

ALASKA TRAIL IMPROVEMENT PROJECT SUMMARY

Project Title:	Summit-Lake Miam Re-Route and Trail Hardening Project 2004-2005			
Project Type:	GeoBlock "GeoTrack" Test and Demonstration			
Trail Name:	Summit-Lake Miam Trail			
Tread:	Type:	Width:	Underlayment	infill/no infil
GeoBlock 5051	2 inch	5 feet	Some GeoGrid	No infill in cells
User Types:	ATVs, Polaris Rangers, Hikers			
Mgt. Issue:	Trail degradation, watershed impacts, visual impacts			
Location:	Trail head at Mile 30 Chiniak Highway, Kalsin Bay area, NE Kodiak Island			
Lat.: 57 32 09.6			Long.: 152 32 24.6 first installation	



Photo 1. Typical layout of GeoBlock "Geotrack" configuration using 2 inch thick GeoBlock panels and 5 foot wide pressure treated 2X6s as cross ties. This section is installed along a new alignment of the trail. The panels are attached to the cross ties with 1 5/8" long deck screws. Utilizing this approach, only two GeoBlock panels are required for every meter of trail verses three panels for the more common full panel width configuration. This method promises to be a highly effective trail hardening method across a wide range of application sites in Alaska.

Land Ownership:	State
Managing Agency or Organization:	Kodiak Soil and Water Conservation District
Project Cooperators:	Copley International
	Kodiak ATV Club
	Natural Resources Conservation Service -Kodiak
Technical Guidance Provided by:	Sam Christian, Kodiak SWCD

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Primary Project Contact:	Sam Christian
-Agency or Organization:	Kodiak Soil and Water Conservation District
-Phone # and email:	907 486-5574, kswcd@alaska.com
Secondary Project Contact:	Tom Lance DC, NRCS tom.lance@ak.usda.gov
Project Dates:	2003-2005 and on-going
-Date(s) of Field Work:	Summer months, 2003, 2004, 2005 +
<p>Brief Narrative Project Description: The improved section of trail reroutes and replaces about 10,000 feet of trail significantly degraded by ATV traffic. The new trail route takes advantage of natural uplands to avoid wetlands and utilizes ridges to the greatest extent possible. About 120 feet of bridges were constructed, and about 1,181 feet (390 meters) of trail surface were hardened by installing GeoBlock 5051 (2 inch thick) panels in a wheel-track only configuration. The technique, labeled "GeoTrack", was developed by Sam Christian of the Kodiak Soil and Water Conservation District as a low cost trail hardening method utilizing GeoBlock. It reduced the number of panels by .33% from a full-width GeoBlock installation, by utilizing a 2X6 cross tie in place of a center panel. The cross ties are placed on a 1 meter interval to match the length of the GeoBlock panel. Six foot long cross ties were used with panels inset 6" on either side –resulting in a tread width of 5 feet. The panels were screwed together using 1 5/8 inch decking screws that extended through the panel edge tabs into the underlaying cross tie. This resulted in a very secure joint. Tested in 2003, the technique proved to be an effective technique both in material reduction and in speed of installation. Eight installation sites were laid in 2004 and 2005. Additional installation is planned for 2006 to test the utility of GeoBlock2 (1 inch thick) panels and 3/4" CDX plywood cross ties. The GeoTrack method has been adopted as the standard method of trail hardening on the Summit-Miam trail and has great potential on other trails on the island and across the state.</p>	
<p>Project Outcomes: Performance of the technique is currently being observed, initial evaluation indicates successful trail hardening with minimum costs. The development of the "GeoTrack" technique proves to be a major contribution to trail hardening methods for Alaska, and has potential application on all but the most degraded trails and sites requiring the floatation and load distribution capability of a full width GeoBlock installation.</p>	
Crew Size:	3
Production Rate:	21 feet (6.4 meters)/hour/person
Equipment Utilized:	Polaris Ranger, 4WD ATVs, Grubbing tools: polaskis, shovel, 18 volt portable drill drivers, chainsaw, generator
Supplies Utilized:	1,040 GeoBlock 5051 panels (20 pallets), 500 pieces pressure treated 2X6 timbers, 6 feet long, 1 5/8s inch deck screws (approx. 8 per joint), GeoGrid underlayment, 4X8 and 2X6 timbers for bridges, misc bridge hardware.
Total On-site Labor Hours Required:	173 person days
Overall Project Cost:	\$58,360

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Major Pre-Project Work Done: Route confirmation was required. An alternative route was determined to be feasible only after extensive field recon activities were completed.

Estimated Installation Costs (on-site construction; w/o logistics)	Materials:	Labor Person Hours:
Approximate Costs per Linear Foot:	Bridges \$90/lf GeoTrack \$19.32 Full width GeoBlock \$32	Bridges 2 hours/lf GeoTrack .05 hours/lf Full width .1 hours/lf
Approximate Costs per 100 feet:	GeoTrack \$1932 Full width \$3200	GeoTrack 5 hours Full width 10 hours
Estimated Costs per Mile:	GeoTrack \$102,000 Full width \$168,960	GeoTrack 264 hours Full width 528 hours
Major Funding Source(s):	USFWS Coastal Grant Base funds KSWCD	

Special Logistics Requirements: Sling loading pallets of panels to construction site. A pallet of 2 inch thick GeoBlock weighs 540 pounds. This is a weigh suitable for slinging with a Bell 206 or 206L model helicopter.

Unanticipated Costs or Challenges: Materials transport within the job site required materials hauling capability exceeded that of most ATV's. Six wheeler required to provide necessary traction and load capacity.

Recommendations for Future Efforts: Experiment with GeoBlock2, -the new 1 inch thick GeoBlock panel and 3/4 inch CDX plywood cross ties as a possible cost savings. GeoBlock2 comes packaged in 92 panels/pallet (478 lbs/pallet) compared to 50 panels of the 2" product. This would double the efficiency of freight costs. Eliminate the use of GeoGrid underlayment -experience at the site demonstrated that it was not necessary.

Photos with comments:



Photo 2. A typical degraded trail area along the Summit-Lake Miam trail. High organic content soils on generally flat hying terrain are highly susceptible to

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degradation. Re-routing the trail and hardening with GeoBlock "GeoTrack" was the selected mitigation method to provide a durable tread surface and protect water quality, habitat and visual resources values.



Photo 3. Closeup detail of the GeoTrack configuration. Note cross tie location at 1 meter interval to match length of GeoBlock panels. Note also, the 6 inch inset of the panels on the 6 foot long cross ties resulting in a 5 foot wide tread. At this site little grubbing was required to embed the cross ties. That may not be the case at other locations so labor costs could increase.

Photo credits: NPS-RTCA

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Photo 4. Detail of the cross tie joint. Note 1 5/8" deck screws fastened through the tab edge joints into the underlaying 2X6 cross tie.



Photo 5. Detail of an orner joint. This technique allows for a quick overlap or miter joint supported by a standard cross tie. A chainsaw is used to make the cut.

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Photo 6. Detail of a thermal expansion joint. These are required every 60-80 feet along the installation to provide for panel shrinkage and swelling. Note use of 2X6 skid platse under panel-end cross ties. The gap (approximately 6 inches) between the panels is easily crossed by ATVs.



Photo 7. Typical bridge. Four 4X8s are used as underlaying stringers. These are decked with pressure treated 2X6s. Additional 4X8s are used as curb railk. Short 2-3 foot ramps are also constructed out of 4X8s and 2X6 decking. The structure is supported by concrete pilings and additional 4X8 timbers.