

No GW

~~5007~~

2108

Memorandum

UTAH DEPARTMENT OF TRANSPORTATION

FOUNDATIONS

DATE: July 22, 1982

TO : Those Listed Below

FROM : Heber Vlam, P.E., Engineer of Materials and Research *H.V.**THIS RIW
See 15 H*SUBJECT: I-15-5(11)213 - Mills Junction to South Nephi; I-15 Over Lampson Canyon Road at I-15 \varnothing STA. 450+25.03

SITE CONDITIONS

Two single span prestressed concrete beam structures are proposed to carry I-15 over Lampson Canyon Road. The proposed structures will be approximately 64 feet long by 44 feet wide and will cross Lampson Canyon Road at an angle of nearly 71°. The approach embankments will be approximately 9 to 11 feet high while Lampson Canyon Road will require 6 to 11 feet of cut at the crossing site.

Surface drainage in the area is good.

SUBSURFACE CONDITIONS

Four test holes were drilled at this site with depths ranging from 25.4 feet to 30.1 feet. Correlation between test holes is good and in general the subsurface materials may be described as follows: from the ground surface to a depth of 3 feet - sandy silt with traces of clay and gravel; from 3 feet to 9 feet - soft to very stiff clayey silt with sand and some silty clay; from 9 feet to the maximum depth of exploration - highly weathered to slightly weathered claystone and slightly weathered conglomerate with a few thin beds of siltstone and shale.

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

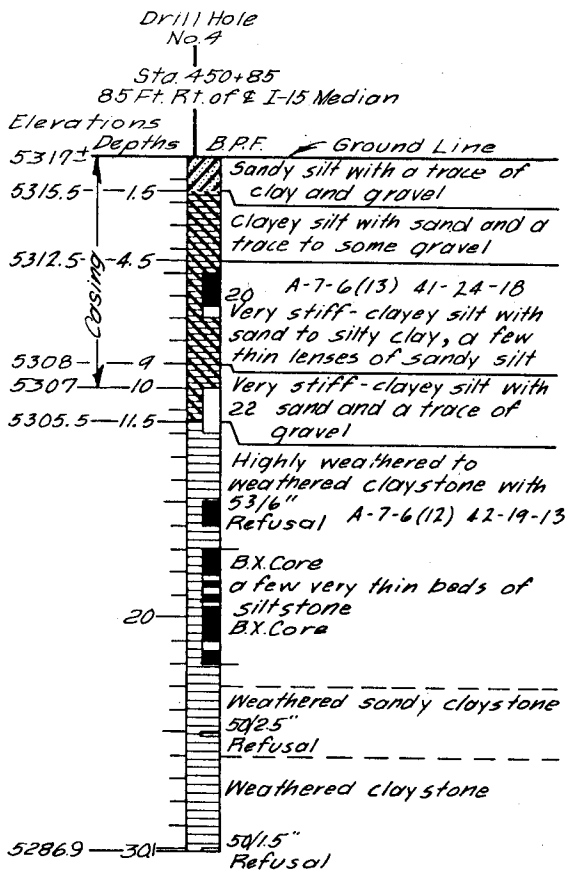
A water table was not encountered in any of the test holes.

FOUNDATION RECOMMENDATIONS

Drilled caissons founded in the weathered claystone and slightly weathered conglomerate are recommended to support these structures (see Fig. 1). Caissons with a diameter of 2.5 feet founded 6 feet into the weathered claystone may be loaded to 180 Kips per caisson. See Figure 2 for the bearing capacity of caissons with other diameters. The recommended caisson tip elevations are as follows:

Hole
3
450+29
of Q I-15 Median

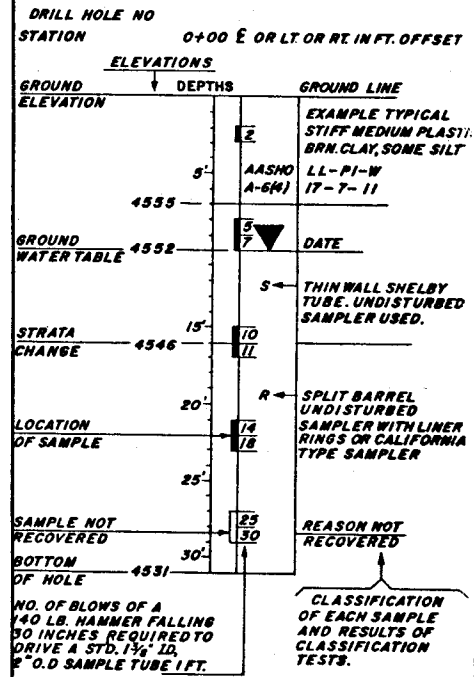
B.P.F. Ground Line
Sandy silt with a trace of clay and gravel
Clayey silt with sand and a trace of gravel
Sand with gravel and silt
20 Highly weathered to weathered claystone to sandy claystone, a few very thin beds of siltstone
53 1/6"
Refusal A-6(9) 33-12-12
NOTE: Complete loss of circulation water this layer
Possible void or very loose silt
Broken claystone A-2-4(0)
19 and clayey silt 25-B-1
Gravel and sand
NOTE: Complete loss of circulation water at 17.5'
50 1/11"
Refusal
Slightly weathered conglomerate
50/4.5"
Refusal
Slightly weathered claystone to sandy claystone, a few thin beds of siltstone



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

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

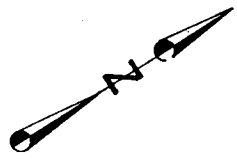


ABBREVIATIONS
L.L. - LIQUID LIMIT IN %
P.I. - PLASTIC INDEX
W. - NATURAL MOISTURE CONTENT IN %
W.G. - WELL GRADED
PEN. - PENETRATION
G.W.T. - GROUND WATER TABLE
B.P.F. - BLOWS PER FOOT.
N.P. - NON PLASTIC

NOTE: REFUSAL = 50 OR MORE BLOWS PER 6"

S.B.L.

Survey Line I-15



Q Profile Line N.B.I.

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

Note: All holes drilled April 1980

Canyon Road

NO.	BY	DATE	REMARKS
REVISIONS			

UTAH STATE DEPARTMENT OF HIGHWAYS
SALT LAKE CITY, UTAH
MATERIALS AND RESEARCH SECTION
MILLS JUNCTION TO SOUTH NEPHI
I-15 OVER LAMPSON CANYON RD.

DRAWN BY: *Dr. Smith* CHECKED BY: *Kistler* I-15-5(11)
CHECKED BY: *P. J. Smith* CHECKED BY: PROJECT NO.
CHECKED BY: *Dr. Smith* CHECKED BY: 450+46391-5N3
RECOMMENDED BY: *Laura H. Kauffman* STATION
RECEIVED: DATE SHEET STRUCTURAL DIV. COUNTY
JUAB

Fig 1

