



Base prepared by the Army Map Service (LKBTT), Corps of Engineers, U.S. Army, Washington, D.C. Compiled in 1953 by photogrammetric methods. Horizontal and vertical control by US&GS, USGS, and CE. Aerial photography 1953. Photography field annotated 1953.

HORIZONTAL CONTROL

Coast & Geodetic Survey

- Monumented Point - First Order
- Monumented Point - Second Order
- Monumented Point - Third Order
- Located Object - Third Order
- See separate index for names of numbered stations
- Station reported not recovered
- Measured Base - Electronic or Taped
- Line of triangulation observed
- Line of triangulation observed from one end only
- Measured Length - Electronic or Taped
- Theodolite Traverse - Electronic Distance
- Transit Traverse - Taped Distance Third Order
- Transit Traverse and Leveling Third Order

Geological Survey

- Monumented Point - First Order
- Monumented Point - Second Order
- Monumented Point - Third Order
- Located Object - Third Order
- See separate index for names of numbered stations
- Station reported not recovered
- Measured Base - Electronic or Taped
- Line of triangulation observed
- Line of triangulation observed from one end only
- Measured Length - Electronic or Taped
- Theodolite Traverse - Electronic Distance
- Transit Traverse - Taped Distance Third Order
- Transit Traverse and Leveling Third Order

VERTICAL CONTROL

Coast & Geodetic Survey

- First Order
- Second Order
- Third Order

Geological Survey

- First Order
- Second Order
- Third Order

STATE SURVEY CONTROL

- Horizontal or Vertical

SECTIONIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

TRANSVERSE MERCATOR PROJECTION

LEGEND

ROADS

- Hand surface, heavy duty
- More than two lanes wide
- Two lanes wide; Federal route marker
- More than two lanes wide
- Two lanes wide; State route marker
- Improved light duty
- Unimproved Dirt
- Trail

RAILROADS

- Standard Gauge
- Narrow gauge
- 3 Lanes & 1 Lane
- 2 Lanes & 1 Lane
- 1 Lane

BOUNDARIES

- International
- County
- Park or reservation

LANDMARKS: School; Church; Other

Spot elevation in feet

Marsh or swamp

Intermittent or dry stream

Power line

COAST AND GEODETIC SURVEY
THIRTY MINUTE QUADRANGLE DESIGNATION

INDEX TO COUNTY BOUNDARIES

1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24
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49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104	105	106	107	108
109	110	111	112	113	114	115	116	117	118	119	120

LOCATION DIAGRAM FOR NL 15-5

LEGEND

ORDER CONTROL DATA IN BLACK BY 30 MINUTE QUADRANGLE UNITS FROM DIRECTOR, COAST AND GEODETIC SURVEY, WASHINGTON 25, D.C.

GEOLOGICAL SURVEY
FIFTEEN MINUTE QUADRANGLE DESIGNATION

INDEX TO COUNTY BOUNDARIES

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37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60
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73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104	105	106	107	108
109	110	111	112	113	114	115	116	117	118	119	120

LEGEND

ORDER CONTROL DATA IN RED BY 15 MINUTE QUADRANGLE UNITS FROM DIRECTOR, GEOLOGICAL SURVEY, WASHINGTON 25, D.C.

DULUTH, MINNESOTA, WISCONSIN (NL 15-5)
NOVEMBER 1963

USCGM-GS-DC-4-969

INDEX TO NUMBERED HORIZONTAL CONTROL STATIONS

by the
 Coast and Geodetic Survey

KEY NO.	STATION NAME	QUAD. NO.	STATION NO.	KEY NO.	STATION NAME	QUAD. NO.	STATION NO.
1	GARRISON	460933	1016	22	DULUTH HEAD OF 5TH AVE WEST HOUSE CHIMNEY	460921	1049
1	GARRISON CONCOURSE FLAG POLE	460933	1016	22	DULUTH WEATHER BUREAU SIGNAL TOWER	460921	1063
2	BORDEN	460933	1017	24	AERIAL BRIDGE SW COLUMN OF N PIER	460921	1028
2	BORDEN LOOKOUT TOWER	460933	1017	25	DULUTH ELEVATOR B STACK	460921	1045
3	AITKIN HIGH SCHOOL DOME	460934	1014	26	DULUTH GENERAL ELEVATOR FLAGSTAFF	460921	1048
3	AITKIN JAIL	460934	1015	27	DULUTH CAPITAL ELEVATOR FLAGSTAFF	460921	1040
3	AITKIN MUNICIPAL WATER TANK	460934	1003	27	DULUTH ELEVATOR H STACK	460921	1046
3	AITKIN ST JAMES CATHOLIC CHURCH SPIRE	460934	1016	27	DULUTH NORRIS GRAIN CO ELEVATOR FLAGSTAFF	460921	1053
3	AITKIN WATER TOWER	460934	1017	27	DULUTH OCCIDENT ELEVATOR FLAGSTAFF	460921	1054
4	AITKIN FIRE TOWER	460934	1013	27	DULUTH PV ELEVATOR FLAGSTAFF	460921	1058
5	BETHLEHEM	460933	1032	28	DULUTH PEAVEY ELEVATOR CO STACK	460921	1056
5	BETHLEHEM CHURCH SPIRE	460933	1035	29	DULUTH US COAST GUARD LOOKOUT TOWER	460921	1062
6	MCGREGOR SCHOOLHOUSE BELFRY	460931	1015	30	DULUTH BREWING AND MALTING CO DOME	460921	1039
6	MC GREGOR VANDEWATER SAWMILL STACK	460931	1014	30	ONEOTA RIVER USLS	460921	1019
7	STATE POLICE RADIO STATION KAB 437 TOWER	460932	1029	31	DULUTH PARK POINT SCHOOL STACK	460921	1055
8	ISLE MUNICIPAL WATER TANK	460932	1026	31	DULUTH POLICE RADIO STATION KWA 939 MAST	460921	1057
9	ISLAND	460924	1014	31	MINNESOTA POINT NORTH BASE USLS	460921	1015
9	ISLAND AZIMUTH MARK	460924	1014	32	INTERSTATE BRIDGE DRAW SPAN OPERATORS TWR	460921	1067
9	ISLAND RM 2	460924	1014	33	SUPERIOR ELEVATOR S GN RY SOUTH GABLE	460921	1098
10	CLOQUET WOOD CONVERSION CO WATER TANK	460921	1036	33	SUPERIOR FARMERS UNION ELEVATOR FLAGSTAFF	460921	1100
11	CLOQUET CATHOLIC CHURCH SPIRE	460921	1029	33	SUPERIOR GOLBE ELEVATOR CO STACK	460921	1102
11	CLOQUET SACRED HEART CATH CHURCH STEEPLE	460921	1034	34	DULUTH COLLEGE CLOCK TOWER	460921	1043
12	DULUTH MUNICIPAL AIRPORT BEACON	460921	1052	35	DULUTH MINNESOTA POWER AND LIGHT CO STACK	460921	1050
12	SKYLINE	460921	1022	35	DULUTH UNION MATCH CO CUPOLA	460921	1060
13	ARNOLD	460921	1002	35	DULUTH UNION MATCH CO WATER TANK	460921	1061
13	DULUTH WOODLAND EAST MUNICIPAL WATER TANK	460921	1064	36	WEST DULUTH IRVING SCHOOL CHIMNEY	460921	1073
13	DULUTH WOODLAND WEST MUNICIPAL WATER TANK	460921	1065	37	CARBOLITE	460921	1003
14	DULUTH MOUNT ROYAL MANOR CHIMNEY	460921	1051	38	SUPERIOR ST MARYS HOSPITAL SPIRE	460921	1107
15	PROCTORKNOTT RAILWAY SHOPS WATER TANK	460921	1090	38	SUPERIOR STATE NORMAL SCHOOL HIGHER TOWER	460921	1108
16	DULUTH BAYVIEW MUNICIPAL STANDPIPE	460921	1038	39	EAST SUPERIOR LINCOLN SCHOOL FLAGSTAFF	460921	1092
16	TANK ON HILL WEST OF DULUTH	460921	1072	40	SUPERIOR ELEVATOR K STACK	460921	1097
17	DULUTH	460921	1008	41	EAST SUPERIOR PREBYTERIAN CHURCH SPIRE	460921	1093
17	DULUTH 2	460921	1008	42	SUPERIOR ST FRANCIS XAVIER CATH CH STEEPLE	460921	1106
18	GILLIAT	460921	1011	43	SUPERIOR FRONT RANGE LIGHTHOUSE	460921	1101
19	DULUTH TV STATION WEBC MAST	460921	1059	43	SUPERIOR REAR RANGE LIGHTHOUSE	460921	1104
19	WEBC	460921	1027	44	ITASCA CSPM+O RR ELEVATOR STACK	460921	1088
20	DULUTH CATHOLIC OR M E CHURCH SPIRE	460921	1041	45	SUPERIOR WEATHER BUREAU SIGNAL TOWER	460921	1109
20	DULUTH CENTRAL HIGH SCHOOL CUPOLA SPIRE	460921	1042	46	S SUPERIOR WEBSTER CHAIR CO STACK	460921	1096
21	DULUTH ENGER MEMORIAL TOWER	460921	1047	47	S SUPERIOR BRYANT SCHOOL NE COR NW CHIMNEY	460921	1095
21	ENGER MINN GEOD S	460921	1009	48	S SUPERIOR BILLINGS SCHOOL BELFRY	460921	1094

U. S. DEPT. OF COMMERCE
 COAST AND GEODETIC SURVEY
 WASHINGTON, D. C.
 FORM - 6471 (1-63)
 DATE SEP 1963 REVISED SEP 1965

INDEX TO NUMBERED HORIZONTAL CONTROL STATIONS

by the
 Coast and Geodetic Survey

Page 2
 QUADS 460921-2-3-4 & 460931-2-3-4
 MIN-WISC
 LATITUDE 46°00' TO 47°00'
 LONGITUDE 92°00' TO 93°00'
 DIAGRAM NL 15-5 DULUTH

KEY NO.	STATION NAME	QUAD. NO.	STATION NO.
49	SUPERIOR RADIO STATION WDSF MAST ROT BEACON	460921	1103
50	SAUNDERS GREAT NORTHERN RY WATER TANK	460921	1091
51	BOYLSTON GREAT NORTHERN RY SIGNL TOWER	460921	1087
52	FIVE	460922	1008
52	FIVE MILE LOOKOUT TOWER (USGS)	460922	1008
53	MINNESOTA POINT SOUTH BASE USLS	460921	1016
54	DULUTH DLH RADIO MAST CENTER OF 5	460921	1044
55	SCANLON JOHNSONS SAWMILL STACK	460921	1069
55	SCANLON SAWMILL STACK SE EDGE OF TOWN	460921	1070
55	SCANLON SCHOOLHOUSE CUPOLA	460921	1071
56	ROGER	460921	1081
57	SUPERIOR ELEVATOR T SOUTH GABLE	460921	1099
58	SUPERIOR RADIO STATION WEBC SOUTH MAST	460921	1105
59	FINLAYSON RADIO STATION KAA 426 MAST	460923	1009
60	KETTLE RIVER ABANDONED RADIO TOWER	460923	1010
61	ASKOV BETHLEHEM LUTHERAN CHURCH STEEPLE	460923	1022
62	KETTLE RIVER MUNICIPAL WATER TANK	460923	1026
63	MOOSE LAKE STATE HOSPITAL BELFRY	460923	1029
63	MOOSE LAKE STATE HOSPITAL STACK	460923	1031
63	MOOSE LAKE STATE HOSPITAL WATER TANK	460923	1030
64	OPSTEAD AZIMUTH MARK	460932	1022
64	PT 16 USGS	460932	1022
65	OPSTEAD BAPTIST CHURCH SPIRE	460932	1027
66	CROSBY MUNICIPAL WATER TANK	460933	1033
67	DEERWOOD MUNICIPAL WATER TANK	460933	1034
68	IRONTON MUNICIPAL WATER TANK	460933	1036
69	AITKIN RADIO STATION KAB 824 MAST	460934	1004
70	CUYUNA MUNICIPAL WATER TANK	460934	1018

KEY NO.	STATION NAME	QUAD. NO.	STATION NO.
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