

SURVEY CONTROL DATA IN QUADRANGLE 221

A 48 (USC&GS, 1933; Watauga County, North Carolina)

Located at Boone, about 85 feet west of the southwest corner of the East Tennessee and Western North Carolina railroad station, 215 feet west of the centerline of Depot Street, and about 12 feet south of the centerline of the track. Station is a standard tablet stamped "3220.335 A 48 1933" and set in the top of a concrete post, projecting about 8 inches above ground.

ELEVATION: 3220.171 feet or 981.510 meters (C-1)

ARTS (NORTH CAROLINA HIGHWAY DEPT., 1969; Watauga County, North Carolina)

Located in the vicinity of Boone, North Carolina, approximately 1.1 miles west of Boone. To reach station proceed from the intersection of Main Street (US 421) and Depot Street in Boone, go south on Depot Street for 0.1 mile to "T" intersection of River Street going east and Faculty Street going west, turn left on Faculty Street and go 0.5 mile to station on right, in southeast corner of yard of Industrial Arts Building, of Appalachian State University. Station is a standard North Carolina Brass Traverse disk, stamped "ARTS 1969" set in the top of a concrete cylinder, the top of which is flush with the surface of the ground. Station is 9.5 feet south of south edge of parking lot, 62.0 feet south southeast of iron light pole, 14.6 feet north northwest of center of catch basin, 53.0 feet west of bottom steps to Industrial Arts Building; and 54.0 feet west northwest of top of steps to Industrial Arts Building.

GEODETIC POSITION: Lat. = 36°12'41.852"; Long. = 81°40'47.494" (HWY-2)

Geodetic Azimuth to College: 139°07'38.0"

GRID POSITION (North Carolina): X = 1,209,455.77; Y = 906,585.14 (HWY-2)

Grid Azimuth to College: 140°40'26"

ELEVATION: 3187.5 feet or 971.54 meters (HWY-5)

100 ATA (USGS, 1950; Watauga County, North Carolina)

Located 7.8 miles north of Collettsville, 45 feet north of junction of road northwest to church camp, 8 feet northeast of oak tree, 5 feet west of mail box. Station is a standard tablet stamped "100 ATA 1249 1950", in a concrete post.

Reference Mark is a chiseled square 110 feet northwest of tablet, on southeast wingwall of bridge.

ELEVATION: 1250.37 feet (G-3)

B 48 (USC&GS, 1933; Watauga County, North Carolina)

Located at Boone, on the west side of Depot Street, about 75 feet south of Main Street, in the east wall of the Watauga Bank, 2 feet north of the southeast corner, and 4.6 feet above the sidewalk. Station is a standard tablet stamped "3233.602 B 48 1933" and set vertically.

ELEVATION: 3233.438 feet or 985.554 meters (C-1)

BILLYS KNOB (USFS, 1931; Caldwell County, North Carolina)

Located on Billy Knob about 3/4 mile north of Glob Post Office. Station mark is on corner of Parcel 341 and corner 4 of Tract 148, U.S. Forest Service Class A monument 110.

GEODETIC POSITION: Lat. = 36°03'18.093"; Long. = 81°42'19.929" (G-3)

To Station	Azimuth	Back Azimuth	Log. Meters	Miles
Grandfather	116°05'43.93"	296°01'35.50"	4,070 052	7.3
Blowing Rock	204 36 09.17	24 37 27.33	3,901 522	5.0

BLOWING ROCK (USC&GS, 1933; Watauga County, North Carolina)

Located 1.35 miles southeast of junction of Routes 321 and 24 in town of Blowing Rock, 0.2 miles south of Green Park Inn, at the end of the dirt road at Blowing Rock ledge. Located 0.55 mile northwest of dirt road leading to rock itself, 65 yards west along highway from two stone gate portals on north side of road, on outside of curve in highway concave to south and 17 feet south of centerline of highway. Station is a standard tablet set on the rock stamped "3655.872 Blowing Rock 1933". Station mark is on right of way of U.S. route 321.

Surface and underground marks are standard disk station marks in concrete, notes 1a and 7a.

Reference Mark 1 is a standard reference disk in boulder, note 12c, 35 feet south of centerline of highway, and 8.714 meters (28.59 feet) from station in geodetic azimuth 47°35'.

Reference Mark 2 is a standard reference disk in concrete, note 11a, 15 feet south of centerline of highway, and 17.170 meters (56.33 feet) from station in geodetic azimuth 247°05'.

Azimuth mark is a standard reference disk, note 12a, in top of Blowing Rock, and about 1/2 mile from station.

Report on Condition (TVA, 9-15-59): Not found. Search made but BM not recovered. Entire area (roadside) is matted with honeysuckle; too, we were told U.S. 321 has been changed a little in this location (curve, mentioned in description, made a bit more shallow), so BM could be covered over by said road improvement. No reference marks could be found.

GEODETIC POSITION: Lat. = 36°07'13.208"; Long. = 81°40'07.222" (C-1)

To Station	Azimuth	Back Azimuth	Log. Meters	Miles
Jonas	49°23'05.4"		4,436 935	14.5
Grandfather	81 29 54.2		4,146 941	8.7
Hibriten	325 42 14.3		4,457 107	17.8

Azimuth Mark 316°59'26.1" 3rd order

GRID POSITION (North Carolina): X = 1,211,861.66; Y = 873,275.10 (C-1)

Grid Azimuth to Azimuth Mark: 318°31'51"

ELEVATION: 3655.714 feet or 1114.264 meters (C-1)

BLOWING ROCK 1 (USGS, 1934; Watauga County, North Carolina)

Located about 1.0 mile northeast of Boone, North Carolina, on the summit of Howard Knob. Station mark is drill hole in triangle chiseled on outcrop of ledge directly under 15 inch oak tree.

GEODETIC POSITION: Lat. = 36°13'49.860"; Long. = 81°40'35.709" (G-3)

To Station	Azimuth	Back Azimuth	Log. Meters	Miles
Flat Top	0°16'55.4"	180°16'54.5"	3,878 734	4.7
Hanging Rock	57 27 46.9	237 22 32.4	4,198 645	9.8

GRID POSITION (North Carolina): X = 1,210,606.6; Y = 913,433.8 (G-3)

GRID POSITION (Tennessee): X = 3,274,766.0; Y = 697,396.2 (G-3)

ELEVATION: 4420 feet (T-5) Trig.

BLOWING ROCK 2 (USGS, 1934; Watauga County, North Carolina)

Located about 900 feet 856°W of Straddle Gap, 21 feet S25°W of fence corner, 20 feet northwest of top of hill. Station is a drill hole in triangle in native rock, 47.7 feet S27°W.

GEODETIC POSITION: Lat. = 36°14'23.193"; Long. = 81°44'16.397" (G-3)

To Station	Azimuth	Back Azimuth	Log. Meters	Miles
Loves Knob	109°19'09.7"	289°15'56.4"	3,936 805	5.4
Rich	279 47 22.5	99 48 29.6	3,458 805	1.8
Flat Top	327 28 03.8	147 30 13.4	4,008 086	6.3

GRID POSITION (Tennessee): X = 3,256,555.7; Y = 699,970.8 (G-3)

BLOWING ROCK 3 (USGS, 1934; Watauga County, North Carolina)

Located about 1 mile northeast of Shull's Mills on the highest point of Nettle Knob sometimes called Hodges Mountain. Station is a drill hole in triangle chiseled on stone set in position directly under signal.

GEODETIC POSITION: Lat. = 36°11'13.72"; Long. = 81°43'54.09"

To Station	Azimuth	Back Azimuth	Log. Meters	Miles
Rich	203°03'25.45"	23°04'19.33"	3,764.5 879	3.6
Flat Top	299 11 13.26	119 13 09.53	3,7510 599	3.5

BLOWING ROCK 4 (USGS, 1934; Watauga County, North Carolina)

Located about 0.9 mile west of Coffey's Gap and about 1000 feet southwest of the Boone Fork Baptist Church on the highest part of Chestnut Knob. Station is a drill hole in triangle chiseled on boulder, 45.0 feet, S75°E of locust tree.

GEODETIC POSITION: Lat. = 36°07'15.34"; Long. = 81°44'27.41" (G-3)

To Station	Azimuth	Back Azimuth	Log. Meters	Miles
Rich	193°45'37.09"	13°46'50.60"	4,1163 923	8.1
Flat Top	231 22 09.79	51 24 25.57	3,8672 323	4.6

GRID POSITION (North Carolina): X = 1,190,528.15; Y = 874,072.19 (G-3)

BLOWING ROCK 5 (USGS, 1934; Caldwell County, North Carolina)

Located about 2.3 miles northwest of Globe and about 1.9 miles southeast of Carey Flat on knob near the north end of Wilson Ridge. Station is about 100 yards east of the Watauga Turnpike, and is on a spur extending northeast from the main knob top. Station is a drill hole in triangle chiseled on stone set in position directly under pine tree.

GEODETIC POSITION: Lat. = 36°03'13.94"; Long. = 81°44'49.12" (G-3)

To Station	Azimuth	Back Azimuth	Log. Meters	Miles
Blowing Rock	223°41'44.13"	43°44'30.20"	4,0087 753	6.3
High Knob	355 53 13.17	175 53 21.43	3,6906 997	3.0

BLOWING ROCK WATER TANK (? ? , ????; Watauga County, North Carolina)

Located in Green Hill Subdivision of the Town of Blowing Rock, in the eastern section of the town on High Ridge, east of the county club. Station is a water tank (or standpipe).

GRID POSITION (North Carolina): X = 1,215,609.7; Y = 874,182.7 (T-4)

ELEVATION: 3924 feet (Base of manhole cover.) (T-5)

BM 3112.22 (USGS, 1934; Ashe County, North Carolina) *NE 11-2-98*

Located 30 feet east of Post Office at Lovell, 115 feet northwest of T-road north, 80 feet east of road south to Brushy Fork Baptist Church, 2 feet north of northeast corner of store building. A square on concrete platform.

NOTE: Recovered by USC&GS, 1934.

ELEVATION: 3112.218 feet or 948.606 meters (C-2)

BM 3116.70 (USGS, 1934; Watauga County, North Carolina)

Located 0.7 mile northwest of post office at Laxon, on northeast wingwall of concrete bridge over Laxon Creek. Station is a chiseled square.

ELEVATION: 3116.70 feet (G-3)

BM 3516.5 (USGS, 1934; Watauga County, North Carolina)

Located 5.0 miles southwest of Blowing Rock, 15 feet north of center line of North Carolina Highway 28, on northwest corner of headwall of concrete drain pipe. Station is a chiseled square, painted "USBM 3516.5."

NOTE: Search made, but BM not found. Four concrete headwalls were searched in the area (see description) but no chiseled square could be identified.

ELEVATION: 3516.14 feet (G-3)

BOONE L.O.T. (????, ????; Ashe County, North Carolina)

Located 45 feet southeast of station "RICH 1934", centerline of tower.

GRID POSITION (North Carolina): X = 1,201,914; Y* = 915,412 (G-3)

Grid Azimuth to Flat Top L.O.T.: 5.3 miles, 343°33'39"

Grid Azimuth to Dugger L.O.T.: 10.2 miles, 304°58'03"

BURRIS (NORTH CAROLINA HIGHWAY DEPT., 1969; Watauga County, North Carolina)

Located in the vicinity of Boone, North Carolina. Located approximately 1.5 miles west northwest of Boone. To reach station proceed from the intersection of Main Street and Greene Street in Boone, go northeast on Green Street for 0.2 mile to intersection of Greene Street and King Street, turn right on King Street for 100 feet to intersection of west King Street and west Queen Street, turn left on west Queen Street and go 0.05 mile to road to right up steep grade on west side to home of Mr. Tucker, continue past home of Mr. Tucker and go 0.15 mile to end of road. Station is on right side of road, near southwest corner of yard of Mr. Burris. Station is a standard North Carolina Brass Traverse disk, stamped "BURRIS 1969", set in the top of a concrete cylinder, the top of which is 6 inches below the surface of the ground.

Station is 8.5 feet south of center of dirt lane, 39.1 feet south southeast of 10 inch white pine tree, 35.5 feet west southwest of 10 inch white pine tree, 18.5 feet north of 10 inch white pine tree, and 98.0 feet south of southwest corner of Mr. Burris' home.

GEODETIC POSITION: Lat. = 36°13'22.687"; Long. = 81°41'25.918 (HWY-2)

Geodetic Azimuth to Howard MGS: 65°22'28.0"

GRID POSITION (North Carolina): X = 1,206,419.81; Y = 910,798.16 (HWY-2)

Grid Azimuth to Howard MGS: 66°55'38"

ELEVATION: 3447 feet or 1050.7 meters (HWY-5)

C 48 (USC&GS, 1933; Watauga County, North Carolina)

Located about 3.9 miles southeast along U.S. Highway 321 from Boone, about 620 feet west of the New River Power and Light Company dam, about 20 feet north of the upper end of a 12 inch corrugated drain pipe, about 15 feet north of the centerline of the highway, and about 5 feet higher than the highway, in the side of a mountain. Station is a standard disk stamped "3265.187 C 48 1933" and set in the top of a rock.

NOTE: Searched for but not recovered, October 1959. Possibly destroyed by

highway construction.

ELEVATION: 3265.026 feet or 995.182 meters (C-1)

CHESTNUT MOUNTAIN (U.S. FOREST SERVICE, 1933; Caldwell County, North Carolina)
 Located 174.5 chains northwest of high top of Chestnut Mountain, about 1.5 miles northwest of Patterson, North Carolina. Corner 3 Tract 181-k-III bears N89-30E, 3.25 chains. Bearing trees scribed B.T. 176, 20" chestnut N15°E, 0.45 chains, 12" chestnut, S27°E, 0.27 chains. A U.S.F.S. Class A monument.
 NOTE: Searched for but not found, June 1955.

GEODETIC POSITION: Lat. = 36°00'24.372"; Long. = 81°35'13.037" (G-3)

To Station	Azimuth	Back Azimuth	Log. Meters	Miles
Grandfather	116°24'25.04"	296°16'05.50"	4,374.824	14.7
Blowing Rock	149 43 40.51	329 40 47.33	4,164.185	9.1

COLLEGE (NORTH CAROLINA HIGHWAY DEPT., 1969; Watauga County, North Carolina)

Located approximately 1.2 miles west of Boone, North Carolina. To reach station proceed from intersection of Main Street (US 421) and Depot Street in Boone, go south on Depot Street for 0.1 mile to "T" intersection (River Street going east and Faculty Street going west), turn left on Faculty Street and go 0.2 mile to station on right near large tree line running north-east and southwest and across road from entrance to Erwin Duncan Hall Building of Appalachian State University. Station is a standard North Carolina Brass Traverse disk, stamped "COLLEGE 1969", set in the top of a concrete cylinder, the top of which is flush with the surface of the ground. Station is 73.4 feet west of centerline of Faculty Street, 36.7 feet west southwest of brace for PP, with aluminum reference tag; 101.6 feet west southwest of PP with aluminum reference tag; 6.0 feet south of fence line; 6.6 feet southwest of 14 inch maple tree; 6.8 feet southeast of 14 inch maple tree; and 41.8 feet north of 14 inch maple tree.

GEODETIC POSITION: Lat. = 36°12'53.023"; Long. = 81°40'59.423" (HWY-2)

Geodetic Azimuth to Burris NGS: 144°06'19.3"

GRID POSITION (North Carolina): X = 1,208,509.04; Y = 907,740.75 (HWY-2)

Grid Azimuth to Burris NGS: 145°39'14"

ELEVATION: 3211 feet or 978.8 meters (HWY-5)

D 48 RESET (USCGS, 1933; RESET BY STATE HIGHWAY DEPT., 1949; Watauga County, North Carolina)

Located 6.1 miles southeast along U.S. Highway 321 from Boone, at Upper Middle Fork bridge 2, in the west end of the north abutment, and 22 feet west of the centerline of the highway. Station is a standard tablet stamped "D 48 RESET 1948" and set in abutment.

NOTE: This bench mark was established and its elevation determined by engineers of the State Highway and Public Works Commission in June 1949.
 ELEVATION: 3341.652 feet

8 DSW (USGS, 1963; Ashe County, North Carolina)

Located 1.3 miles east of Boone, along U.S. Highway 421, thence 2.4 miles north along State Highway 194, at residence of J. H. Jones. Station is a standard tablet stamped "8 DSW 1963 3213", in southwest end of concrete porch.

Reference Mark is 10 feet north of tablet, on southwest corner of bottom step to residence of J. H. Jones; chiseled square.
 ELEVATION: 3213.38 feet (G-3)

DUGGER MOUNTAIN FIRE TOWER (????, ????; ?????????, North Carolina)

Located 3.9 miles east of Intersection of U.S. Highway 321 and Blue Ridge Parkway. To reach, go along Parkway to "Aho", thence 1.5 miles right along County Road 1526, thence 4.5 miles left to T-road left (County Road 1527), thence 2.5 miles along Road 1527 to reversed Y-road, thence 0.6 miles left; on mountain known as West Knob (Dugger Mountain); centerline of tower. Station is a tower.

GRID POSITION (North Carolina): X = 1,245,905; Y = 884,645 (G-3)

Grid Azimuth to Boone L.O.T.: 10.2 miles; 124°58'03"

Grid Azimuth to Hibriten Mountain L.O.T.: 17.4 miles; 349°26'32"

Grid Azimuth to Rocky Knob L.O.T.: 7.7 miles; 53°50'42"

ELEVATION: 3402 feet (T-5)

E 48 (USCGS, 1933; Watauga County, North Carolina)

Located about 1.9 miles north along U.S. Highway 321 from Blowing Rock, at a 4- by 4-foot concrete box culvert, in the south end of the east headwall, and 17 feet east of the centerline of the highway. Standard tablet stamped "3421.702 E 48 1933" and set in the top of headwall.
 ELEVATION: 3421.542 feet or 1042.888 meters (C-1)

ET 4 JRH (USGS, 1963; Watauga County, North Carolina)

Located at Blowing Rock, 4.1 miles south of junction of U.S. Highways 321 and 221. To reach go along Highway 321 to T-road left (County Road 1500-Blackberry Road) and Saint Marks Church, thence 4.5 miles along dirt road to field road right, thence 0.4 miles to apple orchard; at third row of trees; 90 feet southeast of woods line; 82 feet northwest of centerline of field road; 128 feet northeast of largest pile of boulders. Station is a standard tablet stamped "ET 4 JRH 1963", in top of a 3- by 2-foot rock projecting 1 foot.
 GRID POSITION (North Carolina): X = 1,224,278; Y = 876,033 (G-3)

F 48 (USCGS, 1933; Watauga County, North Carolina)

Located at Blowing Rock, on U.S. Highway 321, about 600 feet west of the post office, at the rear of the Winkler Storage Garage, 75 feet west of the centerline of the highway, and about 10 feet higher than the highway, in the top of a small ledge of a huge buried boulder. Station is a standard tablet stamped "3584.825 F 48 1933" and set in top of ledge.
 ELEVATION: 3584.665 feet or 1092.608 meters (C-1)

FLAT TOP (USGS, 1934; Watauga County, North Carolina)

Located approximately 2 miles north of Blowing Rock on the summit of mountain by the same name located on the estate of Mrs. Moses H. Cone. Station is under center of observation tower built on highest point of mountain. Station is a standard tablet stamped "FIAT TOP 1934" and set in rock, 617-25E to tower, 11.5 feet distant.

GEODETIC POSITION: Lat. = 36°09'44.48"; Long. = 81°40'37.19" (G-3)

To Station	Azimuth	Back Azimuth	Log. Meters	Miles
Grandfather	62°49'29.2"	242°44'19.9"	4,168.809	9.2
Beech	97 27 05.9	277 19 51.2	4,268.589	11.5
Thomkins	244 15 15.7	64 22 19.8	4,299.086	12.4
Hibriten	329 11 21.4	149 17 57.7	4,513.299	20.4

GRID POSITION (Tennessee): X = 3,275,739.8; Y = 672,600.9 (G-3)

GRID POSITION (North Carolina): X = 1,209,815.55; Y = 888,630.99 (G-3)

ELEVATION: 4558 feet (T-5)

FLAT TOP L.O.T. (????, ????; Watauga County, North Carolina)

Located at centerline of tower designated "FLAT TOP L.O.T."

ET 1963."

GRID POSITION (North Carolina): X = 1,209,812; Y = 888,645 (G-3)

Grid Azimuth to Boone L.O.T.: 5.3 miles; 183°33'39"

Grid Azimuth to Rocky Knob L.O.T.: 5.3 miles; 353°23'43"

FLAT TOP OBSERVATION TOWER (TVA, 1952; Watauga County, North Carolina)

Located 13.0 feet N17°W from FLAT TOP triangulation station.

NOTE: The present observation tower is a new one. Built about 1952 and centerline is 13.0 feet N17°W from FLAT TOP triangulation station 1934.

GRID POSITION (North Carolina): X = 1,209,811.8; Y = 888,643.4 (T-4)

G 48 (USCGS, 1933; Watauga County, North Carolina)

Located at Blowing Rock, on U.S. Highway 321, in the north wall of the post office, about 30 feet south of the centerline of the highway, 2.5 feet west of the entrance, and 3.5 feet above the sidewalk. Station is a standard tablet stamped "3579.150 G 48 1933" and set vertically.
 ELEVATION: 3578.989 feet or 1090.878 meters (C-1)

GRAHAM (NORTH CAROLINA HIGHWAY DEPT., 1969; Watauga County, North Carolina)

Located approximately 1.6 miles southeast of Boone. To reach station proceed from the intersection of U.S. 221, U.S. 321 going east and west with North Carolina Highway 109 going north and south, and SR 1520 going north in Boone, go north on SR 1520 for 0.4 mile to private road to right (approximately 200 feet north of SR 1521) and north side of McNeely Furniture Company, go east on private road for 0.3 mile to end of road and start of driveway to Mr. Graham's house. Station is 0.05 mile from end of private road, on right side at start of sharp curve to left. Station is a standard North Carolina Brass Traverse disk, stamped "GRAHAM 1969" and set in the top of a concrete cylinder, the top of which is 1 inch below the surface of the ground. Station is also 11.8 feet south southeast of center of paved drive to Mr. Graham's home; 26.4 feet north of fence post at east end of wooden fence, and with aluminum reference tag; 31.7 feet northwest of a 4 inch apple tree on south side of drive; 31.9 feet east of 6 inch maple tree south of drive; and 38.4 feet south of 8 inch pine in yard of Mr. Graham's home, closest to drive north side.

GEODETIC POSITION: Lat. = 36°12'35.622"; Long. = 81°39'43.371" (HWY-2)

Geodetic Azimuth to Whitener NGS: 137°01'12.7"

GRID POSITION (North Carolina): X = 1,214,692.05; Y = 905,813.95 (HWY-2)

Grid Azimuth to Whitener NGS: 138°33'28"

ELEVATION: 3390 feet or 1033.2 meters (HWY-5)

H 48 RESET (USCGS, 1933; RESET NORTH CAROLINA HIGHWAY DEPT., 1952; Caldwell County, North Carolina)

Located 2.6 miles southeast along U.S. Highway 321 from Blowing Rock, Watauga County, 1/2 mile southeast of the intersection of a road leading to Blowing Rock, at an 18 inch corrugated metal pipe culvert, on the south leading to Blowing Rock, at an 18 inch corrugated metal pipe culvert, on the south head wall, and 17 feet south of the highway. Station is a standard disk stamped "H 48 RESET 1952" and set on headwall.

NOTE: This bench mark was established and its elevation determined by engineers of the State Highway Commission in September 1952.

ELEVATION: 3526.012 feet

HK 1934 FI 1947 (USGS, 1947; Watauga County, North Carolina)

Located 3 miles southwest of Globe, 1.8 miles northeast by east of Edgemont; on summit known as High Knob at extreme south edge of Wilson Ridge. Station is a standard tablet stamped "HK 1934 FI 1947" (originally designated "HIGH KNOB 1934") on highest point on Knob. Best approach to station is from Globe to Mortimer road at saddle between High Knob and Joe White Mountain.

GEODETIC POSITION: Lat. = 36°00'35.19"; Long. = 81°44'35.07" (G-3)

To Station Azimuth Back Azimuth Log. Meters Miles

Jonas 68°26'43.19" 248°21'13.89" 4,179.121 9.4

Grandmother 123 11 44.30 303 08 12.78 4,031.5 240 6.7

Grandfather 144 50 55.36 324 48 06.60 4,095.4 293 7.7

Blowing Rock 208 37 40.91 28 40 18.58 4,145.4 942 8.7

GRID POSITION (North Carolina): X = 1,188,782; Y = 833,643 (G-3)

HORN (NORTH CAROLINA HIGHWAY DEPT., 1969; Watauga County, North Carolina)

Located about 0.5 mile south southwest of Boone. To reach station proceed from intersection of East King Street and Horn in West Drive in Boone, go south on Horn in West Drive for 0.3 mile to high hill on right. Station is on south side of hill owned by City of Boone and on north side of parking lot for Horn in West Theater. It is 59.4 feet southwest of 30 inch oak tree, with aluminum reference tag. A standard North Carolina Brass Traverse disk, stamped "HORN 1969" set in top of a concrete cylinder, the top is 1 inch below surface of the ground.

GEODETIC POSITION: Lat. = 36°12'38.626"; Long. = 81°40'13.170" (HWY-2)

Geodetic Azimuth to Arts NGS: 96°37'01.8"

GRID POSITION (North Carolina): X = 1,212,258.87; Y = 906,183.29 (HWY-2)

Grid Azimuth to Arts NGS: 98°09'30"

ELEVATION: 3335 feet or 1016.6 meters (HWY-5)

HOWARD (NORTH CAROLINA HIGHWAY DEPT., 1969; Watauga County, North Carolina)

Located approximately 2.5 miles west of Boone. To reach station proceed from the intersection of Main Street (US 421) and Depot Street in Boone, go south on Depot Street 0.1 mile to "T" intersection of River Street going east and Faculty Street going west, turn right on River Street and go 1.3 miles to home of Mr. Gregg, go on driveway on east side of Mr. Gregg's home to fence and gate leading to open field, go through gate and follow dim road on north side of small cemetery for 0.2 mile and end of truck travel, go up high peak about 400 feet to station approximately 100 feet south from top of peak. Station is embedded in rock. Station is 108.0 feet south of hill top; 309.0 feet east of tree line; 252.0 feet southeast of north edge of tree line; and 175.0 feet west northwest of large 20 inch elm tree. Station is a standard North Carolina Brass Traverse disk, stamped "HOWARD 1969" embedded in rock and projecting 8 inches above the ground.

GEODETIC POSITION: Lat. = 36°13'06.605"; Long. = 81°42'09.210" (HWY-2)

Geodetic Azimuth to Ayers: 51°57'46.2"

GRID POSITION (North Carolina): X = 1,202,829.50; Y = 909,268.79 (HWY-2)

Grid Azimuth to Ayers: 53°31'22"

ELEVATION: 3692 feet or 1125.2 meters (HWY-5)

J 48 RESET (USC&GS, 1933; RESET NORTH CAROLINA HIGHWAY DEPT., 1952; Caldwell County, North Carolina)

Located 4.9 miles southeast along U.S. Highway 321 from Blowing Rock, Watauga County, 800 feet north of the Robbins Gap service station, at an 18 inch corrugated-metal pipe culvert, in the top of the east concrete head wall, and 17 feet east of the highway. Station is a standard disk stamped "J 48 RESET 1952" and set in the top of head wall.

NOTE: This bench mark was established and its elevation determined by engineers of the State Highway Commission in September 1952.

ELEVATION: 2795.170 feet

K 1 (USGS, 1934; Ashe County, North Carolina)

To reach station go 0.6 miles southeast thence 2.0 miles northeast from Patterson, 200 feet northwest of private T-road to residence of Mr. J. E. Lackey, 200 feet west of wooden highway bridge, 20 feet southwest of center of driveway. (Not recovered, 1951) Station is a standard tablet stamped "K 1 1934", in concrete post.

Reference Mark is 130 feet north of tablet, in root on east side of white-pine tree; copper nail and washer; 5.79 feet lower than tablet.

ELEVATION: 1209.82 (G-3)

K 2 (USGS, 1934; Ashe County, North Carolina)

To reach station go 0.6 mile southeast thence 3.6 miles northeast from Patterson, 70 feet northwest of junction of road north. Station is a standard tablet stamped "K 2 1934" in concrete post. (Recovered and redescribed, 1951.)

Reference Mark is 30 feet north of tablet, in root on east side of 18 inch pine tree; copper nail and washer; 4.14 feet higher than tablet.

ELEVATION: 1164.72 feet (G-3)

K 3 (USGS, 1934; Ashe County, North Carolina)

Located 4.0 miles south of post office at Buffalo Cove, 20 feet east of center of road. Station is a standard tablet stamped "K 3 1934", in concrete post, on high bank.

Reference Mark is 35 feet northwest of tablet, on west side of road, in root on east side of 24 inch hemlock tree; copper nail and washer; 8.03 feet lower than the tablet.

ELEVATION: 1299.12 feet (G-3)

K 4 (USGS, 1934; Ashe County, North Carolina)

Located 0.5 mile south of post office at Buffalo Cove, 50 feet east of triangular plot formed by road forks, 120 feet east of mouth of Joe Creek, and 35 feet west of center of road. Station is a standard tablet stamped "K 4 1934", in concrete post.

Reference Mark is 25 feet north of tablet, in root on west side of twin hickory tree; copper nail and washer; 1.16 feet lower than tablet.

ELEVATION: 1350.07 feet (G-3)

K 5 (USGS, 1934; Ashe County, North Carolina)

Located 1.7 miles north of post office at Buffalo Cove, 320 feet northeast of road fork, 15 feet east of cabin, 40 feet north of center of road. A standard tablet stamped "K 5 1934" in concrete post.

Reference Mark is 40 feet northwest of tablet, in root of 12 inch poplar tree; copper nail and washer.

ELEVATION: 1432.24 feet (G-3)

K 7 (USGS, 1936; Watauga County, North Carolina)

Located 3.4 miles north of post office at Darby, at store of N. G. Wheeler, 3 feet west of southwest corner of store building, about 80 feet west of road. A standard tablet stamped "K 7 1936", in concrete post.

Reference Mark is 70 feet northeast of tablet; in root on north side of apple tree; copper nail and washer.

ELEVATION: 1395.32 feet (G-3)

K 8 (USGS, 1934; Watauga County, North Carolina)

Located 6.1 miles northwest of post office at Darby, 15 feet west of northwest corner of Rock View Baptist Church, 60 feet southwest of center of road. Station is a standard tablet stamped "K 8 1934" in concrete post.

Reference Mark is 30 feet southeast of tablet, in root on west side of 14 inch pine tree; copper nail and washer.

ELEVATION: 1577.42 feet (G-3)

K 9 (USGS, 1934; Watauga County, North Carolina)

Located 8.7 miles northwest of post office at Darby, about 200 feet northwest of drain crossing, 100 feet north of dim road fork, at west edge of field. Station is a standard tablet stamped "K 9 1934" in concrete post.

Reference Mark is 130 feet east of tablet, in root on south side of 14 inch apple tree; copper nail and washer.

ELEVATION: 1806.84 feet (G-3)

K 10 (USGS, 1934; Watauga County, North Carolina)

Located 500 feet northwest of post office at Laxon, 50 feet northwest of northwest corner of Laurel Springs Baptist Church, 40 feet northeast of center of road. Station is a standard tablet stamped "K 10 1934", in concrete post.

Reference Mark is 20 feet south of tablet, in root on northwest side of 30 inch oak tree; copper nail and washer.

ELEVATION: 3187.42 feet (G-3)

K 11 (USGS, 1934; Watauga County, North Carolina)

Located 2.4 miles northwest of post office at Laxon, 20 feet east and 12 feet north of Y-road fork on crest of narrow ridge, 20 feet north of center of road. Station is a standard tablet stamped "K 11 1934" in concrete post.

Reference Mark is 100 feet southeast of tablet, in root on east side of 14 inch locust tree; copper nail and washer.

ELEVATION: 3137.45 feet (G-3)

K 12 (USGS, 1934; Watauga County, North Carolina)

Located at Boone, 3.8 miles east along U.S. Highway 421. To reach, go 2.5 miles northeast along road from about 80 feet south of residence owned by L. Carrol, 3 feet north of fence. Station is a standard tablet stamped "K 12 1934", in concrete post.

Reference Mark is 10 feet south of tablet, in root on south side of 14 inch apple tree; copper nail and washer.

ELEVATION: 3058.52 feet (G-3)

K 14 (USGS, 1934; Ashe County, North Carolina)

To reach, go 1.7 miles north thence 3.2 miles northwest from post office

at Buffalo Cove, in gap, 15 feet north of center of road. Station is a standard tablet stamped "K 14 1934", in concrete post.

Reference Mark is 20 feet southeast of tablet, in root on south side of 20 inch white-pine tree; copper nail and washer.

ELEVATION: 2415.35 feet (G-3)

K 15 (USGS, 1934; Ashe County, North Carolina)

To reach go 1.7 miles north thence 5.9 miles northwest from post office at Buffalo Cove, in northeast corner of front yard, 60 feet northeast of residence, 2 feet east of east wall of shed, 30 feet east of center of road. Station is a standard tablet stamped "K 15 1934", in concrete post.

Reference Mark is 55 feet south of tablet, in root on north side of 30 inch walnut tree; copper nail and washer.

ELEVATION: 2448.91 feet (G-3)

K 16 (USGS, 1934; Ashe County, North Carolina)

Located 1.7 miles southeast of Aho, 45 feet south of road fork, on crest of ridge, 15 feet south of center of road in concrete post. Station is a standard tablet stamped "K 16 1934", in concrete post.

Reference Mark is 12 feet west of tablet, in root on north side of 30 inch oak tree; copper nail and washer.

ELEVATION: 3680.46 feet (G-3)

K 17 (USGS, 1934; Ashe County, North Carolina)

Located at Aho, 50 feet southeast of T-road southwest to Blowing Rock, 80 feet west of T-road north, at northeast corner of building, 20 feet south of center of road. Station is a standard tablet stamped "K 17 1934" set in concrete post.

Reference Mark is 100 feet north of tablet in root on west side of 14 inch apple tree; copper nail and washer.

ELEVATION: 3732.44 feet (G-3)

K 21 (USGS, 1934; Caldwell County, North Carolina)

Located 2.4 miles northwest of post office at Rufus, 5.1 miles southeast of Globe, 500 feet west of road fork, 8 feet south of southeast corner of spring house, and 20 feet north of center of road. Station is a standard tablet stamped "K 21 1934" and set in concrete post.

Reference Mark is 5 feet southwest of tablet, in root on north side of 14 inch walnut tree; a wire nail and washer, 0.04 feet higher than tablet.

ELEVATION: 1299.76 feet (G-3)

K 22 (USGS, 1934; Caldwell County, North Carolina)

Located 2.3 miles southeast of Globe, 270 feet east of intersection of T-road, east, 30 feet north of concrete culvert, 3 feet north of fence line. A standard tablet stamped "K 22 1934" and set in concrete post.

Reference Mark is 50 feet east of tablet, on north side of road, in root on west side of 10 inch walnut tree; copper nail and washer; 0.84 feet higher than tablet.

ELEVATION: 1292.18 feet (G-3)

K 23 (USGS, 1934; Caldwell County, North Carolina)

Located 1.0 mile southeast of Globe, 160 feet south of road forks, in a front yard, and 25 feet northeast of residence. Station is a standard tablet stamped "K 23 1934" and set in concrete post.

Reference Mark is 170 feet north of tablet, in northwest angle of road fork, in root on east side of 20 inch walnut; copper nail and washer; 6.9 feet higher than tablet.

ELEVATION: 1310.06 feet (G-3)

K 24 (USGS, 1934; Caldwell County, North Carolina)

Located 1.9 miles northwest of Globe, 150 feet southeast of stream crossing at curve in road, 30 feet south of center of road, on bank. Station is a standard tablet stamped "K 24 1934" and set in concrete post.

Reference Mark is 150 feet northwest of tablet, on top of northeast wing wall abutment of bridge; top of steel rod, in 3/8-inch square cut 4.70 feet lower than the tablet.

ELEVATION: 1547.65 feet (G-3)

K 27 (USGS, 1934; Caldwell County, North Carolina)

Located 3.9 miles southwest of Globe, at store of Mr. Gragg, 12 feet north of southwest corner of building, 1 foot west of west wing wall, and 25 feet north of center of road. Station is a standard tablet stamped "K 27 1934" and set in concrete post.

Reference Mark is 370 feet southwest of tablet, 18 feet south of Forest Service road sign, in root on east side of 6 inch maple tree; copper nail and washer 13.50 feet higher than tablet.

NOTE: Reported destroyed, 1950.

ELEVATION: 1957.40 feet (G-3)

K 48 RESET (USC&GS, 1933; RESET NORTH CAROLINA HIGHWAY DEPT., 1946; Caldwell County, North Carolina)

Located about 7.4 miles southeast along U.S. Highway 321 from Blowing Rock, Watauga County, about 0.6 mile southeast of the entrance to Rudiell Lodge, at a pipe line, 15 feet east of the centerline of the highway, and about 1 foot lower than the highway. Station is a standard tablet stamped "K 48 RESET 1946" and set in top of head wall.

NOTE: This bench mark was established and its elevation determined by engineers of the State Highway Commission in September 1946.

ELEVATION: 2496.81 feet (G-3)

L 48 (USC&GS, 1933; Caldwell County, North Carolina)

Located about 9.5 miles southeast along U.S. Highway 321 from Blowing Rock, Watauga County, about 100 yards north of the home of Lee Carleton, about 50 feet east of the centerline of the highway, and about 5 feet higher than the highway, in the side of a hill across a stream from the highway. Station is a standard tablet stamped "1920.462 L 48 1933" and set in top of rock.

ELEVATION: 1920.308 feet or 585.311 meters (C-1)

L 61 (USC&GS, 1934; Watauga County, North Carolina)

Located in front of the county courthouse, at Boone, about 50 feet east of the steps leading to the south entrance. In front of the American Legion sign, and 1 foot north of the sidewalk of Main Street. Station is a standard USC&GS disk, stamped "L 61, 1934." It is set in the top of a concrete post projecting about 6 inches above ground.

ELEVATION: 3265.997 feet or 995.478 meters (C-1)

LR 76 (TVA, 1937; Watauga County, North Carolina)

Located 2.5 miles northwest of Boone, North Carolina. To reach from Silverstone, North Carolina post office, drive south 0.2 mile to road intersection left, take road left 3.0 miles to Y-intersection near top of ridge. Bear right along ridge 0.5 mile to T-road left near new stone house in gap. Take T-road left 3.2 miles to intersection right up creek near small log cabin. Go right up road 0.3 mile to field, then west to ridge through field then left along ridge to briar patch on top. Point is 200 feet north of absolute top. Station is a punched hole in a 1 inch by 1 inch by $\frac{1}{4}$ inch angle iron stamped "TVA LR 26 1937."

Reference Mark 1 is 16.32 feet S81°W to triple oak.

Reference Mark 2 is 5.30 feet N25°W to 29 inch oak.

Reference Mark 3 is 4.44 feet N69°E to 3 inch hickory.

GRID POSITION (Tennessee): X = 3,261,037; Y = 701,297 (T-4)
ELEVATION: 4510 feet (T-5)

M 48 (USCGS, 1933; Caldwell County, North Carolina)

Located 11.5 miles southeast along U.S. Highway 321 from Blowing Rock, Watauga County, about $\frac{1}{2}$ mile southeast of the Nelson Chapel Baptist Church, about 800 feet east of the M. P. Suddeth electric light plant on Dobbin's Creek, about 20 feet east of the centerline of the highway and about 5 feet higher than the highway, in the side of a mountain. Station is a standard tablet stamped "1510.246 M 48 1933" and set vertically in rock.

NOTE: Searched for but not recovered, June 1955.

ELEVATION: 1510.092 feet or 460.277 meters (C-1)

M 61 (USCGS, 1934; Watauga County, North Carolina)

Located about 100 yards south of the north city limit sign of Boone, on Highway 421, about 40 feet east of the centerline of the highway, about 15 feet northeast of a pole, and 2 feet west of a fence. Station is a standard disk, stamped "M 61 1934", set in the top of a concrete post projecting about 6 inches above ground.

NOTE: Searched for but not recovered, May 1955 and Sept., 1959.

ELEVATION: 3375.302 feet or 1028.794 meters (C-2)

MAYVIEW MANOR (US FOREST SERVICE, 1933; Watauga County, North Carolina)

Located on south edge of private road about $\frac{1}{4}$ mile northwest of Mayview Manor Hotel and south of residence with round tower. Witnessed by crosses in rock cliff marked 172X, bearing N78-30E, 0.67 chains and N33-30W, 0.91 chains. (Some location approximately as old Blowing Rock triangulation station 1931 USFS.) Station is a USFS Class A marker 172.

NOTE: Searched for but not recovered, June 1955, and Sept. 1959.

GEODETIC POSITION: Lat. = 36°07'54.901"; Long. = 81°41'22.476" (G-3)

To Station	Azimuth	Back Azimuth	Log. Meters	Miles
Grandfather	74°20'23.0"	254°15'40.5"	4.095 236	7.7
Joe White	13 27 44.8	193 26 17.0	4.205 554	10.0

MCD 297 (TVA, 1955; Watauga County, North Carolina)

To reach from Boone, go 1.3 miles east along Highway 421; thence 2.4 miles north on State Highway 194 to station, 35 feet east of and 1 foot lower than centerline of road over drain, and about 100 feet southwest of brick house. Station is a standard TVA tablet stamped "MCD 297 1955" and set in rock outcrop. Station is on property owned by J. H. Jones.

NOTE: Searched for but not found, September 1959. Covered deeply by foundation of new building.

ELEVATION: 3201.7 feet (T-4)

MCD 298 (TVA, 1955; Watauga County, North Carolina) *11-28-90 DEST*

To reach from Boone, go 1.3 miles east along State Highway 421, thence 1.7 miles north on State Highway 194 to station, on wing wall of north abutment of bridge over Howard Creek, 15 feet west of centerline of road and same elevation. Station is a chiseled square. *NEW BRIDGE*

ELEVATION: 3142.18 feet (G-3)

MCD 299 (TVA, 1955; Watauga County, North Carolina) *GOOD 11-28-90*

Located 1.3 miles east of Boone. To reach, go along U.S. Highway 421, thence 0.5 mile north of State Highway 194; 15 feet east of, and level with centerline of road opposite. Station is a standard TVA disk stamped "MCD 299 1955", painted "BM 2225.0", and set in north end of east headwall of concrete culvert. *103 ft. S. of a fire hydrant*

ELEVATION: 3225.04 feet (G-3)

MCD 316 (TVA, 1977; Watauga County, North Carolina)

Located about 4.5 miles southeast of Boone, North Carolina, set on north side of field road in hedgerow, 282.0 feet west of where hedgerow crosses main road. To reach from post office at Boone, North Carolina, go east on U.S. 421 0.6 mile to junction with U.S. 221. Turn right on U.S. 221 and go 5.5 miles to Aho road (gravel), turn left and go 2.0 miles to Y-road, keep right at Y-road and go 0.4 mile to T-road north about 300 feet west of Blue Ridge Parkway. Turn left on T-road, go 0.1 mile to Y-road. Turn right and go 0.7 mile to field road. Turn left on field road and go 285 feet to station. A 1 by 1 inch angle iron stamped "MCD 316".

Reference Mark 1 is 7.20 feet S35°W to nail in triangular blaze in 14 inch birch.

Reference Mark 2 is 68.80 feet S85°E to nail in triangular blaze in 6 inch locust.

Reference Mark 3 is 85.50 feet west to 14 inch apple tree.

GEODETIC POSITION (North Carolina): X = 1,225,734.6; Y = 890,278.5 (T-4)

ELEVATION: 3967 feet (T-5)

MCD 318 (TVA, 1977; Caldwell County, North Carolina)

Located on south end of highest point on 30 by 30 foot boulder jutting out of north side of high ridge east and west, about 15 feet lower than centerline of ridge. It is about 8.5 miles southeast of Blowing Rock, North Carolina, about 0.5 mile southwest of Nelson Chapel Church east end of Joshua Ridge. To reach from post office of Blowing Rock, go southeast on U.S. 321 10.6 miles to junction of U.S. 321 and Kirby Creek Road near Nelson Chapel Church. Turn right on Kirby Creek Road and go to where road crosses creek. Leave car and walk 880°W about 2000 feet to first top and station. Station is a chiseled cross.

Reference Mark 1 is 17.2 feet S67°W to nail in triangular blaze in 10 inch red oak.

Reference Mark 2 is 34.2 feet N24°W to nail in triangular blaze in 20 inch white pine.

GRID POSITION (North Carolina): X = 1,229,605.0; Y = 843,154.4 (T-4)
ELEVATION: 2107 feet (T-5)

MLB 1608 (TVA, 1977; Watauga County, North Carolina)

Located approximately 6 miles east from Boone, North Carolina. To reach from post office in Boone, go east for 2.8 miles on Highway 221, to intersection of Highway 221 and the Bamboo Road. Turn right on Bamboo Road and go south 2.2 miles to the intersection of the Bamboo road and Browns Chapel Road, and go 0.7 mile to T-drive southeast. Turn right in drive and go through yard up old road to top of ridge and station. Station is on highest elevation of top, 59.30 feet S75°W from a 36 inch hickory tree, 18.65 feet N35°W from a 12 inch cherry tree, and 33.20 feet N33°E from a 14 inch hickory tree. A 1 by 1 inch angle iron.

GRID POSITION (North Carolina): X = 1,230,389.3; Y = 904,337.5 (T-4)
ELEVATION: 3719 feet (T-5)

MR 9 (USCGS, 1934; Watauga County, North Carolina)

Located 2.9 miles northwest of Boone, 1.0 mile southeast of Lovill, 300 feet southeast of County Home, 250 feet north of gateway at south end of south curve, 75 feet east of road, in pasture. Station is a standard tablet stamped "MR 9 1934" and set in top of ledge.

Reference Mark is 22 feet southwest of tablet, 3 feet south of center of 40 inch cherry tree; copper nail and washer in top of root, 2.034 feet lower than tablet.

NOTE: Searched for but not recovered October 1959.

ELEVATION: 3402.68 feet (G-3)

N 48 (USCGS, 1933; Caldwell County, North Carolina)

Located 1.9 miles northwest along U.S. Highway 321 from Patterson, Caldwell County, about 925 feet north of the dam at the Yarkin Woolen Mills, about 20 feet east of the centerline of the highway, between the highway and the north end of an old store building, about level with the highway, and 5 feet from the east end of rock. Station is a standard tablet stamped "1322.064 N 48 1933" and set in top of rock.

ELEVATION: 1321.913 feet or 402.920 meters (C-1)

N 61 (USCGS, 1934; Watauga County, North Carolina)

Located about 2.1 miles northwest along U.S. Highway 421 from Boone, on U.S. Highway 421, on the top of Rich Mountain Gap, about 100 yards north of the summit, opposite the point of tangent of the first curve north of the summit, 27 feet west of the centerline of the highway, and 2 feet west of the highway fence. Station is a standard disk, stamped "N 61 1934", set in the top of a concrete post projecting about 6 inches above the ground.

NOTE: Searched for but not recovered, May 1955 and October 1959.

ELEVATION: 3543.290 feet or 1079.997 meters (C-2)

N 90 (USCGS, 1935; Watauga County, North Carolina)

Located about 11.5 miles east along U.S. Highway 421 from the county courthouse at Boone, at Deep Gap, at the crest of a pass, 77 feet northwest of the Tip Top service station, 26 feet southwest of the centerline of the highway, 2.2 feet northwest of a fence corner and 1.0 foot northeast of the fence. Station is a standard tablet stamped "N 90 1935" and set in the top of a concrete post, projecting about 1 inch above ground.

GEODETIC POSITION: Lat. = 36°13'47.65"; Long. = 81°30'01.20" (G-3)

GRID POSITION (North Carolina): X = 1,252,571; Y = 911,855 (G-3)

ELEVATION: 3130.683 feet or 954.234 meters (C-2)

P 61 (USCGS, 1934; Watauga County, North Carolina)

Located about 0.6 mile southeast along U.S. Highway 421 from Lovill, on U.S. Highway 421, at the intersection of a private road leading northeast, about 25 feet northeast of the centerline of the highway, and 10 feet east of a fence corner at a triangle formed by the intersection. Station is a standard USCGS disk, stamped "P 61 1934", set in the top of a concrete post projecting about 6 inches above the ground.

Report on Condition (TVA, 10-2-59): Bench mark recovered this date; however, monument was found to be broken off about 0.5 feet below ground surface. Probing revealed balance of monument still intact, so upper portion tamped in place. This BM is believed still usable for low order accuracy.

ELEVATION: 3258.268 feet or 993.122 meters (C-2)

P 90 (USCGS, 1935; Watauga County, North Carolina)

Located about 10.1 miles east along U.S. Highway 421 from the county courthouse at Boone, about 1.4 miles west of Deep Gap, 70 feet east of the entrance to a schoolhouse, 25 feet north of the centerline of the highway, and 1.2 feet south of a fence. Station is a standard tablet stamped "P 90 1935" and set in the top of a concrete post, projecting about 6 inches above ground.

ELEVATION: 3059.692 feet or 932.596 meters (C-2)

PATTERSON (USCGS, 1933; Caldwell County, North Carolina)

Located at Patterson, on U.S. Highway 321, in the west wall of the Watts Cotton Mill, 25 feet north of the southwest corner, 22 feet east of the centerline of the highway and about 4 feet above the grade. Station is a standard tablet stamped "1253.013 PATTERSON 1933" and set vertically.

ELEVATION: 1252.862 feet or 381.873 meters (C-1)

Q 90 (USCGS, 1935; Watauga County, North Carolina)

Located about 8.0 miles east along U.S. Highway 421 from the county courthouse at Boone, about 0.3 mile west of a side road leading to Big Hill, on the outside of a curve around a hill, 19.5 feet north of the centerline of the highway, and 5 feet north of a guard fence. Station is a standard tablet stamped "Q 90 1935" and set in the top of a concrete post, projecting about 6 inches above ground.

ELEVATION: 3196.109 feet or 974.176 meters (C-2)

R 90 (USCGS, 1935; Watauga County, North Carolina)

Located about 6.2 miles east along U.S. Highway 421 from the county courthouse at Boone, 0.3 mile west of the crossing of old State Highway 60, about 0.1 mile east of the crest of a hill, and 35 feet south of the centerline of the highway. Station is a standard tablet stamped "R 90 1935" and set in the top of a concrete post, projecting about 7 inches above ground.

ELEVATION: 3242.694 feet or 988.375 meters (C-2)

LR 76 (TVA, 1937; Watauga County, North Carolina)

Located 2.5 miles northwest of Boone, North Carolina. To reach from Silverstone, North Carolina post office, drive south 0.2 mile to road intersection left, take road left 3.0 miles to Y-intersection near top of ridge. Bear right along ridge 0.5 mile to T-road left near new stone house in gap. Take T-road left 3.2 miles to intersection right up creek near small log cabin. Go right up road 0.3 mile to field, then west to ridge through field then left along ridge to briar patch on top. Point is 200 feet north of absolute top. Station is a punched hole in a 1 inch by 1 inch by $\frac{1}{4}$ inch angle iron stamped "TVA LR 26 1937."

Reference Mark 1 is 16.32 feet S81°W to triple oak.

Reference Mark 2 is 5.30 feet N25°W to 29 inch oak.

Reference Mark 3 is 4.44 feet N69°E to 3 inch hickory.

GRID POSITION (Tennessee): X = 3,261,037; Y = 701,297 (T-4)
ELEVATION: 4510 feet (T-5)

M 48 (USC&GS, 1933; Caldwell County, North Carolina)

Located 11.5 miles southeast along U.S. Highway 321 from Blowing Rock, Watauga County, about $\frac{1}{4}$ mile southeast of the Nelson Chapel Baptist Church, about 800 feet east of the M. P. Suddeth electric light plant on Dobbin's Creek, about 20 feet east of the centerline of the highway and about 5 feet higher than the highway, in the side of a mountain. Station is a standard tablet stamped "1510.246 M 48 1933" and set vertically in rock.

NOTE: Searched for but not recovered, June 1955.

ELEVATION: 1510.092 feet or 460.277 meters (C-1)

M 61 (USC&GS, 1934; Watauga County, North Carolina)

Located about 100 yards south of the north city limit sign of Boone, on Highway 421, about 40 feet east of the centerline of the highway, about 15 feet northeast of a pole, and 2 feet west of a fence. Station is a standard disk, stamped "M 61 1934", set in the top of a concrete post projecting about 6 inches above ground.

NOTE: Searched for but not recovered, May 1955 and Sept., 1959.

ELEVATION: 3375.302 feet or 1028.794 meters (C-2)

MAYVIEW MANOR (US FOREST SERVICE, 1933; Watauga County, North Carolina)

Located on south edge of private road about $\frac{1}{4}$ mile northwest of Mayview Manor Hotel and south of residence with round tower. Witnessed by crosses in rock cliff marked 172X, bearing N78-30E, 0.67 chains and N33-30W, 0.91 chains. (Same location approximately as old Blowing Rock triangulation station 1931 USFS.) Station is a USFSS Class A marker 172.

NOTE: Searched for but not recovered, June 1955, and Sept. 1959.

GEODETIC POSITION: Lat. = 36°07'54.901"; Long. = 81°41'22.476" (G-3)

To Station	Azimuth	Back Azimuth	Log. Meters	Miles
Grandfather	74°20'23.0"	254°15'40.5"	4.095 236	7.7
Joe White	13 27 44.8	193 26 17.0	4.205 554	10.0

MCD 297 (TVA, 1955; Watauga County, North Carolina)

To reach from Boone, go 1.3 miles east along Highway 421; thence 2.4 miles north on State Highway 194 to station, 35 feet east of and 1 foot lower than centerline of road over drain, and about 100 feet southwest of brick house. Station is a standard TVA tablet stamped "MCD 297 1955" and set in rock outcrop. Station is on property owned by J. H. Jones.

NOTE: Searched for but not found, September 1959. Covered deeply by foundation of new building.

ELEVATION: 3201.7 feet (T-4)

MCD 298 (TVA, 1955; Watauga County, North Carolina) *11-28-90 DEST*

To reach from Boone, go 1.3 miles east along State Highway 421, thence 1.7 miles north on State Highway 194 to station, on wing wall of north abutment of bridge over Howard Creek, 15 feet west of centerline of road and same elevation. Station is a chiseled square. *NEW BRIDGE*

ELEVATION: 3142.18 feet (G-3)

MCD 299 (TVA, 1955; Watauga County, North Carolina) *Good 11-28-90*

Located 1.3 miles east of Boone. To reach, go along U.S. Highway 421, thence 0.5 mile north of State Highway 194; 15 feet east of, and level with centerline of road opposite. Station is a standard TVA disk stamped "MCD 299 1955", painted "BY 2225.0", and set in north end of east headwall of concrete culvert. *105 ft. S. of a fire hydrant*

ELEVATION: 3225.04 feet (G-3)

MCD 316 (TVA, 19??; Watauga County, North Carolina)

Located about 4.5 miles southeast of Boone, North Carolina, set on north side of field road in hedgerow, 282.0 feet west of where hedgerow crosses main road. To reach from post office at Boone, North Carolina, go east on U.S. 421 0.6 mile to junction with U.S. 221. Turn right on U.S. 221 and go 5.5 miles to Aho road (gravel), turn left and go 2.0 miles to Y-road, keep right at Y-road and go 0.4 mile to T-road north about 300 feet west of Blue Ridge Parkway. Turn left on T-road, go 0.1 mile to Y-road. Turn right and go 0.7 mile to field road. Turn left on field road and go 285 feet to station. A 1 by 1 inch angle iron stamped "MCD 316".

Reference Mark 1 is 7.20 feet 835°W to nail in triangular blaze in 14 inch birch.

Reference Mark 2 is 68.80 feet S85°E to nail in triangular blaze in 6 inch locust.

Reference Mark 3 is 85.50 feet west to 14 inch apple tree.

GEODETIC POSITION (North Carolina): X = 1,225,734.6; Y = 890,278.5 (T-4)
ELEVATION: 3967 feet (T-5)

MCD 318 (TVA, 19??; Caldwell County, North Carolina)

Located on south end of highest point on 30 by 30 foot boulder jutting out of north side of high ridge east and west, about 15 feet lower than centerline of ridge. It is about 8.5 miles southeast of Blowing Rock, North Carolina, about 0.5 mile southwest of Nelson Chapel Church east end of Joshua Ridge. To reach from post office of Blowing Rock, go southeast on U.S. 321 10.6 miles to junction of U.S. 321 and Kirby Creek Road near Nelson Chapel Church. Turn right on Kirby Creek Road and go to where road crosses creek. Leave car and walk S80°W about 2000 feet to first top and station. Station is a chiseled cross.

Reference Mark 1 is 17.2 feet S67°W to nail in triangular blaze in 10 inch red oak.

Reference Mark 2 is 34.2 feet N24°W to nail in triangular blaze in 20 inch white pine.

GRID POSITION (North Carolina): X = 1,229,605.0; Y = 843,154.4 (T-4)
ELEVATION: 2107 feet (T-5)

MLE 1608 (TVA, 19??; Watauga County, North Carolina)

Located approximately 6 miles east from Boone, North Carolina. To reach from post office in Boone, go east for 2.8 miles on Highway 221, to intersection of Highway 221 and the Bamboo Road. Turn right on Bamboo Road and go south 2.2 miles to the intersection of the Bamboo road and Browns Chapel Road, and go 0.7 mile to T-drive southeast. Turn right in drive and go through yard up old road to top of ridge and station. Station is on highest elevation of top, 59.30 feet S75°W from a 36 inch hickory tree, 18.65 feet N35°W from a 12 inch cherry tree, and 33.20 feet N33°E from a 14 inch hickory tree. A 1 by 1 inch angle iron.

GRID POSITION (North Carolina): X = 1,230,389.3; Y = 904,337.5 (T-4)
ELEVATION: 3719 feet (T-5)

MR 9 (USGS, 1934; Watauga County, North Carolina)

Located 2.9 miles northwest of Boone, 1.0 mile southeast of Lovill, 300 feet southeast of County Home, 250 feet north of gateway at south end of south curve, 75 feet east of road, in pasture. Station is a standard tablet stamped "MR 9 1934" and set in top of ledge.

Reference Mark is 22 feet southwest of tablet, 3 feet south of center of 40 inch cherry tree; copper nail and washer in top of root, 2.034 feet lower than tablet.

NOTE: Searched for but not recovered October 1959.

ELEVATION: 3402.68 feet (G-3)

N 48 (USC&GS, 1933; Caldwell County, North Carolina)

Located 1.9 miles northwest along U.S. Highway 321 from Patterson, Caldwell County, about 925 feet north of the dam at the Yadin Woolen Mills, about 20 feet east of the centerline of the highway, between the highway and the north end of an old store building, about level with the highway, and 5 feet from the east end of rock. Station is a standard tablet stamped "1322.064 N 48 1933" and set in top of rock.

ELEVATION: 1321.913 feet or 402.920 meters (C-1)

N 61 (USC&GS, 1934; Watauga County, North Carolina)

Located about 2.1 miles northwest along U.S. Highway 421 from Boone, on U.S. Highway 421, on the top of Rich Mountain Gap, about 100 yards north of the summit, opposite the point of tangent of the first curve north of the summit, 27 feet west of the centerline of the highway, and 2 feet west of the highway fence. Station is a standard disk, stamped "N 61 1934", set in the top of a concrete post projecting about 6 inches above the ground.

NOTE: Searched for but not recovered, May 1955 and October 1959.

ELEVATION: 3543.290 feet or 1079.997 meters (C-2)

N 90 (USC&GS, 1935; Watauga County, North Carolina)

Located about 11.5 miles east along U.S. Highway 421 from the county courthouse at Boone, at Deep Gap, at the crest of a pass, 77 feet northwest of the Tip Top service station, 26 feet southwest of the centerline of the highway, 2.2 feet northwest of a fence corner and 1.0 foot northeast of the fence. Station is a standard tablet stamped "N 90 1935" and set in the top of a concrete post, projecting about 1 inch above ground.

GEODETIC POSITION: Lat. = 36°13'47.65"; Long. = 81°30'01.20" (G-3)

GRID POSITION (North Carolina): X = 1,262,571; Y = 911,855 (G-3)

ELEVATION: 3130.683 feet or 954.234 meters (C-2)

P 61 (USC&GS, 1934; Watauga County, North Carolina)

Located about 0.6 mile southeast along U.S. Highway 421 from Lovill, on U.S. Highway 421, at the intersection of a private road leading northeast, about 25 feet northeast of the centerline of the highway, and 10 feet east of a fence corner at a triangle formed by the intersection. Station is a standard US&GS disk, stamped "P 61 1934", set in the top of a concrete post projecting about 6 inches above the ground.

Report on Condition (TVA, 10-2-59): Bench mark recovered this date; however, monument was found to be broken off about 0.5 feet below ground surface. Probing revealed balance of monument still intact, so upper portion tamped in place. This BM is believed still usable for low order accuracy.

ELEVATION: 3258.268 feet or 993.122 meters (C-2)

P 90 (USC&GS, 1935; Watauga County, North Carolina)

Located about 10.1 miles east along U.S. Highway 421 from the county courthouse at Boone, about 1.4 miles west of Deep Gap, 70 feet east of the entrance to a schoolhouse, 25 feet north of the centerline of the highway, and 1.2 feet south of a fence. Station is a standard tablet stamped "P 90 1935" and set in the top of a concrete post, projecting about 6 inches above ground.

ELEVATION: 3059.692 feet or 932.596 meters (C-2)

PATTERSON (USC&GS, 1933; Caldwell County, North Carolina)

Located at Patterson, on U.S. Highway 321, in the west wall of the Watts Cotton Mill, 25 feet north of the southwest corner, 22 feet east of the centerline of the highway and about 4 feet above the grade. Station is a standard tablet stamped "1253.013 PATTERSON 1933" and set vertically.

ELEVATION: 1252.862 feet or 381.873 meters (C-1)

Q 90 (USC&GS, 1935; Watauga County, North Carolina)

Located about 8.0 miles east along U.S. Highway 421 from the county courthouse at Boone, about 0.3 mile west of a side road leading to Big Hill, on the outside of a curve around a hill, 19.5 feet north of the centerline of the highway, and 5 feet north of a guard fence. Station is a standard tablet stamped "Q 90 1935" and set in the top of a concrete post, projecting about 6 inches above ground.

ELEVATION: 3196.109 feet or 974.176 meters (C-2)

R 90 (USC&GS, 1935; Watauga County, North Carolina)

Located about 6.2 miles east along U.S. Highway 421 from the county courthouse at Boone, 0.3 mile west of the crossing of old State Highway 60, about 0.1 mile east of the crest of a hill, and 35 feet south of the centerline of the highway. Station is a standard tablet stamped "R 90 1935" and set in the top of a concrete post, projecting about 7 inches above ground.

ELEVATION: 3242.694 feet or 988.375 meters (C-2)

RICH (USGS, 1934; Ashe County, North Carolina)

Located 1.9 miles northwest of Boone, along State Highway 1102 to top of Rich Mountain, cross top, thence along north side to T-road, thence left to highest point, on southwest side of knob; 45 feet northwest of tower. Station is a standard tablet stamped "RICH 1934", in rock ledge.

GEODETIC POSITION: Lat. = 36°14'07.35"; Long. = 81°42'22.86" (G-3)
 GRID POSITION (North Carolina): X = 1,201,879; Y = 915,440 (G-3)
 ELEVATION: 4782 feet (T-5)

RICH MOUNTAIN FIRE TOWER (????, ????: ????????????, North Carolina)

Located 45.52 feet 855°E from RICH Triangulation Station.

GRID POSITION (North Carolina): X = 1,201,911.6; Y = 915,408.3 (T-4) ✓
 ELEVATION: 4772 feet (T-5)

ROCKY KNOB L.O.T. (????, ????: ????????????, North Carolina)

Located about 3.0 miles (airline) south of Blowing Rock. To reach, go 1.7 miles south of intersection of U.S. Highway 321 and 321 by-pass at south edge of Blowing Rock, along Highway 321 to dirt road right, thence about 2.0 miles along ridge to highest point; centerline of tower designated "ROCKY KNOB L.O.T. ET 1963." Station is a tower.

GRID POSITION (North Carolina): X = 1,213,056; Y = 860,645 (G-3)
 Grid Azimuth to Flat Top L.O.T.: 5.3 miles, 173°23'43"
 Grid Azimuth to Dugger L.O.T.: 7.7 miles, 233°50'42"
 Grid Azimuth to Hibriten Mountain: 15.7 miles; 323°11'41"

RPW 13 (USGS, 1934; Watauga County, North Carolina)

Located 3.8 miles southwest of Blowing Rock, 45 feet southeast of crossroads, 35 feet east of south highway 28, opposite sign "Crest of Blue Ridge, Alt. 3727 feet." Station is a standard tablet stamped "RPW 13 1934 3684" and set in top of concrete post.

Reference Mark 1 is 35 feet north and 10 feet west of tablet, on southwest corner of east concrete headwall of drain pipe; chiseled square 0.46 feet higher than tablet.

Reference Mark 2 is 100 feet north of tablet, in root on west side of 14 inch apple tree; copper nail and washer 45.63 feet higher than tablet.

ELEVATION: 3683.89 feet (G-3)

S 90 (USC&GS, 1935; Watauga County, North Carolina)

Located about 4.6 miles east along U.S. Highway 421 from the county courthouse at Boone, about 63 yards east of a crossroad, about 90 feet east of a 3 foot concrete pipe culvert, 30.5 feet north of the centerline of the highway, 12 feet east of a fence corner, and 1.5 feet north of the fence. Station is a standard tablet stamped "S 90 1935" and set in the top of a concrete post, projecting about 4 inches above ground.

ELEVATION: 3267.490 feet or 995.933 meters (C-2)

T 90 (USC&GS, 1935; Watauga County, North Carolina)

Located about 2.6 miles east along U.S. Highway 421 from the county courthouse at Boone, at the bridge over South Fork New River, in the top of the south end of the west concrete pier, 13.5 feet south of the centerline of the bridge; and about 4 feet lower than the bridge floor. Station is a standard disk stamped "T 90 1935" and set in the top of pier.

ELEVATION: 3087.989 feet or 941.221 meters (C-2)

TEM 113 (USC&GS, 1933; Watauga County, North Carolina)

Located about 1.9 miles southeast along State Highway 28 from Boone, Watauga County, at the highway bridge over Boone Creek, on the top of the west end of the north abutment, and about 15 feet west of the centerline of the highway. Station is a chiseled square.

ELEVATION: 3,123.557 feet or 952.062 meters (C-1)

TEM 115 (USC&GS, 1933; Watauga County, North Carolina)

Located about 2.9 miles southeast along State Highway 28 from Boone, Watauga County, about 310 feet west of the Deerfield Road intersection, at a 15 inch corrugated drain pipe under the highway, on the top of the south concrete head wall, and about 15 feet south of the centerline of the highway. Station is a chiseled square.

ELEVATION: 3,173.557 feet or 967.302 meters (C-1)

TEM 116 (USC&GS, 1933; Watauga County, North Carolina)

Located 3.3 miles southeast along State Highway 28 from Boone, Watauga County, at Middle Fork Bridge, on the top of the west end of the south abutment and 12 feet west of the centerline of the highway. A chiseled square.

ELEVATION: 3,157.412 feet or 962.381 meters (C-1)

TEM 120 RESET (USC&GS, 1933; RESET STATE HIGHWAY & PUBLIC WORKS DEPT., 1949; Watauga County, North Carolina)

Located 5.5 miles along U.S. Highway 321 from Boone, about 200 feet south of Middle Fork Baptist Church, at Upper Middle Fork Bridge 1, in east end of north abutment, and 17 feet east of the centerline of highway. A standard tablet stamped "TEM 120 RESET 1949" and set in abutment.

NOTE: This bench mark was established and its elevation determined by engineers of the State Highway and Public Works Commission in June 1949.

ELEVATION: 3320.416 feet

TEM 158 (USC&GS, 1933; Caldwell County, North Carolina)

Located 9.6 miles southeast along U.S. Highway 321 from Blowing Rock, Watauga County, about 100 yards southeast of the home of Lee Carleton, at a 3 by 4 foot box culvert, on top of the southwest head wall, 6 inches from the southeast end, and 12 feet southwest of the centerline of the highway. Station is a chiseled square on top of head wall.

ELEVATION: 1896.141 feet or 577.945 meters (C-1)

TT 62 FI (USGS, 1947; Caldwell County, North Carolina)

Located 2.0 miles northeast of Mortimer post office, 34 feet northwest of northwest corner of vacant store building, 26 feet east of centerline of road. Station is a standard tablet stamped "TT 62 FI 1947" and set in a 7 by 7 inch concrete post.

Report on Condition (TVA, 8-25-59): Monument was found to be near or at described location. This monument seemed to be higher out of ground than usual, extending out of ground 18 inches to 2 feet. As a small lake was near and grading for dam near location. We believe monument could have been moved from original position.

GEODETIC POSITION: Lat. = 36°00'16.57"; Long. = 81°44'19.93" (G-3)
 GRID POSITION (North Carolina): X = 1,189,974; Y = 831,726 (G-3)

U 90 (USC&GS, 1935; Watauga County, North Carolina)

Located about 1.3 miles east along U.S. Highway 421 from the county courthouse at Boone, at the junction of U.S. Highway 221, 35 feet east of the centerline of U.S. Highway 221, 22.5 feet north of the center of U.S. Highway 421, 5 feet east of a fence corner, and 1.5 feet south of the fence. Station is a standard tablet stamped "U 90 1935" and set in the top of a concrete post, projecting about 6 inches above ground.

NOTE: Searched for but not recovered, September 1959. Possibly destroyed by highway improvement.

ELEVATION: 3182.428 feet or 970.006 meters (C-2)

UE 3140.8 (USGS, 1963; Watauga County, North Carolina)

Located about 150 feet north of junction of U.S. Highway 421 and State Highway 194; 20 feet west of, and 1 foot lower than centerline of road opposite. Station is a chiseled square, painted "UE 3140.8", on southwest corner of concrete culvert.

ELEVATION: 3140.79 feet (G-3)

WHITENER (NORTH CAROLINA HIGHWAY DEPT., 1969; Watauga County, North Carolina)

Located approximately 1.0 mile north of Boone, North Carolina. To reach station proceed from the intersection of West Main Street and Cherry Drive in Boone, go north on Cherry Drive for 0.45 mile to intersection of Cherry Drive and Eastview Drive, turn right on Eastview Avenue left and Hunting Road right, turn left on Eastview Avenue and go uphill for 1.0 mile to sharp curve to right and fence with gate on left. Station is on high bank approximately 200 feet east of Eastview Avenue near old school bus. Station mark is a standard North Carolina Brass Traverse disk, stamped "WHITENER 1969", set in the top of a concrete cylinder, the top of which is 1 inch below the surface of the ground. Station is 25.7 feet southeast of back end of old junked school bus, 88.2 feet southeast of power pole next to barbed wire fence, and with aluminum reference tag, 60.7 feet northeast of 15 inch hickory tree with aluminum reference tag, 77.2 feet north of 10 inch hardwood tree on south side of hill, and with aluminum reference tag, and 13.1 feet southwest of a 15 inch stump approximately 2 feet high.

GEODETIC POSITION: Lat. = 36°13'52.286"; Long. = 81°41'11.554" (HWY-2)

Geodetic Azimuth to Graham: 317°00'20.6"

GRID POSITION (North Carolina): X = 1,207,677.38; Y = 913,758.36 (HWY-2)

Grid Azimuth to Graham: 318°33'23"

ELEVATION: 4109 feet or 1252.3 meters (HWY-5)

X 46 (USC&GS, 1933; Watauga County, North Carolina)

Located about 5.0 miles southwest along the East Tennessee and Western North Carolina Railroad from Boone, about 637 yards northeast of milepost 60, about 20 feet south of the centerline of the track, and about 1 1/2 feet higher than the rail. Station is a standard tablet stamped "3016.533 X 46 1933" and set in the top of a boulder.

Report on Condition (TVA, Oct. 1959): Shaft of tablet was found intact in top of boulder, but cap had been broken off and destroyed.

ELEVATION: 3016.369 feet or 919.391 meters (C-1)

Y 46 (USC&GS, 1933; Watauga County, North Carolina)

Located about 1.4 miles east along the East Tennessee and Western North Carolina Railroad from Boone, about 610 feet east of milepost 64, about 200 feet southwest of a State Highway District shop, and about 8 feet west of the centerline of the track. Station is a standard tablet stamped "3128.465 Y 46 1933" and set in the top of a concrete post, projecting about 8 inches above ground.

ELEVATION: 3128.301 feet or 953.508 meters (C-1)

Z 46 (USC&GS, 1933; Watauga County, North Carolina)

Located about 1.4 miles east along the East Tennessee and Western North Carolina Railroad from Boone, about 730 feet southeast of milepost 64, about 300 feet southwest of a State Highway District shop; and about 8 feet northwest of the centerline of the track. Station is a standard tablet stamped "3127.746 Z 46 1933" and set in the top of a concrete post, projecting about 8 inches above ground.

ELEVATION: 3127.586 feet or 953.290 meters (C-1)