

Memorandum

T.12 N. R.1W. SEC. 11 E

UTAH DEPARTMENT OF TRANSPORTATION

1155

DATE: March 16, 1979

TO : Ray J. Behling, P. E. Chief Structural Engineer

FROM : Edwin E. Lovelace, Engineer of Materials and Research

FOUNDATIONS

Filed 5/2/79

SUBJECT: OS-03(06) Bear River Bridge West of Benson
3900 West over Bear River

For your information and file we are transmitting herewith three sets of Boring Logs, Summary of Test Data and Summary of Foundation Recommendations for the above project.

Transmittal

LRausher/es

cc: E. P. Gilgen

G. L. Richardson, Cache County Engineer

R. N. Griffin

Foundation File

UTAH STATE DEPARTMENT OF TRANSPORTATION

MATERIALS AND RESEARCH

Project Number OS-03(06)

Summary of Test Data

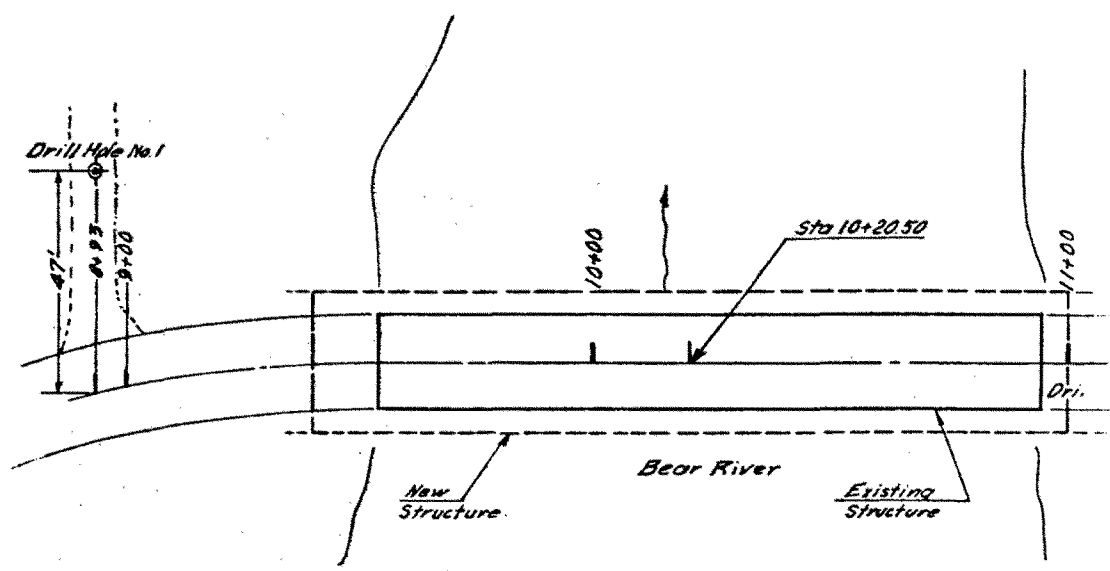
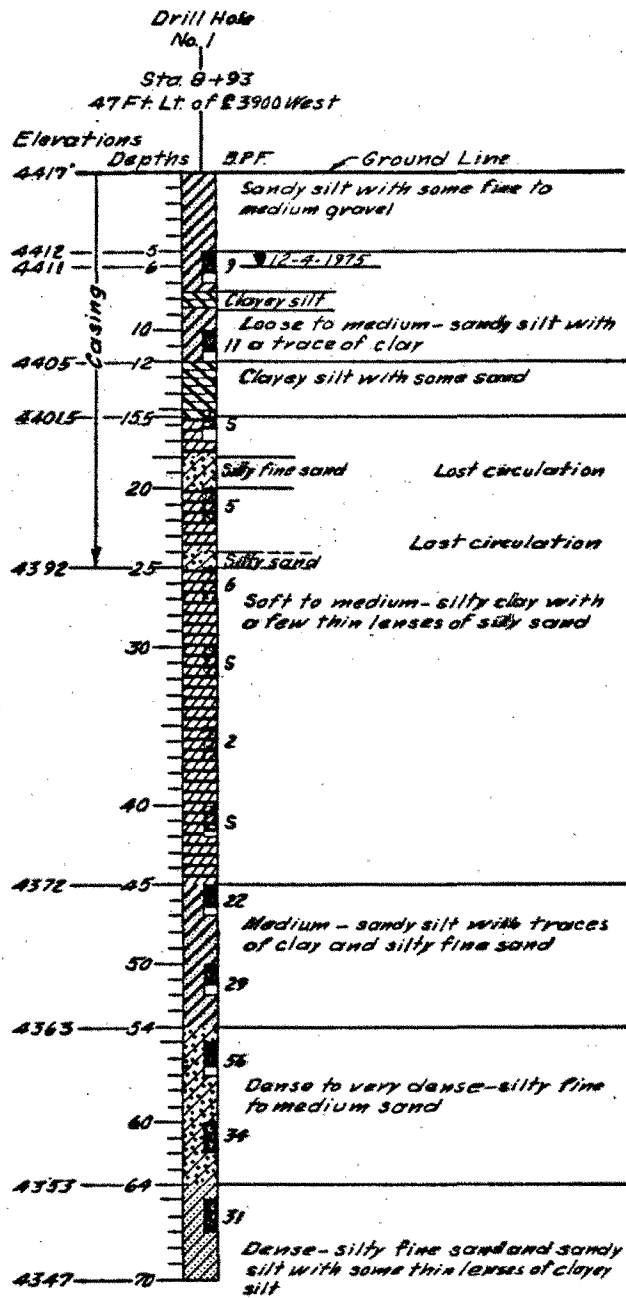
Sheet 1 Of 1

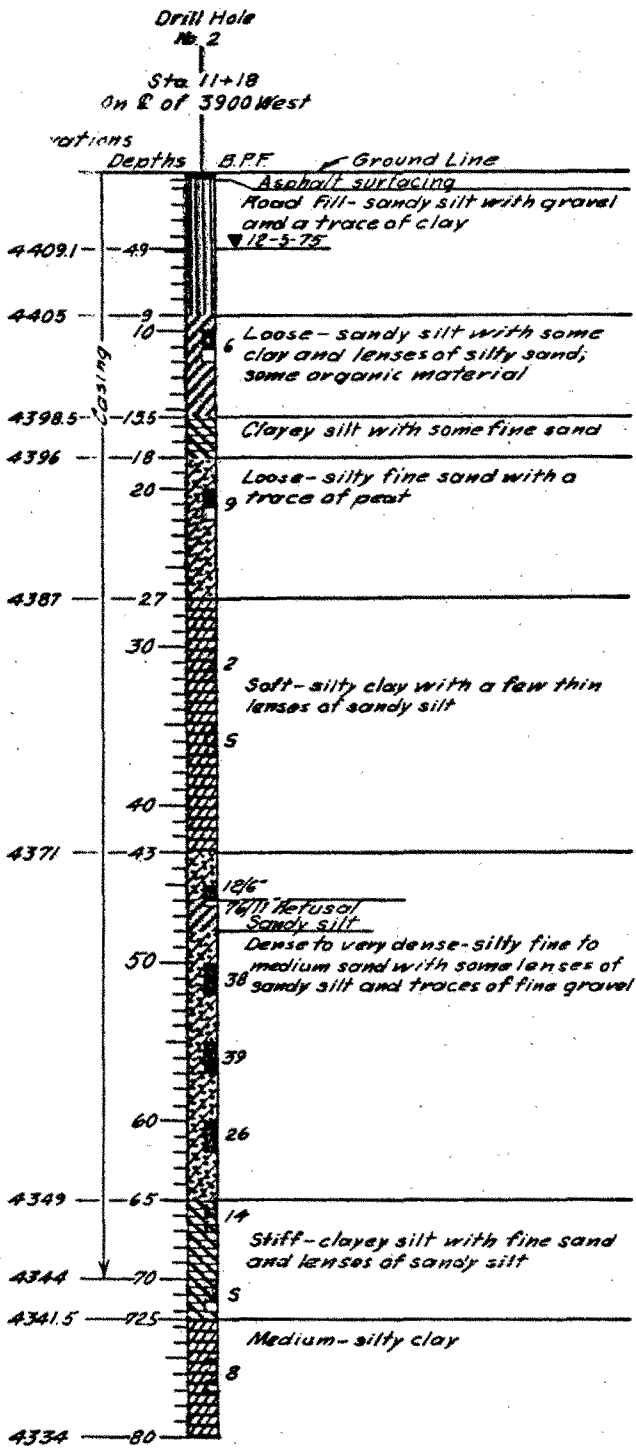
Project Name Bear River Bridge at Benson

Structure _____

Boring No.	Depth	Grading Analysis				Group Classification	Atterberg Limits		Water Cont. ω %	Wet Unit Weight γ P.C.F.	Dry Unit Weight γ_s P.C.F.	Specific Gravity G_s	Permeability k 10^{-4} cm/sec.		Unconfined Strength q_u T.S.F.	Shear Strength				
		Percent					Liquid Limit L.L.	Plastic Index P.I.					Hor.	Vert.		Total Stress		Effective Stress		Type Of Test
		Gravel	Coarse Sand	Fine Sand	Silt and Clay											ϕ°	C T.S.F.	ϕ°	C' T.S.F.	
1	17							28.4												
1	32					79	50	56.8	103.3	65.9				1.07						
1	37							56.3												
1	42					79	49	62.9	99.7	61.2				0.88						
1	42								101.5					0.54						
2	37							78.9												

S - Shelby Sample P - Penetration Sample T - Triaxial Shear Test C - Consolidation DIR - Direct Shear Test UU - Unconsolidated, Undrained
 CU - Consolidated, Undrained CD - Consolidated, Drained

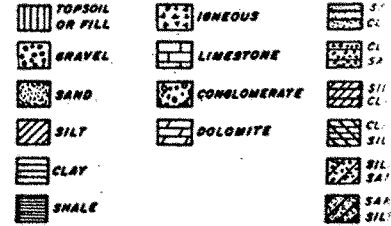




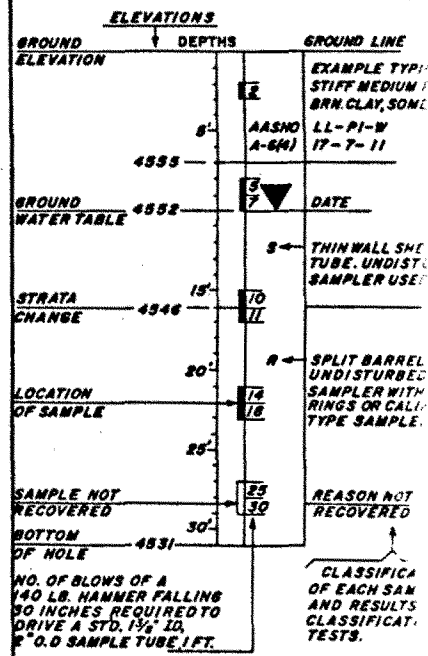
KEY TO DRILLING LOG

RELATIVE DENSITY NON-PLASTIC SANDS:
 VERY LOOSE - LESS THAN 4 BLOWS PER FOOT.
 LOOSE - 4 TO 10 BLOWS PER FOOT.
 MEDIUM - 10 TO 30 BLOWS PER FOOT.
 DENSE - 30 TO 50 BLOWS PER FOOT.
 VERY DENSE - MORE THAN 50 BLOWS PER FOOT.

CONSISTENCY (PLASTIC SILT & CLAY)
 VERY SOFT - LESS THAN 2 BLOWS PER FOOT.
 SOFT - 2 TO 4 BLOWS PER FOOT.
 MEDIUM - 4 TO 8 BLOWS PER FOOT.
 STIFF - 8 TO 15 BLOWS PER FOOT.
 VERY STIFF - 15 TO 30 BLOWS PER FOOT.
 HARD - MORE THAN 30 BLOWS PER FOOT.



DRILL HOLE NO. 2
STATION 0+00 E OR L OR R IN FT. OF



ABBREVIATIONS
 L.L. - LIQUID LIMIT IN %
 P.I. - PLASTIC INDEX
 W. - NATURAL MOISTURE CONTENT
 W.G. - WELL GRADED
 PEN. - PENETRATION
 G.W.T. - GROUND WATER TABLE
 B.P.F. - BLOWS PER FOOT.
 N.P. - NON PLASTIC

UTAH STATE DEPARTMENT OF HIGHWAYS
 SALT LAKE CITY, UTAH
MATERIALS AND TESTS DIVISION
 BEAR RIVER BRIDGE AT BENSON
 3900 WEST OVER BEAR RIVER

DRAWN BY *BC Searle* CHECKED BY *B. Kistler* OS
 CHECKED BY *L.K. Roush* CHECKED BY *J.R. Jones* 10+2
 CHECKED BY *Ed Kerze* CHECKED BY _____
 APPROVED BY _____
 RECEIVED _____ DATE _____ CHIEF STRUCTURAL ENGINEER

NO.	BY	DATE	REMARKS
REVISIONS			

BR. NO. _____ ORG. NO. _____

Fig. 1

AREA NUMBER 1155, LOCATION= 423300N, 4627250E UTM coordinates

BORING NUMBER 1
BORING DEPTH= 70.00 ft. GROUND WATER DEPTH= 6.00 ft.

DEPTH (ft.)	CRITICAL ACCELERATION (a/g)	SOIL TYPE	N	N1	SILT CORRECTION
6.50	0.4618	A4	9.0	14.4	7.5
11.00	0.3873	A4	11.0	15.3	7.5
17.75-20.00	A4 SOIL BELOW WATER TABLE NOT TESTED				
46.00	0.3896	A4	22.0	17.9	7.5
51.00	0.5721	A4	29.0	22.3	7.5
56.00	6.1265	A4	56.0	41.1	7.5
61.00	0.7362	A4	34.0	23.9	7.5
66.00	0.5906	A4	31.0	20.9	7.5

MINIMUM CRITICAL ACCELERATION FOR BORING= 0.3873

BORING NUMBER 2
BORING DEPTH= 80.00 ft. GROUND WATER DEPTH= 5.00 ft.

DEPTH (ft.)	CRITICAL ACCELERATION (a/g)	SOIL TYPE	N	N1	SILT CORRECTION
11.00	0.2542	A4	6.0	8.6	7.5
21.00	0.2416	A4	9.0	10.3	7.5
51.00	1.2639	A4	38.0	29.6	7.5
56.00	1.2263	A4	39.0	28.9	7.5
61.00	0.4661	A4	26.0	18.4	7.5

MINIMUM CRITICAL ACCELERATION FOR BORING= 0.2416

MINIMUM CRITICAL ACCELERATION FOR AREA= 0.2416
