

November 13, 2013

City of Lake Elmo
Department of Public Works
3800 Laverne Avenue North
Lake Elmo, MN 55042

Attn: Ryan W. Stempski, PE

RE: Proposal for Geotechnical Services
2014-2016 Street Improvements, Lake Elmo, Minnesota

Dear Mr. Stempski:

Per your November 11 request, we are submitting this proposal to conduct the following scope:

“Reconstruction” Area Scope:

Fieldwork

- Drill and sample 28 standard penetration test borings to depths of 6 feet on the existing streets (six separate street segments).
- Clear underground public utilities through the Gopher State One Call system.
- Measure in-place bituminous and apparent aggregate base thicknesses.
- Measure and document the boring locations. No measuring of the surface elevations is planned.

Laboratory

- Classify the soils per the Unified Soil Classification System (USCS).
- Conduct water content tests on cohesive samples retrieved.
- Conduct unit price soil index testing (\$570 unit price budget, allowing for six sieve analysis tests).

Report

- Logs of the test borings, including pavement thicknesses and lab test results.
- Descriptions of the drilling, sampling, testing, and classification methods.
- Review of soil and ground-water conditions encountered.
- Geotechnical opinions/recommendations pertaining to the planned street improvements including estimate of subgrade R-value.

The scope of work defined in this proposal is intended for geotechnical purposes only, and not to explore for the presence or extent of environmental contamination at the site. However, we will note obvious contamination encountered.



“Reclaim” Area Scope:

Fieldwork

- Perform Falling Weight Deflectometer (FWD) testing. The FWD testing will be done using the standard Strategic Highway Research Program (SHRP) sensor spacing and will be done at 6,000 and 9,000 lbs. force. The testing will be performed at an approximate 500 foot spacing in each of the driving lanes producing an effective 250 foot spacing along the roadway alignment. We expect this will total about 60 test locations.
- Perform Ground Penetration Radar (GPR) testing. The GPR testing will be done at a 1-foot spacing in each of the driving lanes. We expect this will total about 6 lane miles.
- Conduct pavement cores and aggregate base thickness exploration at 8 locations to correlate GPR thickness data to actual measurements.

Report

- Analyze FWD data for load capacity of the roadway, stiffness, and required reclaim/overlay thickness.
- Prepare a report showing the spring load carrying capacity, effective granular equivalency, and effect subgrade R-value; and recommendations for the street improvements.

Fee:

Our services will be performed on a time-and-materials basis per the attached fee schedule. For the scope described, we will establish \$10,500 as a not-to-exceed fee (\$7,150 estimated for the “reconstruction” portion and \$3,350 estimated for the “reclaim” portion). In the event the scope of our work needs to be revised, we will review such scope adjustments and the associated fees with you, and receive your approval before proceeding.

Schedule:

Based on our current backlog, we anticipate the following schedule (following authorization to proceed):

- Soil borings- begin within two weeks, three days of drilling expected
- FWD/GPR/coring- within about one week
- Report- within about one month.

Terms/Conditions:

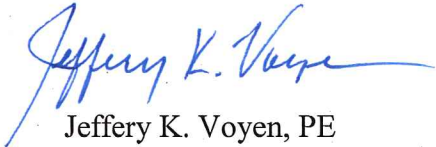
Our services will be performed per the *Contract Agreement Between the City of Lake Elmo and American Engineering Testing, Inc. for Professional Services*, dated July 20, 2010.

Acceptance:

Please indicate your acceptance of this proposal by endorsing the enclosed copy and returning it to us. The original proposal is intended for your records.

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Sincerely,



Jeffery K. Voyer, PE
Vice President/Principal Engineer
Phone #651-659-1305
Cell #612-961-9186
jvoyer@amengtest.com

PROPOSAL ACCEPTANCE BY:

Signature: _____

Printed Name: _____

Date: _____

Attachments:

2013 Geotechnical Fee Schedule

I. Personnel Hourly Rates

A. Word Processing Specialist	62.00/hr.
B. Engr. or Env. Technician I	68.00/hr.
C. Engr. or Env. Technician II	79.00/hr.
D. Drill Technician/Geo Lab Technician	89.00/hr.
E. Senior Engineering Technician	95.00/hr.
F. Engineering Assistant	105.00/hr.
G. Engineer I/Geologist I	113.00/hr.
H. Engineer II/Geologist II/Sr. Engr. Assistant	128.00/hr.
I. Senior Engineer/Geologist	144.00/hr.
J. Principal Engineer/Geologist	172.00/hr.

II. Vehicle Mileage

A. Personal Automobile/Truck	0.75/mile
B. Auxiliary Truck Vehicle	1.00/mile
C. Truck with Coring, FWD, or GPR Equipment	1.10/mile
D. Truck with Warning Sign/Crash Trailer	1.20/mile
E. 1-ton Truck with Drill Rig	1.20/mile
F. 1½ to 2½-ton Truck with Drill Rig	1.35/mile
G. CPT Truck Rig (20-ton push capacity)	1.60/mile
H. Tractor/Lowboy Trailer	1.80/mile

III. Equipment Rental

A. Drill Rig Rental	
1. Rotary Drill on 1-ton Truck	67.00/hr.
2. Rotary Drill on 1½ to 2½-ton Truck	77.00/hr.
3. Rotary Drill on All-Terrain Vehicle	107.00/hr.
4. Portable, Non-rotary Rig	77.00/hr.
B. Auxiliary/Specialty Vehicle Rental	
1. Auxiliary Truck Vehicle	16.60/hr.
2. Truck with Warning Sign/Crash Trailer	27.00/hr.
3. Truck with Coring Equipment	42.00/hr.
C. Cone (CPT) Rig/Equipment Rental	
1. CPT Rig (Truck or ATV)	137.00/hr.
2. Electronic Cone w/Computer	40.00/hr.
3. Soil Sampler	3.50/hr.
4. Water Sampler	20.00/hr.
D. Miscellaneous Equipment Rental	
1. Field Vane Shear	310.00/day
2. Field Electrical Resistivity	225.00/day
3. Field Seismic Refraction (ReMi)	390.00/day
4. Inclinometer Reading Equipment	320.00/day
5. Pneumatic Transducer Reading	160.00/day
6. Bore Hole Permeability	
a. Open End Casing Method	130.00/day
b. HQ Wireline Packer	320.00/day
7. Borehole Pressuremeter	65.00/hr.
8. Iowa Borehole Shear Tester	325.00/day
9. Double Ring Infiltrometer	250.00/day
10. Photoionization Detector (PID)	115.00/day
11. GPS Mapping System	15.00/hr.
12. Pile Driving Analyzer (PDA)	720.00/day
13. Calibrated SPT Rod	190.00/day
14. Portable Concrete Coring Equipment	40.00/hr.
15. Pavement Testing (includes truck)	
a. Falling Weight Deflectometer	74.00/hr.
b. Ground Penetrating Radar (GPR)	25.00/hr.
E. Geotechnical Software Rental	
1. Geo Studio Finite Element	55.00/hr.
2. CAPWAP	30.00/hr.
3. AutoCAD or Microstation	25.00/hr.
4. Wave Equation (WEAP)	15.00/hr.
5. LPILE or GROUP	15.00/hr.

6. Slope Stability (ReSSA)	15.00/hr.
7. Stabilized Earth Slopes & Walls	15.00/hr.
8. Settlement (FoSSA)	15.00/hr.
9. SHAFT	15.00/hr.

F. Bit Wear- Rock Coring	
1. Diamond Bit - Sedimentary Rock	
a) B, NQ	10.00/foot
b) HQ	12.00/foot
2. Diamond Bit - Metamorphic & Igneous	
a) B, NQ	17.00/foot
b) HQ	20.00/foot

IV. Laboratory Tests of Soil

A. Water Content	hourly
B. Dry Density (includes water content)	55.00/test
C. Atterberg Limits (ASTM:D4318)	
1. Plasticity Index	105.00/test
2. Liquid Limit or Plastic Limit Separately	88.00/test
D. Sieve Analysis (includes -#200)	95.00/test
E. Hydrometer Analysis (sieve included)	190.00/test
F. Thermal Resistivity w/Proctor (ASTM:D5334)	
1. As Received and Oven Dried (2 pts)	950.00/test
2. Dry Out Curve (4 pts)	1185.00/test
G. Electrical Resistivity (ASTM:G57-Soil Box)	92.00/test
H. Corrosion/Concrete Attack Series*	210.00/series
I. Consolidation (up to 32 tsf)	
1. With P-e curves only	450.00/test
2. With P-e curves, time curves	565.00/test
J. Unconfined Compression (incl. wc/density)	88.00/test
K. Hand Penetrometer	10.00/test
L. Organic Content of Soil	60.00/test
M. Topsoil Borrow Test (Mn/DOT 3877)	280.00/test
N. R-value (Hveem Stabilometer)	370.00/test
O. California Bearing Ratio	
1. Granular	585.00/test
2. Cohesive	660.00/test
P. Proctor Tests (Methods A or B)	
1. Standard	120.00/test
2. Modified	130.00/test

*includes pH, choride ion, soluble sulfates, sulfides, redox potential (resistivity not included).

V. Expenses

A. Direct Project Expenses: includes out-of-town per diem; plowing & towing; special materials & supplies; special travel, transportation & freight; subcontracted services, and miscellaneous costs	Cost + 15%
B. Equipment Replacement (when abandonment is more feasible than recovery)	Cost
C. Equipment Recovery (when required by regulatory agencies or project specifications)	Cost + 15%

The rates presented are portal-to-portal with vehicle mileage, expenses and equipment rentals being additional.

Overtime for personnel charged at above cost plus 25% for over 8 hours per day or Saturday; and at above cost plus 50% for Sundays or Holidays. Hazardous work charged at an additional 25%. Night time shift work will include a premium charge of \$30.00 per person per shift.