

Laboratory Certification For

Pamir Geotechnical Services Company

Lab ID: LCP-016

Issue date: Aug 16th, 2017

Expiry date: Feb 15th, 2018

This letter confirms the completion of inspection and certification for the Pamir Lab, which is located at Next to Erada Daily, corner of first junction, Dehmazang, Kabul, Afghanistan. This laboratory should now be considered as certified for use by the US Army Corps of Engineers Transatlantic Afghanistan District (USACE TAA) and other clients, for all tests listed in Table 1 to Table 7, as attached to this letter. This certification will be included with records that are maintained at the ABA and USACE TAA Headquarters in Bagram Airbase, Afghanistan. Retaining the certification will require yearly inspections by the ABA. This certification is also contingent upon the following conditions:

- A. Continued employment of the below individual while without his oversight, the laboratory will require recertification:
 - a. Mr. Mohammad Khodadadi the laboratory manager;
- B. If the calibration certificates of equipments expire or become invalid as per the relevant standard;
- C. If the laboratory is moved to a new location, it will require recertification; and
- D. If the laboratory fails to comply by the approved lab quality management plan, safety standards, and other criteria set forth in the most up-to-date ABA lab certification manual, the lab certification may be suspended.

For verification and good standing of this certification please check our online directory of laboratories at http://aba.af/lcp_directory.php. The inspection and certification process for the Pamir adhered to procedures outlined by the Materials Testing Center (MTC), which is located at the Geotechnical and Structures Laboratory (GSL), U.S. Army Engineer Research and Development Center (ERDC) in Vicksburg, Mississippi, USA. The MTC is the USACE-authorized agency for certifying laboratories for use in quality control testing for USACE construction projects. To facilitate construction in Afghanistan, the USACE TAA has authorized the ABA to conduct laboratory certifications with strict adherence to MTC protocol. Qualifications of the authors for conducting these certifications include: 12 years of laboratory experience, 12 years of teaching classes on construction materials, and six years of teaching university-level construction classes.

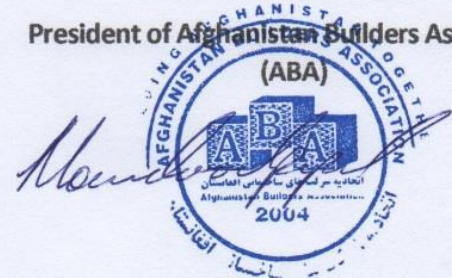
Certified to perform 82 tests, as shown on attached sheets and summarized as:

Table 1:	14
Table 2:	13
Table 3:	19
Table 4:	12
Table 5:	15
Table 6:	3
Table 7:	6

Regards,

Mowdood Popal

President of Afghanistan Builders Association



Pamir Certified Laboratory Tests

Table 1. List of Certified Soil Tests

No	Test Method	Test Procedure Title
1	AASHTO T 92	Standard Method of Test for Determining the Shrinkage Factors of Soils
2	AASHTO T 224	Standard Method of Test for Correction for Coarse Particles in the Soil Compaction Test
3	ASTM D 421	Standard Practice for Dry Preparation for Particle Size Distribution & Soil Constants
4	ASTM D 422	Standard Test Method for Particle Size Analysis of Soils
5	ASTM D 854	Standard Test Method for Specific Gravity of Soils by Water Pycnometer
6	ASTM D 1556	Standard Test Method for Density & Unit Weight of Soils in Place by Sand-Cone Method
7	ASTM D 1557	Standard Test Methods for Laboratory Compaction Characteristics by Modified Effort
8	ASTM D 1883	Standard Test Method for California Bearing Ratio (CBR) of Laboratory Compacted Soil
9	ASTM D 2166	Standard Test Method for Unconfined Compressive Strength of Cohesive Soil
10	ASTM D 2216	Standard Test Method for Laboratory Determination of Water(moisture) Content of Soil and Rock By Mas
11	ASTM D 3017	Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
12	ASTM D 4318	Standard Test Methods Liquid & Plastic Limits & Plasticity Index
13	ASTM D 4718	Standard Practice for Correction of Unit Weight and Water Content for Soils Containing Oversize Particles
14	ASTM D 6951	Standard Test Method for Use of the Dynamic Cone Penetrometer in Shallow Pavement Applications

Table 2. List of Certified Advance Soil Tests

No	Test Method	Test Procedure Title
1	ASTM D 1586	Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils
2	ASTM D 1587	Standard Practice for Thin-Walled Tube Sampling of Soils for Geotechnical Purposes
3	ASTM D 2113	Standard Practice for Rock Core Drilling and Sampling of Rock for Site Investigation
4	ASTM D 2434	Standard Test Method for Permeability of Granular Soils (Constant Head)
5	ASTM D 2435	Standard Test Methods for One-Dimensional Consolidation Properties of Soil Using Incremental Loading
6	ASTM D 3080	Standard Test Method for Direct Shear Test of Soil under Consolidated Drained Condition
7	ASTM D 3550	Standard Practice for Thick Wall, Ring-Lined, Split Barrel, Drive Sampling of Soils
8	ASTM D 4829	Standard Test Method for Expansion Index of Soils

No	Test Method	Test Procedure Title
9	ASTM D 5434	Standard Guide for Field Logging of Subsurface Exploration of Soil and Rock
10	ASTM D 6032	Standard Test Method for Determining Rock Quality Designation (RQD) of Rock Core
11	ASTM D 5333	Standard Test Method for Measurement of Collapse Potential of Soils
12	CRD-C 655	Standard Test Method for Determining the Modulus of Soil Reaction
13	ASTM D 6572	Standard Test Methods for Determining Dispersive Characteristics of Clayey Soils by the Crumb Test

Table 3. List of Certified Aggregate (Fine and Coarse) Tests

No	Test Method	Test Procedure Title
1	ASTM C 29	Standard Test Method for Unit Weight and Voids in Aggregate
2	ASTM C 70	Standard Test Method for Surface Moisture in Fine Aggregate
3	ASTM C 127	Standard Test Method for Specific Gravity & Absorption in Coarse Aggregate
4	ASTM C 128	Standard Test Method for Specific Gravity & Absorption in Fine Aggregate
5	ASTM C 131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
6	ASTM C 144	Standard Specification for Aggregate for Masonry Mortar
7	ASTM C 404	Standard Specification for Aggregate for Masonry Grout
8	ASTM C 535	Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
9	ASTM C 566	Standard Test Method for Total Evaporation Moisture Content of Aggregate by Drying
10	ASTM C 702	Standard Practice for Reducing Samples to Testing Size
11	ASTM D 75	Standard Practice for Sampling Aggregate
12	ASTM D 1241	Standard Specification for Materials for Soil-Aggregate Subbase, Base, and Surface Courses
13	ASTM D 2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
14	ASTM D 4791	Standard Test Method for Flat Particles, Elongated Particles, Flat and Elongated Particles in Coarse Aggregate
15	ASTM D 4944	Standard Test Method for Field Determination of Water (Moisture) Content of Soil by The Calcium Carbide Gas Pressure Tester
16	ASTM D 5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
17	BS 812 Section 105.1	Testing Aggregates. Methods for Determination of Particle Shape Flakiness Index
18	CRD-C 171	Standard Test Method for Determining the Percentage of Crushed Particles in Aggregate
19	BS 812 Section 105.1	Testing Aggregates. Methods for Determination of Particle Shape. Elongation Index for Course Aggregate

Table 4. List of Certified Grout, Mortar, & Concrete Tests

No	Test Method	Test Procedure Title
1	ASTM C 39	Standard Test Method for Compressive Strength of Cylindrical
2	ASTM C 42	Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
3	ASTM C 138	Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
4	ASTM C 143	Standard Test Method for Slump of Hydraulic-Cement Concrete
5	ASTM C 172	Standard Practice for Sampling Freshly Mixed Concrete
6	ASTM C 174	Standard Test Method for Measuring Thickness of Concrete Elements Using Drilled Concrete Cores
7	ASTM C 192	Standard Practice for Making and Curing Test Specimens in Laboratory
8	ASTM C 511	Standard Specification for Mixing Rooms, Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes
9	ASTM C 617	Standard Practice for Capping Cylindrical Specimens
10	ASTM C 805	Standard Test Method for Rebound Number of Hardened Concrete
11	ASTM C 1019	Standard Test Method for Sampling and Testing Grout
12	ASTM C 1064	Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete

Table 5. List of Certified Asphalt Cement and Asphalt Concrete Tests

No	Test Method	Test Procedure Title
1	AASHTO T 59	Standard Method of Test for Emulsified Asphalts
2	AASHTO T 79	Standard Method of Tests for Flash Point with Tag Open-Cup Apparatus for Use with Material Having a Flash Point Less than 93°C (200 °F)
3	AASHTO T 182	Standard Method of Test for Coating and Stripping of Bitumen-Aggregate Mixtures
4	AASHTO T 230	Standard Method of Tests for Determining Degree of Pavement Compaction of Bituminous Aggregate Mixtures
5	ASTM D 5	Standard Test Method for Penetration of Bituminous Materials
6	ASTM D 242	Standard Specification for Mineral Filler for Bituminous Paving Mixtures
7	ASTM D 546	Standard Test Method for Sieve Analysis of Mineral Filler for Bituminous Paving Mixtures
8	ASTM D 2172	Standard Test Methods for Quantitative Extraction
9	ASTM D 2489	Standard Practice for Estimating Degree of Particle Coating of Bituminous-Aggregate Mixtures
10	ASTM D 2726	Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
11	ASTM D 3203	Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
12	ASTM D 6927	Standard Test Method for Marshall Stability and Flow of Bituminous Mixtures
13	CRD-C 649	Standard Test Method for Unit Weight, Marshall Stability, and flow of Bituminous Mixtures

No	Test Method	Test Procedure Title
14	CRD-C 650	Standard Method for Density and Percent Voids of Compacted Bituminous Paving Mixtures
15	CRD-C 652	Standard Test Method for Measurement of Reduction in Marshal Stability of Bituminous Paving Mixtures Caused by Immersion in Water

Table 6. List of Certified Bricks & Masonry Units Tests

No	Test Method	Test Procedure Title
1	ASTM C 62	Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale)
2	ASTM C 140	Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units
3	ASTM C 1552	Standard Practice for Capping CMU/Related Units/Masonry Prisms for Compression Testing

Table 7. List of Certified Rock Tests

No	Test Method	Test Procedure Title
1	ASTM D 5607	Standard Test Methods for Performing Laboratory Brazilian Tests
2	ASTM D 3976	Standard Test Methods for Performing Laboratory Brazilian Tests
3	ASTM D 5731	Standard Test Method for Determination of the point load strength Index of Rock
4	ASTM D 4644	Standard Test Method for Slake Durability of Shales and Similar Weak Rocks
5	ASTM D 2938	Standard Test Method for Unconfined Compressive Strength of Intact Rock
6	ASTM D 3148	Standard Test Method for Elastic Moduli of Intact Rock Core Specimens in Uniaxial Compressive