Unstable Slope Criteria Project:
Object-Based Mapping with High Resolution Topography
Project Management Plan, 2/25/2020

Overview

The Unstable Slope Criteria Project is part of the Cooperative Monitoring, Evaluation, and Research (CMER) Committee's Mass Wasting Effectiveness Monitoring Program. The Unstable Slopes Criteria Project consists of five distinct phases that were outlined within the CMER and Policy approved scoping document "Unstable Slope Criteria Project – Research Alternatives". This implementation plan addresses only phase 2 "Object-based Landform Mapping" and is in coordination with the CMER and ISPR approved study design "Unstable Slope Criteria Project: Study Design for Object-based Mapping with High-Resolution Topography".

The implementation of this project will primarily be executed internally, with the majority of the study tasks being completed by a CMER Scientist. Limited contracting will occur to provide technical assistance to the CMER Scientist in project execution, data analysis and report review and revision.

Project Team

Project Member	Affiliation	Role	Responsibilities
Ben Flint	WADNR	Project manager	Project oversight; Project Budgeting; Contracting; Project Communication and CMER/Policy documentation.
Greg Stewart	CMER (NWIFC)	Principal Investigator	Project Execution; Completion of Majority of Data Generation, Processing and Data Analysis; Author of Final Report.
Dan Miller	Contractor (M^2 Environ.)	Investigation Assistant and Data Analyst	Provide Technical Assistance to CMER Scientist, Review Data Analysis, Review Study Report
Ted Turner	Weyerhaeuser	Scientific Advisor and Data Analyst	Review Data Analysis, Review Study Report
Julie Dieu	Rayonier (CMER)	Scientific Advisor and Data Analyst	Review Data Analysis, Review Study Report

Implementation Tasks

Implementation Task**	Est. Completion Date	Est. Cost*
Fiscal Year 2020		
Completion of eCognition Training	Feb-20	$ -
Preliminary Lidar Data Processing	Feb-20	$ -
Contract Generation for Technical Assistance	Feb-20	$ -
Meet with Contractor to Review Topographic Indices	Feb-20	$ 940.00
Contractor to Provide ArcGIS Pro Python Scripts for Topographic Indices	Feb-20	$ 7,400.00
Calculation of Topographic Indices	Apr-20	$ -
Process-based Unstable Slope Modeling	Jun-20	$ -
Object -based Segmentation and Classification	Jun-20	$ -
Fiscal Year 2021		
Model Evaluation	Jul-20	$ 7,600.00
Model Extrapolation	Aug-20	$ 18,800.00
Report Drafting	Jan-21	$ 14,800.00
Report Editing and Revision	Mar-21	$ 15,200.00
Report Finalization and Approval (UPSAG)	Apr-21	$ 1,730.00
Report Presentation and Approval (CMER)	Apr-21	$ 1,730.00
Fiscal Year 2022		
ISPR of CMER Approved Report	Aug-21	$ 24,990.00
ISPR Approved Report Presentation and Approval (CMER)	Sep-21	$ 1,730.00
CMER and ISPR Approved Report Presentation and Approval (Policy)	Nov-21	$ 1,730.00
Summary of Estimated Expenditures		**$ 96,650.00**

Specific budget details by fiscal year can be found in Attachment 1: Annual Budget Estimates

****Oversight and decision making will be handled by the Project Team and UPSAG***

Attachment 1: Annual Budget Estimates

Fiscal Year 2020			
Task 1: The Contractor shall provide ArcGIS Pro Python scripts for producing a set of relevant topographic indices from 3' State Plane LiDAR. Prior to script generation, the contractor shall meet with the Project Team CMER Scientist, in person, to review the expectations and needs of the scripts as they pertain to the objectives and procedures outlined in the approved Study Design for Study #2.			
Task	**Deliverable**	**Hours**	**Cost**
1.1 Meet with CMER Scientist	Contractor to meet with CMER Scientist to complete a technical review and discussion of topographic indices.	4	$740
1.2 Generate ArcGIS Pro Python Scripts	Development of ArcGIS Pro Python Scripts for producing a set of relevant topographic indices from 3' State Plane LiDAR.	40	$7,400
1.3 Expenses	Travel expenses for the face-to-face meeting between the CMER Scientist and the Contractor for technical review of topographic indices.	N/a	$200
Task 1 & Fiscal Year 2020 Total			**$8,340**
Fiscal Year 2020 Total			**$8,340**

Attachment 1: Annual Budget Estimates (Continued)

Fiscal Year 2021			
Task 2: The Contractor shall advise in the evaluation of the models produced by the CMER scientist and shall assist in the data analysis and extrapolation of the completed model.			
Task	**Deliverable**	**Hours**	**Cost**
2.1 Review and Evaluate Generated Models	Work with the CMER scientist to review and evaluate the models that have been produced. Provide technical assistance to the CMER Scientist in finalizing the models and getting the models actionable.	40	$7,400
2.2 Model Extrapolation and Data Analysis.	Work with the CMER scientist to complete model extrapolation including a review of all relevant data and assist in any and all data analysis that is required.	60	$11,100
2.3 Field Observation of Model Accuracy	Contractor to participate in a field review of model accuracy. The field review will make field observations outside of model development area and within the extrapolated area.	40	$7,400
1.3 Expenses	Travel expenses for the travel to and from the field, including potential lodging expenses for multi-day field reviews.	N/a	$500
Task 2 Total			**$26,400**
Task 3: The Contractor shall advise and provide technical assistance in the generation of the study report. The contractor shall participate in the review and finalization of the report (including Approval) within UPSAG and CMER.			
Task	**Deliverable**	**Hours**	**Cost**
3.1 Report Drafting	Work with the CMER scientist to advise and provide technical assistance in the generate of a study report (including potential drafting of specific report components). *This includes at least one face-to-face meeting between the CMER Scientist and the Contractor with travel.*	80	$14,800
3.2 Report Review and Finalization	Work with project team to review and revise the study report for presentation to UPSAG. Work with project team to answer SAG questions and assist in the review and revision the study report, as needed, for SAG approval. Work with the project team to answer CMER questions and assist in the review and revision of the study report, as needed, for CMER approval. *This includes the attendance of the contractor at two SAG meetings and at least one CMER meeting, with travel.*	96	$17,760
3.3 Expenses	Travel expenses for the face-to-face meeting(s) between the CMER Scientist and the Contractor for report generation and the attendance of the Contractor at UPSAG meeting(s) for report review. *Currently there are 4 estimated face-to-face meetings between the contractor and the CMER Scientist and/or UPSAG/CMER.*	N/a	$900
Task 3 Total			**$33,460**
Fiscal Year 2021 Total			**$59,860**

Attachment 1: Annual Budget Estimates (Continued)

Fiscal Year 2022			
Task 4: The CMER approved report shall be provided to the University of Washington for the execution of the ISPR Process.			
Task	**Deliverable**	**Hours**	**Cost**
4.1 ISPR	Execution of the ISPR process through the University of Washington.	N/a	$15,000
Task 4 Total			**$15,000**
Task 5: The Contractor shall assist in the ISPR process and help the CMER scientist in responding to comments from the ISPR Matrix. The contractor will assist in the finalization of the ISPR approved report. The contractor shall attend and assist in the presentation of the final report to CMER and Policy.			
Task	**Deliverable**	**Hours**	**Cost**
5.1 ISPR Assistance	Work with the CMER scientist to review and respond to comments from the ISPR Matrix. Contractor shall assist in the revision of the study report to incorporate all ISPR directed edits. *This includes at least one face-to-face meeting between the CMER Scientist and the Contractor with travel.*	50	$9,250
5.2 Final Report Presentation	Assist in the presentation and approval of the ISPR approved report at both CMER and Policy. *This includes the attendance of the Contractor at both the CMER and Policy meeting with travel.*	20	$3,700
3.3 Expenses	Travel expenses for the attendance of the Contractor at both CMER and Policy for the presentation of the ISPR approved report.	N/a	$500
Task 2 Total			**$13,450**
Fiscal Year 2022 Total			**$28,450**
Project Total			**$96,650**