



## **Appendix II**

# **Laboratory Testing on Soil, Rock and Groundwater**



## **APPENDIX II**

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# **Laboratory Testing of Soil, Rock and Groundwater**

### **List of Standards for Soil or Rock Testing**

#### **Laboratory Testing of Soil:**

**Grain Size Distribution**

**Atterberg Limits**

**Modified Proctor Tests**

**CBR Tests**

#### **Laboratory Testing of Rock:**

**Petrographic Examination**

**Swelling Potential / Petrographic Index**

#### **Laboratory Analyses of Groundwater**

## List of Standards

| Type                     | Designation                         | ASTM Standards | NQ/BNQ Standards             | LC Standards |
|--------------------------|-------------------------------------|----------------|------------------------------|--------------|
| Subsurface Investigation | Core drilling                       | D 2113         |                              |              |
|                          | Groundwater monitoring              | D 4750         |                              |              |
|                          | Soil sampling                       | D 4220         |                              |              |
|                          | SPT                                 | D 1586         | 2501-140                     |              |
|                          | Dynamic cone penetration            |                | 2501-145                     |              |
| Soil Testing             | Atterberg's Limits                  | D 4318         | 2501-090, 2501-092           |              |
|                          | CBR / California Bearing Ratio      | D 1883         |                              |              |
|                          | Classification of soils             | D 2487         |                              |              |
|                          | Description of soils                | D 2488         |                              |              |
|                          | Grain size analysis (sedimentation) | D 422          | 2501-025                     |              |
|                          | Grain size analysis (sieving)       | D 1140         | 2501-025                     | 21-040       |
|                          | Modified Proctor Density            | D 1557         | 2501-250/251                 |              |
| Moisture content         | D 2216                              |                | 21-200, 21-201               |              |
| Rock Testing             | Compressive strength                | D 2938         |                              |              |
|                          | Pyrite detection                    | C 295, C 956   | 2560-500, 2560-510, 2560-900 |              |



# GRAIN SIZE DISTRIBUTION

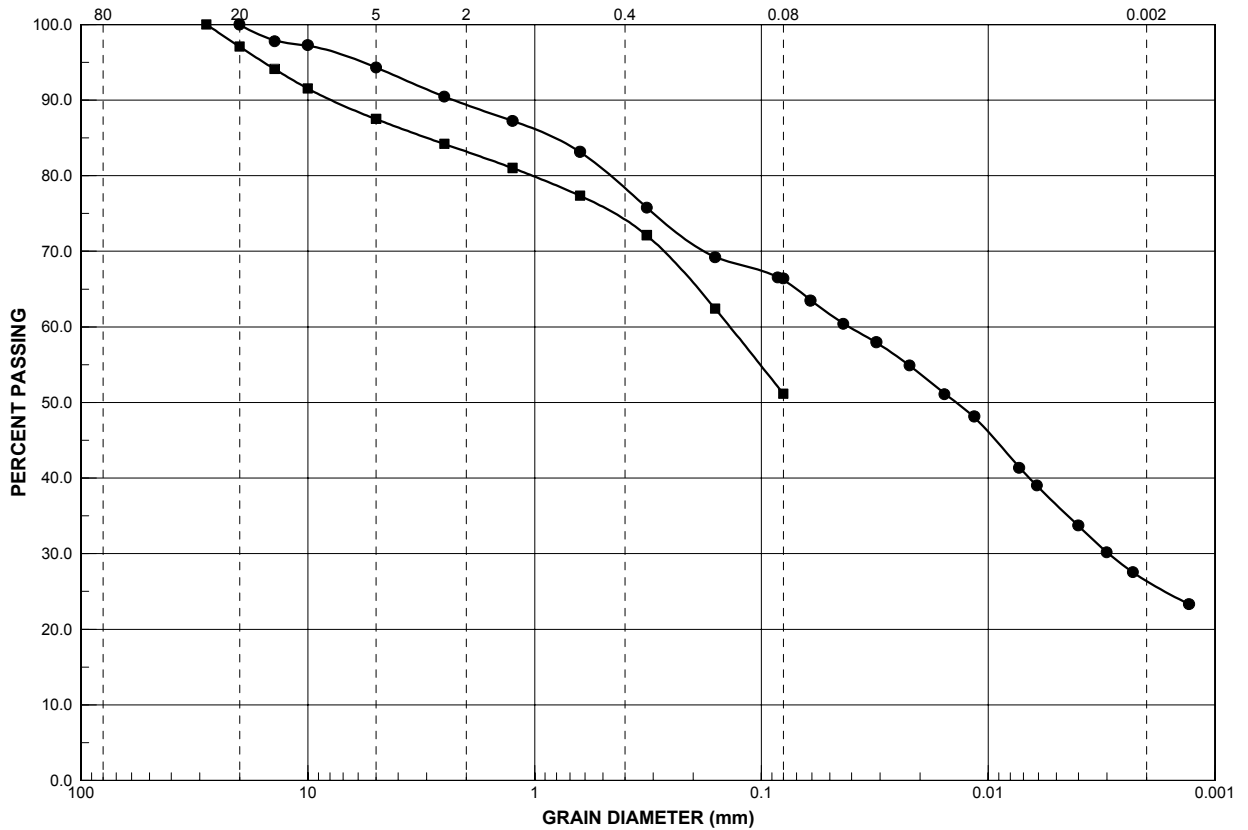
Appendix : II Figure : 1

Project : Rabaska Project (Phase 2), Levis, Quebec  
West Option Site

File No : T-1050-B (603333-KELL)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 5.7        | 28.1     | 66.2               |
| ■—■    | 12.5       | 36.4     | 51.1               |

| LEGEND | 20mm | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10 | D30    | D60    | Cu  | Cc  |
|--------|------|------|------|-------|--------|---------|-----|--------|--------|-----|-----|
| ●—●    | 99.9 | 94.3 | 89.4 | 78.4  | 66.2   | 26.4    | N/A | 0.0030 | 0.0433 | N/A | N/A |
| ■—■    | 97.1 | 87.5 | 83.2 | 74.2  | 51.1   | N/A     | N/A | N/A    | 0.1404 | N/A | N/A |

| LEGEND | SOUNDING  | SAMPLE | DEPTH. (m) | DESCRIPTION                            | W (%) |
|--------|-----------|--------|------------|--|-------|
| ●—●    | BH-101-05 | SS-3   | 1.5 - 2.1  | Sandy and clayey silt, trace of gravel | 15.8  |
| ■—■    | BH-101-05 | SS-10  | 6.9 - 7.5  | Silt and sand, some gravel             | 12.6  |



# GRAIN SIZE DISTRIBUTION

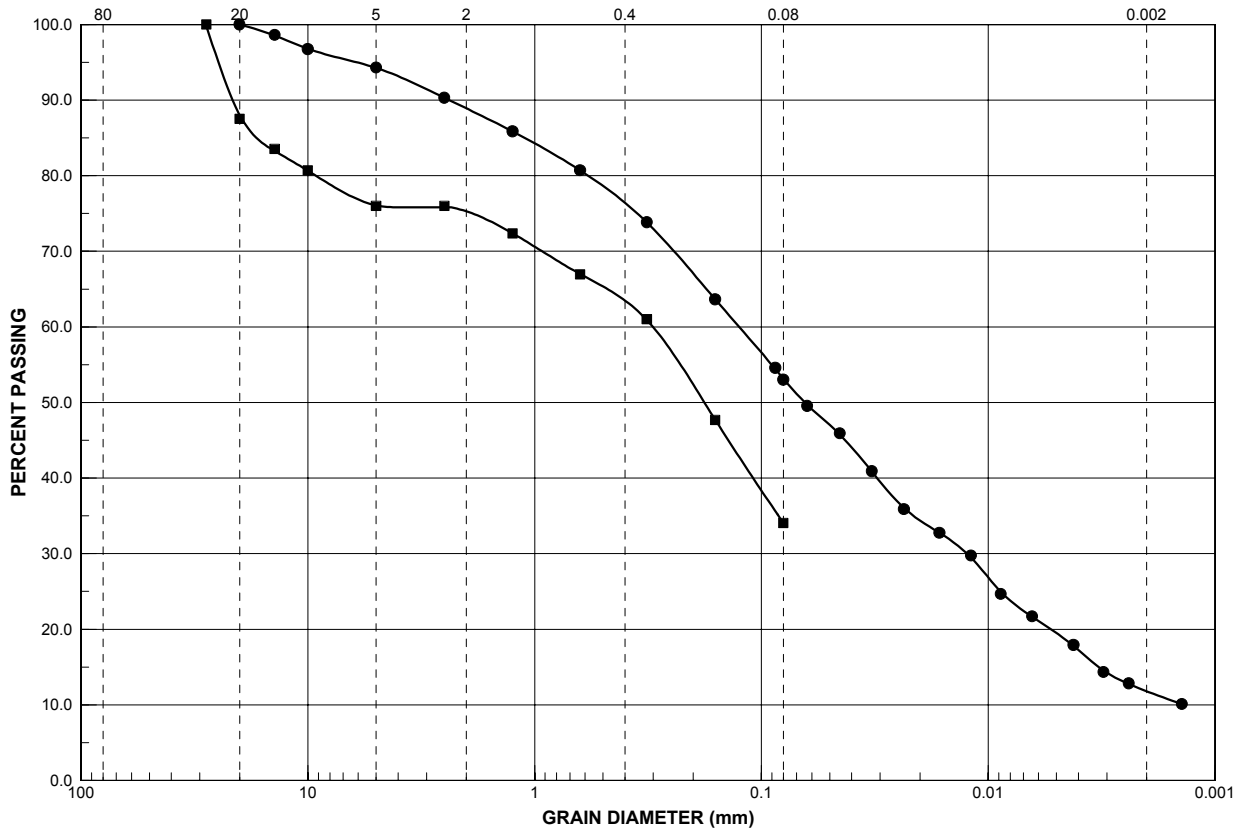
Appendix : II Figure : 2

Project : Rabaska Project (Phase 2), Levis, Quebec  
West Option Site

File No : T-1050-B (603333-KELL)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 5.7        | 41.1     | 53.1               |
| ■—■    | 23.9       | 42.1     | 34.0               |

| LEGEND | 20mm  | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10 | D30    | D60    | Cu  | Cc  |
|--------|-------|------|------|-------|--------|---------|-----|--------|--------|-----|-----|
| ●—●    | 100.0 | 94.3 | 88.9 | 76.4  | 53.1   | 11.8    | N/A | 0.0129 | 0.1314 | N/A | N/A |
| ■—■    | 88.0  | 76.1 | 75.3 | 63.5  | 34.0   | N/A     | N/A | N/A    | 0.3029 | N/A | N/A |

| LEGEND | SOUNDING  | SAMPLE | DEPTH. (m) | DESCRIPTION                    | W (%) |
|--------|-----------|--------|------------|--------------------------------|-------|
| ●—●    | BH-102-05 | SS-4   | 2.3 - 2.9  | Silt and sand, trace of gravel | 11.4  |
| ■—■    | BH-102-05 | SS-9   | 6.1 - 6.4  | Sand and silt, some gravel     | 7.8   |



# GRAIN SIZE DISTRIBUTION

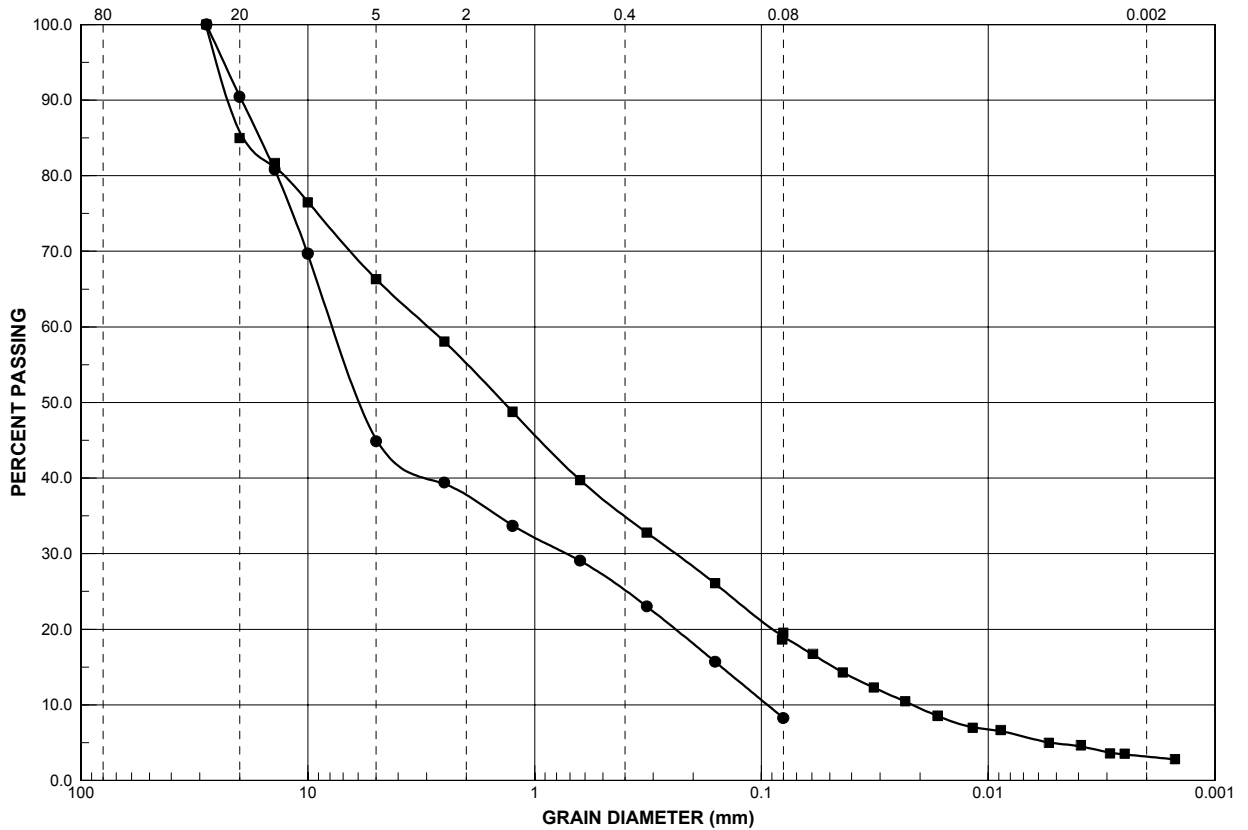
Appendix : II Figure : 3

Project : Rabaska Project (Phase 2), Levis, Quebec  
West Option Site

File No : T-1050-B (603333-KELL)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 54.9       | 36.9     | 8.2                |
| ■—■    | 33.7       | 47.3     | 19.0               |

| LEGEND | 20mm | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10    | D30    | D60    | Cu      | Cc    |
|--------|------|------|------|-------|--------|---------|--------|--------|--------|---------|-------|
| ●—●    | 90.5 | 45.1 | 37.8 | 25.2  | 8.2    | N/A     | 0.0955 | 0.7358 | 7.8462 | 82.125  | 0.722 |
| ■—■    | 85.8 | 66.3 | 55.2 | 34.9  | 19.0   | 3.1     | 0.0219 | 0.2500 | 2.9954 | 136.626 | 0.952 |

| LEGEND | SOUNDING  | SAMPLE | DEPTH. (m) | DESCRIPTION                 | W (%) |
|--------|-----------|--------|------------|-----------------------------|-------|
| ●—●    | BH-103-05 | SS-3   | 1.5 - 2.1  | Sandy gravel, trace of silt | 11.0  |
| ■—■    | BH-103-05 | SS-7   | 4.6 - 5.2  | Sand and gravel, some silt  | 8.4   |



# GRAIN SIZE DISTRIBUTION

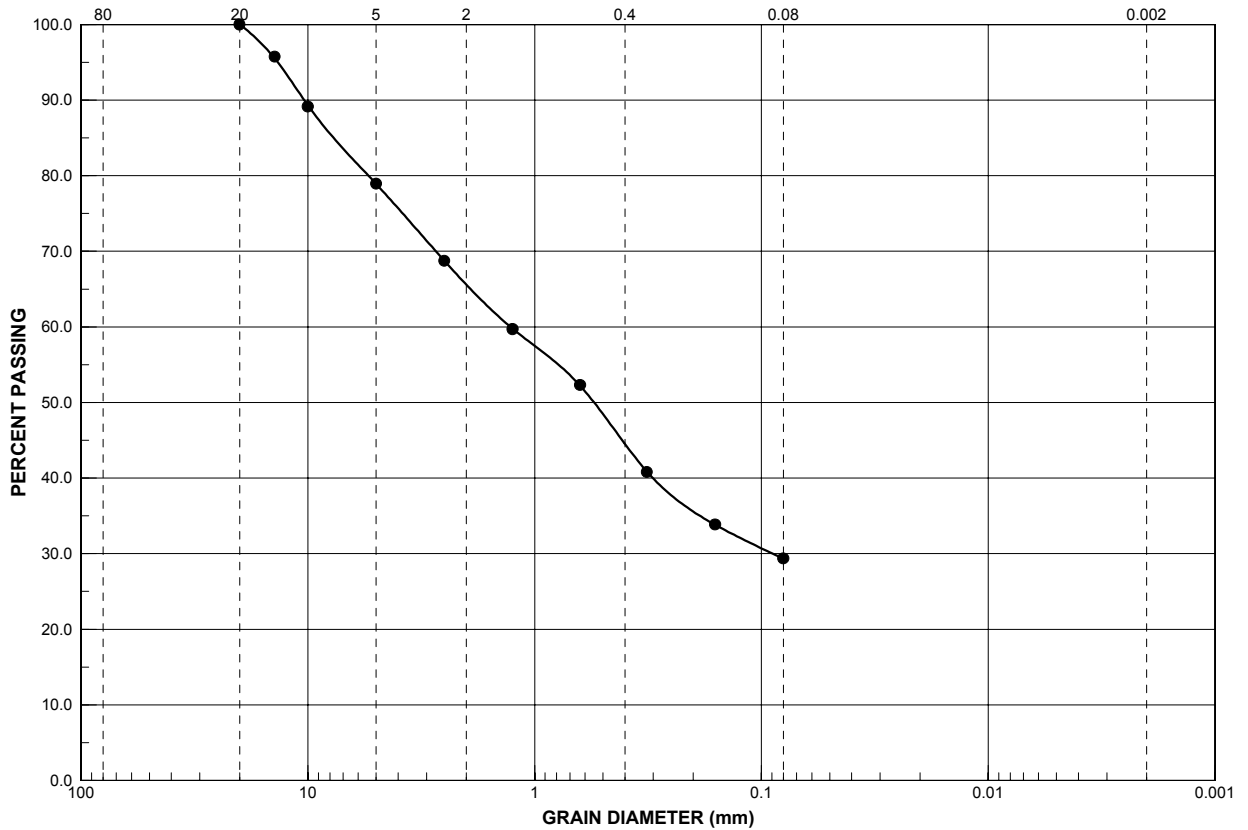
Appendix : II Figure : 4

Project : Rabaska Project (Phase 2), Levis, Quebec  
West Option Site

File No : T-1050-B (603333-KELL)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 21.1       | 49.6     | 29.3               |

| LEGEND | 20mm  | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10 | D30    | D60    | Cu  | Cc  |
|--------|-------|------|------|-------|--------|---------|-----|--------|--------|-----|-----|
| ●—●    | 100.0 | 78.9 | 65.6 | 44.5  | 29.3   | N/A     | N/A | 0.0920 | 1.3007 | N/A | N/A |

| LEGEND | SOUNDING  | SAMPLE | DEPTH. (m) | DESCRIPTION             | W (%) |
|--------|-----------|--------|------------|-------------------------|-------|
| ●—●    | BH-104-05 | SS-5   | 3.0 - 3.7  | Gravelly and silty sand | 11.6  |



# GRAIN SIZE DISTRIBUTION

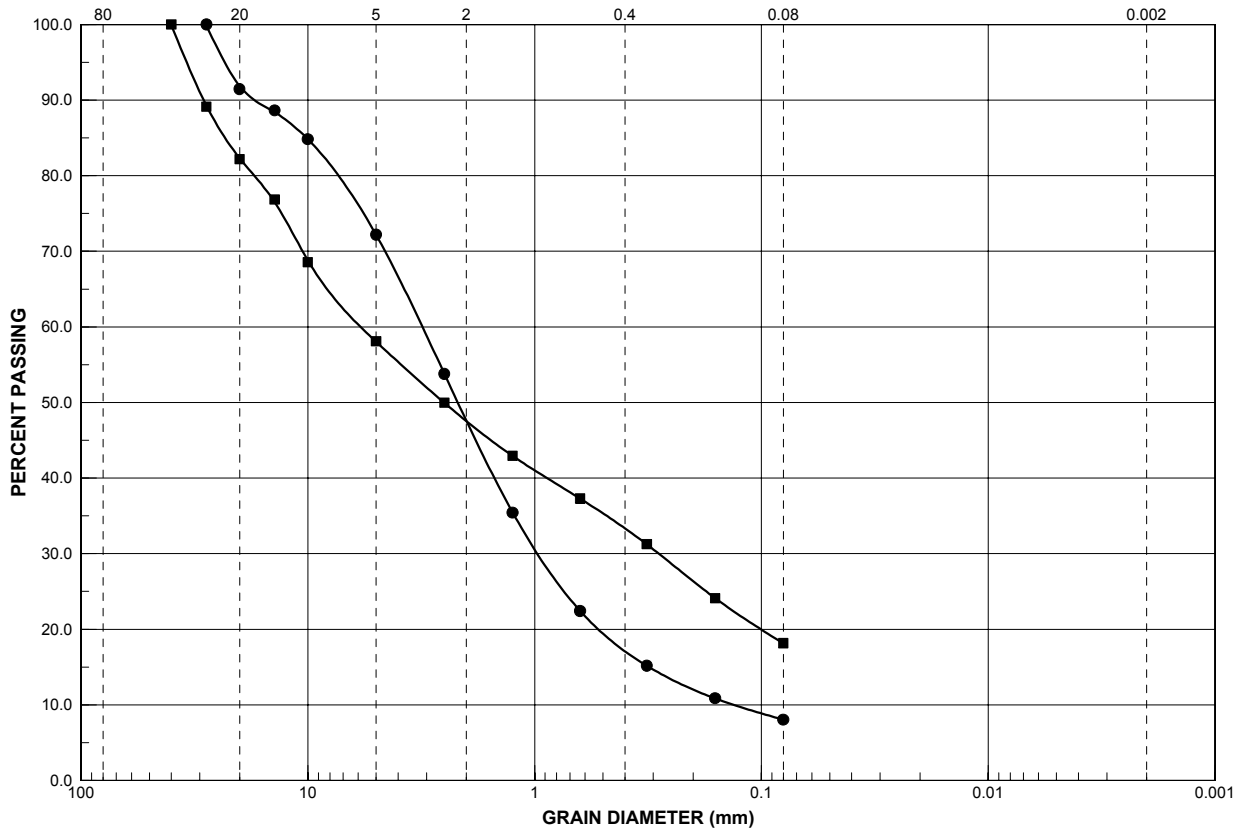
Appendix : II Figure : 5

Project : Rabaska Project (Phase 2), Levis, Quebec  
West Option Site

File No : T-1050-B (603333-KELL)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 27.8       | 64.1     | 8.0                |
| ■—■    | 42.0       | 39.9     | 18.1               |

| LEGEND | 20mm | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10    | D30    | D60    | Cu     | Cc    |
|--------|------|------|------|-------|--------|---------|--------|--------|--------|--------|-------|
| ●—●    | 91.9 | 72.2 | 47.6 | 17.1  | 8.0    | N/A     | 0.1363 | 0.9891 | 3.1358 | 23.013 | 2.290 |
| ■—■    | 82.3 | 58.0 | 47.5 | 33.4  | 18.1   | N/A     | N/A    | 0.2897 | 5.8960 | N/A    | N/A   |

| LEGEND | SOUNDING  | SAMPLE | DEPTH. (m) | DESCRIPTION                  | W (%) |
|--------|-----------|--------|------------|------------------------------|-------|
| ●—●    | BH-106-05 | SS-3   | 1.5 - 2.1  | Gravelly sand, trace of silt | 10.3  |
| ■—■    | BH-106-05 | SS-8   | 5.3 - 5.9  | Sand and gravel, some silt   | 8.5   |





# GRAIN SIZE DISTRIBUTION

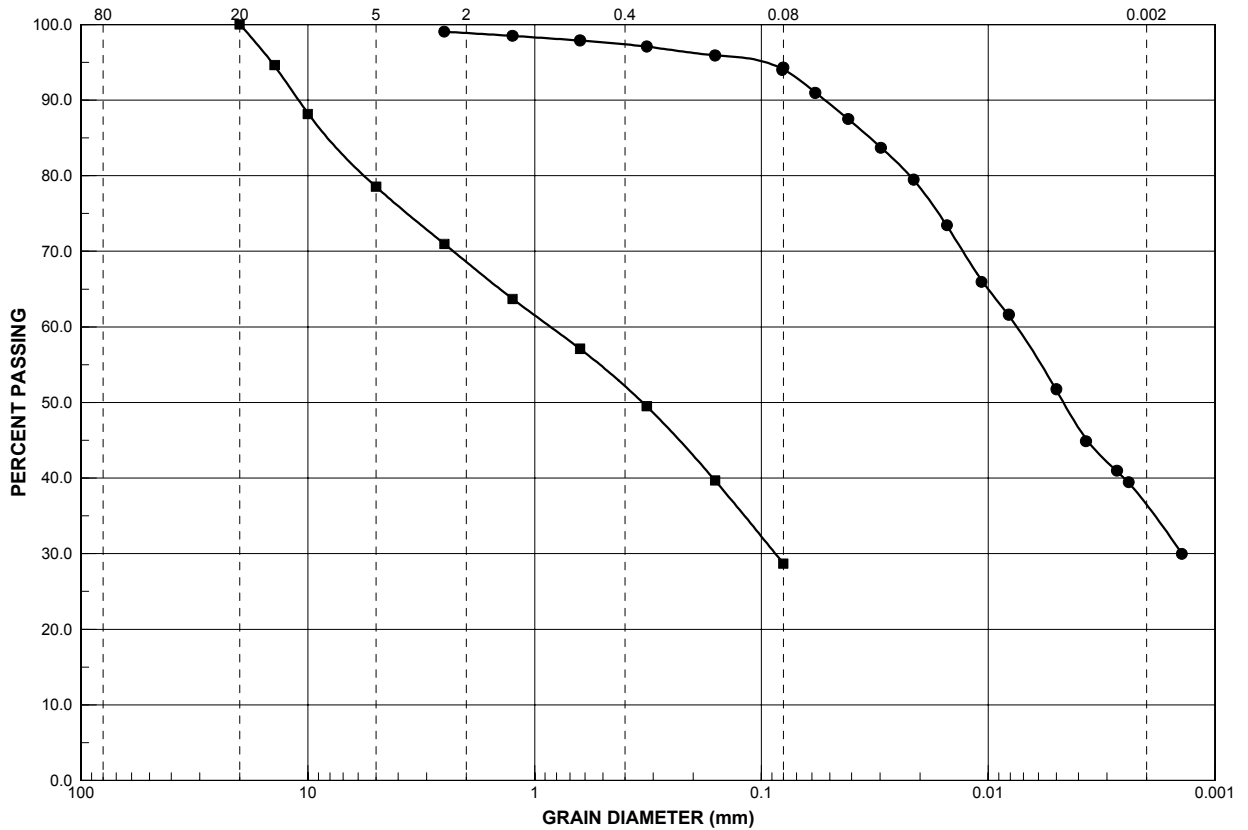
Appendix : II Figure : 6

Project : Rabaska Project (Phase 2), Levis, Quebec  
West Option Site

File No : T-1050-B (603333-KELL)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 0.4        | 5.5      | 94.0               |
| ■—■    | 21.5       | 49.8     | 28.7               |

| LEGEND | 20mm  | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10 | D30    | D60    | Cu  | Cc  |
|--------|-------|------|------|-------|--------|---------|-----|--------|--------|-----|-----|
| ●—●    | N/A   | N/A  | 98.9 | 97.4  | 94.0   | 36.5    | N/A | 0.0015 | 0.0077 | N/A | N/A |
| ■—■    | 100.0 | 78.5 | 68.6 | 52.2  | 28.7   | N/A     | N/A | 0.0894 | 0.8803 | N/A | N/A |

| LEGEND | SOUNDING  | SAMPLE | DEPTH. (m) | DESCRIPTION             | W (%) |
|--------|-----------|--------|------------|-------------------------|-------|
| ●—●    | BH-107-05 | SS-4   | 2.3 - 2.9  | Clayey silt             | 20.5  |
| ■—■    | BH-107-05 | SS-8   | 5.3 - 5.9  | Silty and gravelly sand | 11.2  |



# GRAIN SIZE DISTRIBUTION

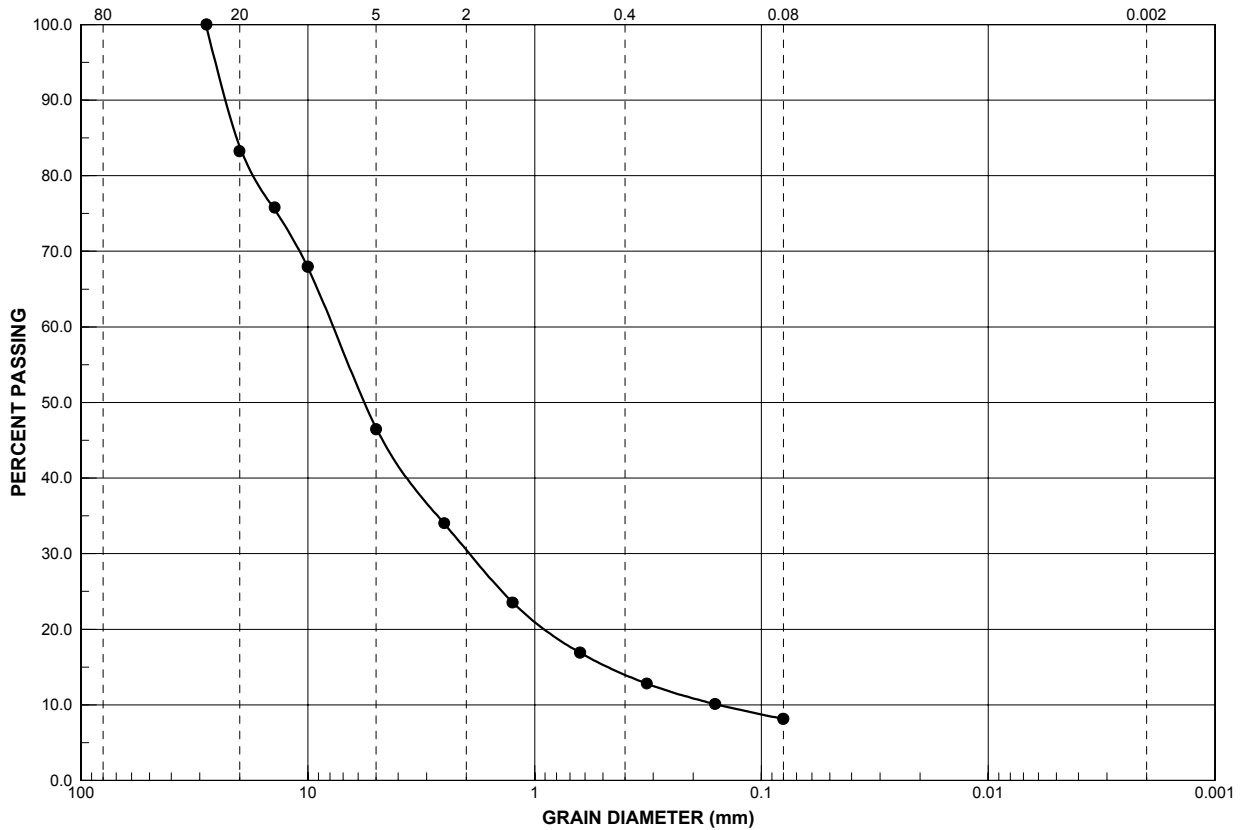
Appendix : II Figure : 7

Project : Rabaska Project (Phase 2), Levis, Quebec  
West Option Site

File No : T-1050-B (603333-KELL)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 53.4       | 38.5     | 8.1                |

| LEGEND | 20mm | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10    | D30    | D60    | Cu     | Cc    |
|--------|------|------|------|-------|--------|---------|--------|--------|--------|--------|-------|
| ●—●    | 83.9 | 46.6 | 30.5 | 14.0  | 8.1    | N/A     | 0.1580 | 1.9533 | 7.8462 | 49.664 | 3.078 |

| LEGEND | SOUNDING  | SAMPLE | DEPTH. (m) | DESCRIPTION                    | W (%) |
|--------|-----------|--------|------------|--------------------------------|-------|
| ●—●    | BH-108-05 | SS-9   | 5.9 - 6.4  | Gravel and sand, trace of silt | 11.8  |



# GRAIN SIZE DISTRIBUTION

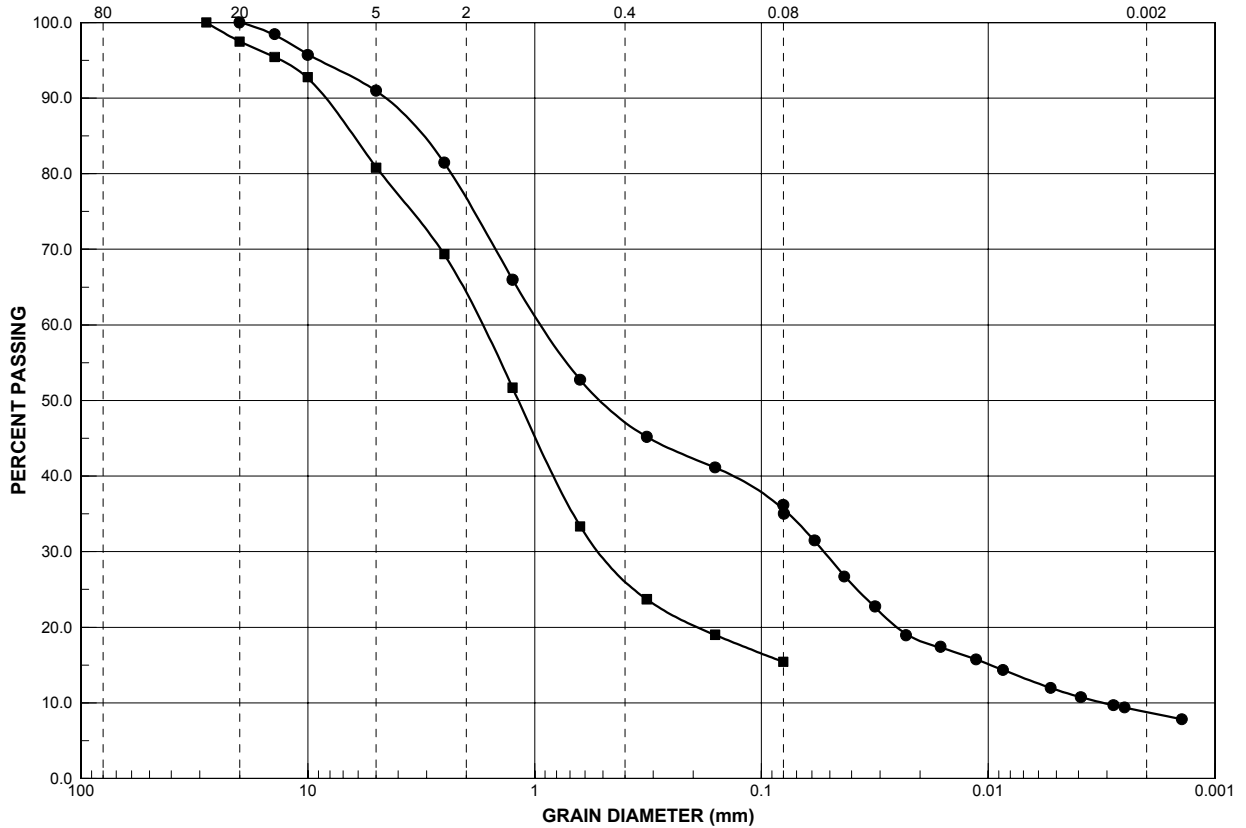
Appendix : II Figure : 8

Project : Rabaska Project (Phase 2), Levis, Quebec  
West Option Site

File No : T-1050-B (603333-KELL)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 9.1        | 55.3     | 35.6               |
| ■—■    | 19.1       | 65.5     | 15.4               |

| LEGEND | 20mm  | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10    | D30    | D60    | Cu      | Cc    |
|--------|-------|------|------|-------|--------|---------|--------|--------|--------|---------|-------|
| ●—●    | 100.0 | 90.9 | 76.8 | 47.1  | 35.6   | 8.8     | 0.0032 | 0.0551 | 0.9528 | 299.332 | 1.000 |
| ■—■    | 97.5  | 80.9 | 64.3 | 26.0  | 15.4   | N/A     | N/A    | 0.5314 | 1.7353 | N/A     | N/A   |

| LEGEND | SOUNDING  | SAMPLE | DEPTH. (m) | DESCRIPTION                    | W (%) |
|--------|-----------|--------|------------|--------------------------------|-------|
| ●—●    | BH-109-05 | SS-3   | 1.5 - 2.1  | Sand and silt, trace of gravel | 14.5  |
| ■—■    | BH-109-05 | SS-6   | 3.8 - 4.4  | Sand, some gravel and silt     | 9.4   |



# GRAIN SIZE DISTRIBUTION

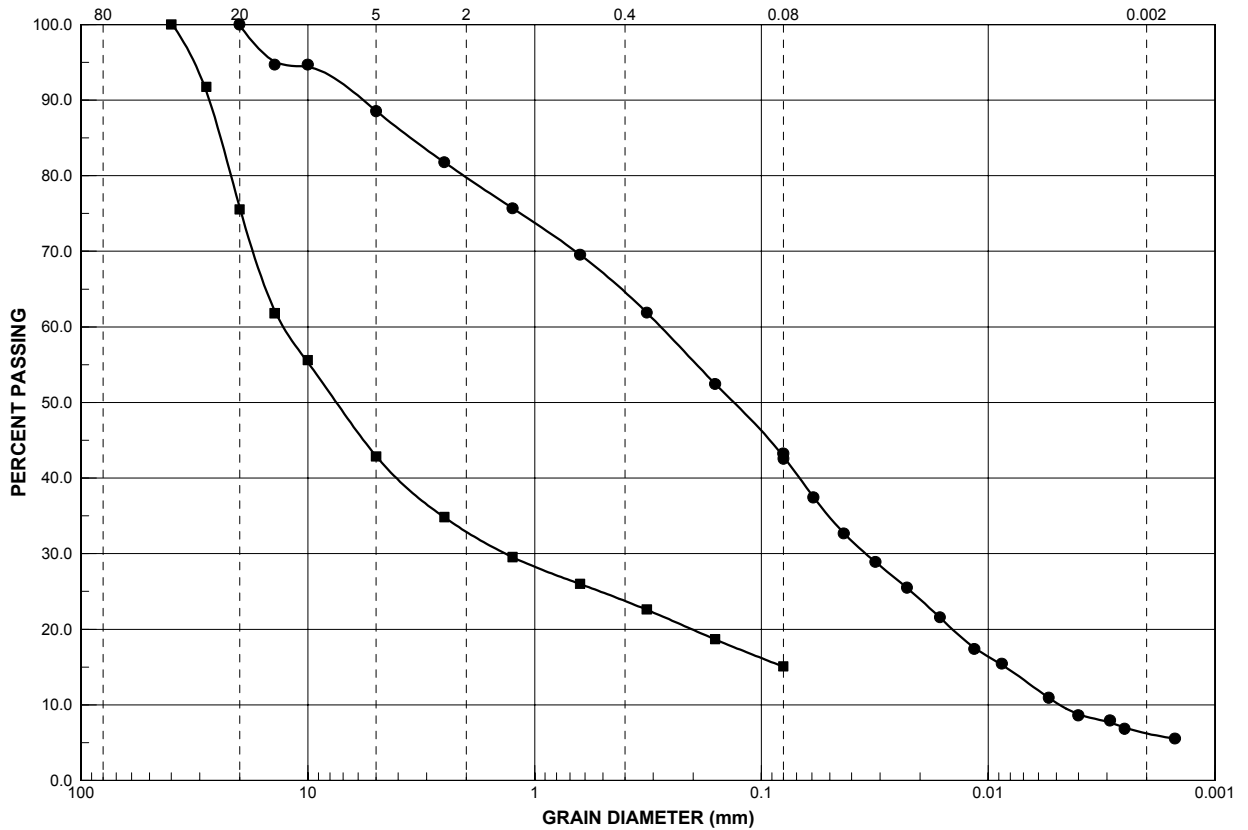
Appendix : II Figure : 9

Project : Rabaska Project (Phase 2), Levis, Quebec  
West Option Site

File No : T-1050-B (603333-KELL)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 11.4       | 45.7     | 42.8               |
| ■—■    | 57.1       | 27.9     | 15.0               |

| LEGEND | 20mm | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10    | D30    | D60     | Cu     | Cc    |
|--------|------|------|------|-------|--------|---------|--------|--------|---------|--------|-------|
| ●—●    | 99.8 | 88.6 | 79.8 | 64.6  | 42.8   | 6.2     | 0.0050 | 0.0356 | 0.2798  | 56.231 | 0.908 |
| ■—■    | 75.8 | 42.9 | 32.9 | 23.7  | 15.0   | N/A     | N/A    | 1.3916 | 12.9222 | N/A    | N/A   |

| LEGEND | SOUNDING  | SAMPLE | DEPTH. (m) | DESCRIPTION                | W (%) |
|--------|-----------|--------|------------|----------------------------|-------|
| ●—●    | BH-110-05 | SS-5   | 2.7 - 3.4  | Sand and silt, some gravel | 9.2   |
| ■—■    | BH-110-05 | SS-7   | 4.3 - 4.9  | Sandy gravel, some silt    | 8.3   |



# GRAIN SIZE DISTRIBUTION

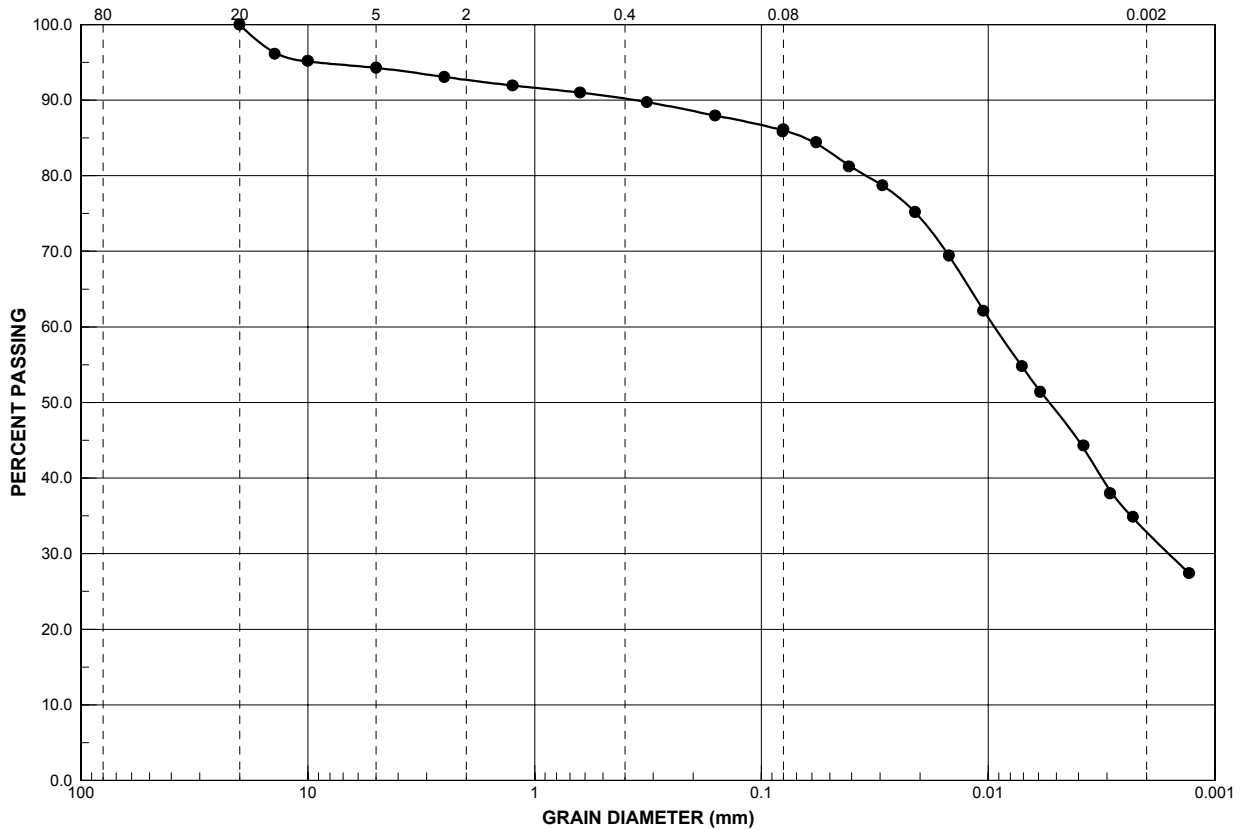
Appendix : II Figure : 10

Project : Rabaska Project (Phase 2), Levis, Quebec  
West Option Site

File No : T-1050-B (603333-KELL)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 5.7        | 8.3      | 86.0               |

| LEGEND | 20mm | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10 | D30    | D60    | Cu  | Cc  |
|--------|------|------|------|-------|--------|---------|-----|--------|--------|-----|-----|
| ●—●    | 99.9 | 94.3 | 92.7 | 90.2  | 86.0   | 32.8    | N/A | 0.0017 | 0.0096 | N/A | N/A |

| LEGEND | SOUNDING   | SAMPLE | DEPTH. (m) | DESCRIPTION                      | W (%) |
|--------|------------|--------|------------|----------------------------------|-------|
| ●—●    | BH-111A-05 | SS-6   | 3.5 - 4.1  | Silt, some clay, trace of gravel | 18.7  |



# GRAIN SIZE DISTRIBUTION

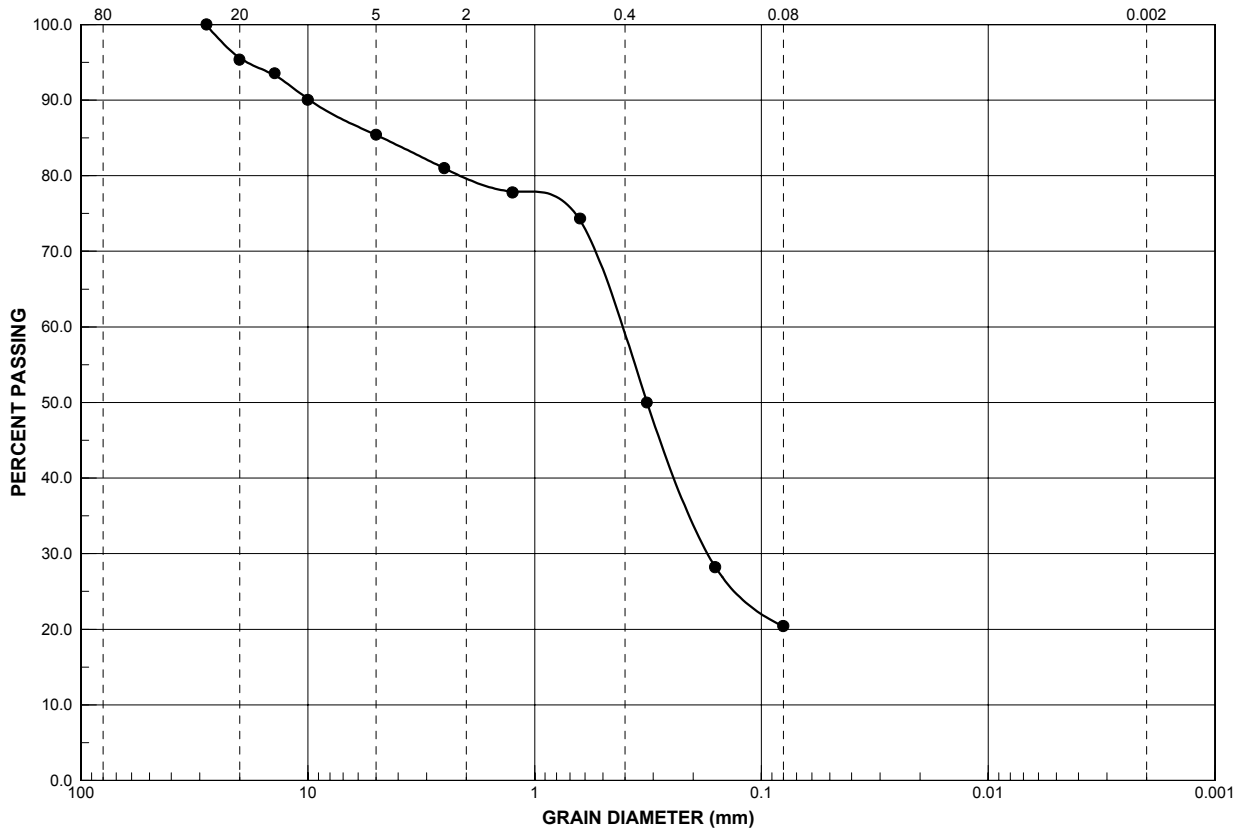
Appendix : II Figure : 11

Project : Rabaska Project (Phase 2), Levis, Quebec  
West Option Site

File No : T-1050-B (603333-KELL)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 14.6       | 65.0     | 20.3               |

| LEGEND | 20mm | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10 | D30    | D60    | Cu  | Cc  |
|--------|------|------|------|-------|--------|---------|-----|--------|--------|-----|-----|
| ●—●    | 95.6 | 85.4 | 79.6 | 59.2  | 20.3   | N/A     | N/A | 0.1778 | 0.4194 | N/A | N/A |

| LEGEND | SOUNDING   | SAMPLE | DEPTH. (m) | DESCRIPTION                | W (%) |
|--------|------------|--------|------------|----------------------------|-------|
| ●—●    | BH-116B-05 | SS-3   | 1.5 - 2.1  | Sand, some silt and gravel | 12.7  |



# GRAIN SIZE DISTRIBUTION

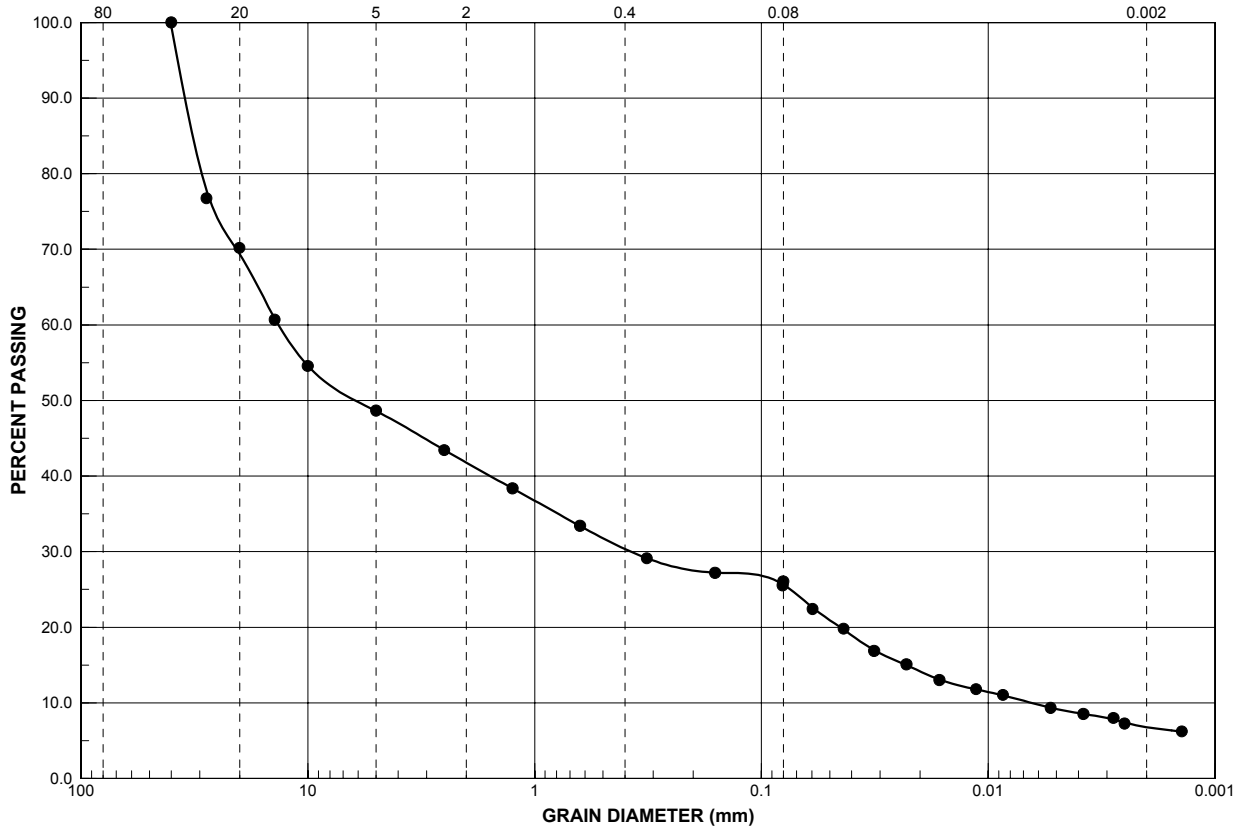
Appendix : II Figure : 12

Project : Rabaska Project (Phase 2), Levis, Quebec  
West Option Site

File No : T-1050-B (603333-KELL)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 51.4       | 22.9     | 25.6               |

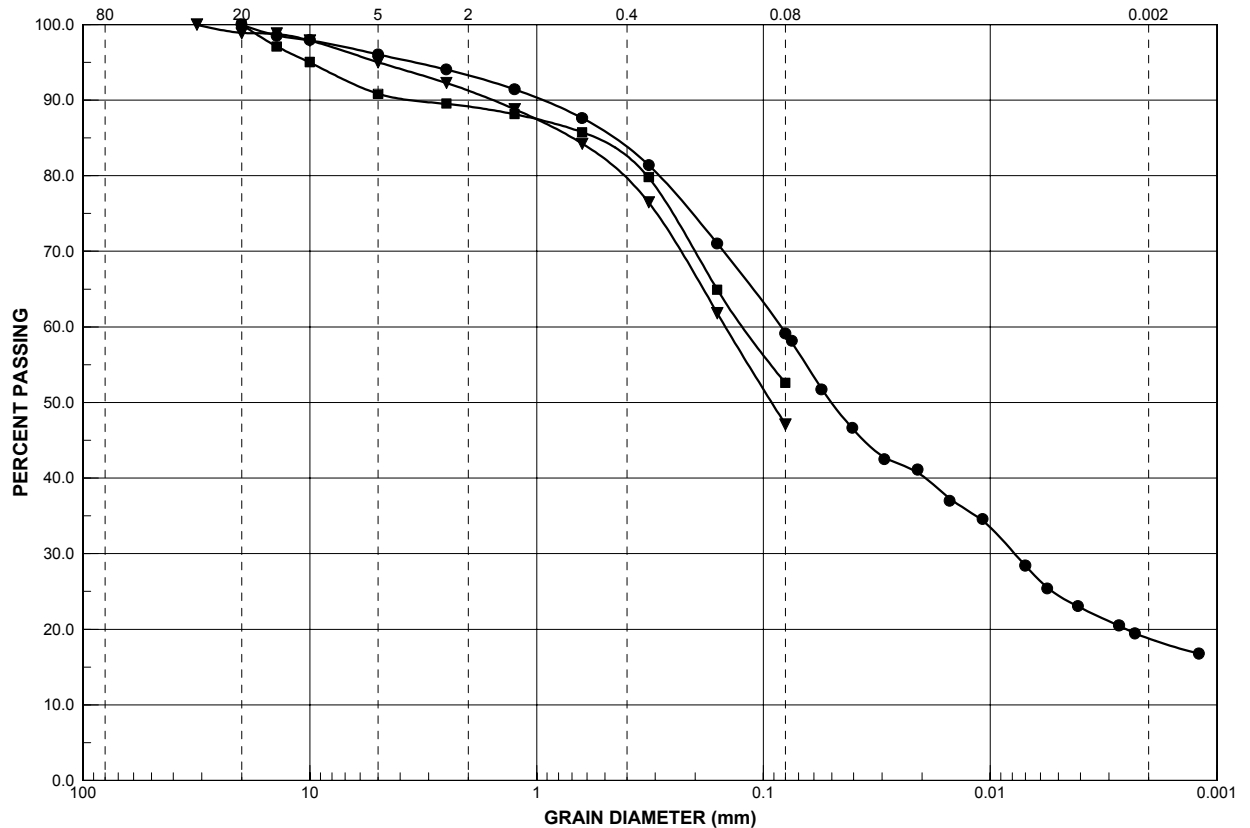
| LEGEND | 20mm | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10    | D30    | D60     | Cu       | Cc    |
|--------|------|------|------|-------|--------|---------|--------|--------|---------|----------|-------|
| ●—●    | 69.3 | 48.6 | 41.8 | 30.3  | 25.7   | 6.8     | 0.0066 | 0.3973 | 14.1895 | 2141.394 | 1.679 |

| LEGEND | SOUNDING   | SAMPLE | DEPTH. (m) | DESCRIPTION            | W (%) |
|--------|------------|--------|------------|------------------------|-------|
| ●—●    | BH-117B-05 | SS-5   | 3.0 - 3.7  | Silty and sandy gravel | 11.2  |

# GRAIN SIZE DISTRIBUTION

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 4.0        | 36.8     | 59.2               |
| ■—■    | 9.2        | 38.3     | 52.5               |
| ▼—▼    | 5.0        | 47.9     | 47.1               |

| LEGEND | 20mm  | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10 | D30    | D60    | Cu  | Cc  |
|--------|-------|------|------|-------|--------|---------|-----|--------|--------|-----|-----|
| ●—●    | 100.0 | 96.0 | 93.3 | 83.8  | 59.2   | 18.8    | N/A | 0.0081 | 0.0859 | N/A | N/A |
| ■—■    | 100.0 | 90.8 | 89.2 | 82.6  | 52.5   | N/A     | N/A | N/A    | 0.1250 | N/A | N/A |
| ▼—▼    | 98.9  | 95.0 | 91.3 | 79.7  | 47.1   | N/A     | N/A | N/A    | 0.1508 | N/A | N/A |

| LEGEND | SOUNDING  | SAMPLE | DEPTH. (m) | DESCRIPTION                                   | W (%) |
|--------|-----------|--------|------------|---|-------|
| ●—●    | BH-501-05 | SS-4   | 2.3 - 2.9  | Silt and sand, some clay, trace of gravel     | 14.1  |
| ■—■    | BH-501-05 | SS-7   | 4.6 - 5.2  | Silt and sand, trace of gravel, trace of clay | 11.5  |
| ▼—▼    | BH-501-05 | SS-10  | 6.9 - 7.5  | Silt and sand, trace of gravel, trace of clay | 10.4  |





# GRAIN SIZE DISTRIBUTION

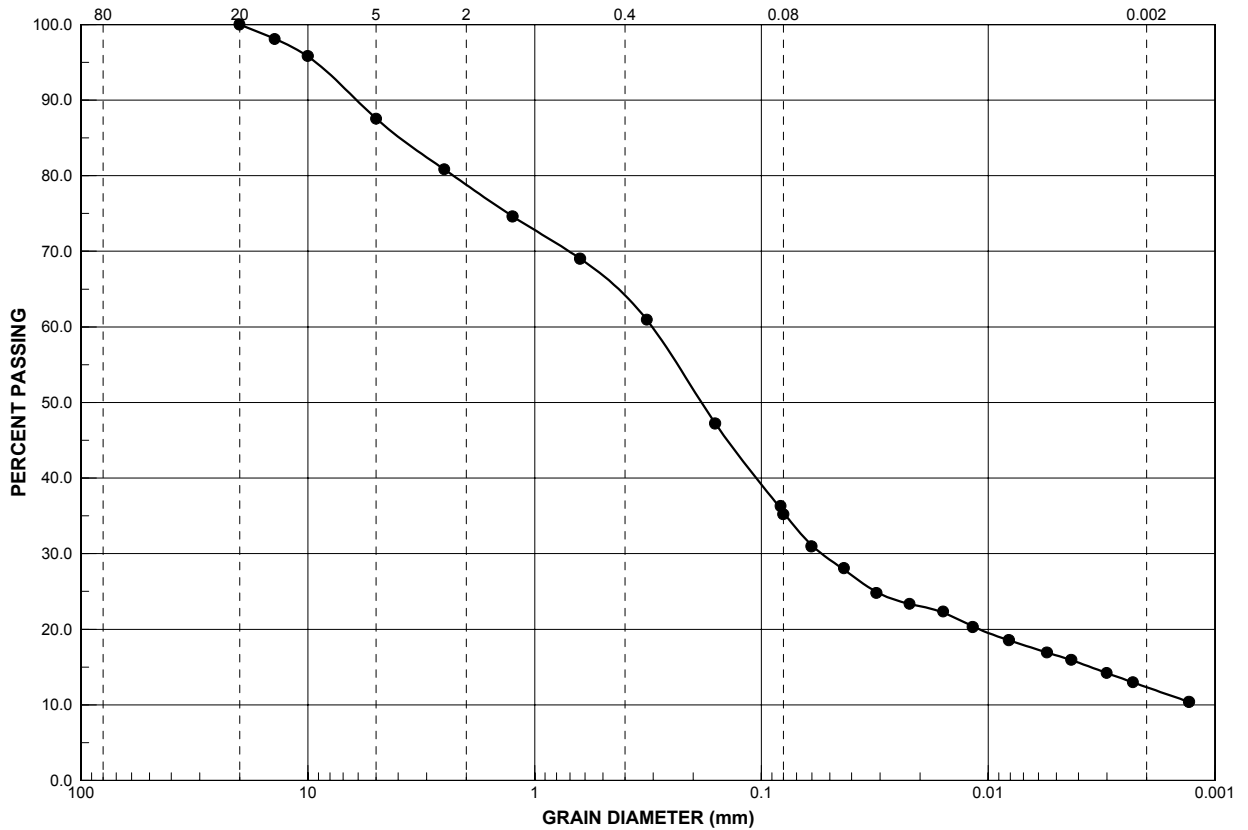
Appendix : II Figure : 14

Project : Rabaska Project (Phase 3), Levis, Quebec  
Levis, Quebec

File No : T-1050-C (604238)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 12.4       | 52.1     | 35.5               |

| LEGEND | 20mm  | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10 | D30    | D60    | Cu  | Cc  |
|--------|-------|------|------|-------|--------|---------|-----|--------|--------|-----|-----|
| ●—●    | 100.0 | 87.6 | 78.8 | 64.2  | 35.5   | 12.3    | N/A | 0.0552 | 0.3188 | N/A | N/A |

| LEGEND | SOUNDING  | SAMPLE | DEPTH. (m) | DESCRIPTION                        | W (%) |
|--------|-----------|--------|------------|------------------------------------|-------|
| ●—●    | BH-502-05 | SS-5   | 2.3 - 2.9  | Silty sand, some gravel, some clay | 9.6   |



# GRAIN SIZE DISTRIBUTION

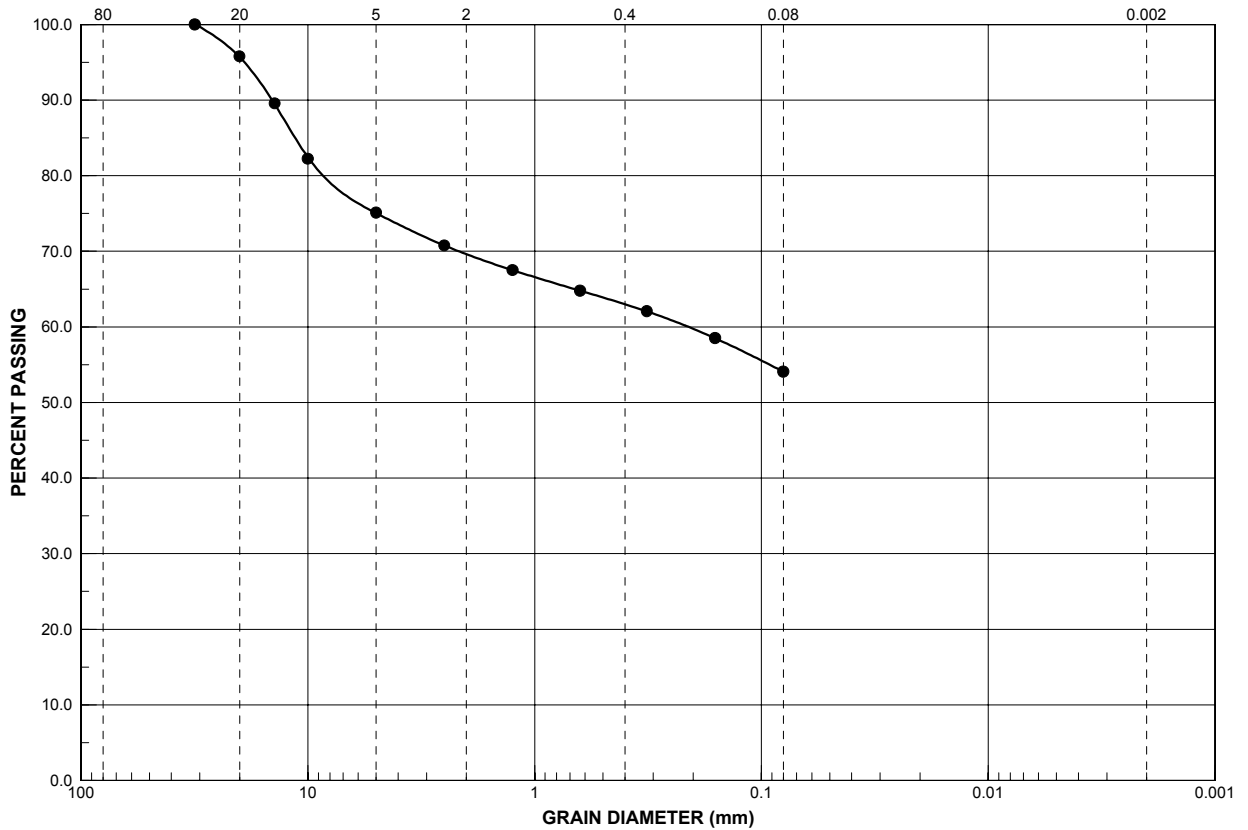
Appendix : II Figure : 15

Project : Rabaska Project (Phase 3), Levis, Quebec  
Levis, Quebec

File No : T-1050-C (604238)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 24.9       | 21.0     | 54.1               |

| LEGEND | 20mm | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10 | D30 | D60    | Cu  | Cc  |
|--------|------|------|------|-------|--------|---------|-----|-----|--------|-----|-----|
| ●—●    | 95.7 | 75.1 | 69.6 | 63.0  | 54.1   | N/A     | N/A | N/A | 0.2166 | N/A | N/A |

| LEGEND | SOUNDING  | SAMPLE | DEPTH. (m) | DESCRIPTION                            | W (%) |
|--------|-----------|--------|------------|--|-------|
| ●—●    | BH-503-05 | SS-5   | 3.0 - 3.7  | Gravelly and sandy silt, trace of clay | N/A   |



# GRAIN SIZE DISTRIBUTION

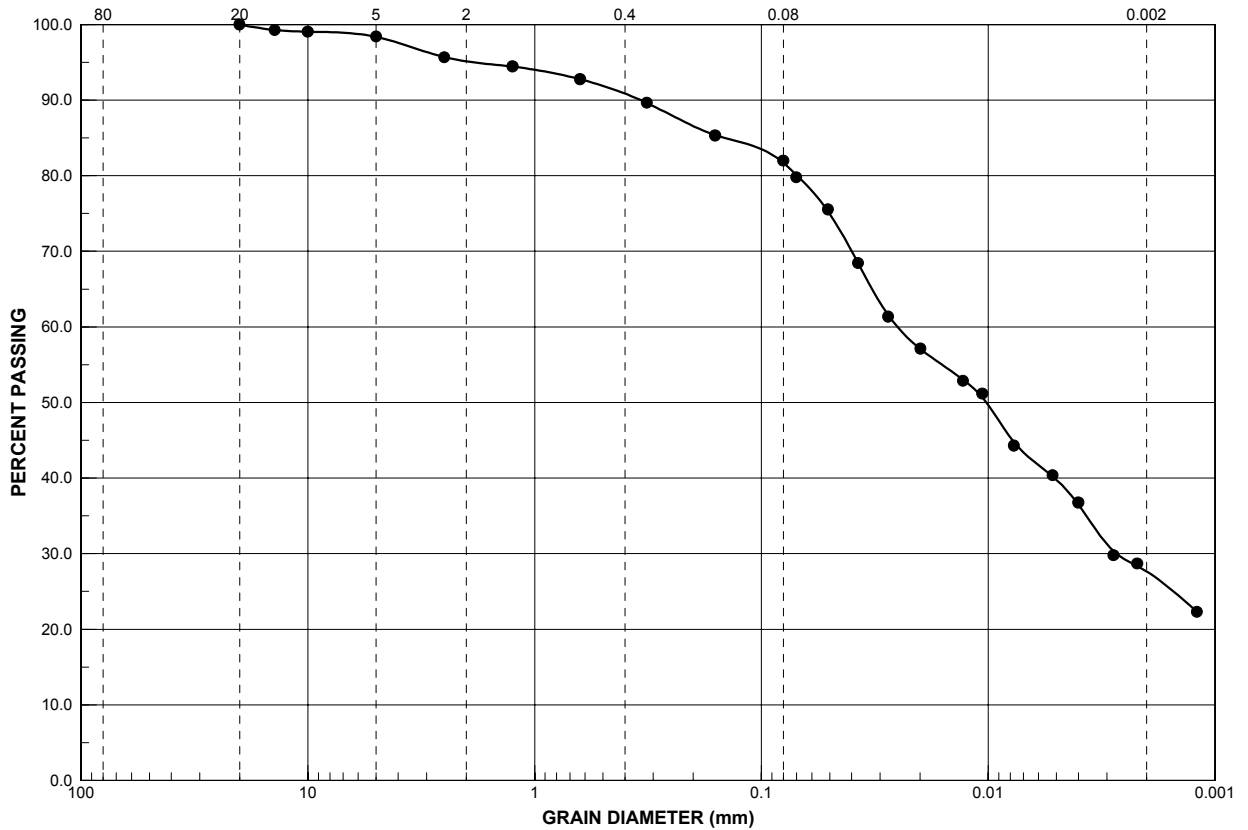
Appendix : II Figure : 16

Project : Rabaska Project (Phase 3), Levis, Quebec  
Levis, Quebec

File No : T-1050-C (604238)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 1.6        | 16.7     | 81.7               |

| LEGEND | 20mm  | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10 | D30    | D60    | Cu  | Cc  |
|--------|-------|------|------|-------|--------|---------|-----|--------|--------|-----|-----|
| ●—●    | 100.0 | 98.4 | 95.1 | 90.9  | 81.7   | 27.6    | N/A | 0.0028 | 0.0265 | N/A | N/A |

| LEGEND | SOUNDING  | SAMPLE | DEPTH. (m) | DESCRIPTION                             | W (%) |
|--------|-----------|--------|------------|---|-------|
| ●—●    | BH-504-05 | SS-1   | 0.0 - 0.6  | Clayey silt, some sand, trace of gravel | 19.7  |



# GRAIN SIZE DISTRIBUTION

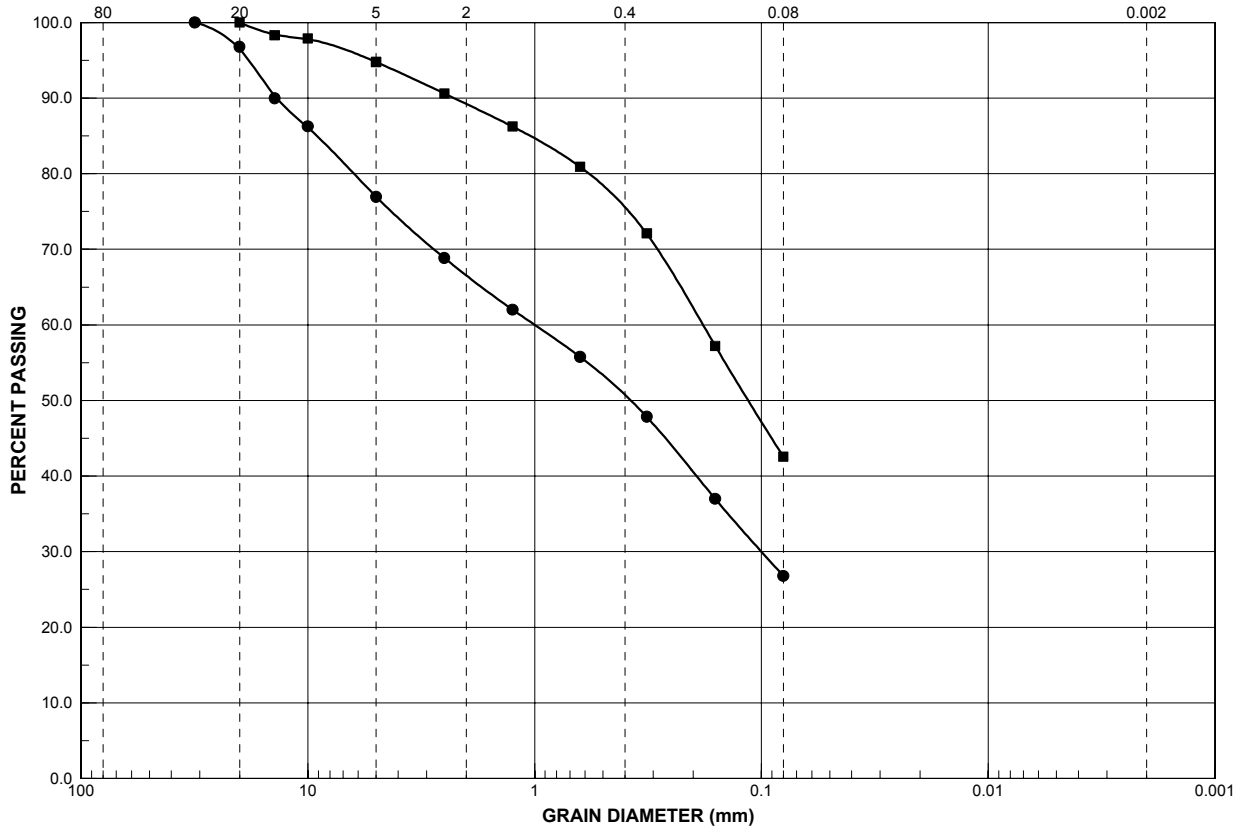
Appendix : II Figure : 17

Project : Rabaska Project (Phase 3), Levis, Quebec  
Levis, Quebec

File No : T-1050-C (604238)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 23.0       | 50.2     | 26.8               |
| ■—■    | 5.2        | 52.3     | 42.5               |

| LEGEND | 20mm  | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10 | D30    | D60    | Cu  | Cc  |
|--------|-------|------|------|-------|--------|---------|-----|--------|--------|-----|-----|
| ●—●    | 96.5  | 77.0 | 66.5 | 50.8  | 26.8   | N/A     | N/A | 0.1018 | 1.0095 | N/A | N/A |
| ■—■    | 100.0 | 94.8 | 89.2 | 75.6  | 42.5   | N/A     | N/A | N/A    | 0.1847 | N/A | N/A |

| LEGEND | SOUNDING  | SAMPLE | DEPTH. (m) | DESCRIPTION                    | W (%) |
|--------|-----------|--------|------------|--------------------------------|-------|
| ●—●    | BH-506-05 | SS-3   | 1.5 - 2.1  | Silty and gravelly sand        | 9.8   |
| ■—■    | BH-506-05 | SS-8   | 3.8 - 4.4  | Sand and silt, trace of gravel | 8.6   |



# GRAIN SIZE DISTRIBUTION

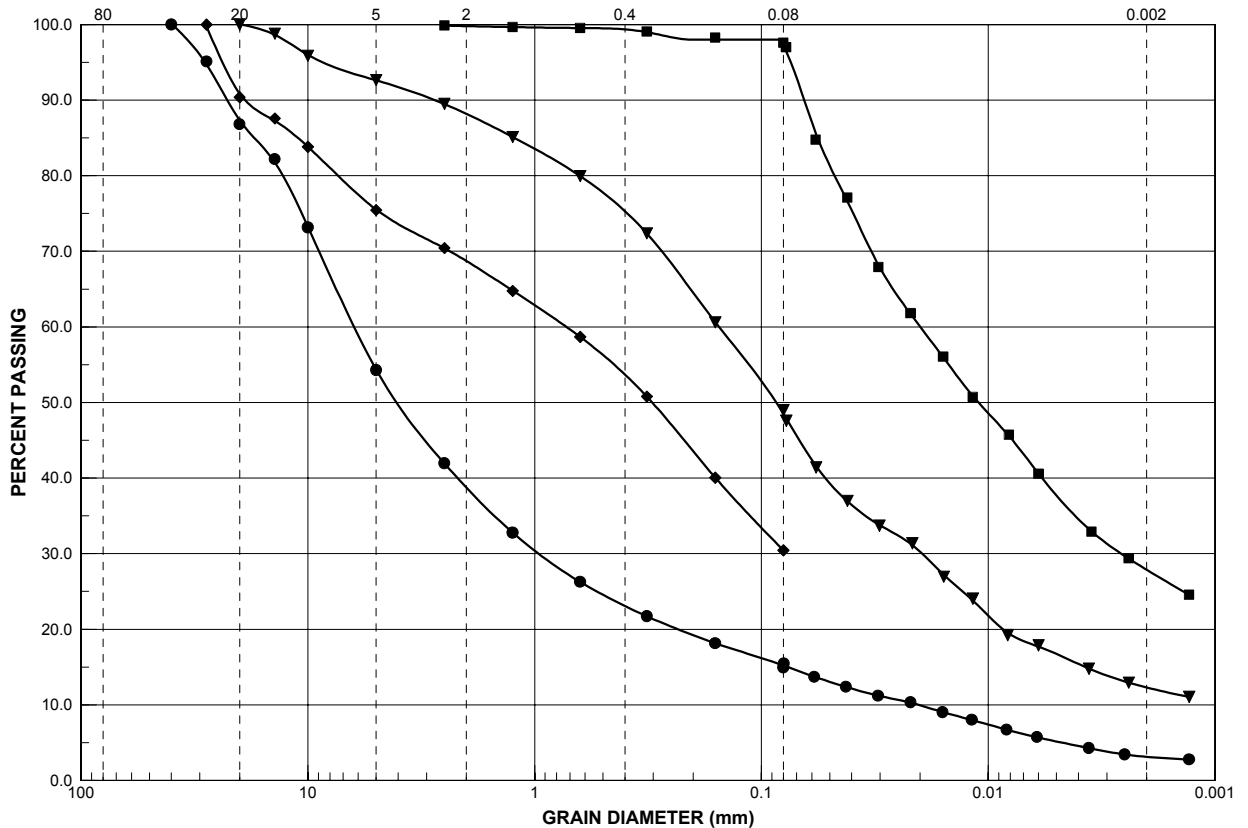
Appendix : II Figure : 18

Project : Rabaska Project (Phase 1), Levis / Beaumont  
West Option Site

File No : T-1050-A (603333-RABA)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●      | 45.7       | 39.1     | 15.2               |
| ■      | 0.0        | 2.8      | 97.2               |
| ▼      | 7.4        | 44.1     | 48.5               |
| ◆      | 24.5       | 45.1     | 30.4               |

| LEGEND | 20mm  | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10    | D30    | D60    | Cu      | Cc    |
|--------|-------|------|------|-------|--------|---------|--------|--------|--------|---------|-------|
| ●      | 87.4  | 54.3 | 38.7 | 23.1  | 15.2   | 3.1     | 0.0207 | 0.9833 | 6.4373 | 311.457 | 7.267 |
| ■      | N/A   | N/A  | 99.8 | 99.4  | 97.2   | 27.9    | N/A    | 0.0027 | 0.0203 | N/A     | N/A   |
| ▼      | 100.0 | 92.6 | 88.2 | 75.3  | 48.5   | 12.3    | N/A    | 0.0199 | 0.1612 | N/A     | N/A   |
| ◆      | 90.9  | 75.5 | 68.7 | 53.7  | 30.4   | N/A     | N/A    | N/A    | 0.7358 | N/A     | N/A   |

| LEGEND | SOUNDING | SAMPLE | DEPTH. (m) | DESCRIPTION                    | W (%) |
|--------|----------|--------|------------|--------------------------------|-------|
| ●      | W-002-04 | SS-3   | 1.5 - 2.1  | Gravel and sand, some silt     | 9.5   |
| ■      | W-003-04 | SS-6   | 3.8 - 4.4  | Silt, some clay                | 19.1  |
| ▼      | W-004-04 | SS-9   | 6.3 - 6.9  | Silt and sand, trace of gravel | 10.1  |
| ◆      | W-005-04 | SS-3   | 1.5 - 2.1  | Silty and gravelly sand        | 11.0  |



# GRAIN SIZE DISTRIBUTION

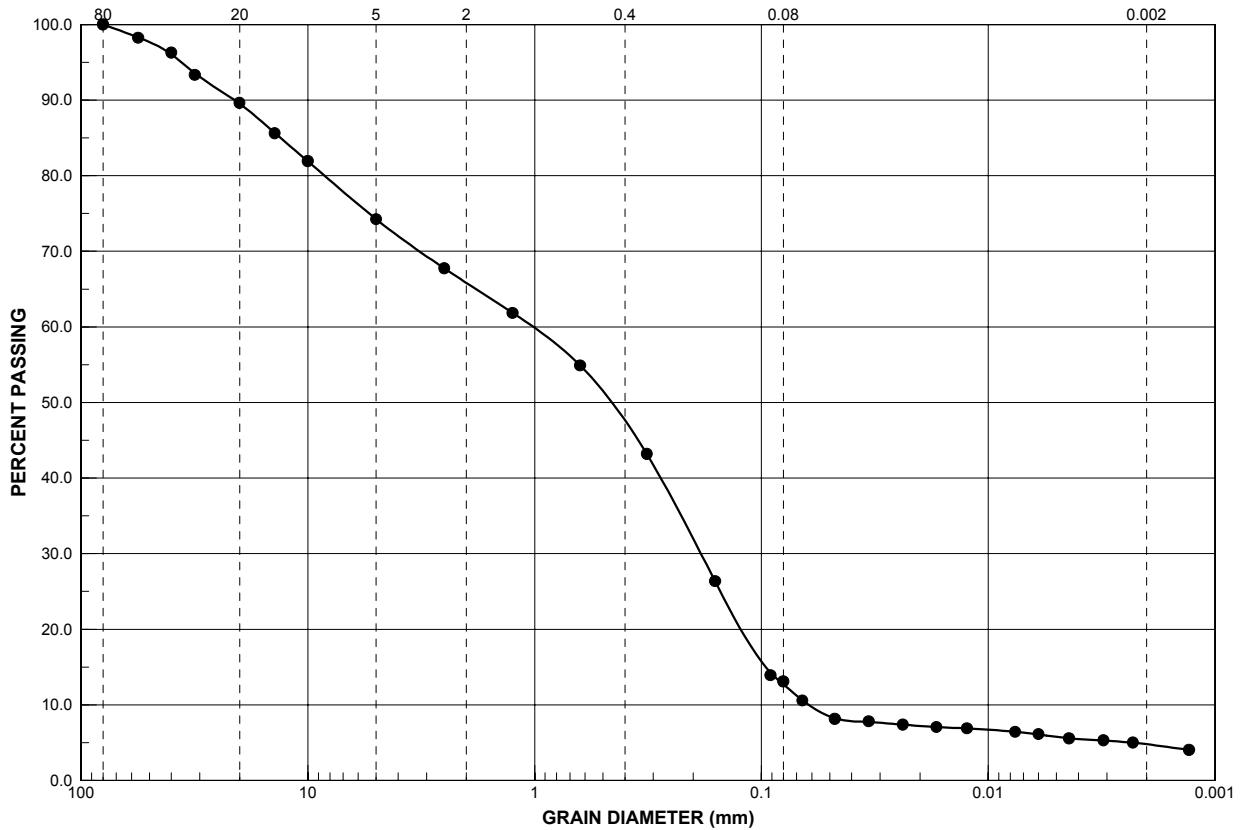
Appendix : II Figure : 19

Project : Rabaska Project (Phase 3), Levis, Quebec  
Levis, Quebec

File No : T-1050-C (604238)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |





# GRAIN SIZE DISTRIBUTION

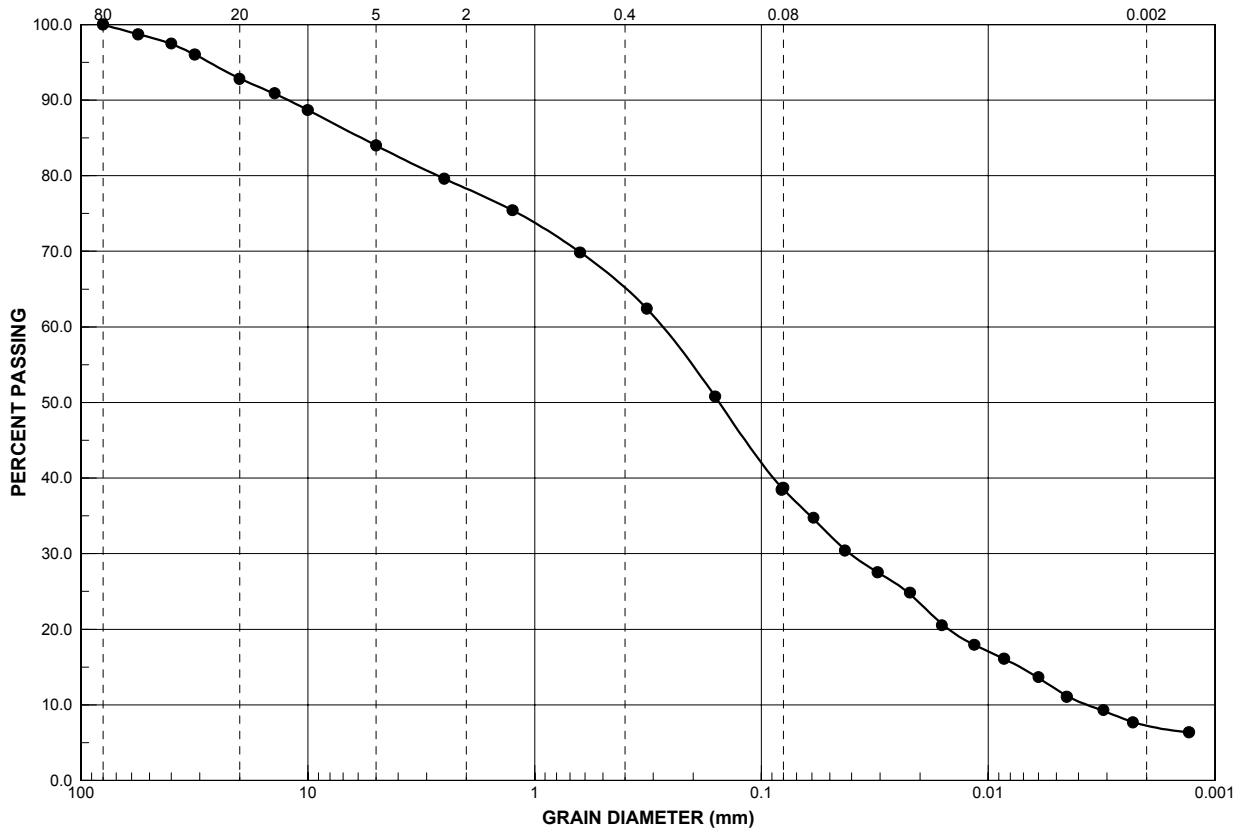
Appendix : II Figure : 20

Project : Rabaska Project (Phase 3), Levis, Quebec  
Levis, Quebec

File No : T-1050-C (604238)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 16.0       | 45.5     | 38.5               |

| LEGEND | 20mm | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10    | D30    | D60    | Cu     | Cc    |
|--------|------|------|------|-------|--------|---------|--------|--------|--------|--------|-------|
| ●—●    | 92.9 | 84.0 | 78.3 | 65.2  | 38.5   | 7.2     | 0.0037 | 0.0411 | 0.2885 | 77.025 | 1.561 |

| LEGEND | SOUNDING  | SAMPLE | DEPTH. (m) | DESCRIPTION                            | W (%) |
|--------|-----------|--------|------------|--|-------|
| ●—●    | TP-504-05 | BS-2   | 0.5 - 1.1  | Silty sand, some gravel, trace of clay | 10.1  |



# GRAIN SIZE DISTRIBUTION

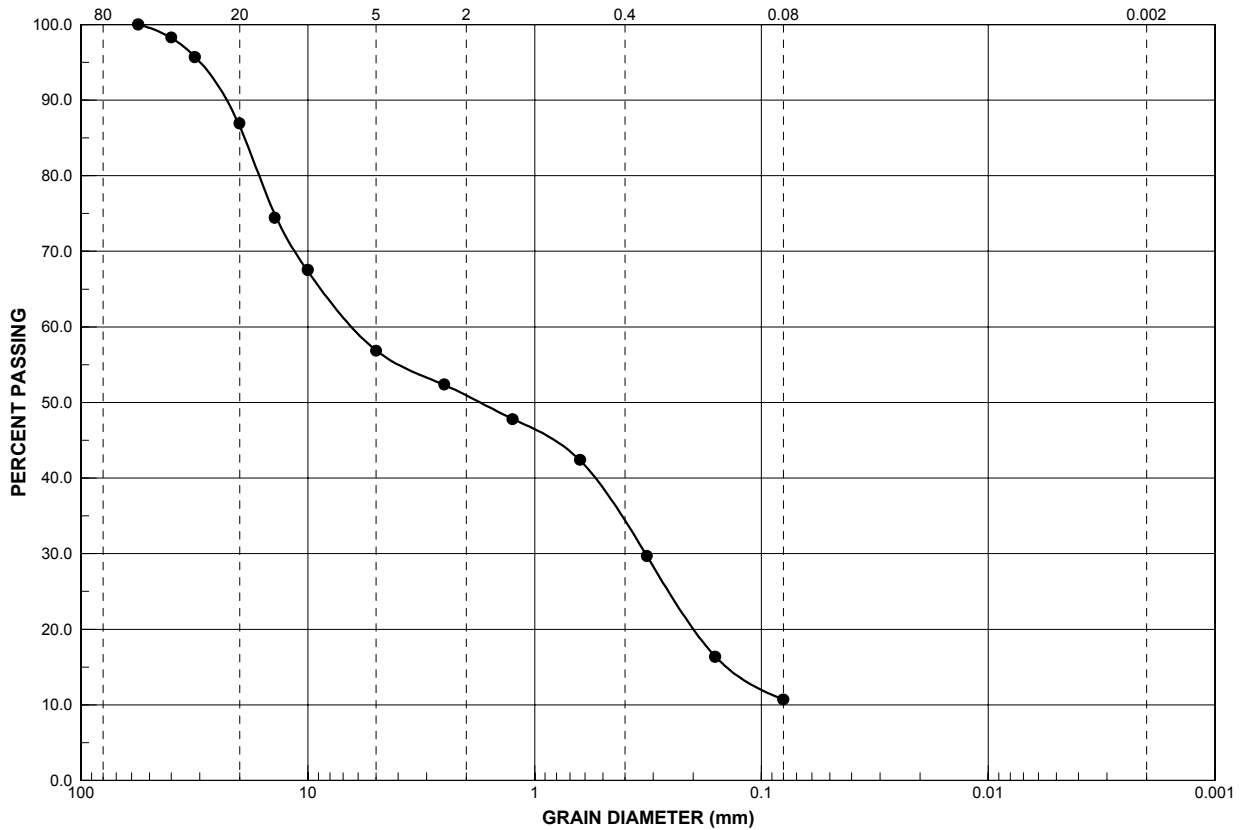
Appendix : II Figure : 21

Project : Rabaska Project (Phase 3), Levis, Quebec  
Levis, Quebec

File No : T-1050-C (604238)

## UNIFIED SOIL CLASSIFICATION SYSTEM

| GRAVEL |      | SAND   |        |      | FINE PARTICLES |      |
|--------|------|--------|--------|------|----------------|------|
| COARSE | FINE | COARSE | MEDIUM | FINE | SILT           | CLAY |



| LEGEND | GRAVEL (%) | SAND (%) | FINE PARTICLES (%) |
|--------|------------|----------|--------------------|
| ●—●    | 43.1       | 46.2     | 10.7               |

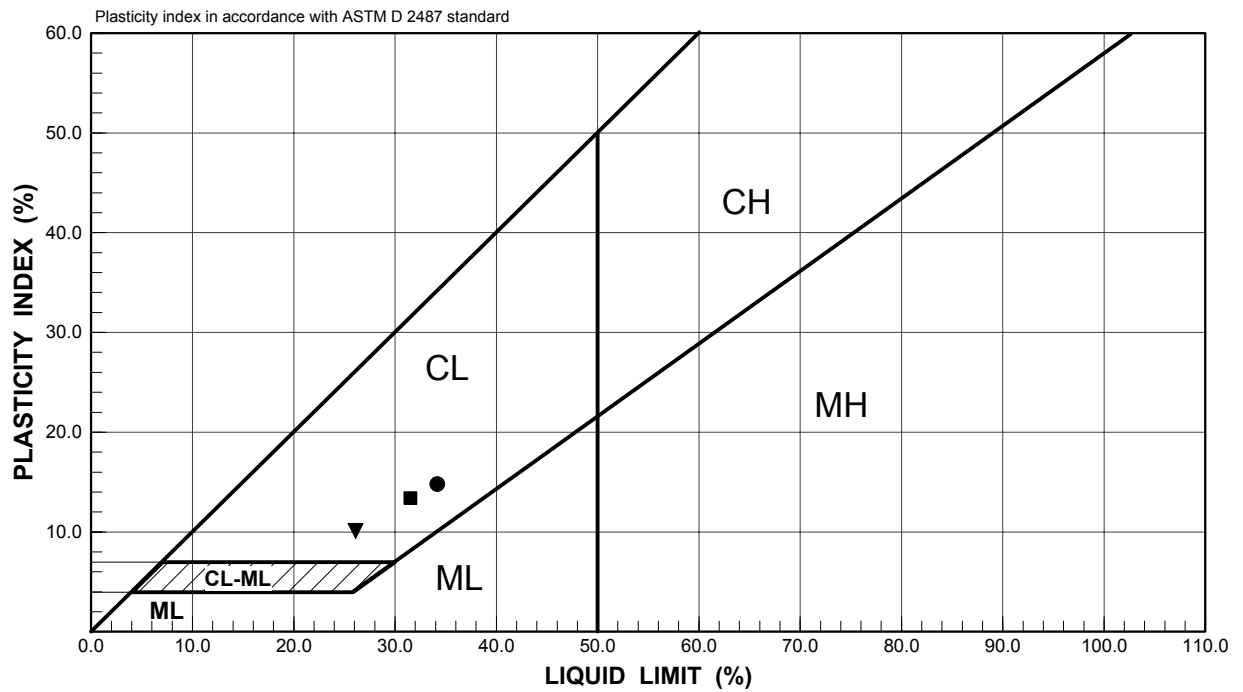
| LEGEND | 20mm | 5mm  | 2mm  | 0.4mm | 0.08mm | 0.002mm | D10 | D30    | D60    | Cu  | Cc  |
|--------|------|------|------|-------|--------|---------|-----|--------|--------|-----|-----|
| ●—●    | 86.5 | 56.9 | 50.9 | 34.4  | 10.7   | N/A     | N/A | 0.3319 | 6.5192 | N/A | N/A |

| LEGEND | SOUNDING  | SAMPLE | DEPTH. (m) | DESCRIPTION                | W (%) |
|--------|-----------|--------|------------|----------------------------|-------|
| ●—●    | TP-505-05 | BS-1   | 0.2 - 0.4  | Sand and gravel, some silt | 11.8  |



# ATTERBERG LIMITS

Number of soundings : 3; Number of limits : 3



| LEGEND | SOUNDING  | SAMPLE | DEPTH (m)   | WN   | WL   | WP   | IP   | IL   | CLASS. |
|--------|-----------|--------|-------------|------|------|------|------|------|--------|
| ●      | BH-103-05 | SS-5   | 3.05 - 3.66 | 23.7 | 34.2 | 19.4 | 14.8 | 0.3  | CL     |
| ■      | BH-106-05 | SS-5   | 3.05 - 3.66 | 16.3 | 31.5 | 18.2 | 13.4 | -0.1 | CL     |
| ▼      | BH-108-05 | SS-5   | 3.05 - 3.66 | 15.1 | 26.1 | 16.0 | 10.1 | -0.1 | CL     |
|        |           |        |             |      |      |      |      |      |        |
|        |           |        |             |      |      |      |      |      |        |
|        |           |        |             |      |      |      |      |      |        |
|        |           |        |             |      |      |      |      |      |        |
|        |           |        |             |      |      |      |      |      |        |
|        |           |        |             |      |      |      |      |      |        |
|        |           |        |             |      |      |      |      |      |        |

