

U.S. Department of the Interior
Geological Survey

Gravity base stations in the
Wallace 1° x 2° quadrangle,
Montana and Idaho

Viki Bankey and M. D. Kleinkopf

Open-File 85-114

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This report describes gravity base stations set by the U.S. Geological Survey (USGS) in the Wallace 1° x 2° quadrangle, Montana and Idaho. Each USGS gravity base is referenced or updated to the International Gravity Standardization Net of 1971 (IGSN-71). Most of these bases were tied to one of the U.S. Department of Defense (DOD) gravity bases, although some bases were tied to secondary USGS bases previously tied to DOD bases. The DOD bases in the Wallace quadrangle are Polson and Wallace. Secondary bases were tied two or more times to ensure accuracy, and the average value of these ties is used as the observed gravity value.

Many of the gravity bases are set at bench marks. Those that are not are given estimated elevations based on contours interpolation from 1:24,000 or 1:62,500 scale topographic maps. These elevations are noted by the letters "est", which signifies an estimated elevation for that gravity base station.

These base description sketches are not drawn to scale and should be used with topographic maps.

SELECTED REFERENCES

Defense Mapping Agency Aerospace Center, 1974, World Relative Gravity Reference Network, North America, Part 2: DMAAC Reference Publication 25, with supplement updating gravity values to the International Gravity Standardization Net 1971, 1635 p.

International Association of Geodesy, 1967, Geodetic Reference System, 1967, International Association of Geodesy Special Publication 3, 74 p.

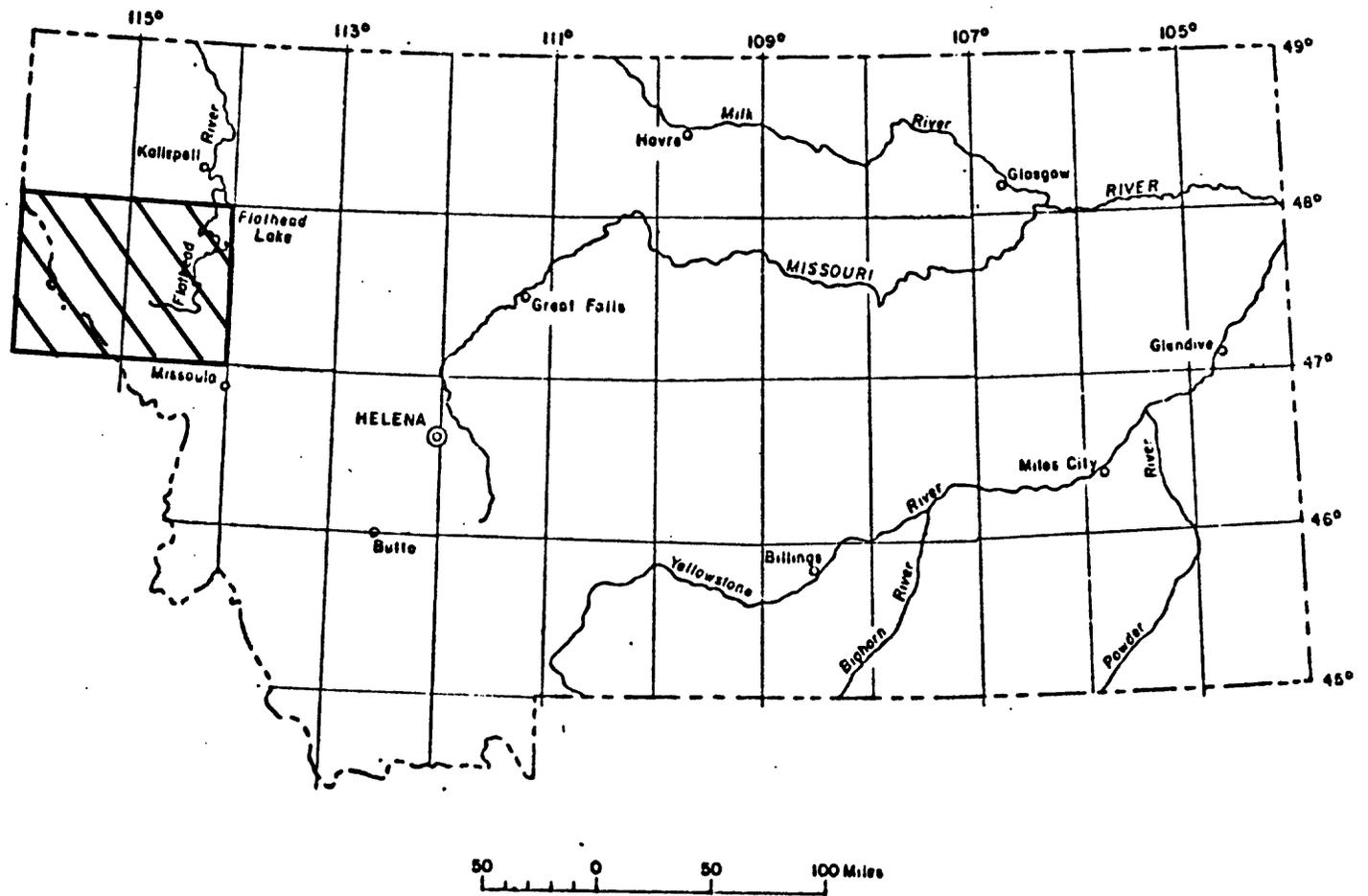


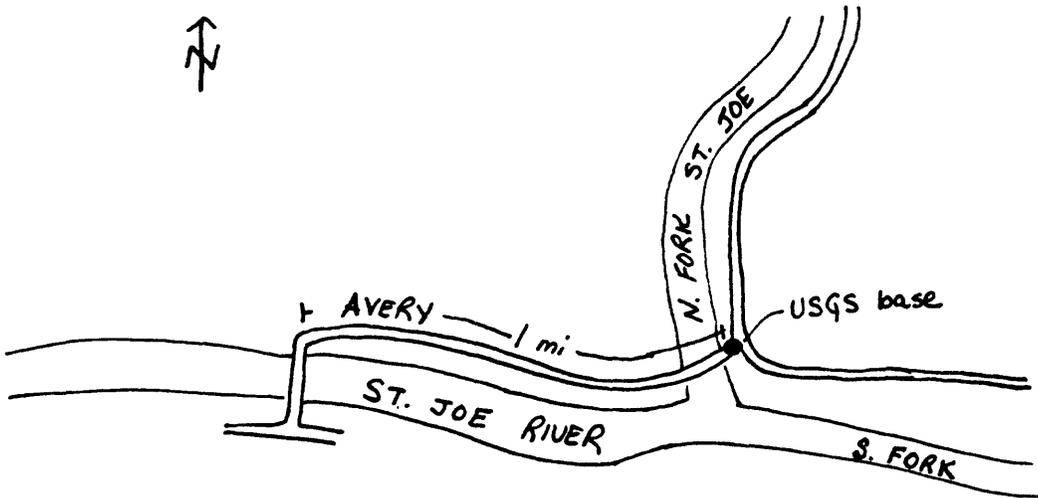
Figure 1--Location map of the Wallace 1° x 2° quadrangle, Montana and Idaho.

**GRAVITY BASE STATION
U.S. GEOLOGICAL SURVEY**

STATE/COUNTRY Idaho		STATION DESIGNATION Avery Bridge (SU740)		OBSERVED GRAVITY 980523.60 mgals
NEAREST TOWN Avery		LONGITUDE 115° 47.78'		LATITUDE 47° 15.11'
ELEVATION 2549 ft (777.0 m)		TOPOGRAPHIC MAP(S) Wallace 1:62,500 Wallace 1:250,000		
DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
8/76	Kleinkopf	E-134	Avery RR Yard	980525.51 mgals

DESCRIPTION/SKETCH

Base is located 1 mi east of the town of Avery, on the east side of the North Fork of the St. Joe River, and north of the South Fork of the St. Joe River, at a road junction just east of the bridge to Avery.

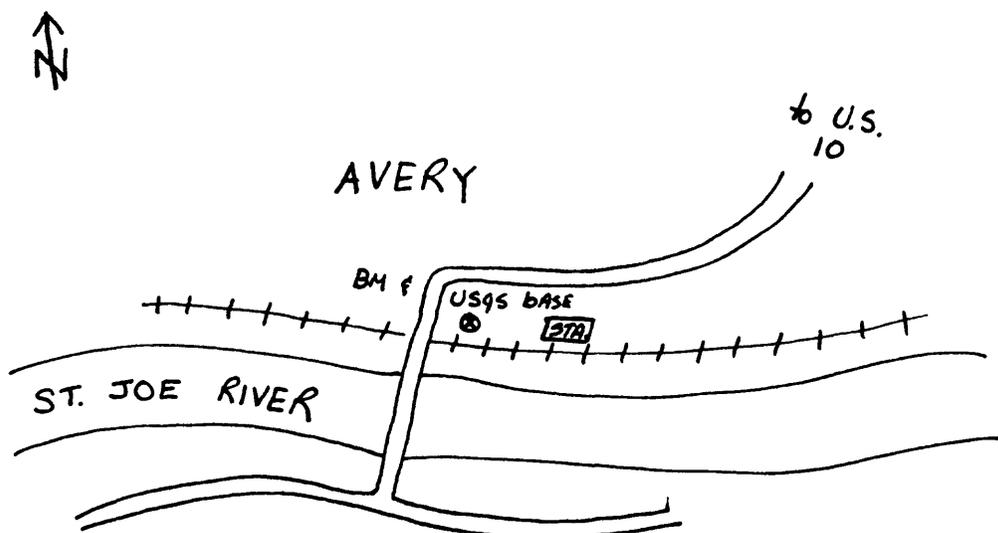


**GRAVITY BASE STATION
U.S. GEOLOGICAL SURVEY**

STATE/COUNTRY Idaho		STATION DESIGNATION Avery Railroad Yard (SU567)		OBSERVED GRAVITY 980525.51 mgals
NEAREST TOWN Avery		LONGITUDE 115° 48.55'		LATITUDE 47° 15.09'
ELEVATION 2484' (757.1 m)		TOPOGRAPHIC MAP(S) Wallace 1:62,500 Wallace 1:250,000		
DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
8/75	Wilson	G-159	Wallace DOD	980544.30 mgals

DESCRIPTION/SKETCH

Base is approximately 50 meters west of the railroad station house and 5 meters north of railroad tracks, at bench mark 2484'.

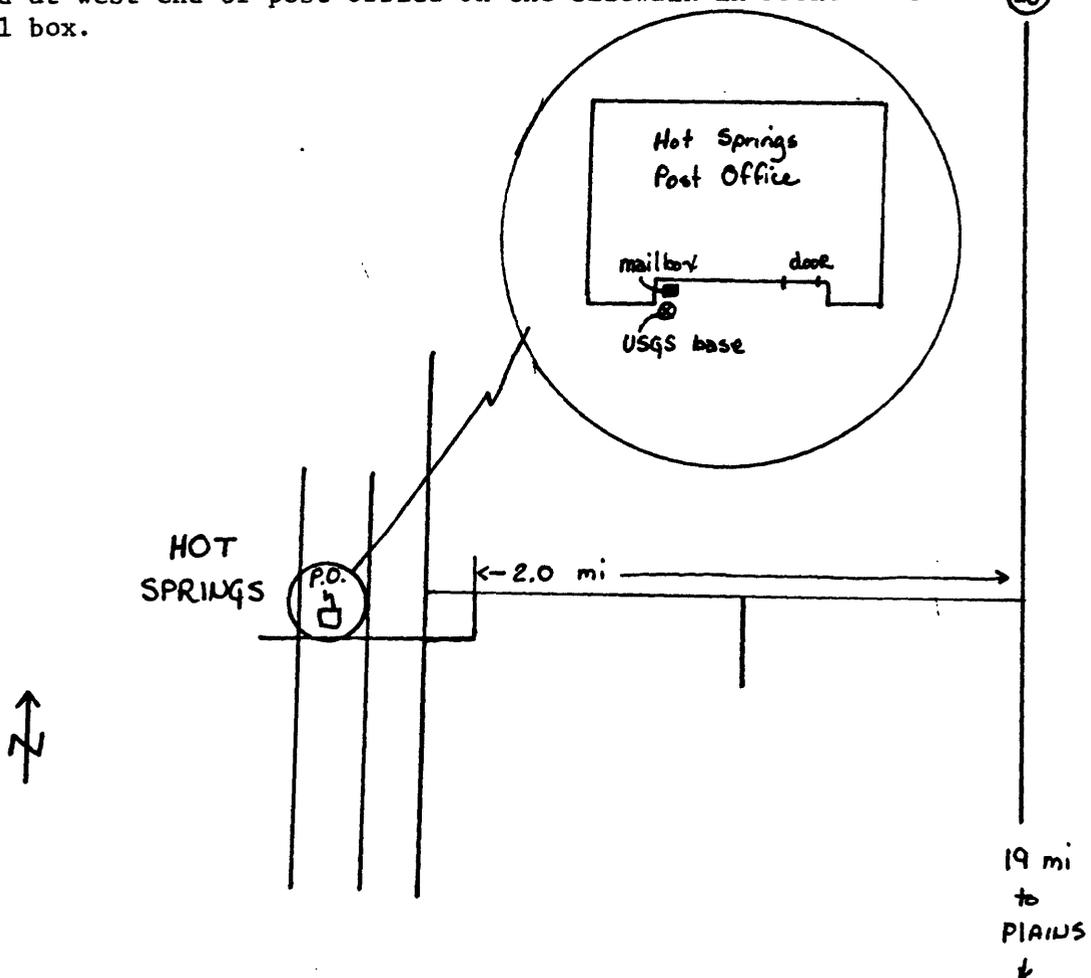


GRAVITY BASE STATION
U.S. GEOLOGICAL SURVEY

STATE/COUNTRY Montana		STATION DESIGNATION Hot Springs Post Office		OBSERVED GRAVITY 980558.33 mgals
NEAREST TOWN Hot Springs		LONGITUDE 114° 40.20'	LATITUDE 47° 36.52'	
ELEVATION 2845 ft (867.2 m)		TOPOGRAPHIC MAP(S) Hot Springs 1:24,000 Wallace 1:250,000		
DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
7/11/78	Brickey	G-235	Kalispell DOD	980567.39 mgals

DESCRIPTION/SKETCH

Base is located in the heart of Hot Springs at the Post Office, read at west end of post office on the sidewalk in front of the mail box. (28)

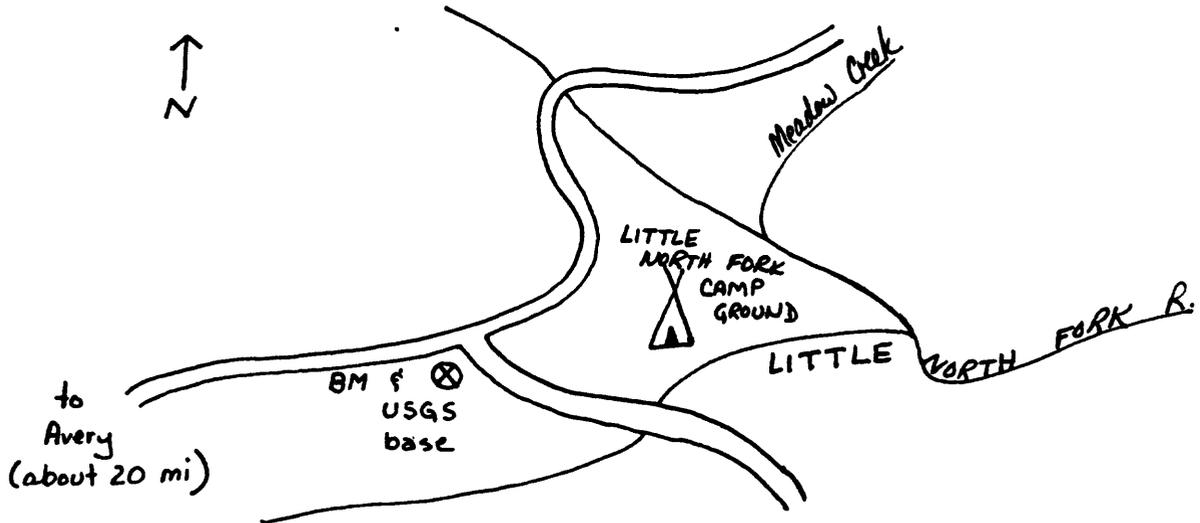


**GRAVITY BASE STATION
U.S. GEOLOGICAL SURVEY**

STATE/COUNTRY Idaho		STATION DESIGNATION Little North Fork CG.		OBSERVED GRAVITY 980422.25 mgals
NEAREST TOWN Avery		LONGITUDE 115° 51.24'	LATITUDE 47° 03.97'	
ELEVATION 4052 ft (1235.0 m)		TOPOGRAPHIC MAP(S) Monumental Routes 1:24,000 Wallace 1:250,000		
DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
8/76	Kleinkopf	E-134	Avery Railroad Yard	980525.51 mgals

DESCRIPTION/SKETCH

Base is located at the benchmark at the southwest corner of the turn-off to the Little North Fork Campground, on the north side of the Little North Fork River.

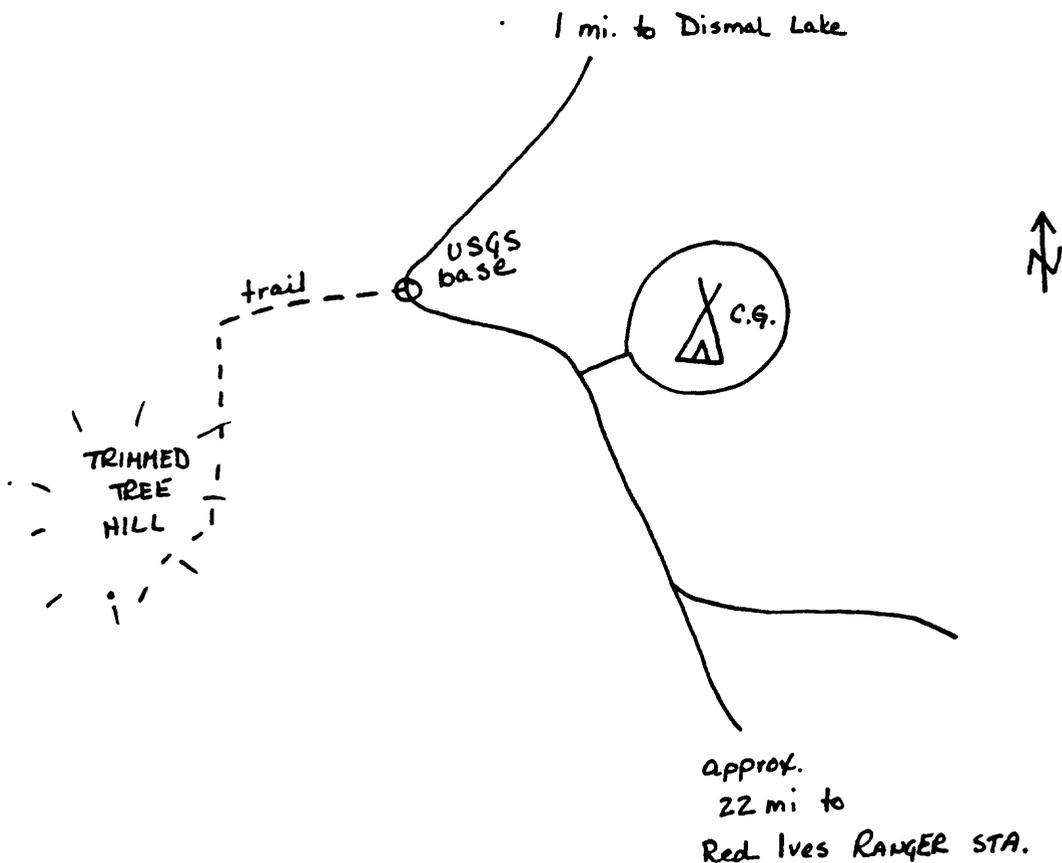


GRAVITY BASE STATION
U.S. GEOLOGICAL SURVEY

STATE/COUNTRY Idaho		STATION DESIGNATION Mammoth Springs (SU549)		OBSERVED GRAVITY 980324.49 mgals
NEAREST TOWN Avery, Mt.		LONGITUDE 115° 37.77'	LATITUDE 47° 06.18'	
ELEVATION 5650 ft (1722.1 m) est		TOPOGRAPHIC MAP(S) Montana Peak 1:24,000 Wallace 1:250,000		
DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
8/75	Wilson	G-159	Avery RR yard	980525.74 mgals

DESCRIPTION/SKETCH

Base is located on road between Dismal Lake and Mammoth Springs Campground at intersection with trail to Trimmed Tree Hill and Hoodoo Ridge. The intersection is approximately 500 ft northwest of the campground circle.

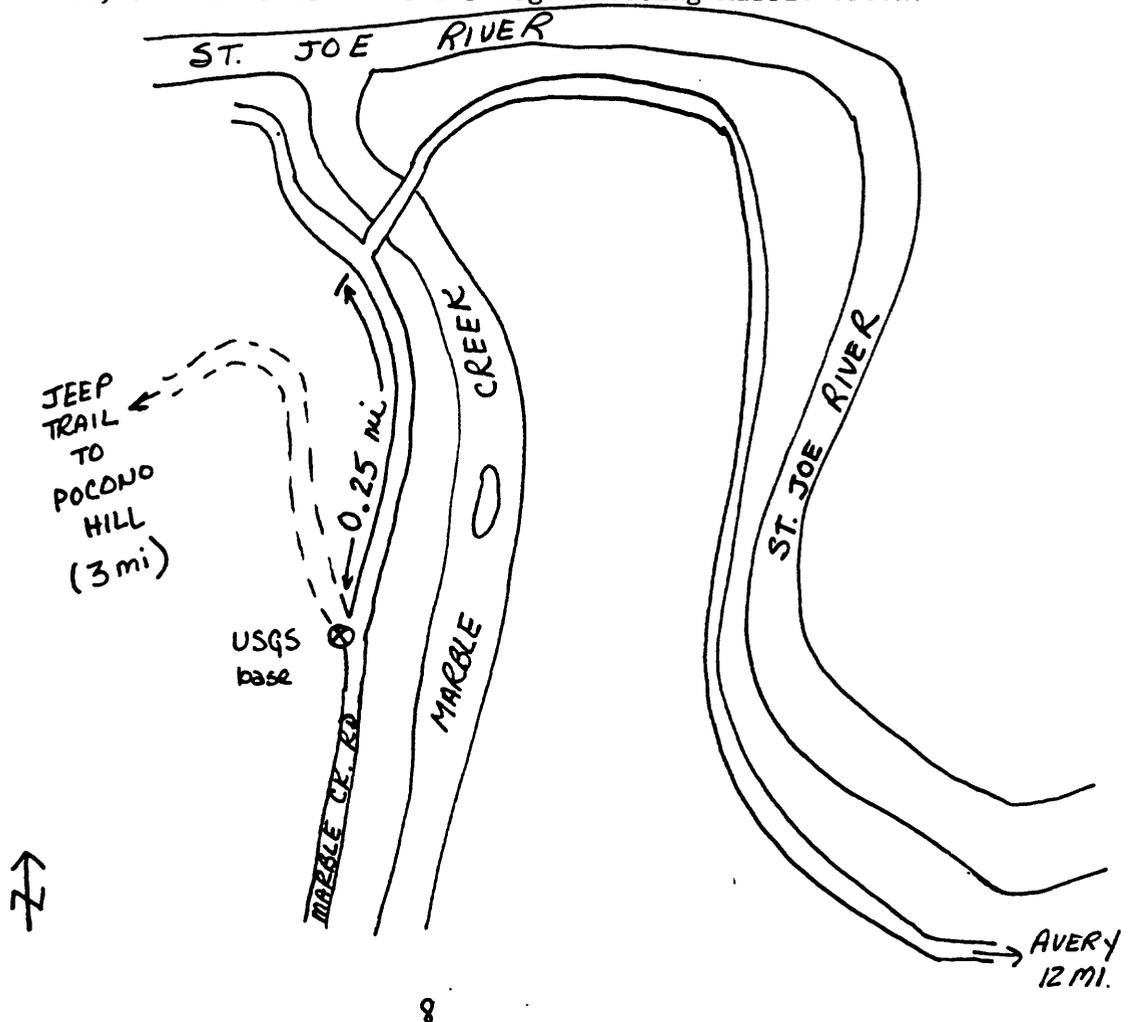


**GRAVITY BASE STATION
U.S. GEOLOGICAL SURVEY**

STATE/COUNTRY Idaho		STATION DESIGNATION Marble Creek (SU739)		OBSERVED GRAVITY 980544.75 mgals
NEAREST TOWN Avery		LONGITUDE 116° 01.22'		LATITUDE 47° 14.73'
ELEVATION 2339' (712.9 m)		TOPOGRAPHIC MAP(S) Marble Mtn. 1:24,000 Wallace 1:250,000		
DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
8/76	Kleinkopf	E-134	Avery Bridge	980523.60 mgals

DESCRIPTION/SKETCH

Base is located at road junction between a dirt road heading off to Pocono Hill, 0.25 mi south of the bridge crossing Marble Creek.



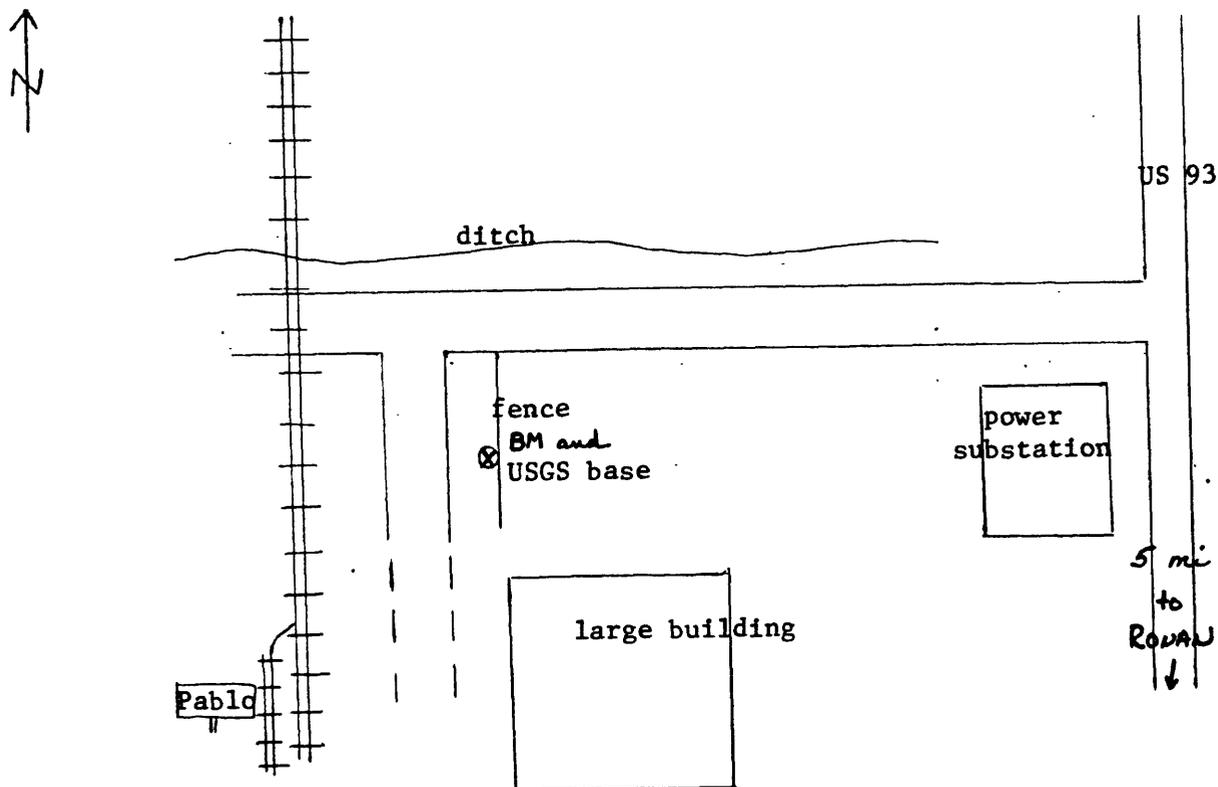
U.S. GEOLOGICAL SURVEY
GRAVITY BASE STATION

STATE/COUNTRY Montana		STATION DESIGNATION Pablo (Univ. of Montana)		OBSERVED GRAVITY 980527.45 mgals.
NEAREST TOWN Pablo		LONGITUDE 114° 07.24'		LATITUDE 47° 36.12'
ELEVATION 3085 ft (940.3 m)		TOPOGRAPHIC MAP(S) Ronan 1:24,000 Wallace 1:250,000		
DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
7/78	Kleinkopf/Brickey	G-235	Missoula DOD	980429.45 mgals.

DESCRIPTION/SKETCH

Base is found in the grass along a fence, marked "benchmark Q55!" Base is in north Pablo. Note that highway 93 no longer passes through Pablo. The turn-off to the base is 5 miles north of Ronan on US highway 93.

The base is on the east side of a small dirt road heading south just before the railroad tracks. The benchmark is hidden in the grass in summertime.

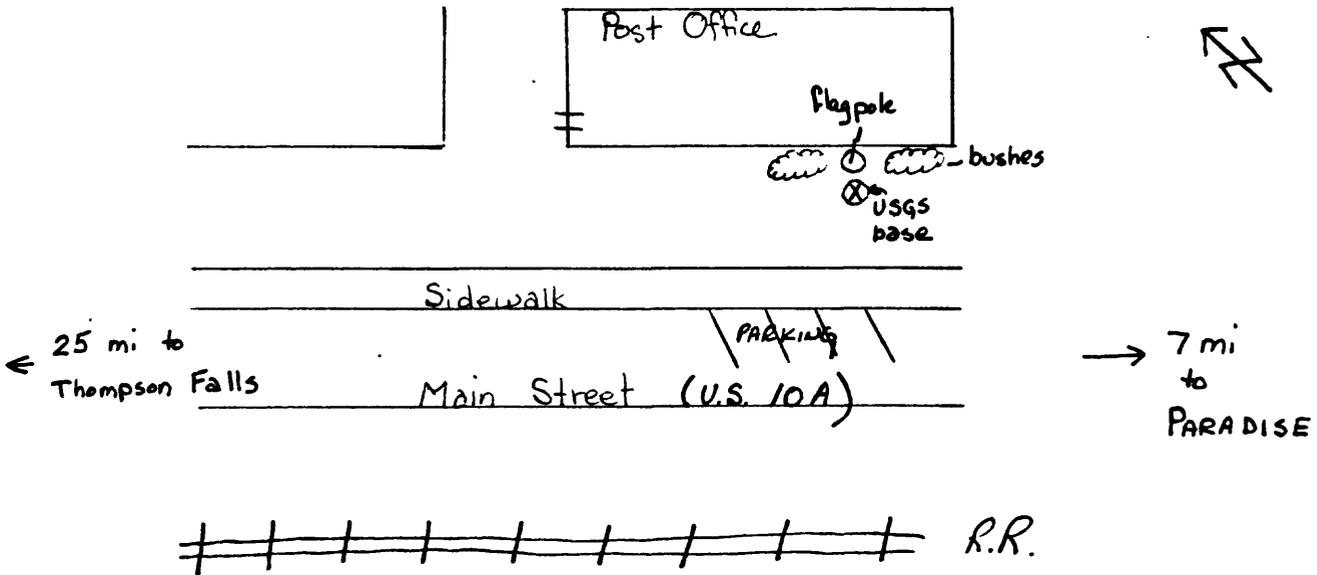


U.S. GEOLOGICAL SURVEY
GRAVITY BASE STATION

STATE/COUNTRY		STATION DESIGNATION		OBSERVED GRAVITY
Montana		Plains Post Office		980554.98 mgals
NEAREST TOWN		LONGITUDE		LATITUDE
Plains		114° 52.95'		47° 26.34'
ELEVATION		TOPOGRAPHIC MAP(S)		
2465 ft (751.3 m) est		Plains 1:62,500, Wallace 1:250,000		
DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
6/30/75	Kleinkopf/Wilson	G-159	Trout Creek Ranger Sta.	980600.08 mgals

DESCRIPTION/SKETCH

Base is at Post Office located on north side of Main Street and at base of flagpole.

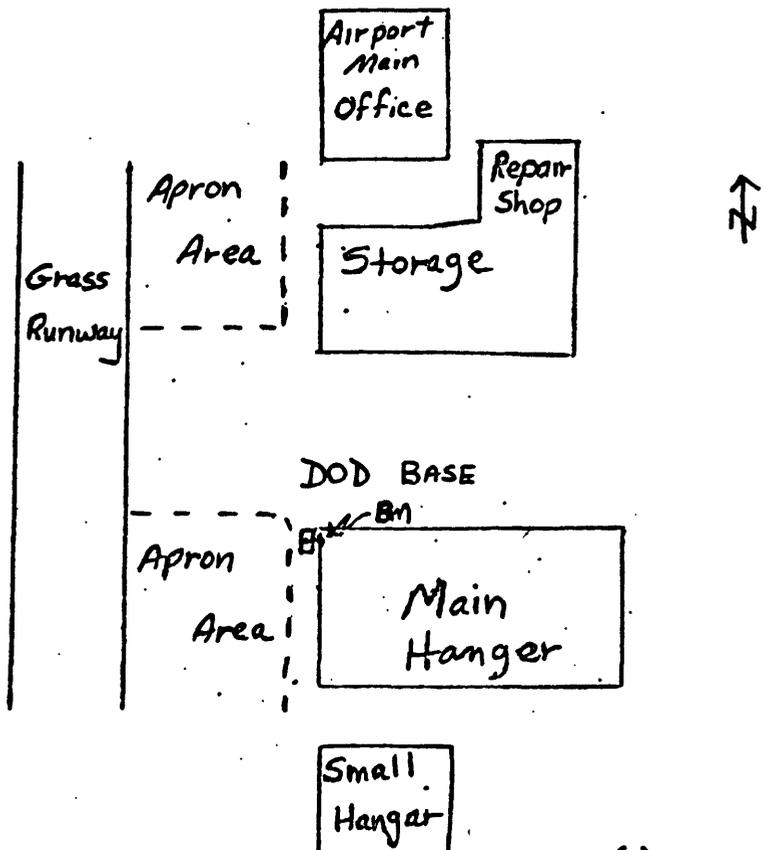


GRAVITY BASE STATION

LATITUDE <div style="text-align: center;">47° 41.00'N (1)</div>	STATION DESIGNATION <div style="text-align: center;">POLSON DOD</div>	
LONGITUDE <div style="text-align: center;">114° 09.75'W (1)</div>		
ELEVATION <div style="text-align: center;">893.93 METERS (1)</div>	COUNTRY/STATE <div style="text-align: center;">USA/Montana</div>	
REFERENCE CODE NUMBERS		ADOPTED GRAVITY VALUE
ACIC 1223-0 IGB 15674J	g = 980 550.55 mgals	
		ESTIMATED ACCURACY ± 0.1 mgals
		DATE MONTH/YEAR 12/ 73

DESCRIPTION AND/OR SKETCH

Station is located at the Polson Airport, main hangar, one foot west of the foundation wall nearest the south apron area, on the ground outside the foundation wall containing a USC & GS BM stamped "B 376 1950". The BM is inside the hangar, one foot south of the hangar door and not visible from the station. (1)



REFERENCE SOURCE

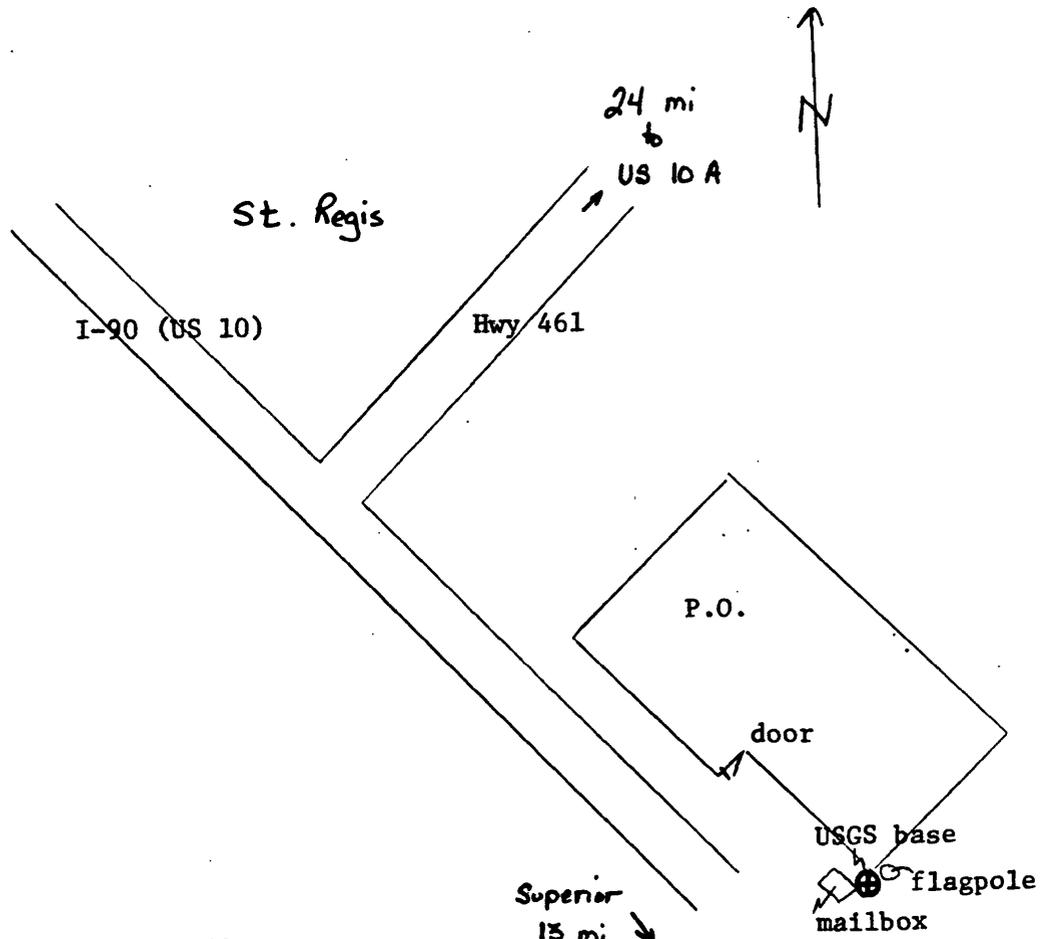
(1) 01355

U.S. GEOLOGICAL SURVEY
GRAVITY BASE STATION

STATE/COUNTRY Montana		STATION DESIGNATION St. Regis Post Office		OBSERVED GRAVITY 980515.49 mgals
NEAREST TOWN St. Regis		LONGITUDE 115° 05.96'		LATITUDE 47° 17.93'
ELEVATION .2640 ft (804.7 m) est.		TOPOGRAPHIC MAP(S) St. Regis 1:62,500 Wallace 1:250,000		
DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
7/27/79	Kleinkopf	G-235	Superior/Wallace	980497.42/980544.30 mgals.

DESCRIPTION/SKETCH

Base is read on sidewalk next to southeast corner of post office and next to the flag-pole. The post office is located on the north side of highway I-90 (US 10).

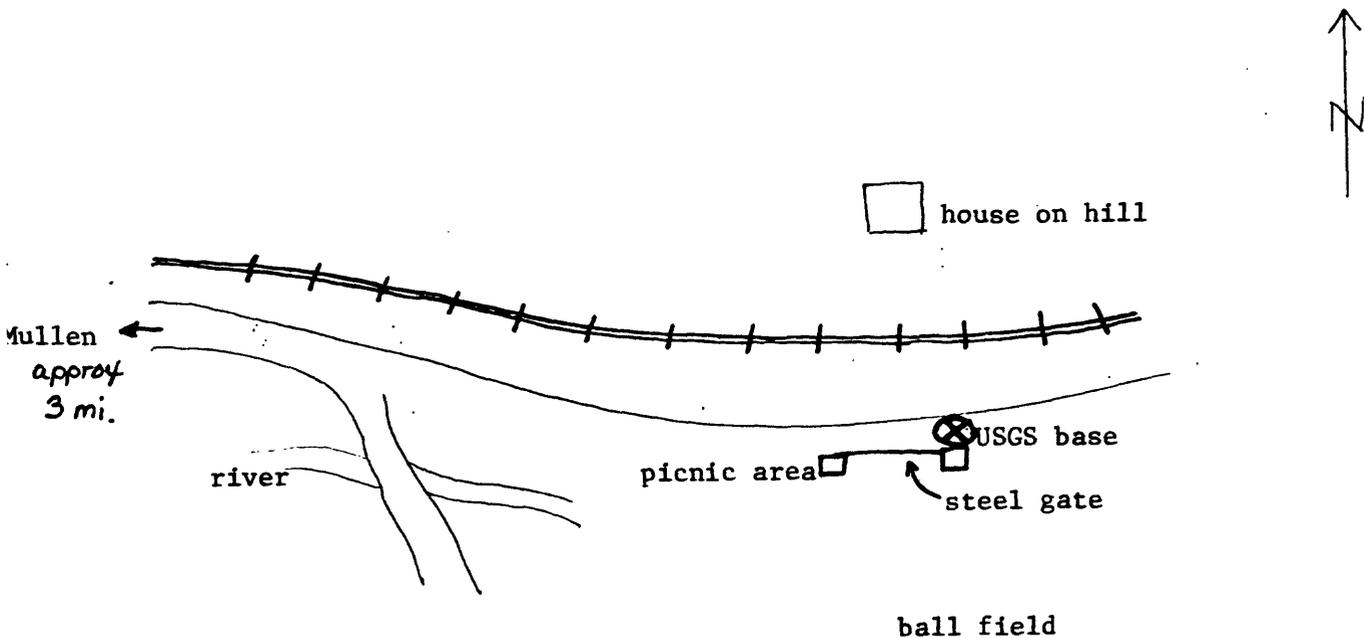


U.S. GEOLOGICAL SURVEY
GRAVITY BASE STATION

STATE/COUNTRY Idaho		STATION DESIGNATION Shoshone Park		OBSERVED GRAVITY 980487.40 mgals.
NEAREST TOWN Mullen, Idaho		LONGITUDE 115° 43.80'		LATITUDE 47° 27.92'
ELEVATION 3600 ft (1097.3 m) est.		TOPOGRAPHIC MAP(S) Saltese 1:62,500, Wallace 1:250,000		
DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
7/27/79	Kleinkopf	G-235	Wallace DOD	980544.30 mgals.

DESCRIPTION/SKETCH

Reading was taken at the gravel roadside of the post holding the steel Forest Service gate at the entrance to Shoshone Park, about 100 meters east of the toilet and picnic area. The park is about 5 km. east of the town of Mullen, on the north side of highway I-90.

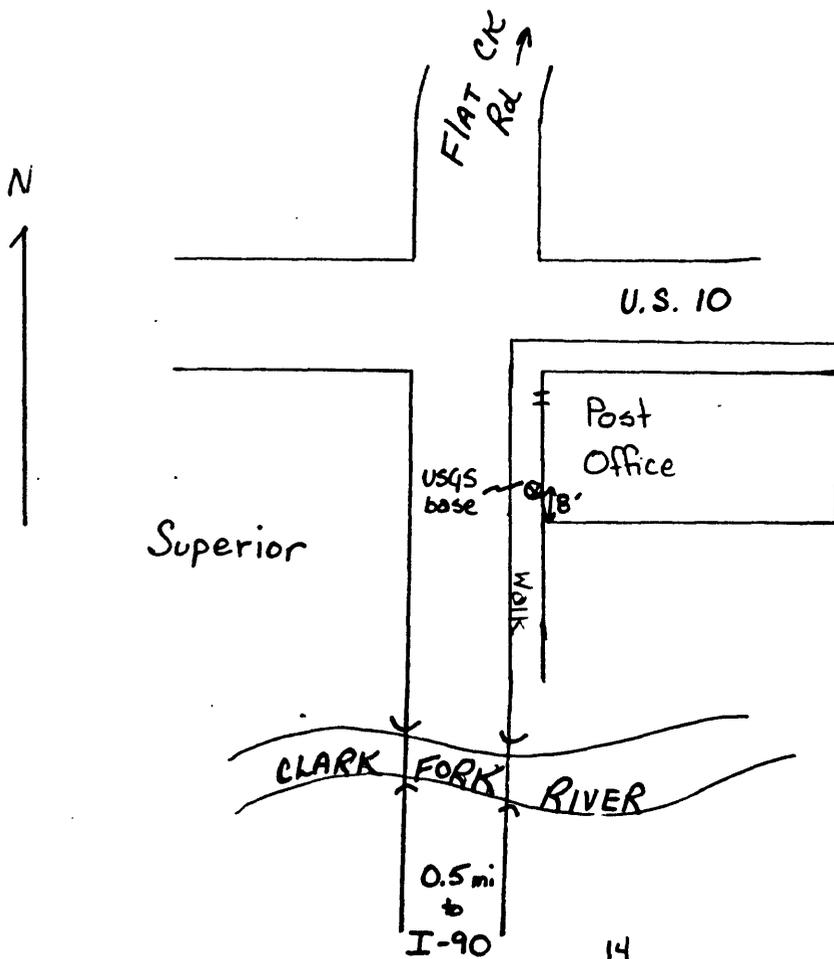


U.S. GEOLOGICAL SURVEY
GRAVITY BASE STATION

STATE/COUNTRY Montana		STATION DESIGNATION Superior Post Office		OBSERVED GRAVITY 980498.89 mgals
NEAREST TOWN Superior		LONGITUDE 114° 53.00'		LATITUDE 47° 11.55'
ELEVATION 2740 ft (835.3 m) est.		TOPOGRAPHIC MAP(S) Wallace 1/250,000, Superior 1:62,500		
DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
7/1/75	Kleinkopf/Wilson	G-159	Missoula Airport	980429.45 mgals

DESCRIPTION/SKETCH

Base is on sidewalk 8' north of southwest corner of the post office.

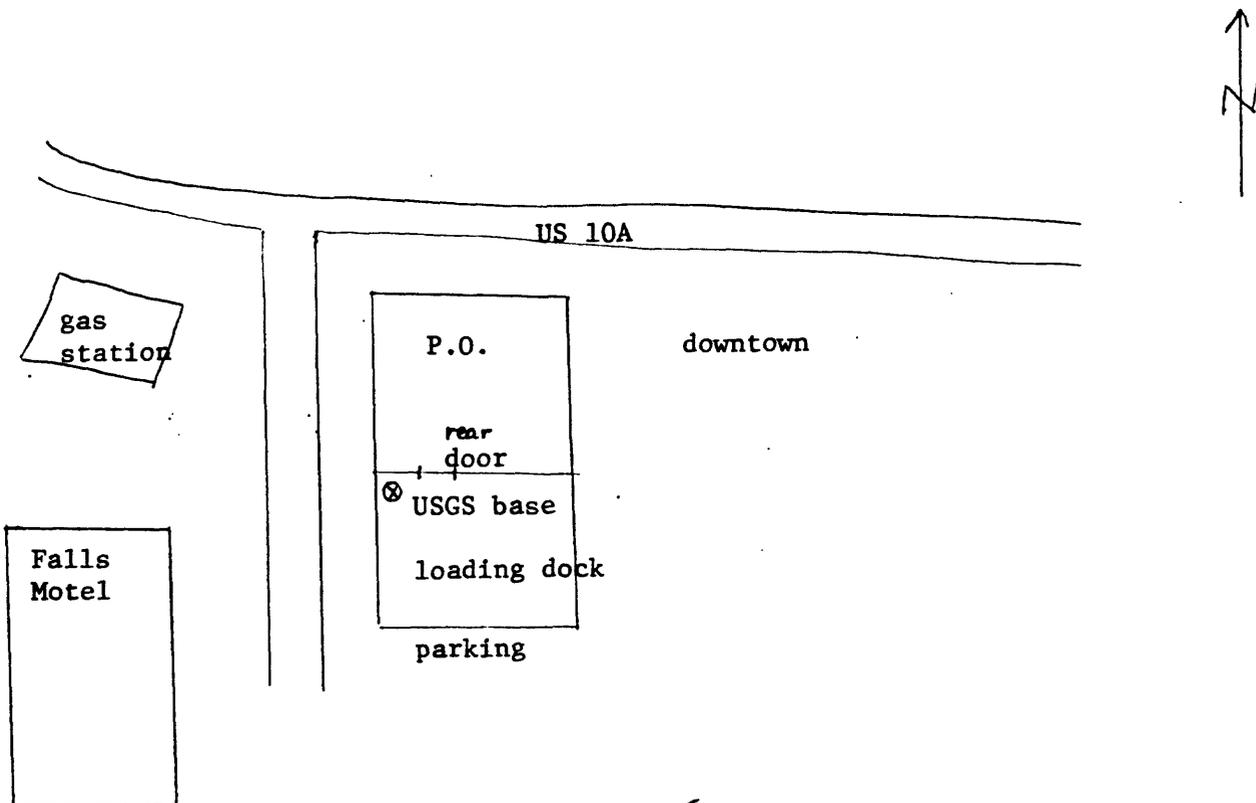


U.S. GEOLOGICAL SURVEY
GRAVITY BASE STATION

STATE/COUNTRY Montana		STATION DESIGNATION Thompson Falls Post Office		OBSERVED GRAVITY 980556.65 mgals.
NEAREST TOWN Thompson Falls		LONGITUDE 115° 21.16'	LATITUDE 47° 35.73'	
ELEVATION 2410 ft (734.7 m) est.		TOPOGRAPHIC MAP(S) Thompson Falls 1:62,500, Wallace 1:250,000		
DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
8/21/78	Brickey	G-235	Plains P.O.	980554.98 mgals.

DESCRIPTION/SKETCH

Base is read at southwest corner of the post office, on cement loading dock, 6 feet from the back door.

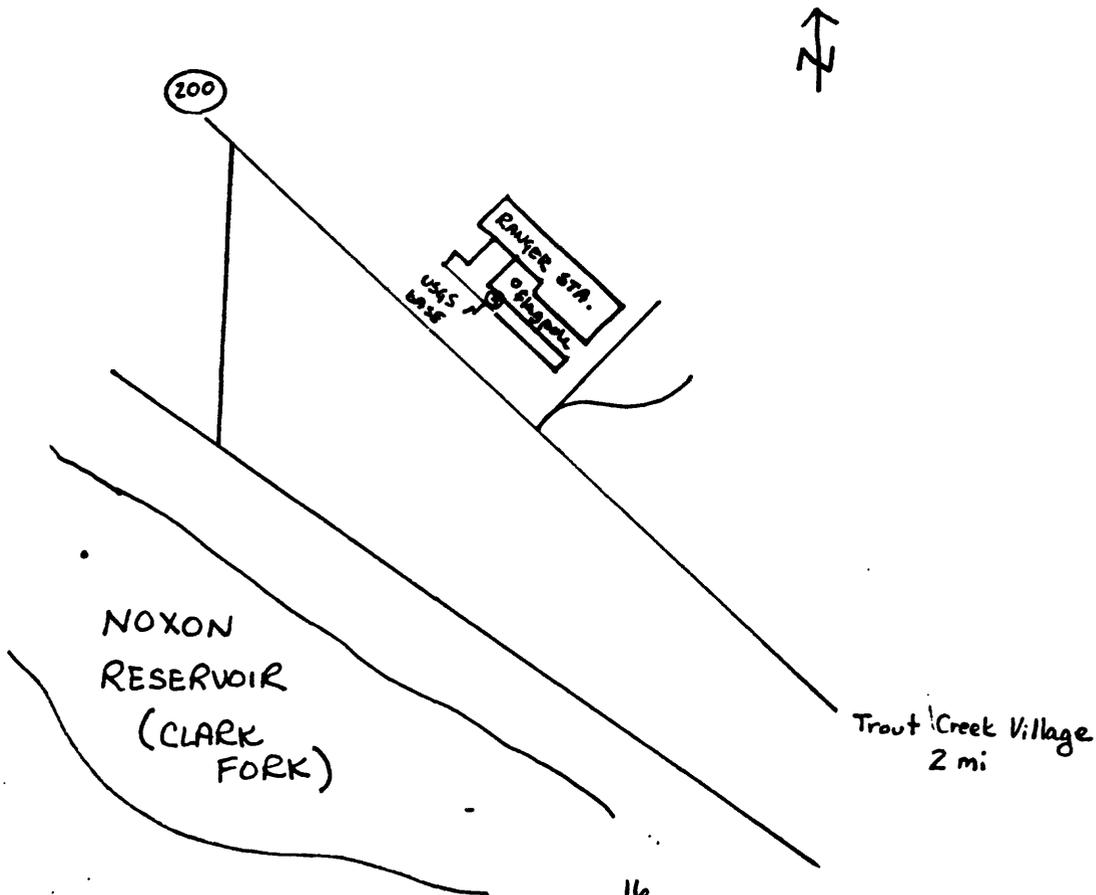


GRAVITY BASE STATION
U.S. GEOLOGICAL SURVEY

STATE/COUNTRY Montana		STATION DESIGNATION Trout Creek Ranger Sta.		OBSERVED GRAVITY 980600.08 mgals
NEAREST TOWN Trout Creek		LONGITUDE 115° 37.32'		LATITUDE 47° 52.00'
ELEVATION 2400' (731.5 m) est.		TOPOGRAPHIC MAP(S) Larchwood 1:24,000 Wallace 1:250,000		
DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
6/75	Kleinkopf	G-159	Springey Point	980673.82 mgals

DESCRIPTION/SKETCH

Ranger station is 2 miles west of Trout Creek village on State Hwy. 200. Base is on concrete sidewalk adjacent to the flagpole.

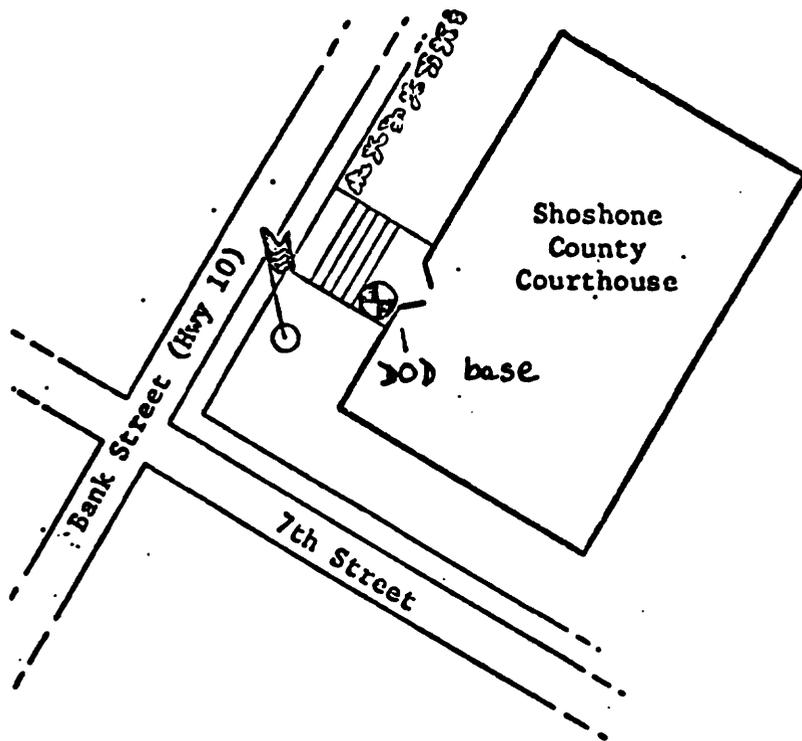


GRAVITY BASE STATION

LATITUDE 47° 28.28'N (1)		STATION DESIGNATION WALLACE	
LONGITUDE 115° 55.26'W (1)			
ELEVATION 835.76 METERS (1)		COUNTRY/STATE USA/Idaho	
REFERENCE CODE NUMBERS		ADOPTED GRAVITY VALUE	
ACIC 4006-1		g = 980 544.30 mgals mgals	
IGB 15675B			
		ESTIMATED ACCURACY	DATE
		± 0.1 mgals	MONTH/YEAR 10/73

DESCRIPTION AND/OR SKETCH

The station is in Wallace, at the Shoshone Courthouse on the top main steps, one foot west of the main entranceway, one foot below USC & GS BM, on the concrete step. (1)



(1)

REFERENCE SOURCE

(1) 03405

U.S. GEOLOGICAL SURVEY
GRAVITY BASE STATION

STATE/COUNTRY		STATION DESIGNATION		OBSERVED GRAVITY
Montana		Wilderness Lodge		980605.08 mgals
NEAREST TOWN		LONGITUDE		LATITUDE
Heron		115° 59.06'		47° 59.15'
ELEVATION		TOPOGRAPHIC MAP(S)		
2500 ft (762.1 m) est.		Wallace 1:250,000, Gem Peak 1:24,000		
DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
6/29/75	Kleinkopf	G-159	Springey Point	980673.82 mgals

DESCRIPTION/SKETCH

Wilderness lodge is located 7 miles south of Heron. Base is on rock and soil approach to the bridge across the river, and on the west side of the river.

