

|  |                                   |
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| PROJECT: <b>CMXX-01-0004</b><br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota | BORING: <b>ST-01-08 (cont.)</b>   |
|  | LOCATION:<br>See attached sketch. |

|                       |                             |               |                |
|-----------------------|-----------------------------|---------------|----------------|
| CREW CHIEF: G. Hanson | METHOD: 3 1/4" HSA Autohmr. | DATE: 1/26/01 | SCALE: 1" = 4' |
|-----------------------|-----------------------------|---------------|----------------|

| Elev. | Depth | ASTM Symbol | Description of Materials   | BPF | WLi | Tests | or | Notes   |
|-------|-------|-------------|--|-----|-----|-------|----|---|
|       |       |             | FAT CLAY.<br>(Continued from previous page)  |     |     |       |    |   |
|       | 39.0  | CL          | LEAN CLAY, gray, wet, very soft.<br>(Lacustrine)   |     | WH  |       |    |   |
|       | 49.0  | CL          | LEAN CLAY, wet, very soft.<br>(Lacustrine)   |     | WH  |       |    |   |
|       | 54.0  | SC          | CLAYEY SAND, with Gravel, with lenses of Sand<br>with Silt, gray, wet, rather stiff.<br>(Glacial Till) |     | 9   |       |    |   |
|       | 59.0  | CL          | SANDY LEAN CLAY, with Gravel, gray, wet, rather<br>stiff.<br>(Glacial Till)                            |     | 11  |       |    | * Water observed at 8 feet<br>with 59 feet of hollow-stem<br>auger in the ground. |
|       | 60.5  |             | END OF BORING.*  |     |     |       |    | Boring immediately backfilled<br>with bentonite grout.                            |

| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |              |                             |  | BORING: ST-01-09                  |                |                |
|---|--------------|-----------------------------|--|-----------------------------------|----------------|----------------|
|   |              |                             |  | LOCATION:<br>See attached sketch. |                |                |
| CREW CHIEF: S. McLean   |              | METHOD: 3 1/4" HSA Autohmr. |  | DATE: 1/24/01                     | SCALE: 1" = 4' |                |
| Elev.   | Depth<br>0.0 | ASTM<br>Symbol              | Description of Materials                                     | BPF                               | WL             | Tests or Notes |
|   |              | FILL                        | FILL: 4 inches of Bituminous overlying aggregate base.       |                                   |                |                |
|   | 3.0          | CL                          | LEAN CLAY, gray, wet, rather soft to medium.<br>(Lacustrine) | 23<br>6<br>4                      |                |                |
|   | 9.0          | CH                          | FAT CLAY, gray, wet, soft to very soft.<br>(Lacustrine)      | 3<br>WH<br>WH<br>WH<br>WH<br>WH   | ▽              | MC = 96%       |
|   | 32.0         |                             |  |                                   |                |                |

| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |       |             |  | BORING: ST-01-09 (cont.)    |    |                |
|---|-------|-------------|--|-----------------------------|----|----------------|
| CREW CHIEF: S. McLean   |       |             |  | METHOD: 3 1/4" HSA Autohmr. |    |                |
| DATE: 1/24/01   |       |             |  | SCALE: 1" = 4'              |    |                |
| Elev.   | Depth | ASTM Symbol | Description of Materials   | BPF                         | WL | Tests or Notes |
|   |       |             | FAT CLAY.<br>(Continued from previous page)  |                             |    |                |
|   | 37.0  |             |  |                             | WH |                |
|   | 44.0  | ML          | CLAYEY SILT, gray, waterbearing, rather soft.<br>(Alluvium)                            |                             | 5  |                |
|   | 49.0  | ML          | CLAYEY SILT, with lenses of Clay, gray, wet, rather soft.<br>(Alluvium)                |                             | 5  |                |
|   | 54.0  | SM          | SILTY SAND, very fine-grained, with layers of Clay, gray, wet, loose.<br>(Alluvium)    |                             | 7  |                |
|   | 58.0  | CL          | SANDY LEAN CLAY, with a trace of Gravel, brownish-gray, wet, medium.<br>(Glacial Till) |                             | 7  |                |
|   | 63.0  | CL          | LEAN CLAY, gray, wet, medium.<br>(Glaciofluvium)                                       |                             | 8  |                |
|   | 64.0  | CL          | SANDY LEAN CLAY, with a trace of Gravel,*  |                             |    |                |

\* grayish-brown, wet, medium to rather stiff. (Glacial Till)

|   |                                   |
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| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota | BORING: <b>ST-01-09 (cont.)</b>   |
|   | LOCATION:<br>See attached sketch. |

|                       |                             |               |                |
|-----------------------|-----------------------------|---------------|----------------|
| CREW CHIEF: S. McLean | METHOD: 3 1/4" HSA Autohmr. | DATE: 1/24/01 | SCALE: 1" = 4' |
|-----------------------|-----------------------------|---------------|----------------|

| Elev. | Depth | ASTM Symbol | Description of Materials   | BPF                      | WL | Tests or Notes |
|-------|-------|-------------|--|--------------------------|----|----------------|
|       |       | CL          | LEAN CLAY.<br>(continued from previous page)   | 7<br>11<br>11<br>11<br>8 |    |                |
|       | 87.0  | SP-SM       | POORLY GRADED SAND with SILT, fine- to medium-grained, with Gravel, brown, waterbearing, medium dense.<br>(Glacial Outwash)                                |                          |    |                |
|       | 90.5  |             | END OF BORING.<br><br>Water observed at 9 feet with 89 feet of hollow-stem auger in the ground.<br><br>Boring immediately backfilled with bentonite grout. | 24                       |    |                |

| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |       |                             |  | BORING: ST-01-10 |                |  |
|---|-------|-----------------------------|--|------------------|----------------|--|
| CREW CHIEF: G. Hanson   |       | METHOD: 3 1/4" HSA Autohmr. |  | DATE: 1/29/01    | SCALE: 1" = 4' |  |
| Elev.   | Depth | ASTM Symbol                 | Description of Materials   | BPF              | WL             | Tests or Notes   |
|   | 0.0   |                             |  |                  |                |  |
|   | 1.0   | FILL                        | FILL: Bituminous over aggregate base.  |                  |                |  |
|   |       | FILL                        | FILL: Silty Sand, fine-grained, with Gravel, dark brown, wet.  | 8                |                | qp = Pocket penetrometer used to estimate unconfined compressive strength, tons per square foot (tsf). |
|   |       |                             |  | 3                |                |  |
|   | 6.5   | CL                          | LEAN CLAY, gray, wet, medium. (Lacustrine)   | 6                |                | MC = 35%<br>qp = 1 1/4 tsf   |
|   | 9.0   | SM                          | SILTY SAND, fine- to medium-grained, with lenses of Sand with Silt, gray, wet, loose. (Glacial Till)   | 9                | ▽              |  |
|   | 11.5  | SC                          | CLAYEY SAND, fine- to medium-grained, with layers of Sandy Lean Clay, gray, wet, loose. (Glacial Till) | 6                |                | MC = 14%<br>qp = 1 1/2 tsf   |
|   |       |                             |  | 8                |                | qp = 2 tsf   |
|   |       |                             |  | 8                |                | qp = 2 1/2 tsf   |
|   |       |                             |  | 8                |                | qp = 1 1/2 tsf   |
|   |       |                             | With lenses of Sand at 30 feet.  | 5                |                | qp = 1 3/4 tsf   |
|   | 32.0  |                             |  |                  |                |  |

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| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota | BORING: ST-01-10 (cont.)          |
|   | LOCATION:<br>See attached sketch. |

|                       |                             |               |                |
|-----------------------|-----------------------------|---------------|----------------|
| CREW CHIEF: G. Hanson | METHOD: 3 1/4" HSA Autohmr. | DATE: 1/29/01 | SCALE: 1" = 4' |
|-----------------------|-----------------------------|---------------|----------------|

| Elev. | Depth | ASTM Symbol | Description of Materials   | BPF | WL | Tests or Notes |
|-------|-------|-------------|--|-----|----|----------------|
|       |       |             | CLAYEY SAND.<br>(Continued from previous page)   |     |    |                |
|       | 35.5  |             |  | 8   |    | qp = 2 tsf     |
|       |       |             | END OF BORING.<br><br>Water observed at 8 1/2 feet with 14 feet of hollow-stem auger in the ground.<br><br>Boring immediately backfilled with bentonite grout. |     |    |                |

| PROJECT: <b>CMXX-01-0004</b><br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |       |                             |  | BORING: <b>ST-01-11</b>           |                |                       |
|--|-------|-----------------------------|--|-----------------------------------|----------------|-----------------------|
|  |       |                             |  | LOCATION:<br>See attached sketch. |                |                       |
| CREW CHIEF: S. McLean  |       | METHOD: 3 1/4" HSA Autohmr. |  | DATE: 1/25/01                     | SCALE: 1" = 4' |                       |
| Elev.  | Depth | ASTM Symbol                 | Description of Materials   | BPF                               | WL             | Tests or Notes        |
|  | 0.0   | FILL                        | FILL: Sandy Lean Clay, with a trace of metal, dark brown to gray, frozen to 2 feet then moist.           |                                   |                |                       |
|  | 4.0   | FILL                        | FILL: Silty Sand, fine- to medium-grained, with wood, light brown. moist.                                | 5                                 |                |                       |
|  | 7.0   | FILL                        | FILL: Silty Sand, fine- to medium-grained, with a trace of bituminous and concrete. black, waterbearing. | 14                                |                |                       |
|  | 12.0  | FILL                        | FILL: Poorly Graded Sand with Silt. fine- to medium-grained, black, waterbearing.                        | 3                                 |                |                       |
|  | 14.0  | FILL                        | FILL: Poorly Graded Sand with Silt. fine- to medium-grained, black, waterbearing.                        | 6                                 |                |                       |
|  | 24.0  | PT                          | PEAT, non fibrous, black, wet.<br>(Swamp Deposit)  | 3                                 |                |                       |
|  |       |                             |  |                                   | WH             |                       |
|  |       | OL                          | ORGANIC CLAY, with a trace of shells. dark brown to olive. wet.<br>(Swamp Deposit)                       |                                   |                |                       |
|  |       |                             |  |                                   | WH             |                       |
|  |       |                             |  |                                   | WH             | MC = 168%<br>OC = 13% |



|   |                                   |
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| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota | BORING: <b>ST-01-11 (cont.)</b>   |
|   | LOCATION:<br>See attached sketch. |

|                       |                             |               |                |
|-----------------------|-----------------------------|---------------|----------------|
| CREW CHIEF: S. McLean | METHOD: 3 1/4" HSA Autohmr. | DATE: 1/25/01 | SCALE: 1" = 4' |
|-----------------------|-----------------------------|---------------|----------------|

| Elev. | Depth | ASTM Symbol | Description of Materials                        | BPF | WL | Tests    | or | Notes |
|-------|-------|-------------|---|-----|----|----------|----|-------|
|       |       | CH          | FAT CLAY, gray, wet, very soft.<br>(Lacustrine) |     |    |          |    |       |
|       |       |             |   | WH  |    |          |    |       |
|       |       |             |   | WH  |    |          |    |       |
|       |       |             |   | WH  |    | MC = 68% |    |       |
|       |       |             |   | WH  |    |          |    |       |
|       |       |             |   | WH  |    |          |    |       |
|       |       |             |   | WH  |    |          |    |       |
|       |       |             |   | 3   |    |          |    |       |
|       | 96.0  |             |   |     |    |          |    |       |

| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |       |             |   | BORING: ST-01-11 (cont.)    |    |                |
|---|-------|-------------|---|-----------------------------|----|----------------|
| CREW CHIEF: S. McLean   |       |             |   | METHOD: 3 1/4" HSA Autohmr. |    |                |
| DATE: 1/25/01   |       |             |   | SCALE: 1" = 4'              |    |                |
| Elev.   | Depth | ASTM Symbol | Description of Materials  | BPF                         | WL | Tests or Notes |
|   | 100.0 | CH          | FAT CLAY, gray, wet, very soft.<br>(Lacustrine)   |                             |    |                |
|   |       | SP-SM       | POORLY GRADED SAND with SILT, fine-grained,<br>with layers of Clayey Sand, gray, waterbearing, loose<br>to dense.<br>(Alluvium)             | 2                           |    |                |
|   |       |             |   | 9                           |    |                |
|   |       |             |   | 30                          |    |                |
|   | 113.0 | SP-SM       | POORLY GRADED SAND with SILT, fine- to<br>medium-grained, with a trace of Gravel, gray,<br>waterbearing, medium dense.<br>(Glacial Outwash) | 25                          |    |                |
|   |       |             |   | 24                          |    |                |
|   |       |             |   | 27                          |    |                |
|   | 126.0 | CL          | SANDY LEAN CLAY, with a trace of Gravel, gray,<br>wet, very stiff.<br>(Glacial Till)  |                             |    |                |
|   | 128.0 |             |   |                             |    |                |

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| PROJECT: <b>CMXX-01-0004</b><br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota | BORING: <b>ST-01-11 (cont.)</b>   |
|  | LOCATION:<br>See attached sketch. |

|                       |                             |               |                |
|-----------------------|-----------------------------|---------------|----------------|
| CREW CHIEF: S. McLean | METHOD: 3 1/4" HSA Autohmr. | DATE: 1/25/01 | SCALE: 1" = 4' |
|-----------------------|-----------------------------|---------------|----------------|

| Elev. | Depth | ASTM Symbol | Description of Materials  | BPF | WL | Tests or Notes |
|-------|-------|-------------|---|-----|----|----------------|
|       |       | CL          | SANDY LEAN CLAY, with a trace of Gravel, gray, wet, very stiff.<br>(Glacial Till) |     |    |                |
|       | 135.5 |             |   | 21  |    |                |
|       |       |             |   | 23  |    |                |
|       |       |             | END OF BORING.<br>Boring immediately backfilled with bentonite grout.             |     |    |                |

| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |       |             |   | BORING: ST-01-13            |    |                       |
|---|-------|-------------|---|-----------------------------|----|-----------------------|
| CREW CHIEF: S. McLean   |       |             |   | METHOD: 3 1/4" HSA Autohmr. |    |                       |
| DATE: 1/31/01   |       |             |   | SCALE: 1" = 4'              |    |                       |
| Elev.   | Depth | ASTM Symbol | Description of Materials  | BPF                         | WL | Tests or Notes        |
|   | 0.0   | FILL        | FILL: 7 inches of Bituminous over aggregate base.   |                             |    |                       |
|   | 1.0   | CL          | LEAN CLAY, with a trace of shells. brown and gray, wet, medium.<br>(Lacustrine)                 | 6                           |    | MC = 7%<br>qp = 3 tsf |
|   |       |             |   | 6                           |    | qp = 3 tsf            |
|   |       |             |   | 6                           |    | qp = 3 tsf            |
|   | 9.0   | CH          | FAT CLAY, grayish-brown, wet, medium.<br>(Lacustrine)   | 6                           |    |                       |
|   | 11.5  | SC          | CLAYEY SAND, with Sandy Silt. grayish-brown, wet, rather soft.<br>(Lacustrine)                  | 5                           |    |                       |
|   | 14.0  | SM          | SILTY SAND, fine-grained, with lenses of Poorly Graded Sand, brown, moist, loose.<br>(Alluvium) | 8                           |    |                       |
|   | 19.0  | SM          | SILTY SAND, gray, moist to waterbearing, loose to medium dense.<br>(Glacial Till)               | 17                          |    | qp = 4 tsf            |
|   |       |             |   | 17                          |    | qp = 3 1/2 tsf        |
|   |       |             | Wet below 25 feet with lenses of Sand.  | 10                          |    |                       |

| PROJECT: <b>CMXX-01-0004</b><br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |       |                             |  | BORING: <b>ST-01-13 (cont.)</b>   |                |                |
|--|-------|-----------------------------|--|-----------------------------------|----------------|----------------|
|  |       |                             |  | LOCATION:<br>See attached sketch. |                |                |
| CREW CHIEF: S. McLean  |       | METHOD: 3 1/4" HSA Autohmr. |  | DATE: 1/31/01                     | SCALE: 1" = 4' |                |
| Elev.  | Depth | ASTM Symbol                 | Description of Materials   | BPF                               | WL             | Tests or Notes |
|  |       |                             | SILTY SAND.<br>(Continued from previous page)  |                                   |                |                |
|  | 35.5  |                             | With Gravel at 35 feet.<br>END OF BORING.  | 16                                |                | qp = 3 1/2 tsf |
|  |       |                             | Water not observed with 34 feet of hollow-stem auger in the ground.<br><br>Boring immediately backfilled with bentonite grout. |                                   |                |                |

| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |              |                             |  | BORING: ST-01-14                  |                |                |
|---|--------------|-----------------------------|--|-----------------------------------|----------------|----------------|
|   |              |                             |  | LOCATION:<br>See attached sketch. |                |                |
| CREW CHIEF: M. Niesen   |              | METHOD: 3 1/4" HSA Autohmr. |  | DATE: 1/30/01                     | SCALE: 1" = 4' |                |
| Elev.   | Depth<br>0.0 | ASTM<br>Symbol              | Description of Materials   | BPF                               | WL             | Tests or Notes |
|   | 1.0          | FILL                        | FILL: 7 inches of Bituminous over aggregate base.                                      |                                   |                |                |
|   | 4.0          | FILL                        | FILL: Silty Sand, with Gravel and a trace of Bituminous, brown, moist.                 | 54                                |                |                |
|   | 11.5         | ML                          | SANDY SILT, with shells, light gray to gray, wet, loose to very loose.<br>(Lacustrine) | 7                                 |                |                |
|   | 19.0         | CL                          | LEAN CLAY, gray, wet, very soft.<br>(Lacustrine)                                       |                                   | WH             |                |
|   | 32.0         | CH                          | FAT CLAY, gray, wet, very soft to medium.<br>(Lacustrine)                              |                                   | WH             |                |



|  |                                   |
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| PROJECT: <b>CMXX-01-0004</b><br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota | BORING: <b>ST-01-14 (cont.)</b>   |
|  | LOCATION:<br>See attached sketch. |

|                       |                             |               |                |
|-----------------------|-----------------------------|---------------|----------------|
| CREW CHIEF: M. Niesen | METHOD: 3 1/4" HSA Autohmr. | DATE: 1/30/01 | SCALE: 1" = 4' |
|-----------------------|-----------------------------|---------------|----------------|

| Elev. | Depth | ASTM Symbol | Description of Materials   | BPF | WL | Tests or Notes |
|-------|-------|-------------|--|-----|----|----------------|
|       |       | CH          | FAT CLAY.<br>(Continued from previous page)  | 5   |    |                |
|       | 70.5  |             | END OF BORING.<br><br>Water not observed with 69 feet of hollow-stem auger in the ground.<br><br>Boring immediately backfilled with bentonite grout. | 6   |    |                |

| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |       |             |   | BORING: <b>ST-01-15</b>     |    |               |                |
|---|-------|-------------|---|-----------------------------|----|---------------|----------------|
| CREW CHIEF: G. Hanson   |       |             |   | METHOD: 3 1/4" HSA Autohmr. |    | DATE: 1/31/01 | SCALE: 1" = 4' |
| LOCATION:<br>See attached sketch.   |       |             |   |                             |    |               |                |
| Elev.   | Depth | ASTM Symbol | Description of Materials  | BPF                         | WL | Tests         | or Notes       |
|   | 0.0   |             |   |                             |    |               |                |
|   | 1.5   | FILL        | FILL: Bituminous over Silty Sand with Gravel and trace of Lean Clay, dark brown, moist. |                             |    |               |                |
|   | 4.0   | FILL        | FILL: Sandy Lean Clay, slightly organic, dark gray, wet.<br>(Swamp Deposit)             | 28                          |    |               |                |
|   | 9.0   | OL          | ORGANIC CLAY, with shells, gray, wet.<br>(Swamp Deposit)                                | 4                           |    |               |                |
|   | 11.5  | CL          | LEAN CLAY, gray, wet, soft.<br>(Lacustrine)   | 2                           |    |               |                |
|   | 29.0  | CH          | FAT CLAY, gray, wet, very soft.<br>(Lacustrine)   | 1                           |    |               |                |
|   | 32.0  | SM          | SILTY SAND, gray, waterbearing, loose.<br>(Alluvium)                                    | 7                           |    |               |                |

| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |       |                             |  | BORING: ST-01-15 (cont.)          |    |                |  |
|---|-------|-----------------------------|--|-----------------------------------|----|----------------|--|
|   |       |                             |  | LOCATION:<br>See attached sketch. |    |                |  |
| CREW CHIEF: G. Hanson   |       | METHOD: 3 1/4" HSA Autohmr. |  | DATE: 1/31/01                     |    | SCALE: 1" = 4' |  |
| Elev.   | Depth | ASTM Symbol                 | Description of Materials   | BPF                               | WL | Tests or Notes |  |
|   | 34.0  | SM                          | SILTY SAND.<br>(Continued from previous page)  |                                   |    |                |  |
|   |       | SP                          | POORLY GRADED SAND, fine-grained, with fine Gravel, gray, waterbearing, loose.<br>(Alluvium)   | 8                                 |    |                |  |
|   |       |                             |  | 6                                 |    |                |  |
|   | 44.0  | CL                          | LEAN CLAY, with a trace of Gravel, brownish-gray, wet, rather stiff.<br>(Alluvium)   | 10                                |    |                |  |
|   | 49.0  | SP                          | POORLY GRADED SAND, fine- to medium-grained, with a trace of Gravel and Cobbles. brown, waterbearing, rather stiff.<br>(Glacial Outwash)                   | 12                                |    |                |  |
|   | 55.5  |                             |  | 13                                |    |                |  |
|   |       |                             | END OF BORING.<br><br>Water observed at 8 feet with 54 feet of hollow-stem auger in the ground.<br><br>Boring immediately backfilled with bentonite grout. |                                   |    |                |  |

| PROJECT: <b>CMXX-01-0004</b><br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |              |                             |  | BORING: <b>ST-01-16</b>           |                |                            |
|--|--------------|-----------------------------|--|-----------------------------------|----------------|----------------------------|
|  |              |                             |  | LOCATION:<br>See attached sketch. |                |                            |
| CREW CHIEF: S. McLean  |              | METHOD: 3 1/4" HSA Autohmr. |  | DATE: 1/31/01                     | SCALE: 1" = 4' |                            |
| Elev.  | Depth<br>0.0 | ASTM<br>Symbol              | Description of Materials   | BPF                               | WL             | Tests or Notes             |
|  | 1.0          | FILL                        | FILL: 6 1/2 inches Bituminous over aggregate base.   |                                   |                |                            |
|  |              | SM                          | SILTY SAND, fine-grained, with layers of Clayey Sand, gray and brown, wet, loose.<br>(Alluvium)  | 7                                 |                | MC = 22%                   |
|  |              |                             |  | 8                                 |                |                            |
|  |              |                             |  | 8                                 |                |                            |
|  | 9.0          | MLS                         | SANDY SILT, with lenses of gray and dark gray, waterbearing, loose.<br>(Alluvium)                | 10                                |                | MC = 29%<br>qp = 3 1/2 tsf |
|  |              |                             |  | 5                                 |                |                            |
|  |              |                             |  | 6                                 |                |                            |
|  | 19.0         | CL                          | SANDY LEAN CLAY, with Gravel, brownish-gray, wet, rather soft to rather stiff.<br>(Glacial Till) | 7                                 |                | qp - 2 1/4 tsf             |
|  |              |                             |  | 5                                 |                | qp = 2 1/4 tsf             |
|  |              |                             |  | 8                                 |                | qp = 2 tsf                 |
|  | 32.0         |                             |  |                                   |                |                            |

|  |                                   |
|--|-----------------------------------|
| PROJECT: <b>CMXX-01-0004</b><br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota | BORING: <b>ST-01-16 (cont.)</b>   |
|  | LOCATION:<br>See attached sketch. |

|                       |                             |               |                |
|-----------------------|-----------------------------|---------------|----------------|
| CREW CHIEF: S. McLean | METHOD: 3 1/4" HSA Autohmr. | DATE: 1/31/01 | SCALE: 1" = 4' |
|-----------------------|-----------------------------|---------------|----------------|

| Elev. | Depth | ASTM Symbol | Description of Materials  | BPF | WL | Tests or Notes |
|-------|-------|-------------|---|-----|----|----------------|
|       |       |             | SANDY LEAN CLAY.<br>(Continued from previous page)                        |     |    |                |
|       |       |             |   | 11  |    | qp = 2 tsf     |
|       | 40.5  |             |   | 11  |    | qp = 2 1/4 tsf |
|       |       |             | END OF BORING.<br><br>Boring immediately backfilled with bentonite grout. |     |    |                |

| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |              |                |  | BORING: ST-01-17            |    |                |
|---|--------------|----------------|--|-----------------------------|----|----------------|
| CREW CHIEF: S. McLean   |              |                |  | METHOD: 3 1/4" HSA Autohmr. |    |                |
| DATE: 1/31/01   |              |                |  | SCALE: 1" = 4'              |    |                |
| Elev.   | Depth<br>0.0 | ASTM<br>Symbol | Description of Materials   | BPF                         | WL | Tests or Notes |
|   | 1.0          | FILL           | FILL: 6 inches Bituminous over aggregate base.   |                             |    |                |
|   |              | FILL           | FILL: Silty Sand, fine-grained, brown to black, moist.   | 14                          |    |                |
|   | 4.0          | CL             | LEAN CLAY, with shells, gray, wet, rather soft.<br>(Lacustrine)                                  | 4                           |    | qp = 2 1/2 tsf |
|   | 6.5          | CH             | FAT CLAY, brownish gray to gray, wet, very soft to soft.<br>(Lacustrine)                         | 3                           |    |                |
|   |              |                |  | 1                           |    | qp = 3/4 tsf   |
|   |              |                |  | WH                          |    |                |
|   |              |                |  | WH                          |    |                |
|   | 19.0         | CL             | SANDY LEAN CLAY, with Gravel, brownish-gray, wet, rather soft to rather stiff.<br>(Glacial Till) | 5                           |    |                |
|   |              |                |  | 6                           |    | qp = 1 3/4 tsf |
|   |              |                |  | 10                          |    | qp = 1 1/4 tsf |
|   | 32.0         |                |  |                             |    |                |

| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |       |                             |  | BORING: ST-01-17 (cont.)          |                |                |
|---|-------|-----------------------------|--|-----------------------------------|----------------|----------------|
|   |       |                             |  | LOCATION:<br>See attached sketch. |                |                |
| CREW CHIEF: S. McLean   |       | METHOD: 3 1/4" HSA Autohmr. |  | DATE: 1/31/01                     | SCALE: 1" = 4' |                |
| Elev.   | Depth | ASTM Symbol                 | Description of Materials   | BPF                               | WL             | Tests or Notes |
|   |       |                             | SANDY LEAN CLAY.<br>(Continued from previous page)   |                                   |                |                |
|   |       |                             |  | 10                                |                | qp = 3 tsf     |
|   | 40.5  |                             |  | 11                                |                |                |
|   |       |                             | END OF BORING.<br><br>Water not observed with 39 feet of hollow-stem auger in the ground.<br><br>Boring immediately backfilled with bentonite grout. |                                   |                |                |

| PROJECT: <b>CMXX-01-0004</b><br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |       |                             |   | BORING: <b>ST-01-18</b>           |  |
|--|-------|-----------------------------|---|-----------------------------------|--|
|  |       |                             |   | LOCATION:<br>See attached sketch. |  |
| CREW CHIEF: G. Hanson  |       | METHOD: 3 1/4" HSA Autohmr. |   | DATE: 2/1/01                      | SCALE: 1" = 4'                                 |
| Elev.  | Depth | ASTM Symbol                 | Description of Materials  | BPF WL                            | Tests or Notes                                 |
|  | 0.0   |                             |   |                                   |  |
|  | 1.0   | FILL                        | FILL: 6 inches of Bituminous over aggregate base.                                   |                                   |  |
|  |       | FILL                        | FILL: Lean Clay, gray to black, wet.  | 14                                |  |
|  | 5.0   |                             |   | 8                                 |  |
|  |       | FILL                        | FILL: Poorly Graded Sand with Silt, brown, moist.                                   | 11                                |  |
|  | 9.0   |                             |   |                                   |  |
|  |       | CL                          | LEAN CLAY, with layers of Fat Clay, gray, wet, soft to rather soft.<br>(Lacustrine) | 5                                 | MC = 34%<br>qp = 1 1/2 tsf<br>LL = 47, PI = 27 |
|  |       |                             |   | 3                                 | qp = 1 tsf                                     |
|  | 14.0  |                             |   |                                   |  |
|  |       | CL                          | SANDY LEAN CLAY, with Gravel, gray, wet, rather soft to medium.<br>(Glacial Till)   | 6                                 | MC = 17%<br>qp = 2 1/4 tsf                     |
|  |       |                             |   | 8                                 | qp = 2 1/2 tsf                                 |
|  |       |                             |   |                                   |  |
|  |       |                             | Grayish-brown below 24 feet.  | 4                                 | qap = 1 3/4 tsf                                |
|  |       |                             |   | 5                                 | qp = 2 tsf                                     |
|  | 32.0  |                             |   |                                   |  |

| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |       |                             |  | BORING: <b>ST-01-18 (cont.)</b>   |                |                |
|---|-------|-----------------------------|--|-----------------------------------|----------------|----------------|
|   |       |                             |  | LOCATION:<br>See attached sketch. |                |                |
| CREW CHIEF: G. Hanson   |       | METHOD: 3 1/4" HSA Autohmr. |  | DATE: 2/1/01                      | SCALE: 1" = 4' |                |
| Elev.   | Depth | ASTM Symbol                 | Description of Materials   | BPF                               | WL             | Tests or Notes |
|   |       | CL                          | SANDY LEAN CLAY.<br>(Continued from previous page)   |                                   |                |                |
|   |       |                             |  | 8                                 |                | qp = 1 3/4 tsf |
|   |       |                             |  | 9                                 |                | qp = 1 3/4 tsf |
|   | 44.0  |                             |  |                                   | ▽              |                |
|   |       | SM                          | SILTY SAND, fine- to medium-grained, with Gravel,<br>grayish-brown, wet, loose to medium dense.<br>(Glacial Till)          | 10                                |                |                |
|   | 50.5  |                             |  | 14                                |                |                |
|   |       |                             | END OF BORING.<br><br>Water observed at 43 feet while drilling.<br><br>Boring immediately backfilled with bentonite grout. |                                   |                |                |

| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |              |                |   | BORING: ST-01-19            |    |                |
|---|--------------|----------------|---|-----------------------------|----|----------------|
| CREW CHIEF: G. Hanson   |              |                |   | METHOD: 3 1/4" HSA Autohmr. |    |                |
| DATE: 2/13/01   |              |                |   | SCALE: 1" = 4'              |    |                |
| LOCATION:<br>See attached sketch.   |              |                |   |                             |    |                |
| Elev.   | Depth<br>0.0 | ASTM<br>Symbol | Description of Materials  | BPF                         | WL | Tests or Notes |
|   | 1.0          | FILL           | FILL: Bituminous over Aggregate Base.   |                             |    |                |
|   | 4.0          | FILL           | FILL: Poorly Graded Sand with Silt. with Gravel. wood, brick and glass. brown, moist.                                   | 47                          |    |                |
|   | 14.0         | FILL           | FILL: Silty Sand, mixed with Lean Clay, with Gravel. cinders, wood, brick and glass, dark brown to black, moist to wet. | 7<br>2<br>4<br>2            |    |                |
|   | 16.0         | FILL           | FILL: Lean Clay, dark brown, brown and gray, wet.   | WH                          |    |                |
|   | 32.0         | CH             | FAT CLAY. with layers of Lean Clay, with lenses of Poorly Graded Sand with Silt, gray, wet, very soft. (Lacustrine)     | WH<br>WH<br>WH              |    |                |

| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |       |                             |  | BORING: ST-01-19 (cont.) |                |   |
|---|-------|-----------------------------|--|--------------------------|----------------|---|
| CREW CHIEF: G. Hanson   |       | METHOD: 3 1/4" HSA Autohmr. |  | DATE: 2/13/01            | SCALE: 1" = 4' |   |
| Elev.   | Depth | ASTM Symbol                 | Description of Materials   | BPF                      | WL             | Tests or Notes  |
|   |       | CH                          | FAT CLAY.<br>(continued from previous page)  |                          |                |   |
|   |       |                             |  |                          | WH             |   |
|   |       |                             |  |                          | WH             |   |
|   | 44.0  | SM                          | SILTY SAND, mixed with Sandy Lean Clay, gray and brownish-gray, wet, very loose to medium dense.<br>(Alluvium) |                          |                |   |
|   |       |                             |  |                          | 3              |   |
|   |       |                             |  |                          | 21             |   |
|   | 54.0  | SC                          | CLAYEY SAND, gray, wet, loose.<br>(Glacial Till)   |                          |                |   |
|   |       |                             |  |                          | 6              |   |
|   | 57.0  | CL                          | LEAN CLAY, gray, wet, rather stiff.<br>(Glacial Till)  |                          |                |   |
|   |       |                             |  |                          | 10             |   |
|   | 60.5  |                             | END OF BORING.   |                          |                |   |
|   |       |                             | Water observed at 23 feet with 45 feet of hollow-stem auger in the ground.*                                    |                          |                |   |
|   |       |                             |  |                          |                | * Boring immediately backfilled with bentonite grout. |

| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |              |                |  | BORING: ST-01-20            |    |                     |
|---|--------------|----------------|--|-----------------------------|----|---------------------|
| CREW CHIEF: G. Hanson   |              |                |  | METHOD: 3 1/4" HSA Autohmr. |    |                     |
| DATE: 2/14/01   |              |                |  | SCALE: 1" = 4'              |    |                     |
| Elev.   | Depth<br>0.0 | ASTM<br>Symbol | Description of Materials   | BPF                         | WL | Tests or Notes      |
|   | 1.5          | FILL           | FILL: Bituminous over Aggregate Base.  |                             |    |                     |
|   |              | FILL           | FILL: Poorly Graded Sand, with Gravel, concrete and Sandstone, with a large obstruction at 2 1/2 feet. | 50/2"                       |    | No sample recovery. |
|   | 9.0          | PT             | PEAT, black, wet.<br>(Swamp Deposit)   | 2                           | ▽  |                     |
|   | 11.5         | OL             | ORGANIC CLAY, with shells, gray, wet, very soft.<br>(Swamp Deposit)                                    | 1                           |    |                     |
|   | 19.0         | CH             | FAT CLAY, with layers of Lean Clay, gray, wet, very soft.<br>(Lacustrine)                              | WH                          |    |                     |
|   | 32.0         |                |  | WH                          |    |                     |

| PROJECT: <b>CMXX-01-0004</b><br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |       |                             |  | BORING: <b>ST-01-20 (cont.)</b>   |                |                |
|--|-------|-----------------------------|--|-----------------------------------|----------------|----------------|
|  |       |                             |  | LOCATION:<br>See attached sketch. |                |                |
| CREW CHIEF: G. Hanson  |       | METHOD: 3 1/4" HSA Autohmr. |  | DATE: 2/14/01                     | SCALE: 1" = 4' |                |
| Elev.  | Depth | ASTM Symbol                 | Description of Materials   | BPF                               | WL             | Tests or Notes |
|  |       | CH                          | FAT CLAY.<br>(continued from previous page)                            |                                   |                |                |
|  | 43.0  |                             |  |                                   | WH             |                |
|  |       |                             |  |                                   | WH             |                |
|  |       | SM                          | SILTY SAND, brownish-gray, wet. loose.<br>(Glacial Till)               |                                   |                |                |
|  |       |                             |  |                                   | 9              |                |
|  |       |                             |  |                                   | 10             |                |
|  | 54.0  | SC                          | CLAYEY SAND, with Gravel, brownish-gray, wet, loose.<br>(Glacial Till) |                                   |                |                |
|  |       |                             |  |                                   | 10             |                |
|  | 59.0  | SM                          | SILTY SAND, brownish-gray, wet, medium dense.<br>(Glacial Till)        |                                   |                |                |
|  |       |                             |  |                                   | 11             |                |
|  | 64.0  |                             |  |                                   |                |                |

| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |       |                             |   | BORING: <b>ST-01-20 (cont.)</b>   |                |                     |
|---|-------|-----------------------------|---|-----------------------------------|----------------|---------------------|
|   |       |                             |   | LOCATION:<br>See attached sketch. |                |                     |
| CREW CHIEF: G. Hanson   |       | METHOD: 3 1/4" HSA Autohmr. |   | DATE: 2/14/01                     | SCALE: 1" = 4' |                     |
| Elev.   | Depth | ASTM Symbol                 | Description of Materials  | BPF                               | WL             | Tests or Notes      |
|   |       | CL                          | SANDY LEAN CLAY, with Gravel, with layers of Silty Sand, grayish-brown, wet, rather stiff to very stiff. (Glacial Till) | 9                                 |                |                     |
|   |       |                             |   | 10                                |                |                     |
|   |       |                             |   | 16                                |                |                     |
|   |       |                             |   | 13                                |                | No sample recovery. |
|   | 85.5  |                             |   | 19                                |                | No sample recovery. |
|   |       |                             | END OF BORING.  |                                   |                |                     |
|   |       |                             | Water observed at 9 feet with 10 feet of hollow-stem auger in the ground.   |                                   |                |                     |
|   |       |                             | Boring immediately backfilled with bentonite grout.   |                                   |                |                     |

|  |                         |
|--|-------------------------|
| PROJECT: <b>CMXX-01-0004</b><br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota | BORING: <b>ST-01-21</b> |
| LOCATION:<br>See attached sketch.  |                         |

|                       |                             |               |                |
|-----------------------|-----------------------------|---------------|----------------|
| CREW CHIEF: G. Hanson | METHOD: 3 1/4" HSA Autohmr. | DATE: 2/16/01 | SCALE: 1" = 4' |
|-----------------------|-----------------------------|---------------|----------------|

| Elev. | Depth<br>0.0 | ASTM<br>Symbol | Description of Materials  | BPF | WL | Tests or Notes |
|-------|--------------|----------------|---|-----|----|----------------|
|       | 1.0          | FILL           | FILL: Bituminous over Aggregate Base.   |     |    |                |
|       |              | FILL           | FILL: Lean Clay with Sand, with Gravel, dark brown, wet.                          | 8   |    |                |
|       | 6.5          | FILL           | FILL: Poorly Graded Sand, with Gravel, Limestone and concrete, dark brown, moist. | 55  |    |                |
|       | 9.0          | FILL           | FILL: Silty Sand, slightly organic, with Gravel and glass, black.                 | 2   | ▽  |                |
|       | 11.5         | OL             | ORGANIC SILT, with shells, gray and black, wet, very loose.<br>(Swamp Deposit)    | 2   |    |                |
|       |              |                |   | 2   |    |                |
|       |              |                |   | WH  |    |                |
|       |              |                |   | WH  |    |                |
|       | 29.0         | CH             | FAT CLAY, with layers of Lean Clay, gray, wet, very loose.<br>(Lacustrine)        | WH  |    |                |
|       | 32.0         |                |   |     |    |                |

|   |                                   |
|---|-----------------------------------|
| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota | BORING: ST-01-21 (cont.)          |
|   | LOCATION:<br>See attached sketch. |

|                       |                             |               |                |
|-----------------------|-----------------------------|---------------|----------------|
| CREW CHIEF: G. Hanson | METHOD: 3 1/4" HSA Autohmr. | DATE: 2/16/01 | SCALE: 1" = 4' |
|-----------------------|-----------------------------|---------------|----------------|

| Elev. | Depth | ASTM Symbol | Description of Materials                          | BPF | WL | Tests | or | Notes |
|-------|-------|-------------|---|-----|----|-------|----|-------|
|       |       | CH          | FAT CLAY.<br>(continued from previous page)       |     |    |       |    |       |
|       |       |             |   | WH  |    |       |    |       |
|       |       |             |   | WH  |    |       |    |       |
|       |       |             |   | WH  |    |       |    |       |
|       |       |             |   | WH  |    |       |    |       |
|       |       |             |   | WH  |    |       |    |       |
|       |       |             |   | WH  |    |       |    |       |
|       | 59.0  | SC          | CLAYEY SAND, gray, wet, very loose.<br>(Alluvium) |     |    |       |    |       |
|       |       |             |   | WH  |    |       |    |       |
|       | 64.0  |             |   |     |    |       |    |       |

|  |                                   |
|--|-----------------------------------|
| PROJECT: <b>CMXX-01-0004</b><br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota | BORING: <b>ST-01-21 (cont.)</b>   |
|  | LOCATION:<br>See attached sketch. |

|                       |                             |               |                |
|-----------------------|-----------------------------|---------------|----------------|
| CREW CHIEF: G. Hanson | METHOD: 3 1/4" HSA Autohmr. | DATE: 2/16/01 | SCALE: 1" = 4' |
|-----------------------|-----------------------------|---------------|----------------|

| Elev. | Depth | ASTM Symbol | Description of Materials   | BPF           | WL | Tests or Notes |
|-------|-------|-------------|--|---------------|----|----------------|
|       |       | SC          | CLAYEY SAND, with Gravel, gray, wet, very loose to medium dense.<br>(Glacial Till)   | 3<br>16<br>12 |    |                |
|       | 75.5  |             | END OF BORING.<br><br>Water observed at 9 feet with 10 feet of hollow-stem auger in the ground.<br><br>Boring immediately backfilled with bentonite grout. |               |    |                |

| PROJECT: CMXX-01-0004<br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota |       |                             |  | BORING: ST-01-22 |                |                |
|---|-------|-----------------------------|--|------------------|----------------|----------------|
| CREW CHIEF: G. Hanson   |       | METHOD: 3 1/4" HSA Autohmr. |  | DATE: 2/16/01    | SCALE: 1" = 4' |                |
| Elev.   | Depth | ASTM Symbol                 | Description of Materials   | BPF              | WL             | Tests or Notes |
|   | 0.0   |                             |  |                  |                |                |
|   | 1.0   | FILL                        | FILL: Bituminous over Silty Sand. with Gravel, brown, moist.                                 |                  |                |                |
|   |       | FILL                        | FILL: Silty Sand, with Gravel, cinders, asphalt and brick. brown, dark brown and black.      | 32               |                |                |
|   |       |                             |  | 2                |                |                |
|   |       |                             |  | 8                |                |                |
|   | 9.0   | FILL                        | FILL: Lean Clay, gray and brown, wet.  |                  |                |                |
|   |       |                             |  | 4                |                |                |
|   | 11.5  | FILL                        | FILL: Silty Sand, with Gravel, moist.  |                  |                |                |
|   |       |                             |  | 6 3/4"           |                |                |
|   | 14.0  | FILL                        | FILL: Silty Sand, with Gravel, Cobbles and boulders, with brick, waterbearing.               |                  |                |                |
|   |       |                             |  | 16               |                |                |
|   |       |                             |  |                  | ▽              |                |
|   | 19.0  | CL                          | LEAN CLAY, gray, wet, rather stiff. (Glacial Till)   |                  |                |                |
|   |       |                             |  | 9                |                |                |
|   | 24.0  | SM                          | SILTY SAND, with Gravel, grayish-brown, waterbearing, medium dense. (Glacial Till)           |                  |                |                |
|   |       |                             |  | 17               |                |                |
|   | 29.0  | CL                          | SANDY LEAN CLAY, with Gravel, brownish-gray, wet, rather stiff to very stiff. (Glacial Till) |                  |                |                |
|   |       |                             |  | 10               |                |                |
|   | 32.0  |                             |  |                  |                |                |

|  |                                   |
|--|-----------------------------------|
| PROJECT: <b>CMXX-01-0004</b><br>Preliminary Geotechnical Evaluation<br>Bassett Creek Valley Study Area<br>Cedar Lake Road and 1st Avenue North<br>Minneapolis, Minnesota | BORING: <b>ST-01-22 (cont.)</b>   |
|  | LOCATION:<br>See attached sketch. |

|                       |                             |               |                |
|-----------------------|-----------------------------|---------------|----------------|
| CREW CHIEF: G. Hanson | METHOD: 3 1/4" HSA Autohmr. | DATE: 2/16/01 | SCALE: 1" = 4' |
|-----------------------|-----------------------------|---------------|----------------|

| Elev. | Depth | ASTM Symbol | Description of Materials  | BPF | WL | Tests or Notes |
|-------|-------|-------------|---|-----|----|----------------|
|       |       | CL          | SANDY LEAN CLAY.<br>(continued from previous page)  |     |    |                |
|       | 40.5  |             |   | 17  |    |                |
|       |       |             |   | 24  |    |                |
|       |       |             | END OF BORING.<br><br>Water observed at 17 feet with 20 feet of hollow-stem auger in the ground.<br><br>Boring immediately backfilled with bentonite grout. |     |    |                |

|  |                                   |
|--|-----------------------------------|
| PROJECT: <b>BABX-00-0602</b><br><b>GEOTECHNICAL EVALUATION</b><br>New Pipe Alternative<br>Near Northside<br>Minneapolis, Minnesota | BORING: <b>ST-101</b>             |
|  | LOCATION:<br>See attached sketch. |

|                     |                             |               |                |
|---------------------|-----------------------------|---------------|----------------|
| CREW CHIEF: K. Keck | METHOD: 3 1/4" HSA Autohmr. | DATE: 11/8/00 | SCALE: 1" = 4' |
|---------------------|-----------------------------|---------------|----------------|

| Elev. | Depth | ASTM Symbol | Description of Materials   | BPF | WL | Tests or Notes  |
|-------|-------|-------------|--|-----|----|---|
| 817.1 | 0.0   |             |  |     |    |   |
| 815.6 | 1.5   |             | 6 inches of Bituminous over 12 inches of Aggregate Base.   |     |    |   |
|       |       | CL          | FILL: Lean Clay, gray and black, wet.  | 6   |    | MC = 42%  |
| 813.1 | 4.0   | CH          | FAT CLAY, gray, wet, soft.<br>(Lacustrine)   | 5   |    |   |
| 810.1 | 7.0   | CH          | FAT CLAY, with lenses of Sand and Silt, gray, wet, very soft.<br>(Lacustrine)                    | 2   |    |   |
|       |       |             |  | 1   |    | MC = 37%  |
|       |       |             |  | 3   |    | MC = 56%  |
|       |       |             |  | 2   | ▽  |   |
|       |       |             |  | 1   |    |   |
|       |       |             |  | 2   |    | Approximate invert grade.   |
|       |       |             |  | 2   |    |   |
|       |       |             |  | 3   |    | An open triangle in the water level (WL) column indicates the depth at which groundwater was observed while drilling. A solid triangle indicates the groundwater level in the boring on the date indicated. Groundwater levels fluctuate. |
| 789.1 | 28.0  | SM          | SILTY SAND, fine-grained, with lenses of Clay and Silt, gray, waterbearing, loose.<br>(Alluvium) | 5   |    |   |
| 785.1 | 32.0  |             |  |     |    |   |

|  |                                   |
|--|-----------------------------------|
| PROJECT: <b>BABX-00-0602</b><br><b>GEOTECHNICAL EVALUATION</b><br>New Pipe Alternative<br>Near Northside<br>Minneapolis, Minnesota | BORING: <b>ST-101 (cont.)</b>     |
|  | LOCATION:<br>See attached sketch. |

|                     |                             |               |                |
|---------------------|-----------------------------|---------------|----------------|
| CREW CHIEF: K. Keck | METHOD: 3 1/4" HSA Autohmr. | DATE: 11/8/00 | SCALE: 1" = 4' |
|---------------------|-----------------------------|---------------|----------------|

| Elev. | Depth | ASTM Symbol | Description of Materials  | BPF | WL | Tests or Notes |
|-------|-------|-------------|---|-----|----|----------------|
| 784.1 | 33.0  | SM          | SILTY SAND.<br>(Continued from previous page)   |     |    |                |
|       |       | CH          | FAT CLAY, with lenses of Sand and Silt, gray, wet, soft.<br>(Lacustrine)                | 4   |    |                |
| 779.1 | 38.0  | SM          | SILTY SAND, very fine-grained, with lenses of Clay, gray, wet, loose.<br>(Alluvium)     | 7   |    |                |
| 773.1 | 44.0  | ML          | CLAYEY SILT, with layers of Fat Clay and Sand seams, gray, wet, medium.<br>(Lacustrine) | 8   |    |                |
| 768.1 | 49.0  | CH          | FAT CLAY, with very fine Sand lenses, gray, wet, rather stiff.<br>(Lacustrine)          | 9   |    |                |
| 763.1 | 54.0  | SC          | CLAYEY SAND, fine-grained, with Gravel, brownish-gray, wet, stiff.<br>(Glacial Till)    | 13  |    |                |
| 753.1 | 64.0  |             |   | 15  |    |                |

|  |                                   |
|--|-----------------------------------|
| PROJECT: <b>BABX-00-0602</b><br><b>GEOTECHNICAL EVALUATION</b><br>New Pipe Alternative<br>Near Northside<br>Minneapolis, Minnesota | BORING: <b>ST-101 (cont.)</b>     |
|  | LOCATION:<br>See attached sketch. |

|                     |                             |               |                |
|---------------------|-----------------------------|---------------|----------------|
| CREW CHIEF: K. Keck | METHOD: 3 1/4" HSA Autohmr. | DATE: 11/8/00 | SCALE: 1" = 4' |
|---------------------|-----------------------------|---------------|----------------|

| Elev. | Depth | ASTM Symbol | Description of Materials   | BPF | WL | Tests or Notes         |
|-------|-------|-------------|--|-----|----|------------------------|
|       |       | SM/SC       | SILTY TO CLAYEY SAND, fine- to medium-grained, with Gravel, reddish-brown, wet, medium dense. (Glacial Till) | 12  |    | MC = 11%<br>P200 = 35% |
| 747.1 | 70.0  |             |  |     |    |                        |
| 746.6 | 70.5  | SP-SM       | POORLY GRADED SAND with SILT, fine- to medium-grained, with Gravel, brown, wet, loose. (Glacial Outwash)     | 9   |    |                        |
|       |       |             | END OF BORING.   |     |    |                        |
|       |       |             | Water observed at 15 feet with 69 feet of hollow-stem auger in the ground.                                   |     |    |                        |
|       |       |             | Boring immediately backfilled with bentonite grout.  |     |    |                        |

| PROJECT: BABX-00-0602<br>GEOTECHNICAL EVALUATION<br>New Pipe Alternative<br>Near Northside<br>Minneapolis, Minnesota |       |                             |   | BORING: ST-102                    |                |                           |
|--|-------|-----------------------------|---|-----------------------------------|----------------|---------------------------|
|  |       |                             |   | LOCATION:<br>See attached sketch. |                |                           |
| CREW CHIEF: K. Keck  |       | METHOD: 3 1/4" HSA Autohmr. |   | DATE: 11/9/00                     | SCALE: 1" = 4' |                           |
| Elev.  | Depth | ASTM Symbol                 | Description of Materials  | BPF                               | WL             | Tests or Notes            |
| 826.5  | 0.0   | CL                          | LEAN CLAY, black to brownish-gray, wet.<br>(Possible Fill)  |                                   |                |                           |
| 823.5  | 3.0   | CH                          | FAT CLAY, brownish-gray, wet, rather soft.<br>(Lacustrine)  | 4                                 |                |                           |
| 818.5  | 8.0   | ML                          | SILT, with Sand lenses, grayish-brown, wet, rather soft.<br>(Alluvium)                              | 5                                 |                |                           |
| 814.5  | 12.0  | ML                          | SANDY SILT, with Sand lenses, brown, wet, loose.<br>(Lacustrine)                                    | 6                                 |                |                           |
| 809.5  | 17.0  | ML                          | SANDY SILT, with Clay seams, gray, wet to 19 feet<br>then waterbearing, very loose.<br>(Lacustrine) | 2                                 | ▽              | MC = 32%                  |
|  |       |                             |   | 1                                 |                | *WH = Weight of Hammer    |
|  |       |                             |   | 2                                 |                |                           |
|  |       |                             |   | WH*                               |                |                           |
| 799.5  | 27.0  | CL                          | CLAYEY SILT, with seams of Sand, gray, wet, very<br>soft.<br>(Lacustrine)                           | 2                                 |                | Approximate invert grade. |
| 797.5  | 29.0  | ML                          | SANDY SILT, gray, wet, very loose.<br>(Lacustrine)  | 4                                 |                |                           |
| 794.5  | 32.0  |                             |   |                                   |                |                           |

| PROJECT: BABX-00-0602<br>GEOTECHNICAL EVALUATION<br>New Pipe Alternative<br>Near Northside<br>Minneapolis, Minnesota |       |                             |  | BORING: ST-102 (cont.)            |                |                                |
|--|-------|-----------------------------|--|-----------------------------------|----------------|--------------------------------|
|  |       |                             |  | LOCATION:<br>See attached sketch. |                |                                |
| CREW CHIEF: K. Keck  |       | METHOD: 3 1/4" HSA Autohmr. |  | DATE: 11/9/00                     | SCALE: 1" = 4' |                                |
| Elev.  | Depth | ASTM Symbol                 | Description of Materials   | BPF                               | WL             | Tests or Notes                 |
| 793.5  | 33.0  | ML                          | SANDY SILT.<br>(Continued from previous page)  |                                   |                |                                |
|  |       | ML                          | SANDY SILT, with Clay and Sand seams, gray, wet, loose.<br>(Lacustrine)                      | 5                                 |                |                                |
| 788.5  | 38.0  | CH                          | FAT CLAY, with Sand and Silt seams, gray, wet, medium.<br>(Lacustrine)                       | 6                                 |                |                                |
|  |       |                             |  | 6                                 |                | MC = 37%<br>LL = 50<br>PI = 28 |
| 778.5  | 48.0  | CL                          | SANDY LEAN CLAY, with a trace of Gravel, reddish-brown, wet, rather stiff.<br>(Glacial Till) | 9                                 |                |                                |
| 772.5  | 54.0  | SC                          | CLAYEY SAND, fine-grained, with Gravel, reddish-brown, wet, rather stiff.<br>(Glacial Till)  | 10                                |                |                                |
|  |       |                             |  | 12                                |                | MC = 13%<br>P200 = 40%         |
| 762.5  | 64.0  |                             |  |                                   |                |                                |

| PROJECT: <b>BABX-00-0602</b><br><b>GEOTECHNICAL EVALUATION</b><br>New Pipe Alternative<br>Near Northside<br>Minneapolis, Minnesota |       |                             |   | BORING: <b>ST-102 (cont.)</b>     |                |                |
|--|-------|-----------------------------|---|-----------------------------------|----------------|----------------|
|  |       |                             |   | LOCATION:<br>See attached sketch. |                |                |
| CREW CHIEF: K. Keck  |       | METHOD: 3 1/4" HSA Autohmr. |   | DATE: 11/9/00                     | SCALE: 1" = 4' |                |
| Elev.  | Depth | ASTM Symbol                 | Description of Materials  | BPF                               | WL             | Tests or Notes |
|  |       | SP-SM                       | POORLY GRADED SAND with SILT, fine- to coarse-grained, with Gravel, brown, waterbearing, loose.<br>(Glacial Outwash)  | 8                                 |                |                |
| 756.0  | 70.5  |                             |   | 9                                 |                |                |
|  |       |                             | END OF BORING.<br><br>Water observed at 15 feet with 69 feet of hollow-stem auger in the ground.<br><br>Boring immediately backfilled with bentonite grout. |                                   |                |                |