SCALE 1:24 000

1 ½ 0 1 MILE

1 .5 0 1 KILOMETER

CORRELATION OF MAP UNITS

Qal	Qac	Qls ?	Qe ?	Holocene Pleistocene	QUATERNARY
Tpg				Pliocene	TERTIARY
Tmg				Miocene	
Trg					
Unconformity					
Tfu				Paleocene	

DESCRIPTION OF MAP UNITS

Qal **Alluvium (Holocene)**--Light-brown and gray, well-stratified and well-sorted clay, silt, sand, and gravel. As much as 6 m (20 ft) thick under the flood plain of East Fork Bad Route Creek to less than a few meters under flood plains of other streams. Unit limited to areas characterized by meander or braided patterns on aerial photographs. Surface of unit may be subject to occasional flooding

Qac **Alluvium and colluvium (Holocene)**--Light-brown and gray, poorly sorted and well-stratified clay, silt, sand, and gravel deposited by slope wash and gravity processes. As much as 10 m (33 ft) thick, but generally less than 5 m (16 ft). The color and texture of the colluvium reflect the parent material upslope. May interfinger with alluvium; includes local alluvial fans and much windblown clay, silt, and sand. Soil profiles range from well-developed to poorly developed

Qls **Landslide deposits (Holocene to Pleistocene)**--Slumps and earthflows. Size of material ranges from clay and silt to boulders. As much as 12 m (40 ft) thick, but generally less than 5 m (16 ft)

Qe **Eolium (Holocene to Pleistocene)**--Light- to moderate-brown windblown sand and silt. As much as 5 m (16 ft) thick, but generally less than 2 m (6 ft) thick

Tpg **Sand and gravel, undivided (Pliocene)**--Light-brown to light-gray, well-stratified and well-sorted sand and gravel. Thickness as much as 10 m (33 ft), but generally less than 3 m (10 ft). Unit generally limited to altitudes below 936 m (3,070 ft). May contain some Pleistocene sand and gravel

Tmg **Sand and gravel, undivided (Miocene)**--Light-brown to light-gray, well-stratified to poorly stratified, and well-sorted to poorly sorted sand and gravel. Thickness as much as 10 m (33 ft), but generally less than 6 m (20 ft). Unit generally limited to altitudes between 976 m (3,200 ft) and 936 m (3,070 ft). May include some Pliocene sand and gravel

Trg **Rimroad Formation of Howard (1960) (Miocene)**--Light-brown to gray, well-sorted to poorly sorted and well-stratified to poorly stratified sand and gravel. The Rimroad Gravel of Howard (1960) contains volcanic ash 7.1±1.4 million years old and much sand, silt, and clay in addition to gravel. Therefore, the name is revised to Rimroad Formation and the age is limited to Miocene. The age of the volcanic ash was determined by counting fission tracks in zircons from the ash by Nancy B. Naeser (Colton, Naeser, and Wilcox, 1983). Thickness as much as 30 m (100 ft). The base of the formation is at an altitude of approximately 975 m (3,200 ft) in the northeast part of the quadrangle but rises southwestward to approximately 1,018 m (3,340 ft) in the southwest corner of the quadrangle. May contain some small thin Pliocene sand and gravel deposits

Tfu **Tongue River Member (Collier and Knechtel, 1939) of Fort Union Formation (Paleocene)**--Yellowish- and light-brown shale and sandstone containing numerous lignite beds. Estimated thickness more than 609 m (2,000 ft) of which only 122 m (400 ft) is exposed

w **Water**

—— **Contact**--Dashed where approximately located

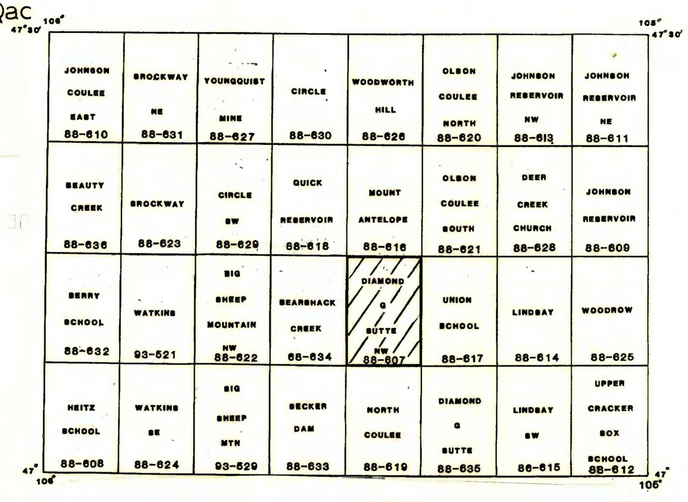
Gravel pit

REFERENCES

Collier, A.J., and Knechtel, M.N., 1939, The coal resources of McCone County, Montana: U.S. Geological Survey Bulletin 905, 80 p.

Colton, R.B., Naeser, N.D., and Wilcox, R.E., 1983, Seven million-year-old ash on Missouri-Yellowstone River drainage divide near Circle, Montana: Geological Society of America Abstracts, Rocky Mountain and Cordilleran Sections, v. 15, no. 5, no. 24842, p. 414.

Howard, A.D., 1960, Cenozoic history of northeastern Montana and northwestern North Dakota with emphasis on the Pleistocene: U.S. Geological Survey Professional Paper 326, 107 p.



INDEX TO QUADRANGLES IN THE CIRCLE 30' x 60' QUADRANGLE. MAPPED QUADRANGLE SHOWN BY STRIPES; NUMBERS ARE OPEN-FILE NUMBERS

GEOLOGIC MAP OF THE DIAMOND G BUTTE NW QUADRANGLE, MCCONE AND PRAIRIE COUNTIES, MONTANA

By

R.B. Colton, J.P. McGraw, and S.L. Durst

1994