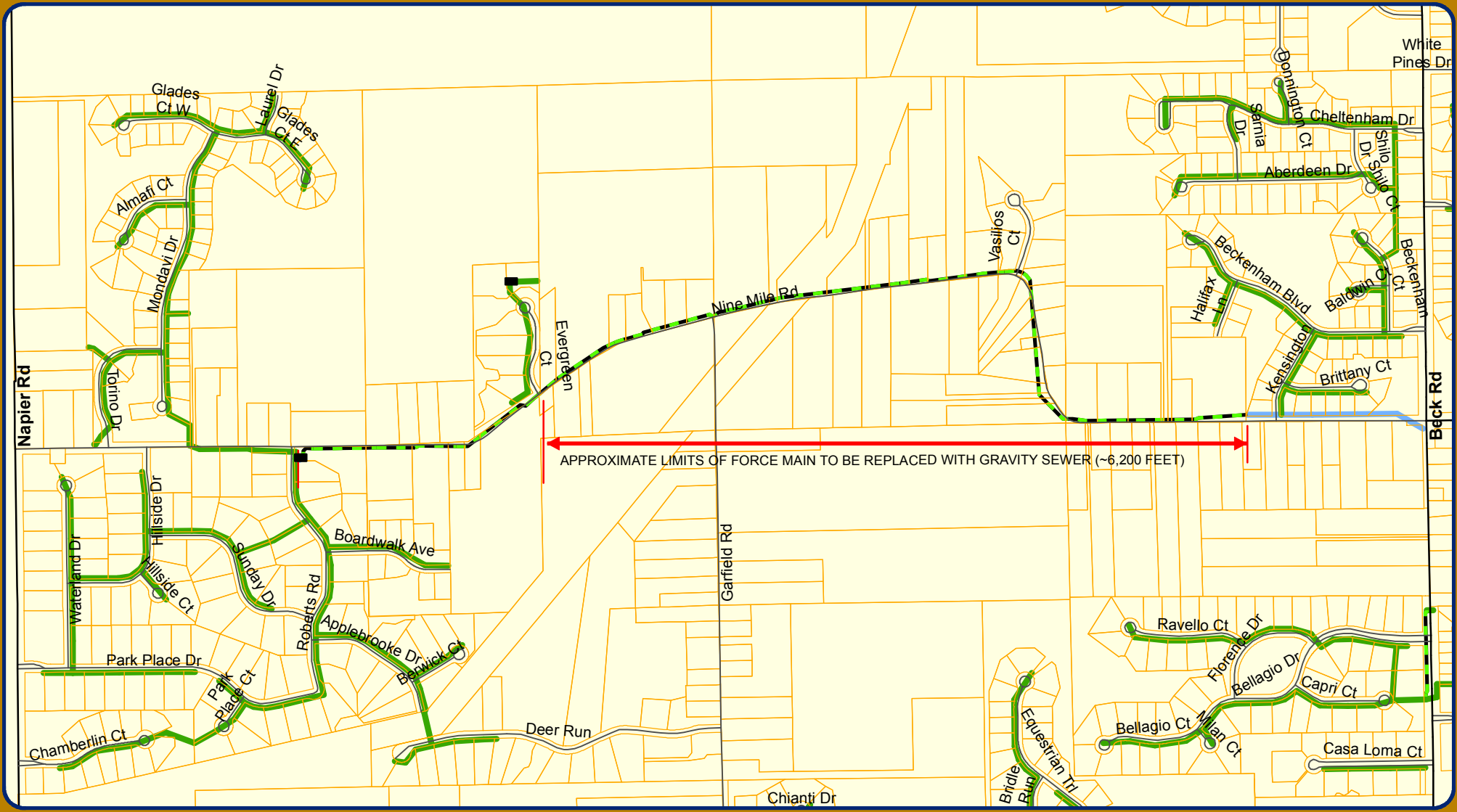
OHM Advisors, the City's Engineering consultant, assisted the Water and Sewer Division with developing the plans for this project. The plans were advertised for public bids on September 28, 2018. The construction phase engineering fees are determined using two components: 1) the contract administration fee, which is determined using the fee percentage in Exhibit B of the Agreement for Professional Engineering Services for Public Projects, and 2) the construction inspection fee determined using a cost per inspection (crew) day from Exhibit B of the consultant's agreement that is then multiplied by the number of days of inspection specified by the contractor. The construction phase engineering fees for this project include a contract administration fee of \$249,892.54 (4.5% of the \$5,553,167.65 construction bid) and an inspection fee of \$245,000 (\$700 per crew day, multiplied by the 350 days provided in the contractor's bid) for a total fee of \$494,892.54.

The construction contract award associated with this project is proposed elsewhere on this agenda. Anticipated project substantial completion is late 2019 or early 2020.

**RECOMMENDED ACTION:** Approval to award civil engineering services to OHM Advisors for construction engineering services associated with the Nine Mile Road Sewer project (Evergreen Court to Kensington) in the amount of \$494,892.54.

# NINE MILE GRAVITY SEWER PROJECT

## Location Map






Map Author: Croy  
 Date: 4/28/17  
 Project: Nine Mile Gravity Sewer  
 Version #: v1.0

**MAP INTERPRETATION NOTICE**

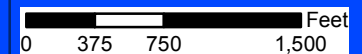
Map information depicted is not intended to replace or substitute for any official or primary source. This map was intended to meet National Map Accuracy Standards and use the most recent accurate sources available to the people of the City of Novi. Boundary measurements and area calculations are approximate and should not be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 132 of 1970 as amended. Please contact the City GIS Manager to confirm source and accuracy information related to this map.

### Map Legend

-  6" Sanitary Force Main
-  8" Gravity Sanitary Sewer
-  12" Gravity Sanitary Sewer



**City of Novi**  
 Engineering Division  
 Department of Public Services  
 26300 Lee BeGole Drive  
 Novi, MI 48375  
[cityofnovi.org](http://cityofnovi.org)





November 5, 2018

Mr. Ben Croy  
Water and Sewer Senior Manager  
City of Novi  
Department of Public Services  
26300 Lee Begole Drive  
Novi, MI 48375

RE: Nine Mile Road Sanitary Sewer

Dear Mr. Croy:

We are submitting this scope of services as a follow up to our completion of design and bidding documents, and the anticipated start of construction in the upcoming winter. The following outlines our Project Understanding, Scope of Work, Schedule, and Fee for the construction phase of this project.

**Project Understanding**

We understand this project to include the construction of approximately 6,400 feet of 12-inch gravity sanitary sewer and 650 feet of 8-inch gravity sanitary sewer along the Nine Mile Road corridor, generally between Evergreen Court and Kensington Road. OHM Advisors recently completed bidding documents for the sanitary sewer, and we anticipate contract award to a Contractor for installation of the work in the near future by the City. The City desires for OHM Advisors to continue with professional services through the construction phase of work, consistent with our on-going Agreement for Civil Engineering Services.

**Scope of Work**

The scope of work for this project will be consistent with our Agreement for Civil Engineering Consulting Services between the City and OHM Advisors. This includes items related to the sanitary sewer construction phase of work as follows:

- Contract Administration
- Construction Inspection
- SESC Inspection
- Coordination with the City selected Geotechnical Consultant for material testing
- Project Close-out

**Schedule**

Based on past communication with the City and the bidding schedule, the following is the anticipated construction schedule for this project:

Council Bid Award - November 13, 2018  
Executed Contract Documents, Bonds/Insurance - November 13 through December 11, 2018  
Tentative Pre-Construction Meeting Date - December 13, 2018  
Notice to Proceed / Contractor Mobilization - January 2, 2019  
Construction Substantial Completion - November 3, 2019  
Construction Final Completion - December 18, 2019



### **Fee**

Based on the fee schedule in the Civil Engineering Consulting Services Agreement between the City and OHM Advisors, the fee for this project is established as follows:

- Construction Administration Fee at 4.5% of low bidder construction cost (\$5,553,167.65) = \$249,892.54
- Construction Inspection Fee at \$700 per Crew Day x 350 days = \$245,000.00
- Total Fee = \$494,892.54

Please note that the construction inspection fee would be reconciled at the end of the project, based on the actual crew day accrual. This fee reconciliation would take place once work is complete, and after the balancing change order for the construction project has been issued.

If you have any questions regarding this proposal, please do not hesitate to contact me at 734-466-4439.

Sincerely,  
OHM Advisors

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George Tsakoff, PE  
Principal

cc: Tim Juidici, PE, OHM

# MEMORANDUM



**TO:** ROB HAYES, DPS DIRECTOR/CITY ENGINEER  
**FROM:** BEN CROY, WATER AND SEWER SENIOR MANAGER  
**SUBJECT:** NINE MILE GRAVITY RELIEF SANITARY SEWER PROJECT  
**DATE:** APRIL 18, 2016

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You may recall that a recent analysis of the Park Place pump station and the downstream force main along Nine Mile indicated that there are capacity concerns in this area of the sanitary sewer system. This condition exists primarily because the Evergreen Estates pump station and many low pressure grinder pump connections to the 6-inch force main have had a more significant effect on the Park Place pump station than was originally assumed (see attached map). Due to this concern, it was determined that there was a need to temporarily defer any additional connections to the force main. While a few single family connections would be acceptable, the connection of a larger future development would likely cause pressure and capacity difficulties within the system. In addition to the capacity concerns, there is also a major concern that this sewer system does not have any redundancy because the Park Place pump station is 1.6 miles from the closest gravity outlet (near Kensington Drive), and in the event of a failure in the existing force main, the entire area served by the force main would be without service.

For these reasons, the Water and Sewer Division has been evaluating the various options to alleviate the capacity and redundancy shortfalls. The two options considered include varying lengths of gravity sewer and a second/parallel force main. Although both options are feasible, a gravity sewer has the following advantages:

- It would eliminate the need for additional residential grinder pump stations, and would provide the opportunity for the existing eleven grinder pump connections to be converted to standard gravity lead connections. Grinder pumps can prove to be a costly maintenance burden for residential customers, and we feel it would be a benefit to eliminate the need for this type of connection moving forward.
- Gravity sewer does not require power, so in the event of a power outage, any home with a standard gravity lead would not be affected.
- A shorter force main could continue to use the existing 5 hp pumps, rather than upgrading to 12 hp pumps, saving on the cost of the pumps and the long-term power consumption costs.
- Unlike a traditional gravity sewer, this relatively long force main (1.6 miles) has proven to be a complicated system with changing hydraulic-related variables as additional connections were made. Since we are unsure how this area of the City will eventually develop (single family or subdivisions with pump stations), we

are concerned that we may need to continually analyze this system to ensure that adequate operating pressures can be maintained throughout the system.

- During a recent conversation with Kelly Cave of Wayne County DPS (the agency that manages the sewage collection system downstream of Novi) it was indicated that they would view parallel force mains as having the total combined capacity of both pipes together, rather than basing permitted capacity upon our proposed design service area. This could create a point of contention during the sanitary permitting process resulting in permit delays and/or denials.

Therefore, it was determined that the best option would involve the replacement of the majority of the force main with gravity sewer, leaving only the western portion of the existing force main in service. This design would eliminate all concerns related to capacity and redundancy for the sanitary sewer system in this area, and would provide adequate sewer service for all future development along Nine Mile.

Staff completed a survey of the proposed project area in 2015, and based on the survey data determined that the preliminary estimate for this project is \$3.88 million, which has not yet been budgeted. A portion of this cost could be covered by the reallocation of funds for two other projects, totaling \$750,000, that are no longer necessary. Some of the project cost can be attributed to high costs for individual items such as dewatering (estimated to be \$380,000). The rest of the cost is generally related to the difficulty of construction because it would be a relatively deep sewer in somewhat confined conditions due to Nine Mile Road's narrow right-of-way width (mostly 66 feet) and several large trees that are in the right-of-way (the project's design process would include an evaluation of feasible alternatives to mitigate tree removal).

Based on the preliminary estimate (attached) and the urgent need for this relief sewer project, the Water and Sewer Division is requesting a budget amendment to establish the budget and fund the proposed Nine Mile Gravity Relief Sewer project.

Please let me know if you have any questions or comments regarding this memorandum.

cc: Brian Coburn, Engineering Senior Manger  
Scott Roselle, Water and Sewer Asset Manager