PROJECT: Doris-Windy All-Weather Road, Doris Infrastructure Project, Nunavut.

DRAWINGS: 1CH008-007-400: R-01 to R-08

SUMMARY

This work procedure is specific for the construction of the Doris to Windy all-weather road, 4 Arch culverts have been located for creek crossings.

The development of the procedure was an action item from the October 22nd Construction Meeting in Vancouver. An engineering change was made to the original plan for Arch Culverts be installed on pipe pile foundations rather than on a granular fill foundation as specified on the initial Construction Drawings (refer to drawing # R-07).

PIPE PILE CONSTRUCTION STEPS

The following procedures will be implemented for the installation of the Pipe Pile Foundations.

1. PREPERATION

In preparation for the arch culvert installation work, each area will be flooded with the minimum water quantity required to create an ice pad approximately 6 and 8 inches thick or as required to cover the tundra on which the equipment can operate without impacting the tundra at respective crossings.

- Size of pads: 12m x 60m (see attached drawing)
- Water will be loaded at Doris Lake or Doris Camp for the ice pads.
- Water quantity used to create the ice pads will be recorded and reported to environment.
- Water Truck: Sterling 8400 liter tank

Once the ice pad is set, the path of the creek will be located by survey on the ice pad and a 3 meter buffer zone surrounding the creek will be identified and marked as a “non-disturbance area”. The crew working on the culvert installation will be instructed not to work within the buffer zone and to take extra precaution when working near the area. The buffer zones at each respective site will be flagged.

Spill response equipment will be made available at each arch culvert crossing during construction. All environmental incidences will be reported and cleaned to the satisfaction of HBML environmental personnel onsite. Contaminated snow will be removed and placed into an empty 45-gallon drum for product recovery during spring thaw for proper disposal.

2. DRILLING

Before drilling commences, ground survey will be done to confirm the pile locations.

The ice over the area identified for pile work will be cut down to the surface of the tundra.

The drilling crew will be instructed to stay within the designated construction area and to take extra precaution when working near the buffer zone.

Drip pans/trays will be placed under drills or any equipment observed to be leaking any petroleum products while operating at this project. If leaks are observed to be a concern, the equipment will be shut down immediately and the leak contained.

The surveyed holes will then be drilled at the required depth at respective sites. SRK will provide the required depth and spacing for pipe piles (IFC Drawings).

Drilling will be done by: Type of Drill: Atlas Copco D9-11; and the Size of holes: 5-1/2 inches.

3. PIPE PILES/GROUTING

SRK will be providing revised IFC Drawings to include the specifications and design for the pile foundations, prior to proceeding with the work.

Grout Batching: DNX Grout Truck; and Mixing Procedure: As per manufacturer's recommendations.

The grouting crew will be instructed to stay within the designated construction area and to take extra precaution when working near the non disturbance area.

4. CAPPING

Proposed Methods for Capping:

The following capping methods are proposed for consideration for this task:

Method A:

The pipes will be inserted and secured in the drilled holes and then the grout will be pumped through the pipes (see step 3).

After the grout has set, the pipes will be cut at the specified elevation and the fabricated caps will be installed on the piles.

Method B:

Cut the pipe at the required elevation, weld the pile caps on the pipes (pile caps will have a hole in the center), and then the grout will be pumped through the pipes (see step 3).

Once the grout has set, a steel plate could be welded on the pile cape if required.

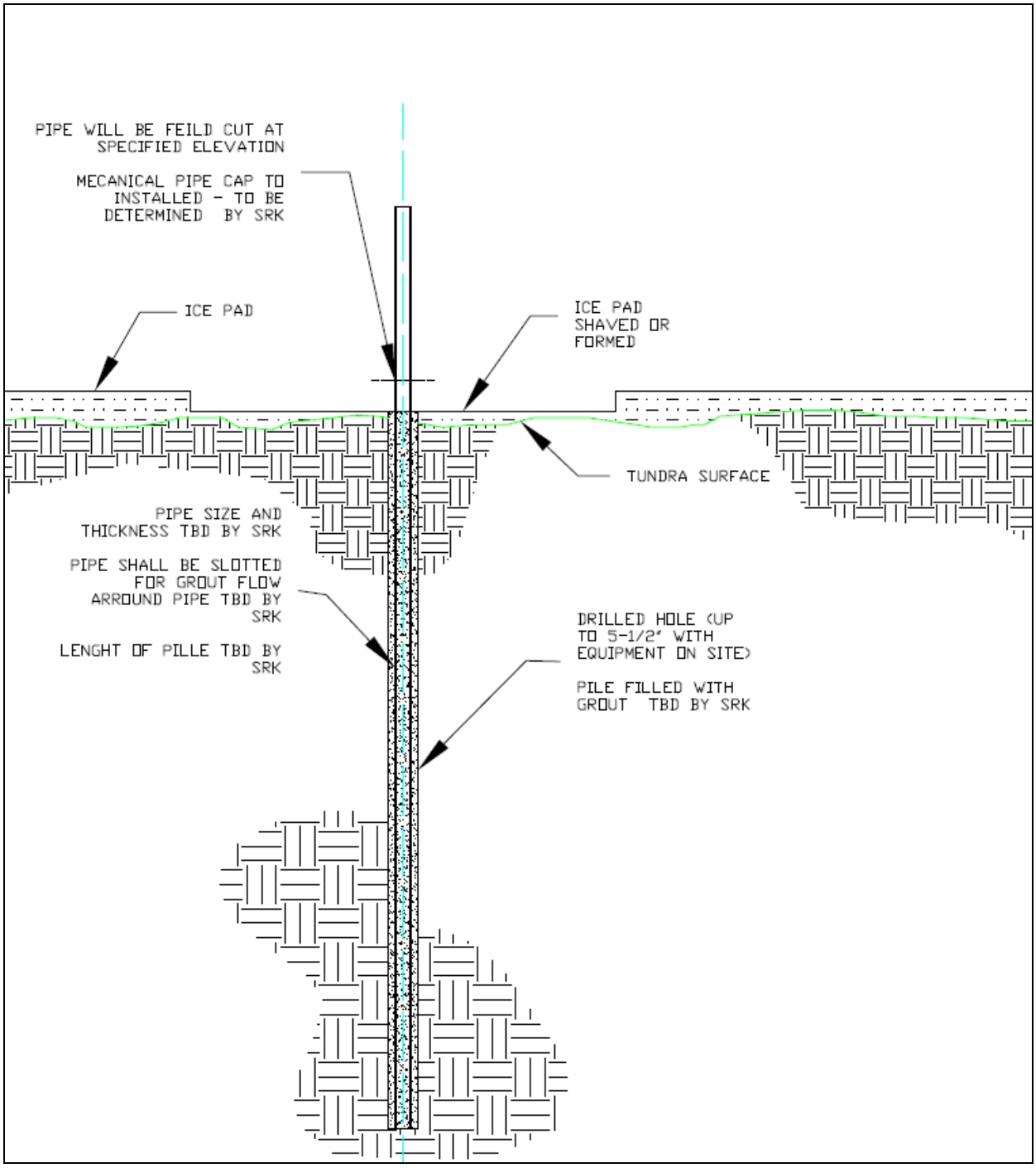
These Methods are assuming that the grout will be pumped through the pipes.

5. COMPLETION

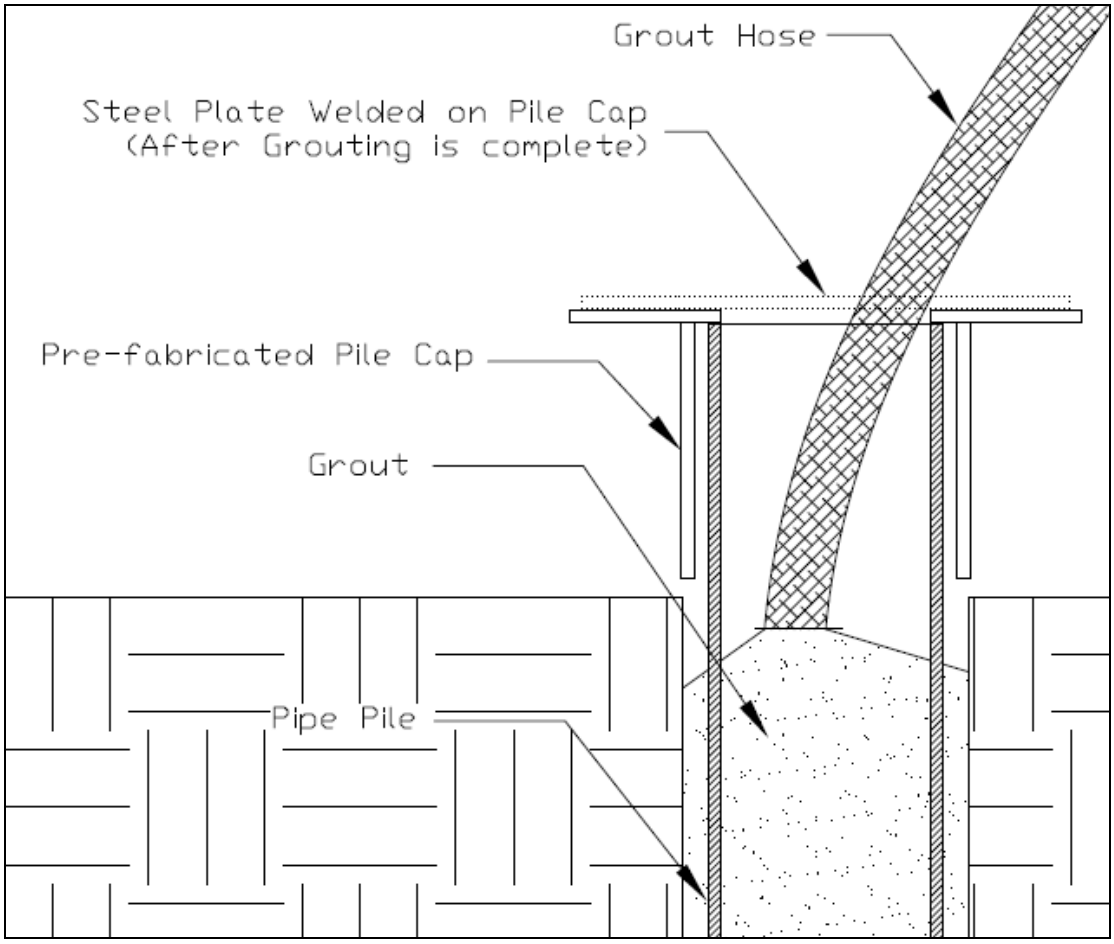
Once work completed, all equipment and material non essential to the completion of work will be removed from the area. Then, the designated construction area will be cleared and scrapped to remove any potential contaminates remaining on the surface prior to placing the culvert into position.

6. SEDIMENTATION AND EROSION CONTROL

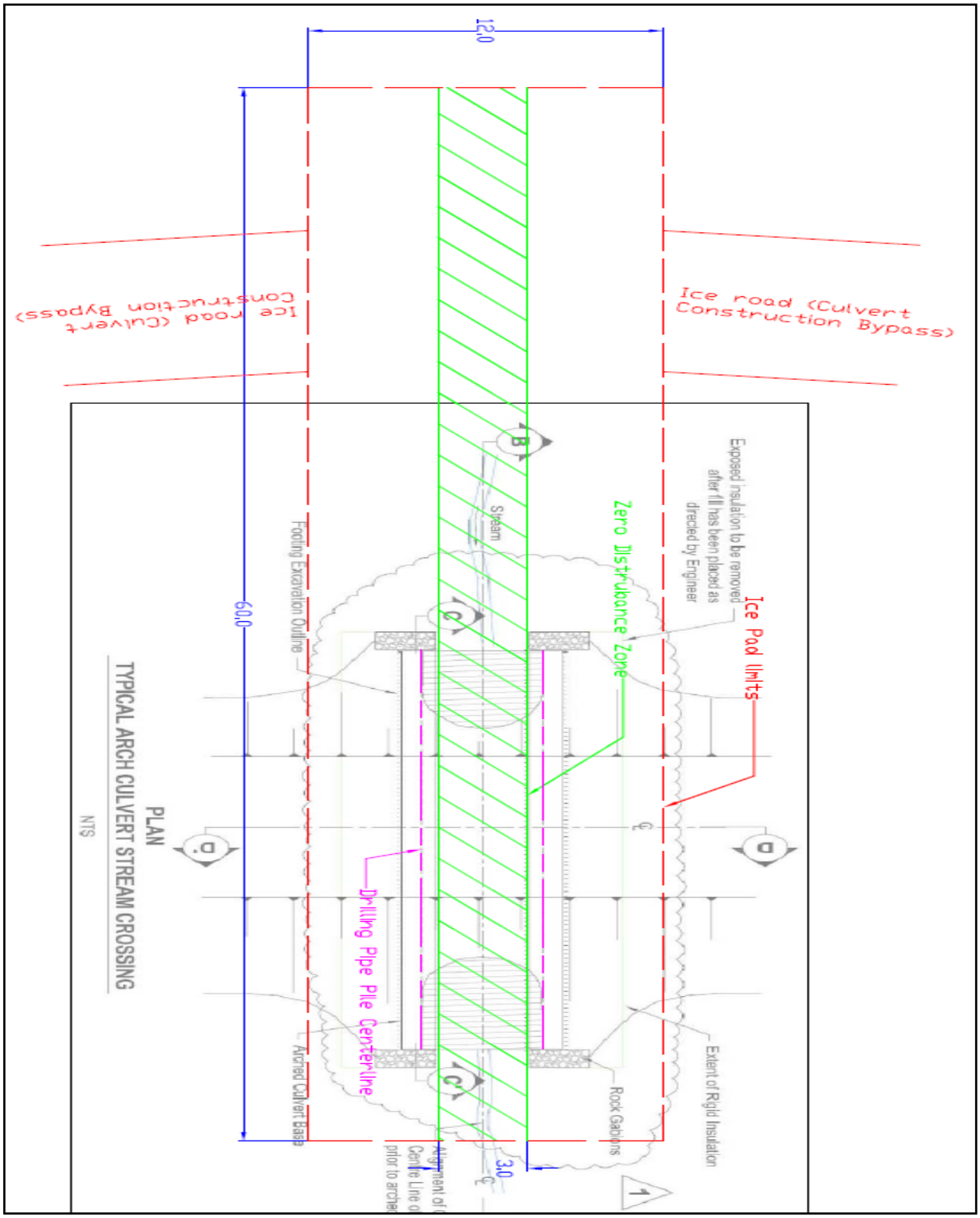
Sediment and erosion control matting will be relocated to work sites and placed around impacted areas in preparation for the spring thaw. The area will be regularly inspected during spring for signs of runoffs.



PILE CROSS-SECTION



PIPE PILE CAPPING DETAIL METHOD B



PLAN VIEW OF ICE PAD