

**BOWSER-MORNER, INC. - CONSTRUCTION MATERIALS LABORATORY**  
**2011 Laboratory Testing Fees - Lime & Limestone Chemical and Physical Testing (Non-Construction Uses)**  
**AASHTO/ISO 17025 ACCREDITED • AASHTO R 18 ACCREDITED • USACE VALIDATED**



**Miscellaneous Fees**

|   |               |
|---|---------------|
| Sampling - Time                                   | \$60.00/Hour  |
| Sampling - Mileage                                | \$0.60/Mile   |
| Consultation, Senior Geologist/ Engineer/ Chemist | \$125.00/Hour |

**Bulk Sample Preparation (rock core &/or large pieces)**

|   |              |
|---|--------------|
| 1. Ledge Rock, etc., crush to test specimens      | \$60.00/Hour |
| 2. Rock Core, split & archive representative half | \$3.80/ft.   |
| 3. Rock Core, crush to test specimens             | \$3.80/ft.   |
| 4. Geologist Log                                  | \$3.80/ft.   |
| 5. Rock Core, log, split, crush (items 2, 3, & 4) | \$8.00/ft.   |

**Test Specimen Preparation (+ No. 4 reduced to - No. 60 mesh)**

|  |         |
|--|---------|
| 6. Prep Bulk Sample (+ No. 4), crush and or pulverize (C 50) | \$60.00 |
| 7. Prep for Fine Aggregate (-#4), pulverize to - #60 (C 50)  | \$27.00 |

**Aglime Quality Parameters**

|  |         |
|--|---------|
| 8. Wet Sieve Analysis (C110, sec. 22)  | \$80.00 |
| 9. Elemental Analysis (C 25/ C 1271) per each element:   |         |
| a. calcium, reported as Ca, CaO, CaCO <sub>3</sub>   | \$27.00 |
| b. magnesium, reported as Mg, MgO, MgCO <sub>3</sub>   | \$27.00 |
| c. iron, reported as Fe, Fe <sub>2</sub> O <sub>3</sub>  | \$27.00 |
| d. aluminum, reported as Al, Al <sub>2</sub> O <sub>3</sub>  | \$27.00 |
| e. silicon, reported as Si, SiO <sub>2</sub>   | \$27.00 |
| f. residual oxides   | \$27.00 |
| 10. Calcium Carbonate Equivalent - CCE (C 25, sec. 33)<br>(Total Neutralizing Power - TNP)                                 | \$55.00 |
| 11. Loss on Ignition - LOI (C25, sec. 19)  | \$27.00 |
| 12. Relative Neutralizing Value (RNV) - Indiana Method   | NC      |
| 13. Effective Neutralizing Power (ENP) - Ohio Method<br>(items 12. RNV & 13. ENP are calculations based upon items 8 & 10) | NC      |
| 14. Acid Insoluble (C 25)  | \$27.00 |

**Scrubber Stone Parameters**

|  |          |
|--|----------|
| 15. Wet Sieve Analysis (C110, sec. 22)   | \$80.00  |
| 16. Elemental Analysis (C25/ C 1271) per each element:                                     |          |
| a. calcium, reported as Ca, CaO, CaCO <sub>3</sub>   | \$27.00  |
| b. magnesium, reported as Mg, MgO, MgCO <sub>3</sub>                                       | \$27.00  |
| c. iron, reported as Fe, Fe <sub>2</sub> O <sub>3</sub>                                    | \$27.00  |
| d. aluminum, reported as Al, Al <sub>2</sub> O <sub>3</sub>                                | \$27.00  |
| e. silicon, reported as Si, SiO <sub>2</sub>   | \$27.00  |
| f. sulfur, reported as S, SO <sub>3</sub>  | \$27.00  |
| g. residual oxides   | \$27.00  |
| 17. Calcium Carbonate Equivalent - CCE (C 25, sec. 33)<br>(Total Neutralizing Power - TNP) | \$55.00  |
| 18. Loss on Ignition - LOI (C25, sec. 19)  | \$27.00  |
| 19. Limestone Reactivity Test (ABB-FGD, Alstom SOP)  | \$800.00 |
| 20. Acid Insoluble (C 25)  | \$27.00  |
| 21. Available Lime Index, Rapid Sugar (C 25, sec. 28)                                      | \$55.00  |
| 22. Carbon Dioxide, CO <sub>2</sub> , by Schroetter's Alkalimeter                          | \$75.00  |

**ASTM C 110 Physical Test Parameters**

|  |          |
|--|----------|
| 23. Apparent Loose & Packed Density (sec. 19 & 20) | \$40.00  |
| 24. Hunter Dry Brightness (sec. 12)                | \$180.00 |
| 25. Limestone Grindability (sec. 13)               | \$120.00 |
| 26. Particle Size by Sieve & Hydrometer (sec. 17)  | \$100.00 |
| 27. Residue & Sieve Analysis (sec. 15)             | \$100.00 |
| 28. Settling Rate (sec. 14)                        | \$100.00 |
| 29. Specific Gravity (sec. 21)                     | \$80.00  |
| 30. Water Retention (sec. 7)                       | \$80.00  |
| 31. Wet Sieve Analysis (sec. 22)                   | \$80.00  |
| 32. Slaking Rate, Reactivity (sec. 11)             | \$300.00 |
| 33. Decrepitation Index (BGS TR WG/92/29)          | \$200.00 |

**Other Common Elements (usually trace)**

|  |         |
|--|---------|
| 33. phosphorus, reported as P, P <sub>2</sub> O <sub>3</sub> | \$27.00 |
| 34. sulfur, reported as S, SO <sub>3</sub>                   | \$27.00 |
| 35. potassium, reported as K, K <sub>2</sub> O               | \$27.00 |
| 36. sodium, reported as Na, Na <sub>2</sub> O                | \$27.00 |
| 37. titanium, reported as Ti, TiO <sub>2</sub>               | \$27.00 |
| 38. manganese, reported as Mn, MnO <sub>2</sub>              | \$27.00 |

The following table recommends the number and weight of increments for general purpose sampling and are based upon a 1000-ton lot size. To determine the number of increments recommended for a specific lot size use the following equation:  $N_2 = N_1 [specific\ lot\ size\ (tons) / 1000\ tons]^{1/2}$  where:

$N_1$  = minimum increments required, per 1000 ton lot, and

$N_2$  = increments required for specified lot size

**ASTM C 50 Table 1 - Recommended Number & Weight of Increments for General Purpose Sampling**

| Particle Size                   | - 1/4 in. | + 1/4 in. by - 3/4 in. | + 3/4 in. |
|---------------------------------|-----------|------------------------|-----------|
| minimum number of increments    | 10        | 10                     | 10        |
| minimum weight of increment, lb | 5         | 10                     | 15        |
| total minimum sample weight, lb | 50        | 100                    | 150       |

Refer to ASTM C 50, "Sampling, Sample Preparation, Packaging, and Marking of Lime and Limestone Products" for more detailed information and guidance.

The following table describes the level of crushing and/or pulverizing required in order to prepare a proper test specimen for laboratory analysis:

**Levels of Preparation for Laboratory Testing**

|                   | as-submitted   | crush to - No. 4 | pulverize to - No. 60      |
|-------------------|----------------|------------------|----------------------------|
| rock core         |                | \$3.80/ ft       | \$27.00 ea. Interval       |
| ledge rock        |                | \$60.00 ea.      | \$27.00 ea. sample         |
| stockpile + No. 4 |                | \$60.00 ea.      | \$27.00 ea. sample         |
| stockpile - No. 4 | not applicable |                  | \$27.00 ea. sample         |
| pulverized >#60   | not applicable |                  | \$27.00 ea. sample         |
| pulverized <#60   | not applicable |                  | not applicable (no charge) |

(total prep charge = crush fee plus pulverizing fee)

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**BOWSER-MORNER, INC. - CONSTRUCTION MATERIALS LABORATORY**  
**2011 Laboratory Testing Fees - Mineral Aggregates**  
**AASHTO/ISO 17025 ACCREDITED • AASHTO R 18 ACCREDITED • USACE VALIDATED**



| Miscellaneous Fees  |               | Concrete & Asphalt Aggregates   |            |
|---|---------------|---|------------|
| Sampling - Time   | \$60.00/Hour  | 25. Pore Index (KM 64-623)  | \$170.00   |
| Sampling - Mileage  | \$0.60/Mile   | 26. Stain Test (C 641)  | \$250.00   |
| Consultation, Senior Geologist/Engineer   | \$125.00/Hour | 27. Complete Quality Analysis (C 33) - Includes prev. applicable tests marked with an asterisk ( * )  |            |
| Concrete & Asphalt Aggregates   |               | a. Coarse Aggregate (20% Discount)  | \$1,150.00 |
| 1. Necessary Sample Preparation   |               | b. Fine Aggregate (20% Discount)  | \$780.00   |
| a. Ledge Rock, etc., crush to test specimens                                      | \$60.00/Hour  | c. Long-graded Aggregate (20% Discount)   | \$1,170.00 |
| b. Rock Core, split & archive representative half                                 | \$3.80/ft.    | d. DOT Parameters, Additional   | \$150.00   |
| c. Rock Core, crush to test specimens   | \$3.80/ft.    | 28. Alkali Silica Reactivity (ASR)  |            |
| d. Geologist Log  | \$3.80/ft.    | a. 6 Month Mortar Bar Method (C 227)  | \$1,100.00 |
| e. Rock Core, log, split, crush (items 1b, 1c, & 1d)                              | \$8.00/ft.    | b. Chemical Method (C 289)  | \$850.00   |
| 2. Sieve Analysis; Gradation (C 136)*   |               | c. 14 Day Mortar Bar Method (C 1260)  | \$850.00   |
| a. Coarse Aggregate (6 Sieves)  | \$70.00       | d. Remediation Trials with Fly Ash, Slag (C 1567)   | \$850.00   |
| b. Fine Aggregate (6 Sieves)  | \$70.00       | e. FAA EB 70 Pot. Acetate Method (De-Icer) (C 1260)   | \$950.00   |
| c. Long-graded Aggregate, ie base, subbase, etc.<br>Includes decant (3/4" x #200) | \$140.00      | f. 3-Point Remediation Curve (C1567)  | \$2,300.00 |
| 3. Material Passing No. 200 Sieve/Decantation (C 117)*                            | \$60.00       | g. 12 Month(+) Prism Method (C 1293)  | \$2,100.00 |
| 4. Crush Count; Percent Fractured (D 5821)*                                       |               | h. 13 Week ICAR Modified (C 1293)   | \$1,100.00 |
| a. One-Face   | \$70.00       | i. 3-Point Remediation Curve (C 1293)   | \$5,200.00 |
| b. Two-Face   | \$90.00       | 29. Alkali Carbonate Reactivity (ACR)   |            |
| 5. Unit Weight (C 29)*  | \$64.00       | a. Rock-Cylinder Method (C 586)   | \$1,100.00 |
| 6. Five Cycle Soundness (C 88)*   |               | b. Prism Method (C 1105)  | \$2,000.00 |
| a. Sodium Sulfate (5 Size Fractions Max.)   | \$330.00      | 30. Petrographic Examination (C 295)  |            |
| b. Magnesium Sulfate (5 Size Fractions Max.)                                      | \$340.00      | a. Coarse Aggregate   | \$1,800.00 |
| c. Long-graded Aggr, Sodium or Magnesium<br>(10 Size Fractions Max.)              | \$520.00      | b. Fine Aggregate   | \$2,200.00 |
| d. IDOT/ PennDOT Method (AASHTO T 104, Mod.)                                      | \$340.00      | (* see 2009 Petrography Fee Schedule for Specific Petrographic Analyses)  |            |
| 7. Aggregate Durability Factor Rapid Freeze-Thaw (C 666 A & B, CRD-C C114)        |               | Rock Mechanics  |            |
| a. Procedure A, USACE, 300 cycles, Dur. Factor                                    | \$2,400.00    | 31. Compressive Strength (D 2938, D 7012 Procedure C)   | \$80.00    |
| b. Procedure B, DOT, 350 cycles, Expansion & DF                                   | \$2,400.00    | 32. Splitting Tensile Strength (D 3967)   | \$120.00   |
| c. each additional beam over 3 per set above                                      | \$500.00      | 33. Indirect Diametrical Strength (Brazilian)   | \$120.00   |
| 8. 50 Cycle Freeze-Thaw (AASHTO T 103)  | \$440.00      | 34. Cut/Prep Core Specimen (D 4543)   | \$60.00    |
| 9. 25 Cycle Freeze-Thaw (INDOT 209-94)  | \$440.00      | 35. Density, porosity, void ratio (EM -1110-2-1906 app. II)   | \$60.00    |
| 10. Los Angeles Abrasion (C 131, C 535)*  | \$140.00      | Rock Weathering (Riprap/Armor Stone)  |            |
| 11. Micro-Deval Abrasion (ASTM D 6928)  | \$250.00      | 36. Slake Durability ( D 4644)  | \$88.00    |
| 12. Aggregate Durability Index (D 3744)   | \$220.00      | 37. Jar Slake Durability (KM 64-514)  | \$60.00    |
| 13. Specific Gravity and Absorption (C 127, C 128)*                               |               | 38. Freeze Thaw - 5 slabs (D 5312, CRD-C 144 ) - up to 40 cycles, addl cycles \$10.00 ea.   | \$850.00   |
| a. Short-graded   | \$88.00       | 39. Wet Dry - 5 slabs (D 5313, CRD-C 169)   | \$850.00   |
| b. Long-graded  | \$140.00      | 40. Soundness-Slab Method (D 5240)  | \$850.00   |
| 14. Lightweight Particles (C 123); coal & lignite, chert*                         | \$230.00      | 41. Petrographic Examination (C 295/ D 4992))   | \$1,500.00 |
| 15. Visual Deleterious; a). soft pcs, shale, F&E, etc.*                           | \$230.00      | 42. Specific Gravity/Absorption (D 6473)  | \$120.00   |
| b. IDOT Delet., incl's soft/unsound/lt. wt. chert                                 | \$335.00      | 43. Adsorption/Absorption Ratio   | \$120.00   |
| c. USCOE Table 5 Deleterious Airfield Parameters                                  | \$2,000.00    | 44. Sample Prep for items 37 & 38 (cut/ trim slabs) (D 5121)  | \$300.00   |
| 16. Clay Lumps & Friable Particles (C 142)*                                       | \$78.00       | Chemistry   |            |
| 17. Flat & Elongated Particles (D 4791)*  | \$78.00       | 45. Basic Elemental Analysis (C 25) incl.: Al <sub>2</sub> O <sub>3</sub> , Fe <sub>2</sub> O <sub>3</sub> , Ca, CaO<br>CaCO <sub>3</sub> , Mg, MgO, MgCO <sub>3</sub> , SiO <sub>2</sub> | \$135.00   |
| 18. Angularity Index (C 1252) incl. Spec. grav. (C128)                            | \$160.00      | Additional Element Charge   | \$27.00    |
| 19. Organic Impurities (C 40)*  | \$60.00       | 46. Loss on Ignition - LOI (C 25)   | \$27.00    |
| 20. Effect of Organics (C 87)   | \$1,800.00    | 47. Calcium Carbonate Equivalent-CCE (C 25)<br>(Total Neutralizing Power - TNP)   | \$55.00    |
| 21. Sand Equivalency (D 2419)   | \$94.00       | 48. Limestone Reactivity Test (ABB-FGD)   | \$800.00   |
| 22. Insoluble Residue; Acid Solubility (D 3042)                                   | \$130.00      | 49. Prep Bulk Sample, crush and or pulverize (C 50)   | \$60.00    |
| 23. Moh's Hardness AWWA B100, Sec. 5.3.5.   |               | 50. Prep for Fine Aggregate, pulverize to - #60 (C 50)  | \$27.00    |
| a. Plus No. 4 Material  | \$66.00       | 51. Water Soluble Chloride Ion (D 1411 or T 291)  | \$180.00   |
| b. Minus No. 4 Material, include prep   | \$160.00      | 52. Water Extractable Chloride Ion (C 1524)   | \$180.00   |
| 24. Methylene Blue Test (ODOT Supplement 1052)                                    | \$200.00      | 53. Silicon Dioxide, SiO <sub>2</sub> (ODOT/ C 146)   | \$87.00    |
|   |               | (refer to 2011 Lime & Limestone Fees for additional parameters)   |            |

**MSE Wall Select Backfill testing parameters are presented on the "2011 Soil & Rock Fee Schedule."**

| Mailing Address:        | Shipping Address:      | Contact Person:             | Alternate Contacts:               |                             |
|-------------------------|------------------------|-----------------------------|-----------------------------------|-----------------------------|
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**BOWSER-MORNER, INC. - CONSTRUCTION MATERIALS LABORATORY**  
**2011a Laboratory Testing Fees - Filter Media & Frac Sand**  
**AASHTO/ISO 17025 ACCREDITED • AASHTO R 18 ACCREDITED • USACE VALIDATED**



| Miscellaneous Fees                      |               |
|---|---------------|
| Sampling - Time                         | \$60.00/Hour  |
| Sampling - Mileage                      | \$0.60/Mile   |
| Consultation, Senior Geologist/Engineer | \$125.00/Hour |

| Sample Preparation (if required)                     |              |
|--|--------------|
| 1. Necessary Sample Preparation (BMI SOP)            | \$60.00/Hour |
| a. Ledge Rock, etc., crush to test specimens         |              |
| b. Rock Core, split & archive representative half    | \$3.80/ft.   |
| c. Rock Core, crush/reduce to test specimens         | \$3.80/ft.   |
| d. Geologist Log                                     | \$3.80/ft.   |
| e. Rock Core, log, split, crush (items 1b, 1c, & 1d) | \$8.00/ft.   |

| Granular Filter Media (AWWA B 100)  |         |
|---|---------|
| 2. Sieve Analysis; Gradation (AWWA B100, sec. 5.3.4) (ASTM C 136) includes Effective Size (D10) & Uniformity Coefficient (UC) |         |
| a. Coarse, + No. 4 sieve (support gravel)   | \$80.00 |
| b. Fine, - No. 4 sieve (sand & anthracite)  | \$80.00 |

|  |          |
|--|----------|
| 3. Decantation (percent minus No. 200, 0.075 mm) (ASTM C 117)              | \$60.00  |
| 4. Gravel Shape (AWWA B 100, sec. 5.3.2) (% fractured, flat, or elongated) | \$80.00  |
| 5. Specific Gravity (ASTM C 127, 128, AWWA B 100, sec. 5.3.3)              | \$86.00  |
| 6. Acid Solubility (AWWA B 100, sec. 5.3.1)                                | \$95.00  |
| 7. Moh's Hardness (AWWA B100, sec. 5.3.5)                                  |          |
| a. Plus No. 4 Material   | \$66.00  |
| b. Minus No. 4 Material, include prep                                      | \$160.00 |

|  |          |
|--|----------|
| 8. Percent of Organic Impurities by Heavy Media (Gs @ 2.0) (AWWA B 100, sec. 4.1.1.1 (3) note, ASTM C 123) | \$200.00 |
|--|----------|

|  |         |
|--|---------|
| 9. Organic Impurities by Colorimetric (ASTM C 40) (AWWA B100, sec. 4.1.1.2 & 4.1.1.3 notes.) | \$60.00 |
|--|---------|

|   |          |
|---|----------|
| 10. Heavy Media Separation (ASTM C 123)               |          |
| a. Sand/Anthracite Separation at 2.00 Gs              | \$240.00 |
| b. Anthracite/Anthracite Separation at 1.45 & 1.95 Gs | \$320.00 |

|                                      |          |
|--------------------------------------|----------|
| 11. Caustic Solubility (ASTM D 1109) | \$120.00 |
|--------------------------------------|----------|

|  |         |
|--|---------|
| 12. Loss on Ignition (LOI) (ASTM D 2974) | \$60.00 |
|--|---------|

|  |          |
|--|----------|
| 13. Phase Determinations & Calcs.(Unit Weight, Porosity, Void Ratio) (ASTM C 29, C 127, C 128, D 7263) | \$150.00 |
|--|----------|

| AWWA B100 Table 3 Minimum Size of Composite Sample |         |                     |         |
|--|---------|---------------------|---------|
| Max Size of Particles                              |         | Minimum Sample Size |         |
| 2 1/2-in.  | 63.0 mm | 100 lbs             | 45.0 kg |
| 1 1/2-in.  | 37.5 mm | 70 lbs              | 32.0 kg |
| 1-in.  | 25.4 mm | 50 lbs              | 23.0 kg |
| 3/4-in.  | 19.0 mm | 30 lbs              | 14.0 kg |
| 1/2-in.  | 12.5 mm | 30 lbs              | 9.0 kg  |
| 3/8 & smaller                                      | 9.5 mm  | 10 lbs              | 4.5 kg  |

| Frac Sand (API RP 19C, 56, 58, 60)   |          |
|--|----------|
| 14. Sieve Analysis (API RP 19C, sec. 6; RP 56-60, sec. 5)                                | \$80.00  |
| 15. Sphericity & Roundness (API RP 19C, sec. 7, RP 56-60, sec. 6) (Krumbien/Sloss Index) | \$90.00  |
| 16. Acid Solubility, 12:3 HCl:HF (API RP 19C, sec. 8; RP 56-60, sec. 7)                  | \$130.00 |
| 17. Turbidity (API RP 19C, sec 9; RP 56-60, sec. 8)                                      | \$100.00 |
| 18. Bulk, Apparent, & Absolute Density (API RP 19C, sec 10)                              | \$86.00  |
| 19. Crush Resistance Test (API RP 19C, sec. 11, RP 56-60, sec 9)                         | \$300.00 |
| 20. Loss on Ignition (LOI) (API RP 19C, sec 12)  | \$60.00  |
| 21. X-Ray Diffraction, Sand Mineralogy (API RP 56-60, sec. 10)                           | \$150.00 |

| Chemistry   |          |
|---|----------|
| 22. Basic Elemental Analysis (ASTM C 25) incl.: Al <sub>2</sub> O <sub>3</sub> , Fe <sub>2</sub> O <sub>3</sub> , Ca, CaO |          |
| a. CaCO <sub>3</sub> , Mg, MgO, MgCO <sub>3</sub> , SiO <sub>2</sub>  | \$135.00 |
| b. Additional Element Charge  | \$27.00  |

|  |          |
|--|----------|
| 23. % Silica Dioxide, SiO <sub>2</sub> , High Purity Silica Materials (ASTM C 146) | \$100.00 |
| 24. Prep Bulk Sample, crush and or pulverize (C 50)                                | \$60.00  |
| 25. Prep for Fine Aggregate, pulverize to - #60 (C 50)                             | \$27.00  |

| Misc. Parameters                  |          |
|-----------------------------------|----------|
| 26. Friability (Paint Can Method) | \$100.00 |
| 27. Micro Photographs             | \$20.00  |
| 28. Unit Weight (ASTM C 29)       | \$64.00  |

**AWWA B100 Tables 3 and 4 are presented for your convenience in order to obtain test samples that will be in compliance with the applicable test methods.**

| AWWA B100 Table 4 Sampling of Bagged Filter Material |                       |  |
|--|-----------------------|--|
| Lot Size* (number of bags)                           |                       | Minimum Sample Sizes<br>(number of bags) |
| More than  | Less than or equal to |  |
| 2  | 8                     | 2  |
| 9  | 15                    | 3  |
| 16   | 25                    | 5  |
| 26   | 50                    | 8  |
| 51   | 90                    | 13                                       |
| 91   | 150                   | 20                                       |
| 151  | 280                   | 32                                       |
| 281  | 500                   | 50                                       |
| 501  | 1,200                 | 80                                       |
| 1,201  | 3,200                 | 125                                      |
| 3,201  | 10,000                | 200                                      |
| 10,001   | 35,000                | 315                                      |
| 35,001   | 150,000               | 500                                      |

\* AWWA B100, section 5.2.3 Table 4 note: Lot size at the producer's plant is the number of bags produced in a batch. Lot size at the jobsite is the number of bags of a particular production batch delivered to the project site.

|   |  |  |   |   |
|---|--|--|---|---|
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|---|--|--|---|---|

**BOWSER-MORNER, INC. - CONSTRUCTION MATERIALS LABORATORY**  
**2011 Laboratory Testing Fees - Concrete and Concrete Aggregates**  
**AASHTO/ISO 17025 ACCREDITED • AASHTO R 18 ACCREDITED • USACE VALIDATED**



**Miscellaneous Fees**

|   |               |
|---|---------------|
| Sampling - Time                         | \$60.00/Hour  |
| Sampling - Mileage                      | \$0.60/Mile   |
| Consultation, Senior Geologist/Engineer | \$125.00/Hour |

**Concrete Mix Design**

|   |                   |
|---|-------------------|
| 1. Complete Mix Design - Includes:  | \$710.00/1st mix  |
| Aggregate Gradation, Specific Gravity,  | \$510.00/ea       |
| Five Cylinders Per Mix (standard 0.1 cu yd trial mix)   | addl. mix         |
| 2. Verification Mix - Submitted by Client (5 Cylinders)   | \$510.00/mix      |
| 3. Water Cement Ratio Curve (3 Points)  | \$1440.00/set     |
| 4. Time of Set, Penetration Resistance (C 403)  | \$170.00/set      |
| 5. Mix Design Using Retarder w/ Setting Time  | \$80.00/Hour      |
| 6. Additional Cylinders in Mix Design   | \$36.00 each      |
| 7. Restrained Expansion Type K Concrete (C 878)   | \$850.00/set of 3 |
| 8. Bleeding Test - as part of mix design (C 232)  | \$100.00          |
| 9. Concrete Mix Water Proof Test, (C 1602), incl control & test mixes, time of sets, strengths, water sp gr, & % solids | \$1,360.00        |

**Concrete Physical Analysis**

|   |                     |
|---|---------------------|
| 10. Length of Cores - Vernier Method (C174)                               | \$42.00             |
| 11. Specific Gravity, Absorption, Voids (C642)                            | \$52.00             |
| 12. Compressive Strength  |                     |
| a. Cylinders (C 39)   | \$17.00             |
| b. Drilled Cores-Trimmed & Tested (C 42)                                  | \$56.00             |
| c. Modulus of Elasticity (C 469)  | \$90.00             |
| 13. Flexural Strength   |                     |
| a. Center Point Load (C 293)  | \$48.00             |
| b. Third Point Load (C 78)  | \$48.00             |
| 14. Splitting Tensile Strength (C 496)                                    | \$80.00             |
| 15. Creep in Compression  |                     |
| a. Creep Test Only-includes 5 control & 5 test specimens (C 512)          | \$3280.00/set       |
| b. AWWA Pipe Certification-includes C512, C192, C39, C469, Report         | \$4800.00/mix       |
| 16. Abrasion Resistance by Sandblasting (C 418)                           | \$1,000.00          |
| 17. Moisture Content  | \$18.00             |
| 18. Concrete Durability Factor Rapid Freeze-Thaw (C 666 A & B, CRD-C 114) |                     |
| a. Procedure A, USACE, 300 cycles, Dur. Factor                            | \$2,400.00          |
| b. Procedure B, DOT, 350 cycles, Expansion & DF                           | \$2,400.00          |
| c. each additional beam over 3 per set above                              | \$500.00            |
| 19. Drying Shrinkage - set of 3 prisms (C 157)                            | \$560.00            |
| 20. Chloride Ion Permeability (C 1202)                                    | \$180.00            |
| 21. Chloride Ion Penetration (T 259)                                      | \$2000.00/ set of 3 |
| 22. Scaling Resistance - 50 cycles (C 672)                                | \$2000.00/ set of 3 |
| 23. Cut/Prep Core Specimen  | \$60.00             |
| 24. Petrographic Examination (C 856)                                      | Quote               |

**Concrete Chemical Analysis**

|  |          |
|--|----------|
| 25. Acid Soluble Chloride Ion (C 1152)           | \$180.00 |
| 26. Water Soluble Chloride Ion (C 1218)          | \$180.00 |
| 27. Acid Soluble Chloride Ion (T 260, sec. 5.2)  | \$180.00 |
| 28. Water Soluble Chloride Ion (T 260, sec. 5.3) | \$180.00 |

**Basic Concrete Aggregate Tests (for complete aggregate schedule, see 2011 Laboratory Testing Fees-Mineral Aggregates)**

|  |            |
|--|------------|
| 29. Sieve Analysis; Gradation (C 136)  |            |
| a. Coarse Aggregate (6 Sieves)   | \$70.00    |
| b. Fine Aggregate (6 Sieves)   | \$70.00    |
| 30. Material Passing No. 200 Sieve/Decantation (C 117)   | \$60.00    |
| 31. Unit Weight (C 29)   | \$64.00    |
| 32. Los Angeles Abrasion (C131/C535)   | \$140.00   |
| 33. Specific Gravity and Absorption (C127/128)   | \$88.00    |
| 34. Complete Quality Analysis (C 33) Includes: Soundness, LA Abrasion, Deleterious Substances, Gradation, Unit Wt, Specific Gravity, % Crushed, etc. See "Mineral Aggregates Fee Schedule" |            |
| a. Coarse Aggregate (20% Discount)   | \$1,150.00 |
| b. Fine Aggregate (20% Discount)   | \$780.00   |
| c. DOT Parameters, Additional  | \$150.00   |
| 35. Alkali Silica Reactivity (ASR)   |            |
| a. 6 Month Mortar Bar Method (C 227)   | \$1,100.00 |
| b. Chemical Method (C 289)   | \$850.00   |
| c. 14 Day Mortar Bar Method (C 1260)   | \$850.00   |
| d. Remediation Trials with Fly Ash, Slag (C 1567)  | \$850.00   |
| e. FAA EB 70 Pot. Acetate Method (De-Icer) (C 1260)  | \$950.00   |
| f. 3-Point Remediation Curve (C1567)   | \$2,300.00 |
| g. 12 Month(+) Prism Method (C 1293)   | \$2,100.00 |
| h. 13 Week ICAR Modified (C 1293)  | \$1,100.00 |
| i. 3-Point Remediation Curve (C 1293)  | \$5,200.00 |
| 36. Alkali Carbonate Reactivity (ACR)  |            |
| a. Rock-Cylinder Method (C 586)  | \$1,100.00 |
| b. Prism Method (C 1105)   | \$2,000.00 |
| 37. Petrographic Examination (C 295)   |            |
| a. Coarse Aggregate  | \$1,800.00 |
| b. Fine Aggregate  | \$2,200.00 |

**Supplies**

|                      |              |
|----------------------|--------------|
| 38. Cylinder Molds   | \$60.00/case |
| 39. Retaining Caps   | \$230.00/set |
| 40. Pad Caps         | \$30.00 each |
| 41. Slump Rod & Cone | \$80.00/set  |
| 42. Capping Compound | \$80.00/bag  |

**Mailing Address:**

Bowser-Morner, Inc.  
P.O. Box 51  
Dayton, Ohio 45401-0051  
Attn: Department 21

**Shipping Address:**

Bowser-Morner, Inc.  
4518 Taylorsville Road  
Dayton, Ohio 45424  
Attn: Department 21

**Contact Person:**

Bob Kushmaul, Supervisor  
Concrete & Masonry Section  
937-236-8805, ext. 229  
rkushmaul@bowser-morner.com

**Alternate Contacts:**

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Director of Laboratory Services  
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Karl A. Fletcher  
Assistant Lab Manager  
937-236-8805, ext. 322  
kfletcher@bowser-morner.com

**BOWSER-MORNER, INC. - CONSTRUCTION MATERIALS LABORATORY**  
**2011 Laboratory Testing Fees - Stone and Masonry**  
**AASHTO/ISO 17025 ACCREDITED • AASHTO R 18 ACCREDITED • USACE VALIDATED**



**Miscellaneous Fees**

|   |               |
|---|---------------|
| Sampling - Time                         | \$60.00/Hour  |
| Sampling - Mileage                      | \$0.60/Mile   |
| Consultation, Senior Geologist/Engineer | \$125.00/Hour |

**Concrete Masonry Units (Block) ASTM C 55 & C 90**

|   |                    |
|---|--------------------|
| 1. Compressive Strength and Absorption (C 140)      | \$270.00/set of 6  |
| 2. Linear Shrinkage (C 426)                         | \$530.00/set of 3  |
| 3. Fire Rating; NCMA & UL 618; Equivalent Thickness |                    |
| a. with strength & absorption (additional)          | \$100.00/set of 3  |
| b. without strength & absorption                    | \$240.00/set of 3  |
| 4. Prisms (C 1314)                                  |                    |
| a. 2-High   | \$250.00/set of 3  |
| b. 3-High   | \$310.00/set of 3  |
| c. Filled Cores, Additional                         | \$110.00/set of 3  |
| 5. Bond Strength (C 952)                            | \$400.00/set of 3  |
| 6. Freeze Thaw (C1262)                              | \$1200.00/set of 5 |
| 7. Stain Test (C 641)                               | \$250.00 each      |

**Concrete Retaining Wall Units ASTM C 1372**

|  |                    |
|--|--------------------|
| 8. Compressive Strength and Absorption (C 140) | \$270.00/set of 6  |
| 9. Freeze-Thaw Durability (C 1262)             | \$1200.00/set of 3 |

**Concrete Paving Units ASTM C 936**

|   |                    |
|---|--------------------|
| 10. Compressive Strength and Absorption (C 140) | \$260.00/set of 6  |
| 11. Freeze-Thaw Durability (C 1645)             | \$1200.00/set of 3 |
| 12. Abrasion Resistance (C 418)                 | \$1000.00/set of 3 |

**Clay Masonry Units (Brick) ASTM C 216**

|  |                    |
|--|--------------------|
| 13. Compressive Strength (C 67)                | \$250.00/set of 5  |
| 14. Absorption & Saturation Coefficient (C 67) | \$250.00/set of 5  |
| 15. Modulus of Rupture; Flexure (C 67)         | \$260.00/set of 5  |
| 16. Initial Rate of Absorption; Suction (C 67) | \$80.00/set of 5   |
| 17. Efflorescence (C 67)                       | \$80.00/set of 5   |
| 18. Freeze Thaw (C 67)                         | \$2100.00/set of 5 |
| 19. Bond Strength (C 952)                      | \$300.00/ set of 3 |

**Masonry Grout Prisms**

|                                   |              |
|-----------------------------------|--------------|
| 20. Compressive Strength (C 1019) | \$22.00 each |
|-----------------------------------|--------------|

**Cement Mortar**

|  |               |
|--|---------------|
| 21. Mortar Mix Design - Includes gradation of sand, strength cubes and water retention | \$850.00 each |
| 22. Time of Set, Vicat (C 191)   | \$150.00 each |
| 23. Mortar Cube Compressive Strength (C 109)   | \$30.00 each  |
| 24. Drying Shrinkage (C 596)   | \$600.00/set  |
| 25. Expansion (C 1038)   | \$600.00/set  |

**Architectural Cast Stone ASTM C 1364**

|  |               |
|--|---------------|
| 26. Absorption & Bulk Density (C 1195)     | \$150.00/set  |
| 27. Compressive Strength (C 1194)          | \$150.00/set  |
| 28. Freeze Thaw (C 1364 sec. 5.4/ C 666 A) | \$2400.00/set |

**Dimension Stone (ASTM spec designations detailed below)**

|   |                |
|---|----------------|
| 29. Absorption & Density (C 97)             | \$50.00 each   |
| 30. Modulus of Rupture (C 99)               | \$70.00 each   |
| 31. Compressive Strength (C 170)            | \$70.00 each   |
| 32. Abrasion Resistance (C 241)             | \$500.00 each  |
| 33. Flexural Strength (C 880)               | \$70.00 each   |
| 34. Flexural Modulus of Elasticity (C 1352) | \$70.00 each   |
| 35. Petrographic Examination (C 1721)       | \$1500.00 each |

*Note: Dimension stone testing is usually performed in sets of 3 or 5 depending on the test parameter. In addition, some tests are performed wet, dry, parallel, to the rift, and/or perpendicular to the rift.*

*ASTM Standard Specifications for Dimension Stone:*

|        |                                     |
|--------|-------------------------------------|
| C 503  | <i>Marble Dimension Stone</i>       |
| C 568  | <i>Limestone Dimension Stone</i>    |
| C 615  | <i>Granite Dimension Stone</i>      |
| C 616  | <i>Quartz-Based Dimension Stone</i> |
| C 629  | <i>Slate Dimension Stone</i>        |
| C 1526 | <i>Serpentine Dimension Stone</i>   |
| C 1527 | <i>Travertine Dimension Stone</i>   |

*Please contact us for a complete listing of number of test specimens and dimensions required for the above testing*

|   |  |   |   |  |
|---|--|---|---|--|
| <b>Mailing Address:</b>   | <b>Shipping Address:</b>   | <b>Contact Person:</b>  | <b>Alternate Contacts:</b>  |  |
| Bowser-Morner, Inc.<br>P.O. Box 51<br>Dayton, Ohio 45401-0051<br>Attn: Department 21<br>2/11/2011 | Bowser-Morner, Inc.<br>4518 Taylorsville Road<br>Dayton, Ohio 45424<br>Attn: Department 21 | Bob Kushmaul, Section Supervisor<br>Concrete & Masonry Section<br>937-236-8805, ext. 229<br>rkushmaul@bowser-morner.com | James W. Fletcher, Vice President<br>Director of Laboratory Services<br>937-236-8805, ext. 235<br>jfletcher@bowser-morner.com | Karl A. Fletcher<br>Assistant Lab Manager<br>937-236-8805, ext. 322<br>kfletcher@bowser-morner.com |

**BOWSER-MORNER, INC. - GEOTECHNICAL LABORATORY**  
**2011a Laboratory Testing Fees - Soil and Rock**  
**AASHTO/ISO 17025 ACCREDITED • AASHTO R 18 ACCREDITED • USACE VALIDATED**



*Add 20% for samples recovered from C or D level hazard sites. Samples recovered from A or B sites will be considered on a case by case basis.*

| <b>Miscellaneous Fees</b>               |               |
|---|---------------|
| Sampling - Time                         | \$60.00/Hour  |
| Sampling - Mileage                      | \$0.60/Mile   |
| Consultation, Senior Geologist/Engineer | \$125.00/Hour |

| <b>Texture Plasticity, and Density Properties</b>      |          |
|--|----------|
| 1. Moisture Content (D 2216)                           | \$9.50   |
| 2. Atterberg Limits                                    |          |
| a. Plasticity Index (D 4318)                           | \$90.00  |
| b. Liquid Limit or Plastic Limit Only                  | \$75.00  |
| c. Shrinkage Limit (D 427)                             | \$400.00 |
| 3. Specific Gravity (D 854)                            | \$70.00  |
| 4. Particle-Size Analysis (jar sample, D 422, D 1140)  |          |
| a. Sieve & Hydrometer (cohesive soils)                 | \$140.00 |
| b. Sieve Only - thru No. 200 (granular soils)          | \$85.00  |
| c. Sieve Only - thru No. 635 Sieve                     | \$125.00 |
| d. Bank run samples (bag sample, long-graded)          | \$170.00 |
| 5. Compaction Characteristics                          |          |
| a. Standard Proctor - 5 Points (D 698)                 | \$185.00 |
| b. Modified Proctor - 5 Points (D 1557)                | \$185.00 |
| c. One Point Verification (D 698, D 1557)              | \$80.00  |
| d. Relative Density (D 4253 & D 4254)                  | \$380.00 |
| 6. Unit Weight (includes Moisture Content & Extrusion) |          |
| a. Direct Measurement (D 7263 - Method B)              | \$65.00  |
| b. Paraffin Method (D 7263 - Method A)                 | \$80.00  |

| <b>Identification and Classification</b>        |          |
|---|----------|
| 7. USCS Classification (D 2487)                 |          |
| a. Cohesive Soils (incl. D 422, D 2216, D 4318) | \$198.00 |
| b. Granular Soils (incl. D 422, D 2216)         | \$90.00  |
| 8. Visual Description                           |          |
| a. Quick-jar                                    | \$30.00  |
| b. Shelby Tube-log, moisture, extrusion         | \$50.00  |

| <b>Structural Properties</b>   |                      |
|--|----------------------|
| 9. Unconfined Compression - incl. Extrusion, Unit Wt., Load Curve (D 2166)   | \$90.00              |
| 10. One-Dimensional Consolidation (D 2435) incl. Specific Gravity (D 854)  |                      |
| a. E log p curve, incl. Time-settlement curves   | \$560.00             |
| b. Rebound and Reload - additional   | \$190.00             |
| 11. One-Dimensional Swell or Settlement Potential (D 4546)   |                      |
| a. Swell Pressure  | \$850.00             |
| b. Percent Swell   | \$850.00             |
| 12. 3D Consolidation (Triaxial Method)   | \$1,200.00           |
| 13. California Bearing Ratio, CBR (D 1883), one pair each additional point   | \$230.00<br>\$130.00 |
| 14. Direct Shear Testing, per 3 pts, incl. Extrusion, unit wt, & moisture  |                      |
| a. Direct Shear, Drained (D 3080)  | \$640.00             |
| b. Residual Direct Shear (EM-1110-2-1906, IXA)   | \$1,400.00           |
| 15. Triaxial Testing, per 3 points, incl. Extrusion, Unit Wt., and Moisture  |                      |
| a. Unconsolidated-Undrained (Q, UU), (D 2850)  | \$450.00             |
| b. Consolidated-Undrained (R, CU, CU <sub>PP</sub> ), (D 4767) includes:<br>back pressure saturation and pore pressure | \$950.00             |
| c. Remolding specimens, per set of 3   | \$300.00             |

| <b>Hydraulic Properties</b>                            |            |
|--|------------|
| 16. Laboratory Hydraulic Conductivity (Permeability)   |            |
| a. Flexible-Wall, Cohesive Soils (D 5084)              |            |
| i. Undisturbed   | \$320.00   |
| ii. Remolded   | \$390.00   |
| iii. With confining pressure, additional               | \$50.00    |
| b. Rigid-Wall, granular soils (D 2434) incl. Remolding | \$290.00   |
| 17. Gradient Ratio (D 5101)                            | \$1,200.00 |

| <b>Physico-Chemical Properties</b>                 |          |
|--|----------|
| 18. pH (D 4972)                                    | \$45.00  |
| 19. a. CEC; EPA Method 9080A (Ammonium Acetate)    | \$180.00 |
| b. CEC; EPA Method 9081A (Sodium Acetate)          | \$180.00 |
| 20. a. Percent Organic - Loss on Ignition (D 2974) | \$62.00  |
| b. Wet Combustion; Potassium Dichromate (T 194)    | \$160.00 |
| 21. Total Organic Carbon (EPA Method 9060A)        |          |
| a. EPA Method 9060A                                | \$80.00  |
| b. Walkley-Black Method                            | \$80.00  |
| 22. Resistivity, Lab (G 187, T 288)                | \$220.00 |
| 23. Water Soluble Sulfate Ion (AASHTO T 290)       | \$70.00  |
| 24. Water Soluble Chloride Ion (AASHTO T 291)      | \$70.00  |
| 25. Sample Prep for items 23 & 24                  | \$60.00  |
| 26. Agricultural Analysis                          | \$160.00 |
| 27. X-Ray Diffraction/Mineralogy                   | \$200.00 |

| <b>MSE Wall Parameters</b>   |          |
|--|----------|
| 28. a. Sieve Analysis (ASTM C 136, D 422, D 1140, T 27, T 88)          | \$85.00  |
| b. Long-Graded Sieve (ASTM C 136, D 422, D 1140, T 27, T 88)           | \$140.00 |
| 29. Compaction Characteristics, Std. Proctor (D 698 or T 99):          | \$185.00 |
| 30. Direct Shear Testing, per 3 pts, incl. remolding (D 3080 or T 236) | \$640.00 |
| 31. Hydraulic Conductivity (Permeability), (D 2434 or T 215)           | \$290.00 |
| 32. Resistivity, Lab (ASTM G 187 or AASHTO T 288)                      | \$220.00 |
| 33. pH (D 4972 or T 289)   | \$45.00  |
| 34. Water Soluble Sulfate Ion (ASTM D 516, AASHTO T 290)               | \$70.00  |
| 35. Water Soluble Chloride Ion (ASTM D 512, AASHTO T 291)              | \$70.00  |
| 36. Sample Prep for items 34 & 35                                      | \$60.00  |
| 37. Loss on Ignition (LOI) (ASTM D 2974, AASHTO T 267)                 | \$62.00  |
| 38. Plasticity Index (ASTM D 4318, AASHTO T 89, T 90)                  | \$90.00  |
| 39. 4-Cycle Magnesium Sulfate Soundness (req'd by FHWA)                | \$340.00 |

| <b>Rock Mechanics</b>                                 |          |
|---|----------|
| 40. Compressive Strength (D 2938/ D 7012 Procedure C) | \$80.00  |
| 41. Splitting Tensile Strength (D 3967)               | \$120.00 |
| 42. Indirect Diametrical Strength (Brazilian)         | \$120.00 |
| 43. Cut/Prep Core Specimen (D 4543)                   | \$60.00  |

| <b>Rock Weathering (Riprap/Armor Stone)</b>                  |            |
|--|------------|
| 44. Slake Durability ( D 4644)                               | \$88.00    |
| 45. Jar Slake Durability (KM 64-514)                         | \$60.00    |
| 46. Freeze Thaw (D 5312, CRD-C 144)                          | \$850.00   |
| 47. Wet Dry (D 5313, CRD-C 169)                              | \$850.00   |
| 48. Soundness-Slab Method (D 5240)                           | \$850.00   |
| 49. Petrographic Examination (C 295/ D 4992)                 | \$1,500.00 |
| 50. Specific Gravity/Absorption (D 6473)                     | \$120.00   |
| 51. Adsorption/Absorption Ratio                              | \$120.00   |
| 52. Sample Prep for items 46 & 47 (cut/ trim slabs) (D 5121) | \$300.00   |

| <b>Soil-Cement/Cement Treated Base/Lime-Stabilized Mixes</b> |            |
|--|------------|
| 53. Mix Design (5 Percentages), incl 15 strength spec's      | \$1,800.00 |
| 54. Wet-Dry Durability (D 559)                               | \$1,400.00 |
| 55. Freeze-Thaw Durability (D 560)                           | \$1,400.00 |
| 56. Compressive Strength (D 558), per specimen               | \$60.00    |

| <b>Mailing Address:</b>   | <b>Shipping Address:</b>   | <b>Contact Person:</b>   | <b>Alternate Contacts:</b>   |  |
|---|--|--|--|--|
| Bowser-Morner, Inc.<br>P.O. Box 51<br>Dayton, Ohio 45401-0051<br>Attn: Department 21<br>3/18/2011 | Bowser-Morner, Inc.<br>4518 Taylorsville Rd<br>Dayton, Ohio 45424<br>Attn: Department 21 | Karl A. Fletcher<br>Assistant Lab Manager<br>Ph: 937-236-8805, ext. 322<br>kfletcher@bowser-morner.com | James W. Fletcher, Vice President<br>Director of Laboratory Services<br>937-236-8805, ext. 235<br>jwfletcher@bowser-morner.com | Kelly Pryfogle<br>Office Manager<br>937-236-8805, ext 333<br>kpryfogle@bowser-morner.com |

**BOWSER-MORNER, INC. - CONSTRUCTION MATERIALS LABORATORY**

2011 Laboratory Testing Fees - Bituminous (Asphalt) Materials

AASHTO/ISO 17025 ACCREDITED • AASHTO R 18 ACCREDITED • USACE VALIDATED

**Miscellaneous Fees**

|   |               |
|---|---------------|
| Sampling - Time                         | \$60.00/Hour  |
| Sampling - Mileage                      | \$0.60/Mile   |
| Consultation, Senior Geologist/Engineer | \$125.00/Hour |

**Aggregate Analysis**

|  |         |
|--|---------|
| 1. Gradation (ASTM C 136)                              | \$70.00 |
| 2. Decantation (ASTM C 117)                            | \$60.00 |
| 3. Specific Gravity and Absorption (ASTM C 127, C 128) | \$88.00 |
| 4. Percent Crushed                                     |         |
| a. One-Face  | \$70.00 |
| b. Two-Face  | \$90.00 |

**Bituminous Mixtures (Asphaltic Concrete)**

|   |                      |
|---|----------------------|
| 5. Molding Marshall Pills from Hot Mix<br>Sample: Density, Stability & Flow<br>(Field Sample) (ASTM D 1559, D 2726) | \$350.00<br>set of 3 |
| 6. Density, Stability, & Flow Only<br>(Specimens brought in from field)<br>(ASTM D 1559, D2726)                     | \$46.00              |
| 7. Extraction & Gradation (ASTM D 2172, D 5444)<br>- Includes Ash Correction  |                      |
| a. Centrifuge (Method A)  | \$145.00             |
| b. Reflux (Method B)  | \$230.00             |
| c. Reflux without gradation, %AC only   | \$130.00             |
| 8. Max. Theoretical Specific Gravity, Rice<br>(ASTM D 2041)   | \$120.00             |
| 9. Moisture & Volatile Distillates<br>(ASTM D 1461)   | \$400.00             |
| 10. Specific Gravity & Density-SSD Specimens (ASTM D 2726)  |                      |
| a. Marshall Pills   | \$42.00              |
| b. Cores; Trimmed & Tested  | \$52.00              |
| 11. Specific Gravity & Density-Paraffin (ASTM D 1188)   |                      |
| a. Marshall Pills   | \$62.00              |
| b. Cores; Trimmed & Tested  | \$72.00              |

**Bituminous Mixtures (Asphaltic Concrete)**

|   |            |
|---|------------|
| 12. Thickness of Asphalt Cores<br>(ASTM D 3549)         | \$25.00    |
| 13. Abson Recovery, Includes Viscosity<br>(ASTM D 1856) | \$1,200.00 |
| 14 Release Agent Test<br>(ODOT Procedure)               | \$350.00   |

**Mix Design**

|                                     |            |
|-------------------------------------|------------|
| 15. Job Mix Formula Verification    | \$4,400.00 |
| 16. Marshall Mix Design (JMF)       | Quote      |
| 17. Retained Tensile (AASHTO T 283) | \$4,800.00 |

**Liquid AC**

|                                       |          |
|---------------------------------------|----------|
| 18. Penetration (ASTM D 5)            | \$80.00  |
| 19. Specific Gravity (ASTM D 70)      | \$80.00  |
| 20. Float Test (ASTM D 139)           | \$120.00 |
| 21. Kinematic Viscosity (ASTM D 2170) | \$120.00 |
| 22. Vacuum Viscosity (ASTM D 2171)    | \$120.00 |
| 23. Flash Point (ASTM D 92)           | \$150.00 |
| 24. Solubility (ASTM D 2042)          | \$120.00 |
| 25. Thin Film (ASTM D 1754)           | \$280.00 |
| 26. Ductility (ASTM D 113)            | \$280.00 |
| 27. Spot Test (AASHTO T 102)          | \$150.00 |
| 28. Softening Point (ASTM D 36)       | \$150.00 |

**Emulsified Asphalts (ASTM D 244)**

|                                     |          |
|-------------------------------------|----------|
| 29. Water Content (by distillation) | \$180.00 |
| 30. Residue & Oil Distillate        | \$180.00 |
| 31. Residue by Evaporation          | \$120.00 |
| 32. Particle Charge                 | \$120.00 |
| 33. Saybolt Furol Viscosity         | \$150.00 |
| 34. Demulsibility                   | \$150.00 |
| 35. Settlement                      | \$120.00 |
| 36. Cement Mixing                   | \$150.00 |
| 37. Sieve Test                      | \$120.00 |

**Mailing Address:**

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Dayton, Ohio 45401-0051  
Attn: Department 21  
2/11/2011

**Shipping Address:**

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