



CITY of NOVI CITY COUNCIL

Agenda Item S
November 14, 2016

SUBJECT: Approval to award geotechnical services to Soil and Materials Engineers, Inc. for the Crescent Boulevard Reconstruction in the amount of \$44,000.

SUBMITTING DEPARTMENT: Department of Public Services, Engineering Division GDM

CITY MANAGER APPROVAL: *[Signature]*

EXPENDITURE REQUIRED	\$ 44,000
AMOUNT BUDGETED	\$ 123,127
LINE ITEM NUMBER	202-202.00-805.164

BACKGROUND INFORMATION:

In accordance with the Agreement for Geotechnical Engineering Consultant Services for Public Projects, Soil and Materials Engineers, Inc. (SME) has been selected to provide construction phase material testing services for the Crescent Boulevard Reconstruction. The material testing services necessary for this project exceed \$15,000, which requires City Council approval under the City's Purchasing Policy.

The scope of material testing services required for this project has been determined based on discussions with SME and URS (the City's consulting engineer on for the project), and is summarized in the attached proposal from SME. The material testing work is necessary to ensure that the specifications are being met by the contractor resulting in a quality product that performs as designed.

Construction of the project has been awarded and it is anticipated that this project will be completed by fall 2016.

RECOMMENDED ACTION: Approval to award geotechnical services to Soil and Materials Engineers, Inc. for the Crescent Boulevard Reconstruction in the amount of \$44,000.

	1	2	Y	N
Mayor Gatt				
Mayor Pro Tem Staudt				
Council Member Burke				
Council Member Casey				

	1	2	Y	N
Council Member Markham				
Council Member Mutch				
Council Member Wrobel				

Crescent Blvd Reconstruction

Location Map

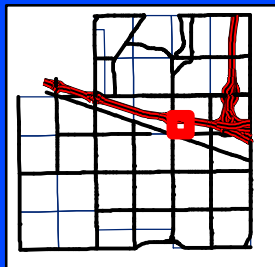


Map Author: A. Wayne
Date: 7/28/2016
Project:
Version #:

Amended By:
Date:
Department:

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.



City of Novi

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



1 inch = 300 feet





The Kramer Building
43980 Plymouth Oaks Blvd.
Plymouth, MI 48170-2584

T (734) 454-9900

www.sme-usa.com

October 24, 2016

Mr. Adam Wayne
City of Novi – Department of Public Services
26300 Lee BeGole Drive
Novi, Michigan 48375

Via electronic mail: awayne@cityofnovi.org (pdf file)

RE: Proposal for Construction Material Services
Crescent Boulevard
Novi, Michigan
SME Proposal No. P00210.16

Dear Mr. Wayne:

SME has been providing the Construction Materials Services (CMS) for the pavement roadway rehabilitation on Crescent Drive in Novi Michigan. Our anticipated scope of services and estimated fees are included in this proposal.

PROJECT DESCRIPTION

The project consists of the replacement of the existing pavement roadway from Novi Road east to Towne Center Drive. We understand the new roadway will consist of the placement of a geogrid with crushed limestone aggregate overlaid with hot mixed asphalt. The new roadway will include the construction of a round-a-bout at the intersection of Crescent Drive and Town Center Drive.

SCOPE OF SERVICES AND ESTIMATED FEE

We have developed our fee estimate for our services based on the work performed to date, our understanding of the remaining project schedule and our review of the project drawings prepared by AECOM.

We anticipate our services have been and will be related to evaluation of the existing subgrade, field density tests on the engineered fill and aggregate base, observation of the placement of the geogrid and design pavement section, field tests on the concrete to be placed, and performing field density tests on the hot mixed asphalt to be placed.

Initially, our understanding of the project schedule included SME to be onsite beginning the week of September 12, 2016 through the anticipated schedule of November 1, 2016. The anticipated schedule called for work to be performed Monday thru Friday during normal working hours (7:00 AM to 5:00 PM). For this, we estimated our fee to be **\$32,000** to provide the CMS for the Crescent Boulevard Project.

However, as of October 14, 2016 due to unforeseen construction conditions, the project schedule has been accelerated to 12-hour work days and 7 days per week. As of October 24, 2016, we have estimated our fees to be approximately \$29,000. We recommend the budget for the CMS be increased to **\$44,000**. This budget estimate assumes the work will be completed by November 1, 2016.

The estimated fee assumes the work will occur from Monday through Friday during normal working hours (7:00 am to 5:00 pm). Additional fees beyond the above estimate would be required for services provided on weekends or holidays, or for site visits and time spent beyond the amount indicated above. Our budget estimate includes a limited amount of project management for scheduling, coordination, technical support, report review, and report preparation and transmittal.

Please note that the above fee estimate reflects our estimates of the project schedule and sequencing, and that invoices will be prepared according to the attached fee schedules (FS:0 and 4) based upon the actual amount of time expended, tests performed and materials used. This is determined by your staff's request of our services during construction based on the duration, progress and scheduling of the above items. Please take a moment to review our assumptions to see if they agree with your planned scheduling of the actual construction work. Let us know if you would like us to make any changes to the number of site visits or tests proposed.

REPORTING

SME provides reports that are distributed via our online platform, Construction Hive. You will receive an email notification with instructions to register with Construction Hive when your first set of reports is uploaded to the site. Please provide us with the contacts you wish to have included on the report distribution list for this project. Reports on Construction Hive may be conveniently accessed, viewed or printed by anyone on this distribution list at any time.

AUTHORIZATION

If this proposal is acceptable, please provide us with a purchase order to execute our services. We look forward to continuing our relationship with the City of Novi on this project. If you have any questions or require additional information, please call or e-mail us at (734) 454-9900 or at eckler@sme-usa.com. Additional information about SME, including staff and project profiles, is available at our corporate website, www.sme-usa.com.

We are looking forward to working with you on this project.

Yours very truly,

SME

Eric P. Eckler
Senior Staff Engineer

Gerard P. Madej, PE
Vice President

Attachments: FS: 0 and 4 (01/13)
SME Fact Sheet
Welcome to Construction Hive

FEE SCHEDULE – PERSONNEL AND EXPENSES

PERSONNEL

Technician I.....	Per Hour	50.00
Technician II.....	Per Hour	62.00
Technician III.....	Per Hour	75.00
Technician IV	Per Hour	85.00
Laboratory Technician.....	Per Hour	85.00
Certified Welding Inspector (CWI)	Per Hour	95.00
Field Engineer/Geologist/Specialist	Per Hour	85.00
Staff Engineer/Geologist/Architect/Specialist.....	Per Hour	90.00
Senior Staff Engineer/Geologist/Architect/Specialist.....	Per Hour	105.00
Project Engineer/Geologist/Architect/Consultant.....	Per Hour	130.00
Senior Project Engineer/Geologist/Architect/Consultant, Project Manager.....	Per Hour	155.00
Senior Consultant, Senior Project Manager, Certified Industrial Hygienist	Per Hour	190.00
Certified Professional (Ohio VAP).....	Per Hour	195.00
Principal Consultant, Chief Consultant, Project Director	Per Hour	215.00
Drafter	Per Hour	80.00
CADD Operator.....	Per Hour	85.00
Senior CADD Operator	Per Hour	95.00
Log Processor	Per Hour	75.00
Administrative Assistant.....	Per Hour	65.00
Senior Administrative Assistant	Per Hour	80.00

Minimum 4 Hours Per Day for field work

Overtime rate (Applies to all field work in excess of 8 hours per day, before 8:00 am or after 5:00 pm Monday through Friday or anytime Saturday, Sunday, or Holiday)..... Standard Rate x 1.5

Expert Testimony and Depositions (including preparation time) Premium of 50% added to hourly rate

TRANSPORTATION AND EXPENSES

Transportation Charge, SME or Private Vehicle	Per Mile.....	0.75
Out-of-town Travel Subsistence	At Cost + 20%	
Lodging and Other Expenses	At Cost + 20%	
Subcontract Expenses, Equipment Rental	At Cost + 20%	
Direct Expenses (Prints, Permits, Maps, etc)	At Cost + 20%	
Hard Copies of Report	Per Copy.....	75.00
Plotting 24 x 36 (Black & White)	Each.....	10.00
Plotting 24 x 36 (Color)	Each.....	20.00

Other Services including Drilling, Equipment use, and Laboratory Testing See Appropriate Fee Schedule

FEE SCHEDULE – LABORATORY

SEE FS:0 FOR STAFF RATES

BITUMINOUS

Abslon Recovery of Bituminous Material	Each	550.00
Bituminous Extraction/Gradation-Vacuum (with crush content)	Each	350.00
Bituminous Extraction/Gradation-Ignition/Reflux (with crush content)	Each	225.00
Bituminous Content Only	Each	130.00
Bituminous Mix Design - 3 Point Marshall Method	Each	800.00
Bituminous Mix Design - 4 Point Marshall Method	Each	1,000.00
Density of Pavement Core	Per Core	45.00
Marshall Density of Laboratory Compacted Asphalt	Per Set of 3 Samples	100.00
Marshall Stability and Flow Test (molded samples)	Per Set of 3 Samples	100.00
MDOT Submittal	Each	2,500.00
One-Point Mix Verification	Each	410.00
Penetration of Bituminous Material	Each	85.00
Performance Grading of Binder Sample	Each	800.00
Superpave Density – Lab Computed Asphalt	Per 2 Samples	150.00
Theoretical Maximum Density (Rice Method)	Each	125.00

BRICK

Absorption - Basic	5 Brick Set	150.00
Absorption - Basic with Saturation Coefficient	5 Brick Set	300.00
Absorption - Initial Rate (Lab method)	5 Brick Set	150.00
Compressive Strength	5 Brick Set	250.00
Dimensional Review	10 Brick Set	250.00
Efflorescence	5 Brick Set	300.00
Freeze-Thaw Testing (100 cycles)	5 Brick Set	800.00
Modulus of Rupture	5 Brick Set	250.00

CONCRETE

Concrete Chloride (Titration Method)	Each	100.00	
Concrete Mix Design (normal weight) and Trial Batch	Each	450.00	
Compressive Strength of Concrete Cylinders	Made by SME	Each	15.00
.....	Made by Others	Each	20.00
Compressive Strength of Concrete Specimens	Each	65.00	
Flexural Strength of Concrete Beams	Each	75.00	
Grout Cylinder Testing	Each	15.00	
Indirect Split Tensile Strength of Concrete Cores	Each	80.00	

CONCRETE MASONRY UNITS

Absorption	3 Block Set	200.00
Compressive Strength of Block – Gross Area/Net	3 Block Set	300.00
Compressive Strength of Prism – Hollow	Each prism	400.00
Compressive Strength of Prism – Solid (Grouted)	Each prism	500.00
Dimensional Review	3 Block Set	150.00
Freeze-Thaw Testing (100 cycles)	5 Block Set	850.00
Freeze-Thaw Testing (additional 50 cycles)	5 Block Set	550.00
Freeze-Thaw Testing (Canadian Method 50 cycles)	5 Block Set	500.00
Linear Shrinkage	3 Block Set	450.00

FIREPROOFING

Density Laboratory Test	Each	80.00
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GROUT/MORTAR

Compressive Strength – 2" x 2" Cubes	Each	35.00
Compressive Strength – 3" x 3" x 6" Specimen	Each	45.00
Mortar Aggregate Ratio	Each	150.00
Quantitative Analysis of Hardened Mortar (Historical/Mix)	Each	2,400.00
Splitting Tensile – 3" x 6" Cylinders	Each	50.00

PAVER BRICK

Absorption	Each	35.00
Compressive Strength	Each	65.00
Freeze-Thaw Testing (50 cycles)	5 Block Set	500.00
Modulus of Rupture for Paving Brick	5 Block Set	250.00

RETAINING WALL MASONRY UNITS

Absorption	3 Block Set	250.00
Compressive Strength	3 Block Set	450.00
Freeze-Thaw Testing	5 Block Set	750.00

ROOFING

Built-up Roof Test Cut Analysis (ASTM D–2829) with aggregate	Each	300.00
Built-up Roof Test Cut Analysis (ASTM D–3617) without aggregate	Each	225.00
Softening Point of Bitumen – Ring and Ball (ASTM D–36)	Each	200.00
Thermal Insulation Compressive Strength (ASTM D–1621)	Each	100.00
Thermal Insulation Density (ASTM D–1622)	Each	80.00

SOIL/AGGREGATES

Alkali Reactivity of Aggregates (ASTM C-1293)	Each	1,000.00
Angularity Index	Each	25.00
Atterberg Limits (LL + PL)	Each	150.00
Clay Lumps Friable Particles	Each	50.00
Clay Proctor Sample Preparation	Hourly Per Laboratory Technician Rate	
Coarse Aggregate Test (ASTM C-33)	Each	1200.00
Crushed Content	Each	75.00
Deleterious Pick	Each	75.00
Expansion Index (ASTM D4829)	Each	300.00
Fine Aggregate Angularity	Each	35.00
Fine Aggregate Test (ASTM C-33)	Each	800.00
Flat & Elongated Particles (ASTM D4791)	Each	55.00
Hydrometer/ Gradation Analysis	Each	200.00
Lightweight Particles in Coarse Aggregate (ASTM C123)	Each	175.00
Lightweight Particles in Fine Aggregate (ASTM C123)	Each	90.00
Loss by Wash	Each	75.00
One-Point Proctor	Each	70.00
Organic Content	Each	50.00
Organic Impurities	Each	70.00
Permeability Test of Compacted Sample	Each	325.00
Permeability Test of Liner Sample (Clayey Soil)	Each	275.00
Potential Alkali Reactivity of Aggregates (ASTM C-1567/ASTM C-1260)	Each	625.00
Sand Equivalency	Each	115.00
Sieve Analysis	Each	75.00
Soundness of Aggregate (5 cycle)	Each	225.00
Specific Gravity of Aggregates, with Absorption	Each	70.00
Specific Gravity of Soils	Each	150.00
Standard or Modified Proctor Test	Each	160.00
Triaxial Strength Testing – Consolidated/Drained	Each Point	300.00
Triaxial Strength Testing – Unconsolidated/Undrained	Each Point	150.00
Unit Weight of Fine or Coarse Aggregate	Each	60.00



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 Cheryl A. Kehres-Dietrich, CGWP
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 Joseph W. Petraus, PE, D.GE
 Robert C. Rabeler, PE
 Daniel O. Roeser, PG
 Larry W. Shook, PE

TEAM MEMBERS

240

PROJECTS COMPLETED

85,000

ESTABLISHED

1964

www.sme-usa.com

OFFICES

BAY CITY, MI

(989) 684-6050
 Larry W. Shook, PE
shook@sme-usa.com

CINCINNATI, OH

(513) 898-9430
 Paul C. Larsen, PE
larsen@sme-usa.com

CLEVELAND, OH

(440) 256-6500
 John E. Dingeldein, PE
dingeldein@sme-usa.com

DETROIT, MI

(Summer, 2015)
 (800) 837-8800
 Daniel R. Cassidy, CPG
cassidy@sme-usa.com

GRAND RAPIDS, MI

(616) 406-1756
 Louis J. Northouse, PE
northouse@sme-usa.com

INDIANAPOLIS, IN

(317) 876-0200
 Paul C. Larsen, PE
larsen@sme-usa.com

KALAMAZOO, MI

(269) 323-3555
 Timothy J. Mitchell, PE
mitchell@sme-usa.com

LANSING, MI

(517) 887-9181
 Bradford L. Ewart II, PE
ewart@sme-usa.com

PLYMOUTH, MI

(734) 454-9900
 Daniel O. Roeser, PG
roeser@sme-usa.com

SHELBY TOWNSHIP, MI

(586) 731-3100
 Chuck A. Gemayel, PE
gemayel@sme-usa.com

TRAVERSE CITY, MI

(231) 941-5200
 Larry W. Shook, PE
shook@sme-usa.com

PROFESSIONAL STAFF

Architects
 Brownfield Consultants
 Chemists
 Environmental Scientists/Engineers
 Facility Engineers
 Forensic Engineers
 Geologists/Hydrogeologists

Geotechnical Engineers
 LEED Accredited Professionals
 Materials Consultants
 Metals Consultants
 Pavement Engineers
 Structural Engineers
 Roofing Consultants

TECHNICAL STAFF

Asbestos Specialists
 Certified Engineering Technicians
 Certified Masonry Inspectors
 Certified Welding Inspectors

Coating Specialists
 Pavement Specialists
 Restoration Specialists
 Roofing Specialists





GEOTECHNICAL

SUBSURFACE EVALUATIONS: Conduct soil borings, vane shear, pressuremeter, Dutch Cone, infiltration testing, observation wells, and laboratory testing.

EARTH RETENTION: Recommendations and design for temporary and permanent earth retention systems.

SLOPES/EMBANKMENTS: Analyze stability, recommend stabilization techniques, and design repairs of failed slopes.

GEOPHYSICAL SURVEYS: Conduct surveys using electrical resistivity, seismic, borehole logging, EM, and ground penetrating radar.

GROUND IMPROVEMENT: Recommendations to improve soil conditions including wick drains, aggregate piers, deep dynamic compaction, vibro-compaction, surcharge and preloading, and grouting.

GROUNDWATER: Determine location of groundwater, model groundwater flow, perform pump tests, and design permanent dewatering systems.

FOUNDATIONS: Recommendations for spread footings, mats, piles, caissons, micropiles, helical anchors, ACIP piles, and aggregate piers.



ENVIRONMENTAL

BROWNFIELD REDEVELOPMENT: Environmental strategies, P3 facilitation, brownfield redevelopment incentives, and redevelopment consulting.

SITE CONTAMINATION MANAGEMENT: Remedial and safe use investigations, feasibility analyses, and remedial action and NAPL control design and implementation.

REAL ESTATE DUE DILIGENCE: Liability management strategies, Phase I/II ESAs, environmental impact and safe use assessments, and business risk evaluations.

HAZARDOUS MATERIALS MANAGEMENT: Asbestos, lead-based paint, PCB, and other hazmat assessments, and abatement plans.

REGULATORY COMPLIANCE: Compliance reviews, audits, reporting, and storm water management and permitting.

MERGERS AND ACQUISITIONS DUE DILIGENCE: Environmental liability assessments, business and compliance risk evaluations, and facility/compliance restoration plans.

UNDERGROUND STORAGE TANK MANAGEMENT: Regulatory compliance, UST closures, release assessments, NAPL consulting, and Risk-Based Corrective Action (RBCA).



BUILDING MATERIALS

BUILDING ENCLOSURES: Evaluate and design for enclosure materials, including walls, windows, vapor and air barriers.

ROOFING: Evaluate existing roofs including use of infrared technology, design for rehabilitation, green roofs, construction monitoring, and roof maintenance programs.

RESTORATION AND REPAIR: Diagnose building materials failures and develop rehabilitation strategies for buildings, parking decks, equipment foundations, and bridges.

STRUCTURAL MATERIALS: Determine cause of failure and develop solutions for failed structural materials.

CONCRETE AND MASONRY NONDESTRUCTIVE TESTING: Utilize NDT techniques to evaluate properties of concrete and masonry, including detection of embedded rebar and conduits.

NONDESTRUCTIVE STEEL TESTING: Utilize NDT techniques to monitor construction or to evaluate steel systems.

COATINGS: Evaluation, selection, construction monitoring, and failure analysis for coatings on steel, concrete, and wood.



PAVEMENTS

PAVEMENT ASSESSMENT AND MANAGEMENT: Develop comprehensive management programs to evaluate and prioritize repair or replacement of pavement systems.

PAVEMENT EVALUATION: Evaluate existing pavements using borings and falling weight deflectometer (FWD), determine pavement condition, identify cause of pavement distress, and provide repair alternatives.

PAVEMENT DESIGN: Develop pavement design recommendations for asphalt and concrete pavements, with drainage and pavement material recommendations.

CONSTRUCTION ENGINEERING: Perform construction administration and material testing, including review of submittals, performing inspections, managing change orders, and documenting quantities.

PAVEMENT RESEARCH: Research for Federal Highway and State DOTs for pavement performance and roughness, and innovative pavement management and design methods.

FULL DEPTH RECLAMATION (FDR): Laboratory testing of existing pavement materials to select proper additives to economically rehabilitate existing pavements.



CONSTRUCTION MATERIALS SERVICES

MASONRY: Testing of masonry including blocks, bricks, grout, mortar, and rebar.

SOIL AND FOUNDATIONS: Verification of soil support for foundations, use of Pile Driving Analyzer (PDA) and wave equation to monitor pile driving, monitoring of vibrations, and compaction testing.

ROOFING: Monitor roofing including quality of insulation, joint locations, sealing, metal decking, flashing, and roofing materials.

PAVEMENTS: Subgrade evaluation, and testing of sand subbase, aggregate base, asphalt, and concrete materials.

CONCRETE: On-site and laboratory testing of slump, air content, unit weight, test cylinders, floor flatness, and moisture emission, and NDT testing for in-place strength.

STRUCTURAL STEEL AND WOOD: Monitor bolted and welded connections, coatings, shear studs, and use of ultrasonic, radiographic, magnetic particle techniques, qualify welding procedures, and certify welders.

SPECIALIZED MATERIALS: Test and monitor installation of EFIS, air and moisture barriers, and fireproofing systems.



DESIGN

ENVIRONMENTAL: Design for soil and groundwater remediation, direct contact and vapor intrusion mitigation, contaminated soil/fill management, storm water and sediment management systems, and hazardous abatement plans.

BUILDING MATERIALS: Design of building enclosures, roofing systems, coatings; comprehensive maintenance and rehabilitation strategies for buildings, parking decks, equipment foundations, bridges, and other structures.

GEOTECHNICAL: Design of specialty foundations, underpinning, earth retention, groundwater management, steepened slopes, soil stabilization, ground improvement, and instrumentation systems.

PAVEMENT: Customized pavement design for new and rehabilitated pavements. Selection of pavement recycling methods including full-depth reclamation and soil stabilization.

SITE CIVIL: Develop plans and specifications and assist owner with construction administration for infrastructure rehabilitation projects.



WELCOME TO SME'S WEB-BASED REPORTING SYSTEM POWERED BY CONSTRUCTION HIVE™

As a project team member, you have access to view your inspection reports on our data storage and distribution system called Construction Hive™. During the course of the project, your reports will be automatically uploaded to Construction Hive™ and you will receive e-mails from SME notifying you of the reports that are newly available.

***NOTE: To avoid receiving an email for every report posted, please register and set your email notification preferences.**

A video tutorial is available [HERE](#) to assist you in registering your free account. You may also go directly to www.constructionhive.com to register at any time.

Options for receiving reports from SME include:

- Register for a free Construction Hive™ account and have access to all of your reports online, or
- Access the reports directly from the link provided in future e-mails. *Please note, the link expires after 14 days.*

The benefits of registering for Construction Hive™ include:

- Simple and quick access to reports, including a mobile specific site.
- Visual cues for unread, urgent and "out of specification" reports.
- The ability to change e-mail alert settings (e.g., immediately, morning, evening or never).
- The ability to easily view previous report revisions.
- Retention of all documents for the project with advanced searching capabilities (dates, report type, report content, status, etc.).
- Bulk download (zip file) of up to 500 reports at one time.

If you have used Construction Hive before, and already have an account, simply use the same email address and you will have access to SME's reports.

If you have any questions regarding Construction Hive™, including access for additional users, or anything else, please reach out to your SME project manager.

We look forward to teaming with you on this project!



Passionate People Building and Revitalizing our World