UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Principal Facts for Gravity Stations in the Selway-Bitterroot Wilderness, Montana-Idaho

by

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Open File Report 82-708

1982

STUDIES RELATED TO WILDERNESS

The Wilderness Act (Public Law 88-577, September 3, 1964) and related acts require the U.S. Geological Survey and the U.S. Bureau of Mines to survey certain areas on Federal lands to determine their mineral resource potential. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a geophysical survey of the Selway-Bitterroot Wilderness in the Bitterroot National Forest, Ravalli, Missoula, and Idaho Counties, Montana and Idaho. The Selway-Bitterroot Wilderness was classified as a proposed wilderness during the Second Roadless Area Review and Evaluation (RARE II) by the U.S. Forest Service, January 1979.

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Introduction

During the summer of 1980, 113 gravity stations were established in the Selway-Bitterroot Wilderness (Fig. 1) and surrounding areas. The survey was conducted in support of the U.S. Geological Survey's (USGS) program to evaluate the mineral resource potential of wilderness areas. This gravity survey complements studies of the Selway-Bitterroot Wilderness (Bankey and others, 1980), as well as the proposed Blue Joint, Magruder, and Meadow Creek Wilderness study areas (Brickey and others, 1980). The principal facts of the previous data collected in the Selway-Bitterroot Wilderness is repeated at the end of this report, and reflects recent corrections for stations S22, S46, S84, S85, S91, S148, and S159. Note that S10, S69, S152, and S154 have been deleted.

Data Collection

Gravity observations were made using LaCoste-Romberg meters G-550 (stations 1-20) and G-24 (stations 21-116). The stations were referenced to the Department of Defense (DOD) base 0442-0 (now destroyed) in Missoula, Montana, which is part of the International Gravity Standardization Net (IGSN), 1971, established by the Defense Mapping Aerospace Center (1974). Secondary USGS bases were established in Hamilton, Lolo, and Lost Horse, and tied to the DOD base in Missoula. Complete base descriptions are included at the end of this report. Gravity loops were started and closed at these bases to give daily drift corrections.

Elevation Control

Station elevations were obtained from surveyed benchmarks, spot elevations, section corners, and contour interpolations at known locations on USGS topographic maps at a scale of 1:24,000. Elevation accuracy is estimated to vary from 0.2 meters for benchmarks to 6 meters for contour interpolations

(estimated elevations of stations are labelled 'elh' rather than 'lh'). The maximum resultant error of the Bouguer anomaly is calculated to be less than 2 mgal (milligals) for an assumed density of 2.67 g/cm^3.

Data Reduction

Computer programs existing on the USGS Honeywell Multics computer system were used to obtain principal facts and terrain-corrected gravity values. Program "gravity-red" written by D. Dansereau and R. Wahl (USGS, unpublished program, 1979) was used to reduce gravity meter readings to observed gravity values by calculating and correcting for earth-tide and linear meter drift. The theoretical gravity value was calculated using the 1967 formula of the Geodetic Reference System (International Association of Geodesy, 1967).

Complete terrain corrections were computed using program "bouguer" by R. H. Godson (USGS, unpublished program 1978), correcting for the terrain from each station out to a radius of 166.7 km from the station using the method of Plouff (1977). The computed terrain corrections are based on mean elevation data digitized on a 15-second grid for corrections from 0 to 5 km; 1-minute terrain data for corrections from 5 to 21 km; and 3-minute terrain data for corrections from 21 to 166.7 km. An assumed density of 2.67 g/cm^3 was used to calculate terrain corrections. Godson's program also calculates earth curvature corrections and complete (terrain-corrected) Bouguer anomaly values. Two complete Bouguer anomaly values per station were obtained using average rock densities of 2.67 g/cm^3 as well as a second lesser density of 2.45 g/cm^3. The corrections and anomaly values are listed in Appendix D.

References

Bankey, Viki; Brickey, Mike; and Kleinkopf, M. Dean, 1980. Principal facts for gravity stations in the Blue Joint, Magruder, and Meadow Creek Wilderness areas, Montana-Idaho: U.S. Geological Survey Open-File Report 80-915, 16 p.

Brickey, Michael R.; Bankey, Viki; and Kleinkopf, M. Dean, 1980. Principal facts for gravity stations of part of the Selway-Bitterroot Wilderness, Idaho and Montana: U.S. Geological Survey Open-File Report 80-1241, 14 p.

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, 1625 p.

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

Plouff, D., 1977, Preliminary documentation for a FORTRAN program to compute gravity terrain corrections based on topography digitized on a geographic grid: U.S. Geological Survey Open-File Report 77-535, 31 p.

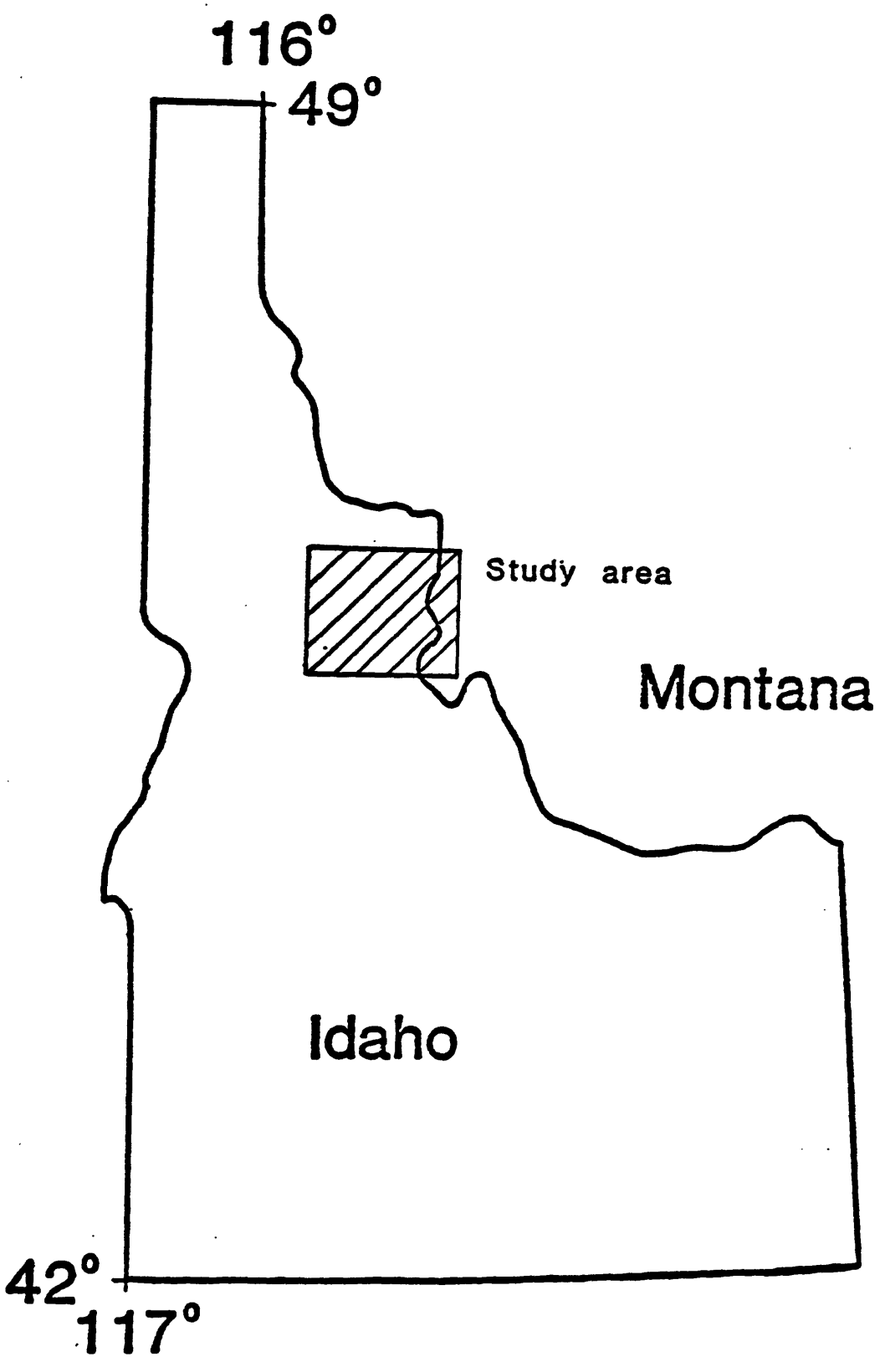


Figure 1.--Location map of the gravity survey covering the Selway-Bitterroot Wilderness.

Appendix A

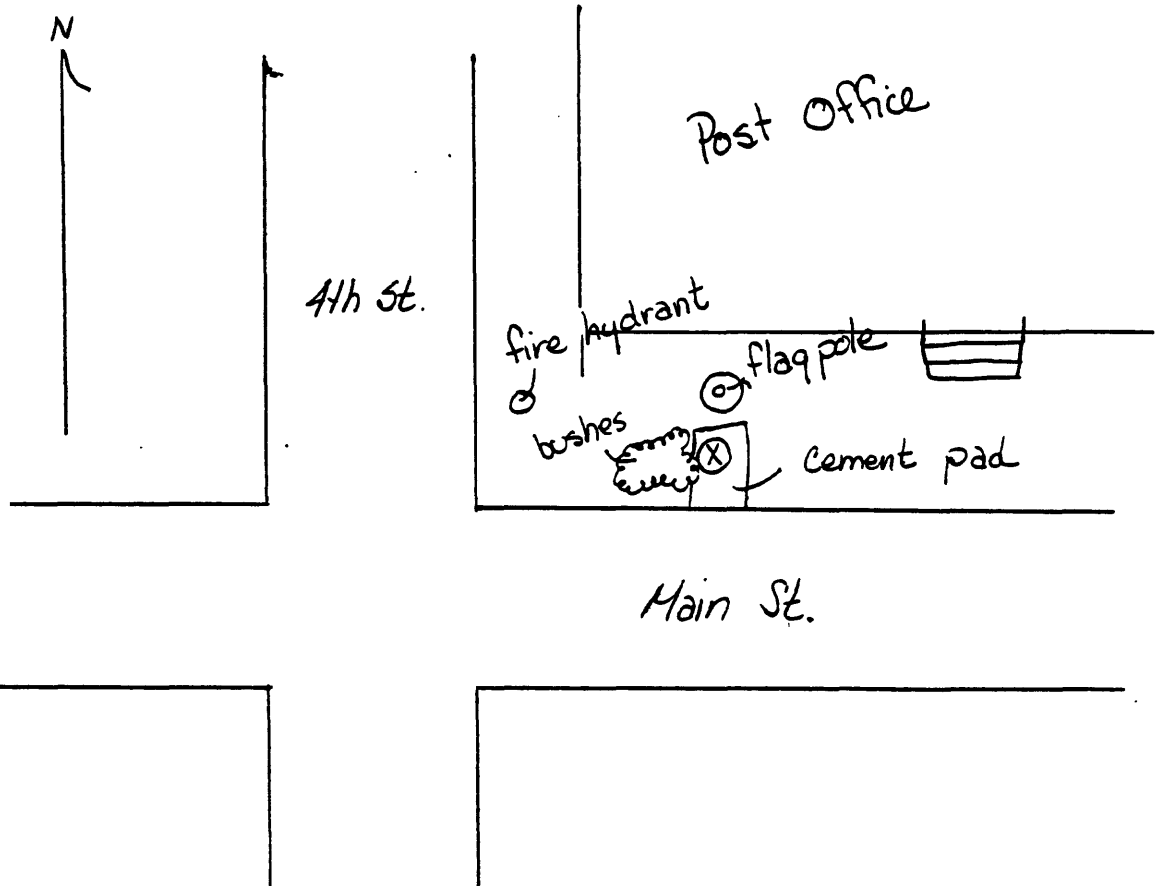
U.S. GEOLOGICAL SURVEY
GRAVITY BASE STATION

STATE/COUNTRY	STATION DESIGNATION	OBSERVED GRAVITY
Montana	Hamilton Post Office	980318.74 mgals
NEAREST TOWN	LONGITUDE	LATITUDE
Hamilton	114° 09.54'	46° 14.83'
ELEVATION	TOPOGRAPHIC MAP(S)	
1088.3 m (3570')	Hamilton 1/250,000	

DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
8/29/78	Kleinkopf	G-235	Missoula Airport	980429.45 mgals

DESCRIPTION/SKETCH

Location at south base of flag pole, at east edge of bushes on a concrete pad near the southwest corner of Post Office. Post Office is at the northeast corner of 4th and Main Streets.



Appendix B

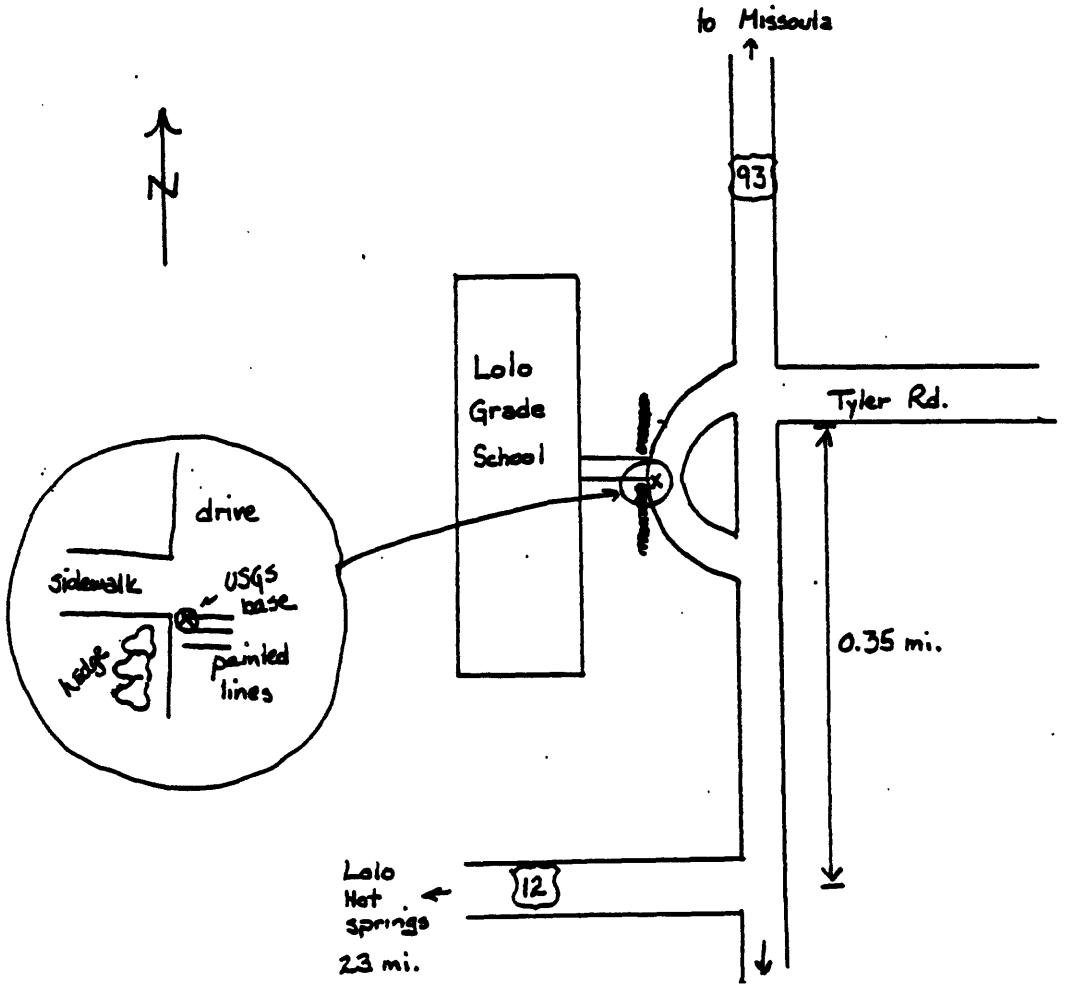
U.S. GEOLOGICAL SURVEY
GRAVITY BASE STATION

STATE/COUNTRY	STATION DESIGNATION	OBSERVED GRAVITY
MONTANA	Lolo Grade School	980424.30 mgals
NEAREST TOWN	**LONGITUDE**	**LATITUDE**
Lolo	114° 04.86'	46° 45.74'
ELEVATION	**TOPOGRAPHIC MAP(S)**	
3192'	Southwest Missoula 1:24,000 Hamilton 1:250,000	

DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
7-21-80	Bankey	G-24	Hamilton USGS Base	980318.74 mgals.

DESCRIPTION/SKETCH

The base is located at Lolo Grade School, in the town of Lolo, Mont., which is 0.35 miles north of the intersection of US 93 and US 12 west. The base is found at the southwest corner of the main walk and the curving driveway, on the sidewalk 3 feet east of the hedge.



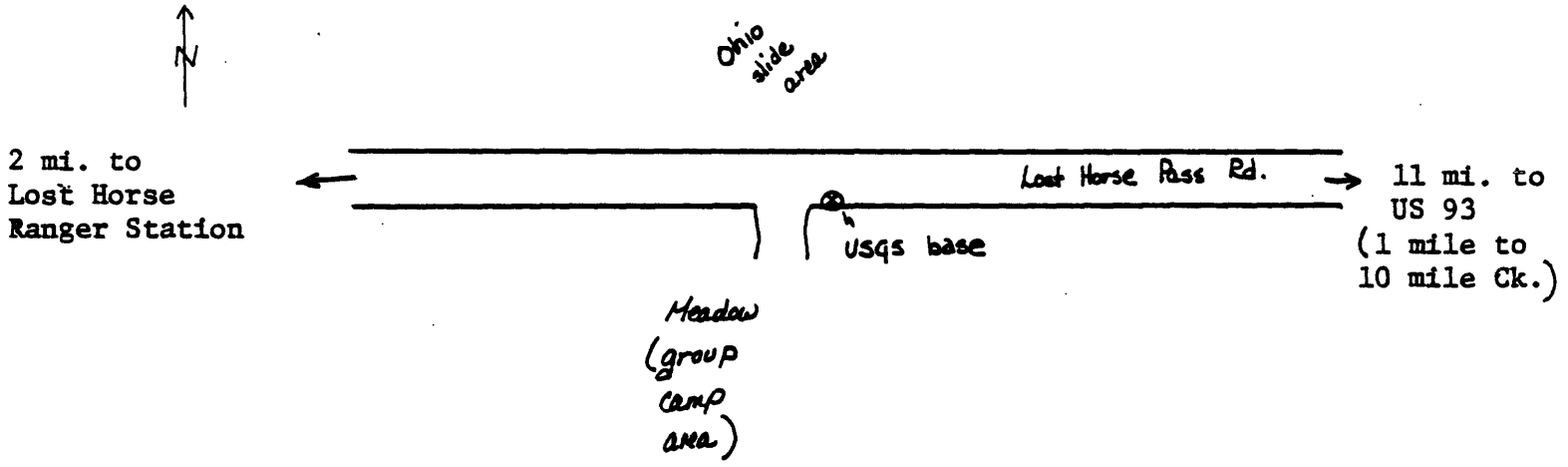
U.S. GEOLOGICAL SURVEY
GRAVITY BASE STATION

STATE/COUNTRY	STATION DESIGNATION	OBSERVED GRAVITY
MONTANA	Lost Horse Base	980215.16 mgals.
NEAREST TOWN	**LONGITUDE**	**LATITUDE**
Hamilton, Mt.	114° 26.16'	46° 08.46'
ELEVATION	**TOPOGRAPHIC MAP(S)**	
5460' est.	Tenmile Lake 1:24,000 Hamilton I:250,000	

DATE	OBSERVER	METER	REFERENCE STATION	REFERENCE VALUE
7-5-80	Brickey	G-550	Hamilton USGS Base	980318.74 mgals

DESCRIPTION/SKETCH

From Hamilton, Mt., follow US 93 south, one mile past Charlos. Take Lost Horse Pass road west approximately 11 miles to group camping area below Ohio slide. USGS base was set at s.e. side of the turn-off into the open meadow, on a large rock buried in the road side.



Appendix D: Principal Facts of Gravity Data

Explanation of headings

Identification

proj	Project name.
sta id	Gravity identification.

Location

latitude	North latitude in degrees minutes and hundredths of minutes.
longitude	West longitude in degrees, minutes, and hundredths of minutes.
ele	Station elevation in feet.
st	State where station is located.

Gravity

observed	Observed gravity in milligals.
theoretical	Theoretical gravity.

Corrections

terrain	Terrain correction out to 166.7km in milligals.
Bouguer	Elevation correction in milligals.
curv	Curvature correction in milligals.
special	Not used.

Anomalies

free-air	Free-air anomaly in milligals.
complete-Bouguer	Complete Bouguer anomaly in milligals for designated densities.
spec fields	Not used.

BOUGUER GRAVITY DATA

Selway-Bitterroot Wilderness Gravity
V. Bankey 1980
Meter ID: g-550 Date: 03/04/81

STATION IDENTIFICATION prof	sta-id	LOCATIONS LATITUDE deg	min	LONGTITUDE deg	min	ELE (in ft)	ST	GRAVITY OBSERVED	THEORETICAL	CORRECTIONS TERRAIN	BOUGUER	CURV	SPECIAL	ANOMALIES FREE AIR	COMPLETE-BOUGUER d1=2.67	d2=2.45	SPEC FIELDS
N'rock:	losthors	46	8.46	-114	26.16	5460.0	mt	980215.16	980722.30	11.16	-186.23	-1.46	0.00	6.14	-170.38	-155.84	
N'rock:	elh1	46	5.95	-114	27.20	6685.0	mt	980143.54	980718.52	4.35	-228.01	-1.52	0.00	53.40	-171.77	-153.21	
N'rock:	lh2	46	4.80	-114	25.55	7125.0	mt	980112.42	980716.78	6.52	-243.01	-1.51	0.00	65.36	-172.65	-153.04	
N'rock:	lh3	46	3.05	-114	26.95	5685.0	mt	980191.46	980714.15	11.54	-193.90	-1.48	0.00	11.74	-172.10	-156.95	
N'rock:	lh4	46	0.36	-114	29.89	6390.0	mt	980144.69	980710.09	7.92	-217.94	-1.51	0.00	35.26	-176.27	-158.84	
N'rock:	losthors	46	8.46	-114	26.16	5460.0	mt	980215.16	980722.30	11.16	-186.23	-1.46	0.00	6.14	-170.38	-155.84	
N'rock:	losthors	46	8.46	-114	26.16	5460.0	mt	980215.16	980722.30	11.16	-186.23	-1.46	0.00	6.14	-170.38	-155.84	
N'rock:	losthors	46	8.46	-114	26.16	5460.0	mt	980215.16	980722.30	11.16	-186.23	-1.46	0.00	6.14	-170.38	-155.84	
N'rock:	lh5	46	2.18	-114	29.45	7077.0	mt	980112.23	980712.84	4.90	-241.38	-1.51	0.00	64.61	-173.38	-153.77	
N'rock:	lh6	46	0.78	-114	27.60	6385.0	mt	980150.33	980710.72	5.45	-217.77	-1.51	0.00	39.80	-174.03	-156.41	
N'rock:	elh7	46	0.74	-114	22.57	7435.0	mt	980083.38	980710.66	6.43	-253.59	-1.50	0.00	71.57	-177.09	-156.61	
N'rock:	lh8	46	3.07	-114	16.89	4245.0	mt	980268.02	980714.17	15.71	-144.79	-1.30	0.00	-47.06	-177.43	-166.69	
N'rock:	lh9	45	59.24	-114	21.69	6996.0	mt	980101.21	980708.40	7.88	-238.61	-1.52	0.00	50.41	-181.84	-162.70	
N'rock:	lh11	46	5.09	-114	28.70	6900.0	mt	980127.88	980717.22	5.68	-235.34	-1.52	0.00	59.24	-171.93	-152.88	
N'rock:	lh12	46	5.05	-114	29.99	6645.0	mt	980142.49	980717.16	4.67	-226.64	-1.52	0.00	49.96	-173.53	-155.12	
N'rock:	lh13	46	5.26	-114	32.96	6660.0	mt	980137.57	980717.48	8.94	-227.15	-1.52	0.00	46.13	-173.60	-155.50	
N'rock:	losthors	46	8.46	-114	26.16	5460.0	mt	980215.16	980722.30	11.16	-186.23	-1.46	0.00	6.14	-170.38	-155.84	
N'rock:	losthors	46	8.46	-114	26.16	5460.0	mt	980215.16	980722.30	11.16	-186.23	-1.46	0.00	6.14	-170.38	-155.84	
N'rock:	lh14	45	57.53	-114	36.34	8371.0	mt	980002.31	980705.82	23.07	-285.51	-1.44	0.00	83.26	-180.61	-158.87	
N'rock:	lh15	45	54.95	-114	37.56	7747.0	mt	980033.64	980701.93	26.87	-264.23	-1.49	0.00	59.87	-178.98	-159.30	
N'rock:	lh16	45	58.53	-114	34.79	8340.0	mt	980004.54	980707.33	23.43	-284.45	-1.44	0.00	81.07	-181.39	-159.77	
N'rock:	lh17	45	59.22	-114	33.03	6712.0	mt	980123.70	980708.37	7.24	-228.93	-1.52	0.00	46.25	-176.95	-158.56	
N'rock:	lh18	45	56.36	-114	34.68	7085.0	mt	980091.45	980704.05	11.13	-241.65	-1.51	0.00	53.36	-178.67	-159.55	
N'rock:	lh19	45	56.08	-114	29.50	6395.0	mt	980137.67	980703.63	8.07	-218.12	-1.51	0.00	35.18	-176.38	-158.95	
N'rock:	lh20	45	55.36	-114	26.43	6710.0	mt	980117.71	980702.55	5.02	-228.86	-1.52	0.00	45.90	-179.46	-160.89	
N'rock:	losthors	46	8.46	-114	26.16	5460.0	mt	980215.16	980722.30	11.16	-186.23	-1.46	0.00	6.14	-170.38	-155.84	
N'rock:	hamilton	46	14.83	-114	9.54	3570.0	mt	980318.74	980731.91	2.49	-121.76	-1.17	0.00	-77.51	-197.96	-188.03	
N'rock:	lh21	46	16.47	-114	9.45	3519.0	mt	980326.86	980734.38	2.49	-120.02	-1.16	0.00	-76.66	-195.36	-185.58	
N'rock:	lh22	46	18.79	-114	9.30	3488.0	mt	980329.84	980737.88	2.24	-118.97	-1.16	0.00	-80.09	-197.97	-188.26	
N'rock:	lh23	46	21.00	-114	8.81	3439.0	mt	980334.70	980741.20	2.09	-117.29	-1.15	0.00	-83.16	-199.52	-189.93	
N'rock:	lh24	46	22.24	-114	8.55	3432.0	mt	980340.87	980743.07	1.96	-117.06	-1.14	0.00	-79.53	-195.77	-186.19	
N'rock:	lh25	46	24.44	-114	8.62	3420.0	mt	980352.46	980746.39	2.19	-116.65	-1.14	0.00	-72.38	-187.98	-178.45	
N'rock:	lh26	46	26.62	-114	8.04	3359.0	mt	980362.14	980749.67	2.68	-114.57	-1.13	0.00	-71.72	-184.73	-175.42	
N'rock:	lh27	46	28.36	-114	7.66	3330.0	mt	980367.90	980752.30	3.30	-113.58	-1.12	0.00	-71.31	-182.71	-173.53	
N'rock:	lh28	46	30.93	-114	7.00	3283.0	mt	980372.49	980756.16	3.94	-111.97	-1.11	0.00	-75.00	-184.15	-175.16	
N'rock:	lh29	46	33.47	-114	6.08	3262.0	mt	980380.04	980759.99	3.90	-111.26	-1.11	0.00	-73.26	-181.72	-172.79	
N'rock:	lh30	46	35.31	-114	5.38	3248.0	mt	980386.14	980762.77	4.16	-110.78	-1.10	0.00	-71.25	-178.97	-170.09	
N'rock:	lh31	46	37.04	-114	5.29	3267.0	mt	980388.43	980765.38	4.05	-111.43	-1.11	0.00	-69.78	-178.26	-169.33	
N'rock:	lolo	46	45.74	-114	4.86	3192.0	mt	980424.30	980778.48	2.55	-108.87	-1.09	0.00	-54.07	-161.48	-152.63	
N'rock:	lh32	46	43.67	-114	4.66	3164.0	mt	980415.04	980775.36	3.04	-107.92	-1.08	0.00	-62.84	-168.80	-160.07	
N'rock:	lh33	46	40.60	-114	4.62	3215.0	mt	980403.75	980770.73	3.64	-109.65	-1.10	0.00	-64.71	-171.82	-162.99	

Selway-Bitterroot Wilderness Gravity
V. Bankey 1980
Meter ID: a-550 Date: 03/04/81

STATION IDENTIFICATION proj	sta-id	LOCATIONS LATITUDE deg	min	LONGITUDE deg	min	ELE (in ft)	ST	GRAVITY OBSERVED	THEORETICAL	CORRECTIONS TERRAIN	BOUGUER	CURV	SPECIAL	ANOMALIES FREE AIR	COMPLETE-BOUGUER d1=2.67	d2=2.45	SPEC FIELDS
N'rock:	lh34	46	14.85	-114	11.47	3704.0	mt	980316.96	980731.94	3.82	-126.33	-1.20	0.00	-66.73	-190.44	-180.25	
N'rock:	lh35	46	13.13	-114	11.14	3676.0	mt	980319.13	980729.34	3.81	-125.38	-1.20	0.00	-64.60	-187.36	-177.25	
N'rock:	lh36	46	10.08	-114	10.74	3688.0	mt	980315.47	980724.74	3.44	-125.79	-1.20	0.00	-62.53	-186.08	-175.90	
N'rock:	losthors	46	8.46	-114	26.16	5460.0	mt	980215.16	980722.30	11.16	-186.23	-1.46	0.00	6.14	-170.38	-155.84	
N'rock:	losthors	46	8.46	-114	26.16	5460.0	mt	980215.16	980722.30	11.16	-186.23	-1.46	0.00	6.14	-170.38	-155.84	
N'rock:	lh37	46	25.00	-114	25.35	5921.0	mt	980208.45	980747.23	8.53	-201.95	-1.49	0.00	17.81	-177.10	-161.04	
N'rock:	lh38	46	26.73	-114	25.17	6971.0	mt	980151.37	980749.84	5.33	-237.76	-1.52	0.00	56.77	-177.17	-157.90	
N'rock:	lh39	46	25.30	-114	22.62	6770.0	mt	980158.66	980747.69	11.26	-230.91	-1.52	0.00	47.34	-173.82	-155.60	
N'rock:	lh40	46	26.14	-114	21.12	6572.0	mt	980172.51	980748.95	12.86	-224.15	-1.52	0.00	41.32	-171.49	-153.95	
N'rock:	lh41	46	29.72	-114	21.16	5865.0	mt	980221.09	980754.34	10.31	-200.04	-1.49	0.00	18.08	-173.14	-157.38	
N'rock:	lh42	46	32.23	-114	19.30	6255.0	mt	980207.01	980758.13	8.95	-213.34	-1.51	0.00	36.85	-169.04	-152.08	
N'rock:	lh44	46	38.18	-114	15.93	7835.0	mt	980124.69	980767.09	12.29	-267.23	-1.48	0.00	94.01	-162.41	-141.28	
N'rock:	elh45	46	24.12	-114	29.28	4875.0	mt	980268.58	980745.91	10.84	-166.27	-1.40	0.00	-19.03	-175.86	-162.93	
N'rock:	losthors	46	8.46	-114	26.16	5460.0	mt	980215.16	980722.30	11.16	-186.23	-1.46	0.00	6.14	-170.38	-155.84	
N'rock:	losthors	46	8.46	-114	26.16	5460.0	mt	980215.16	980722.30	11.16	-186.23	-1.46	0.00	6.14	-170.38	-155.84	
N'rock:	lh46	46	21.32	-114	43.30	6415.0	mt	980174.43	980741.69	8.44	-218.80	-1.51	0.00	35.75	-176.12	-158.66	
N'rock:	lh48	46	26.30	-114	42.93	6197.0	mt	980195.76	980749.19	9.61	-211.36	-1.51	0.00	29.09	-174.16	-157.42	
N'rock:	lh49	46	26.89	-114	47.36	6147.0	mt	980197.20	980750.08	6.08	-209.66	-1.50	0.00	24.95	-180.13	-163.23	
N'rock:	lh50	46	25.88	-114	55.43	7184.0	mt	980119.14	980748.55	23.45	-245.03	-1.51	0.00	45.84	-177.25	-158.87	
N'rock:	lh51	46	21.21	-114	51.54	6176.0	mt	980188.46	980741.52	5.49	-210.65	-1.50	0.00	27.49	-179.17	-162.14	
N'rock:	lh52	46	19.62	-114	45.73	6682.0	mt	980155.57	980739.13	4.51	-227.90	-1.52	0.00	44.54	-180.37	-161.84	
N'rock:	lh53	46	15.41	-114	37.99	6421.0	mt	980164.23	980732.78	8.54	-219.00	-1.51	0.00	35.03	-176.94	-159.48	
N'rock:	lh54	46	12.87	-114	30.96	7032.0	mt	980122.78	980728.95	7.42	-239.84	-1.52	0.00	54.81	-179.12	-159.85	
N'rock:	losthors	46	8.46	-114	26.16	5460.0	mt	980215.16	980722.30	11.16	-186.23	-1.46	0.00	6.14	-170.38	-155.84	
N'rock:	losthors	46	8.46	-114	26.16	5460.0	mt	980215.16	980722.30	11.16	-186.23	-1.46	0.00	6.14	-170.38	-155.84	
N'rock:	lh55	46	14.66	-114	48.20	7048.0	mt	980113.20	980731.65	16.92	-240.39	-1.51	0.00	44.04	-180.94	-162.40	
N'rock:	lh56	46	15.36	-114	52.35	7386.0	mt	980093.60	980732.70	20.42	-251.91	-1.51	0.00	55.14	-177.86	-158.67	
N'rock:	lh57	46	9.94	-114	56.32	5375.0	mt	980209.69	980724.53	18.57	-183.33	-1.45	0.00	-9.56	-175.76	-162.07	
N'rock:	lh58	46	12.41	-115	2.35	7096.0	mt	980115.08	980728.26	15.62	-242.02	-1.51	0.00	53.82	-174.10	-155.32	
N'rock:	lh59	46	13.73	-115	8.37	7104.0	mt	980123.73	980730.24	15.70	-242.30	-1.51	0.00	61.23	-166.88	-148.08	
N'rock:	lh61	46	2.35	-115	3.02	7054.0	mt	980101.52	980713.09	18.76	-240.59	-1.51	0.00	51.49	-171.86	-153.46	
N'rock:	lh62	46	3.16	-114	52.77	5862.0	mt	980165.09	980714.31	19.32	-199.94	-1.49	0.00	1.84	-180.27	-165.26	
N'rock:	lh63	46	5.66	-114	49.23	5852.0	mt	980175.35	980718.08	14.77	-199.59	-1.49	0.00	7.38	-178.93	-163.58	
N'rock:	losthors	46	8.46	-114	26.16	5460.0	mt	980215.16	980722.30	11.16	-186.23	-1.46	0.00	6.14	-170.38	-155.84	
N'rock:	losthors	46	8.46	-114	26.16	5460.0	mt	980215.16	980722.30	11.16	-186.23	-1.46	0.00	6.14	-170.38	-155.84	
N'rock:	lh60	46	9.68	-114	28.39	8435.0	mt	980019.03	980724.14	21.93	-287.69	-1.43	0.00	87.67	-179.52	-157.51	
N'rock:	lh65	46	10.68	-114	37.25	6765.0	mt	980133.51	980725.65	5.43	-230.73	-1.52	0.00	43.76	-183.06	-164.38	
N'rock:	lh66	46	3.95	-114	41.19	6878.0	mt	980104.01	980715.50	22.25	-234.59	-1.52	0.00	35.02	-178.84	-161.21	
N'rock:	losthors	46	8.46	-114	26.16	5460.0	mt	980215.16	980722.30	11.16	-186.23	-1.46	0.00	6.14	-170.38	-155.84	

Selway-Bitterroot Wilderness Gravity
V. Bankey 1980
Meter ID: G-550 Date: 03/04/81

STATION IDENTIFICATION proj	sta-id	LOCATIONS LATITUDE deg	min	LONGITUDE deg	min	ELE (in ft)	ST	GRAVITY OBSERVED	THEORETICAL	CORRECTIONS TERRAIN	BOUGUER	CURV	SPECIAL	ANOMALIES FREE AIR	COMPLETE-BOUGUER d1=2.67	d2=2.45	SPEC FIELDS
N'rock:	1h70	46	29.65	-114	40.02	4115.0	mt	980325.84	980754.24	7.67	-140.35	-1.28	0.00	-41.52	-175.49	-164.45	
N'rock:	1h71	46	28.93	-114	38.13	5537.0	mt	980243.21	980753.16	6.57	-188.85	-1.46	0.00	10.57	-173.18	-158.04	
N'rock:	1h72	46	27.94	-114	37.89	6168.0	mt	980204.84	980751.66	4.22	-210.37	-1.50	0.00	32.98	-174.67	-157.56	
N'rock:	1h73	46	25.05	-114	37.00	5820.0	mt	980222.95	980747.30	1.76	-198.50	-1.49	0.00	22.75	-175.48	-159.15	
N'rock:	1h74	46	22.68	-114	37.64	5753.0	mt	980219.84	980743.73	3.59	-196.22	-1.48	0.00	16.91	-177.19	-161.20	
N'rock:	1h75	46	22.66	-114	40.79	6121.0	mt	980196.27	980743.70	2.31	-208.77	-1.50	0.00	27.95	-180.01	-162.87	
N'rock:	1h76	46	20.68	-114	38.57	5627.0	mt	980222.30	980740.72	4.72	-191.92	-1.47	0.00	10.54	-178.13	-162.58	
N'rock:	lolo	46	45.74	-114	4.86	3192.0	mt	980424.30	980778.48	2.55	-108.87	-1.09	0.00	-54.07	-161.48	-152.63	
N'rock:	lolo	46	45.74	-114	4.86	3192.0	mt	980424.30	980778.48	2.55	-108.87	-1.09	0.00	-54.07	-161.48	-152.63	
N'rock:	1h77	46	32.95	-114	38.11	5753.0	mt	980236.62	980759.21	6.45	-196.22	-1.48	0.00	18.21	-173.04	-157.28	
N'rock:	1h78	46	32.24	-114	34.70	6231.0	mt	980210.38	980758.14	3.76	-212.52	-1.51	0.00	37.96	-172.31	-154.98	
N'rock:	1h79	46	33.04	-114	32.22	6312.0	mt	980208.03	980759.34	4.01	-215.28	-1.51	0.00	42.01	-170.77	-153.24	
N'rock:	1h80	46	33.22	-114	29.61	6877.0	mt	980173.08	980759.62	5.54	-234.55	-1.52	0.00	59.87	-170.66	-151.66	
N'rock:	1h81	46	33.70	-114	27.60	6693.0	mt	980186.68	980760.34	3.96	-228.28	-1.52	0.00	55.47	-170.37	-151.76	
N'rock:	1h82	46	33.79	-114	26.87	7370.0	mt	980141.01	980760.48	10.31	-251.37	-1.51	0.00	73.26	-169.30	-149.32	
N'rock:	lolo	46	45.74	-114	4.86	3192.0	mt	980424.30	980778.48	2.55	-108.87	-1.09	0.00	-54.07	-161.48	-152.63	
N'rock:	lolo	46	45.74	-114	4.86	3192.0	mt	980424.30	980778.48	2.55	-108.87	-1.09	0.00	-54.07	-161.48	-152.63	
N'rock:	1h83	46	43.64	-114	20.10	4559.0	mt	980338.43	980775.31	5.98	-155.49	-1.35	0.00	-8.29	-159.15	-146.72	
N'rock:	1h84	46	41.98	-114	20.86	5935.0	mt	980251.94	980772.81	3.50	-202.43	-1.49	0.00	37.03	-163.39	-146.88	
N'rock:	1h85	46	39.46	-114	22.79	6060.0	mt	980240.99	980769.02	2.92	-206.69	-1.50	0.00	41.62	-163.64	-146.73	
N'rock:	1h86	46	37.72	-114	22.80	6402.0	mt	980214.03	980766.40	3.56	-218.35	-1.51	0.00	49.42	-166.89	-149.06	
N'rock:	1h87	46	37.00	-114	22.71	5608.0	mt	980257.58	980765.31	8.87	-191.27	-1.47	0.00	19.44	-164.43	-149.28	
N'rock:	1h88	46	35.47	-114	22.78	5374.0	mt	980269.30	980763.01	10.58	-183.29	-1.45	0.00	11.48	-162.68	-148.33	
N'rock:	1h89	46	36.33	-114	25.00	5206.0	mt	980280.41	980764.30	5.51	-177.56	-1.43	0.00	5.51	-167.97	-153.68	
N'rock:	1h90	46	35.13	-114	25.50	5681.0	mt	980249.57	980762.49	5.72	-193.76	-1.48	0.00	21.11	-168.40	-152.79	
N'rock:	1h91	46	37.04	-114	28.47	4794.0	mt	980300.89	980765.38	7.79	-163.51	-1.38	0.00	-13.80	-170.90	-157.96	
N'rock:	1h92	46	36.40	-114	30.52	5130.0	mt	980284.20	980764.41	4.16	-174.97	-1.43	0.00	2.05	-170.18	-155.99	
N'rock:	1h93	46	38.39	-114	32.45	5254.0	mt	980282.17	980767.41	3.12	-179.20	-1.44	0.00	8.68	-168.84	-154.21	
N'rock:	1h94	46	43.63	-114	7.85	4249.0	mt	980355.55	980775.28	4.94	-144.92	-1.30	0.00	-20.27	-161.56	-149.92	
N'rock:	1h95	46	43.54	-114	10.04	6017.0	mt	980239.80	980775.16	13.49	-205.22	-1.50	0.00	30.24	-162.99	-147.07	
N'rock:	lolo	46	45.74	-114	4.86	3192.0	mt	980424.30	980778.48	2.55	-108.87	-1.09	0.00	-54.07	-161.48	-152.63	
N'rock:	lolo	46	45.74	-114	4.86	3192.0	mt	980424.30	980778.48	2.55	-108.87	-1.09	0.00	-54.07	-161.48	-152.63	
N'rock:	1h96	46	37.30	-114	8.49	5425.0	mt	980264.78	980765.77	11.20	-185.03	-1.45	0.00	9.00	-166.29	-151.84	
N'rock:	1h97	46	34.56	-114	8.16	3641.0	mt	980366.58	980761.64	7.11	-124.18	-1.19	0.00	-52.74	-171.00	-161.26	
N'rock:	1h98	46	35.40	-114	10.10	6070.0	mt	980223.09	980762.91	10.65	-207.03	-1.50	0.00	30.78	-167.10	-150.79	
N'rock:	1h99	46	32.27	-114	8.39	3497.0	mt	980371.36	980758.19	5.65	-119.27	-1.16	0.00	-58.04	-172.82	-163.37	

Selway-Bitterroot Wilderness Gravity
V. Bankev 1980
Meter ID: a-550 Date: 03/04/81

STATION IDENTIFICATION		LOCATIONS						GRAVITY		CORRECTIONS				ANOMALIES		
		LATITUDE		LONGITUDE		ELE	ST	OBSERVED	THEORETICAL	TERRAIN	BOUGUER	CURV	SPECIAL	FREE AIR	COMPLETE-BOUGUER d1=2.67	d2=2.45	SPEC FIELDS
proj	sta-id	deg	min	deg	min	(in ft)											
N'rock:	lh100	46	26.83	-114	9.92	3503.0	mt	980353.78	980749.99	4.47	-119.48	-1.16	0.00	-66.86	-183.03	-173.46	
N'rock:	lh101	46	28.33	-114	9.94	3644.0	mt	980355.20	980752.25	6.11	-124.29	-1.19	0.00	-54.44	-173.81	-163.98	
N'rock:	lh102	46	27.60	-114	11.33	4046.0	mt	980332.85	980751.15	6.74	-138.00	-1.27	0.00	-37.91	-170.44	-159.52	
N'rock:	lh103	46	26.60	-114	12.42	4882.0	mt	980280.81	980749.64	7.05	-166.51	-1.40	0.00	-9.87	-170.73	-157.48	
N'rock:	lh104	46	25.91	-114	14.34	6127.0	mt	980201.27	980748.60	11.09	-208.97	-1.50	0.00	28.62	-170.77	-154.34	
N'rock:	lh105	46	25.30	-114	10.73	3513.0	mt	980352.54	980747.69	4.04	-119.82	-1.16	0.00	-64.86	-181.80	-172.16	
N'rock:	lh106	46	23.99	-114	11.79	3664.0	mt	980335.99	980745.71	3.38	-124.97	-1.19	0.00	-65.23	-188.02	-177.90	
N'rock:	hamilton	46	14.83	-114	9.54	3570.0	mt	980318.74	980731.91	2.49	-121.76	-1.17	0.00	-77.51	-197.96	-188.03	
N'rock:	hamilton	46	14.83	-114	9.54	3570.0	mt	980318.74	980731.91	2.49	-121.76	-1.17	0.00	-77.51	-197.96	-188.03	
N'rock:	lh107	46	16.99	-114	11.46	3660.0	mt	980326.36	980735.16	3.87	-124.83	-1.19	0.00	-64.69	-186.85	-176.78	
N'rock:	lh108	46	17.91	-114	13.05	4116.0	mt	980306.37	980736.55	5.24	-140.39	-1.28	0.00	-43.21	-179.64	-168.39	
N'rock:	lh109	46	18.99	-114	13.69	4378.0	mt	980295.44	980738.17	5.81	-149.32	-1.32	0.00	-31.15	-175.98	-164.05	
N'rock:	lh110	46	19.77	-114	15.11	5748.0	mt	980213.98	980739.35	8.60	-196.05	-1.48	0.00	14.97	-173.96	-158.39	
N'rock:	lh111	46	20.11	-114	13.03	3873.0	mt	980324.49	980739.86	4.66	-132.10	-1.24	0.00	-51.24	-179.92	-169.31	
N'rock:	lh112	46	21.18	-114	11.79	3803.0	mt	980322.35	980741.48	2.72	-129.71	-1.22	0.00	-61.58	-189.79	-179.22	
N'rock:	lh113	46	22.82	-114	13.04	3847.0	mt	980330.11	980743.95	4.01	-131.21	-1.23	0.00	-52.15	-180.58	-170.00	
N'rock:	lh114	46	24.07	-114	14.29	4396.0	mt	980305.14	980745.83	6.43	-149.93	-1.33	0.00	-27.41	-172.24	-160.31	
N'rock:	lh115	46	23.46	-114	15.91	5814.0	mt	980217.34	980744.91	8.65	-198.30	-1.49	0.00	18.97	-172.16	-156.41	
N'rock:	lh116	46	22.70	-114	10.51	3575.0	mt	980333.28	980743.77	2.39	-121.93	-1.18	0.00	-74.37	-195.09	-185.14	
N'rock:	lolo	46	45.74	-114	4.86	3192.0	mt	980424.30	980778.48	2.55	-108.87	-1.09	0.00	-54.07	-161.48	-152.63	

selway-bitterroot wilderness
gathered by dean kleinkopf and mike brickey
Meter ID: g-235 Date: 12/22/81

STATION IDENTIFICATION proj	sta-id	LOCATIONS LATITUDE deg	min	LONGITUDE deg	min	ELE (in ft)	ST	GRAVITY OBSERVED	THEORETICAL	CORRECTIONS TERRAIN	BOUGUER	CURV	SPECIAL	ANOMALIES FREE AIR	COMPLETE-BOUGUER d1=2.67	d2=2.57	SPEC FIELDS
north	lowellst	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north	s2	46	19.61	-114	38.82	5736.0	ID	980215.40	980739.11	3.03	-195.64	-1.48	0.00	15.50	-178.59	-171.32	
north	s3	46	16.38	-114	27.84	8647.0	ID	980004.97	980734.24	30.98	-294.92	-1.41	0.00	83.42	-181.93	-171.99	
north	s4	45	37.25	-114	50.27	8944.0	ID	979925.37	980675.23	20.30	-305.05	-1.37	0.00	90.73	-195.39	-184.67	
north	lowellst	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north	lowellst	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north	s5	46	3.21	-114	57.24	7017.0	ID	980105.39	980714.38	15.34	-239.33	-1.52	0.00	50.58	-174.93	-166.48	
north	s6	46	7.38	-114	55.62	7393.0	ID	980391.25	980720.67	11.61	-81.62	-0.88	0.00	-104.41	-175.30	-172.65	
north	s7	45	58.95	-114	57.90	7799.0	ID	980035.14	980707.96	21.03	-266.00	-1.48	0.00	60.22	-186.24	-177.01	
north	s8	45	54.72	-114	50.21	2969.0	ID	980342.05	980701.59	12.60	-101.26	-1.04	0.00	-80.38	-170.08	-166.72	
north	s9	45	58.18	-114	49.79	4108.0	ID	980267.14	980706.80	15.88	-140.11	-1.28	0.00	-53.44	-178.95	-174.25	
north	s10	45	58.20	-114	45.94	6957.0	ID	980119.37	980706.84	20.65	-237.28	-1.52	0.00	66.47	-151.68	-143.51	
north	s11	45	56.55	-115	2.68	7610.0	ID	980047.61	980704.34	17.87	-259.56	-1.50	0.00	58.55	-184.63	-175.52	
north	lowellst	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north	lowellst	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north	s12	46	9.82	-115	30.14	6027.0	ID	980202.25	980724.35	19.00	-205.56	-1.50	0.00	44.45	-143.61	-136.56	
north	s13	46	10.88	-115	27.56	5564.0	ID	980224.13	980725.95	15.75	-189.77	-1.47	0.00	21.23	-154.26	-147.68	
north	s14	46	11.24	-115	25.67	5676.0	ID	980219.46	980726.49	18.10	-193.59	-1.48	0.00	26.54	-150.43	-143.80	
north	s15	46	8.84	-115	33.37	3820.0	ID	980343.98	980722.88	9.99	-130.29	-1.23	0.00	-19.74	-141.27	-136.71	
north	lowellst	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north	lowellst	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north	s16	46	12.42	-115	23.46	5141.0	ID	980250.28	980728.27	19.35	-175.35	-1.43	0.00	5.31	-152.11	-146.21	
north	s17	46	12.44	-115	18.62	6769.0	ID	980152.69	980728.30	14.71	-230.87	-1.52	0.00	60.66	-157.02	-148.87	
north	s18	46	13.81	-115	16.50	4228.0	ID	980307.15	980730.37	10.62	-144.20	-1.30	0.00	-25.72	-160.61	-155.56	
north	s19	46	17.77	-114	37.02	7461.0	ID	980091.46	980736.34	24.05	-254.47	-1.50	0.00	56.41	-175.52	-166.83	
north	s20	46	18.40	-114	34.70	5900.0	ID	980201.61	980737.29	3.20	-201.23	-1.49	0.00	18.94	-180.58	-173.10	
north	s21	46	20.59	-114	30.73	5806.0	ID	980207.17	980740.59	6.19	-198.03	-1.48	0.00	12.37	-180.95	-173.71	
north	lowellst	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north	lowellst	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north	s15	46	8.84	-115	31.21	3820.0	ID	980343.88	980722.88	10.74	-130.29	-1.23	0.00	-19.84	-140.62	-136.09	
north	s22	46	9.27	-115	27.36	6930.0	ID	980138.77	980723.52	24.33	-236.36	-1.52	0.00	66.65	-146.90	-138.90	
north	s23	46	8.38	-115	24.76	6503.0	ID	980170.90	980722.18	13.32	-221.80	-1.51	0.00	60.00	-149.99	-142.13	
north	s24	46	7.73	-115	22.85	6807.0	ID	980142.77	980721.20	20.97	-232.17	-1.52	0.00	61.42	-151.30	-143.33	
north	s25	46	8.26	-115	31.17	5241.0	ID	980251.59	980722.00	12.95	-178.76	-1.44	0.00	22.29	-144.95	-138.69	
north	lowellst	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north	lowellst	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north	s25a	46	11.20	-115	33.79	1525.0	ID	980474.76	980726.43	15.09	-52.01	-0.60	0.00	-108.27	-145.80	-144.40	
north	s26	46	12.93	-115	32.15	1603.0	ID	980467.54	980729.04	11.63	-54.67	-0.63	0.00	-110.77	-154.44	-152.81	
north	s27	46	13.92	-115	29.36	1647.0	ID	980459.99	980730.53	15.81	-56.17	-0.65	0.00	-115.67	-156.68	-155.14	
north	s28	46	13.69	-115	25.40	1732.0	ID	980452.83	980730.19	18.49	-59.07	-0.67	0.00	-114.50	-155.75	-154.21	

BOUGUER GRAVITY DATA

selway-bitterroot wilderness
gathered by dean kleinkopf and mike brickey
Meter ID: a-235 Date: 12/22/81

STATION IDENTIFICATION proj	sta-id	LOCATIONS LATITUDE deg	min	LONGITUDE deg	min	ELE (in ft)	ST	GRAVITY OBSERVED	THEORETICAL	CORRECTIONS TERRAIN	BOUGUER	CURV	SPECIAL	ANOMALIES FREE AIR	COMPLETE-BOUGUER d1=2.67	d2=2.57	SPEC FIELDS
north :	s29	46	15.78	-115	23.64	1812.0	ID	980440.50	980733.34	25.47	-61.80	-0.70	0.00	-122.45	-159.48	-158.10	
north :	s30	46	17.20	-115	23.01	1874.0	ID	980438.32	980735.48	24.67	-63.92	-0.72	0.00	-120.94	-160.91	-159.41	
north :	s31	46	20.02	-115	20.64	2007.0	ID	980446.77	980739.73	13.60	-68.45	-0.76	0.00	-104.24	-159.85	-157.77	
north :	s32	46	20.38	-115	18.70	2101.0	ID	980440.98	980740.27	12.78	-71.66	-0.79	0.00	-101.73	-161.40	-159.17	
north :	s33	46	22.20	-115	14.45	2228.0	ID	980436.56	980743.02	19.38	-75.99	-0.83	0.00	-96.96	-154.40	-152.25	
north :	s34	46	23.62	-115	12.84	2362.0	ID	980430.41	980745.16	18.30	-80.56	-0.87	0.00	-92.65	-155.78	-153.41	
north :	s35	46	25.34	-115	8.90	2560.0	ID	980412.53	980747.74	16.59	-87.31	-0.93	0.00	-94.51	-166.16	-163.47	
north :	s36	46	25.75	-115	6.82	2651.0	ID	980406.52	980748.36	16.72	-90.42	-0.95	0.00	-92.58	-167.23	-164.43	
north :	s37	46	14.71	-115	23.97	1777.0	ID	980446.80	980731.73	21.21	-60.61	-0.69	0.00	-117.83	-157.92	-156.42	
north :	s38	46	13.76	-115	27.40	1693.0	ID	980459.71	980730.29	16.03	-57.74	-0.66	0.00	-111.38	-153.76	-152.17	
north :	s39	46	9.94	-115	35.27	1495.0	ID	980485.90	980724.53	10.80	-50.99	-0.59	0.00	-98.05	-138.84	-137.31	
north :	lowellsl	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north :	lowellsl	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north :	s40	46	27.20	-115	4.64	2750.0	ID	980404.14	980750.55	12.64	-93.79	-0.98	0.00	-87.84	-169.97	-166.90	
north :	s41	46	27.70	-115	1.05	2833.0	ID	980398.58	980751.30	11.39	-96.63	-1.00	0.00	-86.35	-172.59	-169.36	
north :	s42	46	28.47	-114	52.99	3050.0	ID	980381.68	980752.46	10.33	-104.03	-1.06	0.00	-84.01	-178.77	-175.22	
north :	s43	46	30.34	-114	49.41	3205.0	ID	980375.41	980755.28	10.91	-109.31	-1.09	0.00	-78.53	-178.02	-174.30	
north :	s44	46	30.57	-114	46.69	3286.0	ID	980375.74	980755.63	9.21	-112.08	-1.11	0.00	-70.93	-174.91	-171.02	
north :	s45	46	30.93	-114	42.88	3542.0	ID	980365.27	980756.16	6.26	-120.81	-1.17	0.00	-57.88	-173.60	-169.26	
north :	s46	46	32.61	-114	40.48	3593.0	ID	980363.81	980758.70	11.25	-122.55	-1.18	0.00	-57.08	-169.55	-165.34	
north :	s47	46	33.91	-114	38.59	3751.0	ID	980353.41	980760.66	11.94	-127.94	-1.21	0.00	-54.59	-171.79	-167.40	
north :	s48	46	35.50	-114	36.17	4306.0	ID	980331.89	980763.05	5.19	-146.87	-1.31	0.00	-26.34	-169.33	-163.97	
north :	s49	46	38.10	-114	34.73	5233.0	ID	980279.14	980766.97	1.95	-178.48	-1.44	0.00	4.11	-173.86	-167.19	
north :	s50	46	42.35	-114	32.21	4213.0	ID	980348.42	980773.38	3.52	-143.69	-1.30	0.00	-28.87	-170.34	-165.04	
north :	s51	46	43.84	-114	31.64	4122.0	ID	980358.31	980775.62	4.68	-140.59	-1.28	0.00	-29.77	-166.97	-161.83	
north :	s52	46	46.49	-114	26.05	3851.0	ID	980382.98	980779.61	5.72	-131.35	-1.23	0.00	-34.57	-161.43	-156.67	
north :	s53	46	46.96	-114	23.93	3788.0	ID	980390.39	980780.31	4.44	-129.20	-1.22	0.00	-33.79	-159.77	-155.05	
north :	s54	46	45.50	-114	19.09	3620.0	ID	980395.20	980778.12	6.70	-123.47	-1.19	0.00	-42.57	-160.52	-156.10	
north :	s55	46	45.90	-114	16.11	3542.0	ID	980402.55	980778.72	6.39	-120.81	-1.17	0.00	-43.16	-158.75	-154.42	
north :	s56	46	45.28	-114	13.70	3457.0	ID	980405.25	980777.78	8.89	-117.91	-1.15	0.00	-47.51	-157.68	-153.55	
north :	s57	46	44.69	-114	10.82	3356.0	ID	980408.23	980776.90	10.97	-114.46	-1.13	0.00	-53.13	-157.75	-153.84	
north :	s58	46	44.85	-114	8.38	3280.0	ID	980416.53	980777.14	6.16	-111.87	-1.11	0.00	-52.22	-159.04	-155.04	
north :	s59	46	45.42	-114	4.90	3189.0	ID	980423.14	980777.99	2.43	-108.77	-1.09	0.00	-55.02	-162.45	-158.43	
north :	s60	46	46.33	-114	21.34	3715.0	ID	980392.42	980779.37	6.60	-126.71	-1.20	0.00	-37.67	-158.98	-154.44	
north :	s61	46	45.77	-114	29.06	3979.0	ID	980371.58	980778.52	7.47	-135.71	-1.26	0.00	-32.86	-162.36	-157.51	
north :	s62	46	40.55	-114	34.15	4452.0	ID	980324.44	980770.66	6.74	-151.84	-1.34	0.00	-27.68	-174.12	-168.64	
north :	lowellsl	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north :	lowellsl	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north :	s63	46	14.87	-115	12.58	7362.0	ID	980109.02	980731.96	19.09	-251.10	-1.51	0.00	69.04	-164.47	-155.72	
north :	s64	46	16.62	-115	11.12	6875.0	ID	980146.90	980734.60	11.69	-234.49	-1.52	0.00	58.53	-165.79	-157.39	

selway-bitterroot wilderness
gathered by dean kleinkopf and mike brickey
Meter ID: a-235 Date: 12/22/81

STATION IDENTIFICATION proj	sta-id	LOCATIONS LATITUDE deg	min	LONGITUDE deg	min	ELE (in ft)	ST	GRAVITY OBSERVED	THEORETICAL	CORRECTIONS TERRAIN	BOUGUER	CURV	SPECIAL	ANOMALIES FREE AIR	COMPLETE-BOUGUER d1=2.67	d2=2.57	SPEC FIELDS
north :	s66	46	19.06	-115	3.66	6300.0	ID	980184.27	980738.28	3.07	-214.87	-1.51	0.00	38.20	-175.11	-167.13	
north :	s67	46	18.14	-115	1.42	6975.0	ID	980142.83	980736.89	8.22	-237.90	-1.52	0.00	61.56	-169.63	-160.97	
north :	s68	46	18.52	-114	45.03	6929.0	ID	980138.89	980737.47	5.43	-236.33	-1.52	0.00	52.73	-179.69	-170.98	
north :	lowells1	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north :	lowells1	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north :	s70	46	17.37	-114	59.25	7229.0	ID	980111.27	980735.73	15.24	-246.56	-1.51	0.00	55.03	-177.80	-169.08	
north :	s71	46	17.49	-114	56.40	6380.0	ID	980164.51	980735.91	13.13	-217.60	-1.51	0.00	28.32	-177.67	-169.95	
north :	s72	46	17.97	-114	53.13	4115.0	ID	980303.29	980736.64	9.10	-140.35	-1.28	0.00	-46.47	-179.01	-174.04	
north :	s73	46	18.97	-114	49.49	6978.0	ID	980130.35	980738.14	11.72	-238.00	-1.52	0.00	48.11	-179.68	-171.15	
north :	s74	46	17.68	-114	47.39	7279.0	ID	980105.68	980736.20	15.20	-248.27	-1.51	0.00	53.67	-180.91	-172.12	
north :	s75	46	7.56	-115	3.08	5259.0	ID	980217.00	980720.95	20.42	-179.37	-1.44	0.00	-9.56	-169.94	-163.94	
north :	s76	46	7.73	-115	10.76	7122.0	ID	980119.12	980721.20	19.10	-242.91	-1.51	0.00	67.36	-157.97	-149.53	
north :	s77	46	9.01	-115	15.49	7380.0	ID	980104.78	980723.13	23.92	-251.71	-1.51	0.00	75.33	-153.97	-145.38	
north :	s78	46	9.45	-115	20.78	6861.0	ID	980144.41	980723.80	19.52	-234.01	-1.52	0.00	65.54	-150.47	-142.38	
north :	lowells1	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north :	lowells1	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north :	s79	46	10.69	-115	18.51	7020.0	ID	980136.70	980725.66	17.54	-239.43	-1.52	0.00	70.90	-152.51	-144.15	
north :	s80	46	9.10	-115	13.14	7596.0	ID	980092.50	980723.27	22.16	-259.08	-1.50	0.00	83.20	-155.21	-146.28	
north :	s81	46	8.25	-115	5.38	2840.0	ID	980370.04	980721.98	15.70	-96.86	-1.00	0.00	-84.92	-167.08	-164.01	
north :	s82	46	8.33	-114	57.93	5288.0	ID	980211.72	980722.11	21.52	-180.36	-1.44	0.00	-13.27	-173.55	-167.55	
north :	s6	46	7.39	-114	55.62	2393.0	ID	980391.31	980720.67	11.61	-81.62	-0.88	0.00	-104.35	-175.24	-172.59	
north :	s83	46	17.42	-114	33.84	7488.0	ID	980091.11	980735.80	16.96	-255.39	-1.50	0.00	59.12	-180.82	-171.83	
north :	s84	46	18.71	-114	30.43	5285.0	ID	980230.76	980737.75	9.85	-180.26	-1.44	0.00	-10.16	-182.01	-175.58	
north :	s85	46	17.98	-114	25.27	6548.0	ID	980160.47	980736.65	7.27	-223.33	-1.51	0.00	39.32	-178.25	-170.11	
north :	s86	46	15.40	-114	21.68	7388.0	ID	980112.34	980732.77	7.82	-251.98	-1.51	0.00	74.01	-171.66	-162.46	
north :	s87	46	17.80	-114	19.33	7305.0	ID	980117.40	980736.38	10.95	-249.15	-1.51	0.00	67.64	-172.07	-163.09	
north :	s88	46	17.70	-114	16.03	7210.0	ID	980118.06	980736.23	15.45	-245.91	-1.51	0.00	59.54	-172.44	-163.75	
north :	s89	46	15.17	-114	7.59	3609.0	ID	980312.70	980732.41	1.86	-123.09	-1.18	0.00	-80.40	-202.81	-198.23	
north :	s90	46	4.07	-114	14.27	4245.0	ID	980269.92	980715.68	3.44	-144.79	-1.30	0.00	-46.67	-189.31	-183.97	
north :	s91	46	7.20	-114	32.23	7774.0	ID	980055.63	980720.40	25.92	-265.15	-1.49	0.00	65.92	-174.79	-165.78	
north :	lowells1	46	8.68	-115	35.68	1465.0	ID	980489.73	980722.63	11.35	-49.97	-0.58	0.00	-95.14	-134.34	-132.87	
north :	hamilton	46	14.83	-114	9.54	3570.0	ID	980318.74	980731.91	2.38	-121.76	-1.17	0.00	-77.51	-198.07	-193.55	
north :	s92	46	15.32	-114	10.82	3662.0	ID	980319.72	980732.64	2.90	-124.90	-1.19	0.00	-68.63	-191.82	-187.21	
north :	s93	46	15.72	-114	13.05	4105.0	ID	980301.87	980733.24	4.76	-140.01	-1.28	0.00	-45.45	-181.97	-176.86	
north :	s94	46	11.83	-114	9.27	3636.0	ID	980314.46	980727.38	2.44	-124.01	-1.19	0.00	-71.07	-193.83	-189.23	
north :	s95	46	11.83	-114	6.74	3767.0	ID	980305.27	980727.38	1.88	-128.48	-1.22	0.00	-67.94	-195.76	-190.97	
north :	s96	46	10.85	-114	4.55	3930.0	ID	980291.51	980725.91	2.93	-134.04	-1.25	0.00	-64.91	-197.27	-192.31	
north :	s97	46	9.82	-114	1.04	4179.0	ID	980267.62	980724.35	7.24	-142.53	-1.29	0.00	-63.84	-200.43	-195.31	
north :	s98	46	9.57	-113	58.93	4289.0	ID	980255.09	980723.98	10.02	-146.29	-1.31	0.00	-65.65	-203.23	-198.07	

selway-bitterroot wilderness
gathered by dean kleinkopf and mike brickey
Meter ID: G-235 Date: 12/22/81

STATION IDENTIFICATION proj	sta-id	LOCATIONS LATITUDE deg	min	LONGITUDE deg	min	ELE (in ft)	ST	GRAVITY OBSERVED	THEORETICAL	CORRECTIONS TERRAIN	BOUGUER	CURV	SPECIAL	ANOMALIES FREE AIR	COMPLETE-BOUGUER d1=2.67	d2=2.57	SPEC FIELDS
north :	s98	46	9.57	-113	58.93	4289.0	ID	980255.09	980723.98	10.02	-146.29	-1.31	0.00	-65.65	-203.23	-198.07	
north :	s99	46	10.24	-113	58.51	4660.0	ID	980233.12	980724.98	11.65	-158.94	-1.37	0.00	-53.77	-202.43	-196.86	
north :	s100	46	12.35	-113	51.61	5264.0	ID	980205.33	980728.16	10.52	-179.54	-1.44	0.00	-27.98	-198.44	-192.05	
north :	s101	46	14.27	-113	50.51	5820.0	ID	980175.90	980731.06	8.51	-198.50	-1.49	0.00	-8.06	-199.53	-192.36	
north :	s102	46	15.27	-113	48.01	6632.0	ID	980132.77	980732.57	6.46	-226.20	-1.52	0.00	23.61	-197.65	-189.36	
north :	s103	46	13.96	-113	44.55	6913.0	ID	980117.13	980730.59	2.75	-235.78	-1.52	0.00	36.34	-198.21	-189.42	
north :	s104	46	13.28	-113	42.86	6584.0	ID	980135.61	980729.57	2.20	-224.56	-1.52	0.00	24.93	-198.95	-190.56	
north :	s105	46	14.12	-113	40.53	6030.0	ID	980173.84	980730.84	8.03	-205.67	-1.50	0.00	9.85	-189.29	-181.83	
north :	s106	46	14.77	-113	37.84	5772.0	ID	980186.37	980731.81	3.80	-196.87	-1.48	0.00	-2.85	-197.40	-190.11	
north :	s107	46	14.14	-113	34.56	5445.0	ID	980202.43	980730.87	2.28	-185.71	-1.46	0.00	-16.57	-201.46	-194.53	
north :	s108	46	13.61	-113	31.92	5300.0	ID	980211.91	980730.06	2.91	-180.77	-1.48	0.00	-19.91	-199.21	-192.49	
north :	s109	46	12.43	-113	30.26	5353.0	ID	980205.88	980728.29	4.22	-182.57	-1.45	0.00	-19.18	-198.99	-192.25	
north :	s110	46	11.63	-113	29.05	5455.0	ID	980200.91	980727.08	2.21	-186.05	-1.46	0.00	-13.36	-198.66	-191.72	
north :	s111	46	11.27	-113	26.58	5760.0	ID	980179.54	980726.54	2.25	-196.46	-1.48	0.00	-5.53	-201.22	-193.89	
north :	s112	46	12.25	-113	23.97	5725.0	ID	980178.82	980728.02	1.05	-195.26	-1.48	0.00	-11.02	-206.71	-199.38	
north :	s113	46	14.03	-113	21.24	5458.0	ID	980195.57	980730.70	1.42	-186.16	-1.46	0.00	-22.04	-208.23	-201.26	
north :	s114	46	14.50	-113	18.73	5507.0	ID	980199.22	980731.41	2.48	-187.83	-1.46	0.00	-14.50	-201.31	-194.31	
north :	s115	46	9.95	-113	56.02	4545.0	ID	980238.03	980724.55	13.26	-155.02	-1.35	0.00	-59.23	-202.33	-196.97	
north :hamilton		46	14.83	-114	9.54	3570.0	ID	980318.74	980731.91	2.38	-121.76	-1.17	0.00	-77.51	-198.07	-193.55	
north :hamilton		46	14.83	-114	9.54	3570.0	ID	980318.74	980731.91	2.38	-121.76	-1.17	0.00	-77.51	-198.07	-193.55	
north :	s116	46	7.24	-114	12.36	3923.0	ID	980292.49	980720.46	3.41	-133.80	-1.25	0.00	-59.14	-190.78	-185.85	
north :	s117	46	6.35	-114	14.49	4152.0	ID	980285.40	980719.12	5.59	-141.61	-1.29	0.00	-43.37	-180.68	-175.54	
north :	s118	46	6.93	-114	17.63	4353.0	ID	980270.06	980719.99	17.18	-148.47	-1.32	0.00	-40.69	-173.30	-168.33	
north :	s119	46	7.40	-114	19.90	4680.0	ID	980254.58	980720.70	18.56	-159.62	-1.37	0.00	-26.15	-168.58	-163.25	
north :	s120	46	8.03	-114	23.06	4980.0	ID	980241.19	980721.66	16.63	-169.85	-1.41	0.00	-12.30	-166.93	-161.14	
north :	s121	46	8.31	-114	24.45	5130.0	ID	980233.10	980722.08	14.15	-174.97	-1.43	0.00	-6.71	-168.95	-162.88	
north :	s122	46	8.59	-114	27.10	5554.0	ID	980210.63	980722.50	8.78	-189.43	-1.47	0.00	10.25	-171.87	-165.05	
north :	s123	46	7.84	-114	29.55	6000.0	ID	980182.12	980721.37	5.32	-204.64	-1.50	0.00	24.77	-176.05	-168.53	
north :hamilton		46	14.83	-114	9.54	3570.0	ID	980318.74	980731.91	2.38	-121.76	-1.17	0.00	-77.51	-198.07	-193.55	

blue joint wilderness area
brickey R hankey 1979
Meter ID: e-134 Date: 12/22/81

STATION IDENTIFICATION proj	sta-id	LOCATIONS LATITUDE deg	min	LONGITUDE deg	min	ELE (in ft)	ST	GRAVITY OBSERVED	THEORETICAL	CORRECTIONS TERRAIN	BOUGUER	CURV	SPECIAL	ANOMALIES FREE AIR	COMPLETE-BOUGUER d1=2.67	d2=2.57	SPEC FIELDS
:	s130	46	6.90	-115	34.17	1497.0	id	980480.08	980719.95	13.01	-51.06	-0.59	0.00	-99.10	-137.74	-136.30	
:	s131	46	5.74	-115	32.33	1522.0	id	980473.12	980718.20	13.35	-51.91	-0.60	0.00	-101.96	-141.13	-139.66	
:	s132	46	5.21	-115	30.74	1536.0	id	980467.57	980717.40	13.12	-52.39	-0.61	0.00	-105.40	-145.27	-143.78	
:	s133	46	4.93	-115	25.36	1620.0	id	980447.90	980716.98	19.08	-55.25	-0.64	0.00	-116.75	-153.56	-152.18	
:	s134	46	3.44	-115	18.88	1698.0	id	980436.69	980714.73	23.82	-57.91	-0.66	0.00	-118.38	-153.14	-151.83	
:	s135	46	2.76	-115	17.54	1734.0	id	980432.13	980713.71	24.62	-59.14	-0.68	0.00	-118.52	-153.72	-152.40	
:	s136	46	2.34	-115	15.97	2890.0	id	980368.03	980713.08	16.05	-98.57	-1.02	0.00	-73.31	-156.85	-153.72	
:	s137	46	1.44	-115	14.96	4892.0	id	980247.54	980711.72	13.15	-166.85	-1.40	0.00	-4.28	-159.38	-153.57	
:	s138	46	0.02	-115	14.63	6810.0	id	980118.24	980709.58	22.22	-232.27	-1.52	0.00	48.79	-162.77	-154.85	
:	s139	46	1.90	-115	17.44	1785.0	id	980424.35	980712.41	25.90	-60.88	-0.69	0.00	-120.21	-155.89	-154.55	
:	s140	46	5.23	-115	27.81	1585.0	id	980454.29	980717.43	17.30	-54.06	-0.62	0.00	-114.10	-151.48	-150.08	
:	s141	46	3.86	-115	20.88	1685.0	id	980439.49	980715.37	22.37	-57.47	-0.66	0.00	-117.43	-153.19	-151.85	
:	s142	46	4.08	-115	17.91	3816.0	id	980322.47	980715.70	10.25	-130.15	-1.22	0.00	-34.45	-155.58	-151.05	
:	s143	46	4.89	-115	16.11	5260.0	id	980234.34	980716.92	16.11	-179.40	-1.44	0.00	11.91	-152.82	-146.65	
:	s144	46	5.44	-115	13.91	6535.0	id	980150.09	980717.75	19.12	-222.89	-1.51	0.00	46.63	-158.65	-150.96	
:	s145	46	6.83	-115	12.38	5935.0	id	980201.77	980719.84	6.95	-202.43	-1.49	0.00	39.84	-157.13	-149.75	
:	s146	46	4.49	-115	23.23	1648.0	id	980444.00	980716.31	20.88	-56.21	-0.65	0.00	-117.35	-153.32	-151.98	
:	s147	46	7.58	-114	33.57	7488.0	id	980078.85	980720.98	18.33	-255.39	-1.50	0.00	61.70	-176.87	-167.93	
:	s148	46	8.78	-114	42.21	6130.0	id	980171.44	980722.78	2.71	-215.25	-1.51	0.00	.	-182.45	-174.41	
:	s149	46	7.72	-114	44.84	6255.0	id	980159.18	980721.19	6.35	-213.34	-1.51	0.00	25.97	-182.52	-174.72	
:	s150	46	8.20	-114	46.90	6562.0	id	980142.13	980721.91	6.48	-223.81	-1.52	0.00	37.05	-181.80	-173.60	
:	s151	46	7.52	-114	48.62	7053.0	id	980101.39	980720.88	16.11	-240.56	-1.51	0.00	43.46	-182.50	-174.04	
:	s153	46	12.13	-114	43.52	3035.0	id	980346.72	980727.84	21.41	-103.52	-1.05	0.00	-95.76	-178.91	-175.80	
:	s155	45	49.67	-115	26.67	3982.0	id	980291.53	980693.97	1.30	-135.81	-1.26	0.00	-28.06	-163.83	-158.75	
:	s156	45	48.49	-115	28.57	3895.0	id	980295.95	980692.19	2.97	-132.85	-1.24	0.00	-30.03	-161.15	-156.24	
:	s157	45	49.65	-115	30.06	3847.0	id	980301.38	980693.94	5.22	-131.21	-1.23	0.00	-30.87	-158.09	-153.32	
:	s158	45	49.78	-115	33.36	3767.0	id	980304.97	980694.13	7.25	-128.48	-1.22	0.00	-35.00	-157.44	-152.86	
:	s159	45	50.06	-115	35.87	4195.0	id	980282.21	980694.55	3.15	-143.08	-1.29	0.00	-17.95	-159.17	-153.88	
:	s160	45	48.67	-115	37.91	3604.0	id	980307.81	980692.46	5.70	-122.92	-1.18	0.00	-45.80	-164.20	-159.77	
:	s161	45	48.73	-115	40.83	3463.0	id	980309.86	980692.55	10.31	-118.11	-1.15	0.00	-57.10	-166.05	-161.97	
:	s162	45	47.95	-115	42.78	3359.0	id	980310.59	980691.38	14.85	-114.57	-1.13	0.00	-64.96	-165.81	-162.03	
:	s163	45	47.84	-115	46.13	2978.0	id	980331.17	980691.21	15.23	-101.57	-1.04	0.00	-80.03	-167.41	-164.14	
:	s164	45	48.60	-115	48.18	2747.0	id	980348.27	980692.36	15.02	-93.69	-0.98	0.00	-85.79	-165.44	-162.46	
:	s165	45	49.20	-115	49.57	2675.0	id	980355.44	980693.26	13.91	-91.24	-0.96	0.00	-86.30	-164.59	-161.66	
:	s166	45	49.39	-115	51.59	2478.0	id	980372.91	980693.55	13.05	-84.52	-0.90	0.00	-87.63	-160.01	-157.29	
:	s167	45	49.72	-115	55.66	2331.0	id	980392.18	980694.05	11.49	-79.50	-0.86	0.00	-82.68	-151.56	-148.98	