

## AMENDMENT NO. 1

**PROJECT:** Taxiway and Apron Pavement Repairs  
Livingston County Spencer J. Hardy Airport  
Construction Observation & Administration

**Federal Project No.:** X-XXXX-XXXX-XXXX  
**County Bid No.:** ITB-LC-21-06

This Amendment is made and entered into this date of \_\_\_\_\_, by and between Livingston County, hereinafter referred to as the "SPONSOR", and C&S Engineers, Inc., hereinafter referred to as the "CONSULTANT".

**WITNESSETH:** Whereas the SPONSOR and the CONSULTANT have entered into a Lump Sum Consultant Agreement for professional design engineering services dated 02/13/2020 for the undertaking of the above titled project, and the SPONSOR and the CONSULTANT agree to amend said Agreement with this Amendment No. 1 in accordance with the following:

- NO. 1:** Scope of Work - attached hereto, is added and made part of the Agreement.
- NO. 2:** The parties hereto agree that the total lump sum fee payable under this agreement be increased by \$28,370.35
- NO. 3:** Cost Summary - attached hereto, is added and made part of the Agreement.

Except as amended herein the aforementioned Consultant Agreement and all terms and conditions contained therein between the SPONSOR and CONSULTANT shall remain in full force and effect.

**IN WITNESS WHEREOF,** the parties have caused this Amendment to be entered into as of the date set forth above.

**SPONSOR**

**CONSULTANT**

**LIVINGSTON COUNTY**

**C&S ENGINEERS, INC.**

**By:** \_\_\_\_\_

**By:** \_\_\_\_\_  
Robert J. Koller, P.E.

**Title:** \_\_\_\_\_

**Title:** Service Group Manager

**Date:** \_\_\_\_\_

**Date:** \_\_\_\_\_

## **SCHEDULE A**

### **SCOPE OF WORK**

**Project Title:** Taxiway and Apron Pavement Repairs  
**Airport Name:** Livingston County Spencer J. Hardy Airport  
**Services Provided:** Construction Observation & Administration

**Project Description:**

The CONSULTANT shall provide the following services, including construction contract administration and part-time construction observation, during construction of the Taxiway and Apron Pavement Repairs project. The Project will be constructed by the SPONSOR with grant assistance from the Federal Aviation Administration (FAA) Airport Improvement Program (AIP) and Michigan Department of Transportation (MDOT).

The project includes pavement rehabilitation design and bidding of overband crack sealing of Taxiways A, B, associated connectors and terminal apron and the construction joint rehabilitation of Taxiways A, B, and associated connectors. The anticipated duration of the construction work is 12 calendar days beginning in October 2021.

Services to be provided by the CONSULTANT shall include the following:

**CONSTRUCTION CONTRACT ADMINISTRATION PHASE**

The Construction Contract Administration Phase shall consist of observation of the construction to become generally familiar with the progress and quality of the Contractor's work to determine if the work is proceeding in general conformity with the Contract Documents. In addition, the CONSULTANT shall aid the SPONSOR by acting as its liaison and Project coordinator with the MDOT during the construction of the Project. Construction Contract Administration includes the following services:

1. Schedule and conduct a pre-construction conference. Prepare and distribute minutes.
2. Schedule and conduct weekly construction coordination meetings. The Resident Project Representative and Project Manager will attend 3 meetings in person. Prepare and distribute minutes.
3. Review, approve, or take other appropriate action on all Contractor-required submittals, such as construction schedules and phasing programs, shop drawings, product data, catalog cuts, and samples.
4. Review alternative construction methods proposed by the Contractor and advise the SPONSOR of the impact of these methods on the schedule and quality of the Project.
5. Prepare, review, and approve monthly and final payments to Contractor(s).
6. Furnish the SPONSOR and MDOT one reproducible set of the record drawings for the completed Project taken from the annotated record drawings prepared by the Resident Project Representative and/or supporting staff based upon Contractor-provided information.
7. Conduct final inspections of the completed Project with the SPONSOR's airport personnel, MDOT, and the Contractor.
8. Prepare 'Sponsor Certification for Construction Project Final Acceptance' and submit to MDOT.
9. Provide assistance to the SPONSOR as a witness in any litigation that may arise from the development

or construction of the Project. Payment for this service will be as stated in Article 4 of the CONSULTANT Agreement for the Project, of which this Schedule forms a part.

#### **CONSTRUCTION OBSERVATION PHASE**

The construction observation phase shall consist of construction observation by a full-time Resident Project Representative and/or supporting staff who will also:

1. Maintain project records and documentation in accordance with FAA and MDOT Aeronautics Project Engineer's Manual requirements.
2. Observe the Work to determine general conformity with the Contract Documents and to ascertain the need for correction or rejection of the Work. Neither the activities of the Resident Project Representative and/or supporting staff nor the presence of any of them at a construction/Project site shall relieve Contractor of its obligations, duties, and responsibilities, including, but not limited to, construction means, methods, sequences, techniques, or procedures necessary for performing, superintending, or coordinating the Work in accordance with the Contract Documents and any health or safety precautions or measures required by regulatory agencies.
3. Observe testing and inspection. Arrange for, conduct, or witness field, laboratory, or shop tests of construction materials as required by the plans and specifications for the Project; monitor the suitability of materials on the Project site or brought to the Project site to be used in construction; interpret the contract plans and specifications and check the construction activities for general compliance with the design intent; measure, compute, or check quantities of Work performed and quantities of materials in-place for partial and final payments to the Contractor.
4. Prepare and submit inspection reports of construction activity and problems encountered as required by the SPONSOR, FAA and MDOT.
5. Collect weekly payrolls for Davis Bacon Act Compliance and review prior to each pay estimate.

The CONSULTANT agrees to perform the services in the Construction Observation Phase of this Project during the construction contract period, estimated to be as follows:

Inspection:                      Inspector, 8 days @ 10 hrs/day

Post-Construction:            Inspector, 1 days @ 8 hrs/day

END OF SCHEDULE

**C&S ENGINEERS, INC.**  
**ARCHITECTURAL/ENGINEERING**  
**WORK SUMMARY**

PROJECT: TAXIWAY AND APRON PAVEMENT REPAIRS  
 SERVICES: CONSTRUCTION ADMINISTRATION  
 CLIENT: LIVINGSTON COUNTY  
 CLIENT MGR: MARK JOHNSON

Date: 6/10/21  
 Service Group Mgr: Bob Koller  
 Facility Manager: Michael Holdwick  
 Project Manager: Michael Holdwick  
 Project Number: N03.005.001

CONT NO.	PHASE NO.	TASK	CHIEF ENG	ENG	CADD OPER/DES TECH	INSP	DIRECT COSTS	SERVICES BY OTHERS	TOTALS	TOTAL HOURS PER TASK	
N03.005.001	100	CONSTRUCTION ADMINISTRATION									
		PRE-CONSTRUCTION CONFERENCE	4			4			\$1,086.56	8	
		WEEKLY CONSTRUCTION COORDINATION MEETINGS (ASSUME 3)	12						\$2,125.87	12	
		REVIEW SUBMITTALS	4	12					\$2,090.44	16	
		REVIEW ALTERNATE METHODS	4	8					\$1,629.84	12	
		PAY ESTIMATES (ASSUME 2)	2	4					\$814.92	6	
		RECORD DRAWINGS	2		8				\$944.83	10	
		FINAL INSPECTION	4						\$708.62	4	
		CONSTRUCTION OBSERVATION									
	200	CONSTRUCTION OBSERVATION/INSPECTION				88			\$1,154.75	\$9,469.27	88
		SBO - CONSTRUCTION TESTING							\$9,500.00	\$9,500.00	
	300	SBO - CONSTRUCTION TESTING SERVICES									
			32	24	8	92		\$10,654.75	\$28,370.35	156	



# ARCHITECTURAL/ENGINEERING COST SUMMARY SCHEDULE "B" INSPECTION PHASE

PROJECT NAME: TAXIWAY AND APRON PAVEMENT REPAIRS  
PROJ DESCRIPTION TAXIWAY AND APRON PAVEMENT REPAIRS

DATE: 14-Jun-21  
A/E: C & S ENGINEERS, INC.  
PROJECT NO: N03.005.001  
C&S CONTACT: Michael Holdwick

CLIENT: LIVINGSTON COUNTY  
CLIENT MANAGER: MARK JOHNSON

## I. ESTIMATE OF DIRECT SALARY COSTS:

		MAXIMUM	AVERAGE	@	ESTIMATED HOURS			ESTIMATED
TITLE		RATE OF PAY (\$/HR)	RATE OF PAY (\$/HR)					COST
A.	SENIOR VICE PRESIDENT	\$140.00	\$137.00	X	0	=		\$0.00
B.	VICE PRESIDENT	\$120.00	\$116.00	X	0	=		\$0.00
C.	SERVICE GROUP MANAGER	\$100.00	\$86.00	X	0	=		\$0.00
D.	DEPARTMENT MANAGER	\$85.00	\$76.00	X	0	=		\$0.00
E.	MANAGING/CHIEF ENGINEER	\$73.00	\$60.00	X	32	=		\$1,920.00
F.	PRINCIPAL ENGINEER	\$75.00	\$65.00	X	0	=		\$0.00
G.	SR. PROJECT ENG/ARCH/ENV SCIENTIST	\$68.00	\$55.00	X	0	=		\$0.00
H.	PROJECT ENG/ARCH/ENV SCIENTIST	\$53.00	\$43.50	X	0	=		\$0.00
I.	SENIOR PROJECT DESIGNER	\$47.00	\$34.50	X	0	=		\$0.00
J.	ENGINEER/ARCHITECT	\$43.00	\$39.00	X	24	=		\$936.00
K.	STAFF ENGINEER	\$38.00	\$35.00	X	0	=		\$0.00
L.	SENIOR DESIGNER	\$33.00	\$30.50	X	0	=		\$0.00
M.	DESIGNER	\$35.00	\$29.00	X	0	=		\$0.00
N.	CADD OPERATOR/DESIGN TECHNICIAN	\$29.00	\$25.00	X	8	=		\$200.00
O.	TECHNICAL ADMINISTRATOR	\$39.00	\$26.00	X	0	=		\$0.00
P.	INTERN	\$25.00	\$19.00	X	0	=		\$0.00
Q.	SENIOR PROGRAM COORDINATOR	\$50.00	\$42.00	X	0	=		\$0.00
R.	GRANTS ADMINISTRATOR	\$44.00	\$30.00	X	0	=		\$0.00
S.	ASSISTANT GRANTS ADMINISTRATOR	\$42.00	\$27.50	X	0	=		\$0.00
T.	MANAGING DIRECTOR	\$98.00	\$94.00	X	0	=		\$0.00
U.	DIRECTOR, TERMINAL	\$93.00	\$89.00	X	0	=		\$0.00
V.	DIRECTOR	\$73.00	\$66.00	X	0	=		\$0.00
W.	ASSOCIATE DIRECTOR, TERMINAL	\$86.00	\$82.00	X	0	=		\$0.00
X.	ASSOCIATE DIRECTOR	\$63.00	\$59.00	X	0	=		\$0.00
Y.	PRINCIPAL CONSULTANT 2	\$61.00	\$54.00	X	0	=		\$0.00
Z.	PRINCIPAL CONSULTANT 1	\$56.00	\$51.00	X	0	=		\$0.00
AA.	SENIOR CONSULTANT 2	\$45.00	\$40.00	X	0	=		\$0.00
BB.	SENIOR CONSULTANT 1	\$42.00	\$39.50	X	0	=		\$0.00
CC.	CONSULTANT 2	\$37.00	\$34.00	X	0	=		\$0.00
DD.	CONSULTANT 1	\$35.00	\$32.00	X	0	=		\$0.00
EE.	PROGRAM MANAGER	\$58.00	\$53.00	X	0	=		\$0.00
FF.	SENIOR/MANAGING ARCHITECT	\$70.00	\$60.00	X	0	=		\$0.00
GG.	SENIOR GIS ANALYST	\$38.00	\$36.00	X	0	=		\$0.00
HH.	GEOLOGIST	\$40.00	\$35.00	X	0	=		\$0.00
II.	ENVIRONMENTAL SCIENTIST	\$64.50	\$37.00	X	0	=		\$0.00
JJ.	SENIOR CONSTRUCTION SUPERVISOR	\$80.00	\$75.00	X	0	=		\$0.00
KK.	CONSTRUCTION SUPERVISOR	\$64.50	\$53.00	X	0	=		\$0.00
LL.	RESIDENT ENGINEER	\$55.00	\$48.00	X	0	=		\$0.00
MM.	CHIEF INSPECTOR	\$54.25	\$37.00	X	0	=		\$0.00
NN.	SENIOR INSPECTOR	\$53.00	\$35.00	X	0	=		\$0.00
OO.	INSPECTOR	\$47.00	\$32.00	X	92	=		\$2,944.00
PP.	JUNIOR INSPECTOR	\$28.00	\$25.00	X	0	=		\$0.00
WW.	SENIOR TECHNICAL ADMINISTRATOR	\$55.00	\$38.00	X	0	=		\$0.00
RR.	SENIOR PROJECT LANDSCAPE ARCHITECT	\$50.00	\$44.00	X	0	=		\$0.00

TOTAL ESTIMATED DIRECT SALARY COST: \$6,000.00

II. OVERHEAD EXPENSES & PAYROLL BURDEN PER SCHEDULE "C" -  
(AUDITABLE, ESTIMATED AND EXPRESSED AS A PERCENTAGE  
OF DIRECT SALARY COST):

166.00%

\$9,960.00

III. SUBTOTAL OF ITEMS I & II:

\$15,960.00

IV. ESTIMATE OF DIRECT EXPENSES:

A.	TRAVEL, BY AUTO:	14	TRIPS @	80	MILES/TRIP @	\$0.575	=	\$644.00
B.	TRAVEL, ON SITE, BY AUTO:	9	DAYS @	10	MILES/DAY @	\$0.575	=	\$51.75
C.	TRAVEL, BY AIR:	0	TRIPS @	0	PERSONS @	\$0.00	=	\$0.00
D.	PER DIEM:	9	DAYS @	1	PERSONS @	\$51.00	=	\$459.00
E.	CELL PHONE:	0	MONTHS@			\$200.00	=	\$0.00
F.	MISCELLANEOUS:						=	<u>\$0.00</u>

TOTAL ESTIMATE OF DIRECT EXPENSES:

\$1,154.75

V. FIXED FEE (PROFIT, LUMP SUM):

A.	LABOR PLUS OVERHEAD:	11%	(OF III.)	\$1,755.60
B.	DIRECT EXPENSES:	0%	(OF IV.)	<u>\$0.00</u>

TOTAL FIXED FEE:

\$1,755.60

VI. SUBCONTRACTS:

A.	ESTIMATE OF CONSTRUCTION SURVEYS:	\$0.00
B.	ESTIMATE OF CONSTRUCTION TESTING SERVICES:	<u>\$9,500.00</u>

VII. TOTALS:

A.	ESTIMATE OF MAXIMUM TOTAL COST FOR INSPECTION SERVICES, AGREEMENT TOTAL & FAA ELIGIBLE:	<u><u>\$28,370.35</u></u>
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## MATERIALS TESTING CONSULTANTS

June 14, 2021  
Proposal No. 15073

C&S Companies  
38777 Six Mile Road  
Suite 202  
Livonia, MI 48150

Attention: Mr. Mike Holdwick

Reference: Proposal for Construction Materials Engineering and Testing Services  
Livingston County Spencer J. Hardy Airport Taxiway and Apron Pavement  
Repairs  
Howell, Michigan

Dear Mr. Holdwick:

We appreciate the opportunity to submit this proposal to provide construction materials engineering and testing services. The scope of the work has been established based on review of the project plans dated May 2021 and applicable project specifications. We have provided herein a description of the scope of work and associated fees. Our general conditions and fee schedule are attached.

The proposed construction generally includes overband crack sealing and pavement repairs on Taxiways A, B and associated connectors. Construction is scheduled to begin in September or October of 2021.

We offer comprehensive engineering and testing services through our in-house staff, including:

- soil and aggregates testing,
- subgrade verification testing,
- concrete field and laboratory testing,
- masonry testing and inspection,
- structural steel fabrication and erection inspection,
- asphalt and pavement engineering and testing,
- roofing or other testing as necessary.

The described services are available through our Construction Materials Testing Division. We are able to provide services related to geotechnical engineering and environmental concerns with support from our other Divisions, as necessary.



Our in-house laboratory fully meets the requirements of ASTM C1077, D3666 and D3740, the standards that set minimum requirements for laboratories conducting tests on concrete and aggregates, bituminous paving materials, soil and rock. We are AASHTO accredited and participate in AASHTO reference sample programs and independent reviews of our internal quality program.

Each year MTC provides service on hundreds of projects throughout Michigan. With an experienced staff, our test drilling support and in-house laboratory capabilities along with our successful completion of thousands of projects, we offer to our clients comprehensive engineering consultation and testing services for almost any size and complexity project.

As evidenced by our Mission Statement, safety is our top priority. We, as a company, hold ourselves to high standards in this area and require adherence from our employees to our safety policies.

We have comprehensive forms of insurance, including workers compensation, automobile, general liability, contractors' pollution liability and professional liability.

## **SCOPE OF WORK**

A proposed scope of work is outlined in this section. All test methods are in accord with ASTM or other indicated procedures for performing the requested testing that includes extraction/gradation and air voids. Standard Project Engineer review of reports will be provided.

### Asphalt – Plant

- Perform testing at the supplier's asphalt plant according to the following methods:
  - ASTM D 979 – Standard Practice for Sampling Bituminous Paving Mixtures
  - ASTM D 2041 – Standard Test Method for theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
  - ASTM D 2172 – Standard Test Method for Quantitative Extraction of Bitumen from Bituminous Paving Mixtures
  - ASTM D 2726 – Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
  - ASTM D 3203 – Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
  - ASTM D 5444 – Standard Test Method for Mechanical Size Analysis of Extracted Aggregate
  - ASTM D 6926 – Standard Practice for Preparation of Bituminous Specimens Using Marshall Apparatus





## FEES AND COST ESTIMATE

Our fees are based on actual quantities and rates in the attached fee schedule. The actual quantity will largely be a function of the contractor's schedule and methods applied. Report processing will be through our MTC Green electronic report distribution system.

Based on the described scope of work, we have estimated the following trip estimates to perform testing at the supplier's asphalt plant:

- Asphalt Plant Inspection – 7 trips, 10 hours each

Based on these projected trips, we estimate a testing budget of approximately \$9,500. This estimate includes all equipment, mileage, and travel with supporting laboratory testing and project engineering supervision.

We appreciate this opportunity to provide this service to C&S Companies. Please do not hesitate to call should you have any questions.

Sincerely,

**MATERIALS TESTING CONSULTANTS, INC.**

Jeremy Duval  
CMET Project Coordinator

Daniel S. Elliott, P.E.  
Project Manager

Atts: Fee Schedule  
General Conditions



## FEE SCHEDULE

### PERSONNEL

Principal	\$195/hr	Field/Lab/SST Manager	\$120/hr
Sr. Project Manager	\$170/hr	SST Technician III	\$110/hr
Project Manager	\$150/hr	SST Technician II	\$100/hr
Sr. Proj Eng/Geol/Env Professional	\$145/hr	SST Technician I	\$90/hr
Project Eng/Geol/Env Professional	\$130/hr	Technician IV	\$95/hr
Asst Proj Eng/Geol/Env Professional	\$120/hr	Technician III	\$85/hr
Sr. Staff Eng/Geol/Env Professional	\$115/hr	Technician II	\$65/hr
Staff Eng/Geol/Env Professional	\$100/hr	Technician I	\$60/hr
		Project Assistant	\$55/hr

Minimum charge for field assignment is four hours per trip. Overtime is 1.3 times regular rate. Overtime is time worked prior to 8:00 a.m. or after 4:30 p.m., in excess of eight hours per day, Saturdays, Sundays or holidays. Chargeable time includes travel (portal to portal), time on-site, and required office time. Review of field and laboratory reports is mandatory practice and will be charged at the appropriate level required.

### OTHER

Mileage	\$0.80/mile	Per diem - meals (overnight assignments)	\$60/day
Vehicle (Local Use)	\$50/day	Direct reimbursable expenses	Cost + 15%

### EQUIPMENT

#### Geo-Environmental

	<u>Per Day</u>
Bailer	\$20/ea
Earth Resistivity	\$375
Four Gas Monitor	\$90
GPS	\$130
Ground Penetrating Radar (GPR)	\$700
Electromagnetic Locating Tool	\$140
TEXAme Pressuremeter	\$3200/wk
Low Flow Pump	\$400
Photo-Ionization Detector	\$160
Slope Inclinator	\$380
Turbidity Meter	\$60
Water Level Meter	\$50
Vane Shear Test Apparatus	\$120
Plate Load Test Equipment	\$600

#### SST

Anchor Bolt Pull Off Tester	\$200
Infrared Camera	\$150
Magnetic Particle Equipment	\$75
Positector Paint Thickness Gage	\$80
SFRM Cohesion/Adhesion Kit	\$50/ea
Skidmore® Bolt Tension Calibrator	\$130
Torque Multiplier	\$100
Torque Wrench	\$85
Ultrasonic Equipment	\$150
UT Thickness Gauge	\$150

#### CMT

	<u>Per Day</u>
Avogard Crack Monitor	\$50/ea
Coring Machine	\$180
Bit Charge	\$7/in
Concrete Surface Moisture Gauge	\$120
Dynamic/Static Cone Penetrometer	\$35
Hand Auger	\$30
Floor Profiler	\$250
Floor Moisture Vapor Kit	\$55/ea
Load Cell	\$300
Nuclear Density Gauge	\$60
Pile Echo Tester	\$170
Portable Beam Flexural Strength	\$150
Positest Adhesion Tester	\$200
Adhesion Dolly	\$10/ea
Relative Humidity Kit, F2170	\$120/plug
Roughness	\$200
Slip Resistance	\$200
Schmidt Hammer	\$180
Windsor Probe	\$150
Windsor Probe Charge Set	\$70/set

#### Asbestos

Air Sampling Equipment	\$75
Bulk Sampling Equipment	\$65

#### Safety

Traffic Sign	\$50
Arrowboard	\$150
Safety Cone	\$8



## FEE SCHEDULE

### LABORATORY

#### Geotechnical

	Per Test
Proctor – granular, D1557, D698	\$185
Proctor – cohesive, D1557, D698	\$215
Proctor – method C, 6" mold, add	\$80
Maximum Index Density, D4253	\$250
Minimum Index Density, D4254	\$200
Sieve Analysis and LBW, D6913, D1140	\$170
Grain Size Distribution, Hydrometer, D422	\$225
Specific Gravity, D854	\$125
Atterberg Limits, D4318	\$110
Soil pH, D4972	\$70
Organic Content/Loss on Ignition, D2974	\$120
California Bearing Ratio (per pt), D1883	\$410
Total Porosity, D854, D2216, D7263	\$150
Density & Moisture, D2216, D7263	\$50
Natural Moisture, D2216	\$25
Unconfined Compression, D2166	\$90
Shelby Tube - Visual Classification, D2488	\$80
Shelby Tube - Extrusion, D2488	\$50
Direct Shear (up to 3 pts), D3080	\$800
Triaxial UU (1 point), D2850	\$320
Triaxial CU (up to 3 pts), D4767	\$1500
Triaxial CD (up to 3 pts), D7181	\$1900
Laboratory Vane Shear, D4648	\$125
Consolidation, D2435, Method B	\$685
Permeability – Constant Head, D2434	\$300
Permeability – Fall. Head, EM 1110-IV-1906	\$320
Permeability – Flex Wall, D5084	\$500
Remolding of Samples, add	\$95
Soil Resistivity, G187	\$300
Paint Filter Test, EPA 9095B	\$170

#### Rock Core

	Per Test
Rock Hardness by Rebound Hammer (10 Strikes), D5873	\$200
Unconfined Compression, D7012	\$235
Unconfined Compression w/ Strain, D7012	\$380
Unconfined Comp. w/ Poisson Ratio, D7012	\$550
Slake Durability Index, D4644	\$250
Point Load Strength, D5731	\$140
Indirect Tensile (per pt), D3967	\$85

#### Masonry

	Per Test
Grout Prism Compression, per prism, C1019	\$90
Hyd. Cement Cube Compression, per cube, C109	\$30
Linear Shrinkage Concrete Block, set of 3, C426	\$700
Comp. of Concrete Block Prisms, per block, C1314	\$300
Moisture, Absorption, Net Area of Concrete Block, per block, C140	\$175
Compression of Concrete Block, per block, C140	\$185
Brick Compressive Strength, Absorption, Saturation, IRA, Efflorescence, set of 15, C67	\$900

#### Aggregates

	Per Test
Sieve Analysis and LBW, C136, C117, MTM 108, 109	\$170
Deleterious Materials, MTM 110	\$115
Percent Crushed, MTM 117	\$75
Soundness, C88	\$800
L.A. Abrasion, C131	\$500
Specific Gravity + Absorption, C127	\$260
Specific Gravity + Absorption, C128	\$290
Unit Weight, dry-rodded, C29	\$200
Organic Impurities in Fine Aggregate, C40	\$170
Sand Equivalent Value, D2419	\$450
Fine Aggregate Angularity, MTM 118	\$175
Angularity Index, C1252	\$175
Flat and Elongated Particles, D4791	\$145

#### Concrete

	Per Test
Concrete Compression, per cylinder, C39	\$19
Cylinder Molds (cyls. not molded by MTC)	\$3.50
Saw Cutting of Cylinders	\$20
Core Compression (including saw cut), C42	\$75
Shotcrete cores (cut/comp. or spare), C1140	\$95
Splitting Tensile Strength, C496	\$95
Beam Flexure, C293, C78	\$100
Shrinkage Test (3 specimens), C157	\$500
Concrete Core Absorption	\$100
Potential ASR (Mortar Bar), set of 3, C1567, C1260	\$750

#### Bituminous Mixtures

	Per Test
Marshall Stability and Flow, per plug, D6927	\$200
Bulk Specific Gravity, per plug/core, D2726	\$125
Molding Marshall Plugs, per plug, D6926	\$90
Theoretical Maximum Density (Rice), D2041	\$230
Molding Gyratory Plugs, per plug, D6925	\$170
Preparation of Bituminous Core	\$30
Mix Verification (extraction, sieve, LBW, crush), MTM 325, 108, 109, 117	\$390
Core Thickness, per core, D3549	\$40
Moisture Content, D1461	\$90

#### Steel

	Per Test
Fireproofing Density Test, AWCI Manual 12-A	\$80
Side Bends – Machine/bend, E190	\$200
Face/Root Bends – Machine/bend, E190	\$200
Tensile < 1" dia., A370	\$175
Tensile > 1" dia., A370	\$210
Stress/Strain Curves Tensile	\$60
Elongation, Reduction in Area, A370	\$80
Jack Calibration	\$600

#### Pipe

	Per Test
ABS Truss Pipe Test, 8" – 15" dia., D2680	\$230
PVC Pipe Test, 6" – 8" dia., D3034	\$270

*For special testing where a specific rate is not provided herein, fees will be based on hourly rate of \$200.00/hour.*



## FEE SCHEDULE

### TEST DRILLING SERVICES

<u>Mob/Demob:</u>	<u>Air Knife/Vacuum Excavator</u>	<u>CME45/CME55Track/ Geoprobe 7822/6620</u>	<u>Acker Renegade Track</u>	<u>Sonic Geoprobe/ Marshmaster/ 2060CPT</u>
Within 30 mile radius	\$500.00	\$650.00	\$750.00	\$1000.00
Outside 30 mile radius/mile/one-way	\$17.00	\$22.00	\$25.00	\$35.00

#### Test Drilling:

HSA/Rotary, Normal soil conditions (N<50), 5 ft interval SPT	\$17.50/l.f.
HSA/Rotary, Difficult soil conditions (N>49, rubble or cobbles), 5 ft interval SPT	\$28/l.f.
HSA/Rotary, Drilling surcharge for 50 to 75 ft depth	\$19/l.f.
HSA/Rotary, Drilling surcharge for 75 to 100 ft depth	\$24/l.f.
All-terrain drill rig daily premium	\$400/day
NX Rock Coring, D2113	\$80/l.f.
Rock Core Setup Fee	\$350
Extra SPT samples, D1586	\$35/ea
Undisturbed thin-walled samples (Shelby tubes), D1587	\$80/attempt
Drilling through concrete or brick at surface (less than 10" thick)	\$20/in
Grout boring closed	\$10/l.f.
Well/Piezometer construction (not including material)	\$11/l.f.
Locking Protective Cover	\$180/ea
Flush Locking Protective Cover	\$200/ea

#### CPTu Testing:

Rig Setup (per boring)	\$125/ea
CPT Testing Footage	\$15/l.f.
Depth Surcharge (80' – 120')	\$8/l.f.
Depth Surcharge (120' - 160')	\$14/l.f.
Hard Push Surcharge (push force>15 tons)	\$11
Data Correlation	\$2/ft
Grout Borings Closed (does not include artesian conditions)	\$2/l.f.
Pore Pressure Dissipation Test Time	\$450/hr
Pore Pressure Dissipation Test Data Processing	\$65/ea
Standby	\$500/hr
Drillout Fill	\$25/l.f.
Shear Wave Velocity Testing	\$125/ea

#### Other:

Steam Cleaner Rental	\$220/day
55-gallon Drum (disposal not included)	\$100/ea
Bagged Materials (sand, bentonite, cement)	\$18/bag
Per Diem (lodging and meals, 2-man crew)	\$270/day
Crew Daily Travel, 50 Mile Radius	\$120/day

*Drill crew rate per hour for special testing, borehole grouting, monitoring well construction, access, on-site setup, site clean-up, standby, water hauling or steam cleaning:*

<u>Skid Steer (Per Day)</u>	<u>Air Knife/Vacuum Excavator</u>	<u>CME45/CME55Track/ Geoprobe 7822/6220</u>	<u>Acker Renegade Track</u>	<u>Sonic Geoprobe/ Marshmaster/ 2060CPT</u>
\$400.00	\$300.00	\$350.00	\$400.00	\$500.00

*Drill crew access time may be charged if soft ground conditions, wooded areas, or other site conditions/restraints are encountered.*

## GENERAL CONDITIONS

1. The scope of work includes the specific geotechnical, testing or other services to be performed by Materials Testing Consultants, Inc. (MTC) as set forth in MTC's proposal, the client's acceptance thereof if accepted by MTC and these general conditions. "Client" refers to the person or business entity ordering the work to be performed by MTC. If the client is ordering the work on behalf of another, the client represents and warrants that the client is the duly authorized agent of said party for the purpose of ordering and directing the work. Unless otherwise stated in writing, the client assumes sole responsibility for determining whether the quantity and the nature of the work ordered by the client is adequate and sufficient for the client's intended purpose. The ordering of work from MTC shall constitute acceptance of the terms of MTC's proposal and these General Conditions.
2. Client will arrange for and provide access to the site as is necessary for MTC to perform the work. MTC, unless specifically indicated otherwise in the proposal, has not included cost for restoration due to damage to the site that may occur during the work. MTC agrees to exercise reasonable measures to minimize damage to the site during the performance of the work.
3. Test samples will be disposed immediately upon completion of the assigned tests unless prior written arrangements have been made to hold the samples for a longer period of time. Samples from drilling operations will be held for 90 days after submittal of MTC's report.
4. MTC's work shall not include supervising construction or determining the means, methods, techniques or sequences of construction. MTC shall not be responsible for evaluating, reporting or affecting job conditions concerning health, safety or welfare.
5. Client shall cause all tests and inspections of the site, materials and work performed by MTC or others to be timely and properly performed in accordance with the plans, specifications and contract documents and MTC's recommendations. No claims for loss, damage or injury shall be brought against MTC by client or any third party unless all tests and inspections have been so performed and unless MTC's recommendations have been followed. Client agrees to indemnify, defend and hold MTC, its officers, employees and agent harmless from any and all claims, suits, losses, costs and expenses, including, but not limited to, court costs and reasonable attorney's fees in the event that all such tests and inspections are not so performed or not so followed except to the extent that such failure is the result of the negligence, willful or wanton act or omission of MTC, subject to the limitation contained in paragraph 9.
6. Client represents and warrants that he has advised MTC of any known or suspected hazardous materials, utility lines and pollutants at any site at which MTC is to do work hereunder, and unless MTC has assumed in writing the responsibility of locating subsurface objects, structures, lines or conduits, client agrees to defend, indemnify and save MTC harmless from all claims, suits, losses, costs and expenses, including reasonable attorney's fees as a result of personal injury, death or property damage occurring with respect to MTC's performance of its work and resulting to or caused by contact with subsurface or latent objects, structures, lines or conduits where the actual or potential presence and location thereof was not revealed to MTC.
7. Client shall be invoiced once each month for work performed during the preceding period. Client agrees to pay each invoice within thirty days of its receipt. Client further agrees to pay interest on all amounts invoiced and not paid or objected to for valid cause in writing within said thirty day period at the rate of eighteen percent per annum until paid. Client agrees to pay MTC's cost of collection of all amounts due and unpaid after sixty days, including court costs and reasonable attorney's fees. MTC shall not be bound by any provision or agreement requiring or providing for arbitration of disputes or controversies arising out of this agreement, any provision wherein MTC waives any right to a mechanics' lien, or any provision conditioning MTC's right to receive payment for its work upon payment to client by any third party. These General Conditions are notice, where required, that MTC shall file a lien whenever necessary to collect past due amounts. Failure to make payment within 30 days of invoice shall constitute a release of MTC from any and all claims which client may have, either in tort or contract, and whether known or unknown at the time.
8. Nothing contained within this agreement shall be construed or interpreted as requiring MTC to assume the status of an owner, operator, generator, storer, transporter, treater or disposal facility as those terms appear within RCRA or within any Federal or State statute or regulation governing the generation, transportation, treatment, storage and disposal of pollutants. Client assumes full responsibility for compliance with the provisions of RCRA and any other Federal or State statute or regulation governing the handling, treatment, storage and disposal of pollutants.
9. Ground Penetrating Radar ("GPR") Services. Client acknowledges that the use of GPR technology is not error free and there are limitations on the use of GPR to locate buried or embedded objects in the ground or in structures (for example, field conditions, soil moisture content, material type, masking of deeper embodiments by shallow embodiments and thickness of the material to which the GPR Services are to be applied; and only center lines of embedded objects can be located) which may make GPR less precise than other embedded object location technologies. MTC may rely on statements and plans of Client's representatives (including on-site employees or employees or representatives of contractors or subcontractors working for Client) as to the characteristics of the structure or location to be tested using GPR Services. Client agrees that it shall have the sole responsibility for the use of any information obtained as a result of the GPR Services, including reliance on any data there from in order to determine the location of drilling operations or other penetration of the location, area of structure to which the GPR Services are applied. MTC has no responsibility or obligation other than to deliver the GPR Services and the results obtained from application of GPR. How and when the work product from the GPR Services shall be used (or not used) shall be in the sole and exclusive discretion of Client, and MTC shall have no obligation or responsibility to Client after the required GPR Services are completed and the work product is delivered.
10. MTC'S SERVICES WILL BE PERFORMED, ITS FINDINGS OBTAINED AND ITS REPORTS PREPARED IN ACCORDANCE WITH THIS AGREEMENT AND WITH GENERALLY ACCEPTED PRINCIPLES AND PRACTICES. IN PERFORMING ITS PROFESSIONAL SERVICES, MTC WILL USE THAT DEGREE OF CARE AND SKILL ORDINARILY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY MEMBERS OF ITS PROFESSION. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES OR REPRESENTATIONS, EITHER EXPRESS OR IMPLIED. STATEMENTS MADE IN MTC REPORTS ARE OPINIONS BASED UPON ENGINEERING JUDGMENT AND ARE NOT TO BE CONSTRUED AS REPRESENTATIONS OF FACT.
- SHOULD MTC OR ANY OF ITS PROFESSIONAL EMPLOYEES BE FOUND TO HAVE BEEN NEGLIGENT IN THE PERFORMANCE OF ITS WORK, OR TO HAVE MADE AND BREACHED ANY EXPRESS OR IMPLIED WARRANTY, REPRESENTATION OR CONTRACT, CLIENT, ALL PARTIES CLAIMING THROUGH CLIENT AND ALL PARTIES CLAIMING TO HAVE IN ANY WAY RELIED UPON MTC'S WORK AGREE THAT THE MAXIMUM AGGREGATE AMOUNT OF THE LIABILITY OF MTC, ITS OFFICERS, EMPLOYEES AND AGENTS SHALL BE LIMITED TO \$25,000 OR THE TOTAL AMOUNT OF THE FEE PAID TO MTC FOR ITS WORK PERFORMED WITH RESPECT TO THE PROJECT, WHICHEVER IS GREATER.
11. Subject to the foregoing limitations, MTC agrees to indemnify and hold client harmless from and against any and all claims, suits, costs and expenses including reasonable attorney's fees and court costs arising out of MTC's negligence to the extent of MTC's negligence. Client shall provide the same protection to the extent of its negligence. In the event that client or client's principal shall bring any suit, cause of action, claim or counterclaim against MTC, the party initiating such action shall pay to MTC the costs and expenses incurred by MTC to investigate, answer and defend it, including reasonable attorney's and witness fees and court costs to the extent that MTC shall prevail in such suit.
12. MTC's employees shall not be retained as expert witnesses except by separate, written agreement. Client agrees to pay MTC's legal expenses, administrative costs and fees pursuant to MTC's then current fee schedule for MTC to respond to any subpoena.
13. In the event any of the provisions of these General Conditions should be found to be unenforceable, it shall be stricken and the remaining provisions shall be enforceable.
14. This agreement constitutes the entire understanding of the parties, and there are no representations, warranties or undertakings made other than as set forth herein. This agreement may be amended, modified or terminated only in writing, signed by each of the parties hereto.
15. This agreement may be terminated by either party upon seven day's prior written notice. In the event of termination, MTC shall be compensated by client for all services performed up to and including the termination date, including reimbursable expenses, and for the completion of such services and records as are necessary to place MTC's files in order and/or protect its professional reputation.