



Conservation Volunteers International Program

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A Non-Profit 501c3 Tax Exempt Organization CST 2089890-40

January 5, 2012

Mr. Bruce Beckham, CTP
Executive Director
Tourism Cares
275 Turnpike Street, Suite 307
Canton, MA 02021, USA

Re: Grey Glacier Quebrada Suspension Bridge

Dear Mr. Beckham,

In December 2010, Tourism Cares provided a \$7,500 grant to Conservation Volunteers International Program (Conservation VIP), under the 2010 Tourism Cares Worldwide Grant program. The grant stipulated that the funds were to be used within 12 months for the construction of the Grey Glacier Quebrada Suspension Bridge in Torres del Paine National Park in Chile, and further required that we submit a report at the end of the 12 months, documenting the use and outcomes of the Tourism Cares Investment. I am sending you this letter to fulfill these reporting requirements.

Executive Summary

Conservation VIP received a \$7,500 Tourism Cares Worldwide Grant at the end of December 2010. This assured Conservation VIP, and CONAF (the Chilean Park Service) that together we would be able to fund the bridge construction. After consideration of the issues involved in mobilizing people and materials and the weather conditions in Patagonia, Conservation VIP and CONAF agreed that construction should begin in November 2011 with the goal of completing it by year end. Richard Braunlich, who is the project design engineer and a volunteer for Conservation VIP, worked with CONAF throughout 2011 to plan construction details and procure materials. In mid-November, Richard and I traveled to Chile for construction of the bridge. We returned home December 28th. During that six week period, we made tremendous progress on the bridge construction, but we were not able to complete the construction. (see construction details below). Because January and February are the busiest months of the year, the availability of park rangers to continue working on bridge construction was expected to be reduced in early 2012. As a result, the Park's superintendent Guillermo Santana asked us to return in mid-March 2012 to complete the project, and we agreed to this request.

Completed Construction Details

During the initial November-December construction period, construction of the towers for the suspension bridge was largely completed. This phase of construction proved to be far more time-consuming and difficult a task than we initially anticipated, largely as

a result of a last-minute decision by CONAF to change the materials used to construct the towers. Richard's original design called for dimensioned lumber for the towers. The Park was responsible for procuring materials and delivering them to the site. Getting materials to the site was a daunting task, requiring lengthy road transportation to the Park, followed by a 10 mile boat trip across Lago Grey to the base camp, then materials were carried by manual labor up two miles of trail to the bridge site. In November, the Park concluded that it was too difficult to get the dimensioned lumber for the towers to the site, and it decided that we should instead cut and use trees, available near the bridge site, for the towers.

The decision to use cut trees instead of using lumber was an understandable response to the logistical problems involved in getting large lumber to the site. Further, it is important to note that the use of the trees was an acceptable substitution from a structural point of view. However, this substitution added a tremendous amount to the required construction time and effort. Trees had to be felled, hauled to the site, and shaped. There was no electricity at the site, so all the required shaping of the trees was done with axes and hatchets. Hand drilling holes in the trees was slow and difficult, because the wood was green and the tree logs were larger than the lumber originally envisioned. Some of the largest holes, hand drilled with an auger, required 1-1/2 days to drill. Drill bits and augers broke under the strain of the green wood, and had to be repaired or replaced. Much of the hardware originally designed and purchased for the connections did not work given the larger tree dimensions, so replacement hardware had to be purchased and sent to the site, while other connections were repurposed. Safely lifting pieces of the tallest tower into place, and connecting them to the steel column bases, was more difficult because of the weight and irregularity of the logs.

The bridge design called for a tower on the south side of the gorge, approximately fifteen feet tall, and a shorter tower on the north side, approximately seven feet tall. Each tower was constructed from four vertical logs, with two logs bolted together on each side of the tower, a tall one for the upper cable, and a shorter one for the lower cable. Each tower has two diagonal logs which act as braces for the tower. These diagonal supports have steps bolted to them, so they also serve as part of the ladder access to the bridge. In total then, twelve logs had to be cut and trimmed to the required shape and drilled for the many pieces of connecting hardware.

In addition to cutting and shaping the logs for the towers, there were many other construction details accomplished during the six week period, including the following: The eight vertical logs and four diagonal supports were placed into steel column base supports, embedded in concrete footings. Each of these footings required many buckets of water, sand and gravel to be sourced and hauled to the site, mixed by hand with the cement, then the resulting concrete was placed in the previously dug holes positioned by the engineer. Steps for the ladders were drilled and attached, special saddle plates to hold the cables were preliminarily positioned, and hand rails for hikers were added to the towers. We started the cross-bracing of the towers with steel angles, which must be completed before the cables can be installed. Because a picture is worth a thousand words, I have included in the Appendix a number of photos of the construction work completed to date.

Construction Remaining

As mentioned above, Administrador Guillermo Santana asked us to return from mid-March through mid-April 2012 to complete construction. At that time, we need to finish the cross-bracing of the towers prior to installation of the cables and hanging the deck. The cable has been purchased and cut to length, and is currently stored in the administration area of the Park. One of the major challenges remaining is to get the cable to the site. A helicopter pad had been prepared about a quarter mile from the bridge site. The Chilean Carabineros have indicated that they will assist the Park by flying the cable in one of their helicopters to the helicopter pad before mid-March. From there, a group of eight to ten people will be required to carry each of the two longest cables to the site. Once the cables are hung across the gorge, the cable anchorages need to be completed and the decking hung. All of this should be feasible in a month's time, assuming the cable can be delivered and no other significant materials problems occur.

Chilean Park Service Support

CONAF's regional head of infrastructure, Jose Linnebrink, was heavily involved in the planning and materials procurement for this project. Many Torres del Paine National Park people were involved throughout the construction phase including Administrador Santana, the head of the Park's rangers Neftali Zembrano, the head of maintenance, Jose Moreda, plus numerous park rangers, park maintenance employees, and park staff who worked as drivers to help deliver the materials. We worked with a number of the Park's rangers. We always had at least one, and usually two, park rangers working with us on the job, which is a remarkable level of commitment by the park given their apparent understaffing problem. We were impressed that every member of the Park's staff worked exceptionally hard, putting in long and often difficult hours of work without complaint. To supplement the Park rangers, the Park hired contract laborers to help in construction, as well as a cook to prepare food for the construction group. The Park provided the lodging and supplied the food for the contractors and for us while we were in the Park. It was made clear to us in many ways, large and small, that this project was important to the Park, and they were very appreciative of the assistance we were able to offer them.

Other Support for the Project

We saw much evidence of support for this project from a variety of people in the local community. Before we arrived, a large quantity of lumber for the bridge decking, as well as some pieces of heavy steel column base, had already been transported to the site. We understand these materials were carried by local trekking guides who volunteered to transport the materials as a way of showing their support for the project. As mentioned above, many heavy construction items, as well as people involved in construction, were transported across Lago Grey to the base camp. The boat is operated by Turismo Lago Grey, the concessionaire who operates Hosteria Grey. Our construction group was housed in a building close to Refugio Grey. The building lacked hot water for a shower, and at times was quite crowded. Vertice, the concessionaire who runs Refugio Grey, allowed us to use the showers at Refugio Grey. They also very generously provided Richard and me many breakfasts (as typical Americans, we prefer to eat more for breakfast than the Chilean workers) and dinners (which helped us to recover after we became quite ill while on the trip). When Vertice

opened their lovely new Refugio Grey in mid-December, and they had extra rooms available, we gratefully accepted their offer to let us stay there during our final week on the job. One evening when Richard and I were in the Park administration area following a project coordinating meeting, Hosteria Pehoe accommodated us in their beautiful hotel. While we were working on the bridge, it was not uncommon for visitors hiking by to stop at the site, and comment on how they thought that the bridge was both needed and appreciated. Finally, Conservation VIP sponsored a volunteer trail maintenance trip to the Park during the bridge construction period. These Conservation VIP volunteers helped to construct a new section of trail leading to the north end of the bridge, and they also helped with safety ropes during a critical period of raising the south towers.

Tourism Cares Grant Money and Project Expenses

I can certify that all of the funds provided to Conservation VIP by the Tourism Cares grant were spent to acquire construction materials for the bridge, in accordance with the original grant request. To date, just under \$17,200 has been spent on materials, and to a lesser extent tools, to construct the bridge. This amount was supplied by the \$7,500 Tourism Cares grant, approximately \$3,300 from other Conservation VIP raised funds, and the remainder from CONAF's funds. These amounts are listed as approximate because we have made assumptions about the foreign exchange rate to use when converting CONAF's local currency expenditures. Conservation VIP has receipts to verify the materials expenditures by both CONAF and Conservation VIP and will gladly supply them to Tourism Cares if requested. Also please note that these amounts do not include CONAF's expenditures for many other items such as food supplies for the construction group or hiring of local contractors, nor do they include the travel expenses of the project engineer or the Chief Executive Officer of Conservation VIP.

We expect that there will be some minor additional expenditures required for tools and materials to complete the project, but at this point we believe we have reserved enough funds in our project account to cover those needs. Further, there will be additional expenses involved in making another trip to the Park to complete the project, but again our volunteers are prepared to absorb these expenses.

Subsequent Events and the Timing of Final Bridge Construction

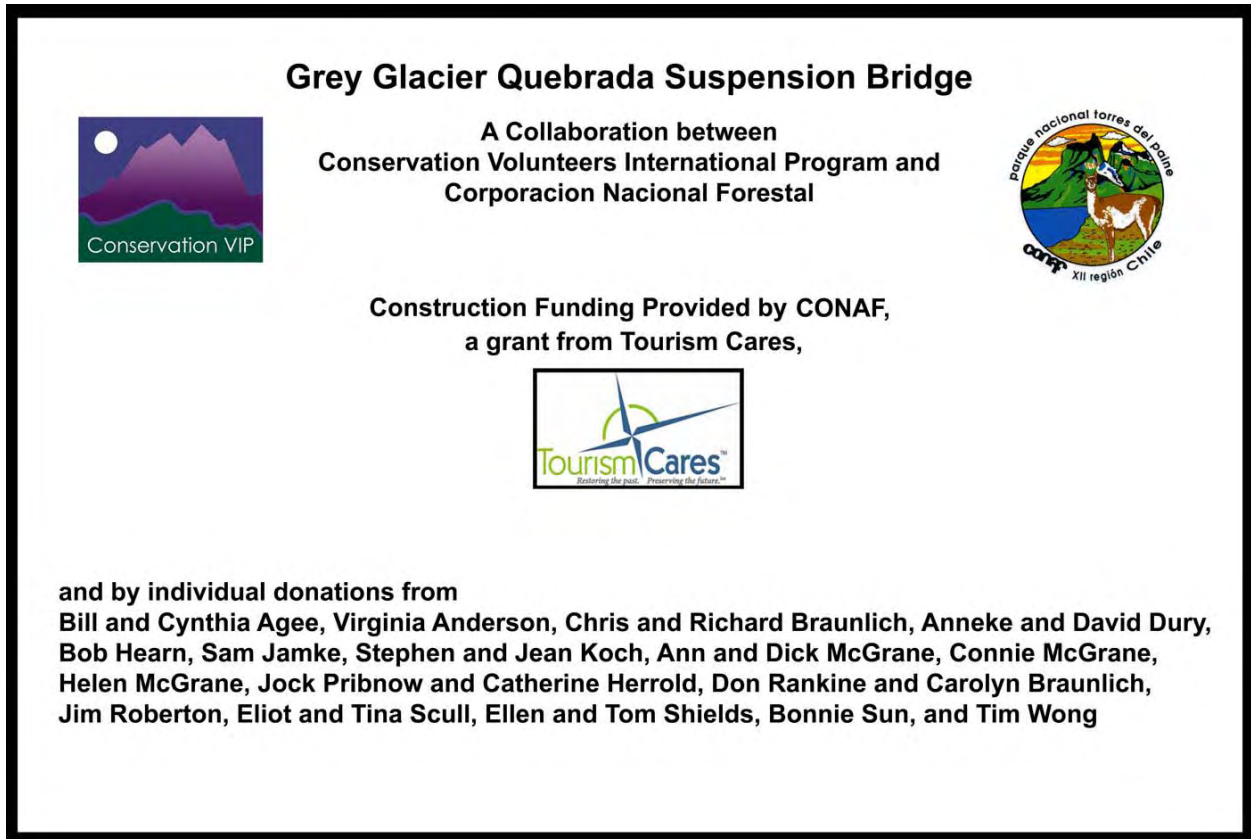
On December 28th, just after we left Torres del Paine National Park, a devastating wildfire broke out, apparently caused by a negligent tourist. At the time I am writing this report, the fire has burned approximately 35,000 acres and it is not contained. The Park has been evacuated, and it is unclear when it will reopen. We believe that the fire started approximately three miles south of the bridge location, and spread south and east from there. In other words, we believe that there has been no direct impact on the bridge structure itself. While some bridge components (most notably cable) were stored in other areas of the park, at this point we believe that the materials are safe.

Nonetheless, until the crisis passes and the Park is able to re-establish routine operations, we will not be able to determine if the Park will be able to allocate resources to resume construction on the bridge in March, or whether they will be

forced to postpone the project to a later date. We will continue to keep Tourism Cares apprised of developments on the project. If the project stays on schedule, which we very much hope will happen, I will let you know in case Tourism Cares might want to send a representative to any project completion celebrations.

In Closing

Most importantly, I want to again thank Tourism Cares for approving the grant for this project. Without your grant, this bridge construction would not have been possible. In acknowledgment of your important contribution, we prepared a banner, as shown below, which we hung at the project site during construction:



Many people stopped and read the banner as they walked by. We intend to hang the banner again when we return to finish the project. We hope you will get a chance to come by and see both the banner, and the completed bridge, for yourself.

Please let me know if you have any questions.

Sincerely,

Chris Braunlich

Chris Braunlich
Chief Executive Officer
Conservation Volunteers International Program

Appendix

Some of the smaller logs for the towers and the tower supports were carried to the site by a few strong people.



Hauling the larger logs to the site required a more major effort:



We were fortunate to have a master carpenter who was extraordinarily skilled with an axe. He cut one flat side on each log, plus he shaped the base of the logs to fit the column supports:



Two logs were connected for each side of each tower, which required hand drilling with an auger, inserting threaded rods, then cutting the rods to length:



To prepare the foundation for the towers, gravel and sand were mined and carried in buckets to the site.



The crew mixed the gravel, sand, water and cement with a shovel in a wheelbarrow to make the concrete for the foundations.

Fabricated steel column base supports were placed in the concrete foundations.



The most “exciting” part of the construction was raising the logs for the towers.



We started with the logs for the short tower, on the north side, which was relatively “easy” to tilt up into place.

Then we raised the logs for the tall tower on the south side. They were more of a challenge:





This is a side view of the short tower on the north side, just after the diagonal supports were attached

This is what the tall tower on the south side looked like after the steps for the ladder were attached to the diagonal supports



A lot of time was spent drilling holes, and completion of a hole often was a cause for celebration:





Bolts were hand cut and filed



and then the bolts were used to position the saddles atop the towers, to await the future installation of the cables



We look forward to the day when visitors will no longer have to hike through the bottom of the gorge



And they can instead cross the bridge, concentrating on the view of Grey Glacier

