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Site Visit Report	Project: Badakhshan Landslide Technical Assistance
Location: Ab-e-Barik, Badakhshan Province	Coordinates: Latitude: N 37° 00' 57" Longitude: E 70° 21' 45"
Inspection Date: May 23, 2014	Weather: Partly Cloudy, Temp @ 33° C, No Precipitation
Inspectors: [REDACTED] [REDACTED]	Status: Complete

PRESENTED TO

**United States Agency for International Development (USAID)
Office of Economic Growth and Infrastructure (OEGI)**

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Date: **06/02/14**

PRESENTED BY

**Tetra Tech, Inc.
Afghanistan Engineering Support Program
Contract No. EDH-I-00-08-00027-00
Task Order No. 1
Work Order WO-A-0096**

Shash Darak
Kabul, Afghanistan

EXECUTIVE SUMMARY

A landslide occurred in Ab-e-Barik Village, Badakhshan Province, Afghanistan on May 2, 2014. Approximately 383 families of the 1,210 families living in Ab-e-Barik Village were impacted by the landslide.

The Tetra Tech (Tt) reconnaissance team conducted a site investigation to gather data from the site for further assessment by others. The data includes site photos, measurements of the mudslide and GPS coordinates, geotechnical testing, and the approximate dimensions of a dug channel draining water from an impoundment created by the slide.

During the field investigation Tt conducted interviews with the Deputy Governor of Badakhshan, the Director of the Ministry of Rural Rehabilitation & Development (MRRD), the Director of the Ministry of Energy and Water (MEW), Engineering Association volunteer engineers, Norwegian Afghanistan Community (NAC) landslide specialists, a Chinese team and several Ab-e-Barik village residents.

Based on field measurements made during this reconnaissance, the approximate excavated volume of the dug channel draining the water impoundment is 6,470 cubic meters. The approximate volume of the slide soil mass is 1,809,450 cubic meters. The stored water volume in the water impoundment is approximately 55,000 cubic meters.

This submittal includes this site visit report; mapping showing the drainage channel layout and cross sections; soil test results for CBR (California Bearing Ratio), DCP (Dynamic Cone Penetrometer), FDT (Field Density Test), Soil Classification and Vane Shear Tests in accordance with ASTM soil test methods.

DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government

1.0 INTRODUCTION

The landslide occurred on May 2, 2014 in the Ab-e-Barik Village, located in the Argu District of Badakhshan Province, Afghanistan. The village consists of 1,210 families, and a total of 383 families have been impacted by this landslide.

This site reconnaissance includes field investigations, geotechnical tests, and technical measurements of the affected mudslide area, water impoundment and dug channel.

The field investigation also includes meetings with the Deputy Governor of Badakhshan, the Director of the Ministry of Rural Rehabilitation and Development (MRRD), the Director of the Ministry of Energy and Water (MEW), Engineering Association volunteer engineers, Norwegian Afghanistan Community (NAC) landslide specialists, a Chinese team and several Ab-e-Barik Village residents.

The geotechnical tests include soil samples for sieve analysis, Atterberg Limits, soil classification, CBR, FDT, DCP, Vane Shear and soil moisture.

The field technical measurements include the dug channel length and cross section dimensions, the channel location plan and the affected area of the landslide with actual GPS Lat/Long coordinates.

The excavated volume of the dug channel is approximately 6,470 cubic meters. The slide mass volume is approximately 1,809,450 cubic meters. The volume of the stored water in the pond is estimated between 55,000.00 and 60,000.00 cubic meters. The current flow through the water impoundment varies between 50 to 100 liters per second.

2.0 SITE VISIT

The reconnaissance team from Tetra Tech (Tt), Afghanistan Engineering Support Program (AESP) traveled to Ab-e-Barik Village, Argu District in Badakhshan Province on May 23, 2014 to investigate and collect data from the landslide area in Ab-e-Barik. The Tt reconnaissance team was accompanied by local community guides during the site reconnaissance. The findings of this site visit are documented in this report.

3.0 FIELD GEOTECHNICAL TESTING AND DATA GATHERING

Soil samples were collected from multiple locations (see drawing A-105 for test point coordinates) and the following soil tests were performed.

- Sieve analysis, Atterberg Limits, soil classification and soil moisture at three locations;
- California Bearing Ratio (CBR) at three locations;
- Dynamic Cone Penetration (DCP) Test at ten locations;
- Field Vane Shear Tests (FVST) at nine locations; and,
- Field Density Test (FDT) at nine locations.

In addition the Tt team acquired over 500 photos of the landslide area and the surrounding Ab-e-Barik village. The limits of the landslide, water impoundment and dug channel have been documented by GPS coordinates (see drawings A-103 and A-104).

The following documents are included with this site visit report and they have been uploaded on MyDrive for easy access.

- Mapping and Drawings
 - G-000 Cover Sheet
 - G-001 Drawing List and Coordinate Tables
 - A-101 Dug Channel layout
 - A-102 Channel Cross Sections
 - A-103 Landslide Coordinates
 - A-104 Landslide Coordinates
 - A-105 Test Point Coordinates

- Soil Tests
 - CBR
 - DCP
 - FDT
 - Soil Classification and Moisture
 - Field Vane Shear Test
- Photos
 - Displaced Community
 - Landslide Area
 - Pond and Channel

All the site data collected and geotechnical soil test reports are available on a MyDrive location. The MyDrive login information is as follows:



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