



CH2MHILL

PROJECT NUMBER

334469.SA.HS

BORING NUMBER

MW-240

SHEET 1 of 5

SOIL BORING LOG

PROJECT : Memphis Depot - Intermediate Aquifer Inv. LOCATION : Memphis, Tennessee

ELEVATION:

DRILLING CONTRACTOR : Boart Longyear

NAME OF DRILLER : J. Asua

DRILLING METHOD/EQUIPMENT: SR 120 Track-Mounted Rotasonic

SIZE/TYPE OF BIT : 4X6"

OVERBURDEN THICKNESS : DEPTH DRILLED INTO ROCK N/A

TOTAL DEPTH OF BORING : 146 ft-bgs

WATER LEVELS : XXX ft-bgs START: 10/2/07 / END: 10/3/07

LOGGER : Derek Miller (KNV)

| DEPTH BELOW SURFACE (FT) | STANDARD | | | SOIL DESCRIPTION | COMMENTS |
|--------------------------|----------------------|---------|--|------------------|---|
| | SAMPLE INTERVAL (FT) | | PENETRATION TEST RESULTS 6"-6"-6" (N) | | |
| | RECOVERY (FT) | #/TYPE | | | |
| | | | | | |
| 5 | 0-6 | 6 / 6 | C-1 | N/A | 0.0-6.0: SL. CLAYEY SILT (ML), pale brown to strong brown, sl. moist, firm, ~10% clay |
| 10 | 6-16 | 9 / 10 | C-2 | N/A | 6.0-6.6: AS ABOVE 6.6-16.0: AS ABOVE, gray, distinct contact |
| 15 | | | | | |
| 20 | 16-26 | 10 / 10 | C-3 | N/A | 16.0-19.7: AS ABOVE, common coarse distinct yellowish brown mottles throughout 19.7-21.0: SANDY CLAY W/ FEW GRAVELS (CL), gray, moist v. soft, ~35% fine to medium-grained sand, gravel up to 1", subround, chert 21.0-22.3: GRAVELLY SAND W/ TRACE CLAY (SW), gray, moist, loose, fine to medium-grained sand, gravel up to 1", subround, chert, ~10-15% gravel 22.3-23.1: SL. SANDY SILT W/ FEW GRAVELS (ML), strong brown, sl. moist, hard, ~5-10% medium-grained sand, ~5% gravel up to 1", subround, chert, distinct contact 23.1-24.3: SANDY CLAY (CL), gray, moist, v. soft, ~10-15% fine to medium-grained sand 24.3-26.0: SILTY SAND W/ SOME GRAVEL (SW), gray changing to orange @ 25.0', wet, loose, fine to coarse-grain sand, ~25% gravel up to 1", subround, chert, ~25% silt 26.0-28.4: AS ABOVE |
| 25 | | | | | |
| 30 | 26-36 | 10 / 10 | C-4 | N/A | 28.4-31.9: SAND W/ TRACE SILT AND GRAVEL (SP), yellowish brown, wet, loose, fine-grained 31.9-32.4: AS ABOVE, dark brown, large 4" sandstone frags, v. hard 32.4-36.0: SAND W/ FEW GRAVELS AND CLAY LENSES (SW), yellowish brown, wet, loose to soft, clay lenses up to 4" thick, typically surrounding large gravels up to 2-3", subround, chert, ~20% gravel and clay |
| 35 | | | | | |

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SHEET 2 of 5

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|--------------------------|--------------------------|---------|---------------|----------|---|---|---|
| | SAMPLE INTERVAL (FT) | | RECOVERY (FT) | #/TYPE | PENETRATION TEST RESULTS 6"-6"-6" (N) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY. | DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. FID (ppm) |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| 40 | 36-46 | 10 / 10 | C-5 | N/A | 36.0-40.9: GRAVELLY SAND (SW), brownish yellow, wet, loose, v. fine-grained sand, ~30% gravel up to 2-3", subround chert, ~25% silt 40.9-42.8: CLAY (CL), pale red, moist, v. soft, massive 42.8-46.0: SAND (SP), brownish yellow, sl. moist, loose, fluffy, v. fine-grained sand | | |
| 45 | | | | | | | |
| | | | | | | | |
| 50 | 46-56 | 10 / 10 | C-6 | N/A | 46.0-49.3: AS ABOVE 49.3-50.5: SAND (SP), brown, wet, loose, v. fine to fine-grain 50.5-56.0: SL. SILTY SAND W/ TRACE GRAVEL (SP), brown, sl. moist, loose, ~10% silt | | |
| 55 | | | | | | | |
| | | | | | | | |
| 60 | 56-66 | 10 / 10 | C-7 | N/A | 56.0-57.0: AS ABOVE 57.0-63.5: SL. SILTY SAND (SP), yellowish brown, moist, loose, v. fine to fine-grained | | |
| 65 | | | | | | | |
| | | | | | | | |
| 70 | 66-76 | 6 / 10 | C-8 | N/A | 63.5-64.9: GRAVELLY SAND (SW), brownish yellow, wet, loose, medium-grained sand, ~35% gravel up to 3", subround, chert 64.9-66.0: SAND (SP), yellowish brown, moist, loose, v. fine-grained 66.0-72.0: AS ABOVE | | |



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|--------------------------|----------------------|---------|------|---|---|----------|
| | RECOVERY (FT) | #/TYPE | | | | |
| | | | | | | |
| | 66-76 | 6 / 10 | C-8 | N/A | 72.0-72.5: CLAY (CL), v. light gray, moist, v. soft, highly plastic 72.5-76.0: SAND (SP), v. light gray, dry, loose, v. fine-grained | |
| | 76-86 | 10 / 10 | C-9 | N/A | 76.0-86.0: SAND (SP), gray to grayish brown, moist, loose, v. fine to fine-grained | |
| | 86-96 | 10 / 10 | C-10 | N/A | 86.0-96.0: AS ABOVE, wet | |
| | 96-106 | 10 / 10 | C-11 | N/A | 96.0-97.0: AS ABOVE 97.0-104.5: SL. SANDY TO SILTY CLAY (CL), light gray changing to dark gray @ 98.2', sl. moist, firm, many coarse prominent yellowish brown mottles throughout, trace v. fine-grained sand, ~20% silt, becoming less silty w/ depth | |
| | | | | | 104.5-106.0: CLAY (CL), dark gray, sl. moist, firm | |



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| | RECOVERY (FT) | | | | | |
| | | | | | | |
| 110 | 106-116 | 10 / 10 | C-12 | N/A | 106.0-116.0: CLAY (CL), dark gray, sl. moist, firm, trace black organic staining throughout, ~10% silt | |
| 115 | | | | | | |
| 120 | 116-126 | 10 / 10 | C-13 | N/A | 116.0-126.0: INTERBEDDED SILTY SAND AND CLAY (SM/CL) gray to brownish gray, moist to wet, v. soft to firm, clay lenses @ 117.5-118.0, 118.8-119.3, 120.0-120.5, 122.0-122.3 and 125.5-126.0, ~20-25% silt, v. fine-grained sand | |
| 125 | | | | | | |
| 130 | 126-136 | 10 / 10 | C-14 | N/A | 126.0-136.0: SILTY SAND (SM), light gray, wet, loose to v. soft, v. fine-grained sand, clay lense from 132.1-132.4', gray-ish brown, moist, firm | |
| 135 | | | | | | |
| 140 | 136-146 | 4 / 10 | C-15 | N/A | 136.0-146.0: AS ABOVE, no clay lense | |

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|--|--|--|--|--------------------------------|--|--|--|--|--|
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| DEPTH BELOW SURFACE (FT) | | | | STANDARD | | SOIL DESCRIPTION | | COMMENTS | |
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| RECOVERY (FT) | | | | TEST RESULTS | | | | | |
| #/TYPE | | | | 6"-6"-6" (N) | | | | | |
| 136-146 | | | | 4 / 10 | | C-15 | | N/A | |
| 145 | | | | | | | | TD @ 146.0 FT-BGS | |