

| VT Trans   |        | STATE OF VERMONT<br>AGENCY OF TRANSPORTATION<br>MATERIALS & RESEARCH SECTION<br>SUBSURFACE INFORMATION  |              |   |          | BORING NUMBER: B316a<br>SHEET 1 of 6<br>DATE STARTED: 6/18/13<br>DATE COMPLETED: 6/19/13 |                 |                  |        |        |
|--|--------|---|--------------|---|----------|--|-----------------|------------------|--------|--------|
| PROJECT NAME: Newport City STP 134-3(22)<br>SITE NAME: Route 191 Landslide<br>STATION: -<br>OFFSET: -<br>VTSPG: N 888528.82 ft E 1721177.85 ft |        | PROJECT NUMBER: GAI 133-87312<br>SITE NUMBER: -<br>GROUND ELEVATION: 748.34 ft<br>GROUNDWATER DEPTH: 7.2 ft 6/19/13<br>PROJECT PIN NUMBER: -  |              | BORING TYPE: Sonic<br>SAMPLE TYPE: Continuous Core<br>HAMMER TYPE: N/A<br>CHECKED BY: |          |  |                 |                  |        |        |
| DEPTH (ft)   | SYMBOL | CLASSIFICATION OF MATERIALS (Description)   | WELL DIAGRAM | BLOWS PER 6 IN (N VALUE)  | M.C. (%) | AASHTO GRAVEL (%)  | AASHTO SAND (%) | AASHTO FINES (%) | LL (%) | PI (%) |
|  |        | Top of Well Elevation: 750.66 ft<br>0.0 ft - 0.5 ft. Topsoil and root mat.<br>0.5 ft - 6.0 ft. A-4, brown-gray, moist, medium dense, silty fine SAND, some gravel, (SM), P.P. = 1.7, 1.5 tsf.<br>5.5 ft. A-3, brown, fine SAND lens, (SP), approx. 1/2" thick.<br>6.0 ft - 8.5 ft. A-2-4, gray, moist, loose, fine SAND, some silt, trace gravel, (SM), Driller reported softer conditions 6-16 ft.<br>8.5 ft - 9.0 ft. Root mat.<br>9.0 ft - 12.5 ft. A-3, dark brown with gray-brown layering, moist, loose, fine SAND, trace silt, some organics (roots), (SP), Decreasing amount of roots with depth.<br>12.0 ft. Lens of clean medium to coarse SAND approx. 1" thick.<br>12.5 ft - 14.0 ft. A-4, brown-gray with black (mottled), moist, loose, silty fine SAND, some medium to coarse sand, some gravel, (SM), P.P. = 1.7 tsf.<br>14.0 ft - 22.0 ft. A-4, gray, SILT, some fine to medium sand trace gravel, (ML), P.P. = 0.7, 0.4 tsf.<br>15.0 ft. Lens of brown, fine to coarse SAND, approx. 2" thick.<br>17.0 ft. Lens of brown, fine to coarse SAND, approx. 2" thick.<br>21.0 ft. Cobble encountered.<br>22.0 ft - 24.0 ft. A-4, gray brown grading to fine to coarse SAND, some silt, trace gravel, (SP-SM), P.P. = 1.2 tsf.<br>24.0 ft - 28.0 ft. A-1-b, gray, wet, loose, silty fine SAND, trace coarse gravel, grading to gray, wet, |              |   |          |  |                 |                  |        |        |
|  |        |   |              |   | 16.2     | 11.9   | 27.7            | 60.4             | 19     | 2      |

| VT Trans   |        | STATE OF VERMONT<br>AGENCY OF TRANSPORTATION<br>MATERIALS & RESEARCH SECTION<br>SUBSURFACE INFORMATION   |              |   |          | BORING NUMBER: B316a<br>SHEET 2 of 6<br>DATE STARTED: 6/18/13<br>DATE COMPLETED: 6/19/13 |                 |                  |        |        |
|--|--------|--|--------------|---|----------|--|-----------------|------------------|--------|--------|
| PROJECT NAME: Newport City STP 134-3(22)<br>SITE NAME: Route 191 Landslide<br>STATION: -<br>OFFSET: -<br>VTSPG: N 888528.82 ft E 1721177.85 ft |        | PROJECT NUMBER: GAI 133-87312<br>SITE NUMBER: -<br>GROUND ELEVATION: 748.34 ft<br>GROUNDWATER DEPTH: 7.2 ft 6/19/13<br>PROJECT PIN NUMBER: -   |              | BORING TYPE: Sonic<br>SAMPLE TYPE: Continuous Core<br>HAMMER TYPE: N/A<br>CHECKED BY: |          |  |                 |                  |        |        |
| DEPTH (ft)   | SYMBOL | CLASSIFICATION OF MATERIALS (Description)  | WELL DIAGRAM | BLOWS PER 6 IN (N VALUE)  | M.C. (%) | AASHTO GRAVEL (%)  | AASHTO SAND (%) | AASHTO FINES (%) | LL (%) | PI (%) |
|  |        | loose, clean fine to coarse SAND and GRAVEL, (GP).<br>28.0 ft - 30.0 ft. A-6, gray, wet, very soft, silty CLAY, little fine sand, (CL), Tv = 0.1, 0.1 tsf<br>30.0 ft - 35.0 ft. A-6, gray, moist, hard, silty CLAY, little fine to coarse sand and fine gravel, (CL), Increasing silt with depth, P.P. > 4.5 tsf<br>31.0 ft. Possible slickensides.<br>35.0 ft - 36.0 ft. Boulder encountered.<br>36.0 ft - 39.5 ft. No recovery.<br>39.5 ft - 41.0 ft. Boulder encountered.<br>41.0 ft - 55.0 ft. A-4, gray, moist, hard, clayey SILT, little fine to coarse sand, little gravel, (ML), Decreasing clay with depth.<br>Note: Sand and gravel particles are generally well rounded.<br>48.0 ft - 49.0 ft. Boulder encountered. |              |   |          |  |                 |                  |        |        |

| VT Trans   |        | STATE OF VERMONT<br>AGENCY OF TRANSPORTATION<br>MATERIALS & RESEARCH SECTION<br>SUBSURFACE INFORMATION  |              |   |          | BORING NUMBER: B316a<br>SHEET 3 of 6<br>DATE STARTED: 6/18/13<br>DATE COMPLETED: 6/19/13 |                 |                  |        |        |
|--|--------|---|--------------|---|----------|--|-----------------|------------------|--------|--------|
| PROJECT NAME: Newport City STP 134-3(22)<br>SITE NAME: Route 191 Landslide<br>STATION: -<br>OFFSET: -<br>VTSPG: N 888528.82 ft E 1721177.85 ft |        | PROJECT NUMBER: GAI 133-87312<br>SITE NUMBER: -<br>GROUND ELEVATION: 748.34 ft<br>GROUNDWATER DEPTH: 7.2 ft 6/19/13<br>PROJECT PIN NUMBER: -  |              | BORING TYPE: Sonic<br>SAMPLE TYPE: Continuous Core<br>HAMMER TYPE: N/A<br>CHECKED BY: |          |  |                 |                  |        |        |
| DEPTH (ft)   | SYMBOL | CLASSIFICATION OF MATERIALS (Description)   | WELL DIAGRAM | BLOWS PER 6 IN (N VALUE)  | M.C. (%) | AASHTO GRAVEL (%)  | AASHTO SAND (%) | AASHTO FINES (%) | LL (%) | PI (%) |
|  |        | 50.0 ft. Slickensides 50-52 ft.<br>55.0 ft - 57.0 ft. A-6, light brown transitioning to dark brown, moist, stiff to hard, silty CLAY, trace fine sand varves, high plasticity, (CL).<br>Note: Possible folding zone, TP = 4.6 tsf<br>57.0 ft - 60.0 ft. A-1-b, gray, wet, loose, clean medium to coarse SAND, little gravel, (SP).<br>60.0 ft - 62.0 ft. A-2-4, brown-gray, wet, medium dense, fine SAND, some silt, (SM).<br>62.0 ft - 65.0 ft. A-1-b, gray, wet, loose, clean medium to coarse SAND, little gravel, (SP).<br>65.0 ft - 67.0 ft. A-4, gray, brown with orange layers, moist, firm to stiff, clayey SILT, (ML).<br>67.0 ft - 68.0 ft. A-6, light brown mixing with gray-brown, silty CLAY, (CL). Note possible folding zone.<br>68.0 ft - 69.0 ft. A-4, brown-gray, silty fine SAND, (SM).<br>69.0 ft - 82.0 ft. A-6, brown-gray, moist, hard, silty CLAY, fissured, (CL).<br>72.0 ft. P.P. = 4.6 tsf |              |   |          |  |                 |                  |        |        |

| VT Trans   |        | STATE OF VERMONT<br>AGENCY OF TRANSPORTATION<br>MATERIALS & RESEARCH SECTION<br>SUBSURFACE INFORMATION  |              |   |          | BORING NUMBER: B316a<br>SHEET 4 of 6<br>DATE STARTED: 6/18/13<br>DATE COMPLETED: 6/19/13 |                 |                  |        |        |
|--|--------|---|--------------|---|----------|--|-----------------|------------------|--------|--------|
| PROJECT NAME: Newport City STP 134-3(22)<br>SITE NAME: Route 191 Landslide<br>STATION: -<br>OFFSET: -<br>VTSPG: N 888528.82 ft E 1721177.85 ft |        | PROJECT NUMBER: GAI 133-87312<br>SITE NUMBER: -<br>GROUND ELEVATION: 748.34 ft<br>GROUNDWATER DEPTH: 7.2 ft 6/19/13<br>PROJECT PIN NUMBER: -  |              | BORING TYPE: Sonic<br>SAMPLE TYPE: Continuous Core<br>HAMMER TYPE: N/A<br>CHECKED BY: |          |  |                 |                  |        |        |
| DEPTH (ft)   | SYMBOL | CLASSIFICATION OF MATERIALS (Description)   | WELL DIAGRAM | BLOWS PER 6 IN (N VALUE)  | M.C. (%) | AASHTO GRAVEL (%)  | AASHTO SAND (%) | AASHTO FINES (%) | LL (%) | PI (%) |
|  |        | 80.0 ft. Folding zone.<br>90.0 ft. clay becoming slightly softer approaching folding zone.<br>92.0 ft - 96.0 ft. A-6, brown-gray, moist, hard, silty CLAY, varved with trace to little fine sand in varves, (CL).<br>Note: Folding zone (92-95 ft) with increased fine sand in varves.<br>96.0 ft - 103.0 ft. A-4, gray, moist, stiff, sandy SILT, (ML), P.P. = 1.7, 2.4 tsf. |              |   |          |  |                 |                  |        |        |

| VT Trans   |        | STATE OF VERMONT<br>AGENCY OF TRANSPORTATION<br>MATERIALS & RESEARCH SECTION<br>SUBSURFACE INFORMATION  |              |   |          | BORING NUMBER: B316a<br>SHEET 5 of 6<br>DATE STARTED: 6/18/13<br>DATE COMPLETED: 6/19/13 |                 |                  |        |        |
|--|--------|---|--------------|---|----------|--|-----------------|------------------|--------|--------|
| PROJECT NAME: Newport City STP 134-3(22)<br>SITE NAME: Route 191 Landslide<br>STATION: -<br>OFFSET: -<br>VTSPG: N 888528.82 ft E 1721177.85 ft |        | PROJECT NUMBER: GAI 133-87312<br>SITE NUMBER: -<br>GROUND ELEVATION: 748.34 ft<br>GROUNDWATER DEPTH: 7.2 ft 6/19/13<br>PROJECT PIN NUMBER: -  |              | BORING TYPE: Sonic<br>SAMPLE TYPE: Continuous Core<br>HAMMER TYPE: N/A<br>CHECKED BY: |          |  |                 |                  |        |        |
| DEPTH (ft)   | SYMBOL | CLASSIFICATION OF MATERIALS (Description)   | WELL DIAGRAM | BLOWS PER 6 IN (N VALUE)  | M.C. (%) | AASHTO GRAVEL (%)  | AASHTO SAND (%) | AASHTO FINES (%) | LL (%) | PI (%) |
|  |        | 103.0 ft - 106.0 ft. A-4, brown, moist, dense, interbedded silty fine SAND, P.P. > 4.5 tsf. Layer of black fine sand at 103 ft. Possible pulverized boulder at 105 ft.<br>106.0 ft - 123.0 ft. A-4, brown-gray, moist, dense to very dense, silty fine to coarse SAND and GRAVEL, (GP). Decreasing moisture content and increasing density with depth, P.P. = 0.7, 1.0 tsf.<br>119.0 ft. Gravel zone approx. 1 ft thick.<br>123.0 ft - 124.0 ft. A-4, dark brown, wet, stiff, SILT, some fine sand, (ML), P.P. = 0.6 tsf.<br>124.0 ft - 132.0 ft. A-6, gray, moist, hard, silty CLAY, trace gravel, trace fine sand, 2-4" angular |              |   |          |  |                 |                  |        |        |

| VT Trans   |        | STATE OF VERMONT<br>AGENCY OF TRANSPORTATION<br>MATERIALS & RESEARCH SECTION<br>SUBSURFACE INFORMATION  |              |   |          | BORING NUMBER: B316a<br>SHEET 6 of 6<br>DATE STARTED: 6/18/13<br>DATE COMPLETED: 6/19/13 |                 |                  |        |        |  |
|--|--------|---|--------------|---|----------|--|-----------------|------------------|--------|--------|--|
| PROJECT NAME: Newport City STP 134-3(22)<br>SITE NAME: Route 191 Landslide<br>STATION: -<br>OFFSET: -<br>VTSPG: N 888528.82 ft E 1721177.85 ft |        | PROJECT NUMBER: GAI 133-87312<br>SITE NUMBER: -<br>GROUND ELEVATION: 748.34 ft<br>GROUNDWATER DEPTH: 7.2 ft 6/19/13<br>PROJECT PIN NUMBER: -  |              | BORING TYPE: Sonic<br>SAMPLE TYPE: Continuous Core<br>HAMMER TYPE: N/A<br>CHECKED BY: |          |  |                 |                  |        |        |  |
| DEPTH (ft)   | SYMBOL | CLASSIFICATION OF MATERIALS (Description)   | WELL DIAGRAM | BLOWS PER 6 IN (N VALUE)  | M.C. (%) | AASHTO GRAVEL (%)  | AASHTO SAND (%) | AASHTO FINES (%) | LL (%) | PI (%) |  |
|  |        | rock fragments throughout, (CL).<br>132.0 ft. Possible top of bedrock. Noticeable increase in rock fragments in sample.<br>134.0 ft - 139.0 ft. Bedrock, (PHYLLITE), Driller used water to get better recovery.<br>Hole stopped @ 139.0 ft  |              |   |          |  |                 |                  |        |        |  |
|  |        | Notes:<br>- 2" well installed; Screen from 117 to 122 ft; sand pack from 114 to 123 ft bentonite chips from 111 to 114 ft; grout from 111 ft to ground surface. Hole backfilled below 123 ft with bentonite chips.<br>- Densities indicated in soil descriptions are based on adjacent SPT values and field experience. |              |   |          |  |                 |                  |        |        |  |