

Arrowhead CO#1

Pre Construction

- 17 test borings done around the perimeter and within the building to determine the soil conditions for bearing of foundations. All of which were found to be acceptable.
- There were also 5 test pits dug to determine infiltration rates in the areas of the storm basins.

Construction Process – Testing

- Hillis Carnes is the Geotechnical Engineer who Methacton engages to handle material testing.
- Hillis-Carnes has been performing on site Testing since the beginning of February and the testing will be ongoing throughout the excavation and foundation period.

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Reason for the Change Order

- The reason for the change order is the impact of the large amount of rain followed by 8" of snow followed by 2" of rain.
- As part of the testing, the soil moisture was found to be unsuitable. The unsuitable soil is a condition created by moisture. When excessive amount of moisture engages this particular soil, it prevents the soil from binding and meeting the compaction required. While the ground is drying out the forecast for more rain will further delay the drying out process.
- On good weather days, the contractor scarifies the top of the soil so the air will dry it out. When rain is forecast they roll the soil to compact and smooth out the top surface of the soil and provide a 2% slope to the back of the site so any rain fall will run across to the storm basin.

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Options

- **Option 1** – Mix concrete into the soil, hardening the soil.
 - Pro – Process is the quickest and more cost effective solution, with no long term impacts to the environment.
 - Con – Cost for the process is \$75,700.00.
- **Option 2** – Scrape roughly 12" of soil, store it on the site, roughly 81 dump trucks.
 - Pro – Could be shorter than option 1.
 - Con – Have to eventually move the 81 dump trucks of soil from site, which will require a clean fill cert.
 - Con – There is no guarantee that removal of 12" of dirt will be sufficient to pass the moisture test.
 - Con – Cost for the process, excluding the disposal of the removed soil, is \$95,976.00.
- **Option 3** – The contractor continues to scarify the top of the soil so the air will dry it out. When rain is forecasted they roll the soil to compact and smooth out the top surface of the soil and provide a 2% slope to the back of the site so any rain fall will run across to the storm basin.
 - Pro – No cost other than time.
 - Con – The time it will take for the soil to dry and dependency on good weather.

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Recommendation

Given the existing conditions, Option 1 of the Change Order request is the best option. This removes the burden of removing the soil from the site, or keeping it on site until a clean fill cert is obtained. It also removes most of the weather dependency.