



CITY OF NOVI CITY COUNCIL
APRIL 25, 2022

SUBJECT: Approval to award geotechnical services to Testing Engineers & Consultants (TEC) for a hydrogeologic study to aid in the design of the Sanitary Sewer Capacity Upgrade – Lanny’s Influent & Drakes Bay Effluent project in the amount of \$29,400.

SUBMITTING DEPARTMENT: Department of Public Works, Engineering Division

EXPENDITURE REQUIRED	\$ 29,400.00
AMOUNT BUDGETED	\$ 69,260.00
APPROPRIATION REQUIRED	\$ 0
LINE ITEM NUMBER	592-592.00-976.110

BACKGROUND INFORMATION:

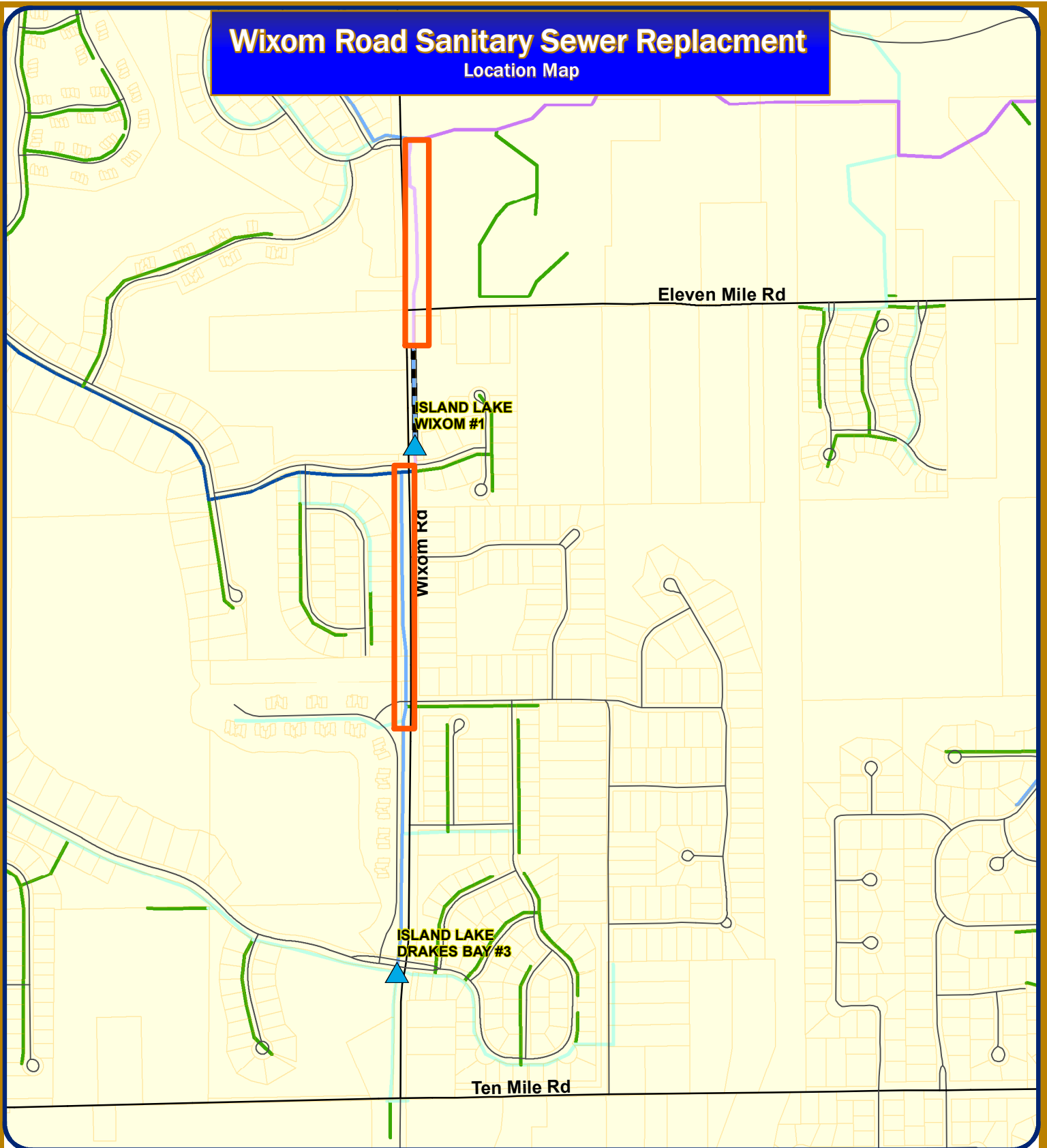
The Sanitary Sewer Capacity Upgrade – Lanny’s Influent & Drakes Bay Effluent project involves the construction of approximately 4,000 feet of new sanitary sewer along Wixom Road, between Braeburn Lane to Glenwood Drive. An initial geotechnical investigation was completed in November 2021, which showed varying groundwater levels that would require dewatering to construct the sewer. Due to the potential impacts of dewatering to adjacent wells, the City is recommending a hydrogeologic study be completed prior to the bidding phase of the project.

The City obtained a proposal from geotechnical consultant, TEC, for a hydrogeologic study of the project area. The study will consist of the installation of monitoring wells, a slug test at each monitoring well, design of a preliminary dewatering system, and evaluation of potential impacts on residential wells. The attached proposal provides more details on the scope of services. The fee for this assessment will be \$29,400. The study is expected to take twelve weeks to complete.

RECOMMENDED ACTION: Approval to award engineering services to Testing Engineers & Consultants (TEC) for a hydrogeologic study to aid in the design of the Sanitary Sewer Capacity Upgrade – Lanny’s Influent & Drakes Bay Effluent project in the amount of \$29,400.

Wixom Road Sanitary Sewer Replacment

Location Map














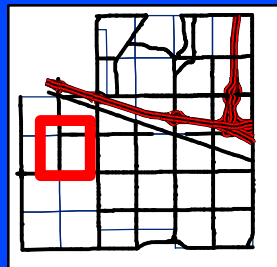
Map Author: R. Runkel
 Date: 12/4/20
 Project: Wixom Rd Sanitary Sewer
 Version #: v1.0

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

-  Sanitary Lift Station
-  Sanitary Gravity Main
-  8.0"
-  10.0"
-  12.0"
-  15.0"
-  18.0"
- 21.0"
-  Force Main
-  6"
-  8"
-  12"



City of Novi

Engineering Division
 Department of Public Services
 26300 Lee BeGole Drive
 Novi, MI 48375
cityofnovi.org



1 inch = 875 feet





Testing Engineers & Consultants, Inc.

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www.testingengineers.com

Engineering Client Success

TEC Proposal: 060-22-104

Date Issued: April 7, 2022

Ms. Rebecca Runkel
City of Novi
26300 Lee BeGole
Novi, MI 48375

Re: Hydrogeologic Study
Wixom Road Sanitary Sewer Upsize
Novi, Michigan

Dear Ms. Runkel:

In response to your request, Testing Engineers & Consultants, Inc. (TEC) is pleased to submit our proposal for a Hydrogeologic Study of the above referenced property located in Novi, Michigan. We have enclosed a scope of work and fee schedule for the recommended services.

TEC looks forward to working with you on this project. We will contact you soon to discuss how we may be of assistance.

Respectfully submitted,

TESTING ENGINEERS & CONSULTANTS, INC.

A handwritten signature in blue ink, appearing to read "C. Suhan".

Carey J. Suhan, P.E.
Vice President, Geotechnical
& Environmental Services

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All services undertaken are subject to the following policy. Reports are submitted for exclusive use of the clients to whom they are addressed. Their significance is subject to the adequacy and representative character of the samples and the comprehensiveness of the tests, examinations and surveys made. No quotation from reports or use of TEC's name is permitted except as expressly authorized by TEC in writing.

CONSULTING ENGINEERS & FULL-SERVICE PROFESSIONAL TESTING AND INSPECTION
OFFICES IN ANN ARBOR, DETROIT, AND TROY
FOUNDED IN 1966



Testing Engineers & Consultants, Inc.

Ms. Rebecca Runkel
City of Novi
April 7, 2022

TEC Proposal: 060-22-104

PROPOSAL FOR A GEOTECHNICAL INVESTIGATION

A. INTRODUCTION

Testing Engineers & Consultants (TEC) had been retained by the City of Novi to conduct a geotechnical investigation for the proposed Wixom Road Sanitary Sewer Upgrades project. The project includes constructing a new sanitary sewer beneath Wixom Road from approximately Braeburn Lane to Glennwood Drive, comprising a distance of about 4,000 feet. We understand the sewer invert will range from approximately Elevation 945 feet at Braeburn Lane to 935 feet at Albatross Drive, about 1,500 feet north of Braeburn Lane. From Braeburn Lane to the north to Glennwood Drive the sewer slopes upwards to Elevation 947 feet.

TEC performed a geotechnical investigation along the alignment and the results were published in a geotechnical report dated November 3, 2021. The investigation showed the groundwater along the alignment varied from approximately Elevation 946 at the southern end of the alignment dipping to about Elevation 935 feet at Albatross Lane. The groundwater then rose to the north to approximately Elevation 951 feet at Glennwood Drive. The geotechnical report recognized that dewatering would be required to construct the proposed sewer (assumed open cut construction).

Based on the geotechnical report Test Boring Location Plan, which also shows the groundwater profile and proposed sewer invert, the existing groundwater will need to be lowered along the alignment approximately five feet to construct the proposed sewer.

The proposed sewer will be constructed to the immediate north and west of Island Lake which, based on Google Earth, has a surface elevation of approximately 943 feet. Several retention/detention ponds are also located along the alignment. Based on preliminary MDEQ Water Well records, several drinking water wells are located immediately along the alignment, and many are located to the east of the project. Several others are located to the west, adjacent to Island Lake.

Given the dewatering impacts to wells along the alignment, and possible impacts to other wells, the City of Novi is concerned about dewatering impacts to wells and has requested TEC to evaluate these potential impacts. TEC will subcontract with FK Engineering Associates to assist in this evaluation.

Testing Engineers & Consultants, Inc.

Ms. Rebecca Runkel
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TEC Proposal: 060-22-104

B. SCOPE OF WORK

To perform our evaluation, we propose the following scope of services:

1. The TEC team will review the available project data, along the project alignment, to perform our analysis.
2. The TEC team will install three monitoring wells to fifty foot depths.
3. The TEC team will perform slug in/out testing at each of the groundwater monitoring well locations and estimate groundwater characteristics from these testing results.
4. We will perform a preliminary dewatering system design for the project length. The design will include estimating the groundwater aquifer characteristics from both grain size analysis and slug testing, dewatering well spacings, groundwater drawdown contours, groundwater volumes, etc. The design will be performed for the purposes of estimating the impacts on residential wells and Island Lake. It will also be used for MDEQ Part 327 permitting purposes. Well details will not be included. We anticipate three design soil profiles/groundwater profiles will be required to analyze the project length.
5. The TEC team will perform research to identify residential wells along the project alignment by use of the MDEQ Water Well Viewer website. We will also obtain a City of Novi Water Main map to review for other possible water well locations. We will discuss the project alignment with the City of Novi to investigate other unidentified residential wells. All identified wells will be plotted on the groundwater drawdown contour map to evaluate potential impacts on the wells.
6. The results of our analysis will be presented in a report detailing relevant project background information and the results of our above scope of services. The report will include limitation of liability understandings regarding the presence of unidentified residential wells, variations in subsurface conditions from design assumptions and construction contractor performance issues.
7. We can perform a preliminary dewatering impact evaluation to investigate if a Part 327 Permit is required. We have not included completing the detailed Part 327 Permit at this time.

Testing Engineers & Consultants, Inc.

Ms. Rebecca Runkel
City of Novi
April 7, 2022

TEC Proposal: 060-22-104

- 8. We can provide additional assistance, as requested, for Part 327 Permit preparation, project specifications, etc. Additional fees would apply.

C. FEE SCHEDULE

The following estimate is based upon information available at this time. Our services will end with the submission of the report as outlined in the scope of work. In the unlikely event that unusual or unforeseen subsurface conditions are encountered or if there is a necessary change in the scope of work, you will be notified before additional services are performed. Additional services will not be performed without first obtaining your approval of the additional costs in excess of 10% of the estimated cost. Additional services and meetings will be at the rates in our current fee schedule.

We propose to perform the services outline in this proposal for the following professional fees:

- 1. Tasks 1-6 \$29,400.00
- 2. Additional Part 327 Permit assistance, Project specifications, etc. in accordance with our current Fee Schedule.

We believe the slug test approach is sufficient to estimate aquifer characteristics for this project. However, a more accurate characterization can be determined with a pump test in the field. We have not specifically determined a fee for this, however for order of magnitude, it could be approximately an additional \$50,000.00.

D. TIME FRAME

The following represents our tentative schedule. If the time frame outlined below does not satisfy your scheduling requirements, we will be happy to make other arrangements to meet your specific time schedule. The total time for research, field work, analysis and report is expected to take about twelve weeks from authorization to proceed.

E. TERMS AND CONDITIONS

The terms and conditions will be in accordance with the agreement between TEC and the City of Novi.

Testing Engineers & Consultants, Inc.

Ms. Rebecca Runkel
City of Novi
April 7, 2022

TEC Proposal: 060-22-104

F. AUTHORIZATION

If this proposal meets with your approval, please sign in the spaces provided below and return an executed copy for our files. We will consider this a legal contract and written authorization to proceed.

Accepted By:

Firm

Federal ID No.

Authorized Signature

Typed or Printed Name

Title

Date