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NEVADA STATE HIGHWAY DEPARTMENT

Document 4
Washoe
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FOUNDATION REPORT

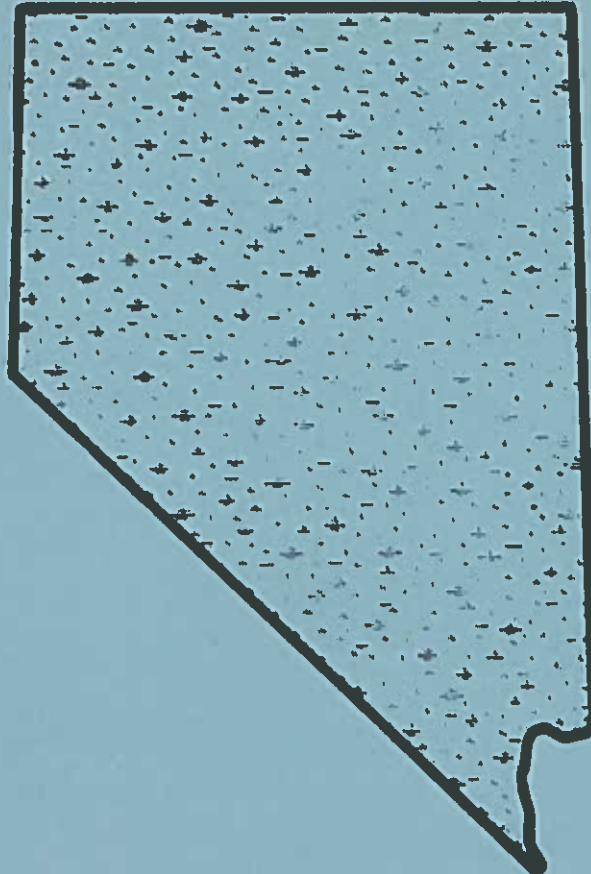
GOLDEN VALLEY RD. INT.

US 395, FROM 0.4 MILE NORTH OF PANTHER
VALLEY INTERCHANGE TO STEAD
WASHOE COUNTY

JUNE 1979 (Revised April 1981)

PROJECT NO. DP-395-2(1)

E.A. NO. 70781



ENGINEERING GEOLOGY & FOUNDATION SECTION
MATERIALS & TESTING DIVISION

NEVADA DEPARTMENT OF TRANSPORTATION

FOUNDATION REPORT

GOLDEN VALLEY ROAD INTERCHANGE
US 395, FROM 0.4 MILES NORTH OF PANTHER
VALLEY INTERCHANGE NORTH TO STEAD
WASHOE COUNTY

April 1981

E. A. No.

70781

Project No.

DP-395-2(1)

Engineering Geology and Foundations Section
Materials and Testing Division

INTRODUCTION

During June 1979, the Engineering Geology and Foundations Section of the Materials and Testing Division conducted a field study at the site of the proposed Golden Valley Road Interchange on U.S. 395 north of Reno. This study was to determine the integrity of the soil at depth for the proposed structure.

The field study consisted of five, six-inch auger borings to determine the density and composition of the underlying foundation material. Samples were taken using a Standard Penetration Sampler driven by a 140-pound hammer dropping 30 inches. Soils retrieved were visually inspected and classified by an Engineering Geologist. No samples were submitted to the laboratory as the clay content was very low and the foundation conditions were very competent.

GEOLOGY AND GROUND WATER

This site is underlain by Pre-Lake Lahonton alluvial fan deposits consisting of silt, sand, gravel, and minor amounts of clay. Underlying these deposits, a weathered granite bedrock surface was found in each boring.

In two of the borings, B-3 and B-4, ground water was detected at 29 feet and 28 feet respectively.

FOUNDATION RECOMMENDATIONS

Spread footings may be utilized for support of the structure. Footings may be designed for loads up to and including 2.0 TSF in the fill providing 95 percent compaction is obtained. If a center pier is used, then 2.5 TSF can be used for footing support and the footing elevation should be placed at least 5 feet below O.G.

CONCLUSIONS

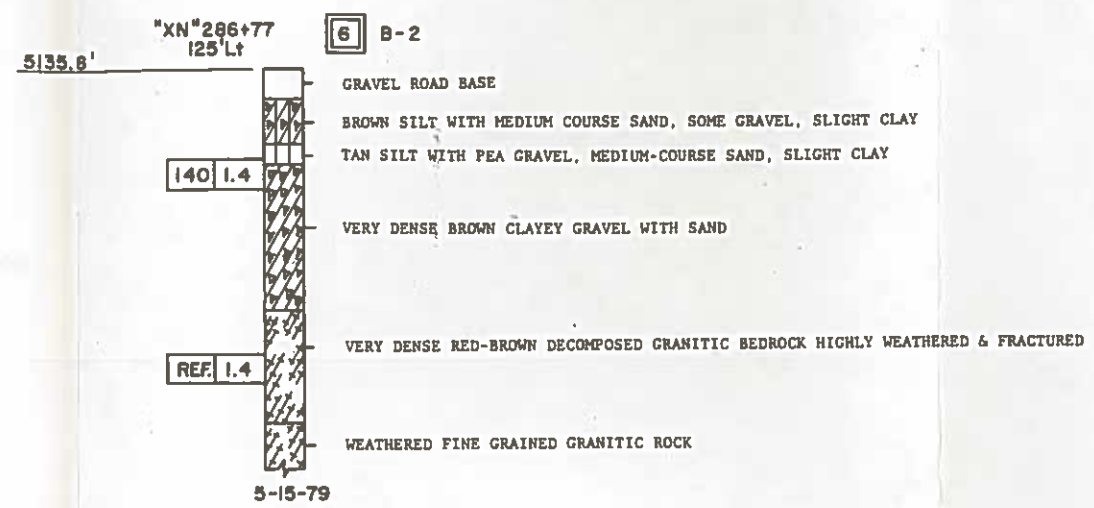
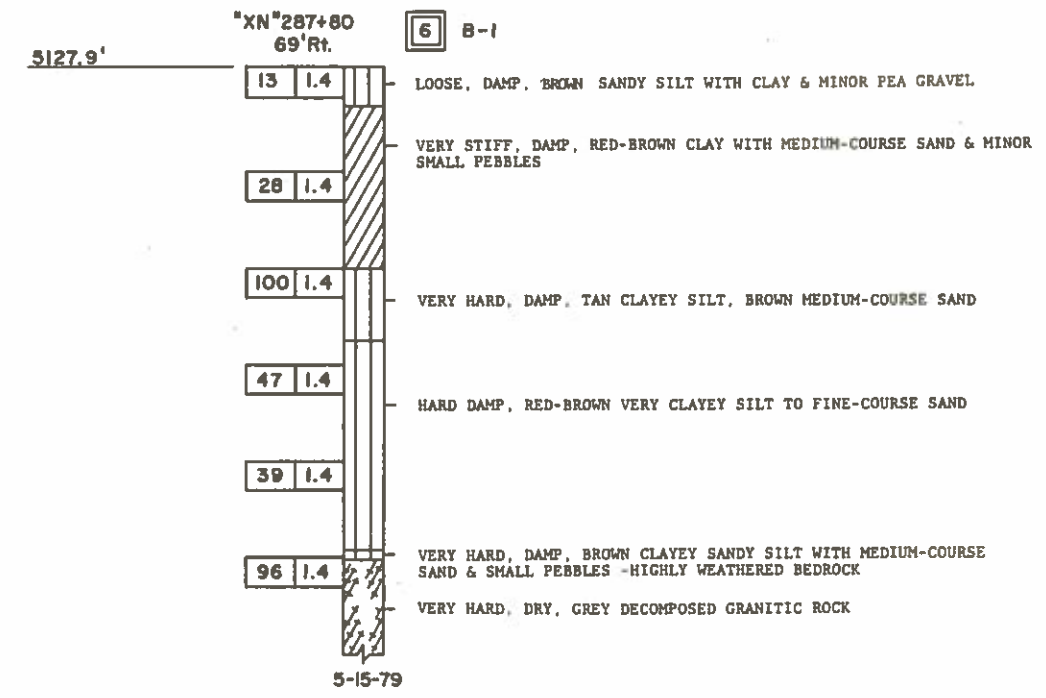
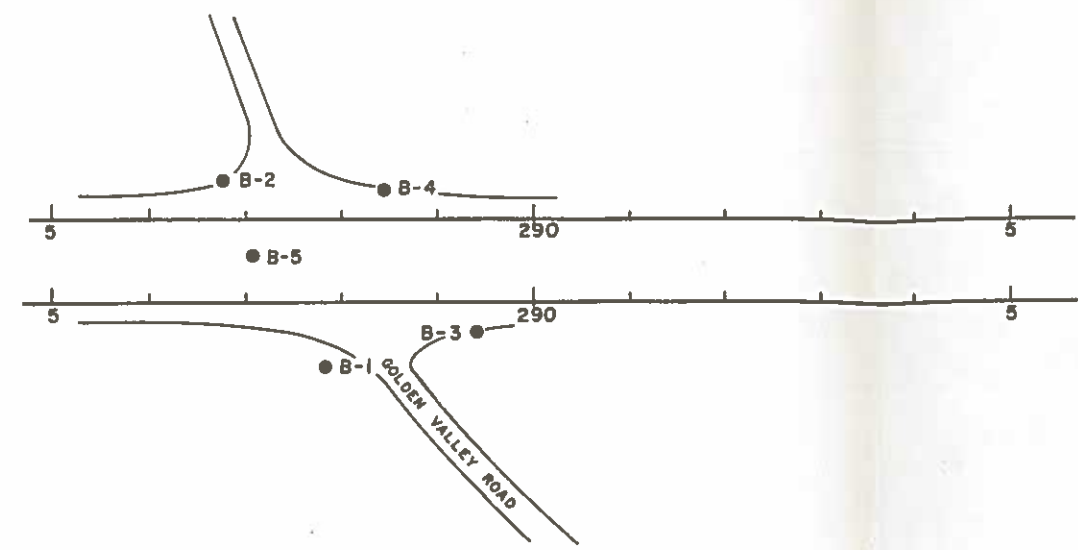
1. Spread footings may be founded in the fill with design loads up to and including 2.0 TSF. A 2.5 TSF loading may be used for a center pier, if used.
2. The footing elevation should be placed 5 feet below O.G. for the center pier.

Respectfully submitted,

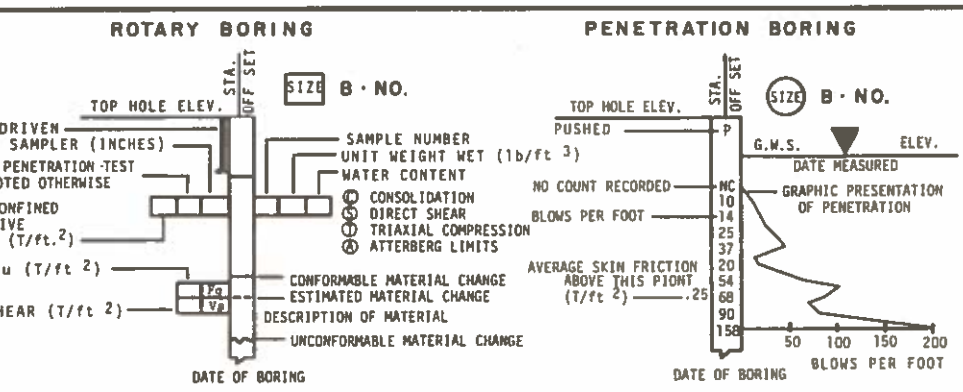
Patricia L. Schoener

Patricia L. Schoener
Civil Engineer II

NOTE: FOUNDATION REPORT AVAILABLE FOR CONTRACTORS STUDY IN DISTRICT OFFICE AND MATERIALS & TESTING DIVISION ...



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5110
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5090



- PLAN OF ANY BORING
 - PENETROMETER (FLUSH-COUPLED)
 - 2" CONE PENETROMETER
 - SAMPLE BORING (DRY)
 - ROTARY BORING (WET)
 - AUGER BORING (DRY)
 - JET BORING
 - ◇ DIAMOND CORE BORING
 - TEST PIT
- BIT SIZE: (O.D.) : "Ax"=1-13/16", "Bx"=2-9/32", "Nx"=2-29/32"
CASING SIZES: (O.D.) : "Bx"=2-7/8", "Nx"=3-1/2"
- DWN. MN
CHK. DSC
DATE.

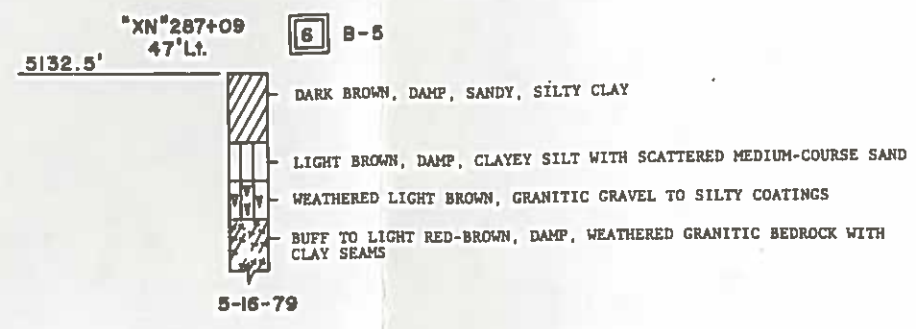
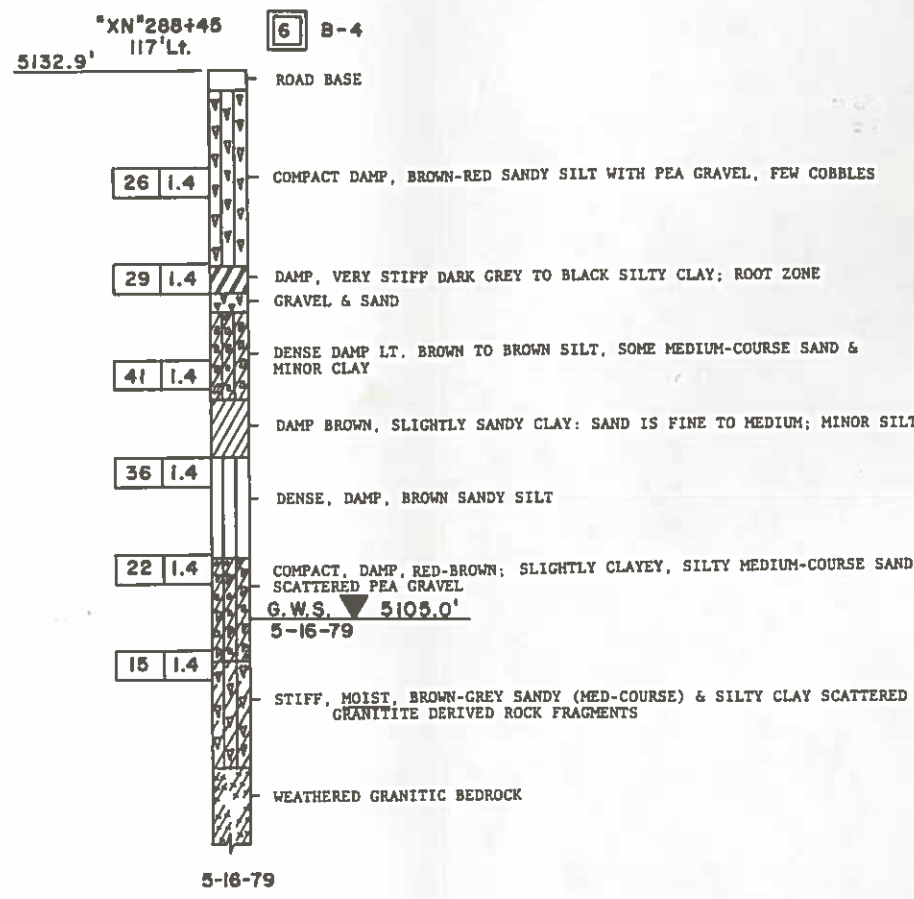
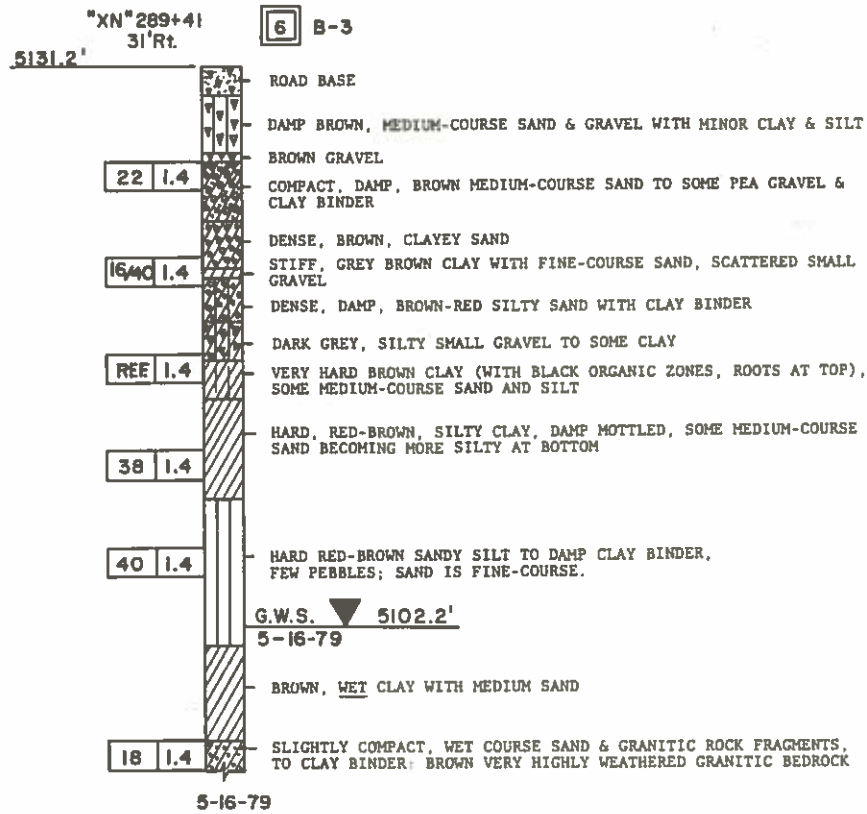
THE UNIFIED SOIL CLASSIFICATION SYSTEM			
MAJ. DIV.	LETTER	SYMBOL	DESCRIPTION
COARSE GRAINED MATERIAL GRAVEL AND SANDY SOIL	GW	▽	WELL-GRADED GRAVEL OR GRAVEL-SAND MIXTURES. LITTLE OR NO FINES.
	GP	▽	POORLY-GRADED GRAVEL OR GRAVEL-SAND MIXTURES. LITTLE OR NO FINES.
	GM	▽	SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURES.
	GC	▽	CLAYEY GRAVEL, GRAVEL-SAND-CLAY MIXTURES.
	SW	▽	WELL-GRADED SAND OR GRAVELLY SAND, LITTLE OR NO FINES.
FINE GRAINED MATERIAL SILTS AND CLAYS LL > 50	SP	●	POORLY-GRADED SAND OR GRAVELLY SAND, LITTLE OR NO FINES.
	SM	●	SILTY SAND, SAND-SILT MIXTURES.
	SC	●	CLAYEY SAND, SAND-CLAY MIXTURES.
	ML		INORGANIC SILT AND VERY FINE SAND, ROCK FLOES, SILT OR CLAYEY FINE SAND OR CLAYEY SILT WITH SLIGHT PLASTICITY.
CLAYEY SOIL	CL		INORGANIC CLAY OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAY, SANDY CLAY SILTY CLAY, LEAN CLAY
	OL		ORGANIC SILT AND ORGANIC SILTY-CLAY OF LOW PLASTICITY
	MH		INORGANIC SILT, HICACEDOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILT.
	CH		INORGANIC CLAY OF HIGH PLASTICITY, FAT CLAY.
	OH		ORGANIC CLAY OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILT.
PT		PEAT AND OTHER HIGHLY ORGANIC SOILS.	

STANDARD PENETRATION CLASSIFICATION			
GRANULAR SOIL		CLAYEY SOIL	
BLOWS / FT. *	DENSITY	BLOWS / FT. *	CONSISTENCY
0 - 4	VERY LOOSE	0 - 1	VERY SOFT
5 - 10	LOOSE	2 - 4	SOFT
11 - 24	MEDIUM DENSE	5 - 8	MEDIUM STIFF
25 - 50	DENSE	9 - 15	STIFF
OVER 50	VERY DENSE	16 - 30	VERY STIFF
* STANDARD PENETRATION TEST (N) 140 lb. HAMMER, 30" FREE FALL ON 2" O.D. X 1 3/8" I.D. SAMPLER		31 - 60	HARD
		OVER 60	VERY HARD

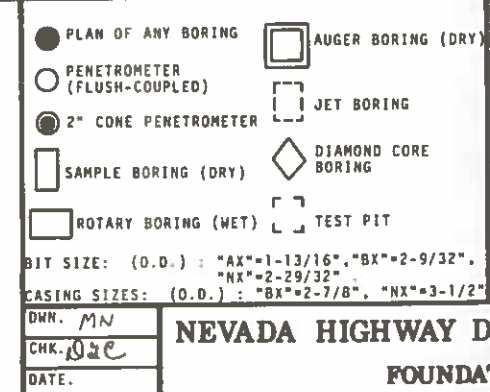
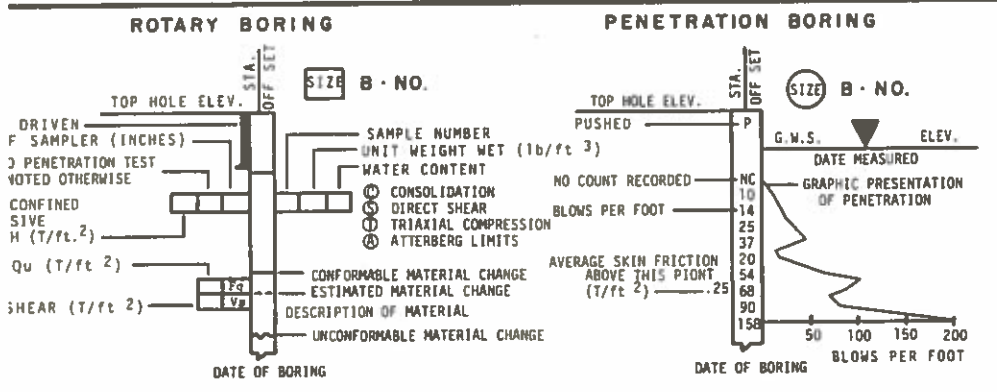
NEVADA HIGHWAY DEPARTMENT MATERIALS AND TESTING DIVISION
FOUNDATIONS AND ENGINEERING GEOLOGY SECTION

GOLDEN VALLEY ROAD INTERCHANGE
DWG. NO. 1
E.A. 70781

NOTE: FOUNDATION REPORT AVAILABLE FOR CONTRACTORS STUDY IN DISTRICT OFFICE AND MATERIALS & TESTING DIVISION ...



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	GM	▽▽	SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURES.		OL		ORGANIC SILT AND ORGANIC SILTY-CLAY OF LOW PLASTICITY.
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	SW	▽▽	WELL-GRADED SAND OR GRAVELLY SAND, LITTLE OR NO FINES.		CH		INORGANIC CLAY OF HIGH PLASTICITY, FAT CLAY.
SAND AND SANDY SOIL	SP	●●	POORLY-GRADED SAND OR GRAVELLY SAND, LITTLE OR NO FINES.	OH		ORGANIC CLAY OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILT.	
	SM	●●	SILTY SAND, SAND-SILT MIXTURES.	PT		PEAT AND OTHER HIGHLY ORGANIC SOILS.	
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NEVADA HIGHWAY DEPARTMENT MATERIALS AND TESTING DIVISION
 FOUNDATIONS AND ENGINEERING GEOLOGY SECTION

GOLDEN VALLEY ROAD INTERCHANGE
 DWG. NO. 2
 E.A. 70781