SHANNON & WILSON
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

April 4, 2023

Mr. Brad Ryan
Municipality of Skagway
PO Box 415
700 Spring Street
Skagway, Alaska 99840

RE: PROPOSAL FOR ROCK SLOPE INSTRUMENTATION MONITORING, RAILROAD DOCK LANDSLIDE, SKAGWAY, ALASKA

Dear Mr. Ryan:

We are pleased to submit our proposal and estimated cost for services related to providing instrumentation monitoring services for the railroad dock landslide. We have been providing geotechnical services to the Municipality of Skagway (MOS) to mitigate short-term rockfall hazards above the dock and developing a plan for reducing risk on the dock structure during the Summer 2023 tourism season. The plan includes installation of on-slope rockfall protection, dockside rockfall protection, multifaceted instrumentation monitoring, and continuous slope observation while cruise ships are moored at the railroad dock. You have also requested that we provide instrumentation monitoring services in accordance with the monitoring plan that is currently being developed. The monitoring plan relies on interaction from a spotter at the top of the slope and this proposal assumes that spotters that will be provided by others.

SCOPE OF SERVICES

The services described in this proposal consist of and instrumentation monitoring during the summer 2023 summer season. Prior to the season, we assume that an initial site visit will be needed to coordinate locally with the spotters as well as MOS and White Pass & Yukon Route Railway (WP) management. This trip will be conducted by Rex Whistler and we assume that it will be concurrent with the trip to re-establish instrumentation at the crest of the slope, the costs and effort of which are described in a separate proposal. While on site in Skagway, we will meet with MOS staff and White Pass staff to coordinate communication lines and establish procedures between top of slope spotters and on-dock White Pass & Yukon Route Railway (WP) personnel. We will also coordinate our instrumentation

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monitoring procedures and establish roles and lines of communication for these activities as well as integrating them into the MOS emergency operations plans.

Continuous monitoring of the slope and instrumentation will consist of daily review of instrumentation data and coordination between S&W project management and spotters to be provided by others. Prior to the start of the shift each day, Rex or Kyle will review instrumentation data collected from the prior 24 hours and conduct a check-in call with the spotter on the first shift. We will discuss prior data trends and conditions to be aware of during the day. We will also discuss protocols for procedures if we are close to a trigger level reading for any given instruments. In the event that triggering levels are observed during the daytime, S&W project management will coordinate with the spotters on-site as well as with MOS staff.

We have included effort for project management (Kyle and Rex) and our instrumentation specialist to make periodic visits to the site during the summer months to provide training to spotters, observe slope conditions, and respond to instrumentation/monitoring needs.

In order to develop our estimate, we have made the following assumptions.

- Shannon & Wilson is providing instrumentation monitoring only, and spotters will be provided by others. Shannon & Wilson will not be responsible for site and slope safety, but will operate as a part of a mitigation system.
- MOS will ensure that spotters have the ability to communication directly with S&W continuously while observing conditions on the slope.
- MOS and WP will develop the protocol for allowing/holding traffic to the docks, as well as the lines of communication between spotters and on-dock personnel.
- MOS will provide all labor and materials for maintaining instrumentation and automated data collection/web hosting.
- If triggering events require mobilization to the site for S&W staff, we assume that the allotted periodic site visits included for instrumentation and slope observations for S&W project management and instrumentation specialist will cover this effort.

ESTMATED COSTS AND CONDITIONS FOR SERVICES

Estimated costs for the work outlined above are included on the attached *Summary Cost Estimate.* We assume that this work will be conducted on a time and materials basis in accordance with a mutually agreed-upon contract for professional services. We will not exceed the maximum quoted value in our estimate without your prior approval. Note that the effort included in this proposal is approximated based on current knowledge of the cruise schedule. If, during the course of our work, we determine that additional effort is needed or if an adjustment to our scope is necessary, we will inform you and negotiate the appropriate adjustments. We have attached *Important Information About Your Geotechnical Proposal* to help you understand the nature and limitations of our services.

Should you have questions or comments or wish to revise the scope of our services, please call the undersigned. We look forward to working with you on this project and appreciate the opportunity to be of service to you.

Sincerely,

SHANNON & WILSON

Digitally signed by Kyle Brennan, PE
Date: 2023.04.04 17:43:24 -08'00'

Kyle Brennan, PE
Vice President

Enc. Summary Cost Estimate
Important Information about your Geotechnical/Environmental Proposal

SUMMARY COST ESTIMATE

GEOTECHNICAL SERVICES

1. Observation Site Setup (assumes added to instrumentation installation setup trip)							**$8,565**
Vice President (Kyle)	8	hrs. x	$240	/hr.	=	$1,920	
Associate (Rex)	30	hrs. x	$190	/hr.	=	$5,700	
Associate Travel Time (Rex)	0	hrs. x	$190	/hr.	=	$0	
Airfare (for S&W field crew)	0	x	$1,500	each	=	$0	
Lodging (additional nights in Skagway)	3	nights x	$200	/night	=	$600	
Perdiem (for S&W crew including travel days)	5	days x	$69	/day	=	$345	
2. Travel Costs							**$42,384**
Vice President, 2 trips (Kyle)	32	hrs. x	$240	/hr.	=	$7,680	
Associate, 4 trips (Rex)	80	hrs. x	$190	/hr.	=	$15,200	
Insturmentation Specialist, 2 trips	40	hrs. x	$160	/hr.	=	$6,400	
Sort Term Perdiem (all travel $69/day)	16	days x	$69	/day	=	$1,104	
Airfare (for S&W field crew)	8	x	$1,500	each	=	$12,000	
3. On-site Time for Site Visits Under Task 3							**$58,194**
Vice President, 2 trips (Kyle)	60	hrs. x	$240	/hr.	=	$14,400	
Associate, 4 trips (Rex)	160	hrs. x	$190	/hr.	=	$30,400	
Instrumentation Specialist, 2 trips	40	hrs. x	$160	/hr.	=	$6,400	
Sort Term Perdiem (on-site $69/day per person)	26	days x	$69	/day	=	$1,794	
Lodging (total nights in Skagway)	26	nights x	$200	/night	=	$5,200	
4. Weekly Meetings/Coordination (Assume 27 Weeks, April 18 through October 25)							**$96,120**
Vice President (Kyle)	4	hrs. x	$240	/hr.	=	$960	
Associate (Rex)	12	hrs. x	$190	/hr.	=	$2,280	
Instrumentation Specialist	2	hrs. x	$160	/hr.	=	$320	
	Per Week Meetings/Coordination =					**$3,560**	
5. Triggering Event Management							**$28,000**
Vice President (Kyle)	40	hrs. x	$240	/hr.	=	$9,600	
Associate (Rex)	80	hrs. x	$190	/hr.	=	$15,200	
Instrumentation Specialist	20	hrs. x	$160	/hr.	=	$3,200	
						Total =	**$233,263**

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Attachment to and part of Proposal 109508-P3

Date: April 2023
To: Mr. Brad Ryan
Skagway Rock Slide Instrumentation Monitoring

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL PROPOSAL

More construction problems are caused by site subsurface conditions than any other factor. The following suggestions and observations are offered to help you manage your risks.

HAVE REALISTIC EXPECTATIONS.

If you have never before dealt with geotechnical or environmental issues, you should recognize that site exploration identifies actual subsurface conditions at those points where samples are taken, at the time they are taken. The data derived are extrapolated by the consultant, who then applies judgment to render an opinion about overall subsurface conditions; their reaction to construction activity; appropriate design of foundations, slopes, impoundments, and recovery wells; and other construction and/or remediation elements. Even under optimal circumstances, actual conditions may differ from those inferred to exist, because no consultant, no matter how qualified, and no subsurface program, no matter how comprehensive, can reveal what is hidden by earth, rock, and time.

DEVELOP THE SUBSURFACE EXPLORATION PLAN WITH CARE.

The nature of subsurface explorations—the types, quantities, and locations of procedures used—in large measure determines the effectiveness of the geotechnical/environmental report and the design based upon it. The more comprehensive a subsurface exploration and testing program, the more information it provides to the consultant, helping to reduce the risk of unanticipated conditions and the attendant risk of costly delays and disputes. Even the cost of subsurface construction may be lowered.

Developing a proper subsurface exploration plan is a basic element of geotechnical/environmental design, which should be accomplished jointly by the consultant and the client (or designated professional representatives). This helps the parties involved recognize mutual concerns and makes the client aware of the technical options available. Clients who develop a subsurface exploration plan without the involvement and concurrence of a consultant may be required to assume responsibility and liability for the plan's adequacy.

READ GENERAL CONDITIONS CAREFULLY.

Most consultants include standard general contract conditions in their proposals. One of the general conditions most commonly employed is to limit the consulting firm's liability. Known as a "risk allocation" or "limitation of liability," this approach helps prevent problems at the beginning and establishes a fair and reasonable framework for handling them, should they arise.

Various other elements of general conditions delineate your consultant's responsibilities. These are used to help eliminate confusion and misunderstandings, thereby helping all parties recognize who is responsible for different tasks. In all cases, read your consultant's general conditions carefully and ask any questions you may have.

HAVE YOUR CONSULTANT WORK WITH OTHER DESIGN PROFESSIONALS.

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a consultant's report. To help avoid misinterpretations, retain your consultant to work with other project design professionals who are affected by the geotechnical/environmental report. This allows a consultant to explain report implications to design professionals affected by them, and to review their plans and specifications so that issues can be dealt with adequately. Although some other design professionals may be familiar with geotechnical/environmental concerns, none knows as much about them as a competent consultant.

OBTAIN CONSTRUCTION MONITORING SERVICES.

Most experienced clients also retain their consultant to serve during the construction phase of their projects. Involvement during the construction phase is particularly important because this permits the consultant to be on hand quickly to evaluate unanticipated conditions, to conduct additional tests if required, and when necessary, to recommend alternative solutions to problems. The consultant can also monitor the geotechnical/environmental work performed by contractors. It is essential to recognize that the construction recommendations included in a report are preliminary, because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site.

Because actual subsurface conditions can be discerned only during earthwork and/or drilling, design consultants need to observe those conditions in order to provide their recommendations. Only the consultant who prepares the report is fully familiar with the background information needed to determine whether or not the report's recommendations are valid. The consultant submitting the report cannot assume responsibility or liability for the adequacy of preliminary recommendations if another party is retained to observe construction.

REALIZE THAT ENVIRONMENTAL ISSUES MAY NOT HAVE BEEN ADDRESSED.

If you have requested only a geotechnical engineering proposal, it will not include services needed to evaluate the likelihood of contamination by hazardous materials or other pollutants. Given the liabilities involved, it is prudent practice to always have a site reviewed from an environmental viewpoint. A consultant cannot be responsible for failing to detect contaminants when the services needed to perform that function are not being provided.

ONE OF THE OBLIGATIONS OF YOUR CONSULTANT IS TO PROTECT THE SAFETY, PROPERTY, AND WELFARE OF THE PUBLIC.

A geotechnical/environmental investigation will sometimes disclose the existence of conditions that may endanger the safety, health, property, or welfare of the public. Your consultant may be obligated under rules of professional conduct, or statutory or common law, to notify you and others of these conditions.

RELY ON YOUR CONSULTANT FOR ADDITIONAL ASSISTANCE.

Your consulting firm is familiar with several techniques and approaches that can be used to help reduce risk exposure for all parties to a construction project, from design through construction. Ask your consultant, not only about geotechnical and environmental issues, but others as well, to learn about approaches that may be of genuine benefit.

The preceding paragraphs are based on information provided by the
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland