

FIELD GEOLOGY MAPS

GEARY COUNTY, KANSAS

Preliminary Field Geology Maps for

**SKIDDY
WHITE CITY
WHITE CITY NW
WREFORD**

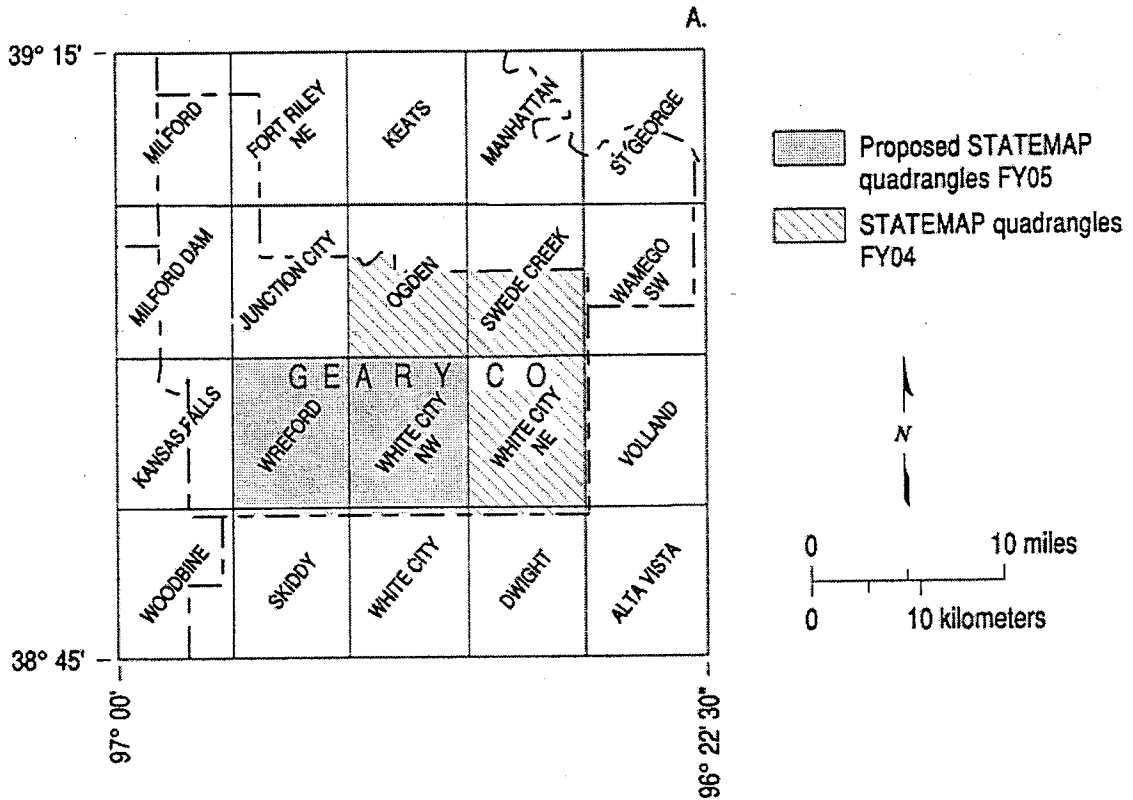
1:24,000-Scale Quadrangles

Ronald R. West and Robert S. Sawin

**Kansas Geological Survey
Open-File Report 2006-15**

GEARY COUNTY, KANSAS

INDEX TO 1:24,000-SCALE MAPS



Copies of the field maps are open-filed at the Kansas Geological Survey, Lawrence, Kansas.

LEGEND

THESE MAPS INDICATE LITHOSTRATIGRAPHIC UNITS ONLY. NO TEMPORAL, GENETIC, OR RELATED DEPOSITIONAL ASPECTS ARE MEANT OR IMPLIED.

The stratigraphic sequence in this report is restricted to the interval from the Speiser Shale at the base to the Winfield Limestone at the top. Overlying these Permian rocks are Quaternary alluvium and terrace deposits.

Terminology of the left side of the Composite (Generalized) Lithologic Sequence is that of Zeller (1968), which agrees with Jewett (1941).

The following lithostratigraphic contacts were mapped in the Geary County quadrangles of this report:

Quaternary alluvium and terrace deposits

Base of the Winfield Limestone

Base of the Towanda Limestone Member of the Doyle Shale (Marker Bed shown as purple line)

Top of the Barneston Limestone (Fort Riley Ls. member)

Fort Riley Ls. "rimrock" (Marker Bed shown as red line)

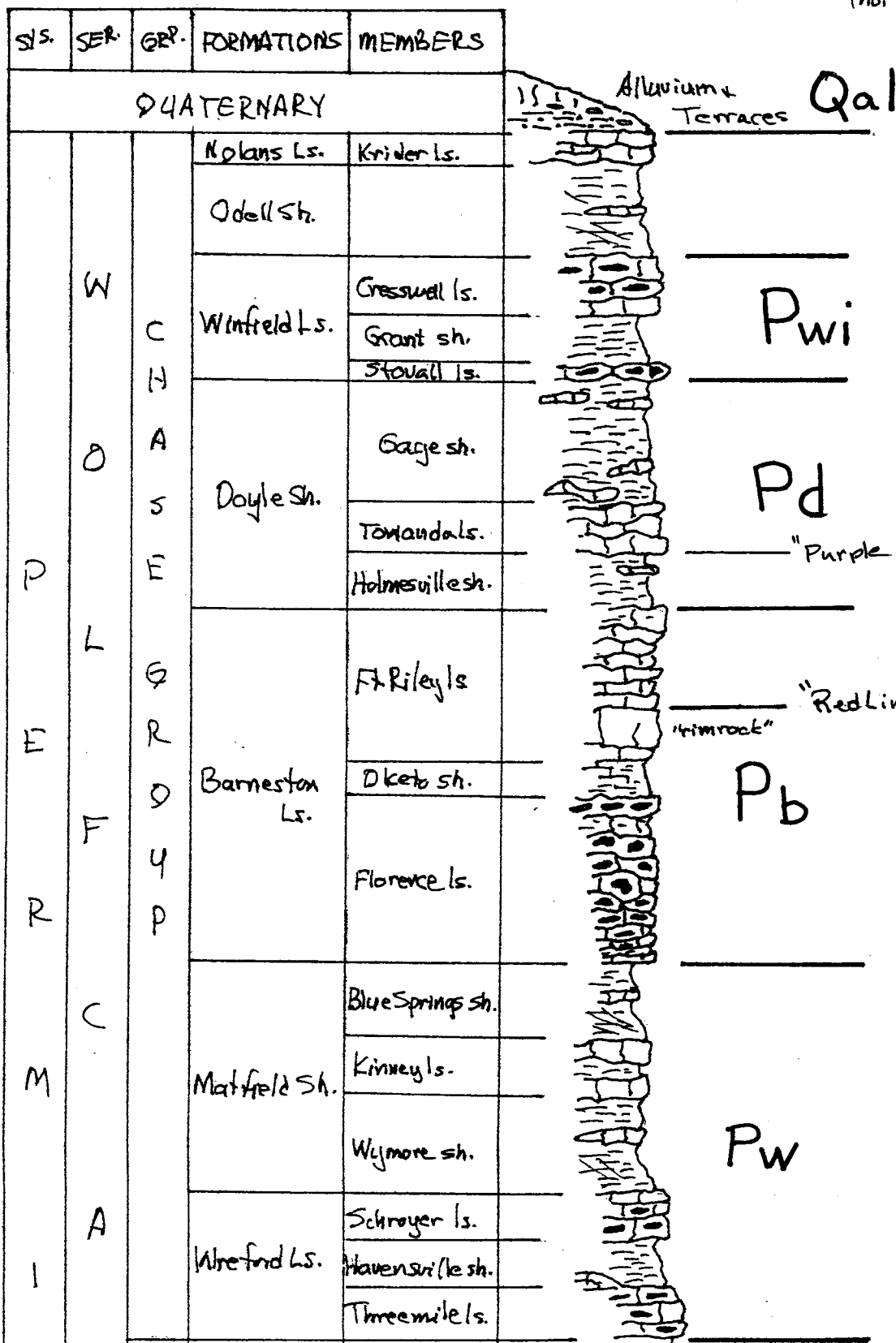
Base of Barneston Limestone (Florence Ls. member)

Base of the Wreford Limestone (Threemile Ls. member)

Solid Line = Observed Contact

Dashed Line = Concealed Contact

COMPOSITE (GENERALIZED) LITHOLOGIC SEQUENCE
(not to scale)



SKIDDY QUADRANGLE – GEARY CO.

EXPLANATION - CONTROL POINTS FOR THE GEARY COUNTY GEOLOGIC MAP ARE IDENTIFIED AS FOLLOWS:

- (1) NUMBERS PRECEDED BY THE LETTER G REFER TO GEARY COUNTY, KANSAS, MEASURED SECTIONS IN THE FILES OF THE KANSAS GEOLOGICAL SURVEY. NUMBERING BEGAN WITH THE FIRST SECTION IN THE BOOK AND PRECEDED SEQUENTIALLY TO THE LAST SECTION;
- (2) NUMBERS PRECEDED BY THE LETTER J REFER TO MEASURED SECTIONS IN KGS BULL. 39 (JEWETT, 1941);
- (3) NUMBERS PRECEDED BY THE LETTERS GE ARE NEW SITES EXAMINED AND EVALUATED SPECIFICALLY FOR THIS MAPPING PROJECT; AND
- (4) ADDITIONAL SITES ARE CONTAINED IN: a) KSU MASTER'S THESIS BY VORAN (1977), b) SOUTH-CENTRAL GSA GUIDEBOOK ON THE CROUSE LIMESTONE (WEST, 1972), c) KGS TECHNICAL SERIES 6 (MAZZULLO, ET AL., 1997), AND d) KSU MASTER'S THESIS BY GRIFFIN, 1974.

ANY SITE MAY BE IDENTIFIED BY ANY ONE, TWO, THREE, OR ALL FOUR OF THESE DESIGNATIONS.

GE-154 = Base of Barneston (Florence) Limestone at 1247' in road ditch on North side of Tri County Road, upper part of Blue Springs shale exposed below and the Fort Riley "Rim Rock" is exposed in the road at the top of the hill near an elevation of 1300'; hand leveled thickness of Barneston from the base to the base of the Fort Riley "Rim Rock" is 44.0'; 2 digital photos; Center of South line SE1/4, Sec. 32, T.13S., R.6E., Geary Co., Kansas.

GE-155 = Base of Fort Riley "Rim Rock" in Tri County Road at 1311' and in field North of road; 2 digital photos; Center of South line, SW1/4, SE1/4, Sec. 33, T.13S., R.6E., Geary Co., Kansas.

GE-156 = Base of Towanda Limestone Member, Doyle Shale, at 1340' in road cut on North side of Tri County Road; 4 to 5 feet of thin, platy to medium bedded limestone, vuggy, "rotten" in lower part, thicker middle bed is an ophthalmid foraminiferal carbonate, and the upper beds are very thin, platy, and earthy; 1 digital photo; SE cor., Sec. 32, T.13S., R.6E., Geary Co., Kansas.

NOTE: Given that GE-156 is approximately 3/4 of a mile West of GE-155 and that at GE-155 the base of the Fort Riley "Rim Rock" is at 1311' it seems more likely that the beds at GE-156 are in the upper Fort Riley limestone. This is based on the fact that the average thickness of the Fort Riley limestone is reported as 35 feet (Jewett, 1941). If the limestones at GE-156 are Towanda then the Holmesville shale is only 2 feet thick in that the difference between 1340 (base of Towanda at GE-156) minus 1311 (the base of the "rim rock" at GE-155) is 37 feet.

GE-158 = Base of Towanda Limestone Member, Doyle Shale, at 1320' in road ditch on North side of Tri County Road; 1 digital photo; near Center of South line, SE1/4, Sec. 36, T.13S., R.6E., Geary Co., Kansas.

NOTE: The limestones at GE-158 are more likely to be Towanda than are those at GE-156 because approximately 1/4 mile East of GE-158 several feet of mudrock (Holmesville shale) is exposed in the spillway of a farm pond below an elevation of 1320'

WHITE CITY QUADRANGLE – GEARY CO.

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GE-135 = Base of Fort Riley "Rim Rock" at 1385' in gullies on both sides of Swenson Road; 1 digital photo; near Center of West line, SW1/4, SW1/4, Sec. 33, T.13S., R.7E., Geary Co., Kansas.

GE-140 = Base of Fort Riley "Rim Rock" at 1340' in gully NW of section corner, upper Fort Riley limestone is more conspicuous here forming a bench about 25' above the "rim rock", do not confuse with "rim rock"; 1 digital photo; near Center of West line SE1/4, SE1/4, SE1/4, Sec. 35, T.13S., R.6E., Geary Co., Kansas.

WHITE CITY NW QUADRANGLE – GEARY CO.

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G-1 = J-71 = Sequence from Barneston (Fort Riley) Limestone to Towanda Limestone Member, Doyle Shale; near Center of West line of Sec. 33, T.13S., R.7E., Geary Co., Kansas; date and author unknown, but probably is J. M. Jewett in the late 1930s as this site is in Jewett, 1941.

G-2 = J-70 = Sequence from Speiser Shale into Wreford (Threemile) Limestone; Center of South line, Sec. 34, T.12S., R.7E., Geary Co., Kansas; date and author unknown, but probably is J. M. Jewett in the late 1930s as this site is in Jewett, 1941. NOTE: This site is probably incorrectly located as the stratigraphy is wrong, we suspect the Range should be 6E rather than 7E.

GE-69 = Kinney Limestone Member, Matfield Shale at 1300' in road cut on East side of road; 1 digital photo; approx. 200' South of Center of SE1/4, SW1/4, NW1/4, Sec. 35, T.12S., R.7E., Geary Co., Kansas.

GE-107 = Base of Wreford (Threemile) Limestone at 1280' in road cut on East side of Humboldt Creek Road just South of bridge over drainage; 2 digital photos, one North of bridge and one South; near Center of SW1/4, NE1/4, SW1/4, Sec. 21, T.12S., R.7E., Geary Co., Kansas.

GE-108 = Fort Riley "Rim Rock" at 1385' in road cut on North side of Schmedemann Road; 1 digital photo; approx. 200' North and 100' West of Center of NE1/4, NW1/4, Sec. 35, T.12S., R.7E., Geary Co., Kansas.

- GE-109 = Exposure from the upper Blue Rapids Shale to the top of the Funston Limestone in road cut on North side of Zumbrunn Road just East of low water bridge with base of Funston Limestone at 1200' and the top of the Funston Limestone at 1206.8'; section measured, 1 digital photo; near Center of NW1/4, SW1/4, NE1/4, Sec. 28, T.12S., R.7E., Geary Co., Kansas.
- GE-110 = Base of Barneston (Florence) Limestone at 1305' in road cut on North side of Zumbrunn road; 1 digital photo; near Center of W1/2, Sec. 28, T.122S., R.7E., Geary Co., Kansas.
- GE-111 = Base of Fort Riley "Rim Rock" at 1315' with Oketo shale below in ditch in road cut on North side of Ridge Road; 1 digital photo; approx 200' North of Center of N1/2, NE1/4, Sec. 30, T.12S., R.7E., Geary Co., Kansas.
- GE-112 = Base of Barneston (Florence) Limestone at 1280' in road and road cut on North side of Ridge Road; 1 digital photo; Center NW1/4, NE1/4, Sec. 30, T.12S., R.7E., Geary Co., Kansas.
- GE-113 = Base of Wreford (Threemile) Limestone at 1175' in road cut on the East side of Kansas Highway 57; 1 digital photo; approx. 300' North of Center of SE1/4, SE1/4, Sec.23, T.12S., R.6E., Geary Co., Kansas.
- GE-114 = Base of Wreford (Threemile) Limestone at 1178' in road cut on the East side of Kansas Highway 57; 1 digital photo; near Center of NE1/4, NW1/4, Sec. 25, T.12S., R.6E., Geary Co., Kansas.
- GE-115 = Top of Kinney Limestone Member, Matfield Shale at 1290' in road cut on East side of Kansas Highway 57; 1 digital photo; near Center of South line, NE1/4, SE1/4, SE1/4, Sec. 8, T.12S., 7E., Geary Co., Kansas.
- GE-116 = Base of Barneston (Florence) Limestone at 1348' in road cut on NE side of Kansas Highway 57 with mudrock of the Blue Springs Shale Member, Matfield Shale below, excellent exposure; 1 digital photo; near Center of S1/2, Sec. 15, T.13S. R.7E, Geary Co., Kansas.
- GE-117 = Base of Barneston (Florence) Limestone at 1347' in road cut on NE side of Kansas Highway 57 with mudrock of the Blue Springs Shale Member, Matfield Shale below, excellent exposure; 1 digital photo; near Center of South line, SW1/4, SE1/4, Sec. 125., T.13S., R.7E., Geary Co., Kansas.
- GE-118 = Top of Fort Riley "Rim Rock" at 1400' with Oketo shale below in road cut on North side of Kansas Highway 57; 1 digital photo; approx. 250' East and 200' South of Center of NE1/4, Sec. 22, T.13S., R.7E., Geary Co., Kansas.
- GE-119 = Limestone in Ridge Road at 1425' above the Barneston (Fort Riley) Limestone, possibly the upper beds of the Barneston (Fort Riley) Limestone; 1 digital photo; approx. 200' East of Center of E1/2, NE1/4, Sec. 10, T.13S., R.7E., Geary Co., Kansas.

- GE-120 = Base of Fort Riley "Rim Rock" at 1380' in road ditch on North side of North Carr Road with Oketo shale below; 1 digital photo; Center West line, NW1/4, Sec. 10, T.13S., R.7E., Geary Co., Kansas.
- GE-121 = Base of Barneston (Florence) Limestone at 1320' in road cut on West side of South Carr Road; 1 digital photo; near Center of NE1/4, SE1/4, NE1/4, Sec. 17, T.13S., R.7E., Geary Co., Kansas.
- GE-122 = Base of Fort Riley "Rim Rock" at 1377' in road ditch on West side of South Carr road, nearly complete section of Barneston from the Blue Springs Shale Member, Matfield shale below the Florence to the base of the Fort Riley "rim rock"; 1 digital photo; near Center of SE1/4, SE1/4, NE1/4, Sec. 17, T.13S., R.7E., Geary Co., Kansas.
- GE-123 = Base of Fort Riley "Rim Rock" at 1418' in Stahl Road and field East of Stahl Road; 1 digital photo; near Center of West line, SW1/4, Sec. 26, T.13S., R.7E., Geary Co., Kansas.
- GE-124 = Probable base of Wreford (Threemile) Limestone at 1203' in road cut on North side of Davis Creek Road; 1 digital photo; approx. 200' South of Center of SW1/4, NE1/4, Sec. 2, T.13S., R.6E., Geary Co., Kansas.
- GE-125 = Possible base of Wreford (Threemile) Limestone at 1220' in creek bank on West side of Davis Creek Road with Speiser Shale below; 1 digital photo; approx. 200' West and 250' North of Center of S1/2, Sec. 12, T.13S., R.6E., Geary Co., Kansas.
- Ge-126 = Base of Barneston (Florence) Limestone at 1285' in hillside on East side of Davis Creek Road; 1 digital photo; approx. 300' East of Center of NE1/4, Sec. 13, T.13S., R.6E., Geary Co., Kansas.
- GE-127 = Base of Fort Riley "Rim Rock" at 1345' in un-named road with upper beds of Fort Riley limestone also exposed in road, "rim rock" is conspicuous in the landscape; 1 digital photo; near Center of South line, Sec. 18, T.13S., R.7E., Geary Co., Kansas.
- GE-128 = Poorly exposed base of Barneston (Florence) Limestone at 1305' in road ditch along North side of un-named road; 1 digital photo; approx. 200' South of Center of North line of NE1/4, NE1/4, NW1/4, Sec. 19, T.13S., R.7E., Geary Co., Kansas.
- GE-129 = Base of Barneston (Florence) Limestone at 1290' in road cut on East side of Davis Creek Road, excellent exposure from the Kinney Limestone Member, Matfield shale to the Barneston (Florence) Limestone; 1 digital photo; approx. 300' South and 200' West of Center of W1/2, SW1/4, Sec. 19, T.13S., R.7E., Geary Co., Kansas.
- GE-130 = Same exposure as at GE-129 plus the overlying Oketo shale and Fort Riley limestone ("rim rock" clearly visible) in a bluff in the East bank of Davis Creek on the West side of Davis Creek Road, estimated base of Barneston (Florence) Limestone at 1315'; 1 digital photo (plus 2 I took); approx. 300' South and 200' West of Center of W1/2, SW1/4, Sec. 19, T.13S., R.7E., Geary Co., Kansas.

- GE-131 = Base of Barneston (Florence) Limestone at 1318' in road cut on East side of Davis Creek Road with mudrock of the upper Blue Springs Shale Member, Matfield Shale well exposed below; 1 digital photo; just South of Center of North line of NW1/4, NW1/4, SE1/4, Sec. 30, T.13S., R.7E., Geary Co., Kansas.
- GE-132 = Base of Fort Riley "Rim Rock" at 1355' in road cut on North side of Davis Creek Road, excellent exposure of upper Florence limestone and Oketo shale; 1 digital photo (plus 2 I took) approx. 100' North of Center of South line of SE1/4, SE1/4, Sec. 30, T.13S., R.7E., Geary Co., Kansas.
- GE-133 = Towanda Limestone Member, Doyle Shale in road cuts on both sides of Davis Creek Road at 1422'; 1 digital photo; near Center of West line, NW1/4, SW1/4, NW1/4, sec. 33, T.13S., R.7E., Geary Co., Kansas.
- GE-134 = Towanda Limestone Member, Doyle Shale in road cuts on both sides of Davis Creek Road at 1422', near G-1/J71; 1 digital photo; approx. 400' South of Center of West line of W1/2, Sec. 33, T.13S., R.7E., Geary Co., Kansas.
- GE-136 = Towanda Limestone Member, Doyle Shale in road cuts on both sides of Davis Creek Road at 1420'; 1 digital photo; near Center of North line, NE1/4, NW1/4, NE1/4, Sec. 32, T.13S., R.7E., Geary Co., Kansas.
- GE-137 = Base of Barneston (Florence) Limestone at 1338' in stream bank exposure just East of Hunt Road; 1 digital photo; approx. 300' East of Center of SW1/4, NW1/4, Sec. 32, T.13S., R.7E., Geary Co., Kansas.
- GE-138 = Base of Barneston (Florence) Limestone at 1313' in road ditch on South Road; 1 digital photo; near Center of NE1/4, NW1/4, NE1/4, Sec. 25, T.13S., R.7E., Geary Co., Kansas.
- GE-139 = Base of Fort Riley "Rim Rock" at 1348' in road cut on both sides of Thomas Creek Road; 1 digital photo; near Center of North line, Sec. 25, T.13S., R.7E., Geary Co., Kansas.
- GE-141 = Exposure from Oketo Shale Member to upper beds of Fort Riley Limestone Member, Barneston Limestone exposed in road cut on North side of Thomas Creek Road, base of Fort Riley "Rim, Rock" at 1335'; 1 digital photo; near Center of North line, NW1/4, NE1/4, Sec. 26, T.13S., R.7E., Geary Co., Kansas.
- GE-142 = Base of Barneston (Florence) Limestone at 1280' in road cut/bluff on North side Thomas Creek Road near where road crosses Thomas Creek, nearly continuous exposure from the upper mudrocks of the Blue Springs Shale Member, Matfield Shale to the upper beds of the Fort Riley Limestone Member, Barneston Limestone at GE-142; 1 digital photo; near Center of NW1/4, NW1/4, NE1/4, Sec. 26, T.13S., R.7E., Geary Co., Kansas.
- GE-143 = Base of Fort Riley "Rim Rock" at 1324' in Thomas Creek Road and field North of road; 1 digital photo; near Center of North line, NW1/4, Sec. 26, T.13S., R.7E., Geary Co., Kansas.

GE-144 = Base of Wreford (Threemile) Limestone at 1170' in road cut on East side of Thomas Creek Road; 1 digital photo; approx. 200' South of Center of N1/2, SW1/4, Sec. 2, T.13S., R.6E., Geary Co., Kansas.

WREFORD QUADRANGLE – GEARY CO.

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GE- 145 = Base of Wreford (Threemile) Limestone at 1150' in creek bank on the South side of Clarks Creek Road, approximately 5 feet of Threemile limestone and 10 feet of Speiser Shale below the Threemile; 1 digital photo; approx. 150' West of the Center of NW1/4, Sec. 34, T.12S., R.6E., Geary Co., Kansas.

GE-146 = Base of Kinney Limestone Member, Matfield Shale, at 1211' in road cut on Northwest side of Clarks Creek Road just Southwest of the junction of Clarks creek Road and Nelson Road, limestone is also exposed in Nelson Road going North; 1 digital photo; approx. 900' West of NE cor., Sec. 4, T.13S., R6E., Geary Co., Kansas.

GE-147 = Top of Wreford (Schroyer) Limestone at 1190' in road cut on North side of Clarks Creek Road and in the South bank of the creek on the West side of road; Schroyer limestone is 5 to 6 feet thick with a thin, about a decimeter, of grainstone at the top; 2 digital photos; near Center of NE1/4, Sec. 4, T.13S., R.6E., Geary Co., Kansas.

GE-148 = Near top of Wreford (Schroyer) Limestone in road ditch on West

side of Clarks Creek Road with mudrock below in South bank of creek West of road, base of Schroyer limestone at approx. 1187', lower part (approx. 6 feet) of Schroyer is cherty with float blocks of grainstone (approximately 1 foot thick) in road ditch; sequence below the Schroyer is mostly mudrock (Havensville), but there are two limestone beds each about a foot thick separated by a foot of mudrock near water level; 3 digital photos; approx. 100' East and 100' North of Center of N1/2, N1/2, sec. 9, T.13S., R.6E., Geary Co., Kansas.

- GE-149 = Base of Fort Riley "Rim Rock" at 1282' on both sides of road North of Salchow Cemetery West of Clarks Creek Road; 1 digital photo; near Center w1/2, Sec. 9, T.13S., R.6E., Geary Co., Kansas.
- GE-150 = Base of Fort Riley "Rim Rock" at 1290' on both sides of Hoff Road and in fields on both sides of road, 6 feet estimated thickness of "rim rock"; near Center of East 1/2, Sec. 20, T.13S., R.6E., Geary Co., Kansas.
- GE-151 = Kinney Limestone Member, Matfield Shale, at 1210' in West bank of Clarks Creek North of bridge over Clarks Creek with Wymore shale exposed below; 1 digital photo; just South of Center of SE1/4, NW1/4, Sec. 28, T.13S., R.6E., Geary Co., Kansas.
- GE-152 = Kinney Limestone Member, Matfield Shale, at 1210' in East bank of Clarks Creek with Wymore shale exposed below; 1 digital photo; SE cor., Sec. 29, T.13S., R.6E., Geary Co., Kansas.
- GE-153 = Base of Fort Riley "Rim Rock" at 1295' in bluff on east side of Clarks Creek; no photos; approx. 300' West of Center of S1/2, NW1/4, Sec. 28, T.13S., R.6E., Geary Co., Kansas.
- GE-157 = Base of Fort Riley "Rim Rock" at 1250' in drainage on both sides of Skiddy West Road; 1 digital photo of exposure on South side; near Center of South line of SE1/4, SW1/4, SW1/4, Sec. 26, T.13S., R.5E., Geary Co., Kansas.
- GE-159 = Base of Fort Riley "Rim Rock" at 1280' in drainage on East side of Skiddy Road; 1 digital photo; near Center of NE1/4, NE1/4, Sec. 31, T.13S., R.6E., Geary Co., Kansas.
- GE-160 = Base of Towanda Limestone Member, Doyle Shale at 1330' in road cut on East side of Skiddy Road; 1 digital photo; approx. 100' South of Center of N1/2, N1/2, Sec. 31, T.13S., R.6E., Geary Co., Kansas.
- GE-161 = Base of Towanda Limestone Member, Doyle Shale at 1328' in road cut on North side of Hoff Road; 1 digital photo; Center of Sec. 20, T.13S., R.6E., Geary Co., Kansas.

NOTE: We had considered the beds at GE-158, GE-160, and GE-161 as Towanda limestone, but limestone beds of upper Fort Riley is more likely.

- GE-162 = Base of Fort Riley "Rim Rock" at 1270' in drainage in field Northeast of Red Road; 1 digital photo; near Center of SE1/4, SW1/4, SW1/4, Sec. 5, T.13S., R.6E., Geary Co., Kansas.
- GE-163 = Base of Fort Riley "Rim Rock" at 1285' on both side of Red Road; 1 digital photo; near Center of NE1/4, NE1/4, SE1/4, Sec. 17, T.13S, R.6E., Geary Co., Kansas.
- GE-164 = Base of Barneston (Florence) Limestone at 1240' in road ditch on North side of Howard Road; 1 digital photo; just East of Center of NE1/4, NW1/4, SW1/4, Sec. 4, T.123S., R.6E., Geary Co., Kansas.
- GE-165 = Base of Fort Riley "Rim Rock" at 1280' on both sides of Howard Road; 1 digital photo; just West of Center of East line of Sec. 5, T.13S., R.6E., Geary Co., Kansas.
- GE-166 = Base of Fort Riley "Rim Rock" at 1290' on both sides of Nelson Road; 1 digital photo; approx. 300' West of Center of W1/2, SE1/4, Sec. 33, T.12S., R.6E., Geary Co., Kansas.
- GE-167 = Base of Fort Riley "Rim Rock" at 1270' on both sides of Old Stage Road; 1 digital photo; approx. 200' North and 200' East of Center of NW1/4, SW1/4, Sec. 21, T.12S., R.6E., Geary Co., Kansas.
- GE-168 = Base of Barneston (Florence) Limestone at 1230' with a well exposed sequence of the upper beds of the Blue Springs Shale Member, Matfield Shale, below in road cut on North side of Old Stage Road; 2 digital photos; approx. 300' East and 200' South of Center of S1/2, Sec. 21, T.12S., R.6E., Geary Co., Kansas.
- GE-169 = Top of Wreford (Schroyer) Limestone at 1183' in road on South side of old Stage Road; 1 digital photo; near Center of North line, NW1/4, NW1/4, NW1/4, Sec. 27, T.12S., R.6E., Geary Co., Kansas.
- GE-170 = Base of Fort Riley "Rim Rock" at 1260' in road cut on both sides of Skiddy Road with Oketo shale and Florence limestone exposed below in road cut and bluff across the stream valley to the Northeast; 1 digital photo; approx. 300' South of Center of North line of NW1/4, Sec. 31, T12S., R.6E., Geary Co., Kansas.
- GE-171 = Base of Fort Riley "Rim Rock" at 1240' in road cut on North side of Lyon Creek Road with upper beds exposed up the hill to the east; 3 digital photos; approx. 250' East of Center of SE1/4, SE1/4, Sec. 24, T.12S., R.5E., Geary Co, Kansas.
- GE-172 = Base of Barneston (Florence) Limestone at 1200' in road cut on North side of Lyon Creek Road with Matfield (Blue Springs) Shale exposed below, entire Barneston Limestone is exposed along the North side of the road but

the top is covered; 1 digital photo; near Center of S1/2, SE1/4, Sec. 24, T.13S., R.5E., Geary Co., Kansas.

- GE-173 = Base of Fort Riley "Rim Rock" at 1230' in hill side on Northeast side of Red Road; Florence limestone exposed in road cut on Southwest side of road at 1200', top and base covered; 1 digital photo; approx. 300' East and 200' North of Center of SE1/4, SE1/4, Sec. 12, T.13S., R.5E., Geary Co., Kansas.
- GE-174 = Top of Wreford (Schroyer) Limestone at 1130' in road cut on East side of Otter Creek Road; 1 digital photo; approx. 500' North of SE cor., SW1/4, SE1/4, SW1/4, Sec. 2, T.13S., R.5E., Geary Co., Kansas.
- GE-175 = Base of Fort Riley "Rim Rock" at 1251' in road cut on North side of Otter Creek Road, good base with Oketo shale below; 1 digital photo; approx. 150' North of SW cor. SE1/4, SE1/4, SW1/4, Sec. 13, T.13S., R.5E., Geary Co., Kansas.
- GE-176 = Base of Fort Riley "Rim Rock" at 1251' in road and on both sides of road and in field West of road; 2 digital photos; approx. 450' South of NE cor., Sec. 23, T.13S., R.5E., Geary Co., Kansas.
- GE-177 = Base of Towanda Limestone Member, Doyle Shale, at 1301' in road cut on West side of road with red, gray, and green mudrocks of the Holmesville shale in road ditch South along road to near the top of the Barneston (Fort Riley) Limestone at approx. 1280' at a bench in the road just before the road turns West;; 2 digital photos, one from the bench in road; near Center of East line, SE1/4, NE1/4, Sec. 23, T.13S., R.5E., Geary Co., Kansas.
- GE-178 = Base of Towanda Limestone Member, Doyle Shale, at 1310' in road ditch on North side of Otter Creek Road; 1 digital photo; near Center of South line, SE1/4, SW1/4, SE1/4, Sec. 13, T.13S., R.5E., Geary Co., Kansas.
- GE-179 = Base of Towanda Limestone Member, Doyle Shale at 1302' in road ditch on North side of Kansas Highway 157 at junction with U.S. Highway 77; 1 digital photo; SE cor., Sec. 27, T.13S., R.5E., Geary Co., Kansas.
- GE-180 = Base of Cresswell Limestone Member?, Winfield Limestone at 1331' in road cuts on both sides of Kansas Highway 157; 2 digital photos; near Center of South line, SW1/4, SE1/4, SE1/4, Sec. 28, T.13S., R.5E., Geary Co., Kansas.
- GE-181 = Base of Fort Riley "Rim Rock" at 1229' in field East of road; 1 digital photo; approx. 200' North and 250' West of Center of SW1/4, NW1/4, Sec. 27, T.13S., R.5E., Geary Co., Kansas.

GE-182 = Base of Fort Riley "Rim Rock" at 1236' in spillway cut of Geary County State Lake with the base of the Barneston (Florence) Limestone at 1193', with Matfield (Blue Springs) Shale well exposed below, excellent exposure; 4 digital photos; near Center of North 1/2, SW1/4, Sec. 22, T13S., R.5E., Geary Co., Kansas.

GE-186 = Base of Towanda Limestone Member?, Doyle Shale, at 1348' in road cut on West side of U.S. Highway 77; 2 digital photos; near Center of East line, NE1/4, SE1/4, Sec. 34, T.13S., R5E., Geary Co., Kansas

GE-187 = Base of Fort Riley "Rim Rock" at 1249' in road cuts on both sides of U. S. Highway 77; 1 digital photo; near Center of East line, NE1/4, Sec. 27, T.13S., R.5E., Geary Co., Kansas.

GE-188 = Base of Fort Riley "Rim Rock" at 1232' in drainage on West side of U. S. Highway 77; 1 digital photo; approx. 150' East and 300' North of Center of E1/2, NE1/4, Sec. 15, T.13S., R.5E., Geary Co., Kansas.

GE-189 = Base of Fort Riley "Rim Rock" at 1230' in road cuts on West side of U. S. Highway 77, exposure from Florence limestone through Oketo shale to upper beds of Fort Riley limestone; 1 digital photo; approx. 150' East and 350' North of Center NE1/4, NE1/4, Sec. 10, T.13S., R.5E., Geary Co., Kansas.

GE-190 = Base of Barneston (Florence) Limestone at 1185' in road cut on East side of U. S. Highway 77 just South of bridge over Lyon Creek; 1 digital photo; approx. 250' East of Center SE1/4, Sec. 3, T. 13S., R.5E., Geary Co., Kansas.

GE-191 = Kinney Limestone Member of Matfield Shale at 1150' in road cut of East side of U. S. Highway 77 just North of GE-190; 1 digital photo; approx. 150' East and 350' North of Center SE1/4, Sec. 3, T.13S., R.5E., Geary Co., Kansas.

NOTE: GE-190 and GE-191 are within the area of measured section number 110B in Mazzullo, et al. (1977, pp183-185). This measured section is combined with another, 110A, and presented as a composite of exposures along U. S. Highway 77 from the NW1/4, Sec. 22 and SW1/4 Sec. 15, T.11S., R.5E.(110A) to the SE1/4 Sec. 3 and NE1/4 Sec. 10, T.13S., R.5E.(110B), Geary County, Kansas. Although the exact units, their thicknesses, and descriptions are given it would have been helpful to know where, stratigraphically, 110B stopped and where 110A started.

GE-195 = Top of Wreford (Schroyer) Limestone at 1110' on west side of U. S. Highway 77 at the junction with River Road; approx 0.5 mile North of Griffin (1974, pp. 107-108) measured section 10 of the Oketo Shale Member of the Barneston Limestone, 1 digital photo; approx. 175' East and 250' North of Center S1/2, Sec. 27, T.12S., R.5E., Geary Co., Kansas.

NOTE: GE-195 is in the area of the type locality of the Wreford Limestone; the town of Wreford, Kansas is approx. one mile Southeast of this site.

GE-196 = Exposure from Matfield Shale (upper beds of Wymore shale, Kinney limestone and Blue Springs shale) through the Barneston to the "Rim Rock of the Fort Riley Limestone Member, base of Fort Riley "Rim Rock" at 1200', base of Barneston (Florence) Limestone at 1168', Kinney limestone at 1145', hand leveled 1.5' of Kinney limestone, 23' of Blue Springs shale; 1 digital photo; approx. 250' West of Center, SE1/4, SE1/4, Sec. 34, T.12S., R.5E., Geary Co., Kansas.

GE-209 = Kinney Limestone Member, Matfield Shale, at approx. 1120' in parking lot excavation of Grocery Supply Company (not a natural exposure); 1 digital photo; approx. 150' West and 125' North of Center North line SE1/4, NW1/4, Sec. 22, T.12S., R.5E., Geary Co., Kansas.

APPENDICES

Digital Photographs

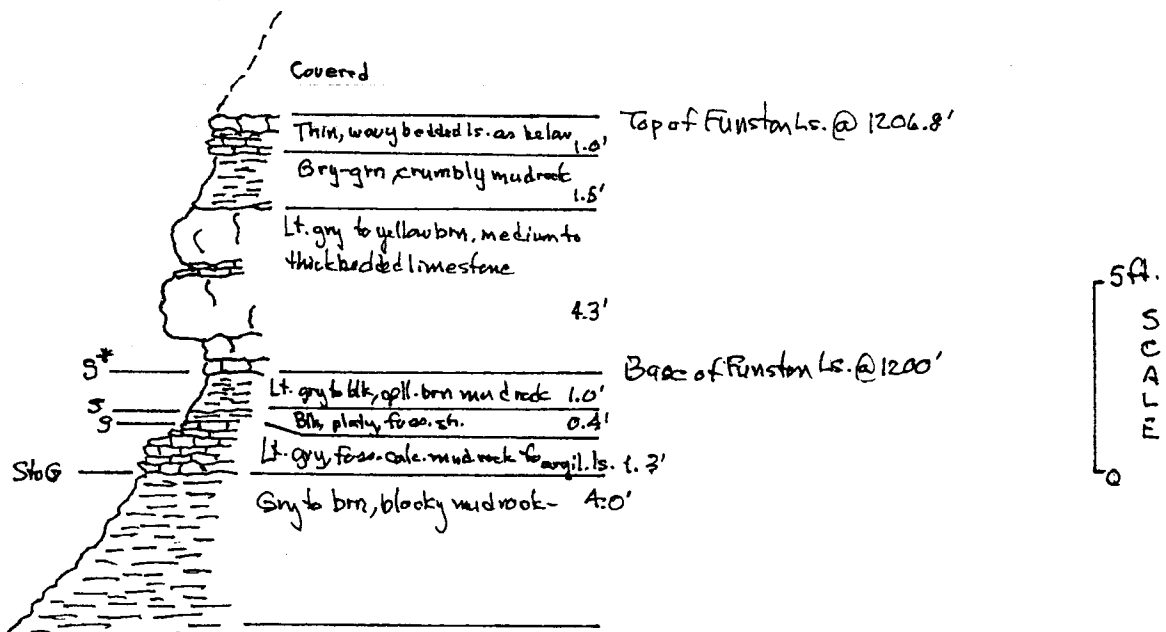
At least one digital photographs was taken at each control point and are identified by the control point number. Photos are not included in this report but are available at the Kansas Geological Survey, Lawrence, Kansas.

Appendix 1 - Graphic Sections

Measured graphic sections corresponding to control points in the White City NW quadrangle are listed below. The thicknesses and general lithologies of the units are accurate, but detailed lithologic characteristics and descriptions were not recorded.

WHITE CITY NW – GE-109, GE-125

SITE GE-109 - WHITE CITY NW QUAD.



*S = Sharp contact; G = Gradational contact.

SITE-GE-125-WHITE CITY NW QUAD.

Rough field sketch - not to scale

