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TO: Leon Van Wyhe By E-mail

FROM: Don Dean
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Leon:

We recently discussed the importance of obtaining information from the Alaska producer group on the number and location of granular borrow sites along or near the NG pipeline route. Large volumes aggregate, crushed rock, and gravel historically are attractive business for North American railroads, even over (relatively) short distances. We also agreed that I would contact the MGP pipeline construction planners and see what information they have developed regarding specifications for their various uses of gravel for their project.

Accordingly, we have now visited with our MGP contacts at Imperial Oil and Colt/KBR Engineering in Calgary, and together with information on the subject from recent studies we have been involved in, report as follows:

- There are some 140 granular borrow sites identified and available to the MGP along the 1200 km ROW. 60 or 70 of these are expected to be used.
- The total volume of material required is in the range of 9 million tonnes, to be moved by a fleet of 200 trucks making 330,000 trips, over three years (mainly winter seasons).
- Each borrow pit developed will require 24 – 40 workers to remove the overburden and provide trucking services, representing a significant opportunity for local contractors.
- Borrow material will be required for each of: pipeline trench padding and backfill: pads for production facilities and the major processing plant at Inuvik; access roads; air strips; camp pads; stockpile sites; barge off-loading sites; and compressor/meter stations.
- Haul distances vary from 3 km to 37 km, with the average trip some 13 kms.
- There is an approximate 50/50 split between pipeline padding and backfill (one year after pipelay).
- The developers hope to use as much of the excavated material as possible for backfill. If anything close to till, it will be thawed, dried (the summer following pipelay) and replaced. Not all of the material removed from borrow pits for backfill will be pure gravel. Again, anything that qualifies as till w/b examined for possible use.

- Site pads will be leveled with pit run material, topped with geo-textile fabric, and covered with a minimum of 3 ft. of pit run granular material.
- Access roads will be covered the same way, but with a top finish of (likely) $\frac{3}{4}$ inch crush and graded gravel base course. (Interestingly, no specific design has yet been completed on this).
- Pit run gravel will likely be graded with removal of all material > 2 inch.
- Gravel trucks being considered are the “standard doubles” carrying approx. 13 cu. meters, or 24 tonnes each.

I hope we can obtain similar information from the AK producers for the Alaska Highway pipeline. TCPL will be a potential alternative source of information, but I hope we can get it directly from the AK oil companies to avoid any possible arguments in the future.

Regards,

Don Dean