

TWS RLW

5114

Sec 24 K

FOUNDATIONS

Memorandum

UTAH DEPARTMENT OF TRANSPORTATION

DATE: November 21, 1983

Those Listed Below

No
GW

FROM: Heber Vlam, P.E., Engineer of Materials & Research

H.V.

SUBJECT: I-70-1(25)48 - Sigurd to Salina;
Foundation Report for I-70 over "E" Line,
I-70, Sta. 2474+00, Drg. No. F-486

SITE CONDITIONS

Two single span prestressed concrete beam structures are proposed to carry I-70 over "E" Line. These structures will be 116 feet long by 44 feet wide and will cross "E" Line at right angles. The approaches to these proposed structures will vary from approximately 2 feet of cut to 3 feet of embankment. The "E" Line grade will require about 20 to 23 feet of cut at the crossing site.

Surface drainage in the area is good.

SUBSURFACE EXPLORATION

Four test holes were drilled at this site, with depths ranging from 40 feet to 45.3 feet. Correlation of the subsurface materials is good and in general they may be described as follows: from the ground surface to a depth of 5 feet - silty sand with some gravel and sandy silt; from 5 feet to 10 feet - very dense silty sand and gravel; from 10 feet to 14 feet - loose to dense sand with silt and some gravel; from 14 feet to the maximum depth of exploration - very dense silty sand and gravel with some cobbles and a few scattered layers of loose to dense silty sand. A ground water table was not encountered in any of the drill holes.

See Figure 1, Log of Borings for more detailed descriptions and test hole locations.

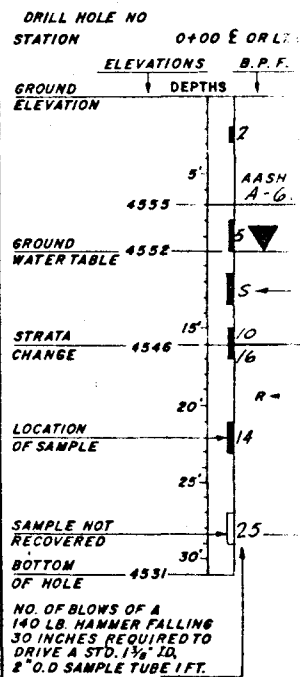
FOUNDATION RECOMMENDATIONS

Drilled caissons are recommended to support the abutments on these structures. The caissons should be founded in the very dense silty sand and gravel, approximately 30 to 32 feet below the existing ground surface. The allowable load for 3.0 foot diameter caissons is 270 kips. See Figure 2 for the allowable caisson loads of caissons with other diameters. The recommended caisson tip elevations are as follows:

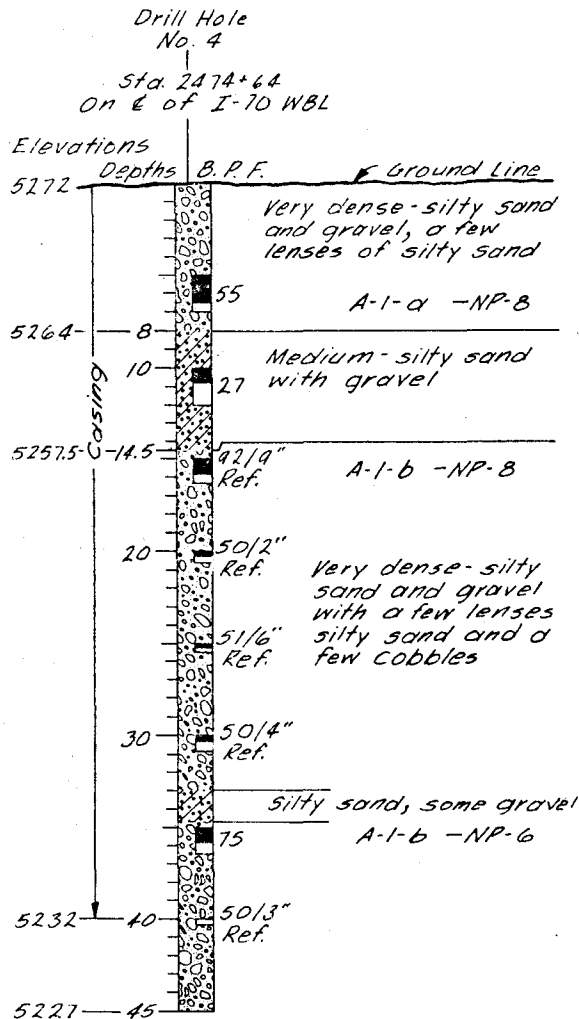
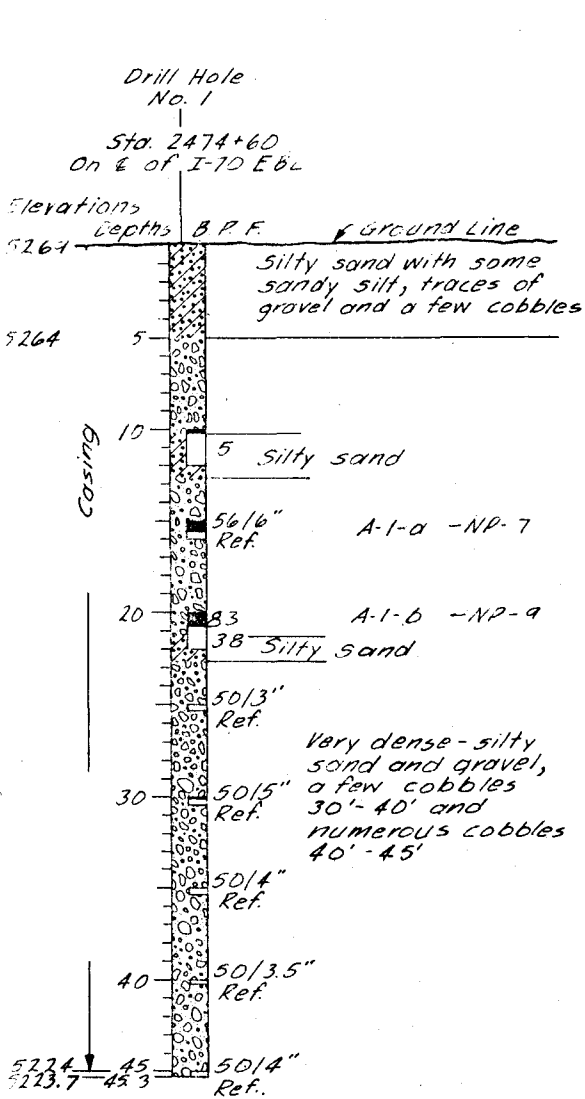
KEY TO DRILLING
RELATIVE DENSITY (NON-PL.)
 VERY LOOSE - LESS THAN 4
 LOOSE - 4 TO 10 BLOWS PER
 MEDIUM - 10 TO 30 BLOWS PER
 DENSE - 30 TO 50 BLOWS PER
 VERY DENSE - MORE THAN 50

CONSISTENCY (PLASTIC-SIL.)
 VERY SOFT - LESS THAN 2 B.L.
 SOFT - 2 TO 4 BLOWS PER FT.
 MEDIUM - 4 TO 8 BLOWS PER
 STIFF - 8 TO 15 BLOWS PER
 VERY STIFF - 15 TO 30 BLOWS
 HARD - MORE THAN 30 BLOWS

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ABBREVIATIONS
 L.L. - LIQUID LIMIT
 P.I. - PLASTIC INDEX
 W. - NATURAL MOISTURE
 Ref. - REFUSAL ≥ 5
 PEN. - PENETRATION
 G.W.T. - GROUND WATER TABLE
 B.P.F. - BLOWS PER FOOT
 N.P. - NON PLASTIC
 AASHTO - SOIL CLASSIFICATION



Note: A water table was not encountered in any of the Drill Holes.

Date Drilled: June & Aug. 1983

NO.	BY	DATE	REVISIONS

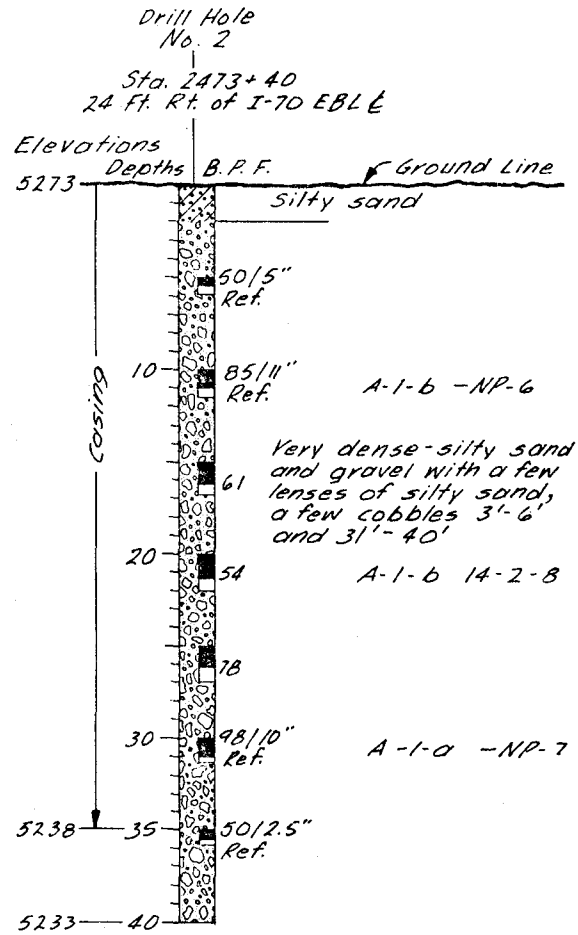
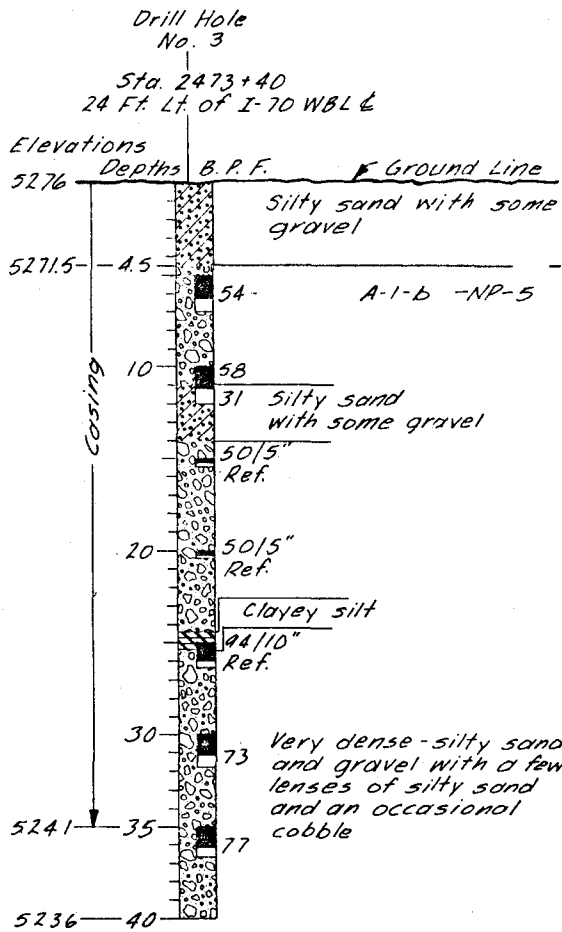
UTAH STATE DEPARTMENT OF
 SALT LAKE CITY, UTAH
MATERIALS and RESEARCH

SIGURD TO SALINA
 I-70 OVER "E" LIP

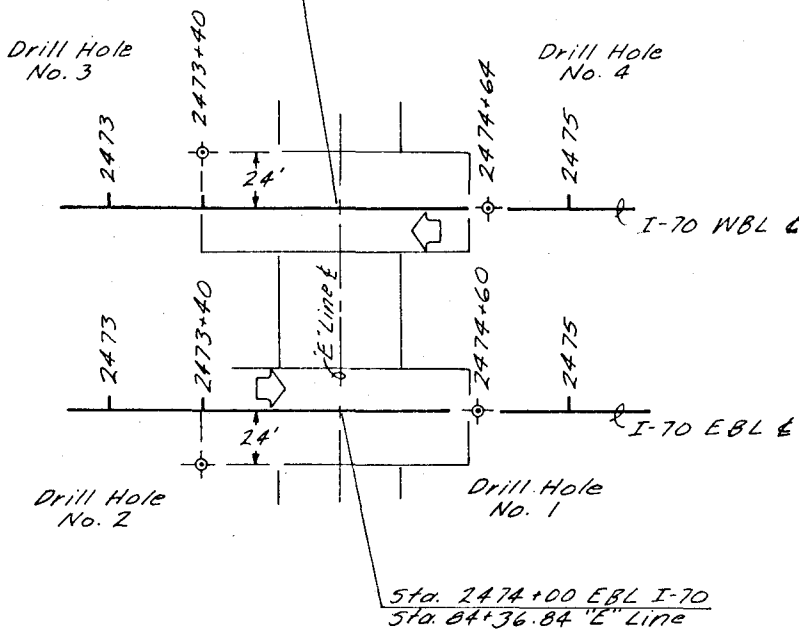
Drawn By Kistler Checked By K. P. ...
 Checked By P. S. ... Checked By ...
 Checked By S. ... Checked By ...
 Approval Recommended By Zorn, H. ...

Received _____ Date _____ Chief Structural Engineer _____

Foundations File No. B2-7-FS-20 Eng. No. F



Sta. 2474+00 WBL I-70
Sta. 85+24.84 "E" Line



NORTH

On Elevation

5264

5264

5224

5223.7