



**CITY of NOVI CITY COUNCIL**

**Agenda Item J  
February 26, 2018**

**SUBJECT:** Approval to award geotechnical engineering services to Testing Engineers & Consultants, Inc. (TEC) for geotechnical investigation of pavements and subgrade soils associated with the 2018 and 2019 Neighborhood Road Program (NRP) in the amount of \$30,880.50.

**SUBMITTING DEPARTMENT:** Department of Public Services, Engineering Division

**CITY MANAGER APPROVAL:** 

<b>EXPENDITURE REQUIRED</b>	\$ 17,250.00 NPR Design Engineering 2018 \$ 13,630.50 NPR Design Engineering 2019 \$ 30,880.50 Total
<b>AMOUNT BUDGETED</b>	\$ 160,000 NPR Design Engineering 2018 \$ 127,110 NPR Design Engineering 2019
<b>LINE ITEM NUMBER</b>	203-203.00-864.190 NPR Design Engineering 2018 203-203.00-864.200 NPR Design Engineering 2019

**BACKGROUND INFORMATION:**

Each year the City selects residential streets for reconstruction, repaving, repair, and/or rehabilitation based on PASER ratings, staff's field observations and resident concerns. As part of the design process, geotechnical investigation of the pavements and subgrade soils are required. The City's Geotechnical Consultant, Testing Engineers & Consultants, Inc. (TEC), has submitted a proposal to perform a geotechnical investigation for the 2018 and 2019 Neighborhood Road Program (NRP). City staff recommends conducting geotechnical investigations for both years at this time because it provides economies of scale and will expedite the design engineering for next year's potential candidates. TEC will submit a report to the City that will focus on the strength, compressibility and physical characteristics of the soils encountered and will provide their analysis of the recommended geotechnical design parameters including the following:

- Alternate pavement sections and service lives;
- Stabilization requirements for subgrade soils (if needed);
- Evaluation of groundwater conditions and its effects on construction and the design of the rehabilitated or reconstructed pavements;
- Parameters affecting site grading and drainage;
- Geotechnical factors affecting construction of the project.

The attached *geotechnical engineering* proposal, as executed by TEC, outlines the scope of services in more detail. The geotechnical investigation fee is a lump sum of \$30,880.50, determined by the costs of mobilization, labor costs, drilling and laboratory analysis for 31 local streets. The Engineering Division has reviewed the scope of services proposal and recommends approval.

**RECOMMENDED ACTION:** Approval to award geotechnical engineering services to Testing Engineers & Consultants, Inc. (TEC) for geotechnical investigation of pavements and subgrade soils associated with the 2018 and 2019 Neighborhood Road Program (NRP) in the amount of \$30,880.50.



## Testing Engineers & Consultants, Inc.

1343 Rochester Road • PO Box 249 • Troy, Michigan 48099-0249  
(248) 588-6200 or (313) T-E-S-T-I-N-G • Fax (248) 588-6232  
www.testingengineers.com

TEC Proposal: 060-18-0011 Rev 2

Date Issued: February 14, 2018

Mr. Mark Koskinen  
City of Novi c/o AECOM  
27777 Franklin Road  
Southfield, Michigan 48034

Re: Geotechnical Investigation  
2018 Neighborhood Road Program  
City of Novi, Michigan

Dear Mr. Koskinen:

In response to our recent conversations regarding the projects, Testing Engineers & Consultants, Inc. (TEC) is pleased to submit our revised proposal for a Geotechnical Investigation of the pavements and subgrade soils along the proposed routes to be included in the 2018 Neighborhood Road in the City of Novi, Michigan. We have enclosed a scope of work and fee schedule for the recommended services for the routes identified as candidates for the 2018 program. Scopes of work and estimates were prepared for the routes identified as 2019 candidates, but are not included in this proposal.

Based upon site reconnaissance that we have performed, and the information provided to us, we expect to encounter both HMA and PC concrete pavements with curb and gutter along the routes.

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.

Carey J. Suhan, PE  
Vice President, Geotechnical  
& Environmental Services

William J. West, PE  
Manager, Construction Services

WJW/CJS

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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

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### PROPOSAL FOR A GEOTECHNICAL INVESTIGATION

#### A. INTRODUCTION

This investigation will provide geotechnical design parameters for the proposed local road pavement improvements within various routes within the City of Novi, Michigan. The routes included in this proposed study were provided by AECOM and are listed below:

##### PC Concrete Routes

South Lake Drive	Broadmoor Park Boulevard
Sterling Drive	Brentwood Court
Norwich Drive	Havergale Street
Edythe Dr.	Addington Lane (Elizabeth - Jaslyn)
Bristol Circle (Entrance and S. End)	Darcey Court
Serenity Drive	Woodside Court
North Hills Court	Rossdale Court
Laramie Drive	Glenhurst Drive (East Half)
Cheyenne Drive	Cody Lane

##### HMA Routes

Churchill Boulevard	Greenwich Drive
Graham Lane	Holyoke Lane
Lynnwood Street	Nantucket Drive
Warrington Court & Warrington Drive	Harvest Drive & Harvest Court
Hickory Grove Lane	Russett Lane
High Meadow Lane	Winthrop Drive & Winthrop Court
Vasilios Court	Vero Court
Heatherbrae Way South	Meridian Lane – East
Siegal Drive & Siegal Court	Singh Boulevard
Edinburgh	Inverness Court

We understand that the City wishes a discussion of the pavement and subgrade soil conditions and a discussion of the applicable pavement rehabilitation and reconstruction options for the routes.

The field and laboratory work for each project will be structured so that an individual report can be issued for the currently asphalt paved routes and a separate report for the concrete paved routes.

This proposal assumes that a short duration lane closure will be required for the execution of the pavement core samples and soil test borings on each route. We assume that channelizing

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devices will be required for these short-term work locations. It is also assumed that no right of way permits will be needed, as no soil test borings or pavement core samples are planned within the MDOT or RCOC Rights-of-Way. No permit costs are included in this proposal.

Our recommendations will be based upon the preceding project characteristics (some of which have been assumed by us). We should be advised of any differences because they might affect the recommendations to be included in our report.

### **B. SCOPE OF WORK**

The scope of work for each project will include:

1. Mobilize and demobilize a truck-mounted drill rig.
2. TEC will establish boring locations and will conduct utility clearance utilizing the MISSDIG system with respect to the boring and pavement core locations.
3. Perform explorations consisting of the following number of borings for each route:
  - J pavement core samples with soil test borings to a depth of 5 feet below prevailing site grade at the boring locations. The attached table describes the proposed field investigation for each individual project.
4. Perform a laboratory investigation to measure the strength, compressibility, and physical characteristics of the soils encountered. Also included in the laboratory investigation will be measurement, inspection and photography of the pavement core samples collected from the route.
5. Analyze the results of the field and laboratory investigation.
6. Document our analysis in a report of the recommended geotechnical design parameters including:
  - A. Alternate pavement sections and service lives;
  - B. Stabilization requirements for subgrade soils, if needed;
  - C. Evaluation of ground water conditions and its effect on construction and the design of the rehabilitated or reconstructed pavements;
  - D. Parameters affecting site grading and drainage;
  - E. Geotechnical factors affecting construction of the project;

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- F. Gradation analysis for evaluation of native site soils as subgrade support for the rehabilitated pavement.

The geotechnical design parameters will be implemented into design by other professionals.

### C. FEE SCHEDULE

The estimated scopes of work and the associated fees are based upon information available at this time, are based on the TEC contract rates with the City of Novi, and are included in the attached table. 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. The estimated fees assume that all the routes are awarded together. As an example, the estimated scope of work and budget for Greenwich Drive is outlined below:

#### Greenwich Drive

1.	Mobilization (50% of one day) 50% at \$400.00/day	\$ 200.00
2.	Boring Layout and MISSDIG Utility Clearance 2 hours at \$85.00/hour	\$ 170.00
3.	Pavement Cores, 3 cores at \$50.00 each	\$ 150.00
4.	Core Drill per day (50% of one day) 50% at \$100.00/day	\$ 50.00
4.	Drilling and Sampling – Roadway Borings 0 Ft. – 25 Ft. Depth: 25 Ft. at \$10.00/foot	\$ 250.00
5.	Minor Traffic Control	\$ 75.00
6.	Laboratory Analysis	
A.	Moisture, Density, Unconfined Compression 10 samples at \$10.00 each	\$ 10.00
B.	Core Inspection, Measurement and Photographs 3 samples at \$20.00 Each	\$ 60.00

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7.	Project Engineering Supervision and Coordination, 0.5 hour at \$98.00/hour	\$ 49.00
8.	Geotechnical Analysis and Report, Partial lump sum	\$ 300.00
<b>Greenwich Drive Estimated Total</b>		<b>\$1,404.00</b>

### 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. We plan to begin these studies immediately after receipt of written, verbal or electronic notice-to-proceed. TEC will complete the field and laboratory work sequentially and provide written reports documenting the results of the investigation and recommendations as they become available. We expect about 75 days to complete the work for all the routes included in the 2018 Neighborhood Road Program. The report for the HMA routes will be issued first followed by the PCC route report. If requested, a verbal report of our recommendations will be given to you, then followed with a written report.

### E. TERMS AND CONDITIONS

1. The client will provide direction to the site, permission to enter the site, and access throughout the site for single-drive axle, truck-mounted equipment.
2. Downtime not caused by TEC will be charged at \$185.00 per hour. For difficult access sites, a surcharge of \$300.00 per day will be charged for an All-Terrain Vehicle drill rig.
3. Rates for Saturday, Sunday, holidays, or shift work will be quoted upon request.
4. Laboratory work that needs immediate attention will be billed at 1.5 times the standard test rate. This applies to work required to be performed on Saturdays or after 5:00 p.m. on weekdays. Work required to be performed on a Sunday or Holiday will be billed at 2.0 times the standard test rate.

### E. TERMS AND CONDITIONS, Continued

5. The invoice will be based upon the actual work performed and at the quoted rates. Unless otherwise stated, invoices are due 30 days from the invoice date. An administrative fee of 1.5% per month will be added to all delinquent accounts. It is agreed that the client is liable for all costs and expenses of collection, including

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reasonable attorney's fees, whether or not legal proceedings are instituted. Disputes of invoiced amounts must be submitted in writing within 30 days of invoice date.

6. Unless otherwise stated, local transportation costs will be invoiced at \$0.60 per mile, portal-to-portal from TEC facilities. Lodging, subsistence and transportation for out-of-town services are invoiced at cost plus 20%.
7. The TEC fee for depositions, court appearance, expert witness, legal assistance, litigation, preparation, or other legal work is \$250.00 per hour plus expenses.
8. Unless otherwise stated, two (2) copies of the report will be distributed per client instruction. There may be additional charges for extra copies of reports.
9. TEC will not be responsible for work performed on materials furnished by others not controlled by TEC.
10. Except for circumstances caused by the willful misconduct of TEC, all claims for damages asserted against TEC by a client or third party, including claims against TEC directors, officers, shareholders, employees and agents, are limited to the lesser amount of \$25,000 or the total dollar value of this contract.
11. All reports, plans, specifications, computer files, field data, notes and other documents prepared by TEC as instruments of service shall remain the property of TEC. TEC shall retain all common law, statutory and other reserved rights, including the copyright thereto. The client shall not reuse or make any modifications to reports, plans, specifications, computer files or other documents without the prior written authorization of TEC.
12. In an effort to resolve any conflicts that arise during this project or following the completion of this project, the client and TEC agree that all disputes between them arising out of or relating to this project shall be submitted to nonbinding mediation unless the parties mutually agree otherwise.
13. This proposal is valid if authorized within 90 days of date issued.



**Testing Engineers & Consultants, Inc.**

Mark Koskinen, PE  
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**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:

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Firm

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Federal ID No.

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Authorized Signature

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Typed or Printed Name

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Title

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Date

**City of Novi 2018 Neighborhood Road Program  
Scope of Work and Fee Estimate  
HMA Routes**

Project ID	Project Description				Project Cost
	Route(s) Length	Current Pavement	Curb & Gutter?	Subdivision Name	\$14,989.33
Churchill Blvd.	750 Ft.	HMA	Yes	Churchill Crossings	\$929.00
Greenwich Dr.	2,800 Ft.	HMA	Yes	Greenwood Oaks	\$1,404.00
Graham Ln.	200 Ft.	HMA	Yes	Greenwood Oaks	\$766.50
Hoyoke Ln. + Holyoke Ct.	1,600 Ft.	HMA	Yes	Greenwood Oaks	\$1,058.17
Lynwood St.	1,200 Ft.	HMA	Yes	Greenwood Oaks	\$1,058.17
Warrington Dr. + Warrington Ct.	1,200 Ft.	HMA	Yes	Greenwood Oaks	\$1,058.17
Nantucket Dr.	2,150 Ft.	HMA	Yes	Greenwood Oaks	\$1,351.50
Vasilos Ct.	900 Ft.	HMA	Yes	Vasilios Estates	\$879.00
Heatherbrae Way South	1,800 Ft.	HMA	Yes	Turtle Creek	\$1,300.67
Meridian Ln.	2,500 Ft.	HMA	Yes	Turtle Creek	\$1,351.50
Siegal Dr. + Siegal Ct.	1,450 Ft.	HMA	Yes	Turtle Creek	\$1,058.17
Singh Blvd.	900 Ft.	HMA	Yes	Turtle Creek	\$836.50
Edinburgh	2,200 Ft.	HMA	Yes	Edinburgh	\$1,171.50
Inverness Ct.	500 Ft.	HMA	Yes	Edinburgh	\$766.50

**City of Novi 2018 Neighborhood Road Program  
Scope of Work and Fee Estimate  
PCC Routes**

Project ID	Project Description				Project Cost
	Route(s) Length	Current Pavement	Curb & Gutter?	Subdivision Name	\$15,891.17
South Lake Drive	1,750 Ft.	PCC	Yes	Bristol Corners	\$1,043.17
Sterling Drive	1,750 Ft.	PCC	Yes	Bristol Corners	\$1,043.17
Norwich Drive	1,350 Ft.	PCC	Yes	Bristol Corners	\$1,043.17
Bristol Circle Entrance & south end	1,750 Ft.	PCC	Yes	Bristol Corners	\$1,043.17
Serenity Drive Ironside to Cul-de-sac	750 Ft.	PCC	Yes	Timber Ridge	\$903.17
North Hills Court	350 Ft.	PCC	Yes	North Hills Estates	\$716.50
Rossdale Court	400 Ft.	PCC	Yes	North Hills Estates	\$716.50
Woodside Court	400 Ft.	PCC	Yes	North Hills Estates	\$833.17
Darcey Court	750 Ft.	PCC	Yes	Darcey Subdivision	\$903.17
Addington Lane	475 Ft.	PCC	Yes	Addington Subdivision	\$674.00
Havergale Street	1,500 Ft.	PCC	Yes		\$1,051.50
Brentwood Court	800 Ft.	PCC	Yes	Addington Subdivision	\$860.67
Broadmoor Park Boulevard	1,800 Ft.	PCC	Yes	Broadmoor Park	\$1,146.50
Laramie Drive	2,400 Ft.	PCC	Yes	Walden Woods	\$1,385.50
Cheyenne Drive	1,500 Ft.	PCC	Yes	Walden Woods	\$1,043.17
Cody Lane	1,000 Ft.	PCC	Yes	Walden Woods	\$810.67
Glenhurst Drive	350 Ft.	PCC	Yes	Walden Woods	\$674.00