



MACTEC Engineering and Consulting
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FIELD BOREHOLE LOG

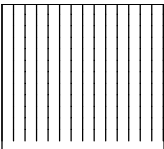
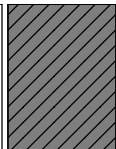
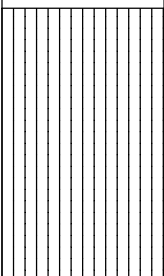





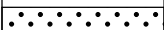
BOREHOLE NO.: **MW-164**

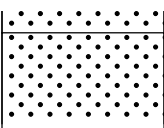
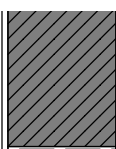
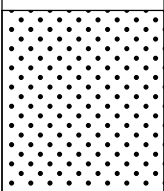
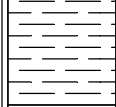

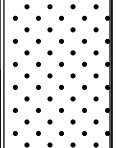
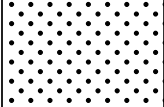
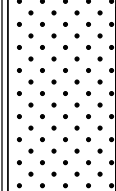
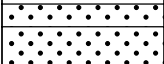
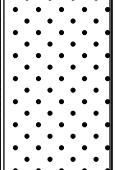

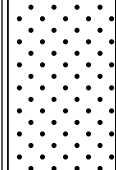

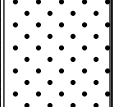


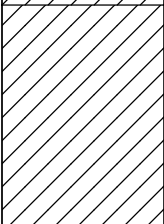
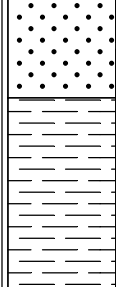
TOTAL DEPTH: **86'**

| PROJECT INFORMATION | | DRILLING INFORMATION | |
|---------------------|---------------------|---------------------------|---------------------|
| PROJECT: | DDMT | DRILLING CO.: | ProSonic |
| SITE LOCATION: | Memphis, TN | DRILLER: | David Wilcox |
| JOB NO.: | 6301-04-0019 | RIG TYPE: | RotoSonic |
| LOGGED BY: | Kevin Arnold | TOP OF CASING ELEVATION: | 287.48 |
| PROJECT MANAGER: | Tom Holmes | GROUND SURFACE ELEVATION: | 287.70 |
| DATE DRILLED: | 10/09/04 | | |

NOTES:

- 1) Drilling technique: 0 to 86.0 ft, bgs 6-inch diameter borehole with roto sonic.
- 2) Well construction: 2-inch diameter schedule 40 PVC casing set to 75.2 ft, bgs with 20 ft of 0.01-inch slot well screen.
- 3) Well screens the fluvial aquifer.
- 4)  Stabilized water level measured on 10/09/04

| DEPTH | SOIL SYMBOLS | USCS | SOIL DESCRIPTION | FID ppm | WELL COMPLETION | WELL DESCRIPTION |
|-------|---|------|---|---------|---|------------------|
| 0 |  | ML | strong brown (7.5 YR 5/6) clayey SILT, soft, loose, dry | |  | Grouted Annulus |
| -5 | | | No Recovery | | | |
| -10 |  | ML | strong brown (7.5 YR 5/6) clayey SILT, soft, loose, dry | | | |
| -15 | | | | | | |
| -20 |  | CL | strong brown (7.5 YR 5/8) silty CLAY, with trace well sorted, fine gravel, medium stiff, slightly plastic | | | |
| -25 |  | ML | yellowish red (5 YR 5/8) fine gravelly, fine sandy, clayey SILT, medium stiff | | | |
| -30 |  | ML | yellowish red (5 YR 5/8) fine gravelly, fine sandy, clayey SILT, medium stiff | | | |
| -30 |  | CL | light reddish gray (2.5 YR 7/1) CLAY, stiff, highly plastic | | | |
| -35 |  | SP | red (2.5 YR 5/8) clayey SILT, loose, soft | | | |
| -40 |  | SP | light red (7.5 YR 5/6) slightly clayey, fine grain SAND | | | |

| DEPTH | SOIL SYMBOLS | USCS | SOIL DESCRIPTION | FID ppm | WELL COMPLETION | WELL DESCRIPTION |
|-------|--|----------|--|---------|---|-------------------------------|
| -45 |  | SP | loose red (7.5 YR 7/6) fine to coarse, well rounded gravelly, fine grain SAND, well sorted, very loose, amount of gravel decreases with depth | |  | |
| -50 |  | SP | No Recovery reddish yellow (7.5 YR 6/8) fine to medium grain SAND, with trace well rounded fine to coarse gravel, well sorted, loose | |  | Bentonite Seal |
| -55 |  | | No Recovery | |  | Sand Pack / Screened Interval |
| -60 |  | SP | reddish yellow (7.5 YR 7/8) fine grain SAND, with trace well rounded fine to coarse gravel, very loose | |  | |
| -65 |  | SP SP | reddish yellow (7.5 YR 7/6) fine to coarse, well rounded gravelly, fine grain SAND, well sorted, loose reddish yellow (7.5 YR 7/8) fine grain SAND, with trace well rounded coarse gravel, loose, moist | |  | |
| -70 |  | SP | No Recovery reddish yellow (7.5 YR 7/8) fine grain SAND, with trace silt, highly plastic, stiff, wet | |  | |
| -75 |  | SP CL | reddish yellow (7.5 YR 7/8) fine sandy, clayey, SILT, wet | |  | |
| -80 |  | CL | pinkish gray (7.5 YR 6/2) to reddish yellow (7.5 YR 7/8) fine sandy CLAY, stiff, wet | |  | |
| -85 |  | CL | reddish yellow (7.5 YR 7/8) silty CLAY, very stiff, wet gray (7.5 YR 5/1) silty CLAY, hard Boring Terminated at 86 feet, bgs | |  | Bentonite Plug |