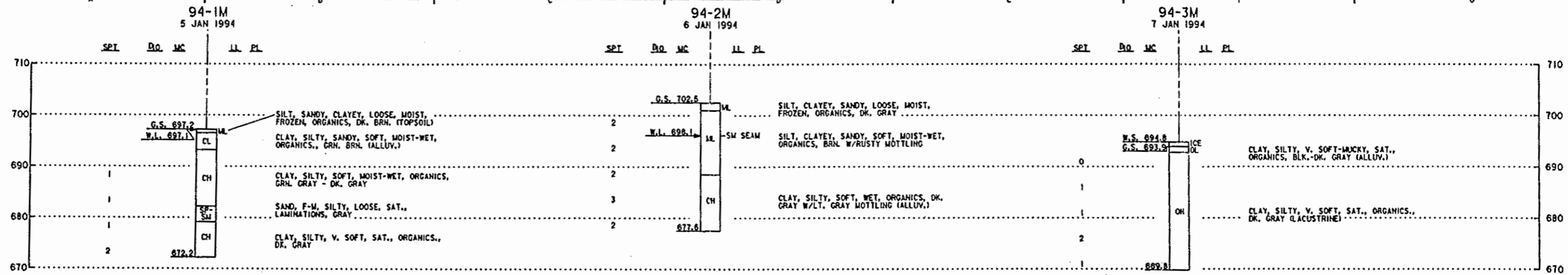


Plate 6-1

Bass Ponds - Existing Soil Exploration for Rice Lake Project



NOTES

1. WATER LEVEL DETERMINED AFTER 40 MINUTES:  
BOTTOM OF AUGER AT EL. 683.2  
BOTTOM OF HOLE AT EL. 682.2
2. HOLLOW STEM AUGER SET TO EL. 683.2. HOLE STABILIZED WITH DRILLING MUD BELOW EL. 683.2.
3. SAMPLES FOR ENVIRONMENTAL ANALYSIS TAKEN IN OFFSET HOLE.
4. HOLE BACKFILLED WITH TREMMIED CEMENT-BENTONITE GROUT.

NOTES

1. WATER LEVEL DETERMINED AFTER 60 MINUTES:  
BOTTOM OF AUGER AT EL. 687.5  
BOTTOM OF HOLE AT EL. 687.5
2. HOLLOW STEM AUGER SET TO EL. 682.5
3. SAMPLES FOR ENVIRONMENTAL ANALYSIS TAKEN IN OFFSET HOLE.
4. HOLE BACKFILLED WITH BENTONITE CHIPS-PORTLAND CEMENT

NOTES

1. WATER LEVEL DETERMINED FROM LAKE LEVEL
2. 4" STEEL CASING SET TO 690.8. HOLE STABILIZED WITH DRILLING MUD BELOW EL. 690.8.
3. SAMPLES FOR ENVIRONMENTAL ANALYSIS TAKEN IN OFFSET HOLE.
4. PULLED CASING AND ALLOWED HOLE TO HEAVE.

GENERAL BORING LEGEND

84-1M	YEAR OF BORING-BORING NUMBER, BORING TYPE (E=EDI M-MACHINE, A=AUGER, TP=TEST PIT, P=PIEZOMETER)
1 MAY 1984	DATE OF BORING
G.S. 1020.2	GROUND SURFACE ELEVATION AT BORING
GW	WELL GRADED GRAVELS, GRAVEL - SAND MIXTURE, LITTLE OR NO FINES
GP	POORLY GRADED GRAVELS, LITTLE OR NO FINES
GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
SM	SILTY SANDS, SAND - SILT MIXTURES
SC	CLAYEY SANDS, SAND - CLAY MIXTURES
ML	INORGANIC SILTS, LIQUID LIMIT LESS THAN 50
MH	INORGANIC SILTS, LIQUID LIMIT GREATER THAN 50
CL	INORGANIC CLAYS, LOW TO MED. PLASTICITY, LIQUID LIMIT LESS THAN 50
CH	INORGANIC CLAYS, HIGH PLASTICITY, LIQUID LIMIT GREATER THAN 50
OL	ORGANIC SILTS OR CLAYS, LOW PLASTICITY, LIQUID LIMIT LESS THAN 50
OH	ORGANIC SILTS OR CLAYS, MED. TO HIGH PLASTICITY, LIQUID LIMIT GREATER THAN 50
PT	PEAT
SP-SM	BORDERLINE MATERIAL
SPB-SM	STRATIFIED MATERIAL
I	LOCATION AND SAMPLE NUMBER FOR UNDISTURBED SAMPLE
X	NO RECOVERY
W.L. 726.7	WATER LEVEL ON DATE OF BORING
100.0	ELEVATION AT BOTTOM OF BORING

GENERAL BORING NOTES

1. GENERAL: THE UNIFIED SOIL CLASSIFICATION SYSTEM IS USED TO IDENTIFY BASIC SOIL TYPE. THE LEGEND REPRESENTS ONLY THE BASIC SOILS. TO COMPLETE THE CLASSIFICATION, PERTINENT INFORMATION IS ADDED TO THE RIGHT OF THE BORING STAFF, NOTES PERTAINING TO A SPECIFIC BORING ARE SHOWN BELOW THE BORING STAFF.
2. MOISTURE CONTENT: THE NATURAL MOISTURE CONTENT IN PERCENT OF DRY WEIGHT (MC) IS SHOWN TO THE LEFT OF THE BORING STAFF.
3. BLOW COUNT (SPT): BLOW COUNTS ARE SHOWN TO THE LEFT OF THE BORING STAFF AND, EXCEPT AS NOTED, ARE THE NUMBER OF BLOWS NECESSARY TO DRIVE THE SAMPLER USED A DISTANCE OF 12". STANDARD BLOW COUNTS ARE FOR A STANDARD PENETRATION TEST (SPT) USING A 1 1/4" X 2" SAMPLER, 140 LB. HAMMER AND A 30" DROP. FOR NON-STANDARD BLOW COUNTS, SAMPLER SIZE, HAMMER WEIGHT AND HEIGHT OF DROP ARE AS SHOWN.
4. ATTERBERG LIMITS: LIQUID LIMIT (LL) AND PLASTIC LIMIT (PL) ARE SHOWN TO THE RIGHT OF THE BORING STAFF.
5. D<sub>10</sub> SIZE: THE GRAIN SIZE IN MILLIMETERS OF WHICH 10% OF THE SAMPLE IS FINER IS SHOWN TO THE LEFT OF THE BORING STAFF.
6. ROD: ROCK QUALITY DESIGNATION (ROQ) IS SHOWN TO THE LEFT OF THE PERCENT RECOVERY COLUMN. ROQ IS THE PERCENT RECOVERY CONSISTING OF UNBROKEN PIECES LONGER THAN 4".
7. % RECOVERY: PERCENT CORE RECOVERY IS SHOWN TO THE LEFT OF THE BORING STAFF. PERCENT RECOVERY IS LENGTH OF CORE RECOVERED/LENGTH OF CORE CUT X 100. UNLESS SPECIFIED OTHERWISE, ALL CORE IS 4" DIAMETER.
8. ELEVATIONS REFERENCED TO N.G.V.D., 1929 ADJUSTED.
9. THE BORINGS SHOW SUMMARIES OF INFORMATION RECORDED ON THE ORIGINAL FIELD LOGS. THESE LOGS ARE AVAILABLE FOR INSPECTION AT THE ST. PAUL DISTRICT OFFICE. ARRANGEMENTS TO INSPECT LOGS CAN BE MADE BY CALLING (612) 290-5599.

- GEN ENG
- HYD
- HYDR
- ⊗ GEOTECH
- STR ENG
- MEA

SYMBOL		DESCRIPTION		DATE	APPROVAL
DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA					
APPROVING OFFICIAL:		DEFINITE PROJECT REPORT/ENVIRONMENTAL ASSESSMENT MINNESOTA VALLEY NATIONAL WILDLIFE REFUGE ENVIRONMENTAL MGMT. PROGRAM - MINNESOTA RIVER RICE LAKE HREP SCOTT CO., MINNESOTA			
DESIGNED: JJE		GEOLOGICAL DATA			
CHECKED: GAR		BORING LEGEND, GENERAL NOTES AND BORING LOGS			
DRAWN: PAW		94-1M THRU 94-3M			
DESIGNED:		CAD FILE NAME: RICESH01.DGN		DRAWING NUMBER:	SHT 1
CHECKED:		DATE: DECEMBER 1994		SOL. NO.: DACW37-94-B-0000	PLATE 2
					OF 2

Bass Ponds - Existing Soil Exploration for Rice Lake Project



NOTES

1. WATER LEVEL DETERMINED AFTER 2 HOURS:  
BOTTOM OF AUGER AT EL. 691.5  
BOTTOM OF HOLE AT EL. 689.3
2. HOLLOW STEM AUGER SET TO EL. 687.5. HOLE STABILIZED WITH DRILLING MUD BELOW EL. 687.5.
3. HOLE BACKFILLED WITH TREMIED CEMENT-BENTONITE GROUT.

- GEN ENG
- HYD
- HYDR
- GEOTECH
- TR ENG
- MEA

SYMBOL	DESCRIPTION	DATE	APPROVAL
DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA			
DEFINITE PROJECT REPORT/ENVIRONMENTAL ASSESSMENT MINNESOTA VALLEY NATIONAL WILDLIFE REFUGE ENVIRONMENTAL MGMT. PROGRAM - MINNESOTA RIVER RICE LAKE HREP SCOTT CO., MINNESOTA		GEOLOGICAL DATA BORING LEGEND, GENERAL NOTES AND BORING LOGS	
DESIGNED: JJF CHECKED: GAR DRAWN: PAW		94-4M	
DATE: DECEMBER 1994		CAD FILE NAME: RICESHD2.DGN SOL. NO.: DACW37-93-B-0000	
		DRAWING NUMBER: PLATE 3	
		SHEET 2 OF 2	