61-23

HAMPDEN INTERSTATE
PENOBSCOT COUNTY
SOILS REPORT
SOUADABSCOOK RIVER
I-95-7(14)
WEST BRIDGE

Fred's Copy

61-23

SUBSURFACE INVESTIGATION FOR

WEST BRIDGE, SOUADABSCOOK STREAM

PENOBSCOT COUNTY

HAMPDEN, MAINE

State Highway Commission

Soils Division

61-23

JULY 1961

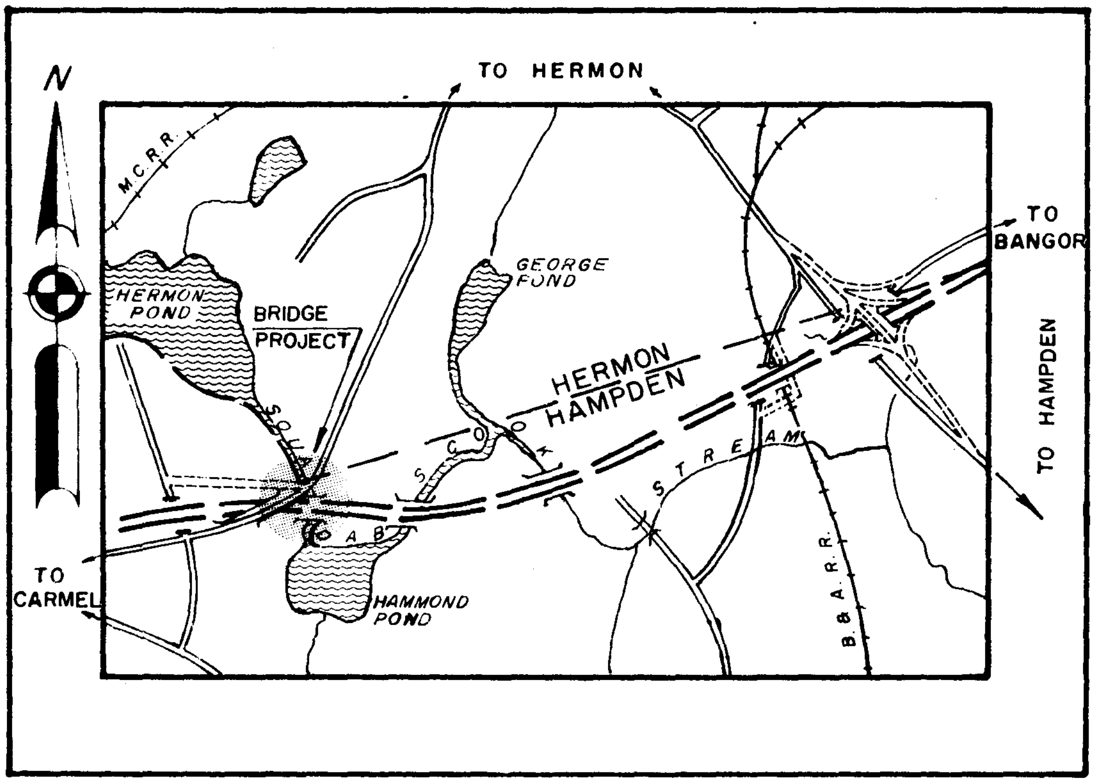
HAMPDEN

PENOBSCOT COUNTY

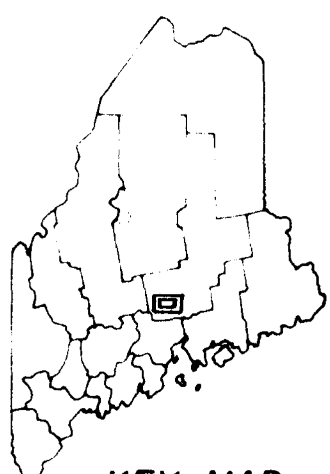
PROJECT NO. I-95-7(14)

WEST BRIDGE, SOUADABSCOOK STREAM

1961



LOCATION MAP
Scale 1" = 1 Mile



KEY MAP

CONTENTS

CONTENTS (cont.)

INTRODUCTION

A subsurface investigation has been completed for the proposed construction of two bridges to carry the northbound and southbound lanes of the Interstate Highway over the west crossing of the Souadabscook Stream in the Town of Hampden, Maine. This proposed bridge location is part of the Interstate Project I-95-7 (14) and is the first of three crossings of the stream required because of poor soils conditions further to the north. The bridge is located several hundred feet downstream from the existing bridge crossing over the Souadabscook Stream between Hammond Pond and Hermon Pond.

In June a soils report was forwarded to the Bridge Division covering the subsurface explorations for the proposed crossing of the East Bridge and a third report covering the Center Bridge will be forwarded to the Bridge Division later this month. In the earlier report for the eastern crossing of the stream, the majority of soils were firm and granular and a little difficulty was anticipated. However, on this bridge as well as on the Center Bridge, layers of varved clay have required additional analysis in the office.

Preliminary soundings within the bog area were made in the winters of 1959 and 1960 and upon receipt of the plans for the bridge location borings were made in March and April of this year by drilling crews under the supervision of Mr. Taylor and Mr. Brown. A detail soils profile and report covering the entire bog section from the Pond Road to the Emerson Mills bridge project will be forwarded to the Primary Division later this month.

Included with the illustrations within this project are the boring notes on Sheets 1 and 2. The boring details for the 14 borings made at the proposed substructure units for both bridges are shown on Sheets 3 through 18. The transverse profiles along the proposed substructure locations is included on Sheet 19 while the plan and soils profiles along center line both for the northbound and southbound roadway are shown on Sheet 20.

GENERAL CONDITIONS

In moving to the south of the large and extensive bogs in Hermon, the alignment has been forced to cross over the Souadabscook Stream three times and thus three structures are required. This southern alignment was on better soils than to the north, but the underlying soils are far from being classified as good.

In general, a deposit of peat overlies the low wet areas. This peat has a high water content and ignition loss and should be removed wherever encountered. In general, the deposit is less than ten feet thick and at the proposed crossings a maximum of two feet of peat should be anticipated.

The peat is underlain by a medium consistency clay. This layer is in most cases very shallow and is mixed with sands and in general is not encountered below elevation 115. This clay is of recent age as compared with the underlying clay which changes from a stiff weather zone near the top to a medium consistency and sand layers appearing and increasing in frequency with depth. The stiff clay zone should adequately spread loads over the underlying soils to minimize any shearing action. Some settlement, however, should be anticipated. In general, this deposit was not encountered below elevation 100.

The clay is underlain by a sand and gravel deposit varying from five to a maximum of eighteen feet before the ledge surface was encountered. This sand is of medium density and should aid in draining the clay layer above by providing a drainage path. Thus, the clay although of poor permeability and consolidation characteristics should be essentially complete in settlement by the time of paving--an estimated two years.

The ledge is a phyllite with a high angle of foliation and thus probably highly fractured on the surface. The elevation of the ledge was uniform along the northbound lane between elevation 90 and 94 but varied from a low of 78 to a high of 99 along the southbound lane.

Since a fill of ten feet is proposed behind the abutments and the subsoils will consolidate, it is recommended that piles be driven to support the substructures. Since these piles will be driven to the ledge surface, steel piles are recommended.

SUBSTRUCTURE DETAILS

Northbound Lane

Abutment No. 1.

Borings CT 18 and CT 19 were made on the right and left ends respectively of the proposed location of Abutment No. 1 at Station 3490 + 44. The details of these two borings are shown on Sheets 6 and 7 while the transverse profile is shown on Sheet 19 with the general profile shown on Sheet 20. The ground surface is at elevation 121.7 with a finished grade at elevation 131 and thus a fill of 10 feet is proposed behind the abutment. As noted on the plans, a layer of soft compressible peat one foot deep was noted to overlie the area and should be removed prior to the addition of the fill behind the abutment. This peat was underlain by a layer of medium consistency gray silt with a thin layer of sand extending to elevation 115. This deposit is of recent age since it is underlain by a stiff weathered silty clay extending to elevation 95. Between elevation 107 to 102 the clay was of medium consistency with sand layers appearing more frequently with depth changing completely to silty sands below elevation 95. Ledge was cored on the left at elevation 90 and elevation 90.5 on the right. The ledge was classified as phyllite with a high angle of foliation. A shear analysis indicates that the proposed fill and back slope should not encounter any shearing difficulties; however, some settlement should be expected. Shearing difficulty is minimized because of the stiff overlying clay. The deposit is fairly thin and therefore the majority of settlement should be completed within the two-year period which will extend from the beginning of the project to the final paving. It is therefore believed that the substructure for this unit can be best supported by piles driven through the approach fill through the underlying soils to the ledge surface at elevation 90. Steel piles are therefore recommended, although cast-in-place concrete piles could perform satisfactorily. Wooden piles would not be satisfactory because of the cutoff above the ground water table.

Pier No. 1. Borings CT 14 and CT 17 were made on the left and right ends respectively for the proposed location of Pier No. 1 at Station 3490 ≠ 84. The details for these two borings are shown on Sheets 3 and 6 while the transverse profile at the substructure unit is shown on Sheet 19 and the plan and center line soil profile are shown on Sheet 20. These two borings were made within the existing stream area with the top of the stream bed being encountered at elevation 116.6 on the left and 116.4 on the right. A thin layer of organic fill was noted on the left side and none on the right and this was underlain by a gray silty clay generally encountered on the northbound lane to be of medium consistency, below which at elevation 12.5 was a stiff weathered silty clay previously encountered changing to medium consistency with large sand layers at elevation 107 and to complete sand below elevation 102. The ledge surface was encountered on the left side at elevation 91.6 and on the right side also at elevation 91.6. The ledge was also noted to be of phyllite as similarly encountered at the proposed abutment. Since these soils are compressible and within the stream area, piles are recommended to support the substructure for this unit. It is believed that piles can be driven to the ledge surface with a little difficulty. Steel piles would be recommended because of the underlying soils, however, cast-in-place or wooden piles would perform satisfactorily provided the latter are cut off below the ground water table.

Pier No. 2. Borings CT 15 and CT 16 were made on the left and right ends respectively for the proposed location of Pier No. 2 at Station 3491 ≁ 34. The details for these two borings are shown on Sheets 4 and 5 while the transverse profile at the substructure unit and the plan and soils profile along center line are shown on Sheet 20. These two borings were also made within the stream bed through the water and the stream bed was noted to be approximately at elevation 117. The medium consistency silty clay previously noted at Pier 1 and Abutment 1 was again encountered in these borings. The deposit extended to elevation 112 on the left and elevation 114.5 on the right before the top of the stiff weathered clay was encountered. This clay layer extended to elevation 104 on the left and 101 on the right with the deposit changing to medium consistency and large sand layers below elevation 108. Below this the silty sand becomes dense only directly above the ledge surface which was noted to be at elevation 93.8 on the left and 91.6 on the right. The underlying sands are extremely loose and possibly have some artesian flow in them causing this looseness; however, it should not be of large enough magnitude to be of difficulty. It is recommended that the substructure for this pier be supported by piles driven through the underlying soils directly to the ledge surface. Steel piles would be recommended; however, cast-in-place or wooden piles could be used provided the latter are cut off below the ground water table.

Abutment No. 2. Borings CT 29 and CT 30 were made on the right and left ends respectively for the proposed location of Abutment No. 2 at Station 3491 ≁ 74. The details for these two borings are shown on Sheets 9 and 10 while the transverse sections are shown on Sheet 19 and the plan and soils profile along center line are shown on Sheet 20. The previously encountered overlying medium consistency gray clay was not encountered in these borings but the ground surface is above elevation 121 and 122. The top soils were noted to be of loose sands with embedded wood fragments, indicating an overflow and scourable materials probably having been deposited in the past during high flows of water. This is underlain by the deposit of stiff gray silty clay with black spots and rust spots noted near the surface changing with depth to a varving with thin sand layers and below elevation 110 the sands were of equal magnitude as of the clay. Clay layers were found in the sand deposit which extended to the ledge surface on the right side, whereas no clay layers were noted below elevation 103 on the left. The underlying soils therefore are susceptible to consolidation and settlement should be anticipated behind the abutment. Since the finished grade is at elevation 131, a fill of 9 feet is proposed behind the abutment. The details for the limits of excavation will be included within the roadway section which will be constructed prior to the bridges. Since the abutment fills will be completed prior to the starting of the substructure at this abutment, it is recommended that the substructure be supported by piles driven directly to the ledge surface at elevation 92.1 on the left and 93.3 on the right. Steel piles are recommended; however, cast-in-place concrete piles could be used as well as wooden piles provided the wooden piles are cut off below the ground water table.

Southbound Lane

Abutment No. 1. Borings CB 33 and CB 34 were made on the left and right ends of the proposed location of Abutment No. 1 on the southbound roadway. The details for these two borings are shown on Sheets 13 and 14. The ground surface was noted to be at approximately elevation 121 with a finished grade of elevation 131, meaning a fill of 10 feet is proposed behind the abutment. A one-foot layer of dark brown peat was encountered on the right side but was noted not to extend to the left side. This material should be removed prior to the addition of the fill within the area. This was underlain by a three-foot layer of loose brown silty sand with embedded wood fragments. This material is probably the erosional material deposited during high flows of the river. These wood fragments should not cause difficulty due to their compression since the ground water table will be quite high within the area. The stiff gray silty clay was noted in this area to extend to elevation 118 changing to medium to soft consistency below elevation 109 with sand layers being picked up in the bottom of the deposit below elevation 100 and the sand content increasing to nearly equal thickness of clay layers between elevation 94 and 99. This was underlain by a medium to dense gray silty sand and the ledge surface was noted to be at elevation 77.8 on the left and 86.1 on the right. This was the deepest at which the ledge surface was encountered. Since the fill will be completed prior to the construction of the substructure units, piles are recommended to support the substructures directly to the ledge surface and steel piles are recommended. Cast-in-place concrete piles could be used. The clay deposit within the area is of medium to soft with an overlying stiff clay, indicating that while some consolidation should occur, sufficient shear strengths are high enough such that no shearing difficulties should be anticipated. The clay deposit is underlain by a granular soil, thus aiding in providing an exit or a drainage path for the water to allow consolidation and the majority of consolidation or settlement should be completed within the two-year period.

Pier No. 1. Borings CB 35 and CB 41 were made on the right and left ends respectively for the proposed location of Pier No. 1. The details for these two borings are shown on Sheets 15 and 18 respectively while the transverse profile for the substructure unit is shown on Sheet 19 and the plan and center line soils profile is shown on Sheet 20. These two borings were made within the river area and the bottom of the stream bed was noted to be at approximately elevation 117.5 to 118 within the area. A thin deposit of peat overlaid the stiff gray silty clay with rust spots. This stiff clay changed to medium consistency at approximately elevation 110 and sand layers were noted below elevation 103 with the description changing to alternate layers of sand and clay below elevation 100 on the left and 105 on the right. This alternate layering extended to elevation 88 on the left and 97 on the right, below which was a layer of sand and gravel with the ledge surface being encountered at elevation 84.2 on the left and 93.9 on the right. Since the underlying soils are highly compressible it is recommended that the substructure for this unit be supported by piles driven through the stiff clay and underlying sands to the ledge surface. Steel piles would be recommended; however, cast-in-place or wooden piles could be used. The latter must be cut off below the top of the ground water table.

Pier No. 2. Borings CB 39 and CB 40 were made at the right and left ends respectively of the proposed location of Pier No. 2. The details for these two borings are shown on Sheets 16 and 17 while the transverse profile is shown on Sheet 19 with the plan and center line profiles shown on Sheet 20. These two borings were again made within the stream bed elevation and the bottom of the stream was noted to be at approximately elevation 116 on the right and 117 on the left. A thin layer of silty sand and peat was noted to extend above the stiff clay layer which was noted to be at elevation 115. This stiff clay changed to a varved clay with sand layers below elevation 110 and large sand layers noted below elevation 104. Between 102 and the ledge surface at elevation 99 on the left and 96.1 on the right was a layer of silty sand with pebbles. It is therefore recommended that the substructure be supported by piles driven directly through the underlying soils to the ledge surface. Steel piles would be recommended; however, cast-in-place concrete piles could be used.

Abutment No. 2. Borings CB 31 and CB 32 were made on the left and right ends of the proposed location of Abutment No. 2. The details for these two borings are shown on Sheets 11 and 12 while the transverse section is shown on Sheet 19 with the plan and soils profile shown on Sheet 20. The proposed location is at the edge of the existing channel and a foot of soft compressible peat was noted, below which the stiff clay was again encountered at elevation 119. This clay layer changed to rust spots and varving. Below elevation 110 there are alternate layers of sand and clay changing below this elevation and extending to elevation 102. Below elevation 102 was a silty sand with the ledge surface being noted at elevation 95.1 on the left and 93.3 on the right. The ledge was of phyllite with a high angle of foliation. A fill of 11 feet was proposed behind the abutment. It is recommended that the substructure be supported by piles driven through the approach fill into the ledge surface. Steel piles are recommended.

SUMMARY

Piles are recommended to support the substructure units. It is believed that piles can be driven to the following ledge elevations:

Northbound Lane	Left End	Right End
Abutment No. 1	90	90.3
Pier No. 1	91.5	91.5
Pier No. 2	93.8	91.6
Abutment No. 2	92.1	93.3

Southbound Lane		
Abutment No. 1	77.8	86.1
Pier No. 1	84	93.9
Pier No. 2	99	96.1
Abutment No. 2	95.1	93.3

Steel piles would be recommended; however, cast-in-place concrete piles could also be used. Wooden piles would have to be cut off below the top of the ground water table.

Soft compressible soils underlie the area behind the abutments and some settlement should be anticipated behind the approach fills but the amount is small and the anticipated time for completion should be equal to the timing for the paving of the roadway two years after the fills are completed.

Respectfully Submitted,

Fred M Boyce Jr.

Frederick M. Boyce, Jr.
Soils Engineer

FMB:cb

SHEET #1

BORING NOTES	LOG SHEETS	DETAIL SHEETS
1. All samples and vanes are made ahead of casing.		
2. Scales and casing size as noted on drawings.		
3. Ground water table indicated thus:		
4. Number of blows of 275# hammer falling 18 inches required to drive extra heavy casing one foot thus:	40	(Graphical)
5. Location and designation of "dry" samples taken in S&H sampler #1290s indicated thus:	ID	ID
6. Location and designation of "dry" samples taken in 2" O.D. 16 ga. seamless tubing indicated thus:	IC	IC
7. Location and designation of "dry" samples taken in 3½" O.D. 16 ga. seamless tubing indicated thus:	IU	IU
8. Location and designation of wash samples indicated thus:	IW	IW
9. Unsuccessful attempts to secure dry sample indicated thus, followed by type of sampler:	M_D	M_D
10. Location of field vane test indicated thus:		
11. Number of blows of 275# hammer falling 15" required to drive spoon or tubing one foot indicated thus:	20	(Graphical)
12. Sampling spoon or seamless tubing driven by static weight of drill rods and 275# hammer indicated thus:	H	H
13. 3½" O.D. "dry" samples taken with piston sampler.	P	P
14. Natural water contents, given as percent of dry weight are indicated thus:	31% 20	Graphical
15. Bottom of boring indicated thus:		
16. Refusal of drill rods or casing indicated thus:	R	R
17. Percent recovery of rock core by diamond bit thus:	71%	71%

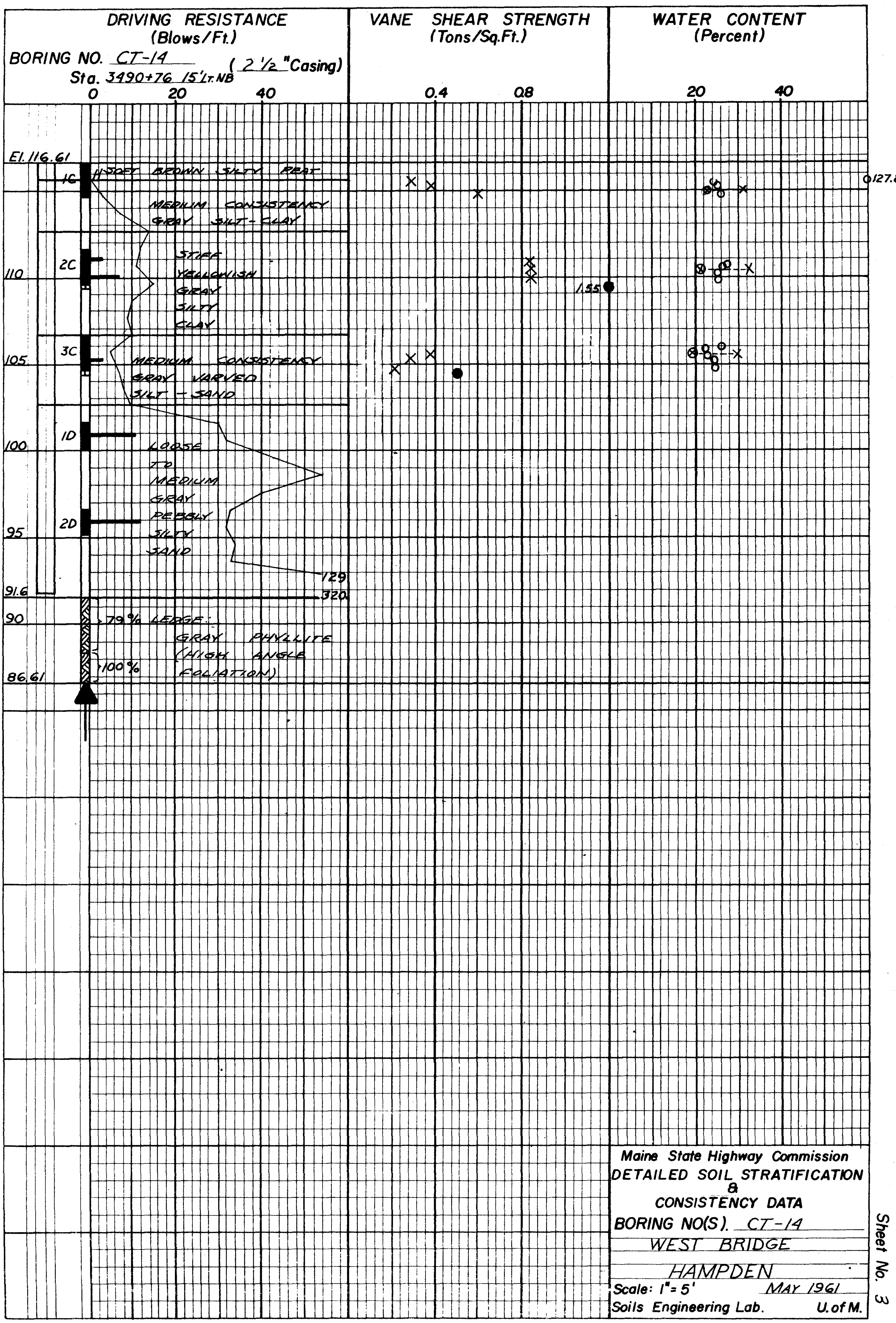
SHEAR AND WATER CONTENT NOTES

Shear Notes:

1. Field vane shear strengths indicated thus: ●
2. Laboratory vane shear strengths indicated thus: x
3. One half unconfined compressive strengths indicated thus: o
4. Strengths beyond range of plot indicated at right edge of plot by numerical values and symbols thus: 1.62●
5. Field vane shear strengths in excess of capacity of equipment indicated thus: —●→
6. Laboratory vane shear strengths in excess of capacity of equipment (1.0 T/sf) indicated thus: —x→
7. Field vane shear strengths in excess of capacity of equipment and beyond range of plot indicated at right edge of plot thus: 1.50(+)●
8. Laboratory vane shear strength in excess of capacity of equipment (1.0T/sf) and beyond range of plot indicated at right edge of plot thus: 1.00 (+)x

Water Content Notes:

1. Natural water contents, given as percent of dry weight, are indicated thus: o
2. Plastic and liquid limits are indicated thus: ⊗ — — —x
3. Ignition losses are given as percent of dry weight.



Maine State Highway Commission

DETAILED SOIL STRATIFICATION & CONSISTENCY DATA

BORING NO(S). CT-14

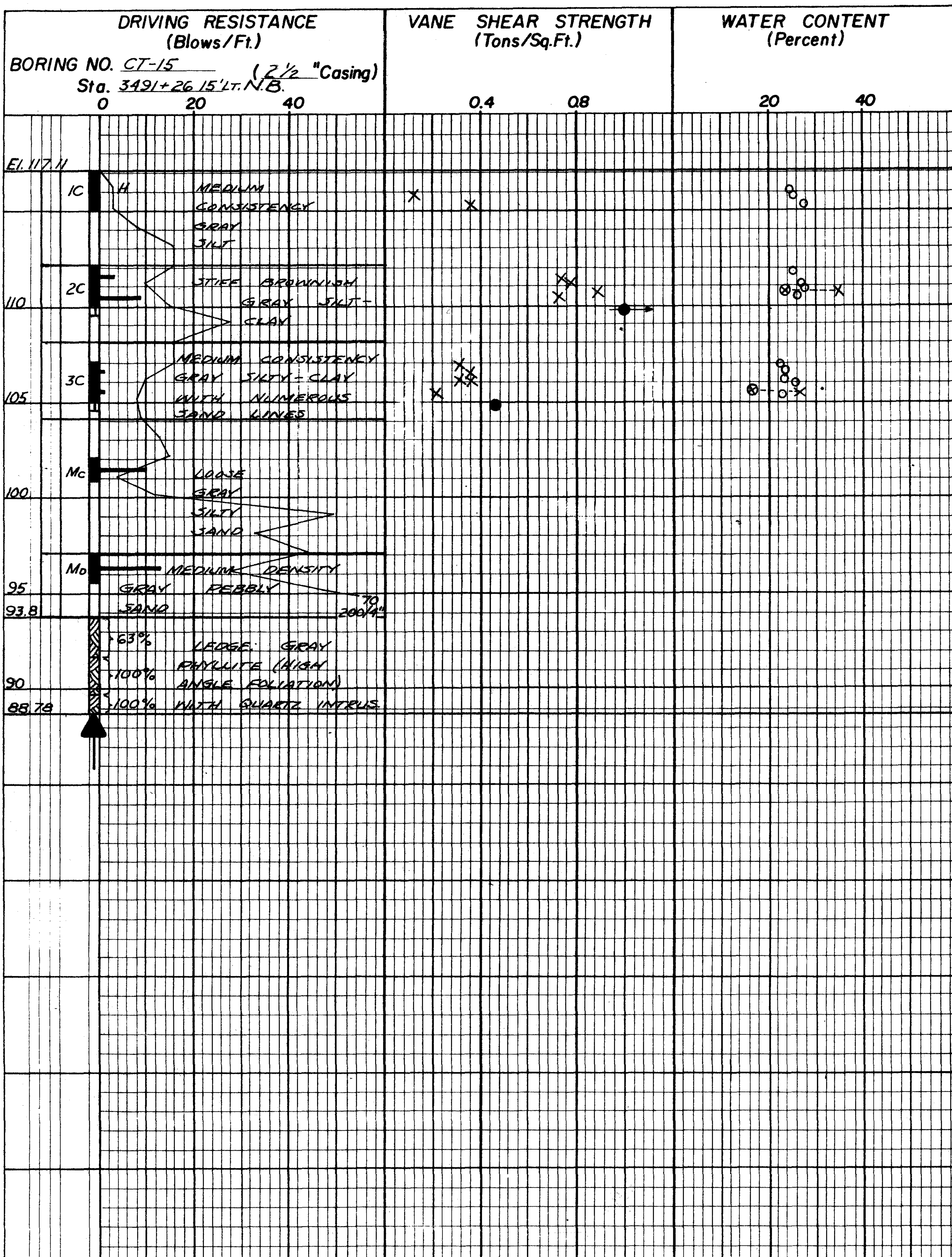
WEST BRIDGE

HAMPDEN

Scale: 1" = 5' MAY 1961

Soils Engineering Lab. U. of M.

Sheet No. 3



Maine State Highway Commission
DETAILED SOIL STRATIFICATION & CONSISTENCY DATA

BORING NO(S). CT-15

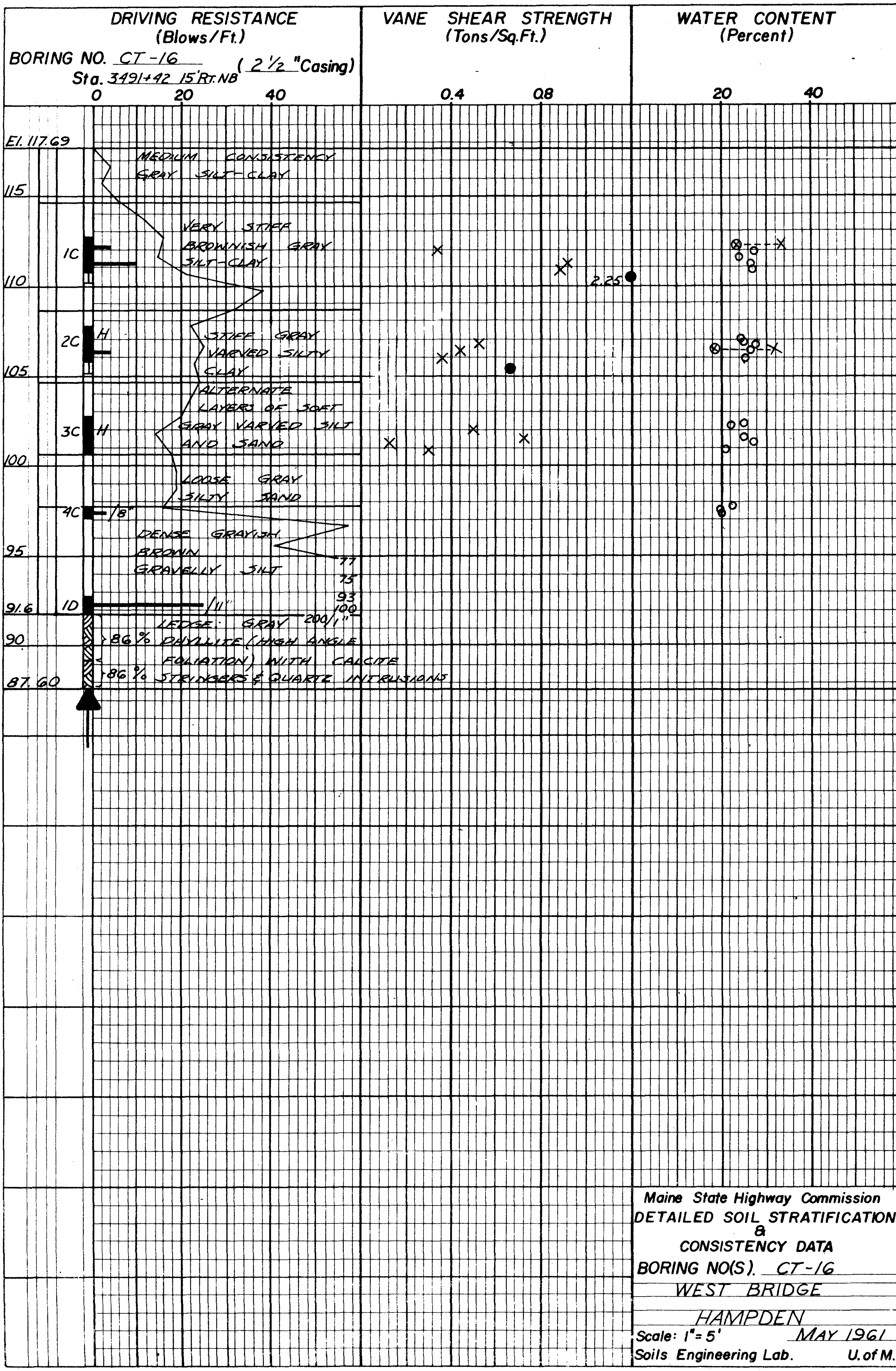
WEST BRIDGE

HAMPDEN

Scale: 1" = 5' MAY 1961

Soils Engineering Lab. U. of M.

Sheet No. 4



Maine State Highway Commission

DETAILED SOIL STRATIFICATION & CONSISTENCY DATA

BORING NO(S). CT-16

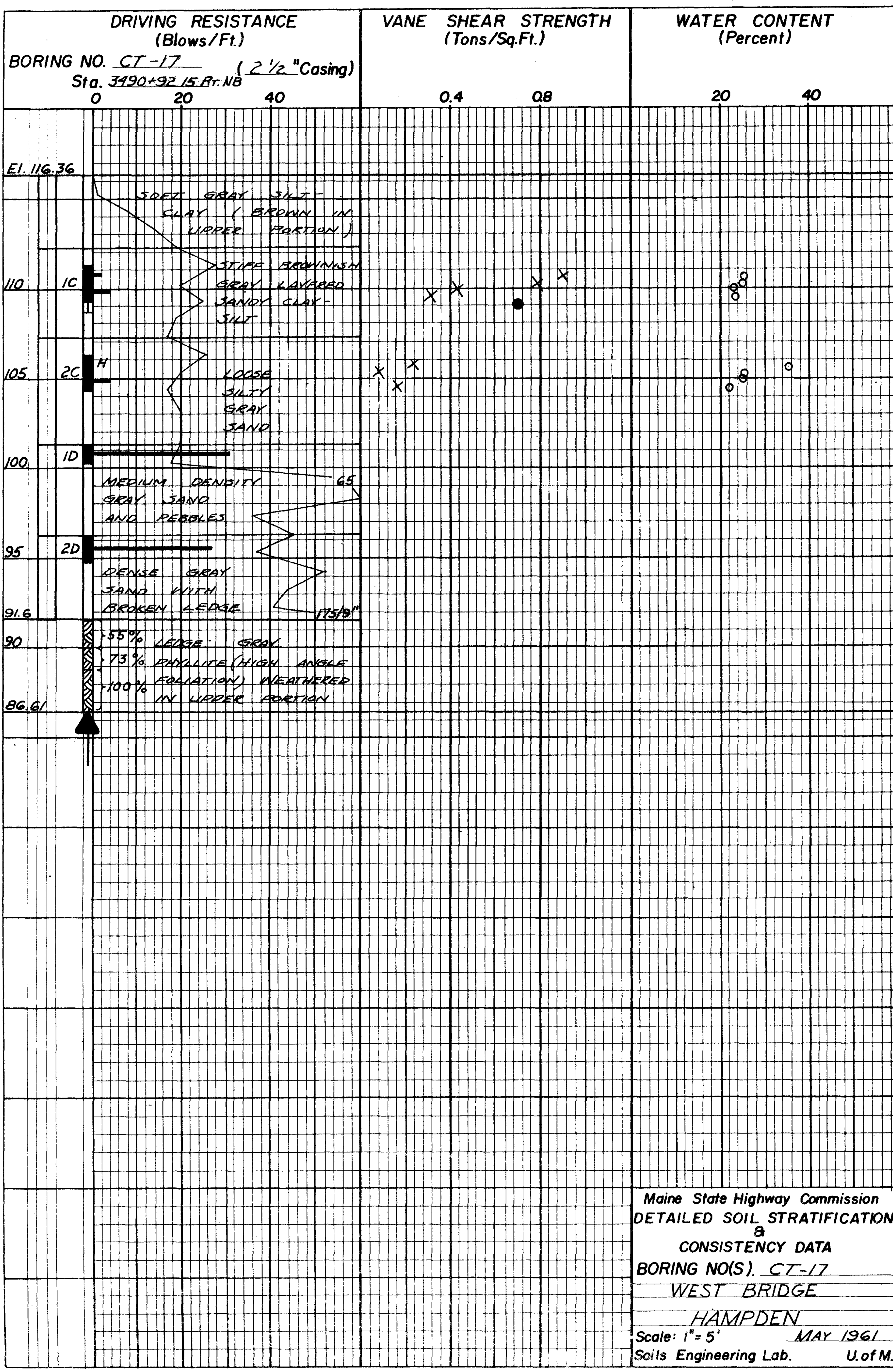
WEST BRIDGE

HAMPDEN

Scale: 1" = 5' MAY 1961

Soils Engineering Lab. U. of M.

Sheet No. 5



Maine State Highway Commission

DETAILED SOIL STRATIFICATION & CONSISTENCY DATA

BORING NO(S). CT-17

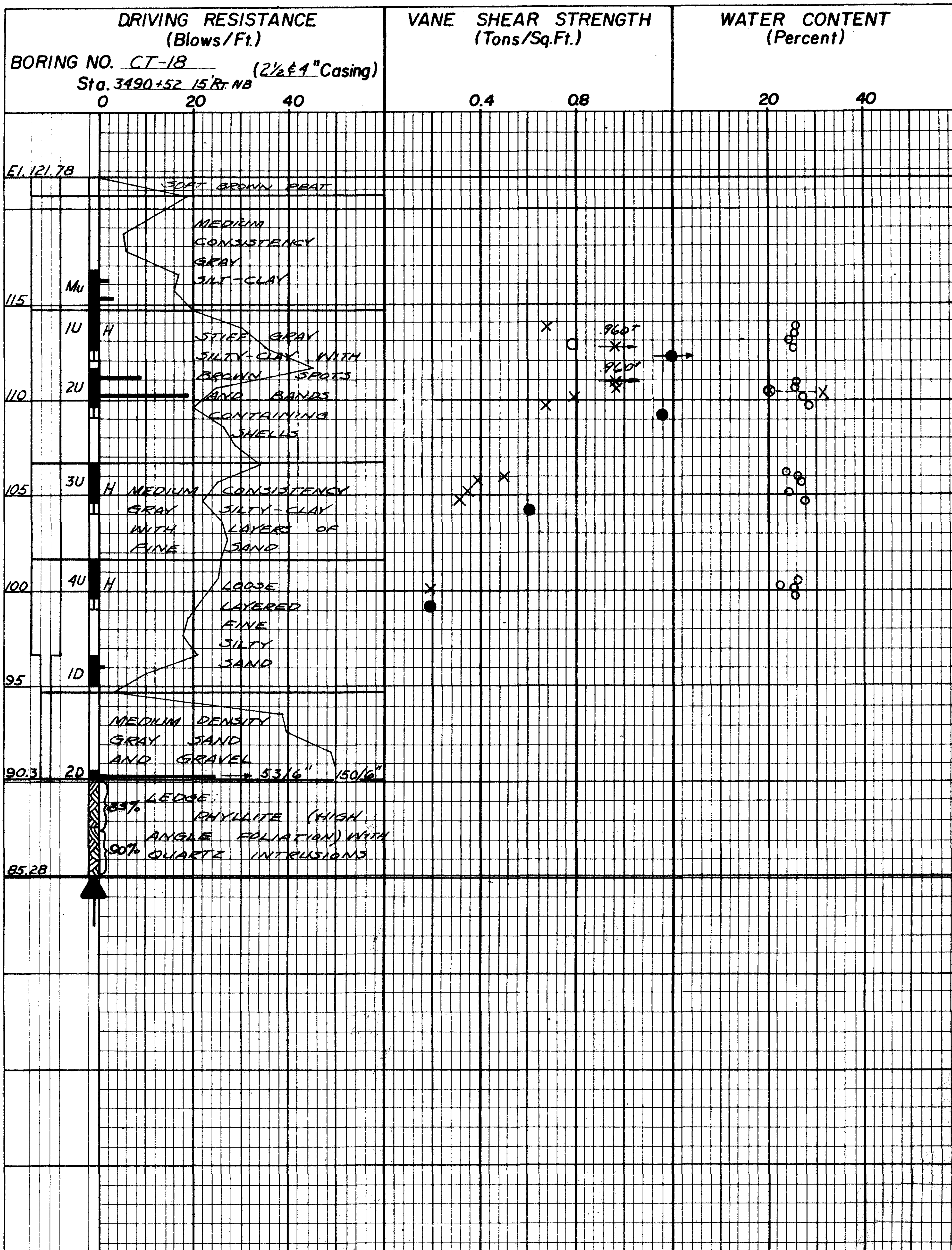
WEST BRIDGE

HAMPDEN

Scale: 1" = 5'   MAY 1961

Soils Engineering Lab.   U. of M.

Sheet No. 6



Maine State Highway Commission

DETAILED SOIL STRATIFICATION & CONSISTENCY DATA

BORING NO(S). CT-18

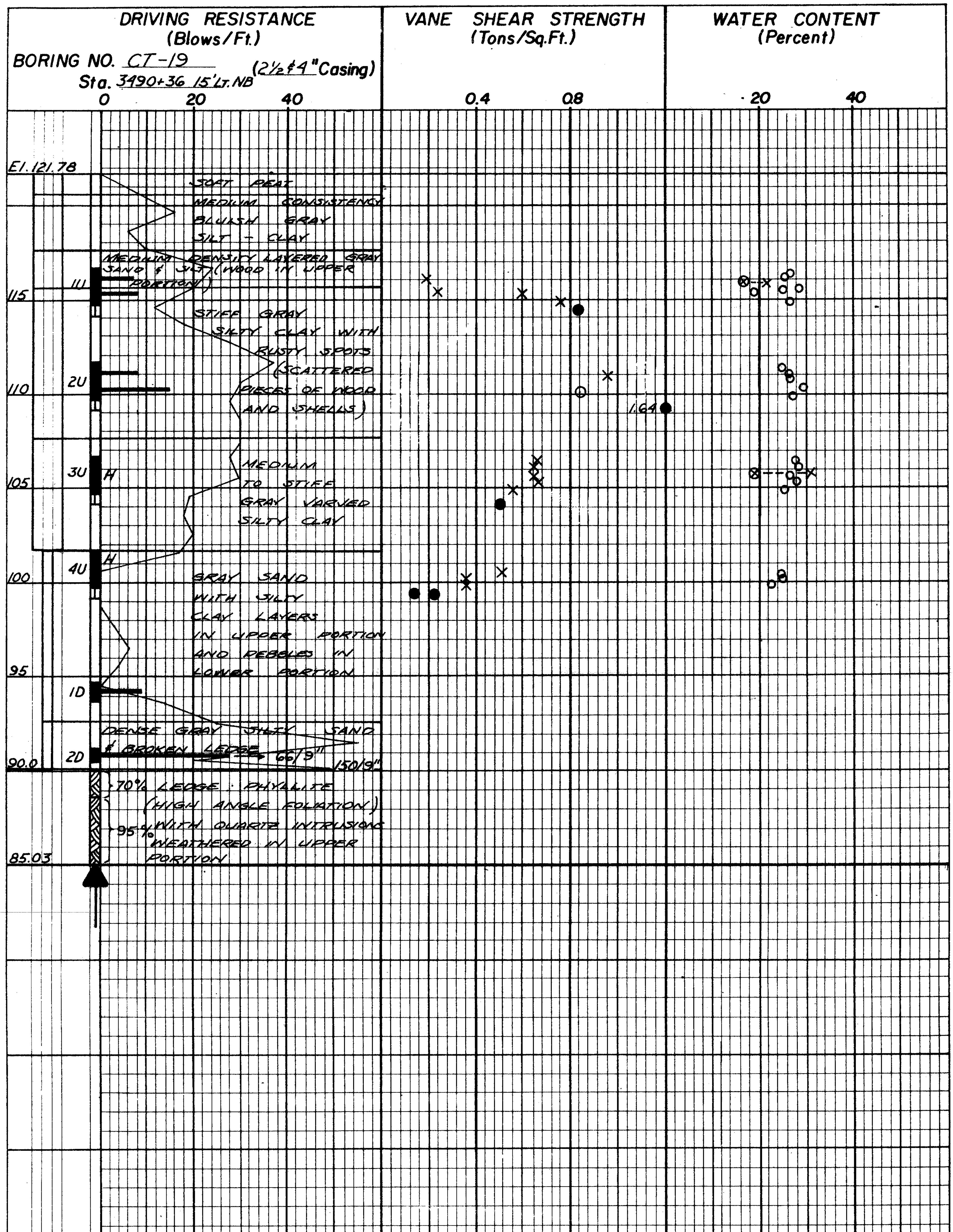
WEST BRIDGE

HAMPDEN

Scale: 1" = 5' MAY 1961

Soils Engineering Lab. U. of M.

Sheet No. 7



Maine State Highway Commission

DETAILED SOIL STRATIFICATION & CONSISTENCY DATA

BORING NO(S). CT-19

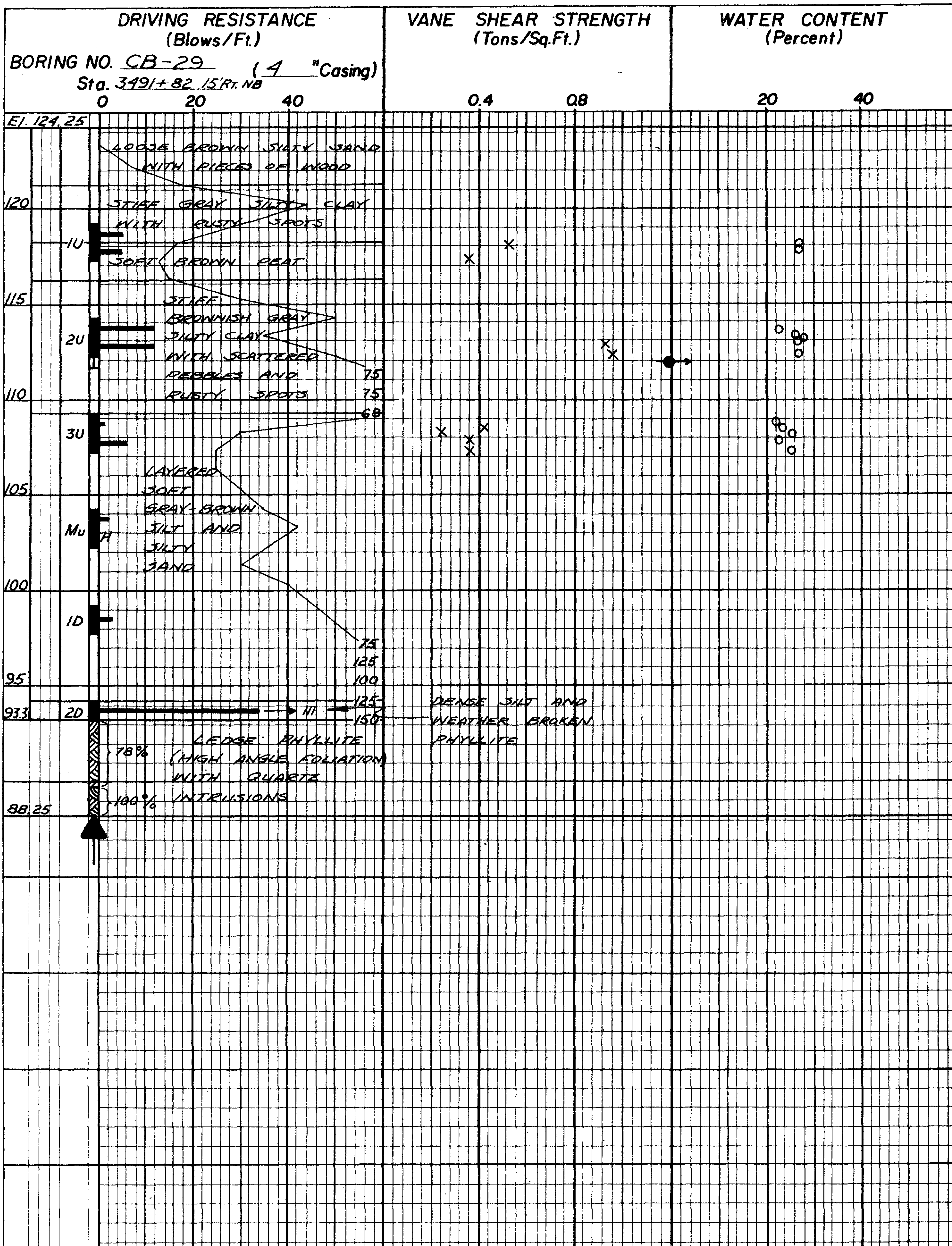
WEST BRIDGE

HAMPDEN

Scale: 1" = 5' MAY 1961

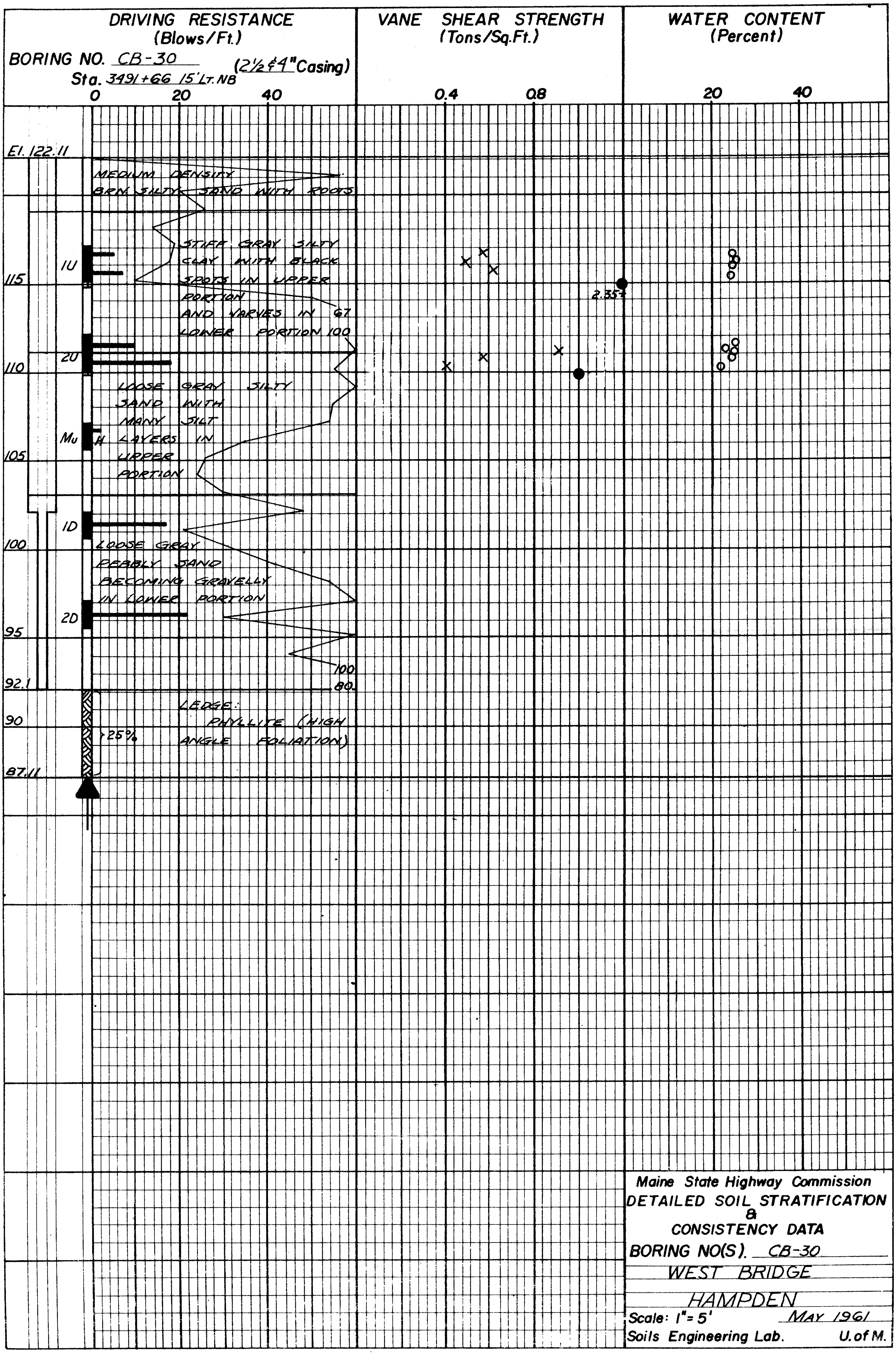
Soils Engineering Lab. U. of M.

Sheet No. 8

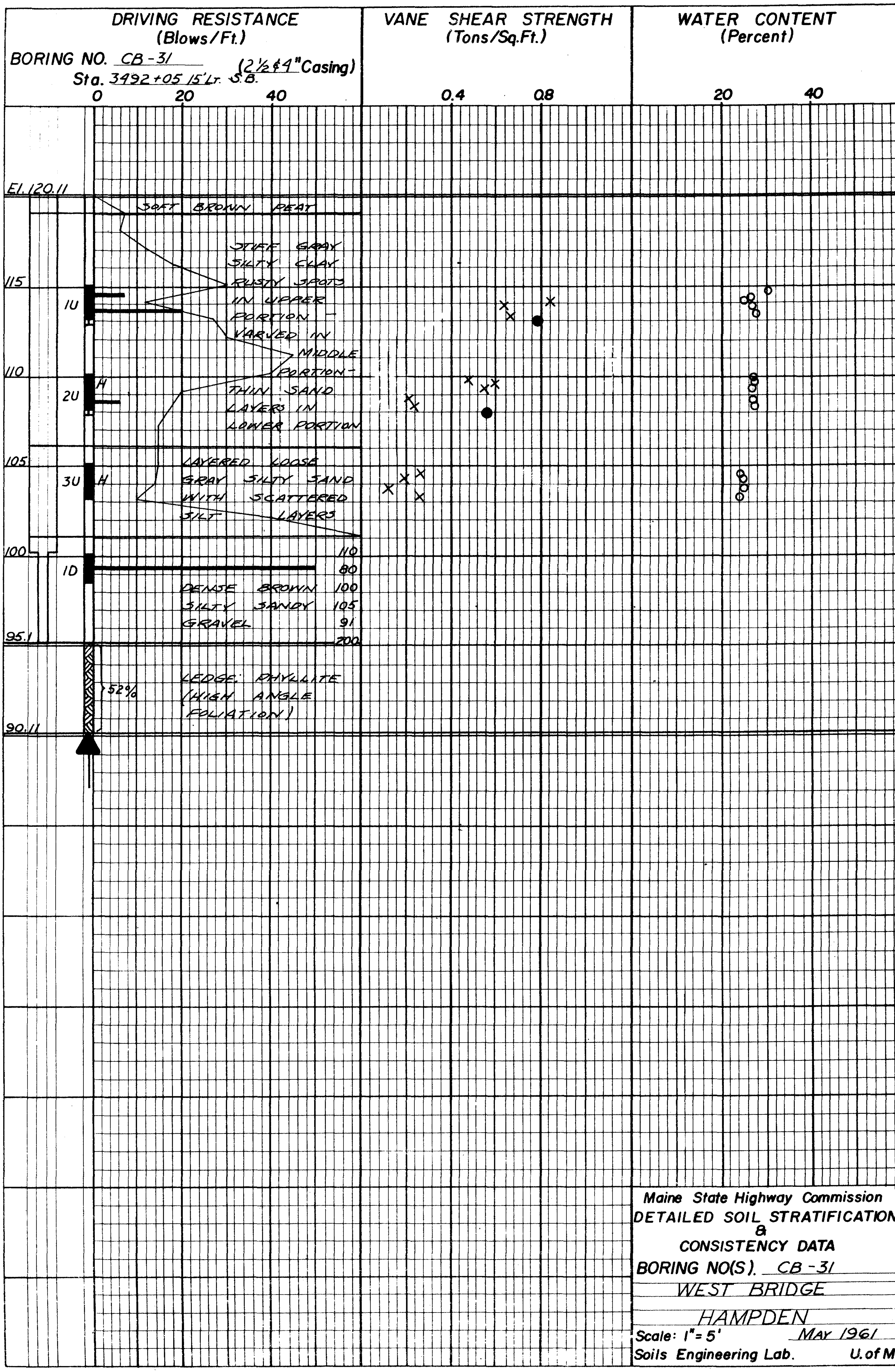


Maine State Highway Commission
DETAILED SOIL STRATIFICATION
&
CONSISTENCY DATA
BORING NO(S). CB-29
WEST BRIDGE
HAMPDEN
Scale: 1" = 5' MAY 1961
Soils Engineering Lab. U. of M.

Sheet No. 9

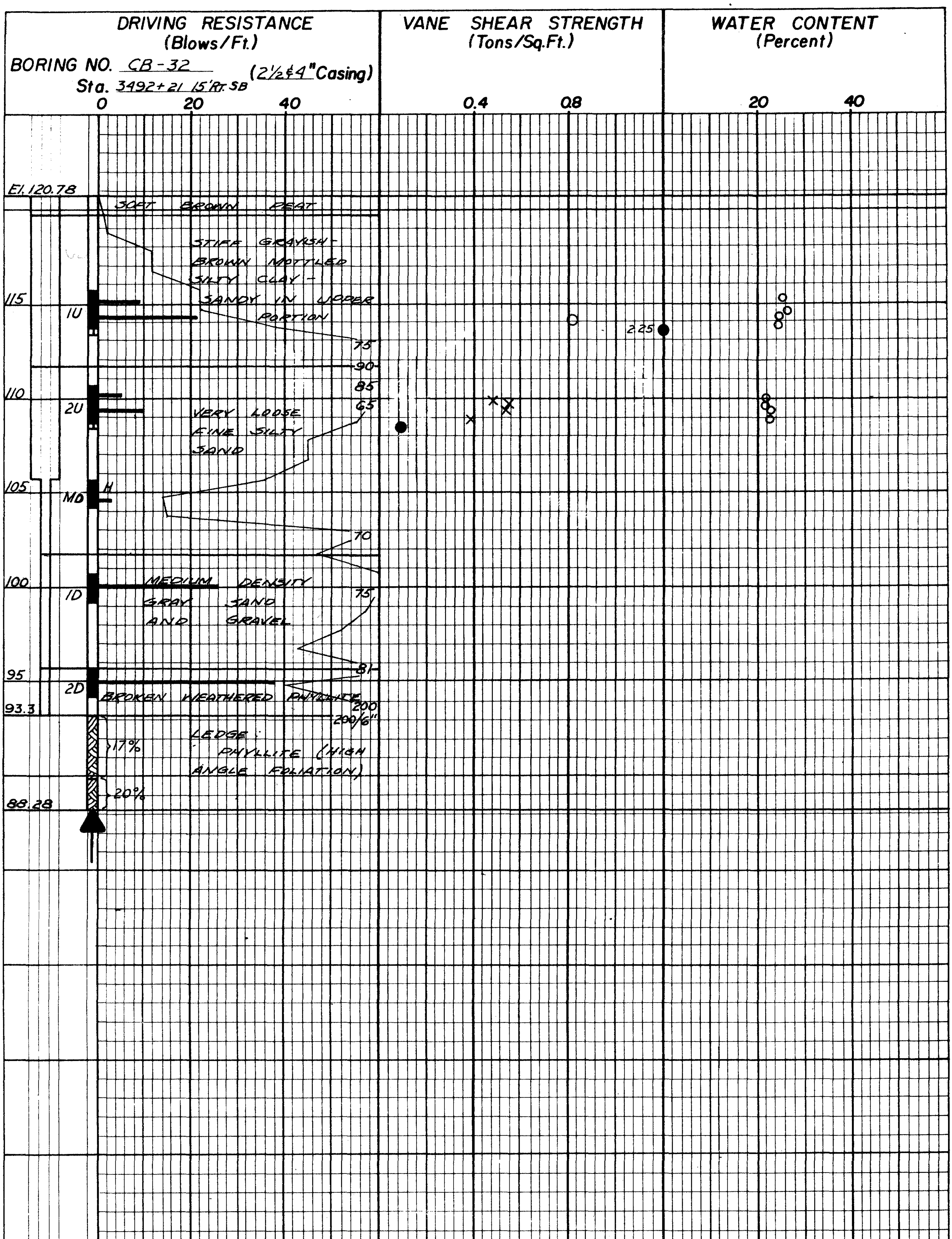

DRIVING RESISTANCE (Blows/Ft.)
BORING NO. CB-30
Sta. 3491+66 15' Lt. NB
(2½ & 4" Casing)
0
20
40
VANE SHEAR STRENGTH (Tons/Sq.Ft.)
0.4
0.8
WATER CONTENT (Percent)
20
40
El. 122.11
MEDIUM DENSITY BRN. SILTY SAND WITH ROOTS
STIFF GRAY SILTY CLAY WITH BLACK SPOTS IN UPPER PORTION AND VARVES IN LOWER PORTION
67
100
1U
115
2.35
2U
110
LOOSE GRAY SILTY SAND WITH MANY SILT LAYERS IN UPPER PORTION
Mu
105
1D
100
LOOSE GRAY PEBBLY SAND BECOMING GRAVELLY IN LOWER PORTION
2D
95
100
80
92.1
LEDGE: PHYLLITE (HIGH ANGLE FOLIATION)
90
25%
87.11
Maine State Highway Commission
DETAILED SOIL STRATIFICATION & CONSISTENCY DATA
BORING NO(S). CB-30
WEST BRIDGE
HAMPDEN
Scale: 1" = 5'
MAY 1961
Soils Engineering Lab.
U. of M.

Sheet No. 10



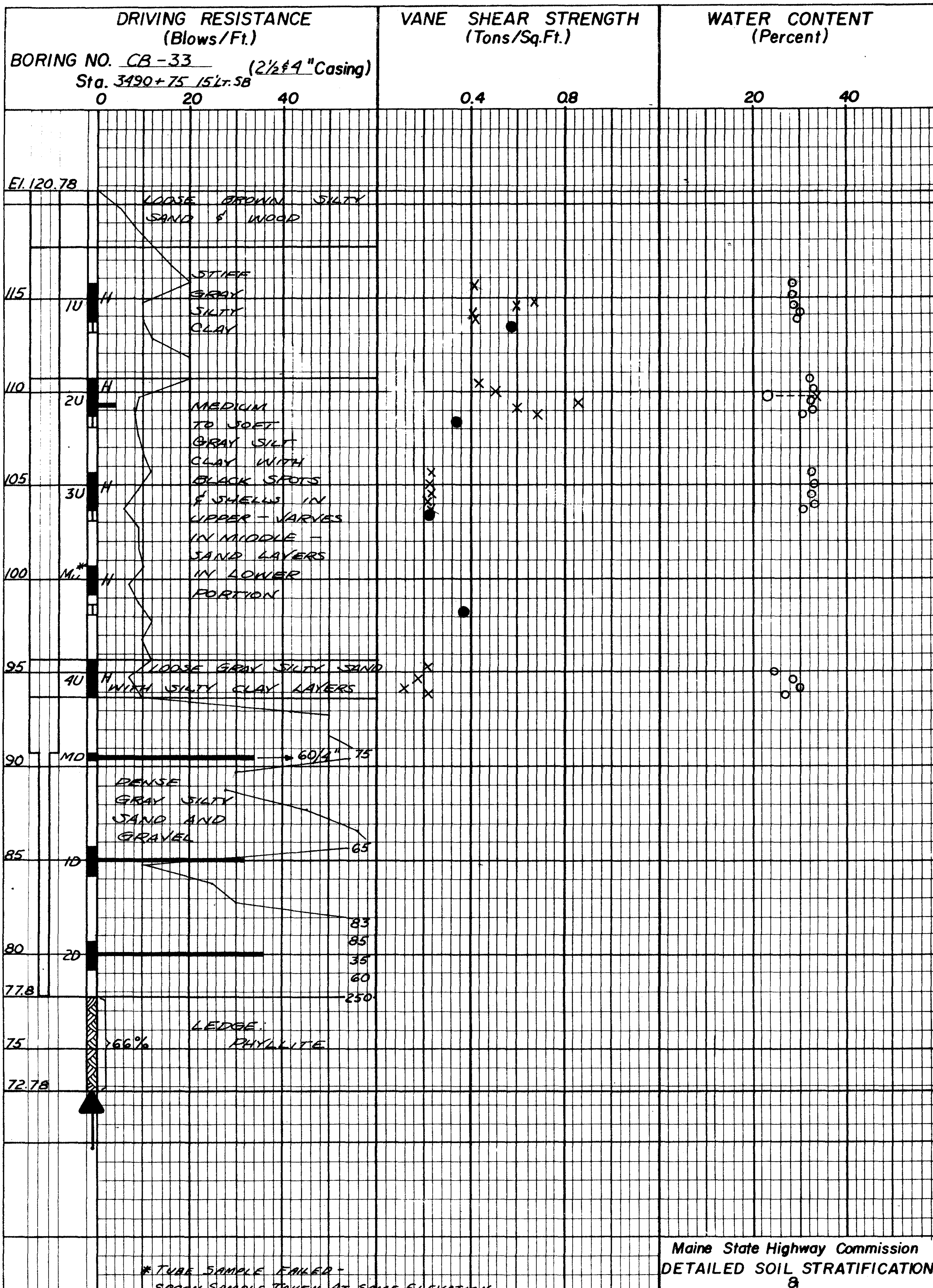
DRIVING RESISTANCE
(Blows/Ft.)
BORING NO. CB-31
(2½ & 4" Casing)
Sta. 3492+05 15' Lt. S.B.
0
20
40
VANE SHEAR STRENGTH
(Tons/Sq.Ft.)
0.4
0.8
WATER CONTENT
(Percent)
20
40
El. 120.11
SOFT BROWN PEAT
STIFF GRAY SILTY CLAY RUSTY SPOTS IN UPPER PORTION - VARVED IN MIDDLE PORTION - THIN SAND LAYERS IN LOWER PORTION
115
1U
110
2U
H
105
3U
H
LAYERED LOOSE GRAY SILTY SAND WITH SCATTERED SILT LAYERS
100
1D
110
80
100
105
91
200
DENSE BROWN SILTY SANDY GRAVEL
95.1
52%
LEDGE: PHYLLITE (HIGH ANGLE FOLIATION)
90.11
Maine State Highway Commission
DETAILED SOIL STRATIFICATION & CONSISTENCY DATA
BORING NO(S). CB-31
WEST BRIDGE
HAMPDEN
Scale: 1" = 5'
MAY 1961
Soils Engineering Lab.
U. of M.

Sheet No. 11



Maine State Highway Commission
DETAILED SOIL STRATIFICATION & CONSISTENCY DATA
BORING NO(S). CB-32
WEST BRIDGE
HAMPDEN
Scale: 1" = 5'   MAY 1961
Soils Engineering Lab.   U. of M.

Sheet No. 12



Maine State Highway Commission

DETAILED SOIL STRATIFICATION & CONSISTENCY DATA

BORING NO(S). CB-33

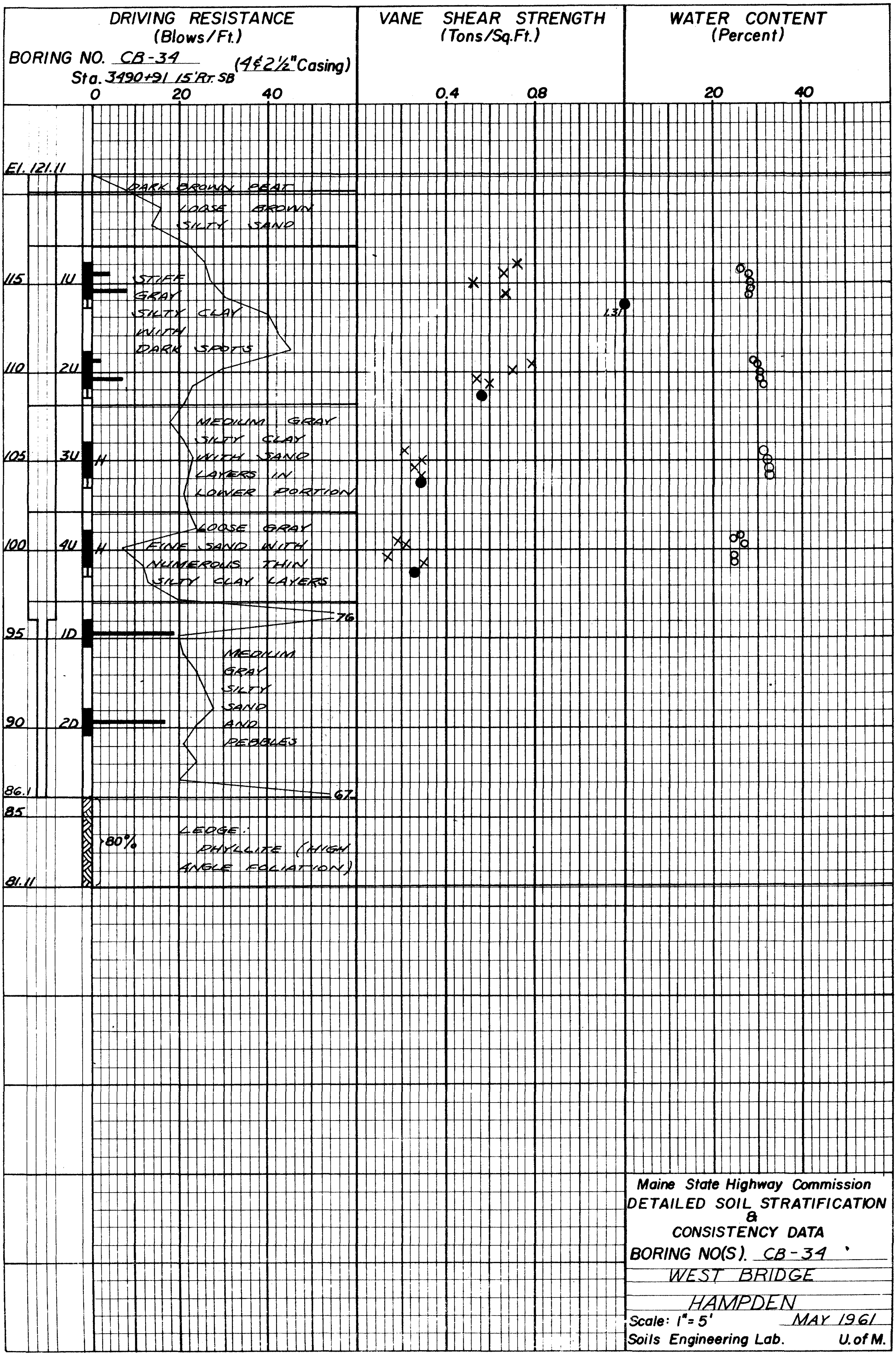
WEST BRIDGE

HAMPDEN

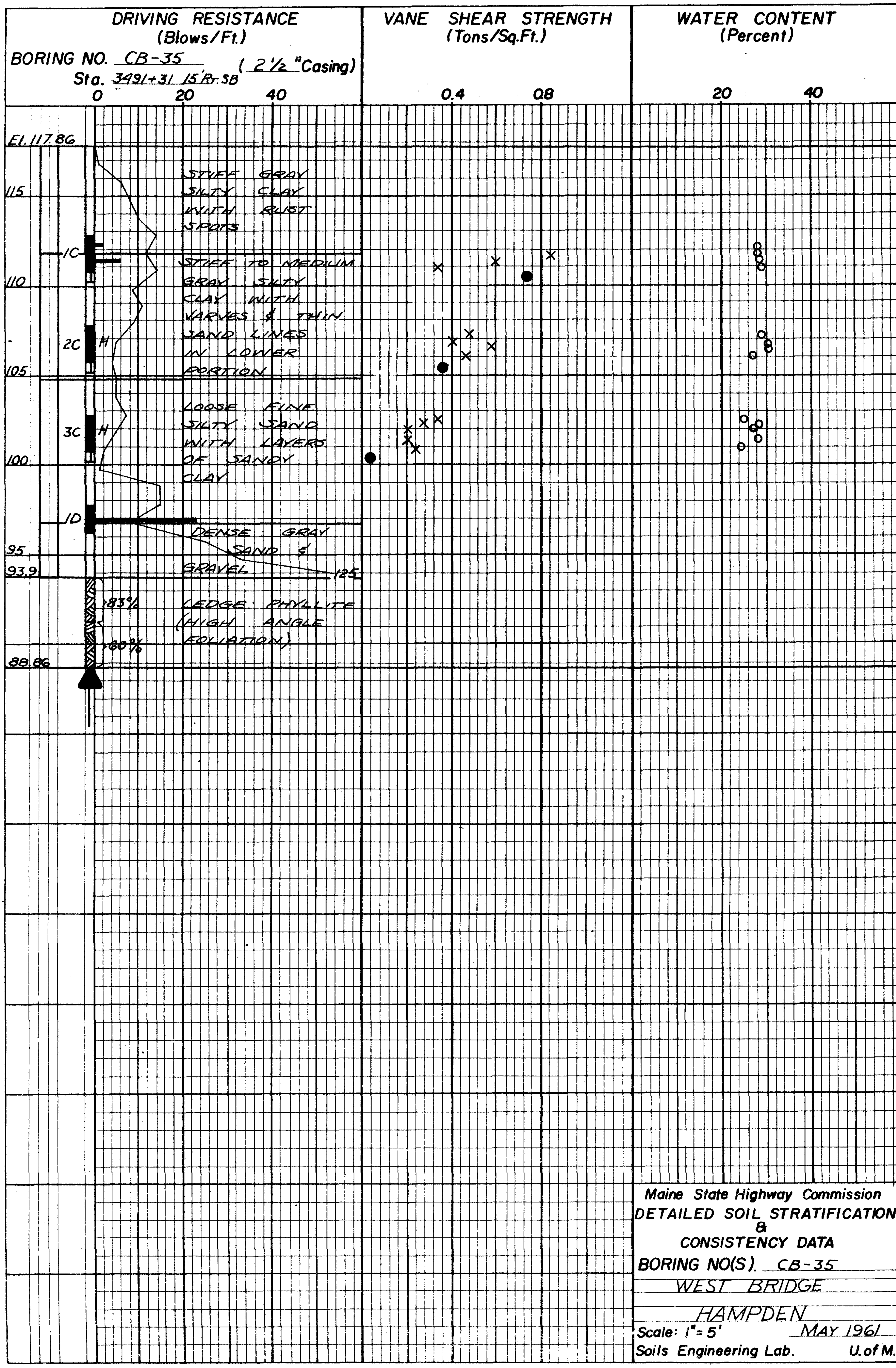
Scale: 1" = 5' MAY 1961

Soils Engineering Lab. U. of M.

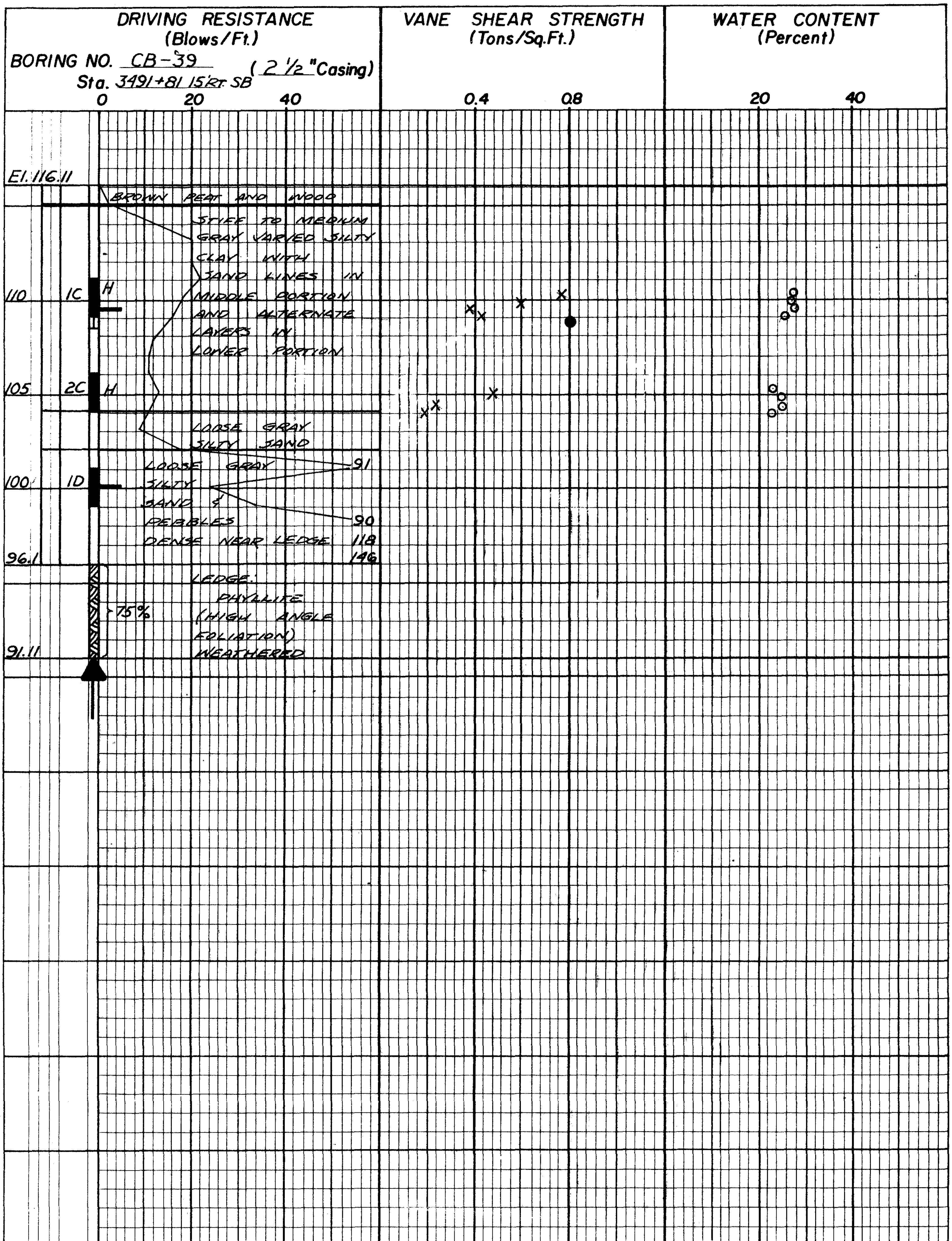
Sheet No. 13


DRIVING RESISTANCE
(Blows/Ft.)
BORING NO. CB-34
(4 & 2½" Casing)
Sta. 3490+91 15' Rt. SB
0
20
40
VANE SHEAR STRENGTH
(Tons/Sq.Ft.)
0.4
0.8
WATER CONTENT
(Percent)
20
40
El. 121.11
DARK BROWN PEAT
LOOSE BROWN SILTY SAND
115
1U
STIFF GRAY SILTY CLAY WITH DARK SPOTS
1.31
110
2U
MEDIUM GRAY SILTY CLAY WITH SAND LAYERS IN LOWER PORTION
105
3U
H
LOOSE GRAY FINE SAND WITH NUMEROUS THIN SILTY CLAY LAYERS
100
4U
H
76
95
1D
MEDIUM GRAY SILTY SAND AND PEBBLES
90
2D
86.1
67
85
80%
LEDGE: PHYLLITE (HIGH ANGLE FOLIATION)
81.11
Maine State Highway Commission
DETAILED SOIL STRATIFICATION
&
CONSISTENCY DATA
BORING NO(S). CB-34
WEST BRIDGE
HAMPDEN
Scale: 1" = 5'
MAY 1961
Soils Engineering Lab.
U. of M.

Sheet No. 14

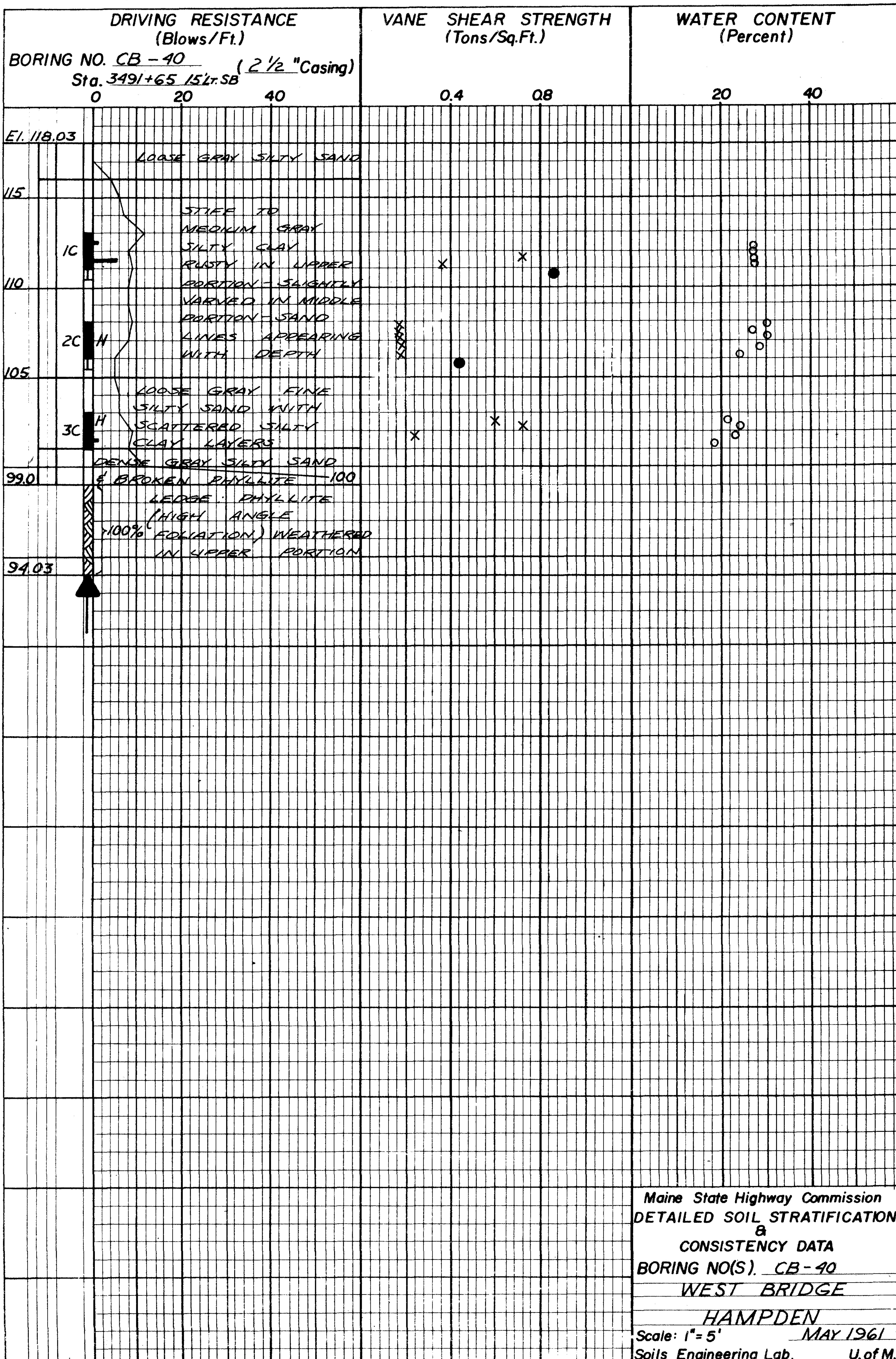

DRIVING RESISTANCE (Blows/Ft.)
BORING NO. CB-35 (2 1/2" Casing)
Sta. 349/+31 15' Rt. SB
0 20 40
VANE SHEAR STRENGTH (Tons/Sq.Ft.)
0.4 0.8
WATER CONTENT (Percent)
20 40
El. 117.86
115
110
105
100
95
93.9
88.86
1C
2C
3C
1D
H
H
125
83%
60%
STIFF GRAY SILTY CLAY WITH RUST SPOTS
STIFF TO MEDIUM GRAY SILTY CLAY WITH VARVES & THIN SAND LINES IN LOWER PORTION
LOOSE FINE SILTY SAND WITH LAYERS OF SANDY CLAY
DENSE GRAY SAND & GRAVEL
LEDGE: PHYLLITE (HIGH ANGLE FOLIATION)
Maine State Highway Commission
DETAILED SOIL STRATIFICATION & CONSISTENCY DATA
BORING NO(S). CB-35
WEST BRIDGE
HAMPDEN
Scale: 1" = 5'
MAY 1961
Soils Engineering Lab.
U. of M.

Sheet No. 15



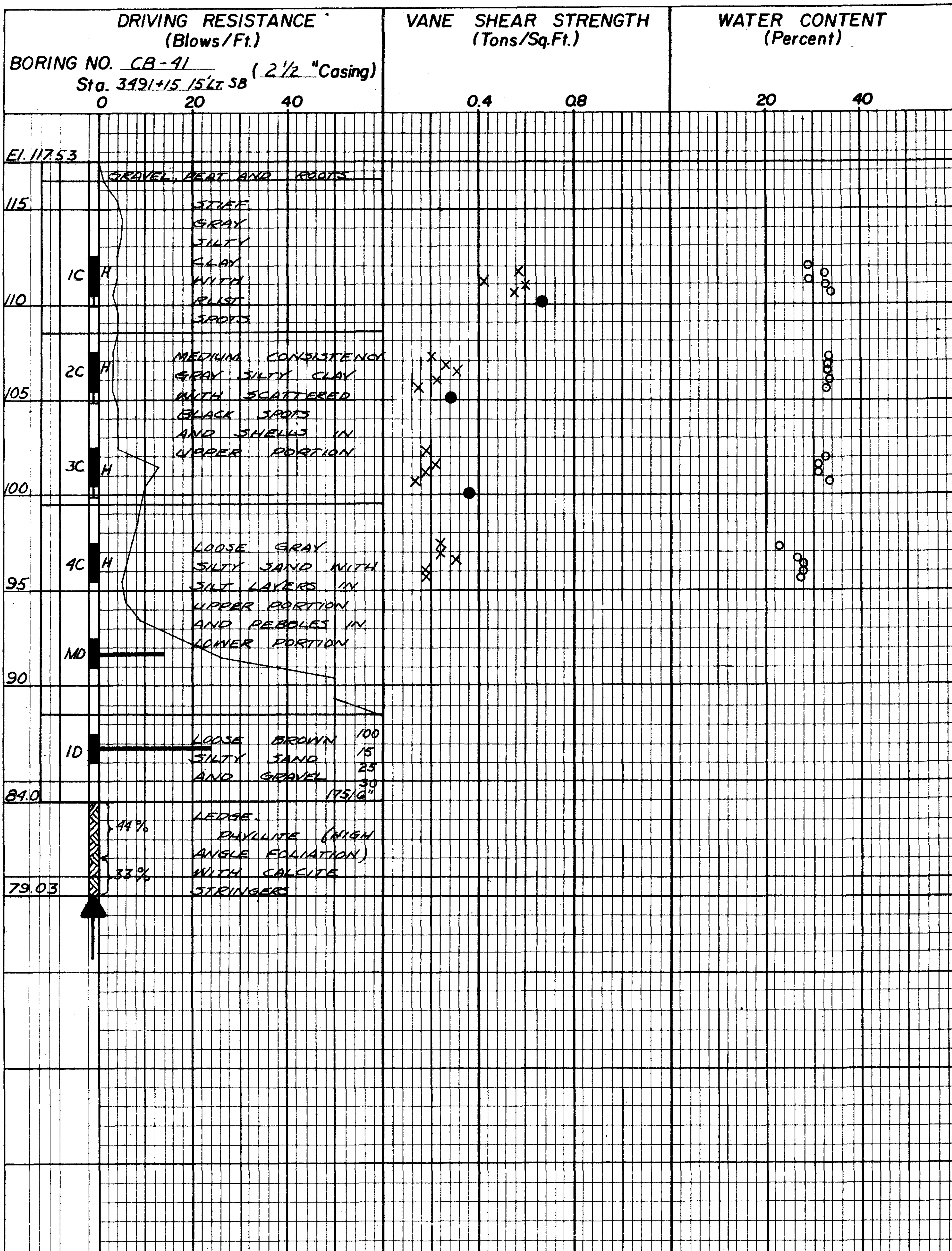
Maine State Highway Commission
DETAILED SOIL STRATIFICATION
&
CONSISTENCY DATA
BORING NO(S). CB-39
WEST BRIDGE
HAMPDEN
Scale: 1"= 5' MAY 1961
Soils Engineering Lab. U. of M.

Sheet No. 16



Maine State Highway Commission
DETAILED SOIL STRATIFICATION
&
CONSISTENCY DATA
BORING NO(S). CB - 40
WEST BRIDGE
HAMPDEN
Scale: 1" = 5' MAY 1961
Soils Engineering Lab. U. of M.

Sheet No. 17



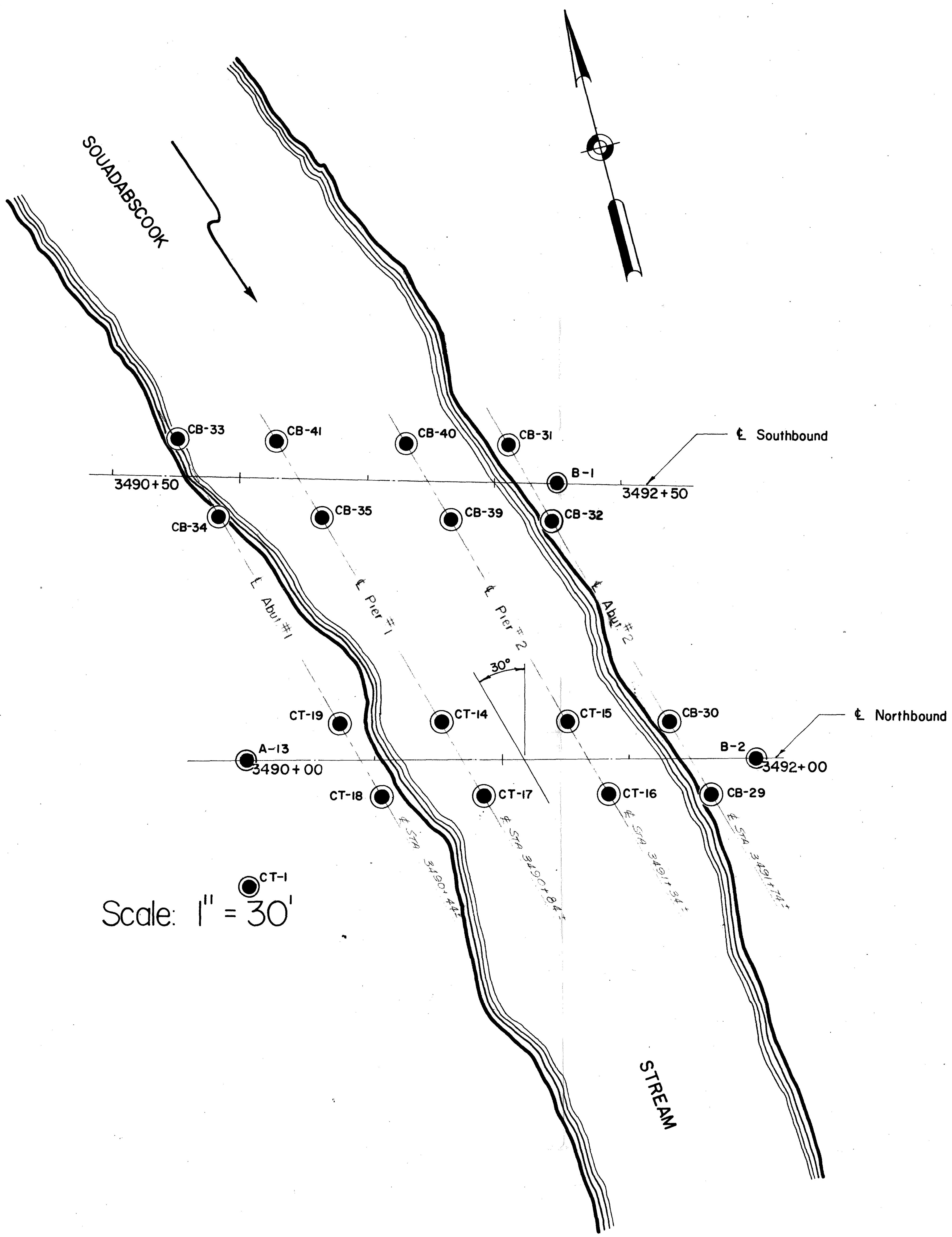
Maine State Highway Commission
DETAILED SOIL STRATIFICATION
&
CONSISTENCY DATA
BORING NO(S). CB-41
WEST BRIDGE
HAMPDEN
Scale: 1" = 5'   MAY 1961
Soils Engineering Lab.   U. of M.

Sheet No. 18

Sheet No. 13

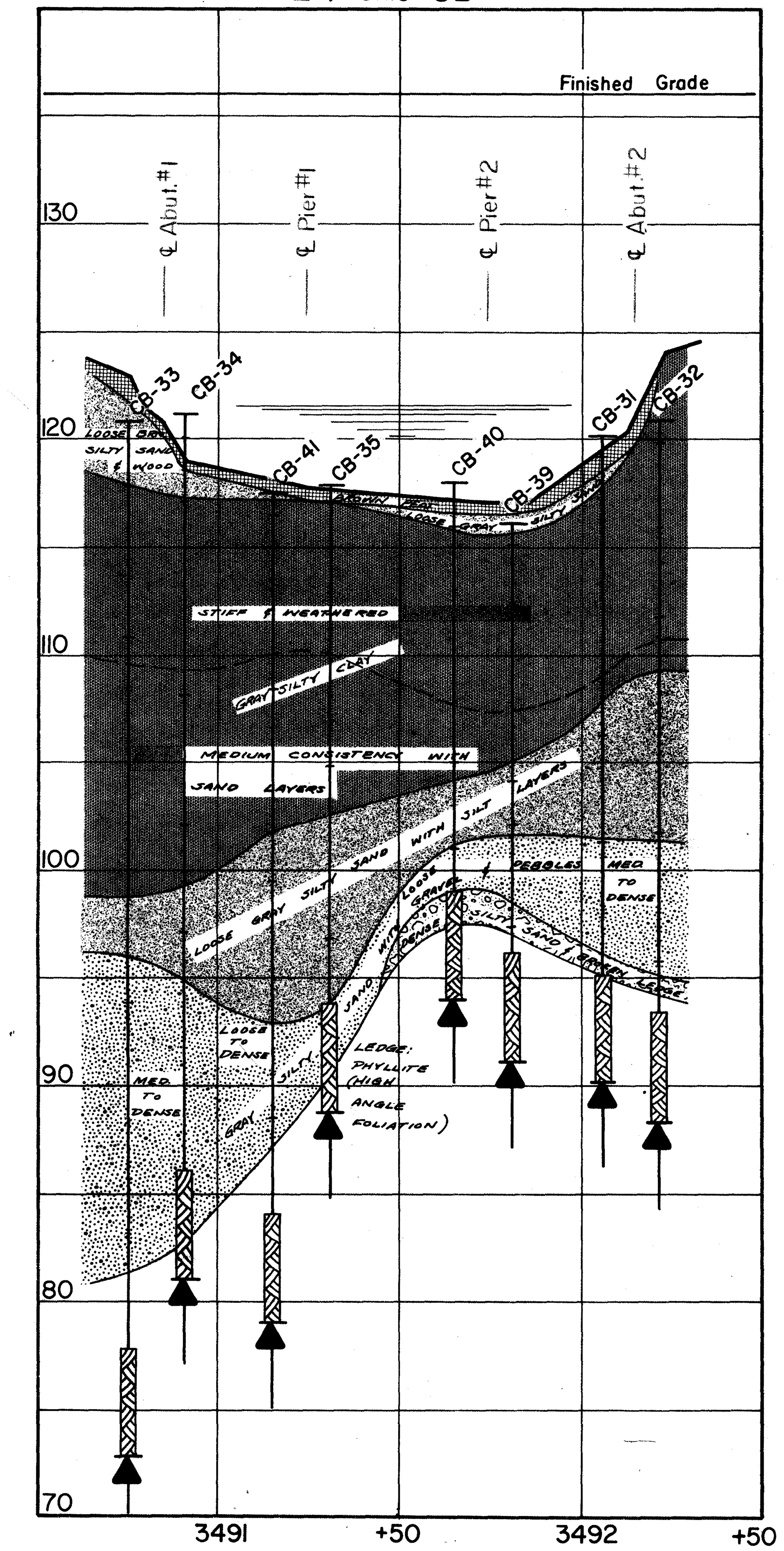
Maine State Highway Commission
Transverse Profiles
SOUADABSCOOK STREAM BRIDGE
WEST
HAMPDEN
Scale: Vert. 1"=5' Horiz. 1"=10' 1961
Soils Engineering Lab. U of M.

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

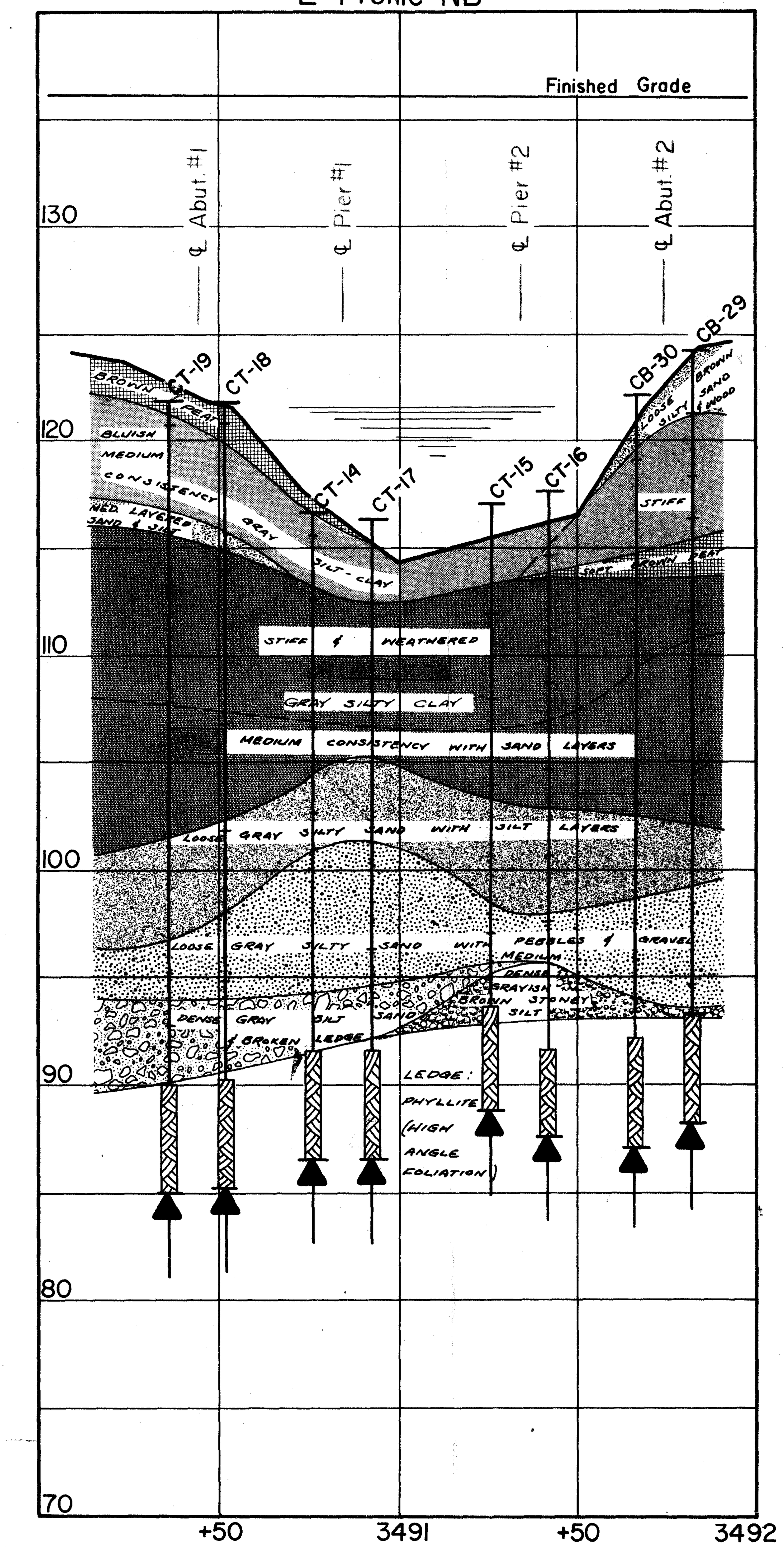


Scale: 1" = 30'

℄ Profile SB



℄ Profile NB



Profile Scale
Horiz. 1" = 30'
Vert. 1" = 5'

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

STATE HIGHWAY COMMISSION
BRIDGE DIVISION

SOUADABSCOOK STREAM BRIDGE
WEST
IN THE TOWN OF
HAMPDEN
PENOBSCOT COUNTY
FOUNDATION SURVEY

SHEET OF AUGUSTA, MAINE