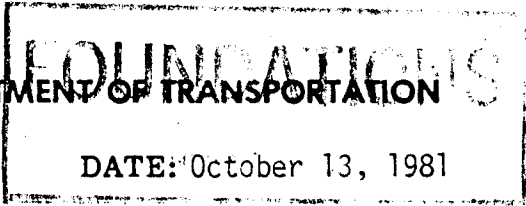


Memorandum

UTAH DEPARTMENT OF TRANSPORTATION



TO : Those Listed Below

FROM : Heber Vlam, P.E., Engineer of Materials and Research *H.V.*

SUBJECT: I-15-5(11)213 - Mills Junction to South Nephi; I-15 over U.S. - 91 at I-15 Ø Sta. 847+12.70

*T13S R1E
Section 17J*

SITE CONDITIONS

Two single span steel beam structures are proposed to carry I-15 over U.S. - 91 south of Nephi. The structures will be approximately 170 feet long by 44 feet wide and will cross U.S. - 91 at a skew angle of 48°. The approach embankments will be 24 to 26 feet high.

Surface drainage in the area is good.

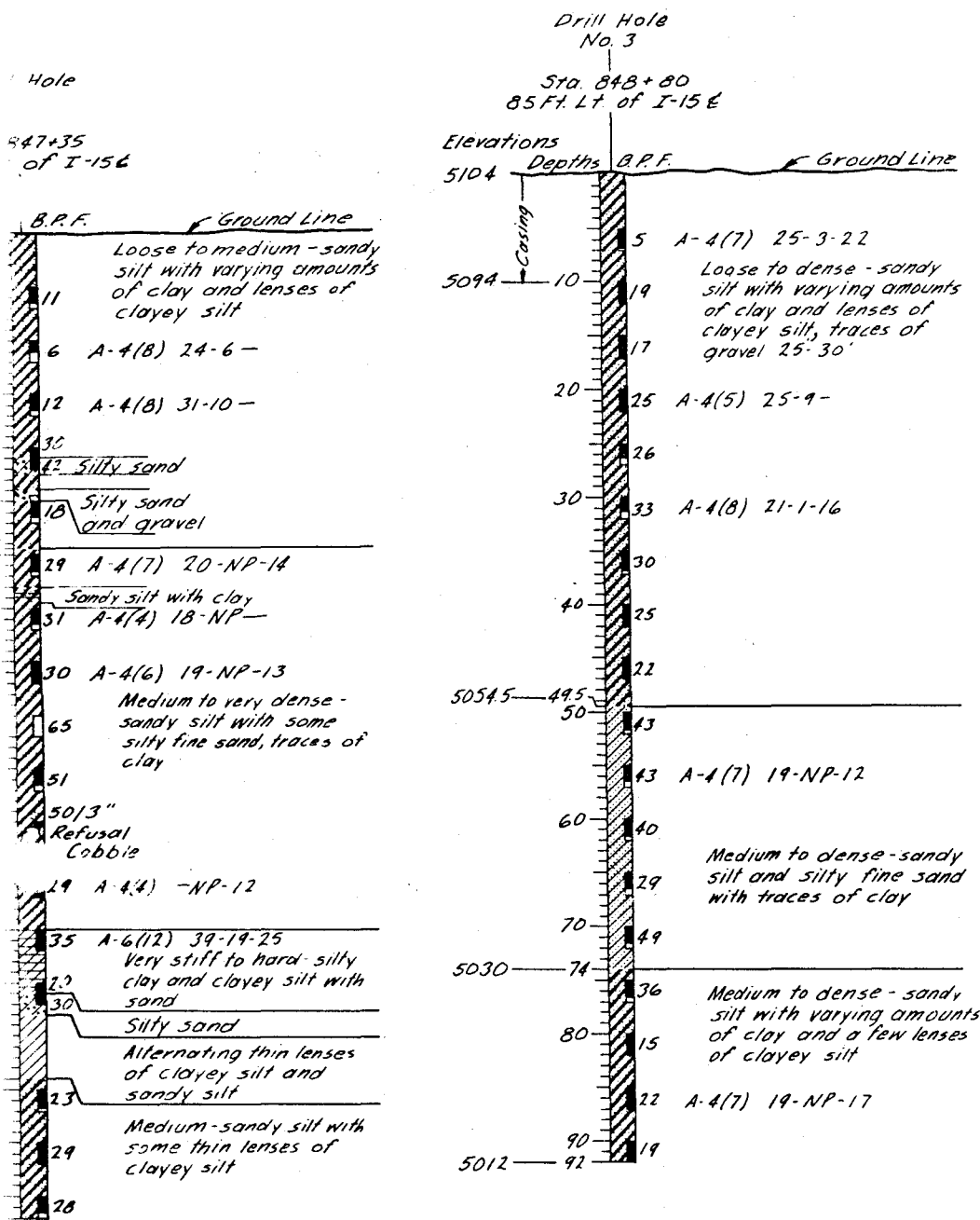
SUBSURFACE EXPLORATION

Four test holes with depths ranging from 92 to 101 feet were drilled at the site of the proposed structures. In general the subsurface materials may be described as follows: from the ground surface to a depth of 38 feet - loose to dense sandy silt with varying amounts of clay and some very stiff to hard clayey silt and silty clay; from 38 feet to 65 feet - medium to very dense sandy silt with traces of clay; from 65 feet to the maximum depth of exploration - medium to dense sandy silt with varying amounts of clay and some clayey silt and silty clay. See Figure 1, Log of Borings for more detailed descriptions and test hole locations.

FOUNDATION RECOMMENDATIONS

One foot diameter steel pipe piles or tapered steel piles with 8.0 inch minimum diameter tips are recommended to support these structures. Piles driven into the dense to very dense sandy silt with traces of clay may be loaded to 180 kips per pile. The recommended pile tip elevations are as follows:

<u>Location</u>	<u>Estimated Pile Tip Elevation, Ft.</u>	<u>Corresponding Depth Below Natural Ground, Ft.</u>
N.B.L. No. Abutment	5050	50
N.B.L. So. Abutment	5047	50
S.B.L. No. Abutment	5049	55
S.B.L. So. Abutment	5052	47



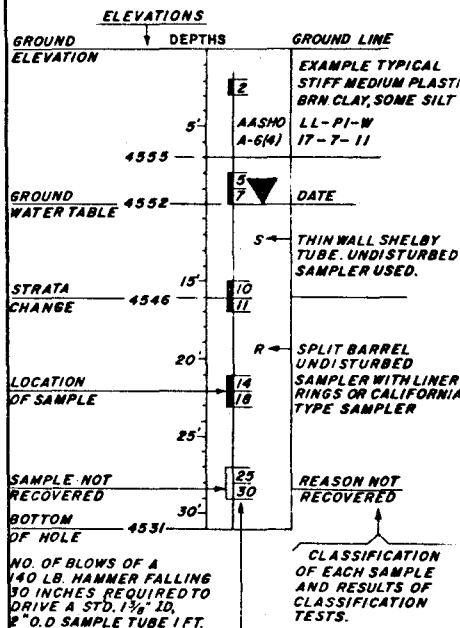
KEY TO DRILLING LOG

RELATIVE DENSITY (NON-PLASTIC SAND & SILT)
 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

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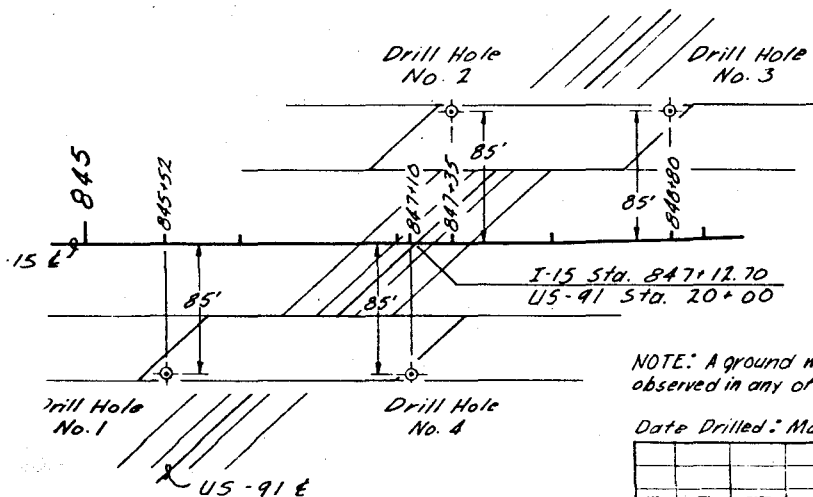
DRILL HOLE NO. STATION 0+00 E OR LT. OR RT. IN FT. OFFSET.



ABBREVIATIONS

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

NOTE: REFUSAL = 50 or more blows per 6"



NOTE: A ground water table was not observed in any of the drill holes.

Date Drilled: March 1979

NO.	BY	DATE	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION SALT LAKE CITY, UTAH MATERIALS AND RESEARCH SECTION		1-15-5(11) 212 PROJECT NUMBER
MILLS JUNCTION TO SOUTH NEPHI I-15 OVER US 91		
DRAWN BY B. Kistler	CHECKED BY Boyd C. Seaton	847+12 STATION
CHECKED BY P. S. Stearns	CHECKED BY D. K. Powell	JUAB COUNTY
CHECKED BY S. S. KHALI	CHECKED BY	BR NO.
APPROVAL RECOMMENDED BY Loren H. Ponder	DATE	DRG NO.
RECEIVED		OF

FIGURE 1

