

# **2008 Temporary Best Management Practices Evaluation Program Report**

**USDA Forest Service  
Lake Tahoe Basin Management Unit**



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**February, 2009**

## EXECUTIVE SUMMARY

The LTBMUs Temporary Best Management Practices (TBMP) Evaluation Program is designed to monitor temporary BMP's applied to forest construction and restoration projects which have the potential for short term adverse impact to soil and water quality during implementation. Patterned after the Region 5 BMPEP process (USFS, 2002), protocols were developed to systematically assess and document implementation and effectiveness of TBMPs.

TBMPs are required during all construction in the Tahoe Basin where soil disturbance is involved. TBMPs differ from permanent BMPs as they are designed to remain effective only until construction is complete and permanent BMPs can be applied. Depending on the nature of the activity and site characteristics, a variety of different BMPs may be employed to prevent sediment from mobilizing.

The following projects were evaluated:

- Pope Beach Toilet Retrofit
- Slaughterhouse Canyon Road
- Hawley Grade Trail Slide Repair
- Blackwood Stream Restoration Phase IIIa
- Logan Shoals Overlook BMP Retrofit

Minor TBMP deficiencies were documented in 2 of the 5 projects evaluated, and deficiencies were quickly resolved. Communication between project managers and monitoring staff improved between 2007 and 2008 to: 1) ensure TBMP evaluators are fully cognizant of TBMP designs and specifications, and 2) ensure a timely response (within 48 hours) to TBMP deficiencies identified during evaluations.

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## I. Introduction

Temporary Best Management Practices (TBMPs) are required during all construction in the Lake Tahoe Basin Management Unit (LTBMU) that involves soil disturbance and water quality. TBMPs differ from permanent BMPs as they are designed to remain effective until construction projects are completed and permanent BMPs can be applied. Depending on the nature of the activity and site characteristics, a variety of different BMPs may be employed to prevent sediment from mobilizing.

The LTBMUs TBMP Monitoring program is designed to monitor BMP's applied to forest construction and restoration projects which have the potential for short term adverse impact to soil and water quality. Patterned after the Region 5 BMPEP process (USFS, 2002), protocols were developed to systematically assess and document the following:

### Implementation

- Were TBMP's incorporated in NEPA documents and contracts?
  - Were they implemented on the ground?
  - Were they constructed according to design specifications?

### Effectiveness

- Were TBMP's effective in controlling erosion and sediment delivery to surface water bodies?
- Were problems observed with TBMP's addressed in a timely manner?
- Did corrective actions remedy problems with TBMP's?

Protocols for this program are documented in the LTBMU, TBMP Monitoring Plan, August 2006 (USFS LTBMU, 2006), and are incorporated into all Storm Water Pollution Prevention Plans (SWPPP), as required by the Lahontan Regional Quality Control Board for construction and restoration projects on the Lake Tahoe Basin Management Unit. This monitoring program fulfills the Lahontan Regional Water Quality Control Board SWPPP requirements to inspect, report, maintain, repair, and monitor TBMP's.

In 2008, 5 projects implemented by the engineering and ecosystem conservation departments were monitored as outlined in Table 1. All temporary BMPs were removed once the projects were completed. A brief description for each of these projects is provided below:

*Pope Beach Toilet retrofit:* Replaced two 40 year-old toilet facilities with fully accessible toilet facilities at the Pope Beach recreation site. Construction was completed in August 2008.

*Slaughterhouse Canyon Road:* Converted a non-system trail to a system road to improve access into Slaughterhouse Canyon. Construction began in September 2007 and was completed in September 2008.

*Hawley Grade Trail Slide Repair:* Rebuilt a 75-foot section of the Hawley Grade trail that was damaged from a rock slide in 1997. Construction was completed in July 2008.

*Blackwood Stream Restoration Phase IIIa:* Reconstructed 300 ft of Blackwood Creek Channel to restore stable channel morphology. Construction began in August 2008 and 1/3 of the total project reach was completed in October 2008. The remaining 2/3 of the project reach (600 ft) will be constructed in 2009

*Logan Shoals Overlook BMPs:* Installed concrete vault toilet and improved public access to Logan Shoal Overlook. Construction was completed in October 2008.

Table 1. Projects selected for Temporary BMP monitoring in 2008.

<b>Project Name</b>	<b>Project Type</b>	<b>Potential Threat</b>	<b>Construction Years</b>
Pope Beach Toilet Replacement Project	Restroom Facilities Rehabilitation	Water Quality of Lake Tahoe	2008
Slaughterhouse Canyon Road	Road Construction	Water Quality of Slaughterhouse Canyon Creek	2007-2008
Hawley Grade Trail Slide Repair	Trail Repair	Erosion of slide material	2008
Blackwood Stream Restoration Phase IIIa	New Channel Construction in Blackwood Creek	Water Quality of Blackwood Creek and Lake Tahoe	2008-2009
Logan Shoals Overlook BMPs	Visitor Site Improvement	Water Quality of Lake Tahoe	2008

## **II. Methodology**

The complete description of protocols can be found in the LTBMU Temporary BMP Monitoring Plan, August, 2006 (USFS LTBMU, 2006), and is available upon request. At the end of May, 2008, the Engineering and Ecosystem Departments provided the monitoring staff with a list of planned forest construction projects for 2008. Once the project list had been finalized, monitoring staff contacted the project manager for each project to collect all relevant planning and design specifications pertaining to temporary BMP implementation. The plans and specifications were evaluated to determine if appropriate TBMPs were selected and if TBMP's were constructed according to design specifications.

Effectiveness monitoring was conducted periodically during construction, after precipitation events, after winterization (if applicable) and in spring (if applicable). Post-storm monitoring is conducted, if based on measurements from the nearest precipitation gauging station, a measurement of approximately 0.5 in/hr was documented. However no such events occurred during the 2008 construction season. Monitoring continues after completion of construction until TBMPs are removed. The data form used to document information during evaluations is provided in Appendix A.

### III. Results

A summary of the results of the 2008 TBMP monitoring is outlined in Table 2. The results are presented in terms of minor deficiencies and major deficiencies in implementation and effectiveness. A rating is considered a minor deficiency, if eroded sediment did not reach or have the potential to reach, an SEZ (Stream Environment Zone). A rating is considered a major deficiency, if sediment did reach, or had the potential to reach an SEZ. This rating does not imply anything about the amount of sediment that may have been transported.

**Table 2: SUMMARY OF 2008 TEMPORARY BMP DEFICIENCIES**

Project	Date Surveyed	IMPLEMENTATION		EFFECTIVENESS	
		Documentation of Prescribed BMPs	Implemented	Minor Deficiencies	Major Deficiencies
Pope Beach Toilet Replacement Project	7/24/2008	Project Specifications and Design Plan	Successfully Implemented	Erosion Control, Management of Hazardous Material	None
Slaughterhouse Canyon Project	5/6/2008	Design Plan	Implemented 2007	Management of stockpile materials	None
Hawley Grade Trail Slide Repair	8/28/2008	CE	Successfully Implemented	None	None
Blackwood Stream Restoration Phase IIIa	9/24/2008	SWPPP and Design Plan	Successfully Implemented	None	None
Logan Shoals Overlook BMPs	9/16/2008	Design Plan	Successfully Implemented	None	None

All projects were rated fully successful for BMP implementation in 2008. Only 2 projects received minor deficiencies and were immediately corrected by the project leader after being notified of the deficiency. There were no major deficiencies identified with any project in 2008. Brief descriptions of minor deficiencies are described below:

- Pope Beach workers left the paint mixture and other unknown hazardous material in direct contact with the ground surface, and the sediment retention fence was not properly installed.

- Slaughterhouse Canyon Road stockpile was not properly covered. The project manager immediately removed the stockpile upon notification of this deficiency.

#### **IV. Conclusions and Recommendations**

TBMP monitoring results were significantly better in 2008 than in 2007, due largely to frequent and timely communication between monitoring staff and project managers.

Because monitoring was conducted using a qualitative evaluation process, no quantitative results (i.e. area of soil compacted, volume of sediment erosion/transport) were documented for the TBMP minor deficiencies outlined above. However, the estimated volume of eroded sediment is negligible.

Follow up monitoring should be conducted for Blackwood Stream Restoration Phase IIIa during spring runoff, 2009, to evaluate effectiveness of winterized BMPs.

Starting in 2009, project leaders will be requested to provide project design plans and/or project specifications to the monitoring staff within 48 hours of project implementation.

#### **IV. Reference**

USDA Forest Service. 2006. LTBMU Temporary BMP Monitoring Plan, LTBMU, South Lake Tahoe, CA.

USDA Forest Service. 2002. Investigating Water Quality in the Pacific Southwest Region: Best Management Practices Evaluation Program (BMPEP Users Guide); Pacific Southwest Region; Vallejo, CA.