Ottawa F-65 Sand Characterization
Soil Index Properties Summary

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5. Maximum dry density, $\rho_{d\text{ max}}$
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1. Specific gravity of solids, $G_s$

- The selected value is:

$$G_s = 2.65$$

- Value obtained using the ASTM D854 – 14 method. The selected values is the average value of 2 measurements.
2. Grain size distributions

Values obtained using the ASTM D422 − 63 method. The selected values are the average value from 2 tests.

USCS=SP
% Fines=0.17%
$C_u=1.61$
$C_c=0.96$

(PB, 2016)
3. Minimum dry density, $\rho_{d \, \text{min}}$

- The selected values is:

$$\rho_{d \, \text{min}} = 1446 \, \text{kg/m}^3$$

- Value obtained using the ASTM D 4254 – 00 method and using the pluviation calibration mold, which has the same dimensions as the DSS confinement rings and bottom cap assembly. The selected value is the average value of 9 measurements.
4. Maximum void ratio, $e_{\text{max}}$

- The selected value is:

$$e_{\text{max}} = 0.83$$

- Value obtained from the selected values of $G_s$ and $\rho_{d\text{ min}}$. 

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Parra Bastidas (2016)
5. Maximum dry density, $\rho_{d\text{ max}}$

- The selected value is:

  $\rho_{d\text{ max}} = 1759 \text{ kg/m}^3$

- Value obtained the JIS A 1224 method, and using a steel mold with the dimensions as required by the JIS standard. The selected value is the average value of 3 measurements.
6. Minimum void ratio, $e_{\text{min}}$

- The selected values is:

  \[ e_{\text{min}} = 0.51 \]

- Value obtained from the selected values of $G_s$ and $\rho_{d\text{ max}}$. 
7. Hydraulic conductivity, $k$

<table>
<thead>
<tr>
<th>Density descriptor</th>
<th>Dry density $q_d$ (kg/m$^3$)</th>
<th>Hydraulic conductivity, $k_{at}$ at 20°C (cm/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(--)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loose specimen</td>
<td>1480</td>
<td>0.022</td>
</tr>
<tr>
<td>Dense specimen</td>
<td>1722</td>
<td>0.016</td>
</tr>
</tbody>
</table>

Values obtained using the ASTM D2434-68 constant head permeability test method, and by selecting the tests results from the loosest and densest tested specimens. Each test result is the average value of 9 measurements, which correspond to 3 measurements using three different hydraulic gradients per test.
Questions?
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