

UTAH DEPARTMENT OF TRANSPORTATION
Materials and Research Section

Geologic Report

Date: February 21, 1979

File Number: 79-7-FS-5

Project Number: I-215-9(2)297

Project Name: 9th East to East of State Street
Cahoon-Maxfield Pipe crossing I-215

Station of Structure: 150+54.42 ℄ I-215

County: Salt Lake

Geologist: Keith Powell

Sampling: Penetration and shelby-tube sampling as per AASHTO Designation
T-206-70 and T-297-70

Geology:

A. Surface

The proposed structure, Cahoon-Maxfield Pipe crossing I-215, is situated at approximately 6450 South and 5th East, adjacent to the south-central boundary of Murray City. The irrigation flume is located at station 150+54.42 ℄ I-215, in the SE 1/4 SE 1/4, Section 19, Township 2 South, Range 1 East, S.L.B.&M., Salt Lake County (See attached Location Plan).

The structure site is situated in a pasture which slopes gently westward. This general area is situated on the west-central edge of the Cottonwood Delta.

Drainage of the area is very good.

B. Subsurface

Three test holes were drilled for this proposed structure and the depths are as follows:

<u>Drill Hole No.</u>	<u>Depth Ft.</u>
7	50
9	65
10	65

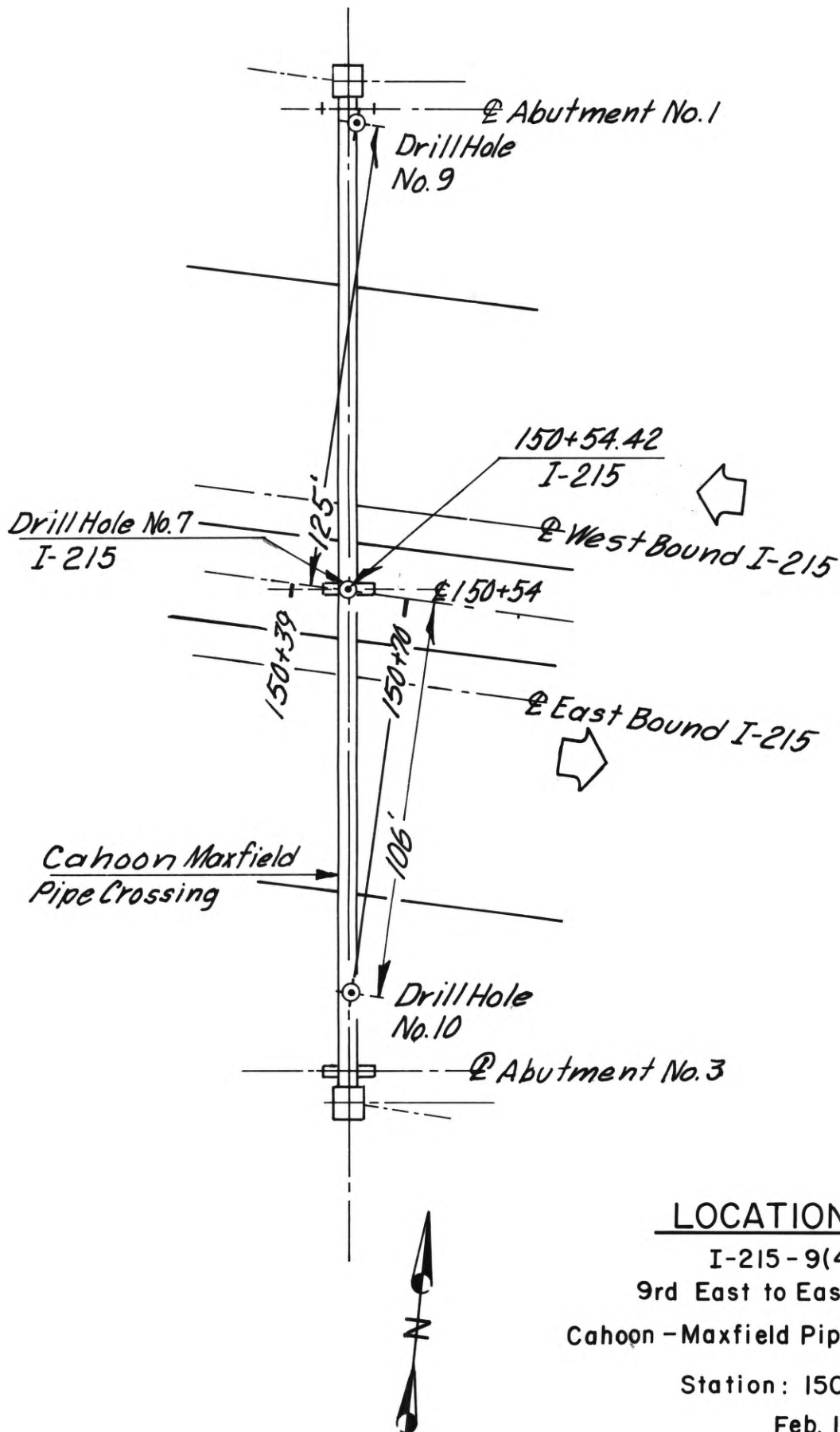
The correlation of the soils encountered is only fair but typical of the depositional features on the fringe area of a deltaic deposit (See attached Correlation Sheet).

The soils encountered in the three drill holes may be divided into three layers. The upper most layer varies from 10 ft. to 19 ft. thick and is composed of a sandy silt top soil and lenses of silty sand and gravel to silty sand with some gravel. This layer is underlain by a 17 ft. to 22 ft. thick layer of clayey silt and silty clay, with thin lenses of sandy silt and thin lenses of clayey silt and sandy silt. This clayey layer is underlain by sandy soils consisting predominately of sand and gravel with some silt and lenses of sandy silt, sand and silt, and silty sand with a few thin lenses of clayey silt.

C. Ground Water

The ground water table measurements for each drill hole were taken from the existing ground surface and the depths are as follows:

<u>Drill Hole No.</u>	<u>Depth Ft.</u>
7	32.0
9	30.0
10	34.3



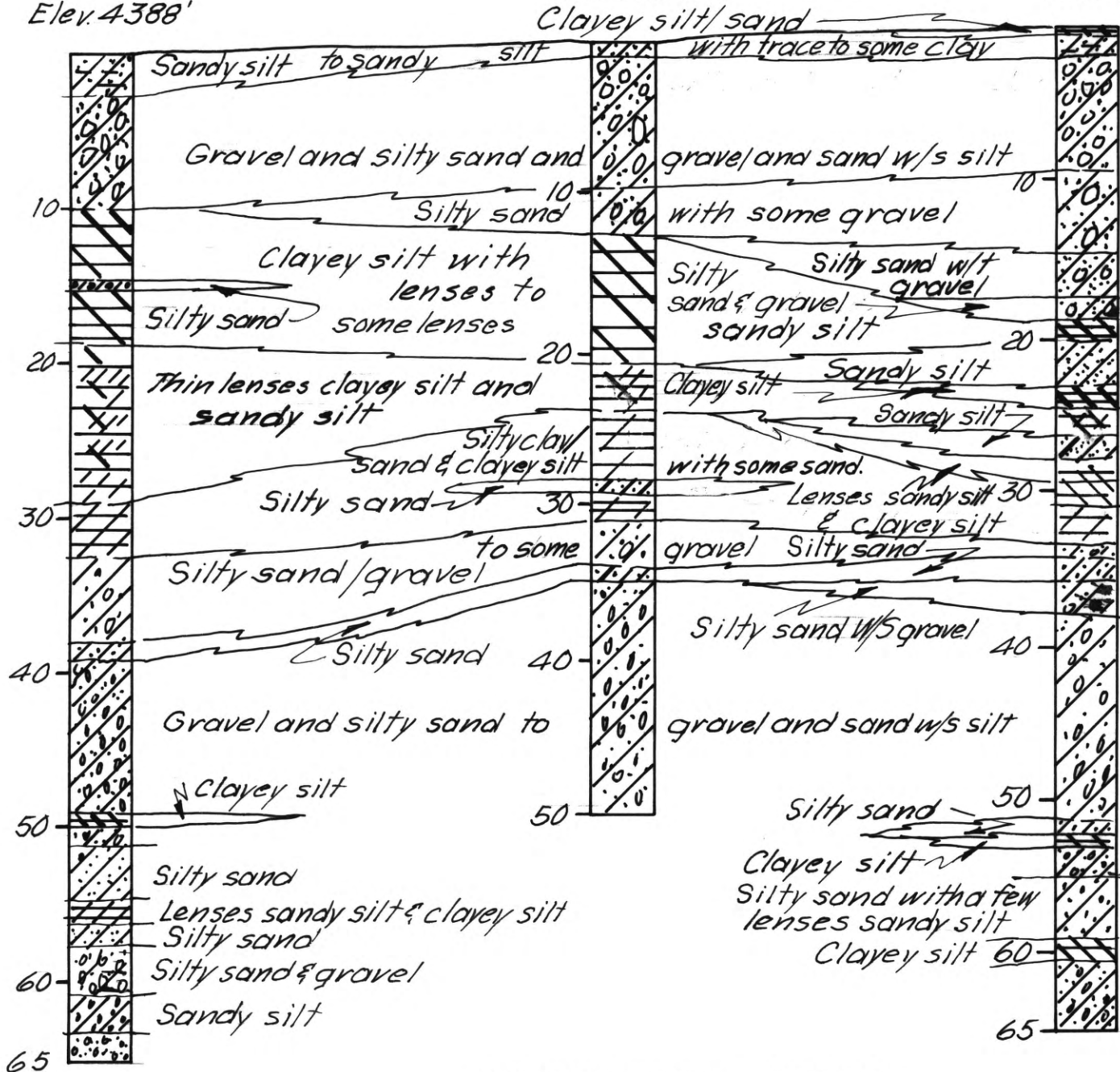
LOCATION PLAN
 I-215 - 9(49) 298
 9rd East to East of State Street
 Cahoon - Maxfield Pipe Crossing I-215
 Station: 150+ 54.42 & I-215
 Feb. 1979

Northerly

Hole No. 9
Elev. 4388'

Hole No. 7
Elev. 4389

Hole No. 10
Elev. 4390



CORRELATION SHEET

I-215-9(2)297

9th East to East of State Street

Cahoon - Maxfield Pipe Crossing I-215

Station: 150+54.42 & I-215

Feb. 1979

Project No. I-215-9(2)297
Project Name 9th East to East of State Street Salt Lake Co.
Cahoon-Maxfield Pipe crossing I-215
Type of Structure and Soils Stability Study Equation Project Line Sta.
Other Line Sta.
Sta. of Structure _____ Hole Sta. 150 + 54 Rt. — Ft., Lt. — Ft., of to I-215
Collar Elevation 4389' Reference Plan & Profile Method Used Tape
Field Party Powell, Gold & Sasser Rig R-40L

Ground Water Table					
Depth in Ft.	30.4	31.7	32.0'	33.8	
Time	1100	0900	1330	1000	
Date	12-13-78	1-5-79	1-16-79	5-1-79	

DESCRIPTION

Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.

Pushed and drove casing to 5'

Dk. brown sandy silt with an occasional piece of gravel

Tan to dk tan silty sand and gravel with trace cobbles

18/6 22/6 37/6 38/6 — Very dense —

Tan to dark tan silty sand and gravel with trace cobbles. (Damp)

Drove casing to 10'

20/6 22/6 25/6 38/6 — Dense —

Tan to dark tan silty sand with some gravel (Damp)

Dk tan silty sand and gravel

Dk tan silty sand with trace gravel

Dk tan silty sand and gravel

Dk tan silty clay with thin lenses sandy silt

Drove casing to 15'

4/6 9/6 18/6 20/6 — Very stiff —

Dk tan clayey silt with $\frac{1}{16}$ " - $\frac{1}{8}$ " lenses sandy silt every $\frac{1}{8}$ " - $\frac{1}{2}$ "

A few 1" - 2" lenses silty sand.

Date Begun 11-30-78

Date Completed 12-1-78

Hole Diameter _____

Project No. I-215-9(2)297

Project Name 9th East to East of State Street

Irrigation Ditch over I-215

Type of Structure

Sta. of Structure.

Collar Elevation

Field Party Powell, Gold & Sasser

UTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOG

Hole No. 7

Sheet 2 of 3

Total Depth 50

Equation $\frac{\text{Project Line Sta.}}{\text{Other Line Sta.}}$

Project Line Stop

Other Line Sta.

Rt. — Ft., Lt. — Ft., of € I-215

Method Used

Rig B-406

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	Ground Water Table					DESCRIPTION Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.
								Depth in Ft.					
								Time					
								Date					
Shelby				2.0									DK tan clayey silt with 1/8"-1/4" lenses sandy silt every 1/4"-1/2"
"				1									
"			7-22	2									1/8"-1/2" Lenses sandy silt and clayey silt.
RB				3									
Pen				2.5									5/6 5/6 5/6 5/6 - Stiff -
"		10		6									
"			7-27	7									DK tan silty clay with some sand and clayey silt with some sand. A few thin lenses sandy silt
RB				8									
				9									DK tan silty sand
Shelby				3.0									
"			7-31	1.2									DK tan silty clay with some thin lenses sandy silt.
RB				2									Tan to dark tan silty sand and gravel
				3									
				4									
Pen				3.5									DK tan silty sand 37/6 38/6 41/6 47 - Very dense -
"		79		6									
"			7-37	7									DK tan gravel and sand with some silt 11-30-78
RB				8									Drove casing to 35' 12-1-78
				9									
				4.0									Tan silty sand & gravel 1/2 Loss of circ water at times

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	Ground Water Table					
								Depth in Ft.					
								DESCRIPTION Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.					
PEN RB			Ref 7-40.5	40				Drive casing to 40' - washed out hole. 5 1/6 - REFUSAL (Not a true sample) Very Dense - Drilled to 45'					
				1									
				2									
				3									
				4				Tan silty sand & gravel					
				45									
PEN			74	6				26/6 30/6 34/6 30/6					
"				7				Tan silty sand & gravel					
"				8									
RB			7-47	9				Drilled to 50'					
				10									
				50									
				1				TD-50' 1-8-79					
				2				Set perforated plastic pipe to a depth of 46'					
				3									
				4									
				5									
				6									
				7									
				8									
				9									
				0									

Date Begun 1-3-79

Date Completed 1-4-79

Hole Diameter 3"

Project No. I-215-9(2) 297

Project Name 9th East to East of State Street

Cahoon - Maxfield Pipe crossing I-215

Type of Structure and soils stability study

Sta. of Structure _____

Collar Elevation 4388'

Field Party Powell, Gold & Waller

UTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOG

Hole No. 9

Sheet 1 of 4

Total Depth 65'

Equation $\frac{\text{Project Line Sta.}}{\text{Other Line Sta.}}$

Rt. _____ Ft., Lt. 125 Ft., of ϵ I-215

Method Used Type & Compass

Rig Failing

Ground Water Table					
Depth in Ft.	29.7	30.00	31.7		
Time	0900	1330	1000		
Date	1-5-79	1-16-79	5-1-79		

DESCRIPTION

Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.

Handwritten notes on a lined page, likely a field log or data sheet, describing geological observations and measurements. The notes are organized into columns and rows, with some entries marked with arrows pointing to specific locations or features.

Left Column (Vertical Scale/Depth):

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20

Second Column (Penetration/Measurements):

- Pen
- "
- "
- RB
- Pen
- "
- "
- RB
- Pen
- "
- "
- RB

Third Column (Notes/Descriptions):

- Dk brown sandy silt with trace clay. An occasional piece gravel
- Drove casing to 5'
- Dk tan sand and gravel with silt
- Dk tan to tan silty sand and gravel
- 26/6 32/6 50/3 (Ref) - Very dense -
- Dk tan silty sand and gravel with an occasional cobble
- Drove casing to 10'
- Dk tan silty sand with trace gravel - Very stiff -
- 7/6 12/6 15/6 18/6
- Dk tan silty clay with 1/8" lense gray silty sand every 3"-9"
- Drove casing to 15'
- A few thin lenses silty sand and gravel
- Dk tan silty sand - Very stiff -
- 6/6 10/6 10/6 12
- Dk tan clayey silt to clayey silt with some sand
- Some 1/16 - 1/8" lenses sandy silt
- Thin Lenses clayey silt and sandy silt

Right Column (Additional Notes/Measurements):

- Ref
- 9-6.3
- 27
- 9-12
- 20
- 9-17

Date Begun 1-3-79Date Completed 1-3-79

Hole Diameter _____

Project No. I-215-9(2)297Project Name 9th East to East of State StreetUTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOGHole No. 9Sheet 2 of 4Total Depth 65'Equation _____ Project Line Sta. _____
Other Line Sta. _____

Type of Structure _____

Sta. of Structure _____ Hole Sta. 150+39 Rt. _____ Ft., Lt. 125 Ft., of I-215

Collar Elevation _____ Reference _____ Method Used _____

Field Party Powell, Gold & Waller Rig Failing

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	Ground Water Table				DESCRIPTION Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.	
								Depth in Ft.	Time	Date			
Pen				20									
"		23		1									8/6 11/6 12/6 15/6 - Very stiff -
"			9-22	2									1/8" - 1/4" Lenses dk tan clayey silt and sandy silt
RB				2									Bedding plane - Horizontal to 45°
				3									
				4									
Pen				25									11/6 15/6 17/6 29/6 - Hard -
"		32		6									1/8" - 1/2" Lenses dk tan clayey silt and sandy silt.
"			9-21	7									Bedding plane: 45°-10°
RB				7									
				8									
				9									
Pen				30									Dk gray silty clay
"		9		1									3/6 4/6 5/6 6/6 - Stiff -
"			9-32	2									Dk gray silty clay with a few 1/16" - 1/8" lenses sandy silt
RB				2									Dk tan silty clay grading to clayey silt with sand
				3									
				4									Dk tan silty sand with some gravel
				5									
Pen				35									35/6 52/6 (ReR) - Very dense -
"		Ref		6									Dk tan silty sand with some gravel.
RB				6									Drove casing 35
				7									
				8									
				9									Dk tan silty sand with trace gravel
				10									Dk tan silty sand and gravel
				40									Drove casing to 40'

Date Begun 1-3-79Date Completed 1-4-79

Hole Diameter _____

Project No. I-215-9(2)297Project Name 9th East to East of State StreetCahoon - Maxfield Pipe Crossing I-215 Equation _____ Project Line Sta. _____

Type of Structure _____

Sta. of Structure _____ Hole Sta. 150+89 Rt. — Ft. Lt. 125 Ft. of I-215

Collar Elevation _____ Reference _____ Method Used _____

Field Party Powell, Gold & Waller Rig FailingUTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOGHole No. 9Sheet 3 of 4Total Depth 65'

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	Ground Water Table				DESCRIPTION Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.
								Depth in Ft.	Time	Date		
Pen				40								39/16 45/16 49/16 45/16 —Very dense—
"	94			1								DK tan silty sand with gravel to some gravel
"			9-42	2								1-3-79
RB				3								Drove casing to 45' 1-4-79
				4								
Pen				45								17/16 37/16 50/3 (Ref) —Very dense—
"	Ref			6								DK tan silty sand and gravel
"			9-46.4	7								Drove casing to 50'
RB				8								
				9								
Pen				50								DK tan clayey silt with thin lenses sandy silt
"	64			1								29/16 34/16 18/16 14/16 —Very dense to Dense—
"				2								Large gravel lodged in sampler.
"	32		9-52	3								DK tan silty sand and gravel
RB				4								DK tan sand and silt
				5								a few thin lenses clayey silt
				6								
Pen				55								DK tan clayey silt with thin lenses sandy silt
"	18			1								10/16 8/16 20/16 20/16 —Very stiff to dense—
"				2								DK tan sandy silt with thin lenses clayey silt
"	40		9-57	3								An occasional 1" lenses silty sand
RB				4								DK tan silty fine sand
				5								
				6								
				7								
				8								
				9								
				60								DK tan silty sand and gravel

Project No. I-215-9(2)297
Project Name 9th East to East of State St.
Cahoon-Maxfield pipe over I-215 Equation Project Line Sta.
Other Line Sta.
Type of Structure _____
Sta. of Structure _____ Hole Sta. 150-39 Rt. — Ft. Lt. 125 Ft. of I-215
Collar Elevation _____ Reference _____ Method Used _____
Field Party Powell, Gold & Waller Rig Failing

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	Ground Water Table					
								Depth in Ft.					
								DESCRIPTION Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.					
Pen				0				3 5/6 15/6 15/6 16/6 - Medium -					
"	30			1				No recovery - gravel lodged in sampler					
"				2				Dk tan sandy silt					
RB			NR	3				A few thin lenses clayey silt					
				4				Dk tan silty sand and gravel					
				5				TD- 65'					
				6				1-4-79					
				7				Set perforated plastic pipe to depth of 57'					
				8									
				9									
				10									
				11									
				12									
				13									
				14									
				15									
				16									
				17									
				18									
				19									
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				22									
				23									
				24									
				25									
				26									
				27									
				28									
				29									
				30									

Date Begun 1-5-79
 Date Completed 1-8-79
 Hole Diameter 3"

UTAH DEPARTMENT OF TRANSPORTATION
 MATERIALS AND TESTS SECTION
 DRILLING LOG

Hole No. 10
 Sheet 1 of 4
 Total Depth 65'

Project No. I-215-9(2)297

Project Name 9th East to East of State Street Salt Lake Co
Cahoon-Maxfield Pipe crossing I-215

Type of Structure and slope stability study Equation Project Line Sta.
 Other Line Sta.

Sta. of Structure 4390' Hole Sta. 150+70 Rt. 106 Ft., Lt. — Ft., of I-215

Collar Elevation 4390' Reference Method Used

Field Party Powell, Gold & Waller Rig Failing

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	Ground Water Table				DESCRIPTION
								Depth in Ft.	Time	Date		
								34.2	34.3	34.8		Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.
								1730	1330	1100		
								1-15-79	1-16-79	5-1-79		
RB				0								Grayish dk tan clayey silt with fine sand
				1								Dk tan sandy silt with trace clay
				2								Drove casing to 5'
				3								Dk tan silty sand and gravel with a few cobbles
				4								
Pen				5								10/6 20/6 20/6 25/6 — Dense —
"		40		6								Dk tan silty sand and gravel with a few cobbles
"			10-7	7								Drove casing to 10'
RB				8								
				9								
Pen				10								20/6 23/6 24/6 50/5 (Ref) — Very dense —
"		47		11								Dk tan silty sand with some gravel. A few cobbles
"			10-11.9	12								Drove casing to 15'
RB				13								
				14								
Pen				15								13/6 20/6 21/6 22/6 — Dense —
"		41		16								Grayish dk tan silty sand with trace gravel
"			10-17	17								A few 1/4" 1/2" lenses dk tan clayey silt
RB				18								Drove casing to 20'
				19								Tan silty sand with gravel
				20								Dk tan clayey silt with some sand. A few thin lenses sandy silt

Date Begun 1-5-79Date Completed 1-8-79

Hole Diameter _____

Project No. I-215-9(2)297Project Name 9th East to East of State StreetCahoon-Maxfield Pipe over I-215Equation _____ Project Line Sta. _____
Other Line Sta. _____

Type of Structure _____

Sta. of Structure _____ Hole Sta. 150 + 70 Rt. 106 Ft., Lt. — Ft., of I-215

Collar Elevation _____ Reference _____ Method Used _____

Field Party Powell, Gold & Waller Rig FailingUTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOGHole No. 10Sheet 2 of 4Total Depth 65'

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	Ground Water Table				DESCRIPTION Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.
								Depth in Ft.	Time	Date		
Pen				20								18/6 15/6 20/6 21/6 — Dense —
"	35			1								DK tan sandy silt with some 1"-2" lenses of
"			10-22	2								interbedded clayey silt and sandy silt
RB				3								
				4								
Pen				25								DK tan clayey silt with some thin lenses sandy
"	39			6								silt. An occasional 1"-2" lense silty sand
"			10-27	7								11/6 18/6 21/6 26/6 — Hard to dense —
RB				8								1/2"-1/2" Lenses dk tan clayey silt and sandy silt
				9								DK tan sandy silt with trace to some clay
				30								1/8"-1/2" lenses dk tan clayey silt and sandy silt
Pen				1								A 2'-3" lenses silty sand at approx 29'
"	10			2								5/6 5/6 5/6 5/6 — Stiff —
"			10-32	3								DK tan clayey silt with 1/16"-1/4" lenses sandy silt
RB				4								DK gray silty clay with a few thin lenses sandy
				5								silt
				35								DK tan clayey silt with some sand
Pen	36			6								DK tan silty sand and gravel
"			10-37	7								DK tan sand with clay. An occasional piece of gravel
"	71			8								8/6 18/6 30/6 41/6 — Dense to very dense —
RB				9								DK tan silty sand with some clay. An occasional piece
				40								of gravel
												DK tan silty sand with some gravel and trace clay
												Drove casing to 40'
												DK tan silty sand and gravel

[illegible]

Date Begun 10-5-79Date Completed 10-8-79

Hole Diameter _____

Project No. I-215-9(2)297Project Name 9th East to East of State St.Cahoon-Maxfield Pipe over I-215

Type of Structure _____

Sta. of Structure _____

Collar Elevation _____

Field Party Powell, Gold, Sasser & MorganUTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOGHole No. 10Sheet 4 of 4Total Depth 65'Equation _____ Project Line Sta. _____
Other Line Sta. _____Hole Sta. 150+70 Rt. 106 Ft., Lt. ~ Ft., of I-215

Reference _____ Method Used _____

Rig Failing

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	Ground Water Table				DESCRIPTION Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.	
								Depth in Ft.	Time	Date			
Pen				0									
"				1									
"	79			2									
"				3									
RP				4									
				5									
				6									
				7									
				8									
				9									
				10									
				11									
				12									
				13									
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				61									
				62									
				63									
				64									
				65									

35/6 37/6 44/6 55/6 (Ref) -Very dense-

Tan to dk tan silty sand with gravel to some gravel

TD - 65'
1-8-79

Set perforated plastic pipe at depth of 60'

