



WorleyParsons

resources & energy

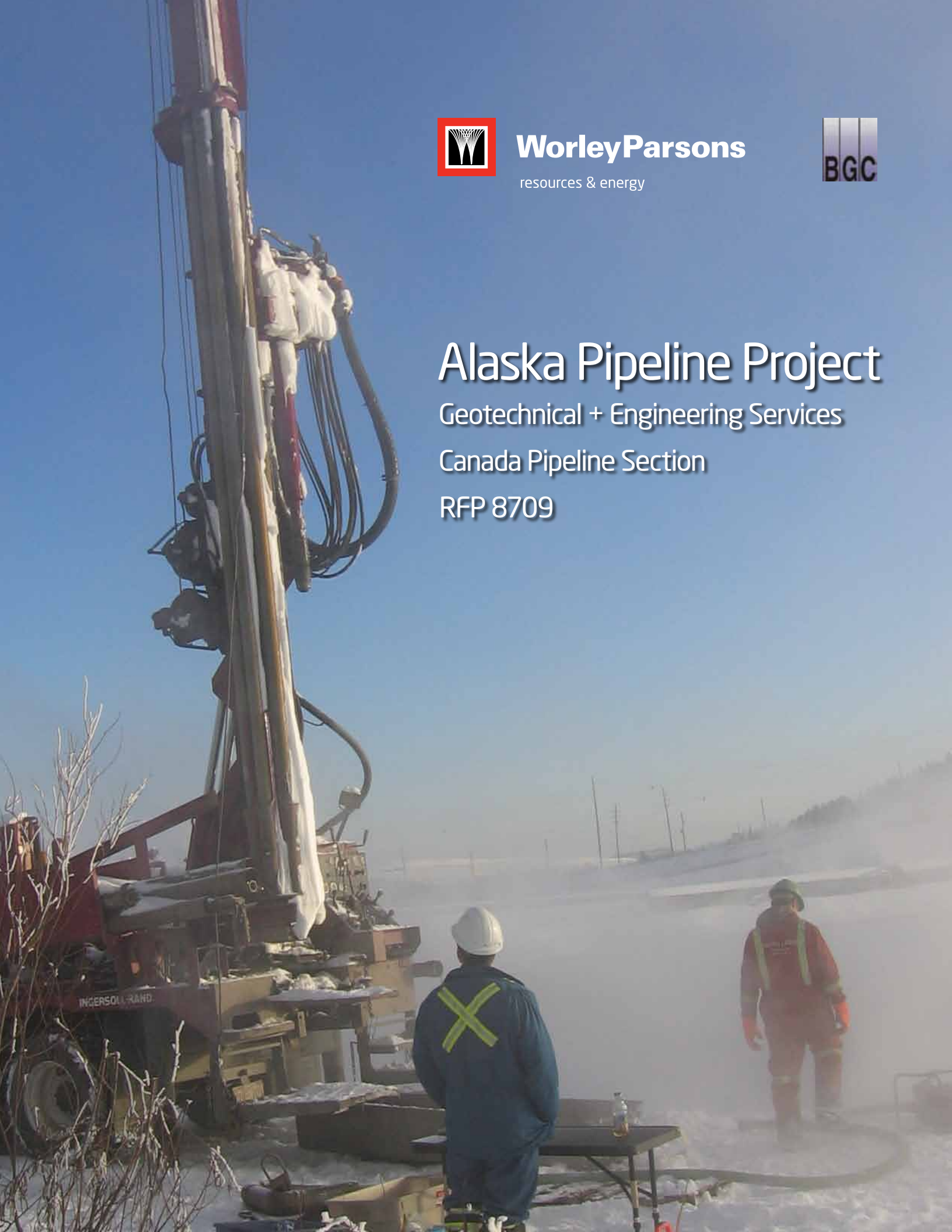


Alaska Pipeline Project

Geotechnical + Engineering Services

Canada Pipeline Section

RFP 8709



Highlights of Successful Partnership

Although the completion of the historic Trans Alaska Pipeline allowed crude oil to be shipped to market from the North Slope, the associated natural gas was left stranded. The Alaska Pipeline Project (APP) proposes to solve this by providing 2,800 km of new natural gas pipeline from the Prudhoe Bay terminal to an existing pre-built pipeline network in northwestern Alberta. The proposed route follows the existing Trans Alaska Pipeline south from Prudhoe Bay to the Alaska Highway, roughly following the Highway to east of Watson Lake, then southwest into Alberta.

The Trans Alaska Pipeline was one of the largest engineering projects ever. Its design and construction were truly ground-breaking and brought the fields of permafrost and Northern engineering into the mainstream. While the Alaska Pipeline Project may not be as revolutionary as its predecessor, it still represents a massive, technically challenging project that is vitally important to Alaska, Northern Canada, and the Arctic.

WorleyParsons and BGC understand the difficult nature and high stakes of this undertaking.

We have the experience to prove it.



1996

BGC was first contracted by TransCanada after a pipeline rupture on the LaSalle River south of Winnipeg, Manitoba, an incident caused in part by geotechnical issues.

1997-2001

BGC evaluated geotechnical hazards on TransCanada's Mainline. After TransCanada's merger with Nova, BGC expanded its geotechnical work to the Alberta and BC pipeline networks.

2008

WorleyParsons completed scope of work for a Class IV estimate of the APP conceptual design.

2009

BGC began in-depth geotechnical investigations of river crossings and permafrost conditions in northeastern British Columbia for the Horn River Mainline.

2010

WorleyParsons geophysicists completed a high resolution 2D seismic survey and found active, near-surface faulting in the Yukon near the White River, where the pipeline will cross portions of the Denali Fault.







We know the North.

Our corporate experience in permafrost pipeline engineering dates back to the 1940s, when Ralph Parsons worked as Director of Engineering on the Canol Pipeline Project from Norman Wells NWT to Whitehorse, YK. Since that start, we have worked on many Northern projects, on sites as far north as the 80th parallel. Our Northern resume includes Canol, the original Trans Alaska Pipeline System, facilities at Prudhoe Bay and Norman Wells, the Dempster Lateral project, the Mackenzie Valley Gas Pipeline, and the APP.

Our APP summer 2010 field program had up to 9 teams conducting field studies on alternative alignments, corridor footprint, water crossings, faults, side slopes, longitudinal slopes, acid rock areas, fault delineation, and a sonar and mapping program of the Kluane Lake crossing along the APP ROW from the Alaska-BC border to the BC-Alberta border. Work was completed on or ahead of schedule with no major incidents and very few near misses. Local First Nations band members worked as wildlife monitors for ground programs and as labourers where needed.

Logistics & Interface



Managing subcontractors and field crews is a challenge. Thankfully, we have key personnel already doing this for the Alaska portion of the project and segments in Canada. Our integrated team will avoid duplication of effort by reducing the number of interfaces. In addition, locals and First Nations members on our team provide relevant insight to reduce some of the project risks.



Execution

TransCanada-ExxonMobil have provided an aggressive and challenging project timeline

WorleyParsons and BGC propose to meet the schedule by using experienced, highly skilled people on our project team and by mobilizing up to five simultaneous field crews to carry out field investigations. Our partnership is crucial to this effort.



For the drilling program, Mobile Augers & Research Ltd. will partner with Midnight Sun Drilling Co. Ltd., ConeTec Investigations Ltd., and First Nations communities.

Using a strategy similar to the Mackenzie Gas Project, Midnight Sun will incorporate companies along the line. Each company will be majority Native-owned and provide services for all work conducted in that Band's region. This will

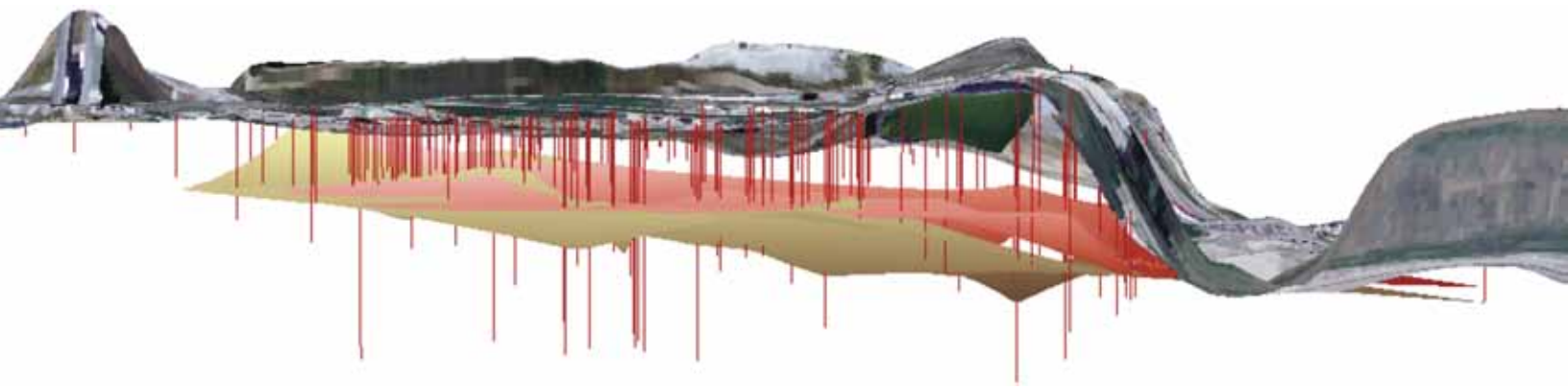
Establish viable operating companies controlled by the Bands.

Give each Band a specified portion of revenue from the project.

Train and employ local First Nations' labour wherever possible.

We believe this will maximize the success of the drilling program. It improves access to drill sites along the line and helps secure support from local communities. Given the short timeline to the start of drilling operations, access to the sites is critical.





We understand the Earth.

In the Fall of 2010, on very short notice, we completed a \$500K geophysics investigation for the APP. Despite difficult conditions involving narrow cutlines, muskeg, and poor weather, data processing and interpretation was done in near real-time so that seismic cross lines could be chosen based on previous line segments of acquisition. We are well-prepared to pursue these investigations for subsequent phases.

We know permafrost.

Permafrost and cold regions engineering have been core competencies at BGC ever since the company was founded. BGC provides geotechnical, geological, mining and permafrost engineering services for northern and cold regions resource extraction and infrastructure developments. These projects have been undertaken in various cold region terrains, including both discontinuous and continuous permafrost, permafrost with significant ground ice, and offshore permafrost.

We also understand water.

WorleyParsons' experienced in-house hydrogeological and hydrotechnical scientists work closely with their colleagues in other disciplines to provide a holistic view of the many environmental and technical challenges in a project of this scale and complexity.





Keystone XL & Horn River

The proposed Keystone XL 3,200 km, 900 mm diameter crude oil pipeline will run from Hardisty, Alberta to Nederland, Texas and involves constructing about 2,700 km of new pipeline.

WorleyParsons' geotechnical group in Calgary reviewed geotechnical investigation work and reports completed by contractors in the US. WorleyParsons Calgary also served as the complete geotechnical and geophysical consultant on the Canadian pump stations.

BGC's geotechnical investigation work for TransCanada's Horn River project supported the design and construction application submitted to the National Energy Board. So far, BGC has completed over 100 geotechnical projects for TransCanada.

Partnership for results.