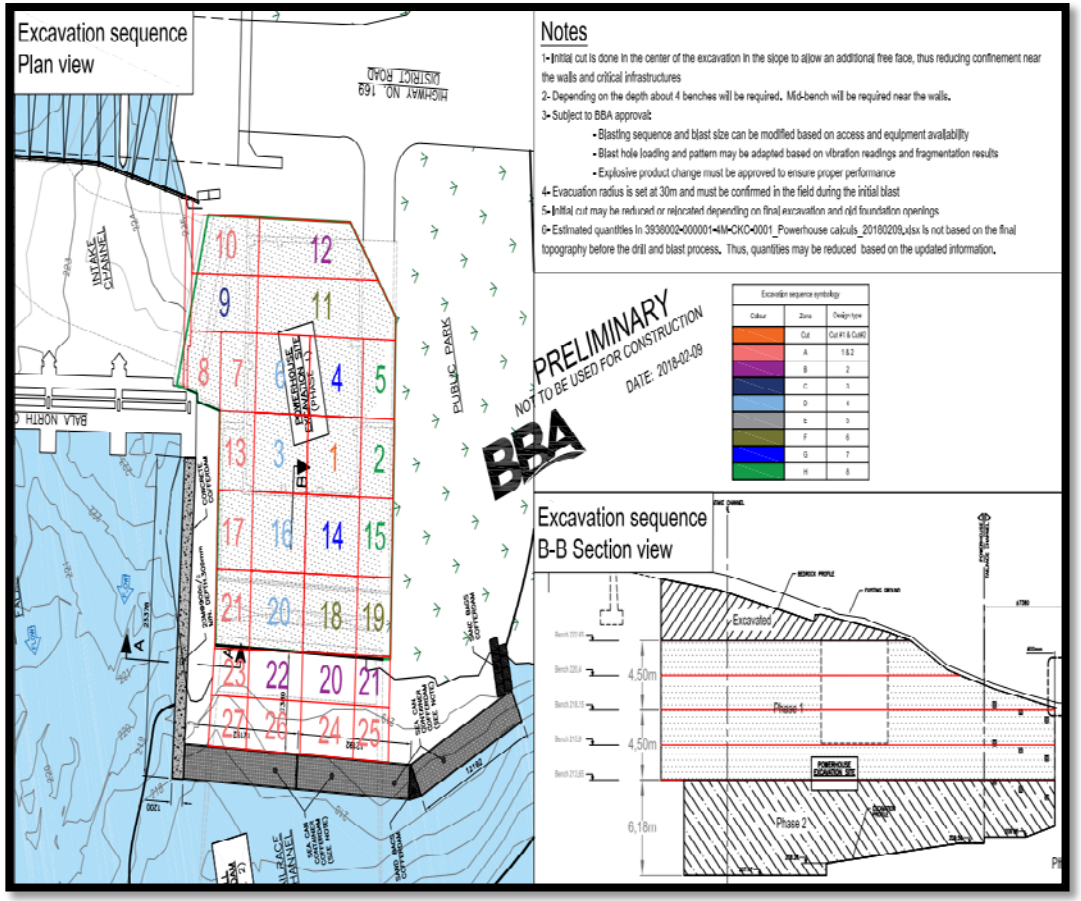
INNAVIK HYDROELECTRIC PROJECT

Blasting procedures

CRT
CONSTRUCTION

Blasting plan

- A blasting plan will be prepared before each blast. This plan will contain all the information the blaster will need to ensure a good result in a safe manner. This includes the position and depth of the holes, the height of the collar, the amount of dynamite in each hole and the firing sequence.



Drilling

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- The holes will be drilled by T-40 ‘’top hammer’’ drills. The diameter of the holes will vary from 2'' to 4'' depend on the needs.

Protection

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- The size of the blats will be designed to ensure the stability of the roc faces. The blasts will be protected by heavy rubber mattress to avoid rock projections. The firing sequence will be made one hole at a time to minimize vibrations in the ground.

Firing procedure

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- The steps required to ignite the blast are as follows:
  - First, blasters must fetch the explosives from the explosives site using of a specialized vehicle. Once on the scene of the blasting zone, the blasters or the foreman must erect a safety perimeter using signs and / or cones. Anyone wishing to enter the blasting area must have previously obtained the authorization of the blasting manager. In addition, anyone entering the blasting area must have their general explosives permit. The rest of the operations will then proceed as follows:

Firing procedure

- Before blasting a mass with a final excavation surface of more than 10m high, the final excavation surface of the previous blasting as well as the next blast rock cuts must have been inspected and validated. Before starting a new bench a stability study should be achieved.

Firing procedure

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- A verification of the depth of the drill holes is carried out before the start of the load when it is a final raft.
- A check of the collars is made using a tamper.
- The collar made of crushed stone is put in place to confine the area to dynamite and avoid projections.
- The blasters pick up all the unused products and
- Store in the explosive transportation vehicle.
- Before the final connection of the blast, the security fence will be removed.

Firing procedure

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- As soon as the blast is connected, except for the electric detonator assembly at the firing line, the blaster (s) warn the foreman.
- The blaster must complete his shooting log and his shooting sequence after each blast.
- Before giving the firing order, a verification, inspection and review before blasting must be done.
- Blasting.
- When blasting, the blaster is at a minimum distance of 50 meters from the blast, in the opposite direction of fire and inside an excavator bucket or a blaster shelter.

Storage of explosives

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- For the storage of explosives, a warehouse is provided for explosives and another warehouse for detonators (changes may occur depending on site needs). These warehouses will comply with applicable laws regarding the storage of explosives. Deposits must be locked at all times. When a vehicle leaves the explosives storage area, the barrier must be closed to prevent intrusion. An inventory must be updated each time products are used. A verification of warehouses inventories must be carried out every week.

Storage of explosives

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- Explosives found after blasting will be taken to the storage site for explosives and will be disposed according to the manufacturer's recommendations.