

FOUNDATION

## Memorandum

UTAH DEPARTMENT OF TRANSPORTATION

T235 R2W  
SEC 28E

DATE: April 29, 1981

TO : Those Listed Below

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

*Heber Plan for E.E.L.*

SUBJECT: BRS-0314(4) - SR-119 Sevier River Bridge Replacement East of Richfield; Foundation Report for SR-119 over Sevier River, Station 399+99

## SITE CONDITIONS

A single-span prestressed beam structure is proposed to replace the existing bridge, SR-119 over the Sevier River. The proposed structure will be 68 feet long and 42 feet wide with a crossing angle of 90 degrees. The existing approach embankments will be utilized.

Surface drainage at the structure site is good.

## SUBSURFACE EXPLORATION

Two test holes were drilled to a depth of 75 feet. Correlation between test holes is good and a general description of the subsurface materials is as follows: from the ground surface to an elevation of 4749 feet - medium to dense silty clay and sandy silt with fine sand; from elevation 4749 feet to the maximum depth of exploration - very dense sand and gravel with some silt. Refer to the Drilling Logs, Fig. 1, for more detailed descriptions of subsurface materials and test hole locations.

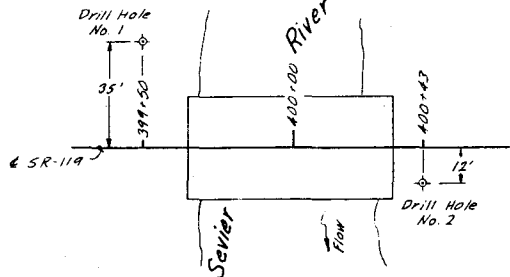
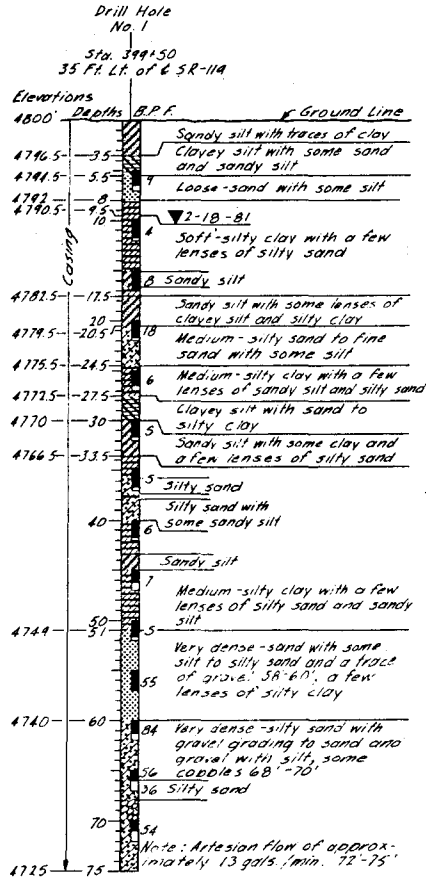
Ground water was measured at an approximate elevation of 4790 feet (See Fig. 1).

## FOUNDATION RECOMMENDATIONS

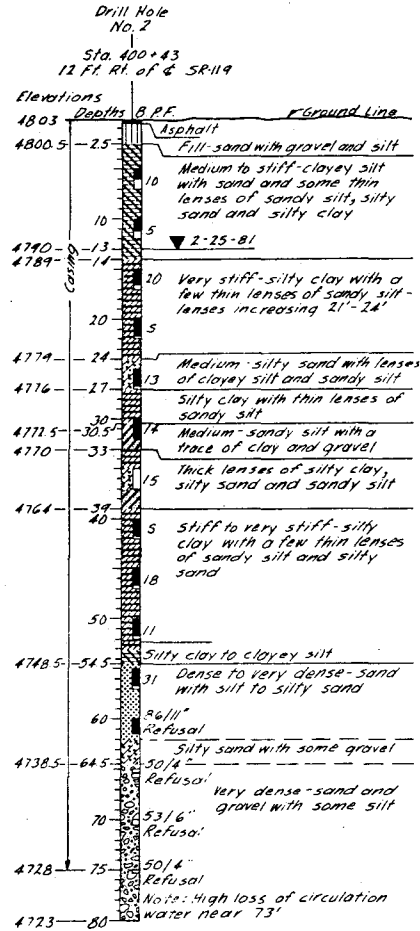
One-foot diameter steel pipe piles or tapered steel piles with 8-inch minimum diameter tips are recommended to support this structure. The estimated tip elevation for 180 kip piles is as follows:

<u>Location</u>	<u>Est. Pile Tip Elev. Ft.</u>	<u>Pile Length Ft.</u>
East & West Abuts.	4741	53

Estimated tip elevations are approximate and pile load capacity shall be verified at the time of construction with an appropriate dynamic pile driving formula or a wave equation analysis of pile driving.



← NORTH



**KEY TO DRILLING LOG**  
**RELATIVE DENSITY (NON-PLASTIC SANDS/SLT)**

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

TOPSOIL OR FILL	LODGE	SANDY CLAY
GRAVEL	LIMESTONE	CLAYEY SAND
SAND	CONGLOMERATE	SILTY CLAY
SILT	DOLOMITE	CLAYEY SILT
CLAY		SILTY SAND
SHALE		SANDY SILT

DRILL HOLE NO. 0400 E OR LT. OR RT. IN FT. OFFSET

GROUND ELEVATION	DEPTHS	GROUND LINE	EXAMPLE TYPICAL
4555	5	LL-PI-W	STIFF MEDIUM PLASTIC ORN CLAY, SOME SILT
4552	5	DAE	
4546	10	LL	THIN WALL SHELDY SILTY UNDISTURBED SAMPLER USED
4540	20	R	SPLIT BARREL UNDISTURBED SAMPLER WITH LINER RINGS OR CALIFORNIA TYPE SAMPLER
4531	30	30	REASON NOT RECOVERED

NO. OF BLOWS OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO DRIVE A STD. 1 1/2" ID. 10" O.D. SAMPLE TUBE 1 FT.

CLASSIFICATION OF EACH SAMPLE AND RESULTS OF CLASSIFICATION TESTS

**ABBREVIATIONS**

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

NOTE: REFUSAL = 30 OR MORE BLOWS PER FOOT

Date Drilled: Feb. 25, 1961

UTAH DEPARTMENT OF TRANSPORTATION			
MATERIALS AND RESEARCH SECTION			
BRIDGE REPLACEMENT EAST OF RICHFIELD			
SR-119 OVER SEVIER RIVER			
DRAWN BY: G. KISTLER	CHECKED BY: B.C. SMOOK	PROJECT NUMBER:	BRS-0314-14
CHECKED BY: P. S. LEWIS	CHECKED BY: K. FANNEY	DATE:	399+99
CHECKED BY: J. W. HARRIS	CHECKED BY:	PLANT:	SEVIER
APPROVED BY: LORAN H. ROUSE		OFFICE:	
RECEIVED:		DATE:	
BY:	DATE:	REVISIONS:	

FIGURE 1