

RFP-RH-14-026			
Geotechnical Engineering Services			
Vendor Name	Testing Engineers & Consultants, Inc.	G2 Consulting Group, LLC	NTH Consultants, Ltd.
Address	1343 Rochester Road, PO Box 249	1866 Woodslee Street	41780 Six Mile Road
City/State/Zip	Troy, MI 48099-0249	Troy, MI 48083	Northville, MI 48168-3459
Type of Organization	Corporation	Corporation	Corporation
Firm Established	1966	1994	1968
Years in Business	48	20	46
Years firm has been providing geotechnical engineering services?	<p>As a woman-owned firm founded in 1966, TEC has been providing professional consulting engineering and testing services for the built environment for 48 years. We have extensive experience in performing soil exploration services and foundation recommendations as well as pavement design and rehabilitation services. As our geotechnical department grew, TEC responded by investing in our own "in-house" drill rigs and experienced personnel to better serve our clients.</p> <p>Geotechnical Services: Field Investigation/Field Drilling (geotechnical and environmental)/Laboratory Testing/Engineering Analysis/Design Review/Field Monitoring/Pavement Coring-Investigation-Design-Rehabilitation and Recommendations.</p>	<p>G2 Consulting Group, LLC has been performing geotechnical engineering services for 20 years. Many of G2's staff have more than 20 years of experience in geotechnical engineering.</p>	<p>The predecessor firm to NTH Consultants, Hugo N. Halpert Associates was incorporated as a geotechnical engineering firm in 1968. The firm changed its name to Halpert, Neyer and Associates in 1970, Halpert Neyer and Tiseo, Inc. in 1975 and to Neyer, Tiseo and Hindo, Ltd. in 1978. The current name, NTH Consultants, Ltd. was adopted in 1989. The firm's early clients included JC Penny, General Motors and Marathon Oil Company. Today, nearly 50 years later, General Motors and Marathon continue to be key clients of the firm.</p> <p>Initially, our geotechnical services were related primarily to conducting geotechnical investigations and developing foundation and site design recommendations. Over the years we have broadened our geotechnical engineering capabilities to include geotechnical design related to underground and earth structures as well as geophysics, pavement engineering, construction contract administration and forensic engineering related to ground related failures.</p> <p>To support our geotechnical engineering efforts, we maintain a fully equipped and AASHTO certified laboratory in Livonia that has the capabilities to perform routine geotechnical laboratory testing such as gradation, moisture density and unconfined compression testing of soil samples as well as extraction and Marshall tests on asphalt. Our laboratory also has the staff and equipment to conduct more specialized laboratory testing services such as consolidation and triaxial testing should any of these test procedures be required.</p>
How many years has your company been providing construction material testing and inspection?	<p>TEC has provided these services for 48 years. Our staff and our equipment have improved with technological advances and targeted certification programs. TEC's laboratories have expanded to support the aggressive field services and all personnel are now certified and qualified in their respective fields of expertise whether they work in the field or in the laboratory.</p> <p>Construction Testing/Inspection: Laboratory Testing/Soils/Concrete/Aggregate/Plant Inspection/Pre-cast/Floor Flatness/Mix Designs/Hot Mix Asphalt/Masonry/Structural Steel/Fireproofing/Roofing</p>	<p>G2 Consulting Group, LLC has been performing material testing and inspection services for 20 years. Many of G2's staff have more than 20 years in managing and performing material testing and inspection.</p>	<p>As a firm, we have been providing construction material testing services since the early 1970's. Our staff is well versed in all aspects of material testing and inspection and we routinely provide these service to municipalities as well as industrial and institutional clients. Most of our technicians have certifications from ACI or MDOT for soils, concrete and asphalt. We routinely provide these services for various construction materials including concrete, asphalt, soil, structural steel, reinforcing steel, fireproofing and roofing. Our field staff is also well versed in the installation of underground utilities such as sewers and water mains as well as subgrade preparation associated with the placement of paving. To support our construction and material testing services, our Livonia laboratory is also AASHTO certified for construction materials including concrete, asphalt, masonry and soils.</p>

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How many clients does your company currently serve with the type of services described? Explain the capacity of the services provided.	As a full-service engineering consulting firm, TEC has five core departments, which serve literally hundreds of clients each month. Vendor provided a partial listing of projects being serviced only by the Geotechnical and Construction Services Departments.	G2 Consulting Group, LLC provides geotechnical and construction quality control services to 305 clients in 2013, 302 clients in 2012, 252 clients in 2011, 259 clients in 2010 and 239 clients in 2009. G2 has provided similar geotechnical engineering and materials testing services for roads, pathways and utility projects for over a dozen communities, exclusively, within the last two years.	As a firm, we have a core group of about 30 key clients and strategic partners for whom we routinely provide geotechnical and construction materials testing services as well as environmental and facilities engineering. In addition, we provide these services to other clients on an as-needed basis. To date in 2014, we have provided geotechnical or construction engineering and testing services on 270 projects with fees totaling about \$3.8M. Based on our current staffing levels we have an annual capacity to provide geotechnical and construction materials testing services of approximately \$7.7M. Based on our staff size and current workload we have more than enough capacity to provide the needed staffing to the City of Rochester Hills to meet any project requirements you may have.
Provide list of clients references and brief description of services performed.	Listing provided.	Listing provided.	Listing provided.
Employees company employs?			
Full-Time	78	40	114
Part-Time	4	8	10
How many Geotechnical Engineers does your company employ?	5	23	41
How many Geotechnical Technicians does your company employ?	36	16	7
Describe the geotechnical and material testing and inspection resources you are capable of bringing to the City.	<p>TEC's most valuable resource is our personnel. All of our staff engineers work together to service our field staff as well as our clients. You can count on them to help solve the unique problems that accompany every project. Several of the staff are affiliated with local universities and can draw upon these outside resources. TEC maintains a full library with all the latest ASTM's, BOCA Requirements, AWS, MDOT and AASHTO Standards. Staff engineers serve you as project managers that deliver 24 hour scheduling, daily reports and accurate data. TEC's AASHTO Accredited Aggregate and Bituminous Laboratory, and our CCRL Accredited Concrete Laboratory support TEC's MDOT/ACI certified field personnel. All of the equipment is calibrated on a set schedule and records and procedures are recorded and kept for annual inspections.</p> <p>TEC is prequalified with MDOT so we have a quality system, certified personnel and equipment required by the State of Michigan.</p> <p>TEC has the in house staff, equipment (including drill rigs) and credentials to provide the services requested. Utilizing one firm for all required services allows for more efficient scheduling, coordination of personnel and equipment, communication and ensured adherence to QA/QC procedures.</p> <p>TEC's project staff have been MUST safety trained and tested. TEC offers an in-house safety incentive program that boasts a successful track record without any missed-work day events.</p>	<p><i>Geotechnical engineering services:</i> G2 will utilize conventional drilling rigs, all terrain-vehicle (ATV) drilling rigs and pavement coring rigs to perform our geotechnical/pavement coring investigations. Drilling services for deep soil borings will utilize Standard Penetration Test values (DPT values) during sampling. We also can, as necessary, utilize high quality Shelby tube sampling of soft soils, down hole field vane shear testing, downhole pressure meter testing depending on project specific geotechnical information need to evaluate site conditions. Drilling services for pavement projects pavement core soil borings will utilize diamond tipped core barrels and continuous sampling hand-auger soil boring with Dynamic Cone Penetrometer (DCP) evaluation of the supporting soils. All laboratory testing services will also be performed by G2 personnel using AASHTO certified G2 laboratory facilities and equipment.</p> <p>During our investigation, it may be required to perform traffic control to safely perform our work, as well as provide adequate notice to automobiles and emergency vehicles in the area. Typically G2 will self perform traffic control during pavement cores/soil boring operations. Traffic control could consist of appropriate road work ahead signage, traffic cones, personnel to direct traffic around work operations, arrow boards, attenuator board and dual flag-men, depending on the lane configuration and traffic conditions in the work area.</p> <p><i>Earthwork Operations/Underground Utilities:</i> Our field representative will observe subgrade preparation, including subgrade stabilization installation and placement and compaction of engineered fill, subbase and aggregate base materials, as appropriate. We will observe proof roll operations and make recommendations stabilizing unsuitable subgrade soils. We will observe trench exaction operations, preparation of the trench, placement of bedding layers and placement and compaction of trench backfill, as necessary.</p>	<p>Our geotechnical practice provides a full range of specialized services from comprehensive soil investigations including analytical testing/evaluations and foundation engineering/design, to pavement engineering/design, water main and sanitary sewer construction, QA/QC construction monitoring and material testing and evaluation, as well as maintenance planning for new and existing structures and pavements.</p> <p>The geotechnical investigation for each project will be developed and catered to the specific project needs. We will discuss the project with the City's representatives either by phone or in person, visit the site and prepare a project specific geotechnical investigation proposal to the City. As part of the proposal, we will recommend a project scope, if required. We will also coordinate the project scope with other City consultants, if desired. In general we anticipate for each investigation we will:</p> <p>If necessary do an initial site reconnaissance, obtain permits and provide traffic control measures in accordance with MMUTCD. Where required, we will core existing pavements for evaluation prior to drilling of test borings. We will contact Miss Dig and where necessary private owners prior to mobilization for determination of site utilities. We will drill the necessary test borings to the depths determined under the full-time technical supervision of our staff. For drilling services, NTH has contracts with several drilling subcontractors. For the City's projects, we anticipate utilizing the services of DLZ American Drilling. If necessary, perform test pits in areas of deep fill and/or hand auger borings in areas difficult to access with drilling rights to better evaluate subsurface conditions for appropriate recommendations. Perform laboratory testing on representative soil samples to determine the physical characteristics of the subsoils encountered.</p>

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<p>Describe the geotechnical and material testing and inspection resources you are capable of bringing to the City. (CONTINUED)</p>		<p>Our field representative will sample and evaluate fill soils and determine the moisture content and in-place dry density of engineered fill and backfill materials. We will obtain representative samples of fill and backfill materials for laboratory testing. Retained samples will be evaluated for grain size distribution, maximum dry density and optimum moisture content, as necessary for use in compaction control. Our field representative will sample and evaluate fill soils and determine the moisture content and in-place dry density of engineered fill and backfill materials. We will obtain representative samples of fill and backfill materials for laboratory testing. Retained samples will be evaluated for grain size distribution, maximum dry density and optimum moisture content, as necessary for use in compaction control.</p> <p>Foundation Construction: We will perform appropriate field tests and make observations to document bridge/traffic signal foundations have been placed on the recommended bearing soils at the design bearing elevation. Also, the design dimensions of the foundations will be verified and the bearing surface observed to confirm the foundation excavation has been properly cleaned and prepared prior to placement of cast-in-place concrete.</p> <p>Cast-In-Place Concrete and Site Concrete Work: Our field representative will observe concrete placement operations, perform appropriate field testing (temperature, slump, air content, unit weight and yield), mold compression test cylinders and observe concrete finishing and curing operations. Laboratory testing is expected to consist principally of testing concrete cylinders for compressive strength.</p> <p>Bituminous Paving Operations: At your request, we will review bituminous mix designs submitted by the contractor and make recommendations for approval or modification as appropriate. During paving operations, we will check surface preparation and observe bituminous mixture placement and compaction operations. These services will include visual evaluation of the bituminous mixture delivered to the site, observing the pavement layer thickness, mix temperature, rolling procedures and density of finished pavement.</p>	<p>Evaluate the subsurface conditions and develop recommendations specific to the type of project being planned. Prepare an engineering report that presents our findings and recommendations.</p> <p>For projects where environmental issues are encountered, we will obtain samples in accordance with accepted sampling protocols for analytical testing of designated parameters such as VOCs, PNAs, Michigan Metals and others. For construction observation and material testing projects, NTH assigns a task leader to direct the firm's services. The task leader will serve as our project manager and will not only supervise our staff, but also maintain frequent contact with the City's representative to advise them on issues related to the status of the project, unanticipated conditions or other concerns that may impact the overall project.</p> <p>Underground Utilities/Earthwork - Prior to installation of water mains and sanitary sewers, or any paving, our engineering technician will observe the subgrade condition prior to fill placement for suitability through field testing as well as through proofrolling/proof-compaction operations, evaluate fill soils and determine the moisture content and in-place dry density of fill materials. Specific services listed.</p> <p>Asphalt Paving Operations - field representative will observe asphalt placement operations including visual evaluation of asphalt delivered to the site, layer thickness, mix temperatures and rolling procedures. Additional services listed.</p> <p>Cast-In-Place Concrete - engineering technician will observe and document the placement of reinforcing steel pavements, foundations and other structures. Will perform the appropriate field testing and mold compressive strength test cylinders. Additional services listed.</p> <p>Precast Concrete - perform spot checks of pipe casting operations at the casting plant and will mold and test concrete specimens. In the field, representative will check the pipes for damage and observe placement operations to verify proper placement and bearing conditions. We will also observe the joint grouting procedures, if required and perform the necessary testing. Other services listed.</p>
<p>Do you have on-site testing facilities? Please describe capacity.</p>	<p>TEC can place a trailer on site with full equipment and personnel. Very often we do this for special projects when results are needed on an immediate basis or when the project is a significant distance from a TEC office. In this case our proximity to the City allows us to provide services from our labs located in our Troy headquarters in a prompt efficient manner.</p>	<p>G2 provides geotechnical and construction materials testing from our corporate office in Troy, MI and is capable of providing the necessary testing associated with our geotechnical and construction quality control services. Our laboratory is accredited through AASHTO and maintains the necessary quality systems manual and demonstrates procedural proficiency for AASHTO R18, ASTM C1077 and ASTM E329 accreditation.</p> <p>Our laboratory participates in required Bi-Annual On-Site Assessments conducted by CCRL for AASHTO Accreditation and Twice-Annual Proficiency Sample Programs (PSP) for aggregates and concrete materials through CCRL and AMRL. AASHTO Accreditation Status may be confirmed by visiting the AMRL website (amrl.net) and selecting the Accreditation Directory Tab.</p> <p>G2 also participates in the Concrete Proficiency Sample Program administered by the Michigan Department of Transportation (MDOT) for laboratories conducting compressive strength of cylindrical concrete specimens on MDOT and MDOT Local Agency Projects.</p>	<p>When required, NTH can provide a mobile laboratory to perform various materials testing on the project. These typically include maximum density-optimum moisture (Proctor), sieve analysis and concrete compressive strength testing. Depending on the complexity and duration of the project, other laboratory equipment for other tests can be added. We also have a mobile concrete testing laboratory that can be made available should a project warrant it mobilization.</p>
<p>Submit profiles of staff that will work on City of Rochester Hills projects and examples of similar work performed by each staff member.</p>	<p>Provided team organization chart and individual resumes.</p>	<p>Staff profiles provided.</p>	<p>Staff profiles provided.</p>

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Provide a detailed description of the reports to be submitted to the City on a daily basis and any other applicable information.	Report forms provided for Geotechnical Engineering and Construction Material Testing.	G2 will provide electronic reports in pdf format at a frequency to be determined by the City. An example of each report is provided.	Copies of reports will be transmitted to all concerned parties in accordance with the schedule established and agreed to at the start of the project. Copies of standard forms included.
When will the City receive reports?	A daily preliminary report can be provided to your representative by the field technician on site. Final reports are reviewed by TEC Professional Engineering staff and be made available on the third business day after the test is performed. Where appropriate, a Licensed Professional Engineer will review the report and provide appropriate recommendations to the client. Upon request, TEC will make reports available immediately to the client. Reports can be sent via e-mail with a summary disk of all TEC reports at the end of the project.	Typically, reports will be sent after 7 days once appropriate concrete strength data has been obtained. However, if desired, reports can be sent within 48 hours. PDF copies of the report will be emailed directly to the project team. You will not have to upload them from a 3rd party site.	For geotechnical investigations, we expect that results of laboratory testing will be available within one week of the completion of drilling operations. We expect we can provide verbal recommendations within one day of receiving the laboratory test results; depending on the complexity of the project. For construction observation and materials testing services, the NTH task manager will review the draft Daily Field Reports (DFRs) on a daily basis and if necessary, call the City representative to provide an update of the project status. We will also submit to the City representative, an electronic version of the draft DFR by the end of the work day, if requested. On Thursday of every week, the NTH Project Manager will arrange for electronic delivery of completed formal DFRs for the prior week to the recipients identified during the preconstruction meeting.
Describe method of communications with your clients.	TEC communicates by attending pre-construction meetings, progress meeting and by having our Project Managers contact your representative to discuss schedule, budget and progress. Technicians carry cell phones, and a phone list is generated for our clients.	G2 believes that communication with its clients regarding the scope of work for a project, as well as during the time engineering services or materials testing are performed, is of greatest importance for the successful completion of a project. G2 strives to maintain effective and concise communication with its clients through a variety of means, including cell phone and email contact to keep the design team up to speed with regards to the progress of work. All G2 employees have cellular phones for easy contact. Field personnel use ipads to electronically submit work produce to the office. G2 uses a proprietary database dispatch system to schedule and track personnel and product. Our system assures continuous tracking of our field personnel and work produce. Project managers are provided real time tracking for each of their projects.	Our field and office personnel will maintain open communications with the project team members. Our Task Managers also maintain frequent communications with our field staff. In a preconstruction meeting between representatives of the Owner, Engineer, the Construction Manager and NTH, discussions and agreements will be made as to the methods and means of communication between the members of the team. Once this protocol is established, our project or task manager will maintain regular communication (daily if necessary) with the client representative to inform him/her of the project progress, any test results that are required, non-conforming items, if any, and schedule. In addition, in many projects, our field personnel are also in direct communication with the client field representative to discuss similar items.
Can you provide geotechnical and material testing services within 24 hours of notification?	Yes, TEC will easily respond to the City's request within 24 hours of notification.	G2 asks that we be provided 24-hours notice to provide materials testing for a project. However, we understand that the contractor's schedule can change frequently. G2 will make every attempt to be on site within 4 hours once we have been notified of our need. Geotechnical services often require utility clearance and can be provided once that is complete, 72 hours after notice by law.	Provided that the utility clearance have been completed prior to the request, NTH can provide geotechnical drilling and engineering services within 24 hours of notification. For construction observation and material testing services, NTH can provide such services within 24 hours of notification. In general, this is typical with most construction projects that NTH performs.
Describe your company's policy regarding errors or omissions in plans and specifications.	TEC has an established process of implementing checks, in addition to the auditing procedure, to secure confidence that the data provided to its customers are at the highest level of quality possible. Copy of policy included.	G2's General Conditions present our policy regarding errors or omissions in plans and specifications. General Conditions included.	It is NTH's policy that if an error or omission occurs and is attributed to our services when preparing plans and specifications, then NTH will take responsibility and modify the design document at no cost to the City.
Is a contract required? If so, attach a copy of your standard contract.	It is customary for TEC to negotiate terms with the City's contract. We have however enclosed in this section our Terms & Conditions for your consideration and possible inclusion in the contract should we be awarded.	G2 required a contract prior to performing work. Our signed proposals outlining our scope of work and attached general notes are our contracts. A standard proposal is included.	For the Geotechnical Engineering and Construction Material Services, we anticipate that, there will be a general services contract established between the City and NTH that will address the terms & conditions of our services as well as approved hourly rates. Once the contract is executed and finalized, the authorization for each specific project will be given once the required scope and cost has been finalized with the City.

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What are your billing procedures?	We submit monthly invoicing from daily timesheets. For time verification, field technicians' daily timesheets are signed by the client prior to leaving the site. Net 30 days.	G2 typically performs geotechnical investigations on a lump sum basis. Invoices are submitted at the time the report is submitted. Material testing and inspection services are typically submitted on a biweekly or monthly basis. G2 can invoice material testing and inspection services in a variety of formats including hourly time and material, or all inclusive half-day full-day rates.	NTH maintains the BST Project Management cost accounting system running on MS-SQL Server 2003 at our Northville office. BST is a well-designed integrated computer system that allows us to track both direct and indirect costs by project. Prior to incurring any time to a project, the manage initiates a "project number" specifically for that project. Only time spent by individuals and expenses incurred to perform project related work tasks will be charged to that specific project number. BST allows time sheet and expense sheet entries to automatically affect the job-cost module, billing module, employee utilization records, income statement and payroll system. Project Managers are provided weekly with reports that list all time and expenses charged to their jobs. This detail is summarized by task with the Project History report at month end. In addition to hard copy, current on-line information is always available. Typically, NTH will invoice the project on a monthly basis unless we are directed otherwise.
Have you been involved in any litigation during the past five years? If so, provide an explanation.	TEC has not been involved in any litigation during the past five years.	G2 has never been involved in any litigation during our 20 years of service.	Litigation and Dispute Resolution Information included.

**Engineering Services Rates:**

	<b>Testing Engineers &amp; Consultants, Inc.</b>				
	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Principal	\$110.00	\$112.79	\$115.66	\$118.60	\$121.61
Principal II	\$120.00	\$123.00	\$126.08	\$129.23	\$132.46
Professional Engineer	\$105.00	\$107.63	\$110.32	\$113.07	\$115.90
Project Engineer	\$90.00	\$92.25	\$94.56	\$96.92	\$99.34
Project Manager	\$90.00	\$92.25	\$94.56	\$96.92	\$99.34
Senior Project Manager	\$100.00	\$102.50	\$105.06	\$107.69	\$110.38
Field Engineer	\$75.00	\$76.91	\$78.86	\$80.86	\$82.92
Staff Engineer 1	\$65.00	\$66.63	\$68.29	\$70.00	\$71.75
Construction Admin. Coordinator	\$35.00	\$35.88	\$36.77	\$37.69	\$38.63
Technician I	\$30.00	\$30.75	\$31.52	\$32.31	\$33.11
Technician II	\$35.00	\$35.88	\$36.77	\$37.69	\$38.63
Technician III	\$38.00	\$38.95	\$39.92	\$40.92	\$41.94
Inspector	\$45.00	\$46.13	\$47.28	\$48.46	\$49.67
CAD or Field Specialist	\$40.00	\$41.00	\$42.03	\$43.08	\$44.15
Lab Tech/CAD Technician	\$45.00	\$46.13	\$47.28	\$48.46	\$49.67
Administrative	\$25.00	\$25.63	\$26.27	\$26.92	\$27.60
Roofing/Waterproofing/Eng/Consultant	\$95.00	\$97.38	\$99.81	\$102.30	\$104.86
Structural Engineer	\$90.00	\$92.25	\$94.56	\$96.92	\$99.34
Civil Engineer	\$90.00	\$92.25	\$94.56	\$96.92	\$99.34
Environmental Scientist	\$90.00	\$92.25	\$94.56	\$96.92	\$99.34
Sr. Project Geologist	\$110.00	\$112.75	\$115.57	\$118.46	\$121.42

Identify all direct and indirect costs, including any and all minimums relative to hourly rates and other cost categories.

Two (2) hour minimum. Hourly rates include all direct and indirect costs. Overtime will apply for technician at 1.333 times the hourly rate for hours in excess of 8 hours Monday through Friday and Saturday and 1.67 times the hourly rate for Sunday and Holidays.

**Laboratory Testing Services:**

	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Aggregates-includes gradation, fineness modulus, absorption, specific gravity and unit weight	\$175.00	\$175.00	\$175.00	\$175.00	\$175.00
Washed Gradations:					
1/2" Maximum or Larger	\$60.00	\$61.50	\$63.04	\$64.61	\$66.23
3/4" Maximum or Larger	\$75.00	\$76.88	\$78.80	\$80.77	\$82.79
Particle Size Distribution					
ASTM D422 Hydrometer	\$95.00	\$95.00	\$95.00	\$95.00	\$95.00
Abrasion (LA Machine)	\$200.00	\$205.00	\$210.13	\$215.38	\$220.76
Sulfate Soundness, per cycle	\$100.00	\$102.50	\$105.06	\$107.69	\$110.38
Mix Design Verification, per agg.	\$150.00	\$153.75	\$157.59	\$161.53	\$165.57
Deleterious Substances - visual pick	\$50.00	\$51.25	\$52.53	\$53.84	\$55.19
Moisture Density Tests					
Modified Proctor (ASTM D1557 AASHTO T180)	\$115.00	\$117.88	\$120.82	\$123.84	\$126.94
Standard Proctor (ASTM D698, AASHTO T99)	\$115.00	\$117.88	\$120.82	\$123.84	\$126.94
<b><u>Laboratory Testing Services:</u></b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>

**Engineering Services Rates:****Testing Engineers & Consultants, Inc.**

## Portland Cement Concrete:

Concrete Compression Tests - Each	\$11.00	\$11.28	\$11.56	\$11.85	\$12.14
Flexural Tests on Concrete Beams - Each	\$20.00	\$20.50	\$21.01	\$21.54	\$22.08
Concrete Mix Design Preparation - Each	\$175.00	\$179.38	\$183.86	\$188.46	\$193.17
Asphalt Materials per sample					
Extraction Tests	\$120.00	\$123.00	\$126.08	\$129.23	\$132.46
Marshall Properties (stability, Flow, Unit wt)	\$150.00	\$150.00	\$150.00	\$150.00	\$150.00
Theoretical Maximum Specific Gravity-Rice's Method	\$150.00	\$150.00	\$150.00	\$150.00	\$150.00
Asphalt Recovery by Abson Method (ACI 211)	\$125.00	\$125.00	\$125.00	\$125.00	\$125.00

**Geotechnical Lab Testing:**

	2015	2016	2017	2018	2019
Atterburg Limits Determination (LL and PL) - Each	\$80.00	\$82.00	\$86.15	\$86.15	\$88.31
Hydrometer & Sieve Analysis (Combined) - Each	\$155.00	\$158.88	\$162.85	\$166.92	\$171.09
Loss on Ignition (Organic Content) - Each	\$50.00	\$51.25	\$52.53	\$53.84	\$55.19
Sieve Analysis - Each	\$60.00	\$61.50	\$63.04	\$64.61	\$66.23
Specific Gravity Determination - Each	\$60.00	\$61.50	\$63.04	\$64.61	\$66.23
Std Series (Moisture, Density, Rimac Unconfined) - Each	\$10.00	\$10.25	\$10.51	\$10.77	\$11.04
Unconfined Compression Test (Split-spoon or Liner Sample) - Each	\$30.00	\$30.75	\$31.52	\$32.31	\$33.11
Unconfined Compression Test (Undisturbed Tube Sample) - Each	\$70.00	\$71.75	\$73.54	\$75.38	\$77.27
Permeability Test (Falling Head) - Each	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00
Permeability Test (Triaxial Method) - Each	\$600.00	\$600.00	\$625.00	\$625.00	\$650.00
Permeability Test (Sample Prep) - Hour	\$50.00	\$50.00	\$50.00	\$50.00	\$50.00

**Equipment Charges:**

	2015	2016	2017	2018	2019
Nuclear Moisture/Density Gauge - Per Day	\$10.00	\$10.00	\$11.00	\$11.00	\$12.00
Field Marshall Test Equipment - Per Day	NC	NC	NC	NC	NC
MDOT Michigan Cone Density Test Equipment - Per Day	NC	NC	NC	NC	NC
Photo Ionization Detector (PID) - Per Day	\$65.00	\$66.63	\$68.29	\$70.00	\$71.75

**Reimbursable Expenses:**

	2015	2016	2017	2018	2019
Overnight mail charges	\$10.00	\$10.25	\$10.51	\$10.77	\$11.04
Transportation charges - Per Mile	\$0.60	\$0.62	\$0.63	\$0.65	\$0.66

**Service/Charges:**

	2015	2016	2017	2018	2019
Lane Tie Testing Equipment - Per Day	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00
Mobilization & Moving of Drilling Equip On & Off Site - Per Mile	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00
Mobilization & Moving of Drilling Equip On & Off Site - Per Day (Min)	\$375.00	\$384.38	\$393.98	\$403.83	\$413.93
ATV Charge - Per Day	\$300.00	\$307.50	\$315.19	\$323.07	\$331.14
Boring Layout - Per Hour	\$85.00	\$87.13	\$89.30	\$91.54	\$93.82
Soil sampling using either splitbarrel sampler (ASTM D1586) or liner sampler (ASTM D1587) at 2 1/2 foot intervals to 10 feet and 5 foot thereafter					
0' - 25' Foot	\$10.00	\$10.25	\$10.51	\$10.77	\$11.04
26' - 50' Foot	\$12.00	\$12.30	\$12.61	\$12.92	\$13.25
51' - 75' Foot	\$14.00	\$14.35	\$14.71	\$15.08	\$15.45
76' - 100' Foot	\$18.00	\$18.00	\$18.00	\$18.00	\$18.00

100' +

Quoted Upon Request

**Engineering Services Rates:**

An additional charge of \$1.00/foot will be made for soils with more than 50 blows per foot or 4.5 tsf or strata containing boulders, slag, building rubble or broken concrete.

**Testing Engineers & Consultants, Inc.**

**Service/Charges:**

	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Additional Split-Spoon Sampling					
0' - 50' Each	\$14.00	\$14.35	\$14.71	\$15.08	\$15.45
50' - 100' Each	\$18.00	\$18.45	\$18.91	\$19.38	\$19.87
Rock Coring \$150.00 set up per hole, Plus Foot	\$42.00	\$43.05	\$44.13	\$45.23	\$46.36
Auger-drilling with profile sampling - Foot	\$9.00	\$9.23	\$9.46	\$9.69	\$9.93
Cost of special equipment or permit for moving drilling equipment about the site at Cost Plus	15.00%	15.00%	15.00%	15.00%	15.00%
Set up time per hole or time required to move between boring locations in excess of 1/2 hour or stand by time - Hour	\$175.00	\$179.38	\$183.86	\$188.46	\$193.17
Thin wall (Shelby) tubes - Each	\$42.00	\$43.05	\$44.13	\$45.23	\$46.36
Drilling through concrete or asphalt - Inch	\$12.00	\$12.30	\$12.61	\$12.92	\$13.25

Do you charge an administrative overhead? Please explain.

No. Any administrative overhead is included in rates.

List any exceptions/alternatives to the specifications.

We have none.



**Engineering Services Rates:**

	<b>G2 Consulting Group</b>				
	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Principal	\$135.00	\$140.00	\$140.00	\$145.00	\$145.00
Project Consultant	\$130.00	\$135.00	\$135.00	\$140.00	\$140.00
Project Manager	\$120.00	\$125.00	\$125.00	\$130.00	\$130.00
Project Engineer	\$110.00	\$115.00	\$115.00	\$120.00	\$120.00
Senior Environmental Scientist	\$110.00	\$115.00	\$115.00	\$120.00	\$120.00
Senior Staff Engineer	\$100.00	\$100.00	\$105.00	\$105.00	\$110.00
Staff Engineer	\$80.00	\$80.00	\$85.00	\$85.00	\$90.00
Senior Technician	\$75.00	\$75.00	\$80.00	\$80.00	\$85.00
Technician II*	\$55.00	\$55.00	\$60.00	\$60.00	\$65.00
Technician I*	\$50.00	\$50.00	\$55.00	\$55.00	\$60.00
Word Processor*	\$50.00	\$50.00	\$55.00	\$55.00	\$60.00

\*For these personnel, overtime work will be charged at a rate equal to 1.5 times the Standard Rate.

A premium of 50 percent will be added to hourly rates for expert testimony and depositions.

G2 Consulting Group technicians include Engineering, Environmental and Construction Materials technical specialists.

Identify all direct and indirect costs, including any and all minimums relative to hourly rates and other cost categories.

We will provide a scope of work and lump sum fee based on our hourly rates and drilling costs prior to each project. We

**Aggregates Laboratory Testing Services:**

	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Sand Equivalent	\$175.00	\$175.00	\$175.00	\$175.00	\$175.00
Sieve Analysis (fine or coarse)	\$50.00	\$50.00	\$50.00	\$50.00	\$50.00
Percent Passing No. 200	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00
Unit Weights & Voids (fine or coarse)	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00
Specific Gravity & Absorption (fine)	\$110.00	\$110.00	\$110.00	\$110.00	\$110.00
Specific Gravity & Absorption (coarse)	\$90.00	\$90.00	\$90.00	\$90.00	\$90.00
Soundness (5-cycle sodium sulfate)	\$275.00	\$275.00	\$275.00	\$275.00	\$275.00
Organic Impurities	\$60.00	\$60.00	\$60.00	\$60.00	\$60.00
Clay Lumps & Friable Particles	\$90.00	\$90.00	\$90.00	\$90.00	\$90.00
Lightweight Pieces	\$60.00	\$60.00	\$60.00	\$60.00	\$60.00
Fractured Faces	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00
Flatness & Elongation	\$80.00	\$80.00	\$80.00	\$80.00	\$80.00
L.A. Abrasion Resistance	\$185.00	\$185.00	\$185.00	\$185.00	\$185.00
Fine Aggregate Angularity	\$75.00	\$75.00	\$75.00	\$75.00	\$75.00

**Soil Laboratory Testing Services:**

	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Atterburg Limits Determination (LL and PI) - Each	\$100.00	\$100.00	\$100.00	\$100.00	\$100.00
Hydrometer & Sieve Analysis (Combined) - Each	\$120.00	\$120.00	\$120.00	\$120.00	\$120.00
Loss on Ignition (Organic Content) - Each	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00
Sieve Analysis - Each	\$75.00	\$75.00	\$75.00	\$75.00	\$75.00
Specific Gravity - Each	\$75.00	\$75.00	\$75.00	\$75.00	\$75.00
Moisture Content and Dry Density	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00
Unconfined Compressive Strength - Each	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00
Permeability Test (granular soils) - Each	\$225.00	\$225.00	\$225.00	\$225.00	\$225.00

**Engineering Services Rates:**

	<b>G2 Consulting Group</b>				
pH - Each	\$50.00	\$50.00	\$50.00	\$50.00	\$50.00
Proctor - Each	\$225.00	\$225.00	\$225.00	\$225.00	\$225.00
CBR (lab or field) - Each	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00
Expansion Index - Each	\$175.00	\$175.00	\$175.00	\$175.00	\$175.00
Direct Shear Strength (3-pt. $\phi$ & c) - Each	\$175.00	\$175.00	\$175.00	\$175.00	\$175.00
Consolidation (to 16 ksf) - Each	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00
Swell or Collapse Potential - Each	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00

**Concrete and Masonry Laboratory Testing Services:**

Concrete Mix Design (6 test cylinders)	\$750.00	\$750.00	\$750.00	\$750.00	\$750.00
Concrete Cylinder Compressive Strength	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00
Drilled Concrete Cores Compressive Strength	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00
Concrete Beams Flexural Strength	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00
Splitting Tensile Strength	\$90.00	\$90.00	\$90.00	\$90.00	\$90.00
Masonry Grout or Mortar Cube Compressive Strength	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00
Masonry Block Compressive Strength (gross area of 3-block set)	\$150.00	\$150.00	\$150.00	\$150.00	\$150.00
Masonry Block Compressive Strength & Absorption (net area of 3-block set)	\$300.00	\$300.00	\$300.00	\$300.00	\$300.00
Masonry Prism Compressive Strength (grouted solid 2 blocks high)	\$325.00	\$325.00	\$325.00	\$325.00	\$325.00

**Bituminous Materials Laboratory Testing Services:**

Bituminous Mix Design (3-point Marshall method)	\$900.00	\$900.00	\$900.00	\$900.00	\$900.00
Bulk Specific Gravity (Density) of Compacted Core Sample	\$60.00	\$60.00	\$60.00	\$60.00	\$60.00
Marshall Properties of Job Mix (unit weight, stability, flow, air, voids, VMA)	\$375.00	\$375.00	\$375.00	\$375.00	\$375.00
Bitumen Extraction & Aggregate Gradation	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00
Theoretical Maximum (Rice) Specific Gravity	\$125.00	\$125.00	\$125.00	\$125.00	\$125.00
Effect of Moisture (freeze-thaw durability)	\$700.00	\$700.00	\$700.00	\$700.00	\$700.00
Effect of Water on Cohesion of Mixture	\$600.00	\$600.00	\$600.00	\$600.00	\$600.00
Asphalt Penetration Grading	\$80.00	\$80.00	\$80.00	\$80.00	\$80.00

	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
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**Equipment Charges:**

Nuclear Moisture/Density Gauge - Per Day	\$25.00	\$25.00	\$30.00	\$30.00	\$30.00
Field Marshall Test Equipment - Per Day					
MDOT Michigan Cone Density Test Equipment - Per Day	\$10.00	\$10.00	\$15.00	\$15.00	\$15.00
Photo Ionization Detector (PID) - Per Day					

	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
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**Reimbursable Expenses:**

Transportation, Lodging and Subsistence for Out of Town Travel - Cost + Printing, Reproduction, Photographs, LD Telephone, Telecopier Charges, Shipping Charges and Material Purchases - Cost +	15.00%
Transportation charges - Per Mile	\$0.80

On projects requiring subcontractors or subconsultants, we will obtain the services of reputable contractors or consultants to perform such work. The fees of these contractors or consultants plus a 15% service charge will added to our invoices.

Do you charge an administrative overhead? Please explain.

No. We do not charge administrative overhead fees.

**Engineering Services Rates:**

List any exceptions/alternatives to the specifications.

**G2 Consulting Group**

Many communities and municipalities choose to use a half-day/full-day rate for material testing and inspection needs. These fees are all inclusive for travel, equipment, hours worked, cylinder pick up, report preparation and distribution. Laboratory testing is not included in the half-day full-day rates.

**Engineering Services Rates:**

	<b>NTH Consultants, Ltd.</b>				
	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Principal of Firm	\$160.00	\$160.00	\$165.00	\$170.00	\$175.00
Project Engineer	\$100.00	\$100.00	\$103.00	\$106.00	\$109.00
Project Manager	\$125.00	\$125.00	\$129.00	\$133.00	\$137.00
Staff Engineer (Field Engineer)	\$58.00	\$58.00	\$60.00	\$62.00	\$64.00
Engineer Technican (Senior)	\$62.00	\$62.00	\$64.00	\$66.00	\$68.00
Technician I	\$40.00	\$40.00	\$42.00	\$44.00	\$45.00
Technician II	\$45.00	\$45.00	\$47.00	\$49.00	\$50.00
Technician III	\$48.00	\$48.00	\$50.00	\$52.00	\$53.00
CADD Operator	\$80.00	\$80.00	\$83.00	\$86.00	\$88.00
Secretarial	\$40.00	\$40.00	\$42.00	\$43.00	\$45.00

Identify all direct and indirect costs, including any and all minimums relative to hourly rates and other cost categories.

Our hourly rates include all of our labor and other direct and indirect costs. Other than staff time spent directly on City projects, other direct charges will include those associated with: Mileage, lab tests, any subcontractors such as drilling and traffic control, equipment.

**Laboratory Testing Services:**

	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Aggregates	\$65.00	\$65.00	\$67.00	\$69.00	\$71.00
Washed Gradations:					
1/2" Maximum or Larger	\$30.00	\$30.00	\$31.00	\$32.00	\$33.00
3/4" Maximum or Larger	\$30.00	\$30.00	\$31.00	\$32.00	\$33.00
Abrasion (LA Machine)	\$145.00	\$145.00	\$149.00	\$154.00	\$158.00
Sulfate Soundness, per cycle	\$450.00	\$450.00	\$463.00	\$477.00	\$491.00
Mix Design Verification, per agg.	\$1,000.00	\$1,000.00	\$1,030.00	\$1,060.00	\$1,093.00
Deleterious Substances - visual pick	\$50.00	\$50.00	\$52.00	\$53.00	\$55.00
Moisture Density Tests:					
Modified Proctor (ASTM D698 AASHTO T180)	\$160.00	\$160.00	\$165.00	\$170.00	\$175.00
Standard Proctor (ASTM D698, AASHTO T99)	\$130.00	\$130.00	\$134.00	\$138.00	\$142.00
Portland Cement Concrete:					
Concrete Compression Tests - Each	\$16.00	\$16.00	\$17.00	\$17.00	\$18.00
Flexural Tests on Concrete Beams - Each	\$50.00	\$50.00	\$52.00	\$53.00	\$55.00
Concrete Mix Design Preparation - Each	\$1,000.00	\$1,000.00	\$1,030.00	\$1,060.00	\$1,092.00
Asphalt Materials per sample:					
Extraction Tests	\$125.00	\$125.00	\$129.00	\$133.00	\$137.00
Marshall Properties (stability, Flow, Unit wt)	\$185.00	\$185.00	\$190.00	\$196.00	\$202.00
Theoretical Maximum Specific Gravity-Rice's Method	\$60.00	\$60.00	\$62.00	\$64.00	\$66.00
Asphalt Recovery by Abson Method (ACI 211)	\$1,300.00	\$1,300.00	\$1,340.00	\$1,380.00	\$1,420.00

**Engineering Services Rates:**

**NTH Consultants, Ltd.**

**Equipment Charges:**

	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Nuclear Moisture/Density Gauge - Per Day	\$50.00	\$50.00	\$52.00	\$53.00	\$55.00
Field Marshall Test Equipment - Per Day	\$150.00	\$150.00	\$155.00	\$159.00	\$164.00
MDOT Michigan Cone Density Test Equipment - Per Day	\$20.00	\$20.00	\$21.00	\$22.00	\$23.00

**Reimbursable Expenses:**

	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Overnight mail charges	NC	NC	NC	NC	NC
Transportation charges - Per Day	\$30.00	\$30.00	\$31.00	\$32.00	\$33.00

**Service/Charges:**

See schedule of laboratory test rates, FS-LT 1 & 2 and schedule of equipment usage rates, FS-ER 1 through 3.

**2015**      **2016**      **2017**      **2018**      **2019**

Do you charge an administrative overhead? Please explain.

There will be no charges for the administrative overhead. They are included with the staff unit rates.

List any exceptions/alternatives to the specifications.

In the hold harmless clause, please make the following insertion in the last line: ...way connected or associated with **NTH's performance of** this contract.