HAMPDEN INTERSTATE
PENOBSCOT COUNTY 61-26

SOILS REPORT

EMERSON MILLS BRIDGE
I-IG-95-7 (15)

SUBSURFACE INVESTIGATION FOR EMERSON MILLS BRIDGE IN HAMPDEN, MAINE

State Highway Commission

Soils Division

61-26

August 1961

HAMPDEN

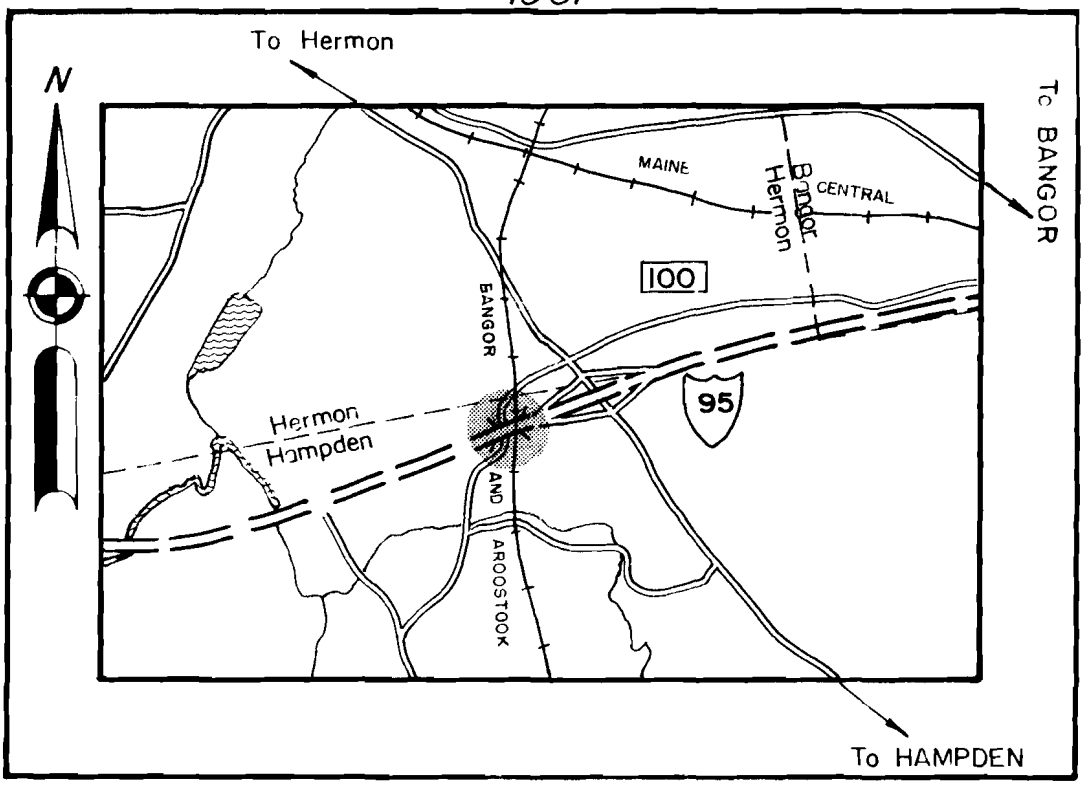
PENOBSCOT COUNTY

I-95-7(14)

Interstate 95 over

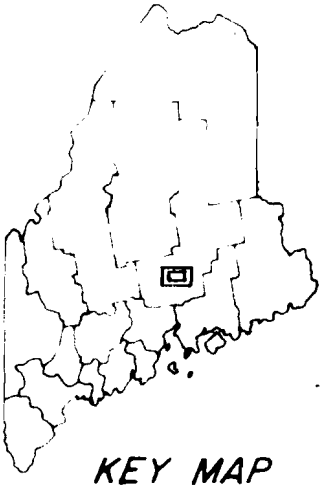
Emerson Mills & B.&A. Railroad

1961



LOCATION MAP

Scale 1" = 1 Mile



KEY MAP

Contents

EMERSON MILLS BRIDGE

INTRODUCTION

The subsurface investigation has been completed for the proposed construction of a bridge to carry the Interstate Highway over the relocated Emerson Mills Road and the Bangor and Aroostook Railroad Lines in the Town of Hampden, Maine. This project, I-IG-95-7(15), is located approximately .2 of a mile southerly of the present crossing of the Emerson Mills Road and the railroad tracks in Hampden.

A wash boring crew under the supervision of Mr. Carlisle made a boring on the left and right ends of each of the proposed substructure units for the two abutments and three piers, both on the north and southbound lanes. The two roadways, northbound and southbound lanes, are approximately 170 feet apart on center line and thus the substructure report will deal with each bridge.

Included behind the text are the borings notes on Sheet 1 while the details for all the borings are shown on Sheets 2 through 13 inclusive. A plan showing the proposed substructure unit location together with the center line profiles north- and southbound as well as transverse sections on the abutments and piers are shown on Sheet 14. Design data for spread footings is shown on Sheet 15.

GENERAL CONDITIONS

In order to provide adequate clearance over the Bangor and Aroostook Railroad tracks, it has been necessary to raise the grade on the Interstate to above elevation 163.6. Since the ground surface lies in the vicinity of elevation 131, fills on either side of the bridge will be 30 to 35 feet high. Because the embankments will be completed prior to the construction of the substructures, it is believed that the abutments can derive their support or piles driven through the approach fill into the underlying soils. These underlying soils consist of a layer of stiff weathered silty clays between five and ten feet in depth. These stiff clays are underlain by a very dense till and the ledge surface underlies the till at a distance of five to fifteen feet. In several of the borings a large boulder was encountered within this underlying till. The casing resistance and spoon count resistance in sampling the tills indicate that piles cannot penetrate to any great depth within this till. The estimated length of piles may be erratic due to the large boulders within the area.

This dense till should adequately support the proposed substructures by spread footing and design data has been included and is shown at the rear of this report, provided the footings are placed in this underlying till. Since the overburden is impervious and the ledge surface is not too far below the tills, some water should be expected in excavating for the footings. The dense weathered clay silts should almost stand on a vertical slope for short periods provided no leakage or weeping is noted within the soils. It would be doubtful in any area that

the footing can be placed directly on the ledge surface without an excess of excavation. In general it is believed that the footing placed eight to ten feet below the surface will be within the tills and should offer adequate support. If piles are to be used to support the substructures and it is doubtful that piles can penetrate to any substantial depth due to large boulders within the till.

SUBSTRUCTURE UNITS

Northbound Lane

Abutment No. 1

Borings AC-43 and AC-44 were made on the right and left ends respectively of the proposed location of Abutment No. 1 at Station 3625 + 44.42. The details for these two borings are shown on Sheet 7 while the plan and transverse sections are shown on Sheet 14. The ground elevation at the proposed abutment is in the vicinity of 140 whereas the finished grade elevation is near elevation 168 or a fill of 28 feet is proposed behind this abutment. These borings indicate that the subsoils consist of a top layer of very stiff weathered silty clay extending to elevation 131 below which a dense till was noted with the bedrock surface being cored on the right at elevation 123.1 and on the left at elevation 124. These subsoils are high in shear strength and should adequately support the proposed fills without shearing difficulty.

Since the fills will be constructed prior to the substructure, the substructure could be supported by piles. It is doubtful that piles can penetrate through the approach fill and very deep into the underlying dense tills below elevation 131.

A high casing resistance should be encountered the entire depth of driving and thus steel piles would be recommended.

Pier No. 1

Borings AC-45 and AC-46 were made on the right and left sides respectively of the proposed location of Pier No. 1 at Station 3626 + 06.3. The details of these two borings are shown on Sheet 8 while the plan and transverse sections are shown on Sheet 14. As can be seen on the transverse section the ground slopes gently to the left within this area and the same soils as encountered at the abutment were encountered within these two borings. The ground elevation was noted to be 140 on the right and 138.5 on the left and the stiff clay noted to extend to elevation 132.2 on the right and to 130.8 on the left, below which the dense brown till was noted and the ledge surface, five feet of which was cored, in the vicinity of elevation 122. Since the finished grade over the railroad tracks is elevation 163.6 the proposed pier will be quite high. The dense brown till should adequately support the proposed pier by the use of spread footing and design data has been included on Sheet 15 provided the footing is placed within this dense till. This would mean an excavation of at least eight feet and nearer ten. It may be more economical to drive piles through the weathered silt into the tills but it is doubtful because of the high casing and spoon resistance, that the piles can penetrate to the ledge surface. Because of the high casing resistance, steel piles would be recommended.

Pier No. 2

Borings AC-47 and AC-48 were made at the right and left ends respectively of the proposed location of Pier No. 2 at Station 3626 + 63. The details for these two borings are shown on Sheets 9 and 10 while the plan and transverse sections are shown on Sheet 14. As was similarly encountered at Pier No. 1, the subsoils consist of a brown weathered silt clay below which was a brown till. The ground surface slopes slightly to the left while the silty clay dips in the opposite direction with the top of the dense brown till being noted at approximately elevation 130 on the right and 131 on the left. Since the ground line is at elevation 138 it would take eight to nine feet of excavation to place the footing directly on the ledge surface. Because of the high blow count both on the casing and on the sampling spoon, it is believed that adequate support can be derived within the dense underlying till provided that footing is placed below elevation 129. Design data has been included and is shown on Sheet 15. The substructure could also be supported by piles driven through the clay silt into the dense tills but because of the high casing resistance it is doubtful that the piles could penetrate to the ledge surface.

Pier No. 3

Borings AC-51 and AC-52 were made on the right and left ends respectively of the proposed location of Pier No. 3 at Station 3627 + 12.60. The details for these borings are shown on Sheets 11 and 5 while the center line profile, plan, and transverse sections are shown on Sheet 14. These two borings

were made adjacent to the present railroad track. Boring AC-51 is in filled land since a gravel layer was noted to be on the surface instead of the brown weather clay previously noted to overlie the entire area. On the left side in Boring AC-52 the stiff clay was underlain by a medium-density sand and the dense till was noted at elevation 126. On the right side the till was noted to start at elevation 129 and the top two feet of it in loose density. It is believed that if the substructure was supported by spread footing placed in the underlying till below elevation 128 that sufficient bearing from the subsoils could be dericed and design data is included on Sheet 15. The ledge surface was noted to be at elevation 119.2 on the left while on the right end 4 feet of boulders was cored beginning at elevation 124.3. Piles could also be used to support the substructure at this site. Steel piles would be recommended due to the high casing resistance anticipated within the area.

Abutment No. 2

Borings AC-57 and AC-58 were made at the left and right ends respectively for the proposed location of Abutment No. 2 at Station 3627 + 64.40. The details for these two borings are shown on Sheets 10 and 11 while the transverse profiles are shown on Sheet 14. The ground surface is at elevation 138 with the finished grade above elevation 160. Thus a 30-foot fill is proposed behind the abutment. This fill will be constructed prior to the substructure. It is believed that

piles should be used to support the substructures. It is believed that piles can penetrate through the fill and stiff clay into the underlying dense tills in the vicinity of elevation 128. The stiff weathered clay silts which overlie the area and extend from the surface to elevation 128 should adequately support the proposed high fills within this area without shearing or causing extensive settlement. The dense brown tills previously noted continue to underlie the weathered clay silts and he ledge surface cored on the left at elevation 116.4 while the borings on the right end had difficulty when the casing broke off due to the compact tills. It is doubtful if piles could reach this lower elevation due to the friction developed from the approach fills in the top soils. Steel piles would be recommended due to the high anticipated frictional resistance.

SUBSTRUCTURE DETAILS

Southbound Lane

Abutment No. 1

Borings AC-39 and AC-40 were made on the right and left ends respectively for the proposed location of Abutment No. 1 at Station 3627 + 14.93. The details for these two borings are shown on Sheets 3 and 4 while the plan and transverse sections are shown on Sheet 14. As was previously noted the finished grade of the highway is above elevation 160 while the ground surface noted by these two borings was at elevation 137.

Thus, a substantial fill is to be proposed behind the abutment and this fill would normally be constructed prior to the construction of the substructure. It is believed that it will be more economical to drive through the approach fill and into the underlying soils. The clay silts extend to elevation 129 below which the dense tills were noted. Boring AC-39 was stopped by a boulder at elevation 124 while Boring AC-40 was able to penetrate to the ledge surface at elevation 111.9. These firm underlying soils should be adequate to support the proposed fills and piles without causing settlement or shearing difficulties. Steel piles would be recommended due to the anticipated high driving resistance.

Pier No. 1

Borings AC-41 and AC-42 were made on the right and left ends respectively of the proposed location of Pier No. 1 at Station 3627 + 67.70. Boring No. 1 was made on center line of the proposed substructure and was made during December of 1960 for preliminary information on the subsoils within the proposed bridge location. The details for these borings are shown on Sheets 2,5 and 6 while the plan and transverse section are shown on Sheet 14. The same subsoils previously encountered were noted within this area except that beneath the stiff brown clay the dense brown till changed to gray in color below elevation 129.5 on the right at elevation 121.5 on the left. Casing resistance in general below elevation 128 was well above 100, the practical limit for which piles can be driven. With an excavation of eight to nine feet, it is believed that the substructure can be supported directly

on this dense till. Design data has been included and is shown on Sheet 15, provided the bottom of the footing is placed below elevation 128. Piles could also be used to support the substructure for this pier but it is doubtful if piles can penetrate much below elevation 126 due to the density of the underlying soils. Because of large boulders these piles may be stopped at a higher elevation while others may penetrate three to five feet lower in depth. Steel piles would be recommended.

Pier No. 2

Borings AC-49 and AC-50 were made on the right and left ends respectively of Pier No. 2 at Station 3628 + 17.26. The details for these two borings are shown on Sheets 5 and 9 while the plan and transverse section are shown on Sheet 14. Boring AC-49 was stopped by a boulder at elevation 125.8 whereas Boring AC-50 encountered the ledge surface in the vicinity of elevation 112. The ground surface in this area is at elevation 134 and the stiff brown silty clay was noted to extend to elevation 127 on the left but next to the ground surface in Boring AC-49. The top of the till was noted to be at elevation 130 on the right but dropped off to 127 on the left. It is therefore believed that spread footings could be used for the support of this pier provided the bottom of the footing is placed in the underlying dense tills below elevation 126 and design data has been included on Sheet 15. Piles could also be used to support the substructures but because of boulders some piles may go deeper than elevation

130 on the right but in no case should they be able to penetrate below elevation 125. Because of the high casing resistance, steel piles should be used.

Pier No. 3

Borings AC-53 and AC-54 were made at the right and left ends respectively of the proposed location of Pier No. 3 at Station 3628 + 61.84. The details for these two borings are shown on Sheet 5 while the plan and transverse section are shown on Sheet 14. The ground surface was noted to be near elevation 133 and on the right side no weathered clay was encountered. On the left side the clay extended to elevation 129. The dense underlying tills should adequately support the spread footing provided the bottom of the footing is placed below elevation 125 and design data has been computed and is shown on Sheet 15. This substructure could also be supported by piles driven into the dense till. It is doubtful if piles can reach the bedrock surface due to boulders within the area. However, piles should be able to penetrate to the vicinity of elevation 119 although some piles could penetrate to a slightly deeper depth while others may be at a higher elevation due to large boulders. Steel piles would be recommended.

Abutment No. 2

Borings AC-55 and AC-56 were made on the left and right ends respectively for the proposed location of Abutment No. 2 at Station 3629 + 12.63. The details for these two borings are shown on Sheets 12 and 13 while the plan and transverse sections are shown on Sheet 14. As was similarly noted at the

previous abutment sites a large fill is proposed in order to allow clearance underneath the bridge for the railroad traffic. Fills of 30 feet are proposed behind each abutment. It is believed that the proposed fill will be constructed prior to the start of the substructures. It is believed that this substructure can be supported by piles driven through the approach fill into the underlying firm soils. The ground surface is at elevation 136. The stiff weathered silts extend to elevation 129 on the right but extended five feet deeper on the left side near elevation 124. It is doubtful that piles driven through the approach fills can penetrate to much deeper depth than the top of the dense tills. Since casing resistance and spoon counts within the tills are high and additional friction will be encountered in driving through the approach fill. Steel piles are recommended. The overlying dense tills and stiff clays have a high shear strength and should not consolidate to any appreciable amount, thus should adequately support the proposed large fills.

SUMMARY

The subsoils consist of a layer of stiff weathered silty clay underlain in depth (generally seven to ten feet) by a dense granular till. This till should adequately support the substructures for the bridge provided the bottom of the footing is placed within the dense soils. Design data has been

computed and is shown on Sheet 15. It is recommended that the footing be placed at least below the following elevations:

Substructure Units	Ground Elevation	Minimum Bottom Footing Elevation
Northbound Lane		
Pier No. 1	140	130
Pier No. 2	138	128
Pier No. 3	138	128
Southbound Lane		
Pier No. 1	137	128
Pier No. 2	134	126
Pier No. 3	133	125

Since the Interstate rides above the railroad tracks the finished grade will be well above the ground surface throughout most of this area. In general, it has been more economical to construct the approach fills and place the substructures upon the completed fill. Since this will be of common borrow, it is believed that the substructures for the abutments should derive their support from piles driven through the approach fills into the underlying dense soils. Since the casing resistance will be high, steel piles are recommended. It is doubtful that piles can be driven to much below the top of the dense till. The elevations are as follows:

Substructure Units	Ground Elevation	Depths to Refusal
Northbound Lanes		
Abutment No. 1	140	131
Abutment No. 2	138	128
Southbound Lanes		
Abutment No. 1	137	128
Abutment No. 2	136	127

Since clay overlies the area and is underlain by a granular till some water should be anticipated in excavation for the footing. However, the soils are dense and except for a limited souping up of the fines within the immediate area, these tills should adequately support the proposed footing, the designs of which are shown on Sheet 15.

Respectfully submitted,

Frederick M. Boyce, Jr.
Soils Engineer

DRIVING RESISTANCE (Blows/Ft.)

BORING NO. 1 (1 & 2½" Casing)

Sta. 3627+70

0 20 40

VANE SHEAR STRENGTH (Tons/Sq.Ft.)

0.4 0.8

WATER CONTENT (Percent)

20 40

El. 136.8

VERY STIFF BROWN SILT & CLAY

10

130

700

169

307

DENSE BROWN TILL

10

350

105

125

200

350

20

325

43"

300

120

0% BROWN TILL & BOULDERS

35%

ROCK: PHYLLITE (POSSIBLE BOULDER)

116.55

NOTE:
TILL REFERS TO A MIXTURE OF SILT SAND & GRAVEL (OR STONES)

Maine State Highway Commission

DETAILED SOIL STRATIFICATION & CONSISTENCY DATA

BORING NO(S). 1

HAMPDEN RAILROAD BRIDGE

HAMPDEN

Scale: 1" = 5' FEB. 1960

Soils Engineering Lab. U. of M.

Sheet No. 2

DRIVING RESISTANCE (Blows/Ft.)

VANE SHEAR STRENGTH (Tons/Sq.Ft.)

WATER CONTENT (Percent)

BORING NO. AC-39 (2 1/2 "Casing)

Sta. 3627+12 15' Rt & 3BL

0 20 40 | 0.4 0.8 | 20 40

El. 137.32

135

VERY STIFF BROWN WEATHERED SILT & CLAY

1C

(1.78)

130

DENSE BROWN TILL

96

70

1D

125

122.8

*

? 100% BOULDERS PHYLLITE

800

* Used Boulder Buster

NOTE:
TILL REFERS TO A MIXTURE OF SILT SAND & GRAVEL (OR STONES)

Maine State Highway Commission

DETAILED SOIL STRATIFICATION & CONSISTENCY DATA

BORING NO(S). AC-39

EMERSON RD. + RAILROAD BR.

Scale: 1" = 5' June, 1961

Soils Engineering Lab. U. of M.

Sheet No. 3

DRIVING RESISTANCE (Blows/Ft.)

VANE SHEAR STRENGTH (Tons/Sq.Ft.)

WATER CONTENT (Percent)

BORING NO. AC-40 (2 1/2 "Casing)

Sta. 3627+18' 15' LT. & SBL

0 20 40 | 0.4 0.8 | 20 40

El. 137.2

135

VERY STIFF BROWN WEATHERED

1C

130

(1.26)

MD

292

1/2"

84

125

DENSE BROWN TILL

189

278

82/4"

1D

163

184

120

208

187

DENSE GRAY TILL

98

2D

82

115

63

83

165

111.9

3D

212

153/3"

LEDGE, PHYLLITE

55%

106.9

NOTE:
TILL REFERS TO A MIXTURE OF SILT, SAND & GRAVEL (OR STONES)

Maine State Highway Commission

DETAILED SOIL STRATIFICATION & CONSISTENCY DATA

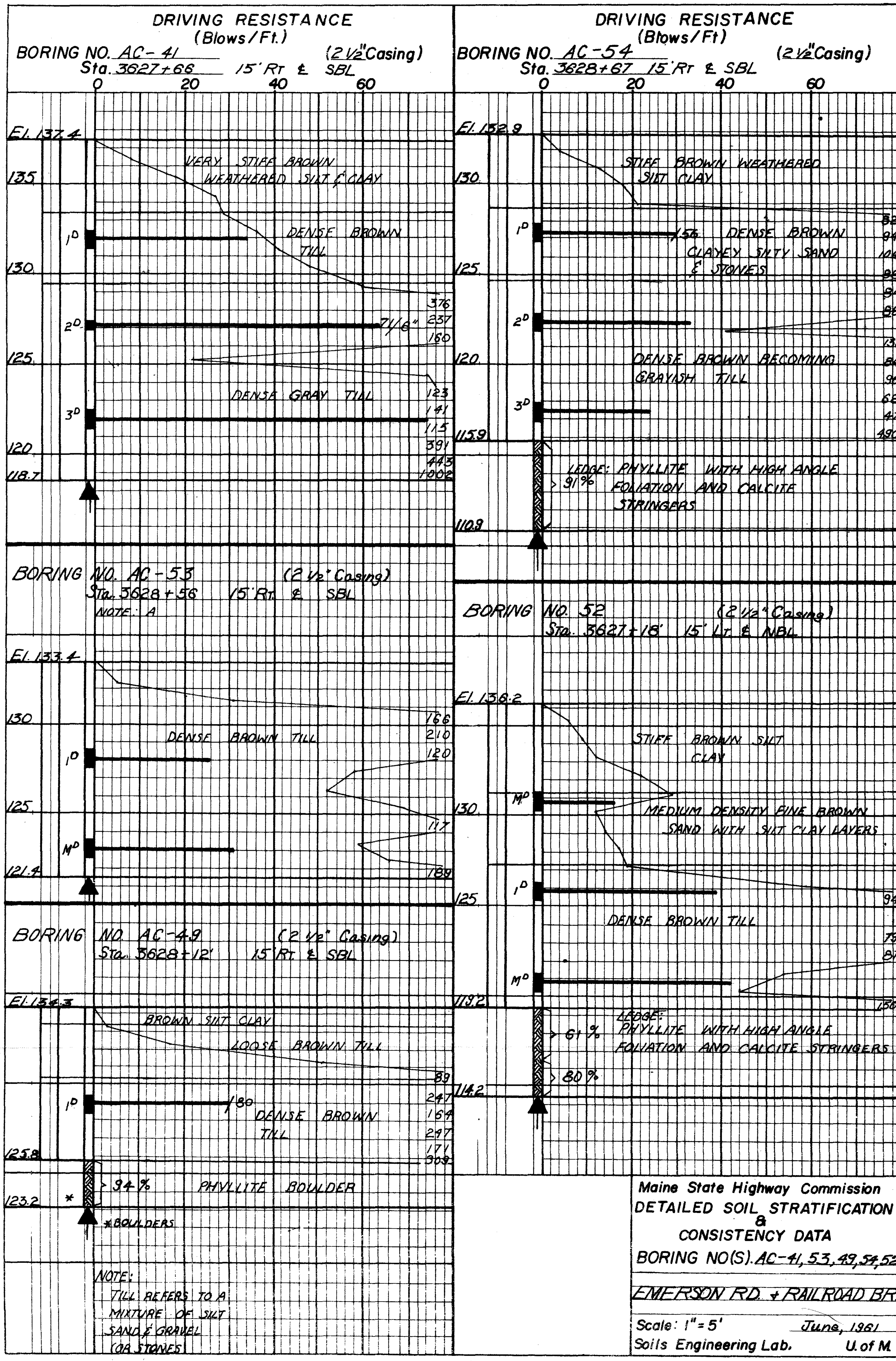
BORING NO(S). AC-40

EMERSON RD. + RAILROAD BR.

Scale: 1" = 5' June 1961

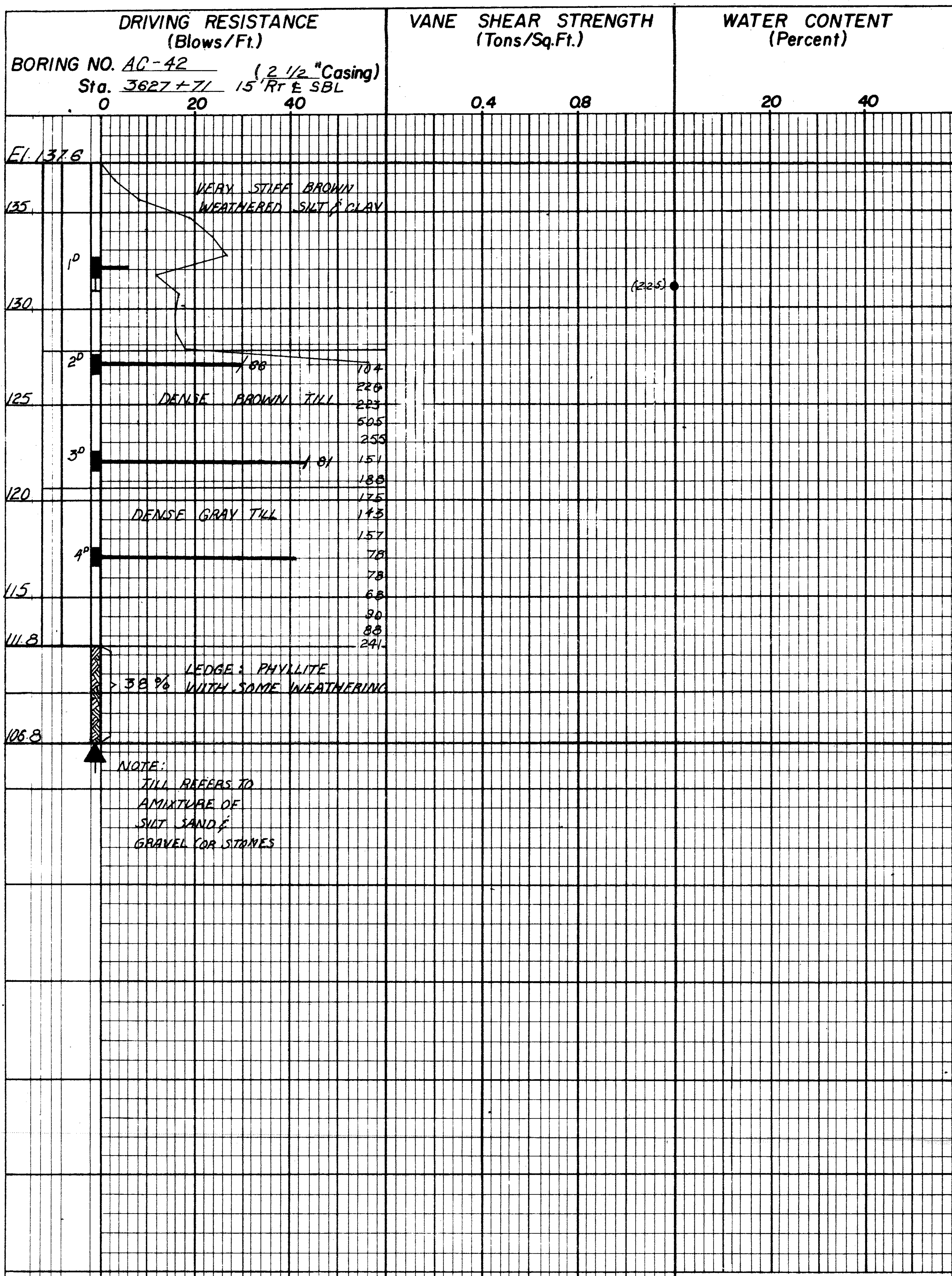
Soils Engineering Lab. U. of M.

Sheet No. 4



Maine State Highway Commission
DETAILED SOIL STRATIFICATION & CONSISTENCY DATA
BORING NO(S). AC-41, 53, 49, 54, 52
EMERSON RD. + RAILROAD BR.
Scale: 1" = 5'   June, 1961
Soils Engineering Lab.   U. of M.

Sheet No. 5



Maine State Highway Commission
DETAILED SOIL STRATIFICATION & CONSISTENCY DATA
BORING NO(S). AC-42
EMERSON RD + RAILROAD BR.
Scale: 1" = 5'
Soils Engineering Lab. U. of M.

Sheet No. 6

DRIVING RESISTANCE (Blows/Ft.)

VANE SHEAR STRENGTH (Tons/Sq.Ft.)

WATER CONTENT (Percent)

BORING NO. AC-43 (2 1/2 "Casing)

Sta. 3625+35' 15' Rt. & NBL

0 20 40 | 0.4 0.8 | 20 40

El. 140.15

VERY STIFF BROWN WEATHERED SILT & CLAY

135

1^C

(1.08)

(2.06)

130

M_D

165

DENSE BROWN TILL

162
144
199
128
104
140
71
597

125

1^D

123.1

86 % LEDGE: PHYLLITE WITH SOME CALCITE AND WEATHERING

83 %

118.1

BORING NO AC 44 (2 1/2" Casing)

Sta 3627+54 15' Lt. & NBL

El. 139.9

VERY STIFF BROWN WEATHERED SILT & CLAY

135

1^C

(1.22)

130

N_D

50/½"

DENSE BROWN TILL

160
284
79
61
221

124.0

1^D

1/4"

93 % LEDGE: PHYLLITE WITH CALCITE STRINGERS & SOME WEATHERING

97 %

119.0

NOTE:
TILL REFERS TO A MIXTURE OF SILT, SAND & GRAVEL OR STONES

Maine State Highway Commission

DETAILED SOIL STRATIFICATION & CONSISTENCY DATA

BORING NO(S). AC-43, 44

EMERSON RD. + RAILROAD BR

Scale: 1" = 5' June, 1961

Soils Engineering Lab. U. of M.

Sheet No. 7

DRIVING RESISTANCE (Blows/Ft.)

VANE SHEAR STRENGTH (Tons/Sq.Ft.)

WATER CONTENT (Percent)

BORING NO. AC-45 (2 1/2" Casing)

Sta. 3625+97' 15' Rt. ℄ NBL

0 20 40 | 0.4 0.8 | 20 40

EL. 140.3

135

130

125

122.7

117.7

VERY STIFF BROWN WEATHERED SILT & CLAY

1c

1b

DENSE BROWN TILL

2b

69

79/6" 216

29/6" 108

137

155

83% LEDGE: PHYLLITE WITH CALCITE STRINGERS

92%

(1.22)

BORING NO. AC-46 (2 1/2" Casing)

Sta. 3628+16' 15' Lt NBL

EL. 138.5

135

130

125

122.1

117.1

VERY STIFF BROWN WEATHERED SILT & CLAY

1c

1b

DENSE BROWN TILL

2b

50

81

169

178

174

288

104

189

148+

LEDGE: PHYLLITE AT TOP IN CONTACT WITH A

96% QUARTZITE CONTAINING QUARTZ & CALCITE STRINGERS ERODED & RUSTY AT BOTTOM

(1.45)

NOTE:
TILL REFERS TO A MIXTURE OF SILT SAND & GRAVEL (OR STONES)

Maine State Highway Commission

DETAILED SOIL STRATIFICATION & CONSISTENCY DATA

BORING NO(S). AC-45-46

EMERSON RD. + RAILROAD BR.

Scale: 1" = 5' June, 1961

Soils Engineering Lab. U. of M.

Sheet No. 8

DRIVING RESISTANCE (Blows/Ft.)

VANE SHEAR STRENGTH (Tons/Sq.Ft.)

WATER CONTENT (Percent)

BORING NO. AC-47 (2 1/2" Casing)
Sta. 3626+58' 13' Rt & NBL

0 20 40 | 0.4 0.8 | 20 40

El. 138.9

VERY STIFF BROWN WEATHERED SILT & CLAY

135

1C

130

1D

143

DENSE BROWN TILL

109
69
72
81
288

124.2

122.2 * 58% FINE GRAIN QUARTZITE W/QUARTZ & CALCITE STRINGERS

* POSSIBLE LEDGE

(2.01)

BORING NO. AC 50 (2 1/2" Casing)
Sta. 3628+22 15' Lt & SBL

El. 134.2

VERY STIFF BROWN SILTY CLAY

130

1C

125

1D

50/5"

DENSE BROWN TILL

97
185
235
178
268
194

120

2D

50/6"
25/6"

186
89
73
83
104

115

3D

95
65
113

112.4

LEDGE: PHYLLITE WITH HIGH > 62% ANGLE FOLIATION & CALCITE STRINGERS

107.4

(1.26)

NOTE:
TILL REFERS TO A MIXTURE OF SILT, SAND & GRAVEL (OR STONES)

Maine State Highway Commission
DETAILED SOIL STRATIFICATION & CONSISTENCY DATA
BORING NO(S). AC-47, 50

EMERSON RD. & RAILROAD BR

Scale: 1" = 5' June, 1961
Soils Engineering Lab. U. of M.

Sheet No. 9

DRIVING RESISTANCE (Blows/Ft.)

VANE SHEAR STRENGTH (Tons/Sq.Ft.)

WATER CONTENT (Percent)

BORING NO. AC-48 (2 1/2" Casing)

Sta. 3626+68 17' Lt. ℄ NBL

0 20 40 | 0.4 0.8 | 20 40

El. 138.1

135

130

125

121.1

116.1

VERY STIFF BROWN WEATHERED SILT & CLAY

1C

180

1D

DENSE BROWN CHANGING TO GRAY TILL

145

324

70

85

2D

874

111

168

LEDGE: PHYLLITE WITH HIGH ANGLE FOLIATION AND QUARTZ & CALCITE STRINGER

>90 %

(1.1)

BORING NO. 58 (2 1/2" Casing)

Sta. 3627+59 15' Rt. ℄ NBL

El. 138.8

135

130

125

120

118.8

VERY STIFF BROWN WEATHERED SILT CLAY

1D

2D

16"

16"

DENSE BROWN TILL

MD

150/2"

156

281

200

180

127

384

460

113

118

*

(1.64)

* BROKE CASING

NOTE:

TILL REFERS TO A MIXTURE OF SILT SAND & GRAVEL (OR STONES)

Maine State Highway Commission

DETAILED SOIL STRATIFICATION & CONSISTENCY DATA

BORING NO(S). AC-48, 58

EMERSON RD + RAILROAD BR.

Scale: 1" = 5' June, 1961

Soils Engineering Lab. U. of M.

Sheet No. 10

DRIVING RESISTANCE (Blows/Ft.)

VANE SHEAR STRENGTH (Tons/Sq.Ft.)

WATER CONTENT (Percent)

BORING NO. AC-57 (2 1/2 "Casing)

Sta. 3627+70 15' Rt. ℄ NBL

0 20 40 | 0.4 0.8 | 20 40

El. 138.4

135

STIFF BROWN WEATHERED SILT CLAY WITH THIN SAND LAYER NEAR THE BOTTOM

1C

130

1D

DENSE BROWNISH GRAY TILL

125

80
160
74
62
65
62
120
114

2D

120

3D

118.4

67 %
75 %
100 %

LEDGE: PHYLLITE WITH HIGH ANGLE FOLIATION, CALCITE STRINGER AND QUARTZ VEINS

111.4

(1.55)

BORING NO. AC-51 (2 1/2" Casing)

Sta. 3627+07 15' Lt. ℄ NBL

El. 136.8

135

GRAVEL (RAILROAD FILL)

VERY STIFF BROWN SILT CLAY

1C

130

(1.87)

LOOSE BROWN TILL

1D

60
108
387

124.3

80 %
36 %
91 %

ROCK: PHYLLITE BOULDERS

120.9

NOTE:
TILL REFERS TO A MIXTURE OF SAND SILT & GRAVEL (OR STONES)

Maine State Highway Commission

DETAILED SOIL STRATIFICATION & CONSISTENCY DATA

BORING NO(S). AC-57, 51

EMERSON RD. + RAILROAD BR.

Scale: 1" = 5' June, 1981

Soils Engineering Lab. U. of M.

Sheet No. 11

DRIVING RESISTANCE
(Blows / Ft.)

BORING NO. AC-55 (2½" Casing)

Sta. 3629 + 18' 15' Lt. ℄ SBL

0 20 40 60

El. 135.3

STIFF BROWN WEATHERED SILT & CLAY

130 — 10

125 — MC — 16"

DENSE BROWN TILL

160
640
285
152
180
185
241
918

120 — M_O — 16"

DENSE GRAY TILL

118.3

NOTE:
TILL REFERS TO A MIXTURE OF SILT SAND & GRAVEL (OR STONES

DRIVING RESISTANCE
(Blows / Ft)

BORING NO. _____ ("Casing)

Sta. _____

0 20 40 60

Maine State Highway Commission

DETAILED SOIL STRATIFICATION & CONSISTENCY DATA

BORING NO(S). AC-55

EMERSON RD. & RAILROAD BR.

Scale: 1" = 5' June, 1961

Soils Engineering Lab. U. of M.

Sheet No. 12

DRIVING RESISTANCE (Blows/Ft.)

BORING NO. AC-56 (2 1/2 "Casing)

Sta. 3629+07 15' Rt. & SBL

0 20 40

VANE SHEAR STRENGTH (Tons/Sq.Ft.)

0.4 0.8

WATER CONTENT (Percent)

20 40

El. 136.5

135

130

125

119.5

114.5

STIFF BROWN WEATHERED SILT CLAY

1c

80

88

DENSE GRAY TILL

1c

174

64

2c

105

74

289

LEDGE: PHYLLITE WITH 86% HIGH ANGLE FOLIATION & CALCITE STRINGERS

NOTE:
TILL REFERS TO A MIXTURE OF SILT SAND & GRAVEL (OR STONES)

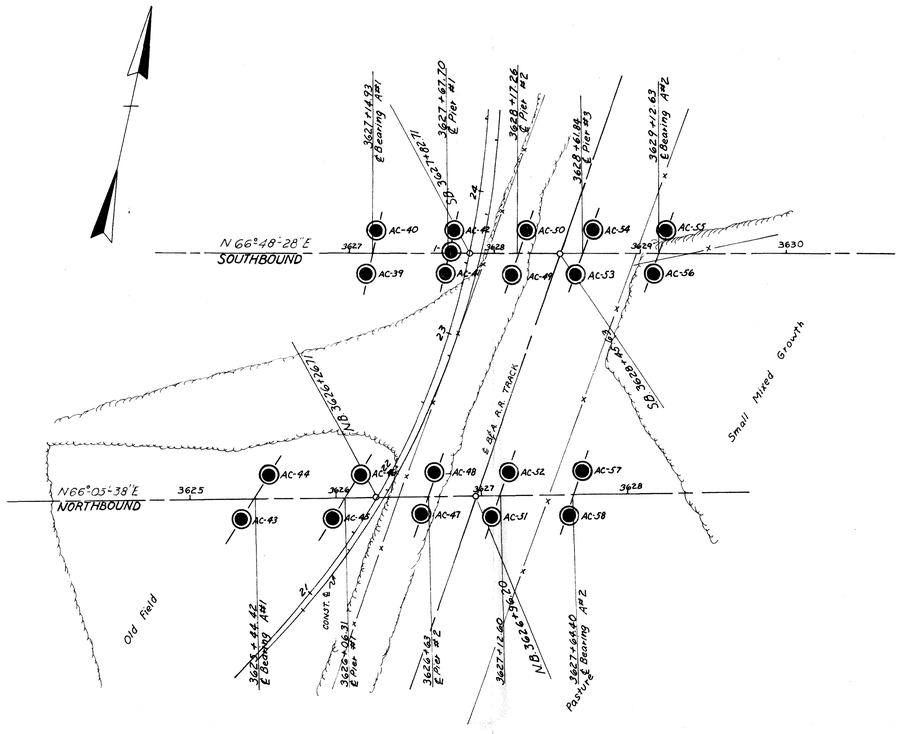
Maine State Highway Commission
DETAILED SOIL STRATIFICATION
&
CONSISTENCY DATA
BORING NO(S). AC-56

EMERSON RD + RAILROAD BR

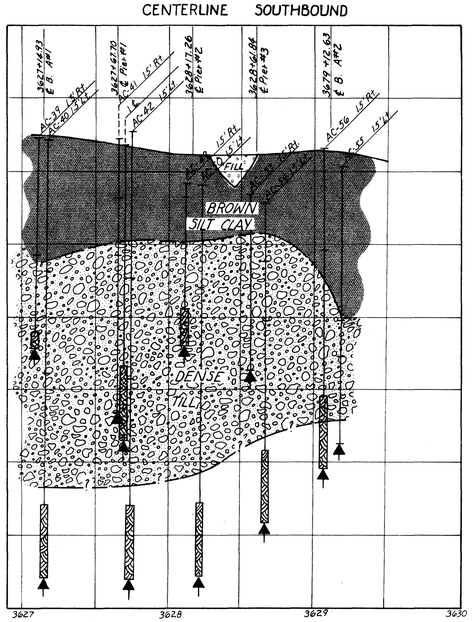
Scale: 1" = 5' June, 1981
Soils Engineering Lab. U. of M.

Sheet No. 13

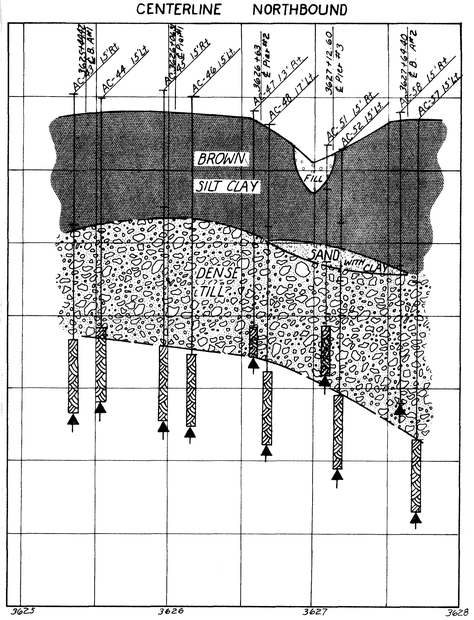
B. P. R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE			

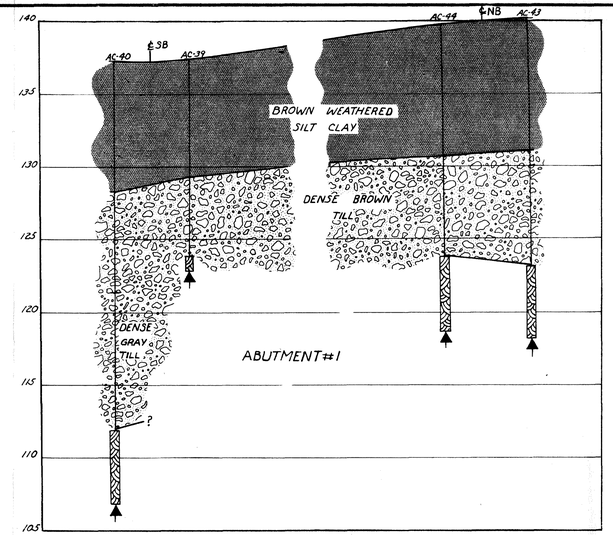


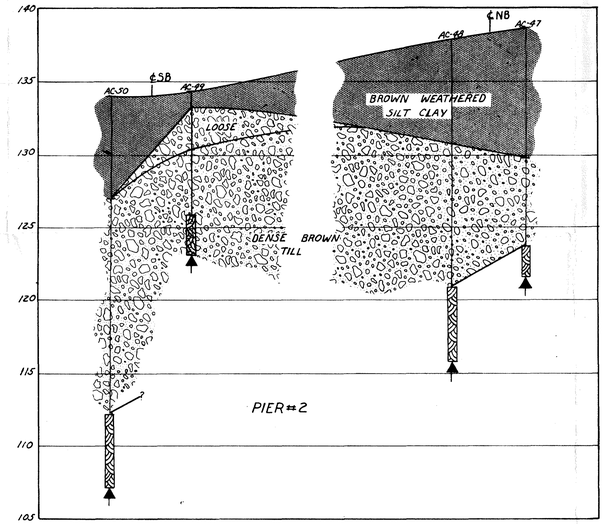
CENTERLINE SOUTHBOUND

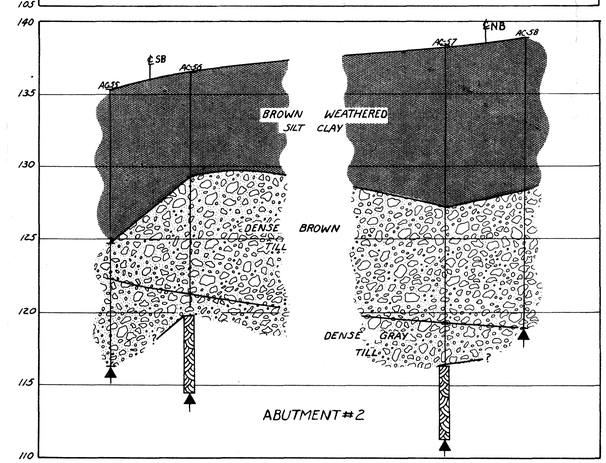


CENTERLINE NORTHBOUND

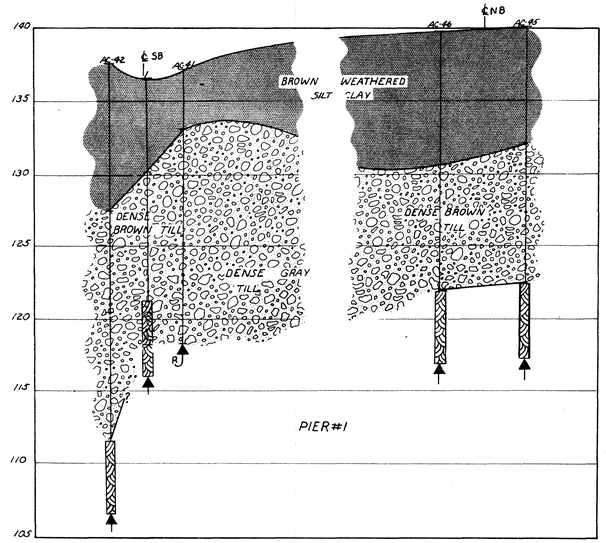


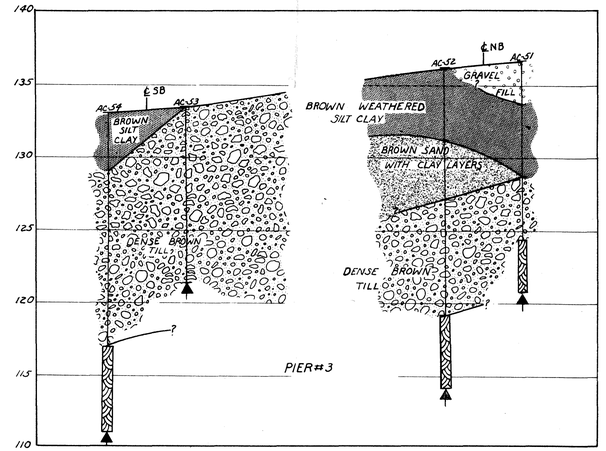






TRANSVERSE SECTIONS





DESIGN–	BRIDGE NO.
TRACE–	SURVEY–
CHECK–	PLOT–

STATE HIGHWAY COMMISSION
BRIDGE DIVISION

EMERSON MILL ROAD & RAILROAD BRIDGE

IN THE TOWN OF

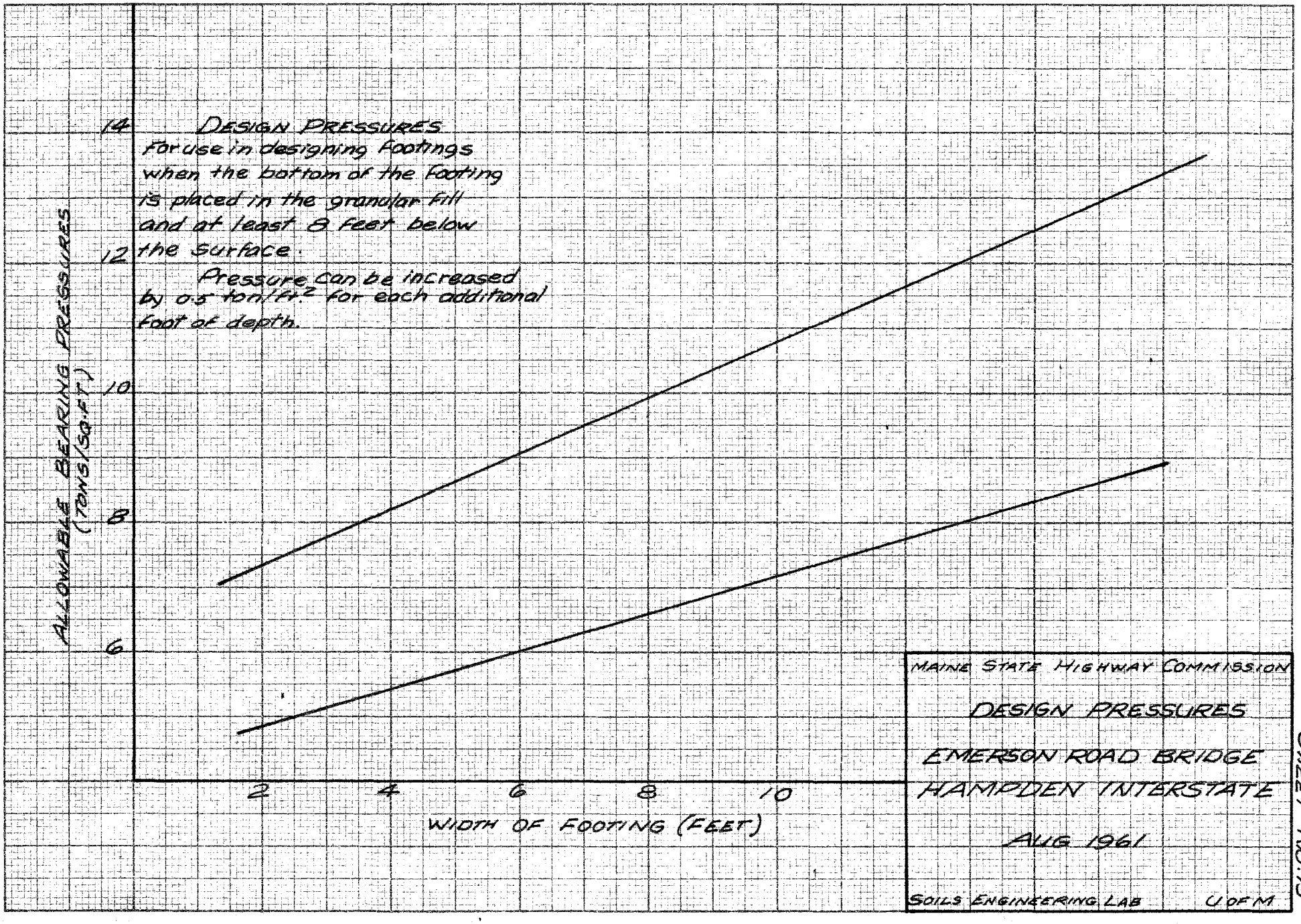
HAMPDEN

PENOBSCOT COUNTY

FOUNDATION SURVEY

SHEET OF AUGUSTA, MAINE

C. B. CO. NO. 379 24827



SHEET NO. 15