

STATE HIGHWAY COMMISSION OF KANSAS

AUGUST 1958

MEMORANDUM TO: MR. H. O. NEED, ENGINEER OF DESIGN

FROM: MR. VIRGIL A. BURLAT, CHIEF GEOLOGIST
By Henry V. Beck and James Sharpnack, Geologists
Wallace K. Taylor, Regional Geologist

SUBJECT: Geological Report
Project No. 16-75 K-1019 (3) From East End of Tuttle Pool
Pottawatomie County Bridge East
Project No. 16-81 K-1020 (3) US-77 to Blue Riv. (Bridge over
Riley County Tuttle Creek)

I N T R O D U C T I O N

This report presents geological information obtained by the Kansas State Highway Commission through field study and is submitted for use in the design and construction of the above project with reference to the formations that occur and the engineering problems affected by the geology of the project.

The report is divided into three sections for the purpose of grouping the information and discussion of the different phases. This report is intended to be complete within itself, but is best used in connection with the Geo-Engineering Survey.

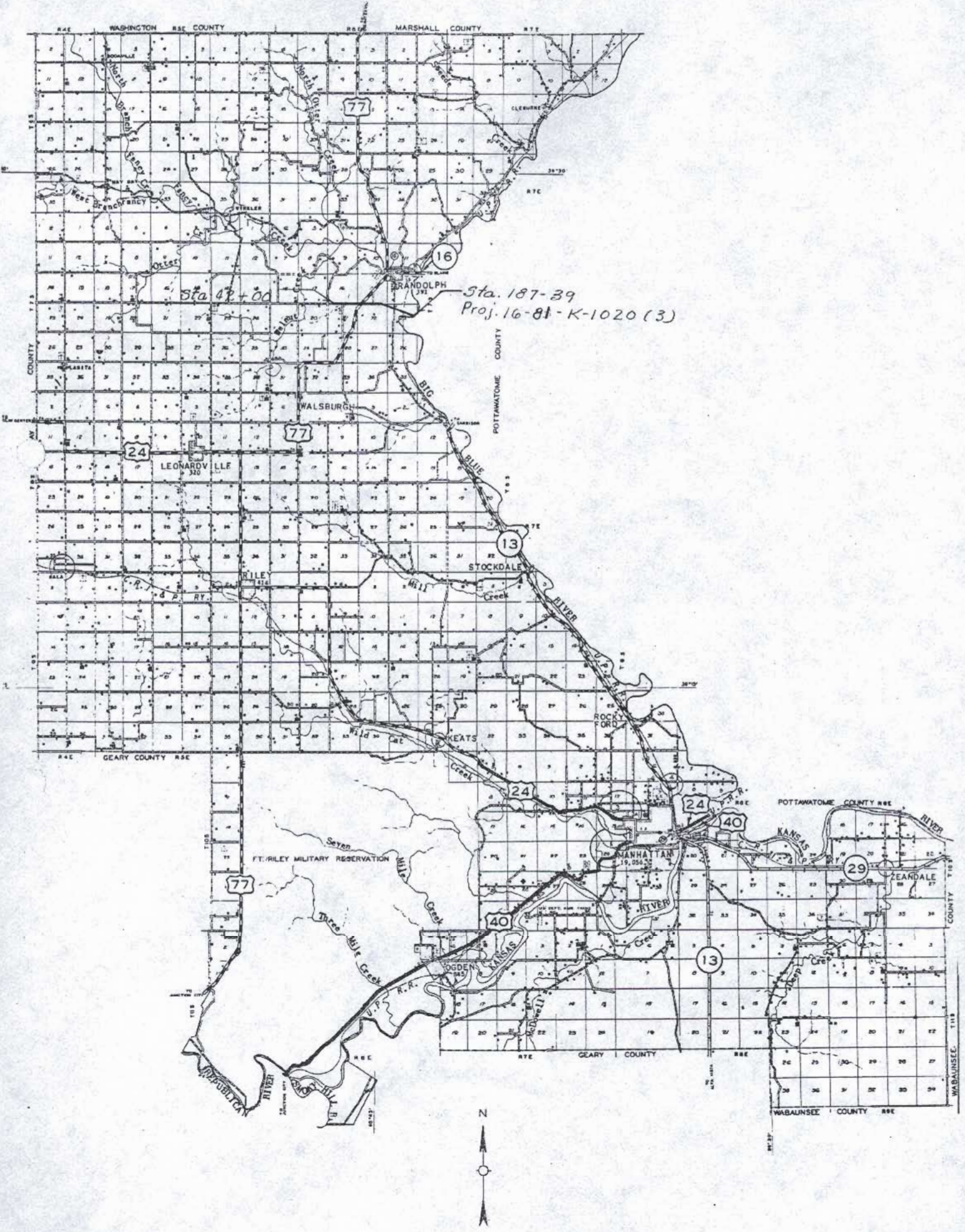
I N D E X O F S E C T I O N S

Section I Geological Description and Formational Sequence
Section II Geology of the Project
Section III Geo-Engineering Aspects and Recommendations



SCALE

Field List

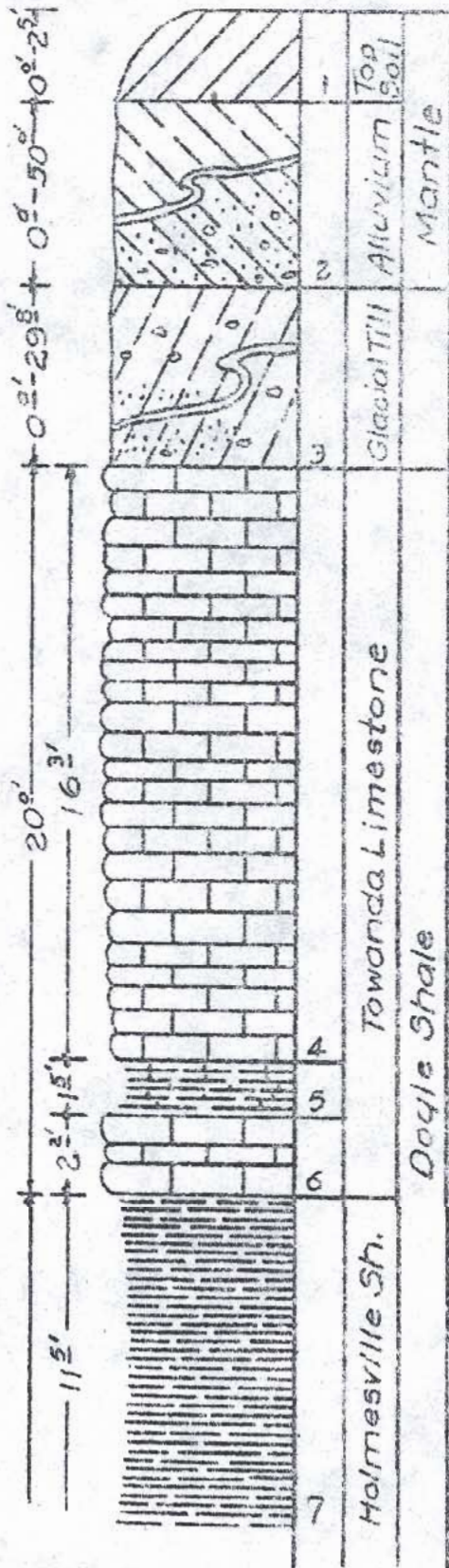


Sta. 187-39
 Proj. 16-81-K-1020 (3)

Sta. 42+00

SECTION I

Geological Description and
Stratigraphical Sequence



Quaternary System
Recent Series
Mantle

1. Black topsoil and reddish-brown clay.
2. Alluvium, silty in upper part, sand and gravel in lower.

Pleistocene Series
Kansas Till

3. Till, olive-drab, weathers red-brown, silt and sand lenses, locally contains pebbles and boulders.

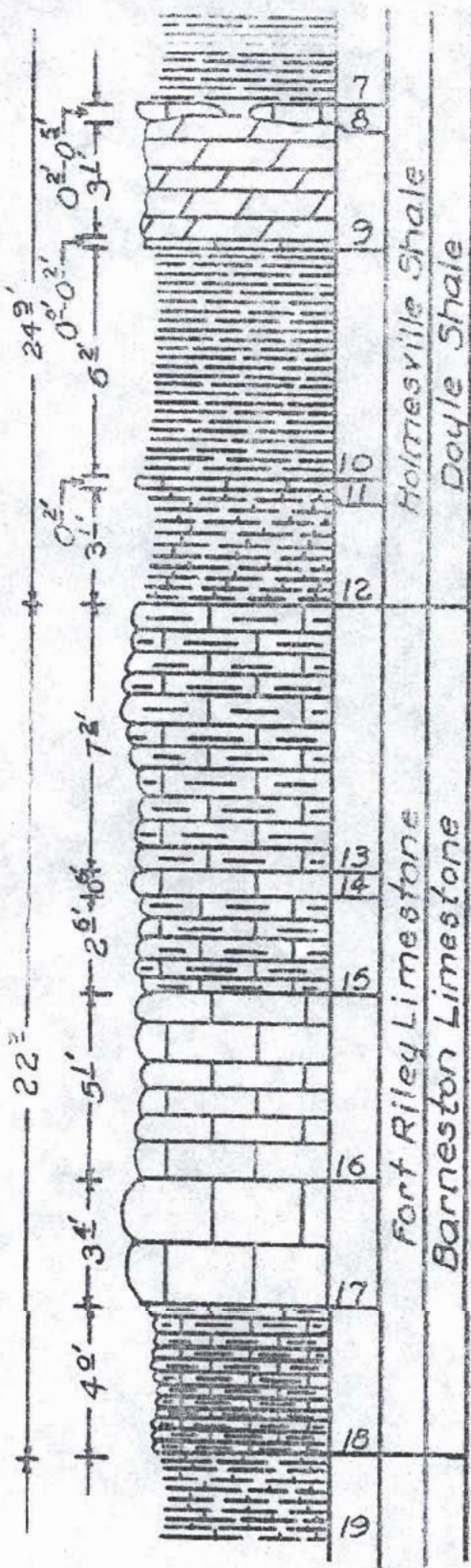
Permian System
Wolfcampian Series
Chase Group
Doyle Shale

Towanda limestone member (20.0 ft.)

4. Limestone, light gray, platy.
5. Shale, gray, gray-brown.
6. Limestone, light-gray, platy.

Holmesville shale member

7. Shale, green, blocky, contains a lensing carbon band.



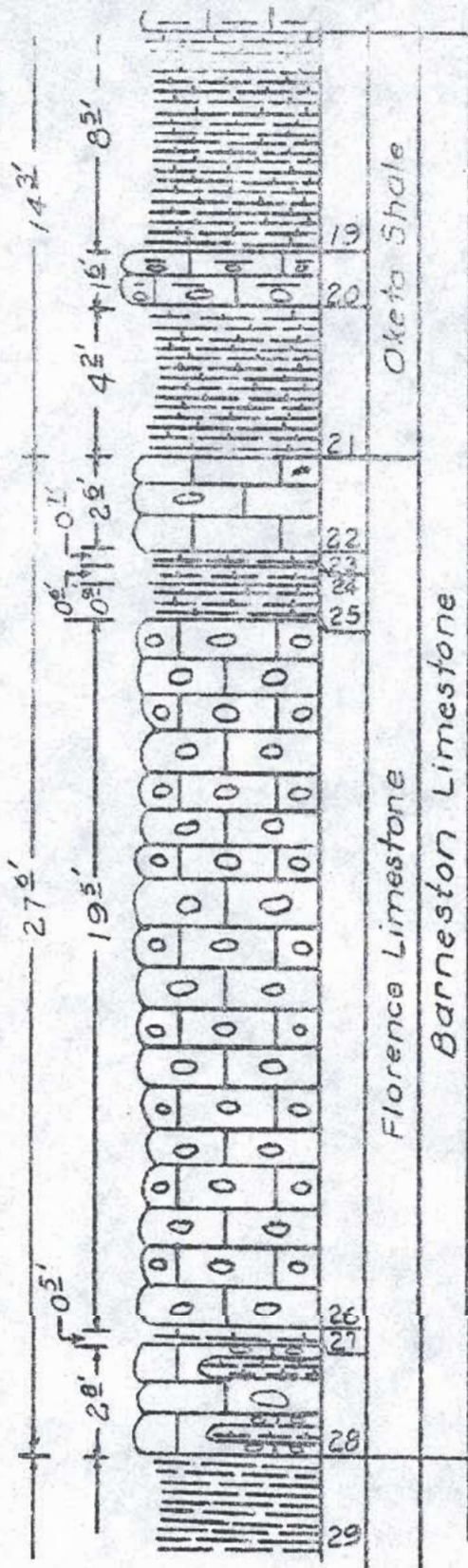
Holmesville shale member

8. Limestone, gray, impure cellular lensing.
9. Siltstone, green, blocky, contains lensing limestone at base, may be absent.
10. Shale, light gray, blocky, chalky.
11. Limestone, light gray, blocky.
12. Shale, light green, liny.

Barneston limestone

Fort Riley limestone member

13. Limestone, light gray, shaly, platy.
14. Limestone, light gray, blocky, dense, cellular.
15. Limestone, light gray, platy, shaly.
16. Limestone, light gray to buff, blocky, a variable zone, sometimes massive with no horizontal partings, but generally contains several horizontal partings.
17. Limestone, very light gray, blocky, "firerock", varies in thickness.
18. Limestone, buff, shaly, contains a lensing limestone up to 1.9 ft. thick.

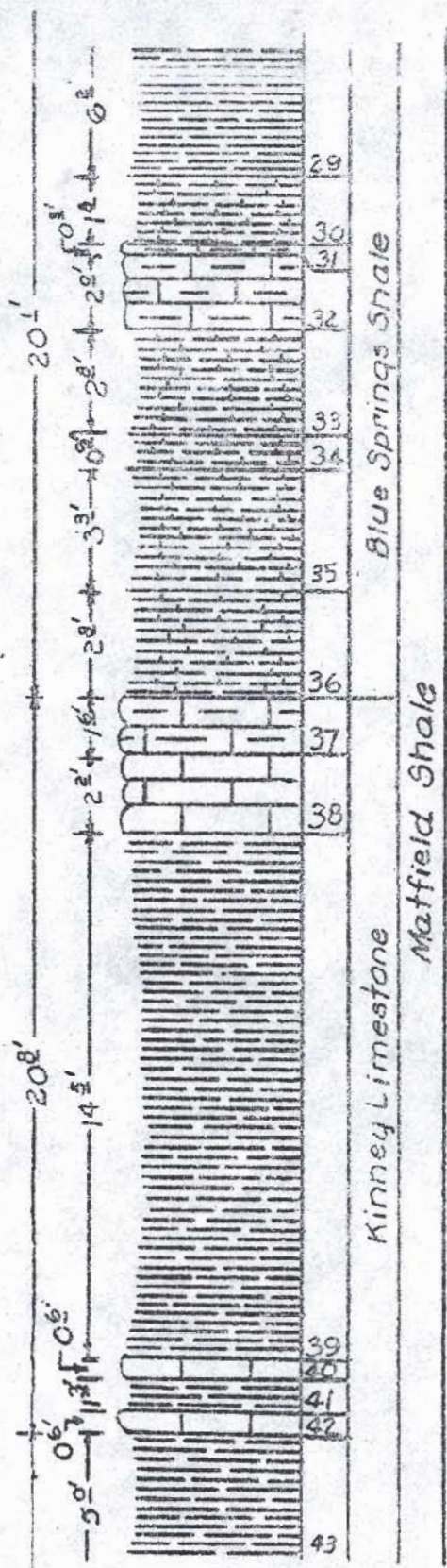


Oketa shale member

- 19. Shale, blue-gray, limy.
- 20. Limestone, gray, shaly, contains scattered chert nodules.
- 21. Shale, blue-gray, limy.

Florence limestone member

- 22. Limestone, blue-gray, locally contains scattered chert nodules.
- 23. Shale, light gray, limy, platy.
- 24. Shale, blue-gray, limy, platy.
- 25. Shale, blue-gray, limy, platy.
- 26. Limestone, blue-gray, chert bands.
- 27. Shale, green, limy, platy.
- 28. Limestone, blue-gray weathers buff, blocky weathers platy, may be represented by three cherty limestones, separated by limy shales.



Matfield Shale

Blue Springs shale member

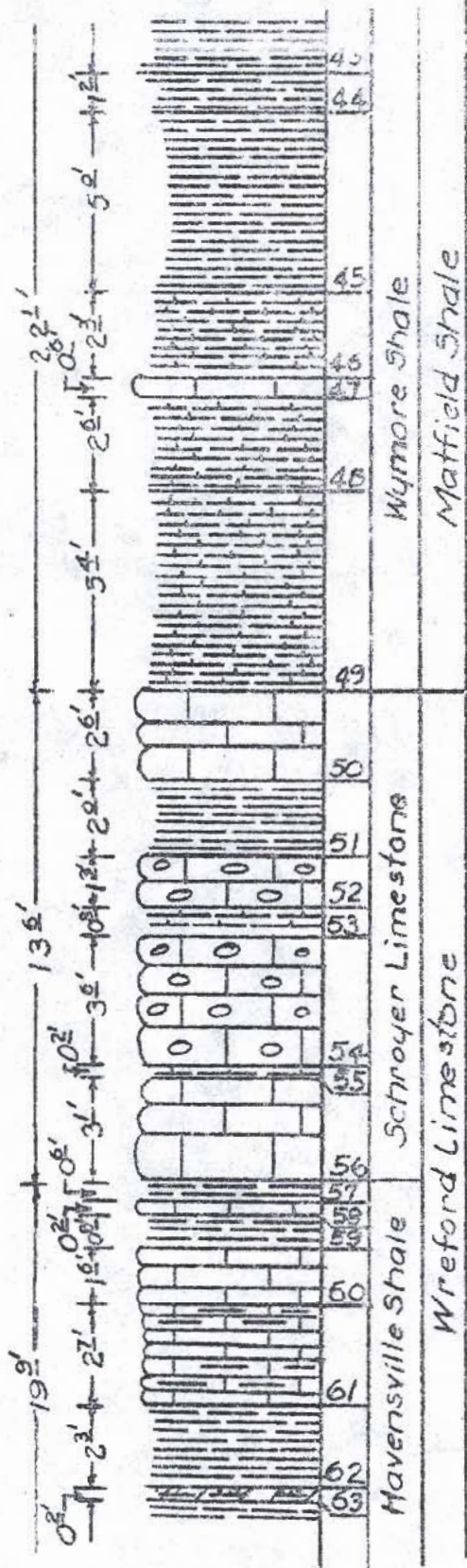
- 29. Shale, green, blocky.
- 30. Shale, maroon, liny, blocky.
- 31. Limestone, light green, shaly, variable, porous.
- 32. Limestone, maroon, shaly, weathers to blocky shale, carries water.
- 33. Shale, maroon with thin green band, blocky, liny.
- 34. Shale, green, blocky, liny.
- 35. Shale, maroon, blocky, liny.
- 36. Shale, green, blocky, liny.

Kinney Limestone member

- 37. Limestone, light green, blocky, shaly, no horizontal partings where fresh.
- 38. Limestone, light brown, blocky, water carrier.
- 39. Shale, dark gray, blocky, weathers platy, carries water.
- 40. Limestone, light brown, blocky, lower 0.3 shaly.
- 41. Shale, gray-green, blocky.
- 42. Limestone, light brown, blocky, variable.

Wycke shale member

- 43. Shale, light olive green, platy, blocks out where fresh.



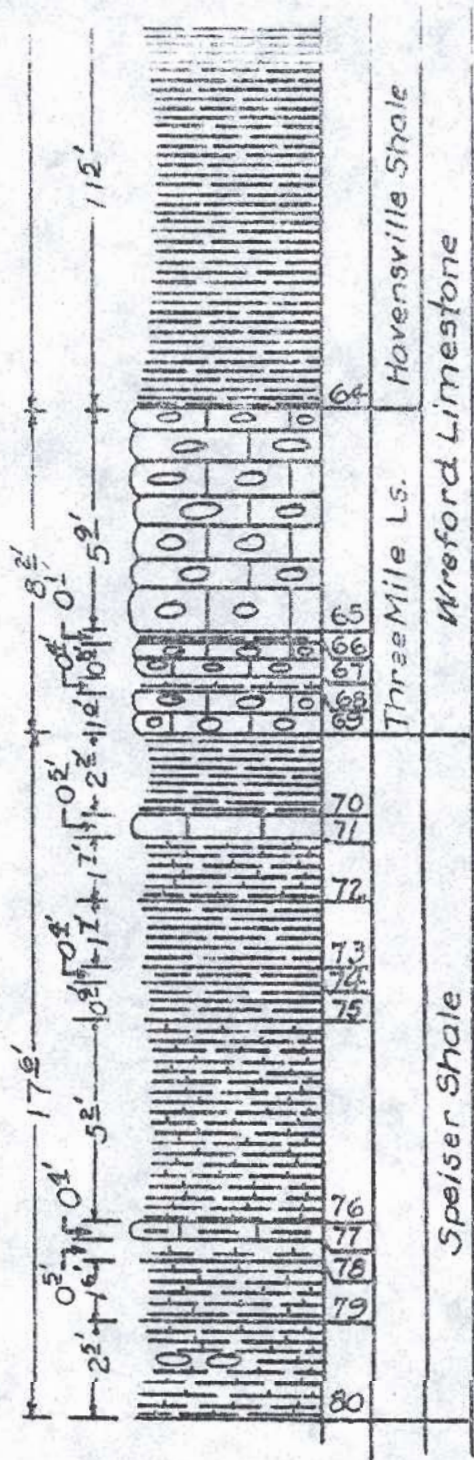
- 44. Shale, buff, platy, somewhat clayey.
- 45. Shale, dark green, blocky.
- 46. Shale, maroon, blocky, liny.
- 47. Limestone, light gray, impure, variable.
- 48. Shale, green and maroon bands, blocky, liny.
- 49. Shale, light green, blocky, liny.

Wreford Limestone
Schroyer limestone member

- 50. Limestone, light gray, blocky, cellular.
- 51. Shale, green, platy.
- 52. Limestone, buff, cherty.
- 53. Shale, green, platy, liny.
- 54. Limestone, buff, contains four (4) chert bands, upper two bands are 0.3 and 0.6 ft. respectively.
- 55. Shale, green, platy, liny.
- 56. Limestone, light gray, blocky, contains cavities and has a weak zone in its center portion.

Havensville shale member

- 57. Shale, green, blocky.
- 58. Limestone, buff, irregular.
- 59. Shale, gray-green, blocky.
- 60. Limestone, light gray, blocky, weathers out in nodules.
- 61. Limestone, buff, platy, somewhat shaly, wavy bedded.
- 62. Shale, green, platy.
- 63. Siltstone, light brown.



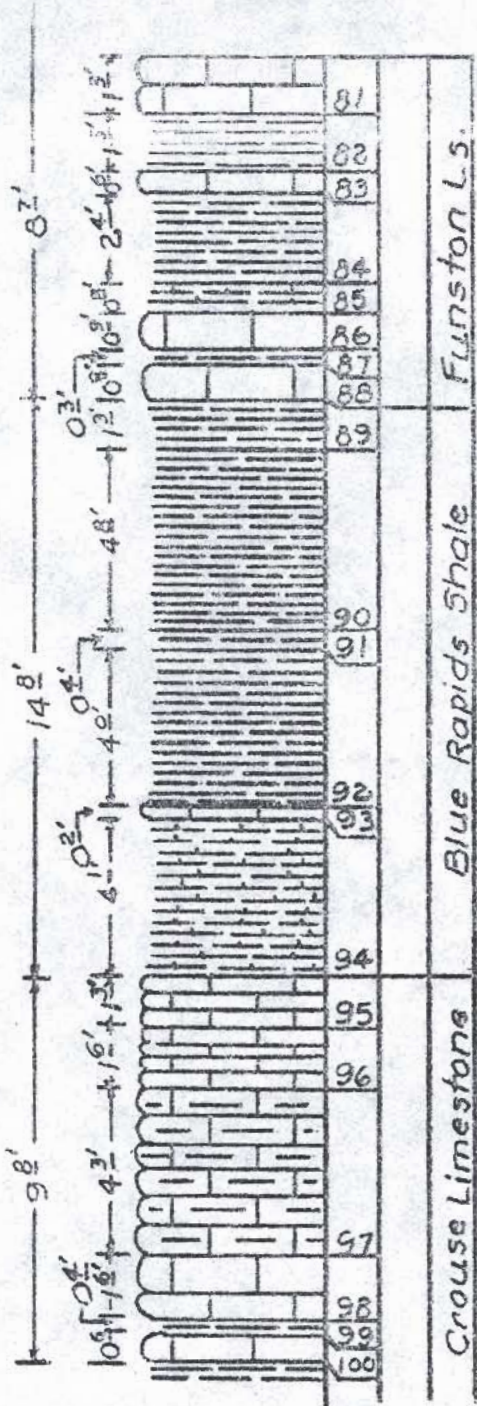
54. Shale, dark blue-gray, platy, clayey, weather tan.

Three Mile limestone member

- 65. Limestone, buff, blocky, contains three chert bands.
- 66. Shale, green, platy, limy.
- 67. Limestone, buff, blocky.
- 68. Shale, green, platy, limy.
- 69. Limestone, buff, blocky, contains a chert band.

Council Grove Group
Speiser shale

- 70. Shale, green, platy, contains lensing shaly limestones.
- 71. Limestone, light gray, blocky.
- 72. Shale, light green, blocky, limy.
- 73. Shale, green, blocky.
- 74. Shale, maroon, blocky.
- 75. Shale, green, blocky.
- 76. Shale, maroon, with three green bands, blocky, limy.
- 77. Limestone, light gray-green, shaly, nodular.
- 78. Shale, green, blocky, limy.
- 79. Shale, maroon, blocky, limy.
- 80. Shale, green, blocky, limy, contains thin impure nodular limy zone.



Funston limestones

- 81. Limestone, light green, blocky, weathers platy.
- 82. Shale, green, platy, lower 0.1 ft. is stained brown with ground water.
- 83. Limestone, light gray, blocky, weathers platy.
- 84. Shale, dark blue-gray, platy.
- 85. Shale, blue-gray, platy, limy.
- 86. Limestone, light gray, blocky, weathers nodular.
- 87. Shale, green, platy.
- 88. Limestone, light gray, platy, irregular.

Blue Rapids Shale

- 89. Shale, green, platy, contains a thin lensing shaly limestone.
- 90. Shale, green, blocky.
- 91. Shale, maroon, blocky.
- 92. Shale, gray-green, blocky.
- 93. Limestone, light gray, blocky.
- 94. Shale, dark and light green bands, blocky, limy.

Crouse limestone

- 95. Limestone, buff, impure, nodular.
- 96. Limestone, buff, blocky, weathers platy.
- 97. Limestone, buff, platy, shaly.
- 98. Limestone, buff, shaly.
- 99. Shale, green, platy.
- 100. Limestone, buff, blocky.