

## 16.0 AOC 24 – RANGE 24A

### 16.1 LOCATION OF STUDY AREA

Range 24A comprises approximately 17 acres within the Cantonment Area at the Fort McClellan, Alabama Army Installation (Fig. 1). The study area boundary was devised by adding a 100-ft buffer outside of the Range 24A site boundary.

### 16.2 AERIAL PHOTOGRAPH QUALITY ISSUES

A few photograph quality issues were encountered during photograph interpretation. They were corrected as follows:

- X **Quality** - In many areas of the photographs, the dynamic range of brightness values was insufficient to distinguish land cover classes. Due to extreme brightness (almost white), ground cover such as grass, bare soil, trails, and roads could not be differentiated. Buildings could only be differentiated from paved areas by stereo viewing. Where appropriate, problem areas of the photographs were subset and image enhancement techniques were applied. Simple adjustments to the brightness and contrast were conducted, or in more severe cases, a histogram equalization in the range of the lookup table was performed on the specific area where interpretation was difficult.
  
- X **Rectification** - Although second- and third-order transformations were used in the rectification of the digital photographs, all of the photograph rectification within Range 24A contained too much error to accurately digitize land use/cover polygons. The primary factor contributing to the error was terrain distortion. Factors contributing to the error included: (1) insufficient ground control points (GCPs) due to pronounced changes in land cover between years, (2) photographic distortion (location of the site in relation to the center of the photograph and the angle of the camera/aircraft when the photograph was acquired), and (3) terrain distortion (a single photograph may cover a large geographic area of varying elevations even though the site of interest may have little topographic relief). To improve the photographic registration of the study area, Range 24A was subset from the rectified digital photographs in question and the newly-created image files were rectified separately. There were no 1937 photographs available for interpretation.

### 16.3 FINDINGS

Complete photographic coverage of the study area was available for seven years of photographic coverage from 1940 to 1994. A total of 276 anomalies were identified in the year-by-year land cover analysis (Fig. 2). All anomalies were inspected to ascertain the cause of each anomaly. All anomalies were resolved except for 12 unidentified objects, structures, or piles. Anomalies potentially associated with waste disposal or chemical training activities were determined to be of potential concern and should be assessed by the USAESCH. During the final quality assurance review of the land use/cover anomalies, three anomalies were determined to be caused by photographic interpretation error. These anomalies are identified as “QA” in Table 2 and will not be discussed further. Of the anomalies identified, 206 were caused by new roads, pre-existing and former roads and trails, construction and removal of buildings, pre-existing and former unidentified objects,

and pre-existing and former cleared areas. The remaining 67 anomalies are of potential concern and were the result of trails, unidentified structures, and the clearing of trees and groundcover.

**1937.** There were no 1937 photographs available for interpretation (see Fig. 3a).

**1937 to 1940.** Since there were no 1937 photographs available for interpretation, the land use/cover was not available. The 1940 photographs were interpreted and no anomalies were identified (see Fig. 3b).

**1940 to 1944.** There were no anomalies identified during the land cover change analysis for the years 1940 and 1944 (see Table 1 and Fig. 3c).

**1944 to 1954.** Nineteen anomalies were identified during the land cover change analysis for the years 1944 and 1954 (see Table 1 and Fig. 3d). Three of the anomalies were the result of new roads. The remaining sixteen anomalies are of potential concern and were the result of the clearing of trees (10 anomalies), cleared areas (4 anomalies), and trails (2 anomalies).

**1954 to 1961.** Sixty-three anomalies were identified during the land cover change analysis for the years 1954 and 1961 (see Table 1 and Fig. 3e). Fifty-two of the anomalies were the result of new roads, pre-existing and former roads, and pre-existing and former cleared areas. The remaining eleven anomalies are of potential concern and were the result of trails (6 anomalies) and unidentified structures (5 anomalies).

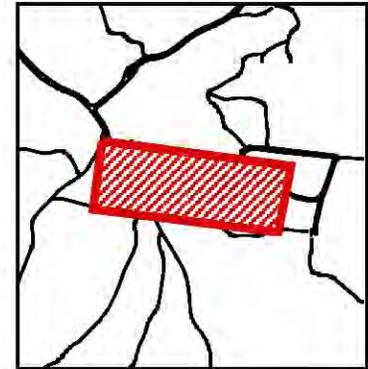
**1961 to 1969.** Forty-nine anomalies were identified during the land cover change analysis for the years 1961 and 1969 (see Table 1 and Fig. 3f). Twenty-eight of the anomalies were the result of new roads, pre-existing and former roads, pre-existing and former trails, pre-existing and former cleared areas, the clearing of trees associated with road construction, and pre-existing unidentified structures. The remaining twenty-one anomalies are of potential concern and were the result of the clearing of trees (8 anomalies), cleared areas (8 anomalies), unidentified objects (3 anomalies), trails (1 anomaly), and unidentified structures (1 anomaly).

**1969 to 1982.** Ninety-eight anomalies were identified during the land cover change analysis for the years 1969 and 1982 (see Table 1 and Fig. 3g). Eighty-five of the anomalies were the result of new roads, pre-existing and former roads, pre-existing and former cleared areas, the clearing of trees associated with road construction, former unidentified structures, and former unidentified objects. The remaining thirteen anomalies are of potential concern and were the result of trails (4 anomalies), unidentified piles (3 anomalies), the clearing of trees (3 anomalies), and other cleared areas (3 anomalies).

**1982 to 1994.** Forty-four anomalies were identified during the land cover change analysis for the years 1982 and 1994 (see Table 1 and Fig. 3h). Thirty-eight of the anomalies were the result of new, pre-existing, and former roads, former trails, buildings, parking lots, landscaping, and a trail that was a former road. The remaining six anomalies are of potential concern and were the result of trails (3 anomalies) and the clearing of trees (3 anomalies).

**Fig. 1**  
**Areas of Concern**  
**Locator Map**

**Range 24A**  
**Fort McClellan**

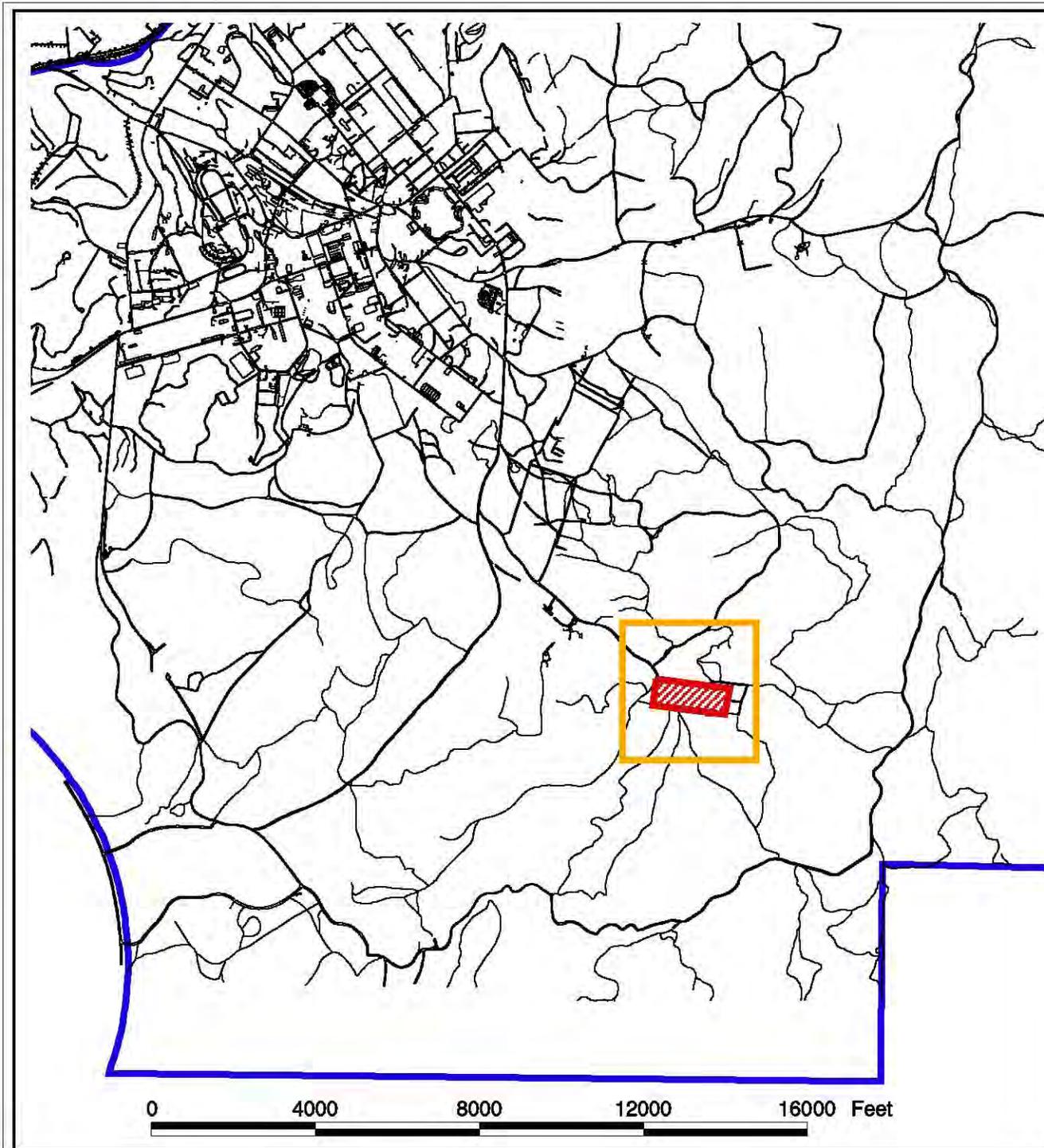


-  AOC 24
-  Road, Parking, and Bridges
-  Base Boundary

Geographic Information Science  
and Technology  
Oak Ridge National Laboratory  
Oak Ridge, Tennessee

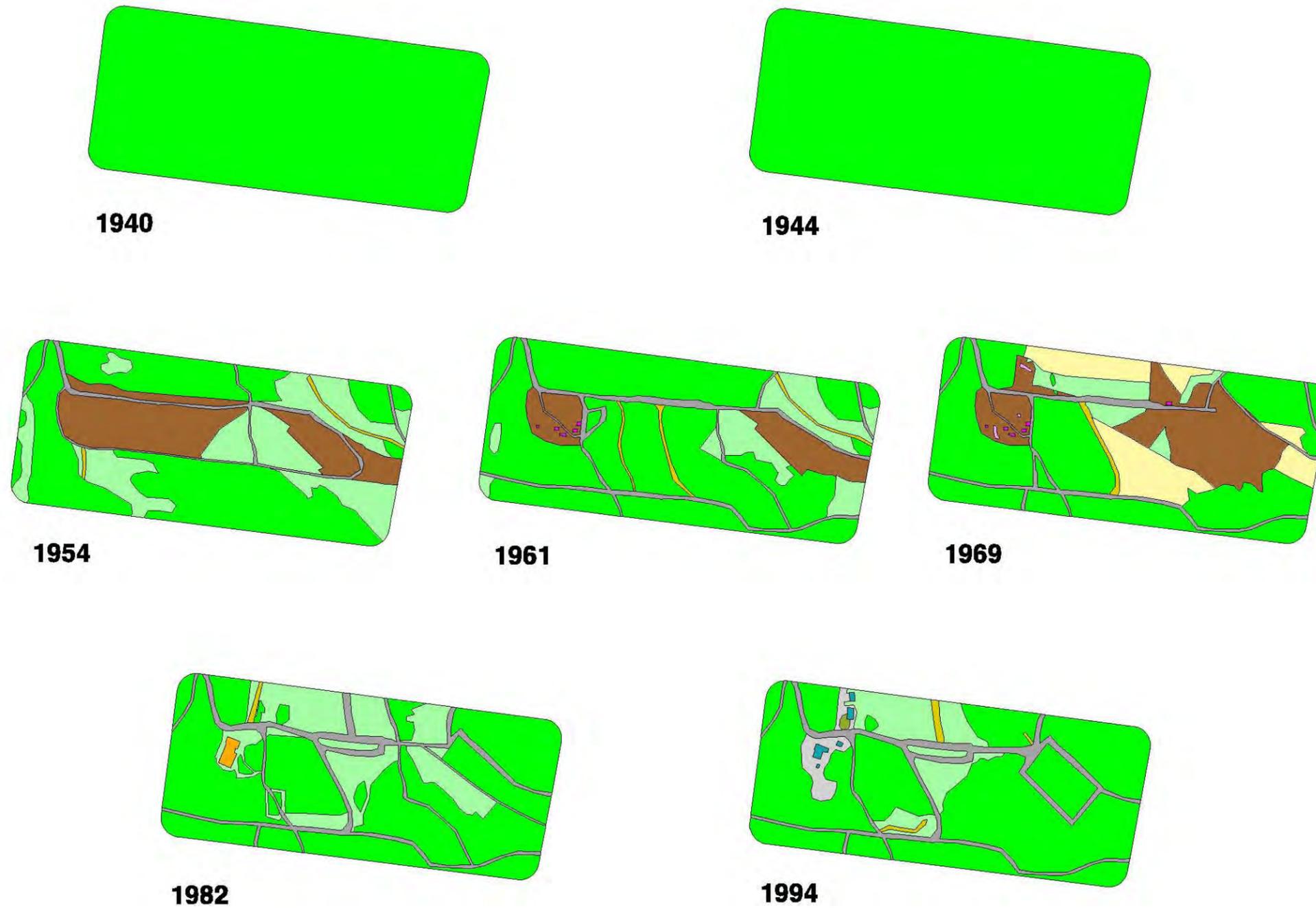


Data source: Planimetric data from IT Corporation  
Prepared by: Geographic Information Science and Technology  
Data prepared: January 9, 1999

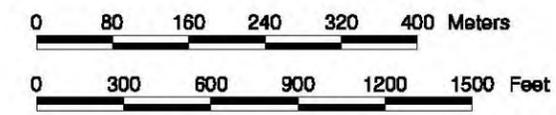


**Fig. 2  
Landuse/Cover**

**Range 24a**



Geographic Information Science and Technology  
Oak Ridge National Laboratory  
Oak Ridge, Tennessee



Alabama State Plane East, NAD 83



Data Source: Aerial Photography from U. S. Army COE  
Prepared by: Geographic Information Science and Technology, ORNL  
Date prepared: December 31, 1998

**Table 1. Range 24A - Anomaly Resolution**

<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
	1	1954	Road	20, 85, 135, 233
	2	1954	Road	21, 23, 38, 39, 49, 51, 54, 55, 59 - 62, 64, 65, 68, 76, 83, 86, 116, 124, 136, 162, 196, 205, 231, 234, 270, 271
Yes	3	1954	Trees cleared	None
Yes	4	1954	Trees cleared	None
Yes	5	1954	Cleared area	22, 46
Yes	6	1954	Cleared area	24 - 32, 40, 41, 47, 48, 50, 56, 57, 102, 103, 159, 163 - 165, 171, 176, 179 - 181, 187
Yes	7	1954	Trees cleared	44
Yes	8	1954	Trail	33
Yes	9	1954	Trees cleared	None
Yes	10	1954	Trees cleared	None
Yes	11	1954	Trees cleared	11
Yes	12	1954	Cleared area	63, 66, 67, 81, 82, 120, 121, 230
Yes	13	1954	Cleared area	73 - 75, 77, 120 - 122, 230
Yes	14	1954	Trees cleared	None
Yes	15	1954	Trees cleared	230
Yes	16	1954	Trail	78, 128, 129, 131
Yes	17	1954	Trees cleared	None
Yes	18	1954	Trees cleared	None
	19	1954	Road	79, 130, 229
	20	1961	Pre-existing road (first visible 1954)	1, 85, 135, 233
	21	1961	Pre-existing road (first visible 1954)	2, 86, 136, 162, 196, 231, 234
	22	1961	Former cleared area (first visible 1954)	5
	23	1961	Former road (first visible 1954)	2
	24	1961	Pre-existing cleared area (first visible 1954)	6, 103, 159, 176, 179 - 181
	25	1961	Road (former cleared area - first visible 1954)	6, 86, 101, 136, 160, 166 - 170, 234

<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
	26	1961	Former cleared area (first visible 1954)	6
	27	1961	Pre-existing cleared area (first visible 1954)	6, 102, 163 - 165, 171, 187
Yes	28	1961	Unidentified structure (former cleared area - first visible 1954)	6, 109, 173
Yes	29	1961	Unidentified structure (former cleared area - first visible 1954)	6, 108, 174
Yes	30	1961	Unidentified structure (former cleared area - first visible 1954)	6, 107, 175
Yes	31	1961	Unidentified structure (former cleared area - first visible 1954)	6, 106, 177, 178
Yes	32	1961	Unidentified structure (former cleared area - first visible 1954)	6, 104, 182, 183
	33	1961	Former trail (first visible 1954)	8
	34	1961	QA	
	35	1961	Road	86, 136, 234
	36	1961	Road	86, 136, 234
	37	1961	Road	86, 136, 234
	38	1961	Pre-existing road (first visible 1954)	2, 86, 136, 234
	39	1961	Former road (first visible 1954)	2
	40	1961	Former cleared area (first visible 1954)	6
	41	1961	Former cleared area (first visible 1954)	6
	42	1961	Road	86, 136, 234
	43	1961	Road	86, 136, 234
	44	1961	Road (former cleared area - first visible 1954)	7, 86, 136, 234
	45	1961	Road	86, 136, 234
	46	1961	Road (former cleared area - first visible 1954)	5, 86, 231, 234
	47	1961	Former cleared area (first visible 1954)	6
Yes	48	1961	Trail (former cleared area - first visible 1954)	6, 92, 114
Yes	49	1961	Trail (section of former road - first visible 1954)	2, 92
Yes	50	1961	Trail (former cleared area - first visible 1954)	6, 89
Yes	51	1961	Trail (section of former road - first visible 1954)	2, 89
Yes	52	1961	Trail (former cleared area - first visible 1954)	89

<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
Yes	53	1961	Trail	92
	54	1961	Former road (first visible 1954)	2
	55	1961	Former road (first visible 1954)	2
	56	1961	Former cleared area (first visible 1954)	6
	57	1961	Road (former cleared area - first visible 1954)	6, 86, 231, 234
	58	1961	Road	86, 231, 234
	59	1961	Pre-existing road (first visible 1954)	2, 86, 116, 205, 231, 270, 271
	60	1961	Former road (first visible 1954)	2
	61	1961	Former road (first visible 1954)	2
	62	1961	Former road (first visible 1954)	2
	63	1961	Former cleared area (first visible 1954)	12
	64	1961	Former road (first visible 1954); incorrectly coded as cleared	2
	65	1961	Former road (first visible 1954)	2
	66	1961	Former cleared area (first visible 1954)	12
	67	1961	Pre-existing cleared area (first visible 1954)	12, 120, 121, 230
	68	1961	Pre-existing road (first visible 1954)	2, 86, 124, 231
	69	1961	Road	86, 213, 214, 215
	70	1961	QA	
	71	1961	Trees cleared (associated with road construction)	86
	72	1961	Road	86, 136, 234
	73	1961	Former cleared area (first visible 1954)	13
	74	1961	Former cleared area (first visible 1954)	13
	75	1961	Pre-existing cleared area (first visible 1954)	13, 120 - 122, 230
	76	1961	Former road (first visible 1954)	2
	77	1961	Road (former cleared area - first visible 1954)	13, 124, 132, 133, 222, 225, 226, 230, 234
	78	1961	Pre-existing trail (first visible 1954)	16, 128, 129, 131
	79	1961	Pre-existing road (first visible 1954)	19, 130, 229

<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
	80	1961	Road	86, 116, 123, 136, 232, 234, 271
	81	1961	Former cleared area (first visible 1954)	12
	82	1961	Road (former cleared area - first visible 1954)	12, 86, 231, 234
	83	1961	Former road (first visible 1954)	2
	84	1961	Road	11, 86, 231, 234
	85	1969	Pre-existing road (first visible 1954)	1, 20, 135, 233
	86	1969	Pre-existing road (partially visible 1954; partially visible 1961)	2, 21, 25, 35, 36 - 38, 42 - 46, 57 - 59, 68, 69, 71, 72, 80, 82, 84, 136, 160, 162, 166 - 170, 196, 213 - 215, 231, 234
	87	1969	Road	136, 234
	88	1969	Road	136, 189 - 191
	89	1969	Former trail (first visible 1961)	50 - 52
Yes	90	1969	Trail	197, 234
Yes	91	1969	Trees cleared	199
	92	1969	Former trail (first visible 1961)	48, 49, 53
Yes	93	1969	Trees cleared	199
Yes	94	1969	Unidentified object	148, 150, 154, 156, 158
Yes	95	1969	Cleared area	147, 152, 153, 155, 157, 194
Yes	96	1969	Trees cleared	138, 139, 142
Yes	97	1969	Trees cleared	143
Yes	98	1969	Trees cleared	None
Yes	99	1969	Cleared area	144 - 146, 211
Yes	100	1969	Unidentified structure	208 - 210
	101	1969	Former road (first visible 1961)	25
	102	1969	Pre-existing cleared area (first visible 1954)	6, 27, 163 - 165, 171, 187
	103	1969	Pre-existing cleared area (first visible 1954)	6, 24, 159, 176, 179 - 181
	104	1969	Pre-existing unidentified structure (first visible 1961)	32, 182, 183
Yes	105	1969	Unidentified object	184 - 186

<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
	106	1969	Pre-existing unidentified structure (first visible 1961)	31, 177, 178
	107	1969	Pre-existing unidentified structure (first visible 1961)	31, 175
	108	1969	Pre-existing unidentified structure (first visible 1961)	29, 174
	109	1969	Pre-existing unidentified structure (first visible 1961)	28, 173
Yes	110	1969	Unidentified object	172
Yes	111	1969	Trees cleared	None
Yes	112	1969	Trees cleared	None
Yes	113	1969	Trees cleared	None
	114	1969	Former trail (first visible 1961)	48
Yes	115	1969	Cleared area	202, 203
	116	1969	Pre-existing road (partially visible 1954; partially visible 1961); incorrectly coded as cleared (road difficult to discern through cleared area).	2, 59, 80, 205, 270, 271
Yes	117	1969	Cleared area	206
Yes	118	1969	Cleared area	206, 207
Yes	119	1969	Cleared area	206, 207
	120	1969	Former cleared area (first visible 1954)	12, 13, 67, 75
	121	1969	Pre-existing cleared area (first visible 1954)	12, 13, 67, 75, 217, 230
	122	1969	Former cleared area (first visible 1954)	13, 75
	123	1969	Pre-existing road (first visible 1961); incorrectly coded as cleared (road difficult to discern through trees)	80, 232, 271
	124	1969	Former road (first visible 1954) through pre-existing cleared area	2, 68, 77, 230
Yes	125	1969	Cleared area	216, 218, 227, 230
	126	1969	Road	219, 223, 228, 234
Yes	127	1969	Cleared area	224, 234
	128	1969	Former trail (first visible 1954)	16, 78
	129	1969	Former trail (first visible 1954)	16, 78
	130	1969	Pre-existing road (first visible 1954)	19, 79, 229

<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
	131	1969	Former trail (first visible 1954)	16, 78
	132	1969	Pre-existing road (first visible 1961)	77, 226, 234
	133	1969	Former road (first visible 1961)	77, 225, 234
	134	1969	QA	
	135	1982	Pre-existing road (first visible 1954)	1, 20, 85, 233
	136	1982	Pre-existing road (partially visible 1954; partially visible 1961)	2, 21, 25, 35 - 38, 42 - 45, 72, 80, 86 - 88, 234
Yes	137	1982	Trees cleared	None
Yes	138	1982	Trail	96, 236, 239
Yes	139	1982	Cleared area (anomaly when trees cleared 1969)	96
	140	1982	Road	257
	141	1982	Road	257
Yes	142	1982	Cleared area (anomaly when trees cleared 1969)	96
Yes	143	1982	Cleared area (anomaly when trees cleared 1969)	97
	144	1982	Former cleared area (first visible 1969)	99
	145	1982	Road	99, 258, 275
	146	1982	Former cleared area (first visible 1969)	99
	147	1982	Former cleared area (first visible 1969)	95
	148	1982	Former unidentified object (first visible 1969)	94
Yes	149	1982	Trail	239, 241
Yes	150	1982	Trail (former unidentified object - first visible 1969)	94, 242
Yes	151	1982	Trail	243
	152	1982	Former cleared area (first visible 1969)	95
	153	1982	Former cleared area (first visible 1969)	95
	154	1982	Former unidentified object (first visible 1969)	94
	155	1982	Former cleared area (first visible 1969)	95
	156	1982	Former unidentified object (first visible 1969)	94
	157	1982	Former cleared area (first visible 1969)	95

<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
	158	1982	Former unidentified object (first visible 1969)	94
	159	1982	Former cleared area (first visible 1954)	6, 24, 103
	160	1982	Former road (first visible 1961)	25, 86
	161	1982	Road (pre-existing road widened)	None
	162	1982	Pre-existing road (first visible 1954); incorrectly coded as cleared area	2, 21, 86, 234
	163	1982	Former cleared area (first visible 1954)	6, 27, 102
	164	1982	Former cleared area (first visible 1954)	6, 27, 102
Yes	165	1982	Unidentified pile (former cleared area - first visible 1954)	6, 27, 102
	166	1982	Former road (first visible 1961)	25, 86
	167	1982	Former road (first visible 1961)	25, 86
	168	1982	Former road (first visible 1961)	25, 86
	169	1982	Former road (first visible 1961)	25, 86
	170	1982	Former road (first visible 1961)	25, 86
	171	1982	Former cleared area (first visible 1954)	6, 27, 102
	172	1982	Former unidentified object (first visible 1969)	110
	173	1982	Former unidentified structure (first visible 1961)	28, 109
	174	1982	Former unidentified structure (first visible 1961)	29, 108
	175	1982	Former unidentified structure (first visible 1961)	30, 107
	176	1982	Former cleared area (first visible 1954)	6, 24, 103
	177	1982	Former unidentified structure (first visible 1961)	31, 106
	178	1982	Former unidentified structure (first visible 1961)	31, 106
	179	1982	Former cleared area (first visible 1954)	6, 24, 103
Yes	180	1982	Unidentified pile	6, 24, 103
	181	1982	Former cleared area (first visible 1954)	6, 24, 103
	182	1982	Former unidentified structure (first visible 1961)	32, 104
	183	1982	Former unidentified structure (first visible 1961)	32, 104

<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
Yes	184	1982	Unidentified pile (part of location of unidentified object - first visible 1969)	105
	185	1982	Former unidentified object (first visible 1969)	105
	186	1982	Former unidentified object (first visible 1969)	105
	187	1982	Former cleared area (first visible 1954)	6, 27, 102
	188	1982	Trees cleared (adjacent road widened)	None
	189	1982	Former road (first visible 1969)	88
	190	1982	Former road (first visible 1969)	88
	191	1982	Former road (first visible 1969)	88
Yes	192	1982	Trees cleared	None
	193	1982	Road	234
	194	1982	Former cleared area (first visible 1969)	95
	195	1982	Road	234
	196	1982	Former road (first visible 1954)	2, 21, 86
	197	1982	Road (former trail - first visible 1969)	90, 234
Yes	198	1982	Trees cleared	None
	199	1982	Pre-existing area of cleared trees (first visible 1969)	91, 93
	200	1982	Road	234
	201	1982	Road	234
	202	1982	Former cleared area (first visible 1969)	115
	203	1982	Former cleared area (first visible 1969)	115
	204	1982	Road	234
	205	1982	Pre-existing road (partially visible 1954; partially visible 1961)	2, 59, 116, 270, 271
	206	1982	Former cleared area (first visible 1969)	117 - 119
	207	1982	Former cleared area (first visible 1969)	118, 119
	208	1982	Road (former unidentified structure - first visible 1969)	100, 234
	209	1982	Former unidentified structure (first visible 1969)	100

<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
	210	1982	Former unidentified structure (first visible 1969)	100 , 234
	211	1982	Former cleared area (first visible 1969)	99
	212	1982	Road	234
	213	1982	Pre-existing road (first visible 1961); incorrectly coded as forest	69, 86
	214	1982	Pre-existing road (first visible 1961)	69, 86, 234
	215	1982	Former road (first visible 1961)	69, 86
	216	1982	Former cleared area (first visible 1969)	125
	217	1982	Former cleared area (first visible 1969)	121
	218	1982	Former cleared area (first visible 1969)	125
	219	1982	Pre-existing road (first visible 1969)	126
	220	1982	Road	261 - 264, 276
	221	1982	Road	264
	222	1982	Road (partially visible 1961)	77, 234
	223	1982	Pre-existing road (first visible 1969)	126, 234
	224	1982	Pre-existing road (first visible 1969)	127, 234
	225	1982	Pre-existing road (first visible 1961)	77, 133, 234
	226	1982	Pre-existing road (first visible 1961)	77, 132, 234
	227	1982	Former cleared area (first visible 1969)	125
	228	1982	Former road (first visible 1969)	126
	229	1982	Former road (first visible 1954)	19, 79, 130
	230	1982	Former cleared area (first visible 1954); incorrectly coded as forest, mostly grass	12, 13, 15, 67, 75, 77, 121, 124, 125
	231	1982	Pre-existing road (first visible 1954)	2, 21, 46, 57 - 59, 68, 82, 84, 86, 234
	232	1982	Pre-existing road (first visible 1961)	80, 123, 271
	233	1994	Pre-existing road (first visible 1954)	1, 20, 85, 135

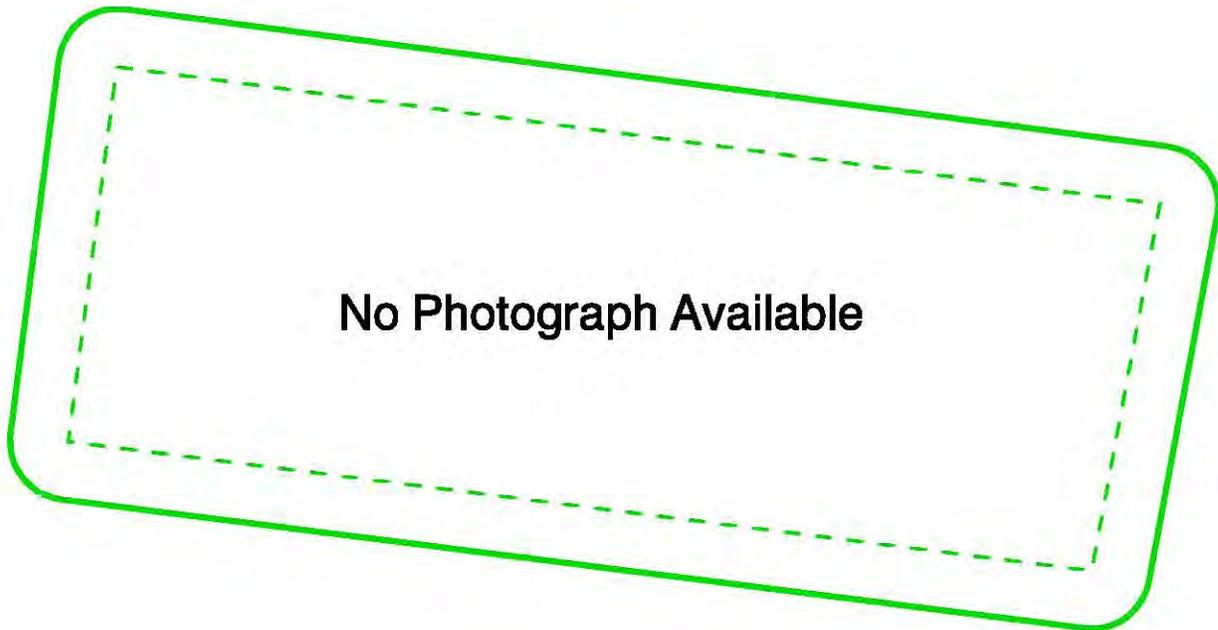
<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
	234	1994	Pre-existing road (first visible 1954)	2, 21, 25, 35 - 38, 42 - 46, 57, 58, 72, 77, 80, 84, 86, 87, 90, 126, 127, 132, 133, 136, 162, 193, 195, 197, 200, 201, 204, 208, 210, 212, 214, 222 - 226, 231
	235	1994	Parking lot	None
	236	1994	Former trail (first visible 1982)	138
	237	1994	Building	None
	238	1994	Building	None
	239	1994	Parking lot (former trail - first visible 1982)	138, 149
	240	1994	Building	None
	241	1994	Former trail (first visible 1982)	149
	242	1994	Parking lot (former trail - first visible 1982)	150
	243	1994	Landscaping (former trail - first visible 1982)	151
	244	1994	Landscaping	None
	245	1994	Landscaping	None
	246	1994	Parking lot	None
	247	1994	Building	None
	248	1994	Building	None
Yes	249	1994	Trees cleared	None
	250	1994	Parking lot	None
	251	1994	Parking lot	None
	252	1994	Building	None
	253	1994	Building	None
	254	1994	Parking lot	None
	255	1994	Building	None
	256	1994	Parking lot	None
	257	1994	Trail (partially overgrown road - first visible 1982)	140, 141
	258	1994	Former road (first visible 1982)	145
	259	1994	Road	None

Of Potential Concern?	Anomaly #	Year of Change	Discussion	Related Anomalies <sup>1</sup>
Yes	260	1994	Trail	None
	261	1994	Former road (first visible 1982)	220
	262	1994	Former road (first visible 1982)	220
	263	1994	Road (also part of former road - first visible 1982)	220
	264	1994	Former road (first visible 1982)	220, 221
	265	1994	Road	None
	266	1994	Road	None
	267	1994	Road	None
	268	1994	Road	None
Yes	269	1994	Trees cleared	None
	270	1994	Former road (first visible 1954)	2, 59, 116, 205
	271	1994	Former road (partially visible 1954; partially visible 1961)	2, 59, 80, 116, 123, 205, 232
Yes	272	1994	Trees cleared	None
Yes	273	1994	Trail	None
Yes	274	1994	Trail	None
	275	1994	Former road (first visible 1982)	145
	276	1994	Road (also part of former road - first visible 1982)	220

<sup>1</sup> Related anomalies refer to anomalies which are carried forward from year to year (e.g., a trail) or anomalies which change (e.g., the extension or widening of a trail or cleared area).

#### 16.4 ANOMALIES OF POTENTIAL CONCERN

Two hundred seventy-three anomalies were identified during the photographic interpretation of Range 24A. All anomalies have been resolved except for twelve unidentified objects, structures, or piles. Sixty-seven anomalies are considered to be of potential concern. To facilitate anomaly tracking, the anomalies of potential concern were mapped using the anomaly tracking number assigned in the year-by-year analysis (see Table 2 and Figs. 4a and 4b). Table 2 provides information for each anomaly of potential concern, including the anomaly tracking number, coordinates for the approximate center of the anomaly (coordinates provided in Alabama State Plane East, North American Datum [NAD] 83), the year the change occurred, and the reason for the anomaly. Figure 4a illustrates all of the anomalies of potential concern for this study area. Since many anomalies overlapped, Fig. 4b was created to illustrate the anomalies of potential concern from 1954 and 1961.



1937

**Fig. 3a**  
**Range 24A**  
**Historical Photograph Anomalies**  
**Ft. McClellan**

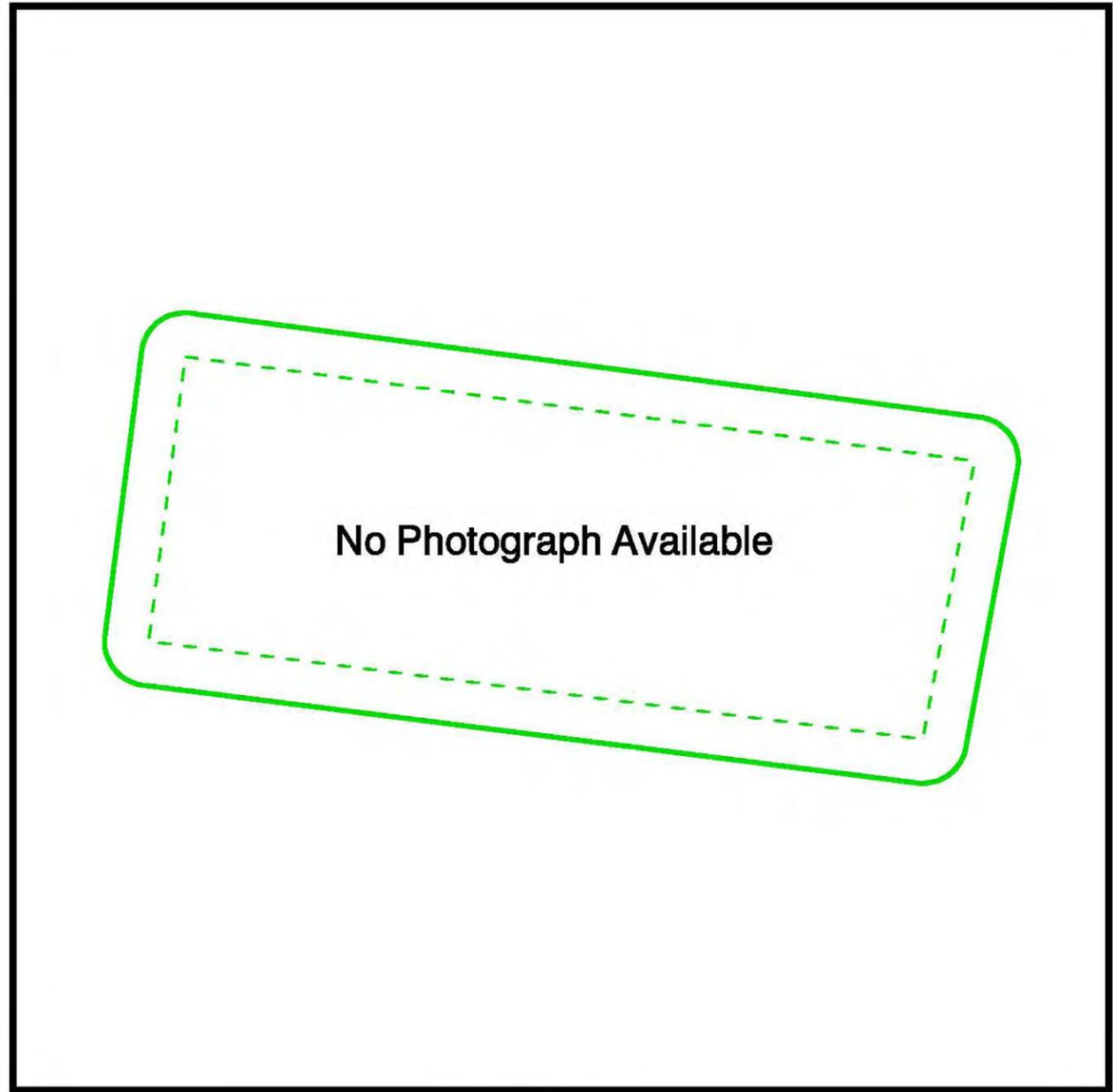


0 300 600 900 Feet

0 100 200 300 Meters

-  Anomaly
-  AOC Boundary
-  AOC Buffer

Data source: Aerial Photography from U.S. Army COE  
Prepared by: Geographic Information and Technology, ORNL  
Date prepared: January 4, 1999



1937



1940

Fig. 3b  
Range 24A  
Historical Photograph Anomalies  
Ft. McClellan

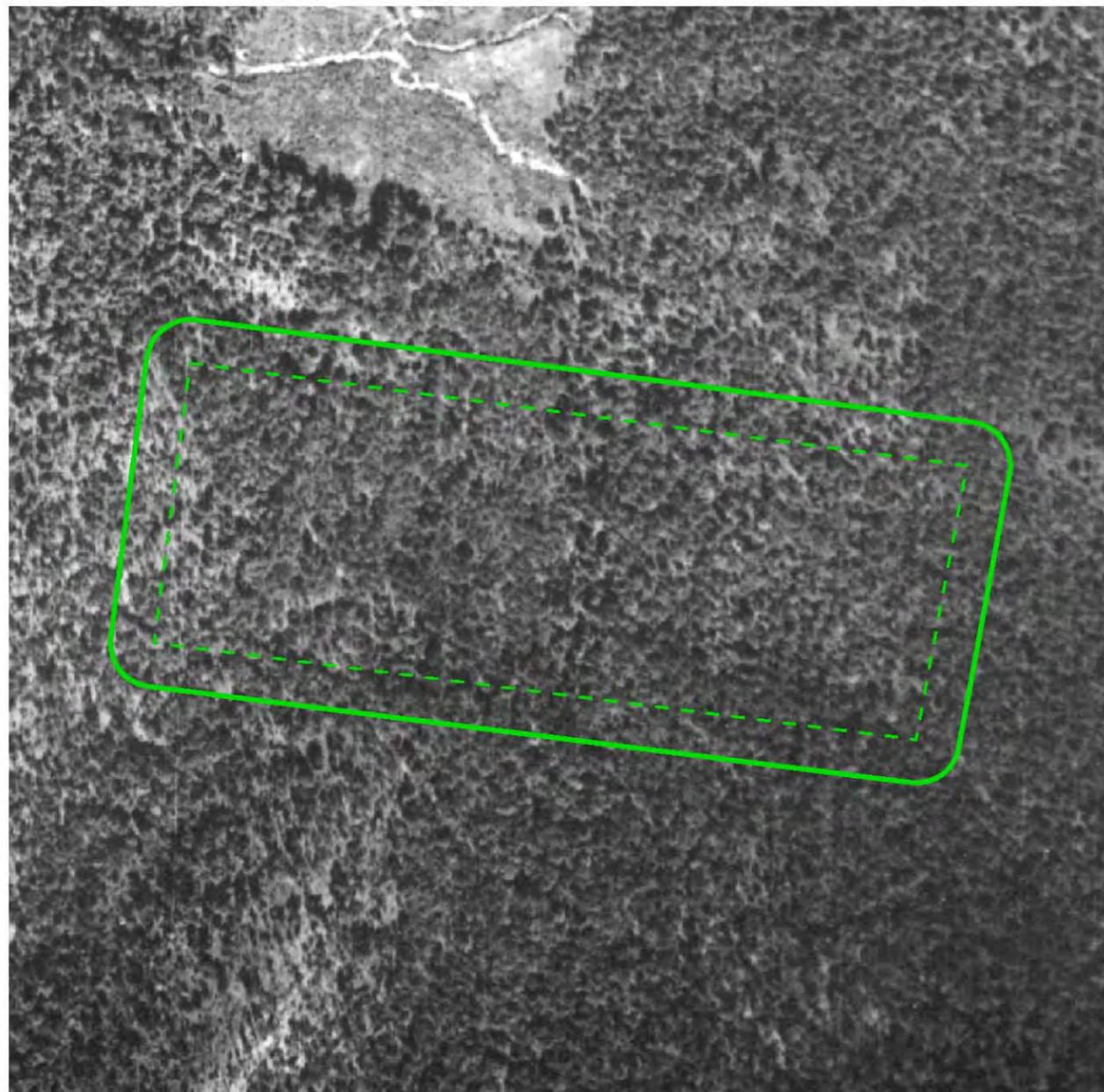


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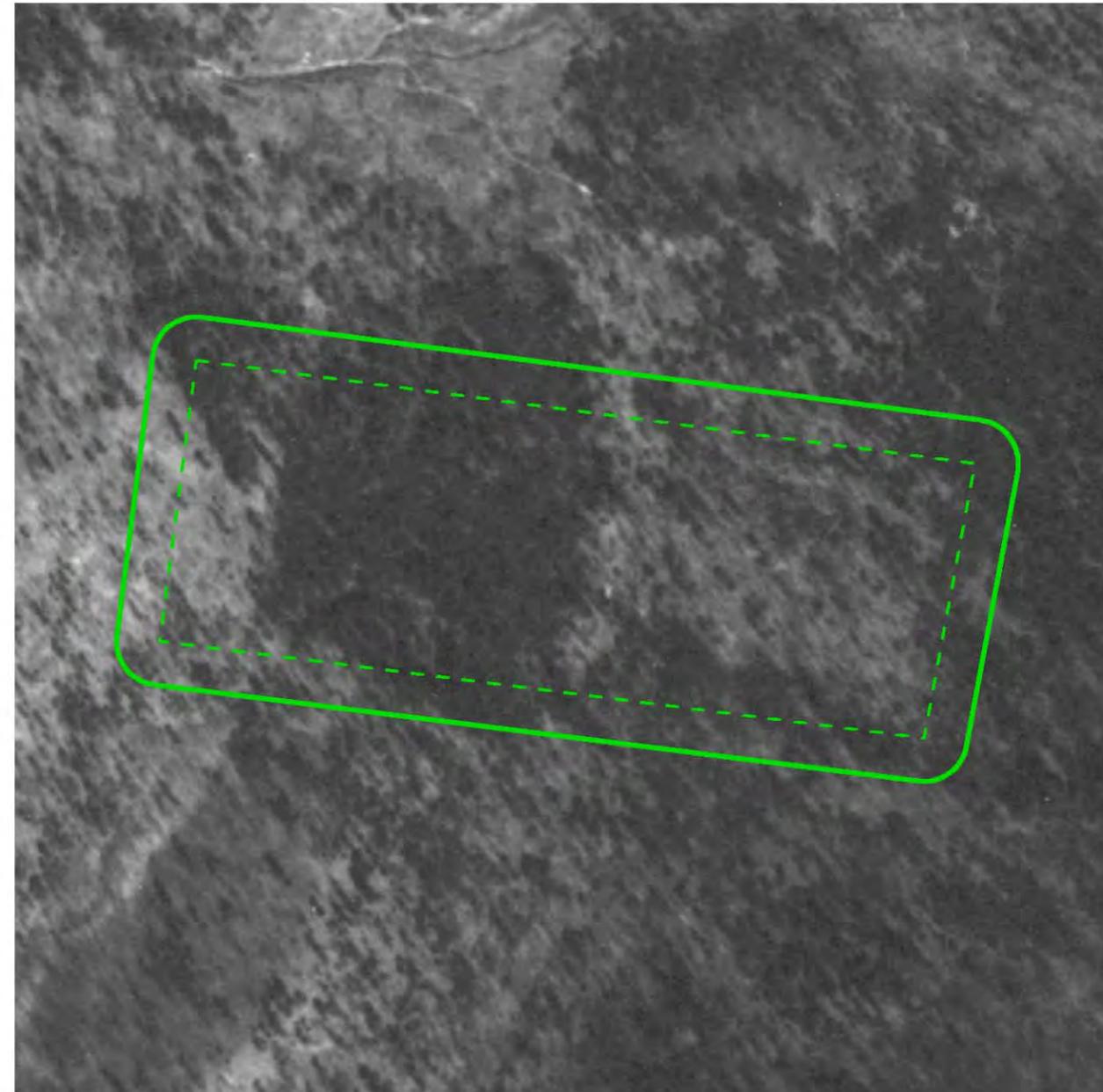
0 100 200 300 400 500 Meters

-  Anomaly
-  AOC Boundary
-  AOC Buffer

Data source: Aerial Photography from U.S. Army COE  
 Prepared by: Geographic Information and Technology, ORNL  
 Date prepared: January 4, 1999



1940



1944

Fig. 3c  
Range 24A  
Historical Photograph Anomalies  
Ft. McClellan

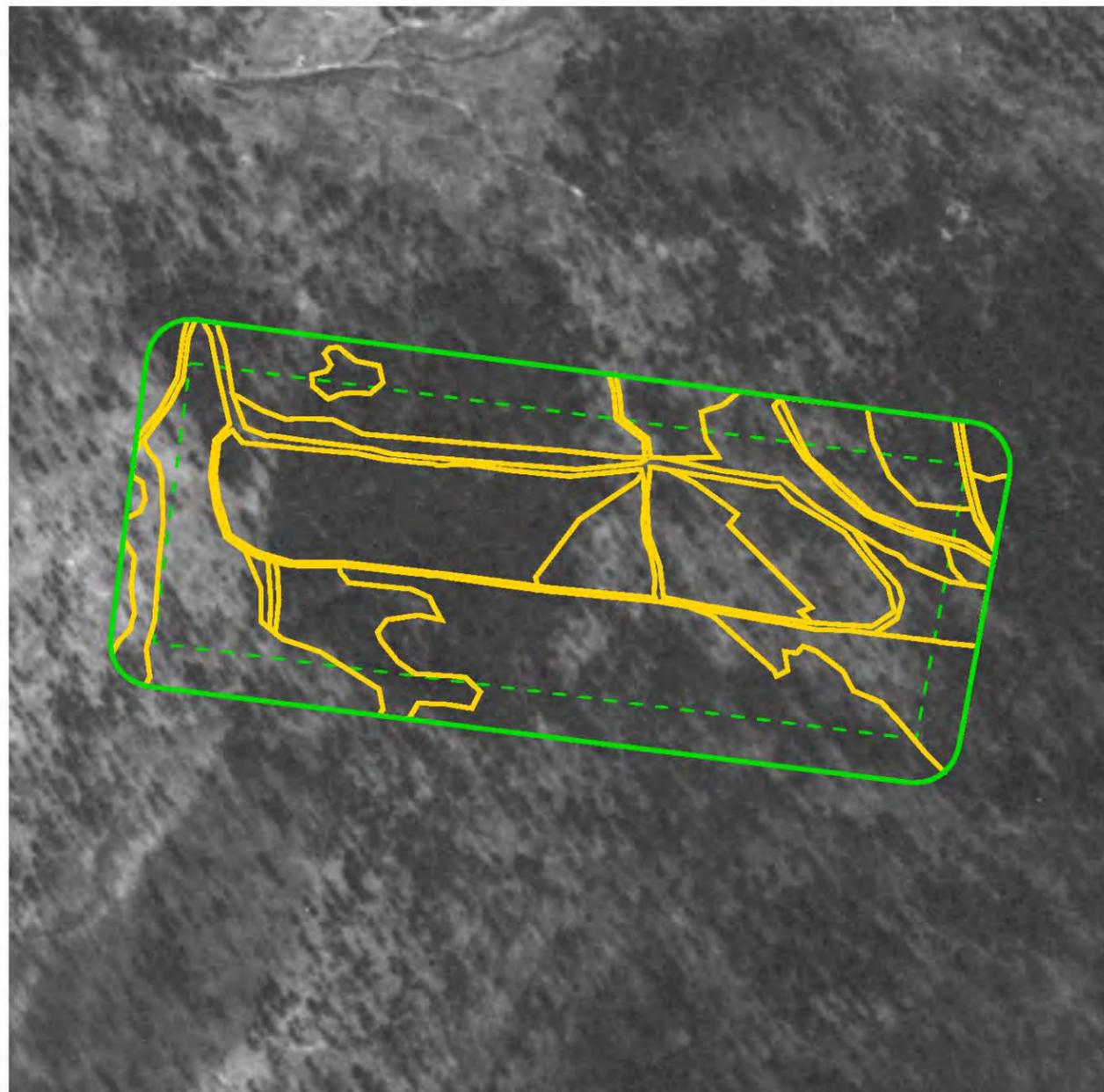


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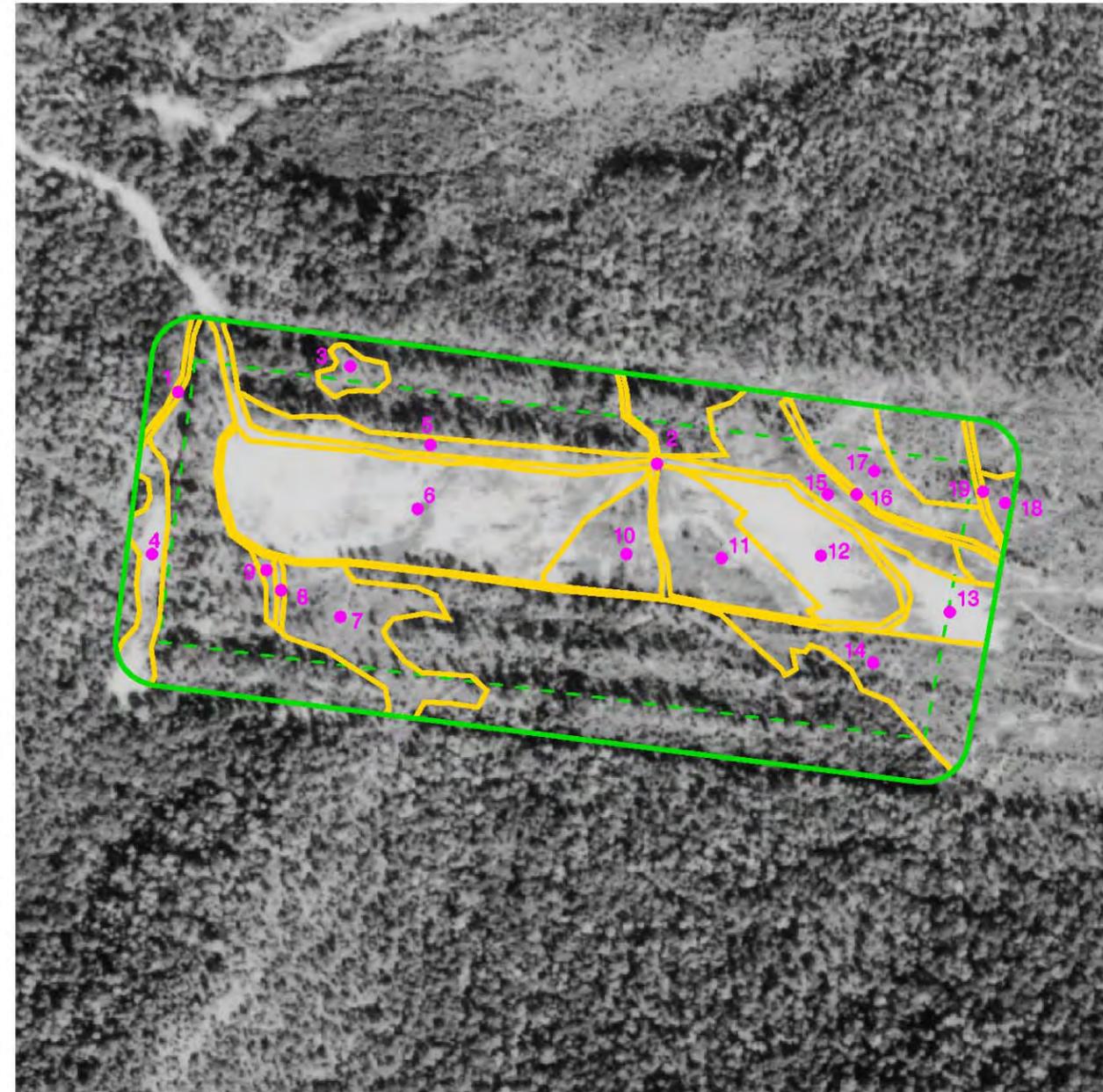
0 100 200 300 400 Meters

-  Anomaly
-  AOC Boundary
-  AOC Buffer

Data source: Aerial Photography from U.S. Army COE  
 Prepared by: Geographic Information and Technology, ORNL  
 Date prepared: January 4, 1999



1944



1954

Fig. 3d  
Range 24A  
Historical Photograph Anomalies  
Ft. McClellan

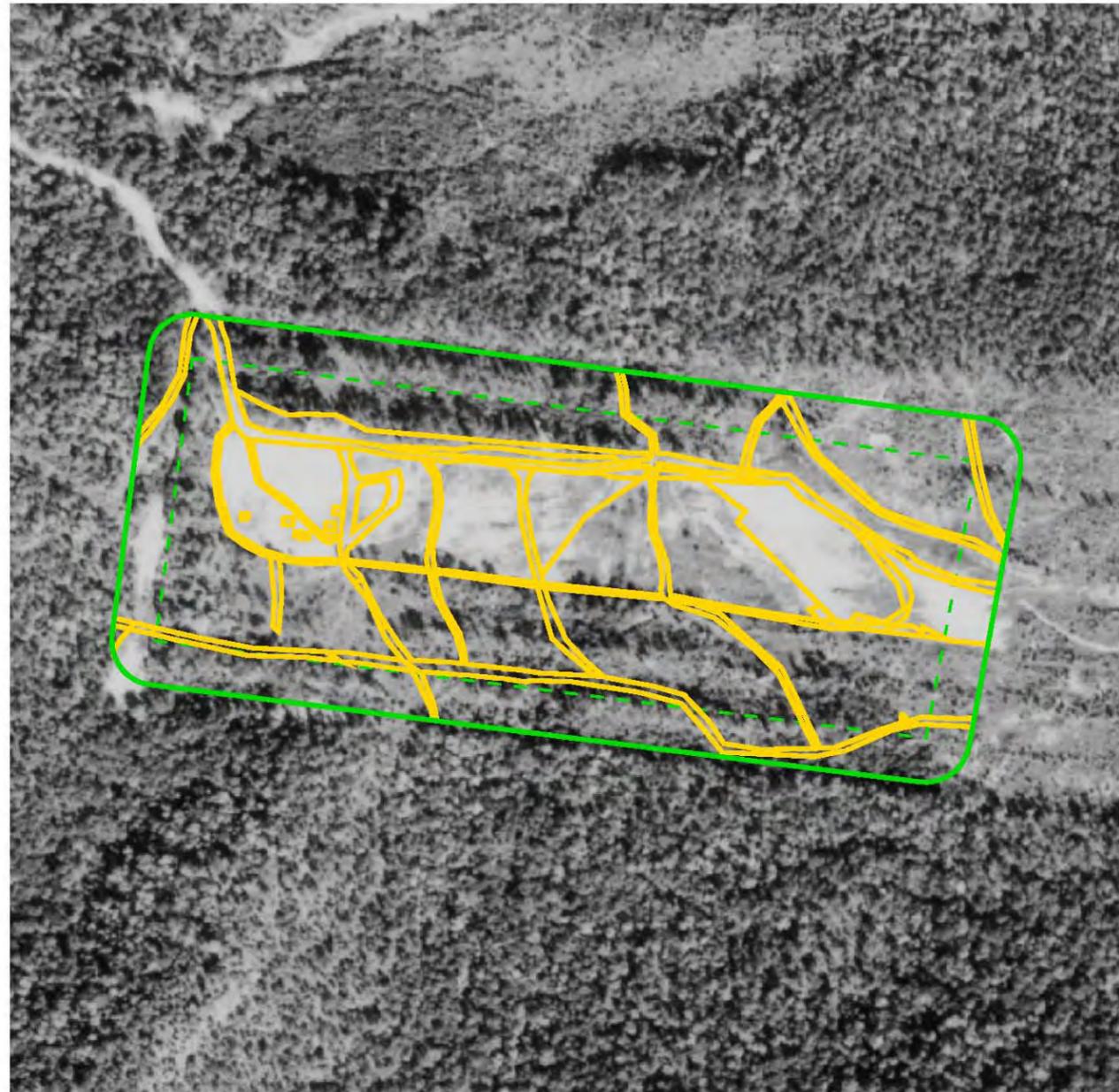


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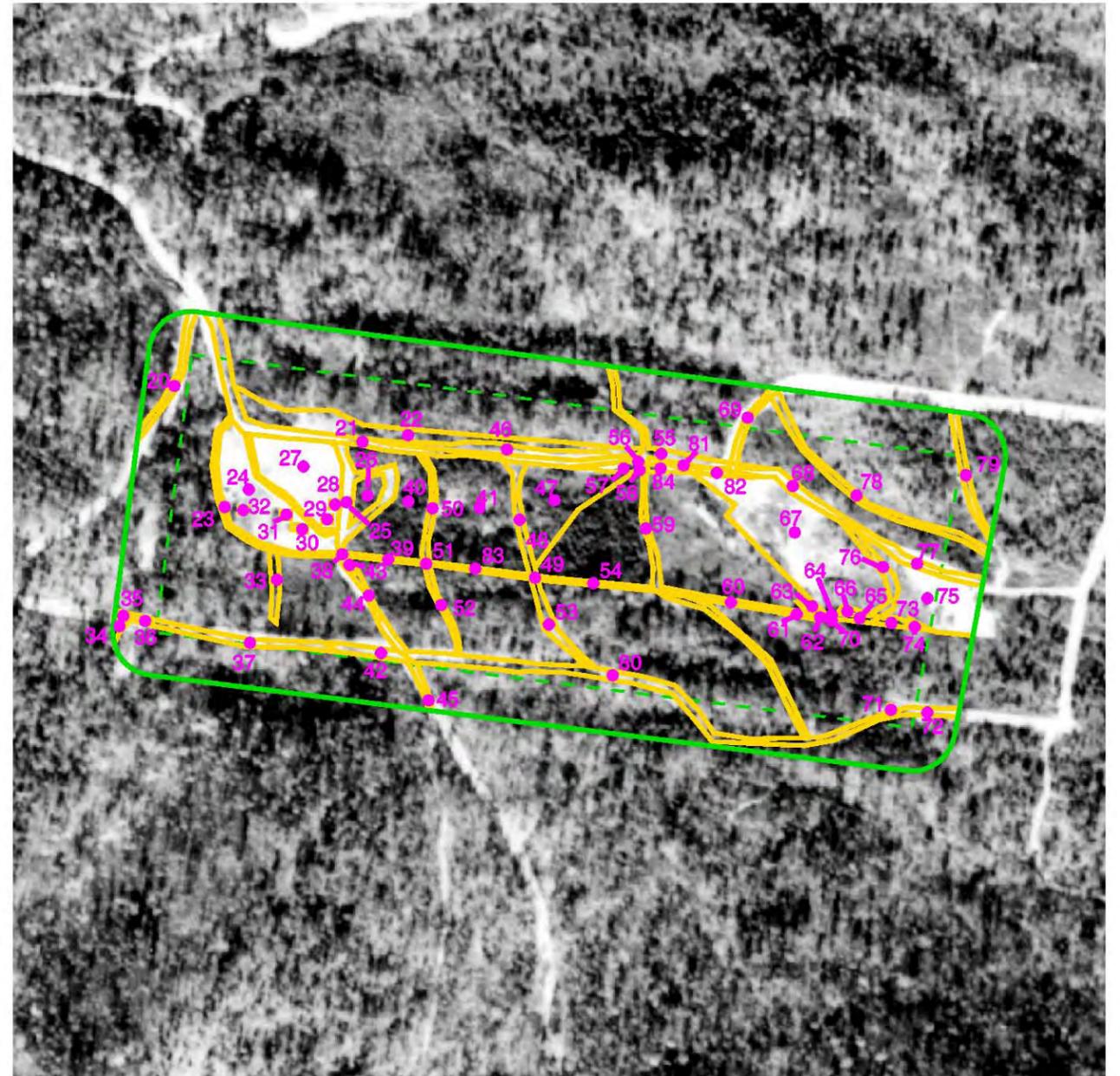
0 100 200 300 400 Meters

- Anomaly
- - - AOC Boundary
- AOC Buffer

Data source: Aerial Photography from U.S. Army COE  
Prepared by: Geographic Information and Technology, ORNL  
Date prepared: January 4, 1999



1954



1961

Fig. 3e  
Range 24A  
Historical Photograph Anomalies  
Ft. McClellan

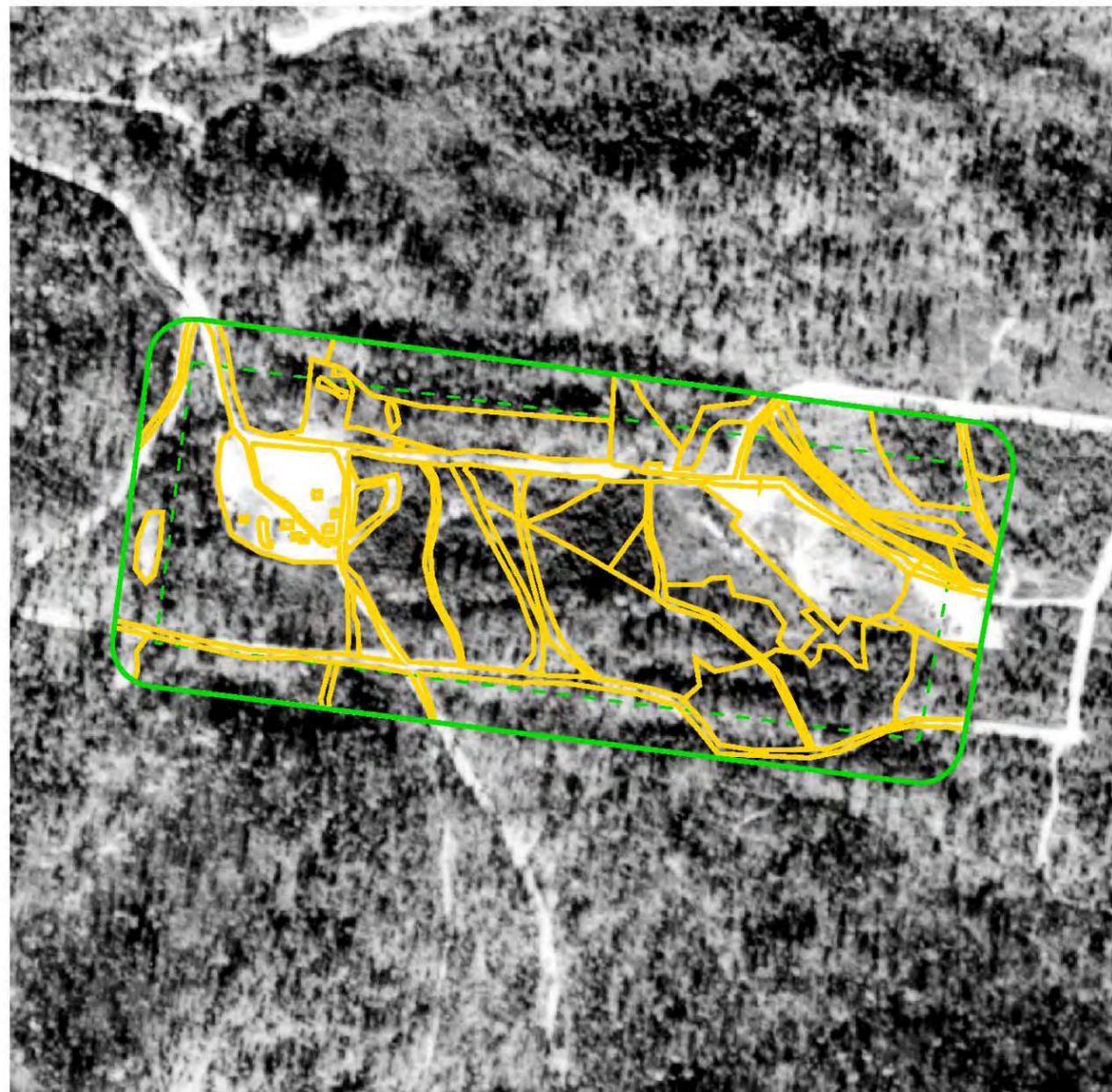


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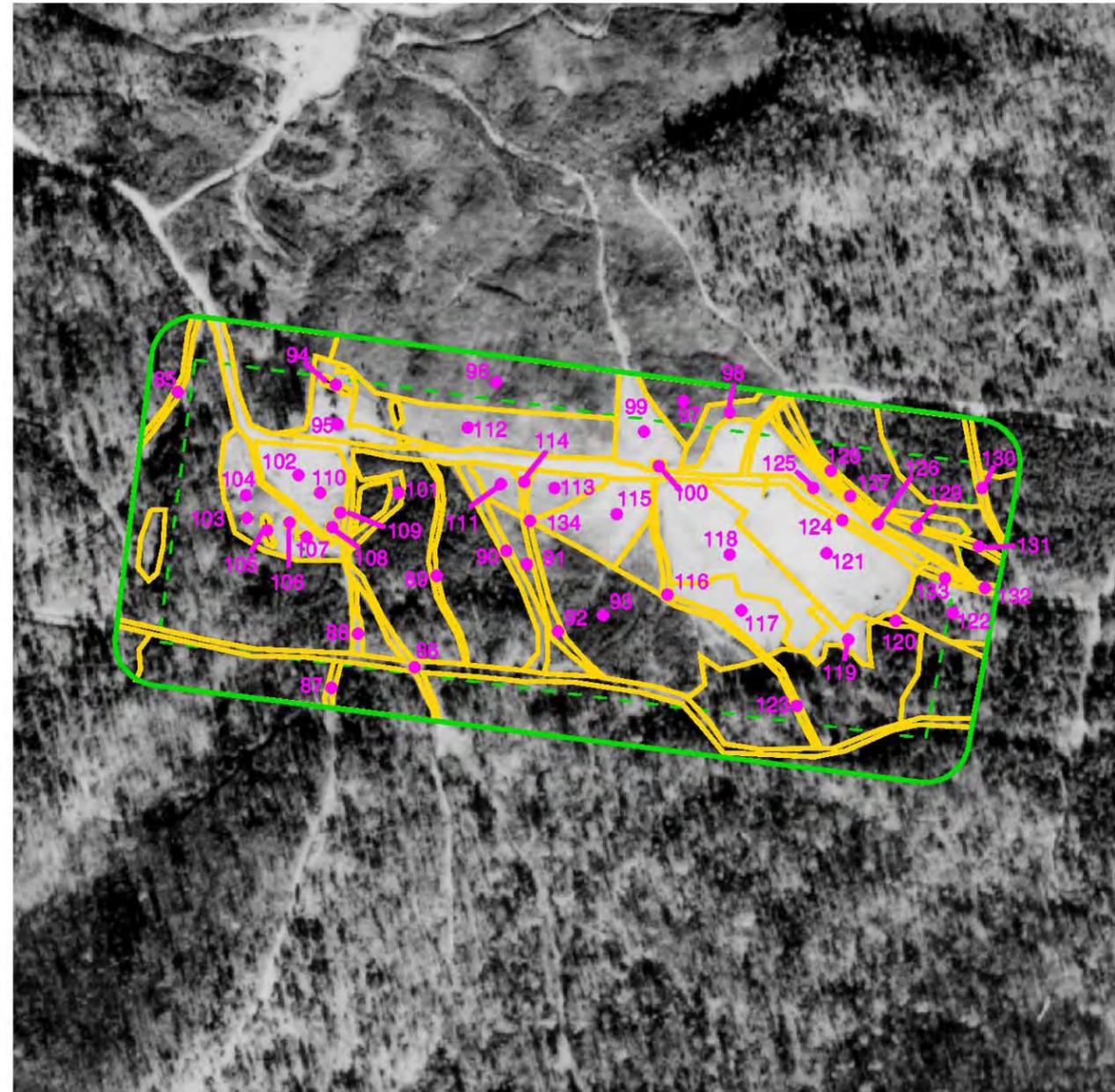
0 100 200 300 400 Meters

- Anomaly
- - - AOC Boundary
- AOC Buffer

Data source: Aerial Photography from U.S. Army COE  
Prepared by: Geographic Information and Technology, ORNL  
Date prepared: January 4, 1999

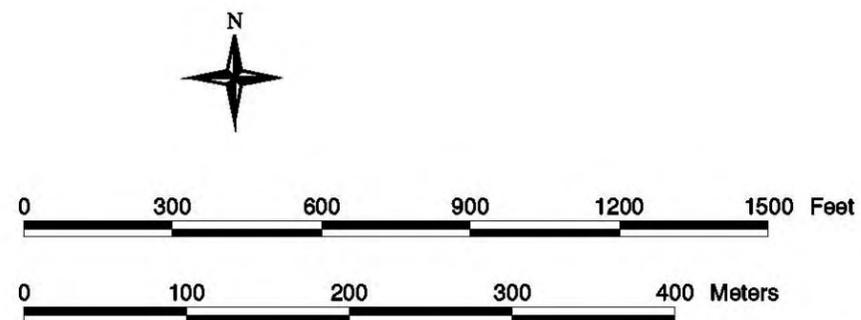


1961



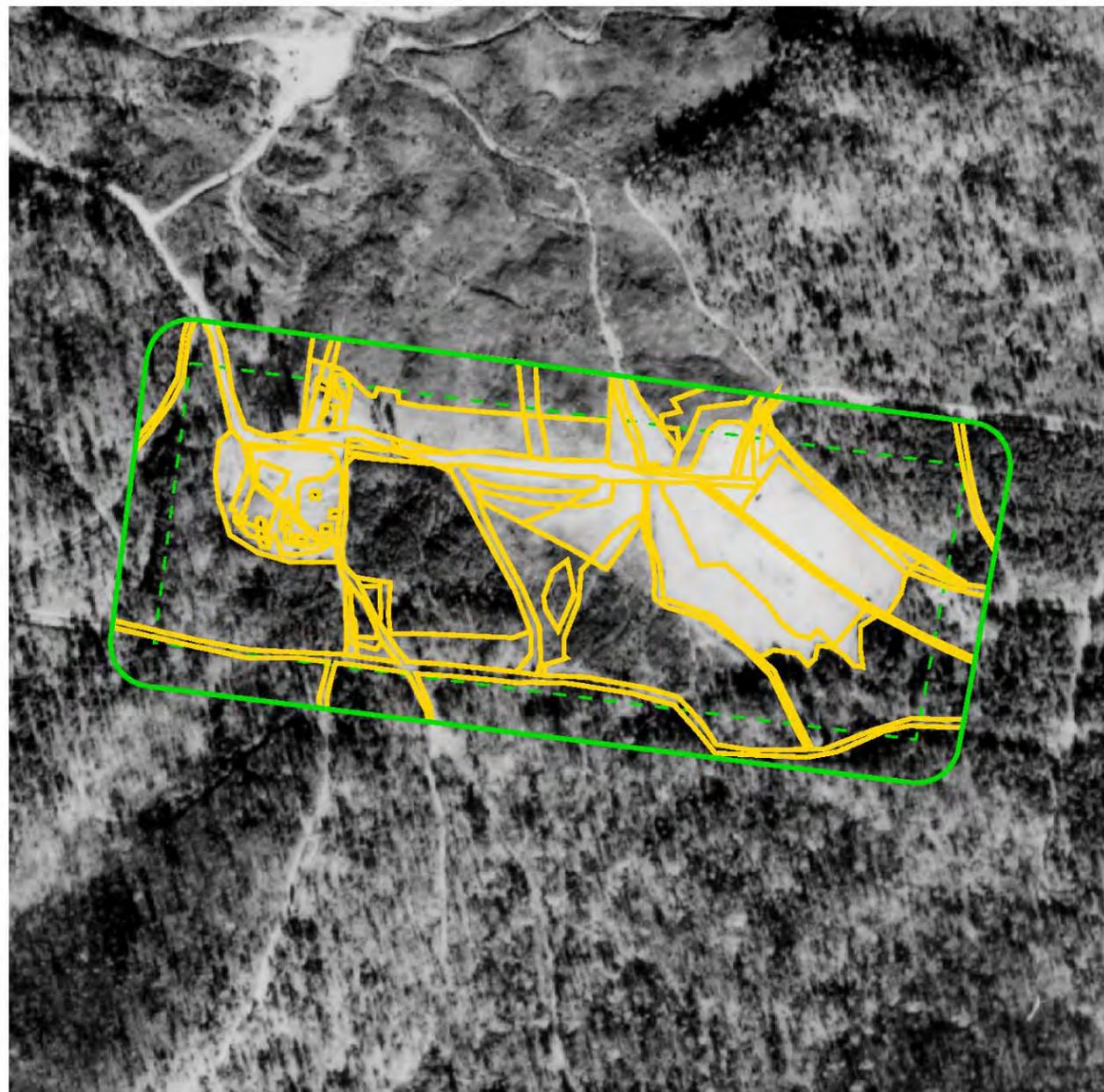
1969

**Fig. 3f**  
**Range 24A**  
**Historical Photograph Anomalies**  
**Ft. McClellan**

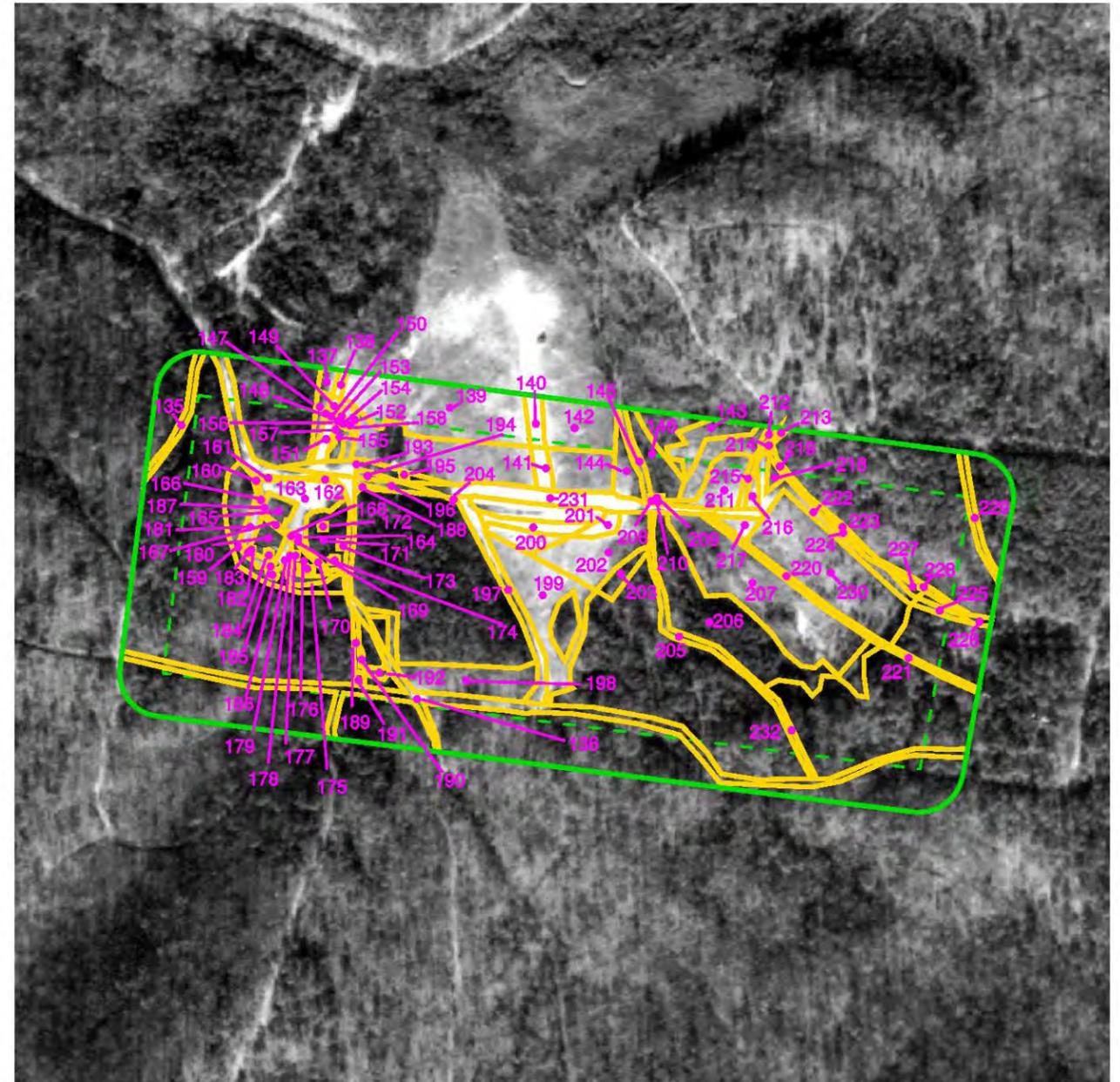


- Anomaly
- - - AOC Boundary
- AOC Buffer

Data source: Aerial Photography from U.S. Army COE  
 Prepared by: Geographic Information and Technology, ORNL  
 Date prepared: January 4, 1999



1969



1982

Fig. 3g  
 Range 24A  
 Historical Photograph Anomalies  
 Ft. McClellan



0 300 600 900 1200 1500 Feet

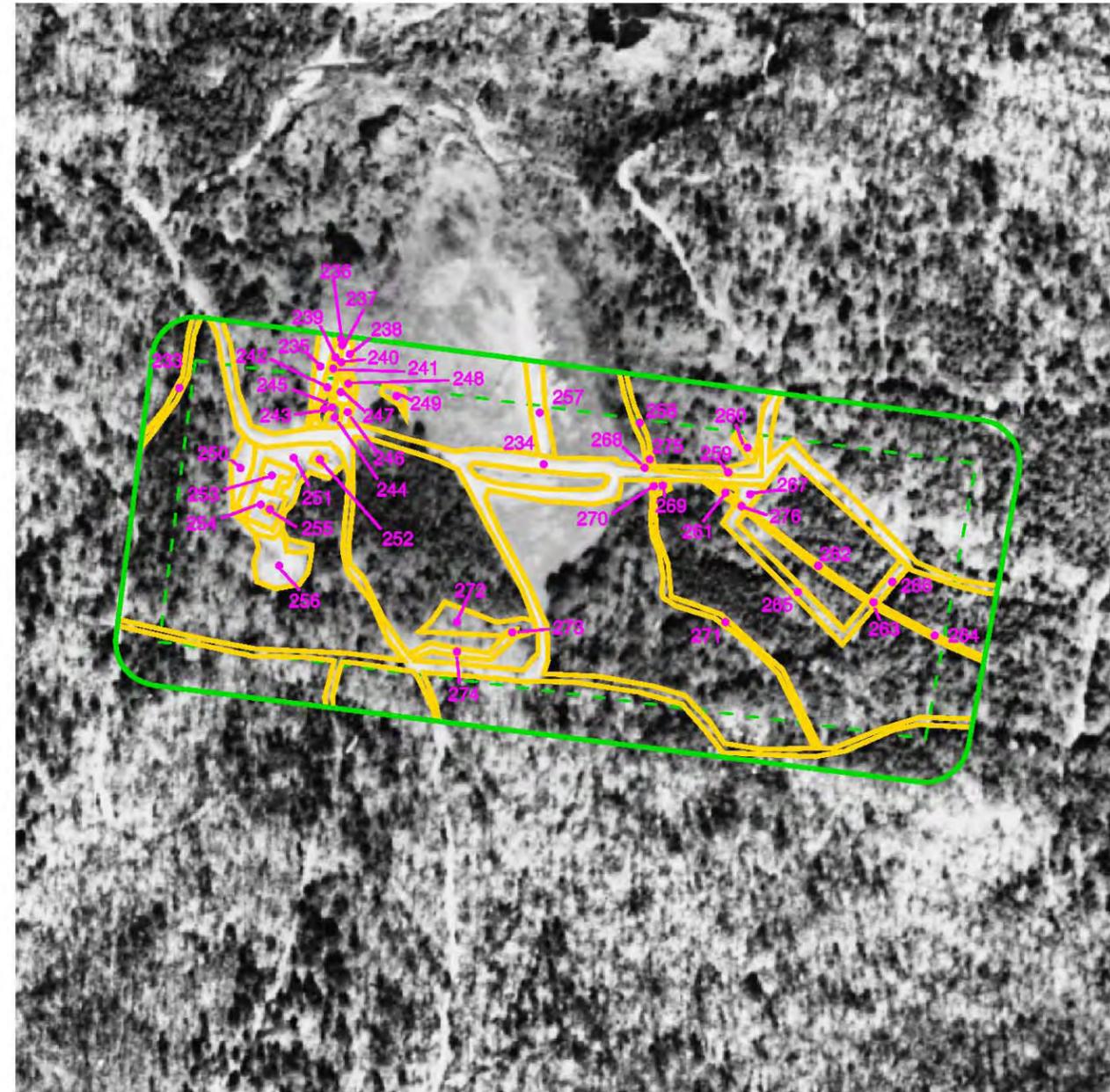
0 100 200 300 400 Meters

- Anomaly
- - - AOC Boundary
- AOC Buffer

Data source: Aerial Photography from U.S. Army COE  
 Prepared by: Geographic Information and Technology, ORNL  
 Date prepared: January 4, 1999



1982



1994

Fig. 3h  
Range 24A  
Historical Photograph Anomalies  
Ft. McClellan



0 300 600 900 1200 1500 Feet

0 100 200 300 400 Meters

- Anomaly
- - - AOC Boundary
- AOC Buffer

Data source: Aerial Photography from U.S. Army COE  
 Prepared by: Geographic Information and Technology, ORNL  
 Date prepared: January 4, 1999

**Table 2. Range 24A - Anomalies of Concern**

Anomaly #	Alabama State Plane Coordinates (approximate anomaly center)		Year of Change	Discussion
	X-Coordinate	Y-Coordinate		
3	678456.76619	1158811.00454	1954	Trees were cleared in this area between 1944 and 1954. By 1961, ground cover was evident. The area was cleared again between 1961 and 1969 (see anomalies of potential concern 95 and 96).
4	678000.70619	1158381.57578	1954	Trees were cleared in this area between 1944 and 1954. By 1961, most of the area (excluding the center of the anomaly) had become revegetated. Reforestation of the entire area was evident by 1969.
5	678639.85597	1158631.24367	1954	This area was cleared between 1944 and 1954. By 1961, most of the area had become revegetated. The area was cleared again between 1961 and 1969 (see anomalies of potential concern 95 and 112).
6	678609.89582	1158484.77184	1954	This large area was cleared prior to the acquisition of the 1954 photographs. Numerous activities occurred in this area from 1954 through 1994. <ul style="list-style-type: none"> <li>• 1961 - the western portion of the area remained clear except for the presence of several unidentified structures (anomalies of potential concern 28 through 32); the eastern portion of the area had become revegetated</li> <li>• 1969 - the unidentified structures present in 1961 remained within the area and a new unidentified pile was evident (see anomaly of potential concern 105); several new trails and clearings were present in the eastern portion of the anomalous area</li> <li>• 1982 - the unidentified piles were gone and new unidentified piles were evident (see anomalies of potential concern 165, 180, and 184); the eastern portion of the area remained clear</li> <li>• 1994 - parking lots and buildings covered the western portion of the study area while the eastern portion of the area remained clear</li> </ul>
7	678433.46385	1158238.43286	1954	Trees were cleared in this area between 1944 and 1954. The 1961 photographs show that two new roads had been constructed through the area.
8	678296.97874	1158298.35316	1954	A trail was in use here in 1954. The trail was no longer evident in the photographs acquired in 1961.
9	678263.68969	1158344.95783	1954	Trees were cleared in this area between 1944 and 1954. By 1961, low ground cover and a few trees were evident in the area. By 1969, the area had become reforested.
10	679089.25816	1158381.57578	1954	Most of the trees were cleared from this area between 1944 and 1954. By 1961, the area had become reforested. Most of the area was cleared again between 1961 and 1969 (see anomaly of potential concern 115).
11	679308.96589	1158371.58907	1954	Most of the trees were cleared from this area between 1944 and 1954. By 1961, a low ground cover was present. The area was cleared again prior to 1969 (see anomalies of potential concern 117 and 118).

Anomaly #	Alabama State Plane Coordinates (approximate anomaly center)		Year of Change	Discussion
	X-Coordinate	Y-Coordinate		
12	679535.33144	1158378.24688	1954	This area was cleared between 1944 and 1954. The area remained clear through 1969. By 1982, the area was mostly covered in grass and by 1994 had become reforested.
13	679831.60400	1158248.41958	1954	This area was cleared between 1944 and 1954. Most of the area contained low ground cover in 1961 and by 1969, the area was beginning to revegetate. By 1982, most of the area had become reforested and the northwestern corner was beginning to revegetate. By 1994, the entire area had become reforested.
14	679655.17203	1158131.90790	1954	Trees were cleared from this area between 1944 and 1954. In 1961, a road was present in the southern portion of the area while the remainder of the area was becoming reforested.
15	679551.97597	1158518.06089	1954	Trees were cleared from this area between 1944 and 1954. By 1961, vegetation regrowth was underway and a new road ran through the western portion of the area. The area was cleared again between 1961 and 1969 (see anomalies of potential concern 99 and 125).
16	679618.55407	1158518.06089	1954	A new trail was evident in this portion of the study area in 1954. By 1961, the trail was no longer evident.
17	679658.50093	1158571.32338	1954	Trees were cleared in this area between 1944 and 1954. By 1961, vegetation regrowth was underway. The area was reforested by 1969.
18	679958.10239	1158498.08746	1954	Trees were cleared in this area between 1944 and 1954. By 1961, vegetation regrowth was underway. The area was reforested by 1969.
28	678434.00800	1158476.70565	1961	An unidentified structure was present at this location in the 1961 photographs; however, the photographs were not of sufficient quality to interpret the structure. The structure was also evident in the 1969 photographs. By 1982, the structure was gone.
29	678414.86679	1158442.84044	1961	An unidentified structure was present at this location in the 1961 photographs; however, the photographs were not of sufficient quality to interpret the structure. The structure was also evident in the 1969 photographs. By 1982, the structure was gone.
30	678357.44318	1158419.28204	1961	An unidentified structure was present at this location in the 1961 photographs; however, the photographs were not of sufficient quality to interpret the structure. The structure was also evident in the 1969 photographs. By 1982, the structure was gone.

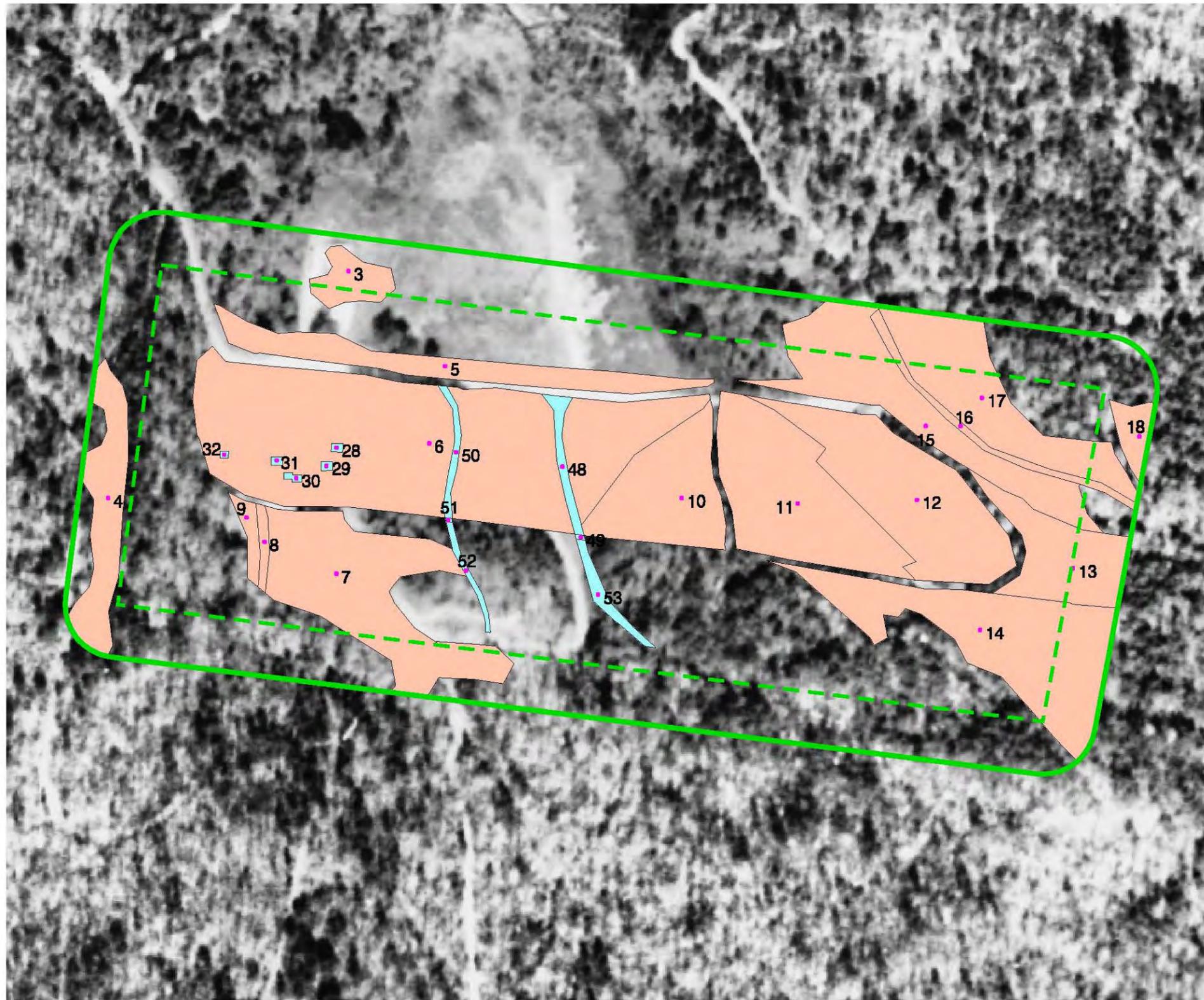
Anomaly #	Alabama State Plane Coordinates (approximate anomaly center)		Year of Change	Discussion
	X-Coordinate	Y-Coordinate		
31	678320.63317	1158453.14724	1961	An unidentified structure was present at this location in the 1961 photographs; however, the photographs were not of sufficient quality to interpret the structure. The structure was also evident in the 1969 photographs. By 1982, the structure was gone.
32	678220.50995	1158463.45405	1961	An unidentified structure was present at this location in the 1961 photographs; however, the photographs were not of sufficient quality to interpret the structure. The structure was also evident in the 1969 photographs. By 1982, the structure was gone.
48	678862.47650	1158441.36804	1961	Prior to the acquisition of the 1961 photographs, a new trail was constructed through an area which had been cleared prior to 1954. By 1969, the trail was no longer evident.
49	678897.81410	1158307.37961	1961	The 1961 photographs show a new trail that intersected an existing road in this location. By 1969, the trail was no longer evident.
50	678660.75765	1158467.87125	1961	Prior to the acquisition of the 1961 photographs, a new trail was constructed through an area which was cleared in 1954. By 1969, the trail was no longer evident.
51	678646.03365	1158339.77242	1961	Prior to the acquisition of the 1961 photographs, a new trail was constructed through an area which was cleared in 1954. By 1969, the trail was no longer evident.
52	678679.89885	1158244.06640	1961	Prior to the acquisition of the 1961 photographs, a new trail was constructed through an area which was cleared in 1954. By 1969, the trail was no longer evident.
53	678930.20691	1158198.42199	1961	A new trail was constructed through this between 1954 and 1961. By 1969, the trail was no longer evident.
90	678812.95903	1158388.23359	1969	A new trail was constructed through this area between 1961 and 1969. The trail was improved for use as a road between 1969 and 1982. The road remained apparent in the 1994 photographs.
91	678859.56370	1158358.27345	1969	Trees were cleared in this area between 1961 and 1969. The area remained cleared in 1982 and by 1994, low ground cover was present.
93	679035.99568	1158241.76177	1969	Trees were cleared in this area between 1961 and 1969. By 1982, most of the area had become reforested, while the northwestern corner of the area remained cleared. In 1994, the northwestern corner of the area contained low ground cover.
94	678423.47714	1158767.72878	1969	An unidentified object was visible in the 1969 photographs at this location. The object was not present in the 1982 photographs.

Anomaly #	Alabama State Plane Coordinates (approximate anomaly center)		Year of Change	Discussion
	X-Coordinate	Y-Coordinate		
95	678426.80604	1158677.84834	1969	This area was cleared between 1961 and 1969. The unidentified object discussed as anomaly of potential concern 94 was located within this cleared area. Photographs from 1982 show that the area remained clear, with the exception of the center of the anomalous area. The center appeared to contain low ground cover. In 1994, most of the area was covered by a parking lot.
96	678789.65670	1158774.38659	1969	Trees were cleared from this area between 1961 and 1969. By 1982, the area had been cleared again (see anomalies of potential concern 139 and 142).
97	679219.08546	1158731.11082	1969	Trees were cleared from this area between 1961 and 1969. By 1982, vegetation regrowth was underway in the western portion of the anomaly; however, the eastern portion of the anomaly had been cleared again (see anomaly of potential concern 143). By 1994, the entire area had become reforested.
98	679325.61042	1158704.47958	1969	Trees were cleared from this between 1961 and 1969. The area remained mostly cleared in 1982 and by 1994, the area contained a mixture of trees and grass.
99	679129.20502	1158661.20381	1969	This area was cleared between 1961 and 1969. By 1982, revegetation of the area was underway and a road extended through the western portion of the area. By 1994, the area had become reforested and the road was no longer present.
100	679162.49407	1158581.31009	1969	An unidentified structure was present in this location in 1969. The structure was not evident in the 1982 photographs.
105	678266.08553	1158435.21975	1969	An unidentified object was present in this location in 1969. The object was not evident in the 1982 photographs.
110	678387.85056	1158520.90626	1969	An unidentified object was present in this location in 1969. The object was not evident in the 1982 photographs.
111	678800.63965	1158540.35484	1969	All of the trees were cleared in this area between 1961 and 1969. The area remained clear in 1982 and 1994. A new road extended through the area in 1994.
112	678724.53651	1158670.01205	1969	Trees were cleared in this area between 1961 and 1969. The area remained clear in 1982 and 1994. A new road extended through the area in 1994.
113	678923.25028	1158531.89893	1969	Trees were cleared in this area between 1961 and 1969. The area remained clear in 1982 and 1994. A new road extended through the area in 1994.
115	679065.59134	1158472.70760	1969	This area was cleared between 1961 and 1969. By 1982, vegetation regrowth was apparent in the eastern portion of the anomaly and the western portion remained clear. In 1994, a road extended through the northern portion of the anomaly.
117	679351.68279	1158252.85407	1969	This area was cleared between 1961 and 1969. By 1982, the area had become reforested.

Anomaly #	Alabama State Plane Coordinates (approximate anomaly center)		Year of Change	Discussion
	X-Coordinate	Y-Coordinate		
118	679324.90576	1158379.69264	1969	This area was cleared between 1961 and 1969. By 1982, the western portion of this area had become reforested, while the eastern portion contained bare and grass-covered areas. By 1994, the area had become reforested.
119	679596.90404	1158186.61615	1969	This area was cleared between 1961 and 1969. By 1982, revegetation was underway. A new road was constructed in the northern portion of this area by 1994 and the remainder of the anomalous area had become reforested.
125	679516.57294	1158531.89893	1969	This area was cleared between 1961 and 1969. Some vegetation regrowth had initiated by 1982, but by 1994, most of this area contained a new road.
127	679601.13199	1158513.57781	1969	This small area was cleared between 1961 and 1969. The area remained clear through 1994.
137	678396.84589	1158854.28031	1982	Trees were cleared in this area between 1969 and 1982. A parking lot covered this area in 1994.
138	678430.13495	1158847.62250	1982	A new trail was evident in this location in the 1982 photographs. By 1994, the trail was no longer evident.
139	678683.13173	1158794.36002	1982	This area was cleared between 1969 and 1982. By 1994, a low ground cover was present within the area.
142	678972.74648	1158747.75535	1982	This area was cleared prior to the acquisition of the 1982 photographs. By 1994, a mixture of ground cover and trees were evident in the area.
143	679288.99246	1158747.75535	1982	This area was cleared between 1969 and 1982. By 1994, a combination of grass and trees was present within the area.
149	678414.70049	1158798.73619	1982	A new trail was evident in this location in 1982. By 1994, the trail was no longer present and most of the area was covered by a parking lot.
150	678407.57129	1158775.76432	1982	A new trail was evident in this location in 1982. By 1994, the trail was no longer evident and a parking lot covered most of this location.
151	678395.68928	1158721.89923	1982	A new trail was evident in this location in 1982. By 1994, the trail was no longer evident.
165	678287.16698	1158556.34330	1982	An unidentified pile was evident in this location in 1982. By 1994, the pile was no longer present.
180	678261.81870	1158492.97261	1982	An unidentified pile was evident in this location in 1982. By 1994, the pile was no longer present.
184	678263.40297	1158454.15807	1982	An unidentified pile was evident in this location in 1982. By 1994, the pile was no longer present.
192	678519.26213	1158182.45623	1982	A few trees were cleared from this area between 1969 and 1982. By 1994, vegetation regrowth was underway.

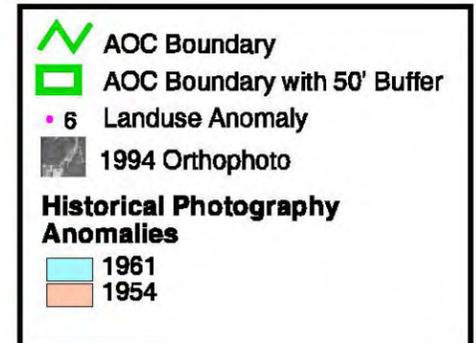
Anomaly #	Alabama State Plane Coordinates (approximate anomaly center)		Year of Change	Discussion
	X-Coordinate	Y-Coordinate		
198	678720.95802	1158163.59652	1982	Trees were cleared from this area between 1969 and 1982. In 1994, the area remained clear and a new trail extended through the anomaly.
249	678561.35462	1158743.17810	1994	Trees were cleared in this area between 1982 and 1994.
260	679365.55728	1158624.58586	1994	A new trail was evident in this location in the 1994 photographs.
269	679171.90734	1158537.23247	1994	Trees were cleared in this small area between 1982 and 1994.
272	678699.77626	1158225.11724	1994	Trees were cleared in this area between 1982 and 1994.
273	678826.27465	1158201.81491	1994	A new trail was evident in this location in the 1994 photographs.
274	678699.77626	1158158.53914	1994	A new trail was evident in this location in the 1994 photographs.



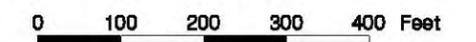


**Fig. 4b  
Anomalies of Concern**

**Range 24a**



Geographic Information Science  
and Technology  
Oak Ridge National Laboratory  
Oak Ridge, Tennessee



Alabama State Plane East, NAD83



Data Source: Aerial Photography from U. S. Army GDE  
Prepared by: Geographic Information Science and Technology, ORNL  
Date prepared: January 15, 1999

## 17.0 AOC 99 – OLD TOXIC TRAINING AREA

### 17.1 LOCATION OF STUDY AREA

The Old Toxic Training Area comprises approximately 1.6 acres within the Cantonment Area at the Fort McClellan, Alabama Army Installation (Fig. 1). The study area boundary was devised by adding a 50-ft buffer outside of the Old Toxic Training Area site boundary.

### 17.2 AERIAL PHOTOGRAPH QUALITY ISSUES

A few photograph quality issues were encountered during photograph interpretation. They were corrected as follows:

- X **Quality** - In many areas of the photographs, the dynamic range of brightness values was insufficient to distinguish land cover classes. Due to extreme brightness (almost white), ground cover such as grass, bare soil, trails, and roads could not be differentiated. Where appropriate, the problem areas of the photographs were subset and image enhancement techniques were applied. Simple adjustments to the brightness and contrast were conducted, or in more severe cases, a histogram equalization in the range of the lookup table was performed on the specific area where interpretation was difficult.
  
- X **Rectification** - Although second- and third-order transformations were used in the rectification of the digital photographs, in some photograph's rectification within the Old Toxic Training Area contained too much error to accurately digitize land use/cover polygons. Factors contributing to the error included: (1) insufficient ground control points (gaps) due to pronounced changes in land cover between years, (2) photographic distortion (location of the site in relation to the center of the photograph and the angle of the camera/aircraft when the photograph was acquired), and (3) terrain distortion (a single photograph may cover a large geographic area of varying elevations even though the site of interest may have little topographic relief). To improve the photographic registration of the study area, the Old Toxic Training Area was subset from the rectified digital photographs in question and the newly-created image files were rectified separately. Photographic interpretation could not be conducted on the 1937 photographs due to the poor quality of the photographs.

### 17.3 FINDINGS

Complete photographic coverage of the study area was available for eight years of photographic coverage from 1937 to 1994. One hundred thirty-eight 138 anomalies were identified in the year-by-year land cover analysis (Fig. 2). All anomalies were inspected to ascertain the cause of each anomaly. All anomalies were resolved. Anomalies potentially associated with waste disposal or chemical training activities were determined to be of potential concern and should be assessed by the USAESCH. Of the anomalies identified, 110 were caused by new roads, pre-existing and former roads and trails, buildings, landscaping, parking lots, and other paved areas. The remaining 28 anomalies were the result of trails, the clearing of trees, and other cleared areas.

**1937.** The 1937 photographs were not interpreted because of the poor quality of the available photographs (see Fig. 3a). However, no pre-existing anomalous areas were identified during a visual inspection of the photographs.

**1937 to 1940.** Since the 1937 photographs were not interpreted, the land use/cover was not available. The 1940 photographs were interpreted and three anomalous areas were identified (see Table 1 and Fig. 3b). The three anomalies are of potential concern and were the result of cleared areas (3 anomalies).

**1940 to 1944.** Eighteen anomalies were identified during the land cover analysis for the years 1940 and 1944 (see Table 1 and Fig. 3c). Ten of the anomalies were the result of new roads and the clearing of trees associated with road construction. The eight remaining anomalies are of potential of concern and were the result of cleared areas (7 anomalies) and a trail (1 anomaly).

**1944 to 1954.** Thirty-three anomalies were identified during the land cover change analysis for the years 1944 and 1954 (see Table 1 and Fig. 3d). Twenty-three of the anomalies were the result of new roads, pre-existing and former roads and trails, and landscaping. The ten remaining anomalies are of potential concern and were the result of new trails (8 anomalies) and cleared areas (2 anomalies).

**1954 to 1961.** Twenty anomalies were identified during the land cover change analysis for the years 1954 and 1961 (see Table 1 and Fig. 3e). Eighteen of the anomalies were the result of pre-existing and former trails, roads, landscaping, and cleared areas. The two remaining anomalies are of potential concern and were the result of a trail (1 anomaly) and another cleared area (1 anomaly).

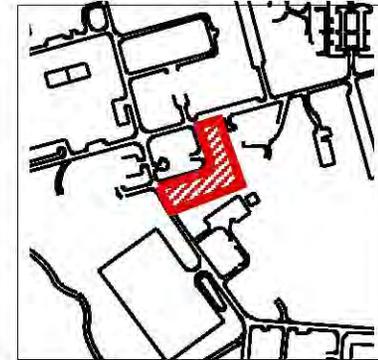
**1961 to 1969.** Twenty-one anomalies were identified during the land cover change analysis for the years 1961 and 1969 (see Table 1 and Fig. 3f). Twenty of the anomalies were the result of pre-existing and widened roads, pre-existing and former landscaping, and former cleared areas. The remaining anomaly is of potential concern and was the result of a trail (1 anomaly).

**1969 to 1982.** Twenty-four anomalies were identified during the land cover change analysis for the years 1969 and 1982 (see Table 1 and Fig. 3g). Twenty of the anomalies were the result of new and pre-existing roads, former trails, pre-existing and former landscaping, buildings, parking lots, and other paved areas. The four remaining anomalies are of potential concern and were the result of the clearing of trees (4 anomalies).

**1982 to 1994.** Nineteen anomalies were identified during the land cover change analysis for the years 1982 and 1994 (see Table 1 and Fig. 3h). All of the anomalies were the result of pre-existing and widened roads, pre-existing and former landscaping, pre-existing buildings, parking lots, and other paved areas. There are no anomalies of concern.

**Fig. 1**  
**Areas of Concern**  
**Locator Map**

Old Toxic Training Area  
Fort McClellan

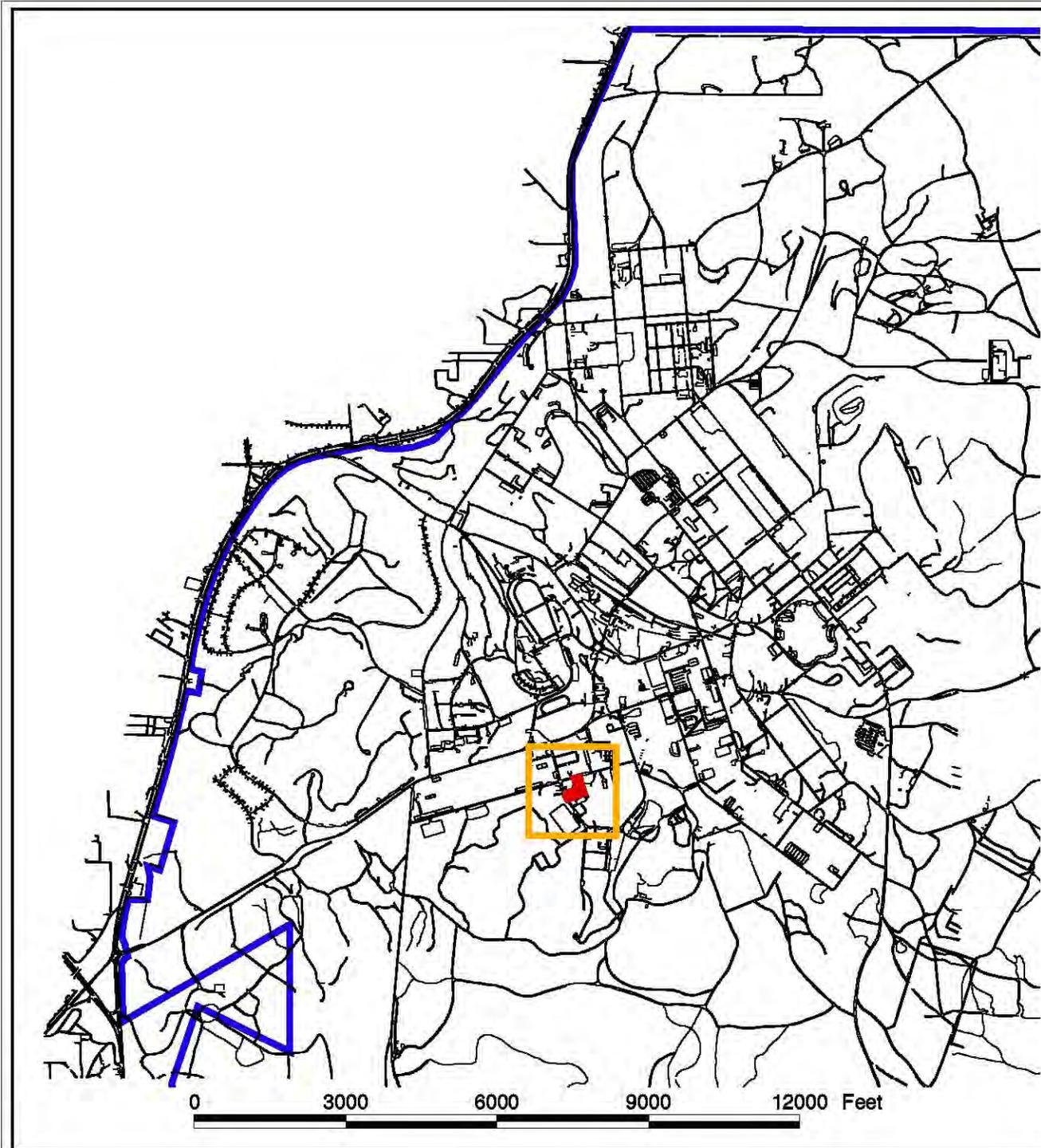


-  AOC 99
-  Road, Parking, and Bridges
-  Base Boundary

Geographic Information Science  
and Technology  
Oak Ridge National Laboratory  
Oak Ridge, Tennessee

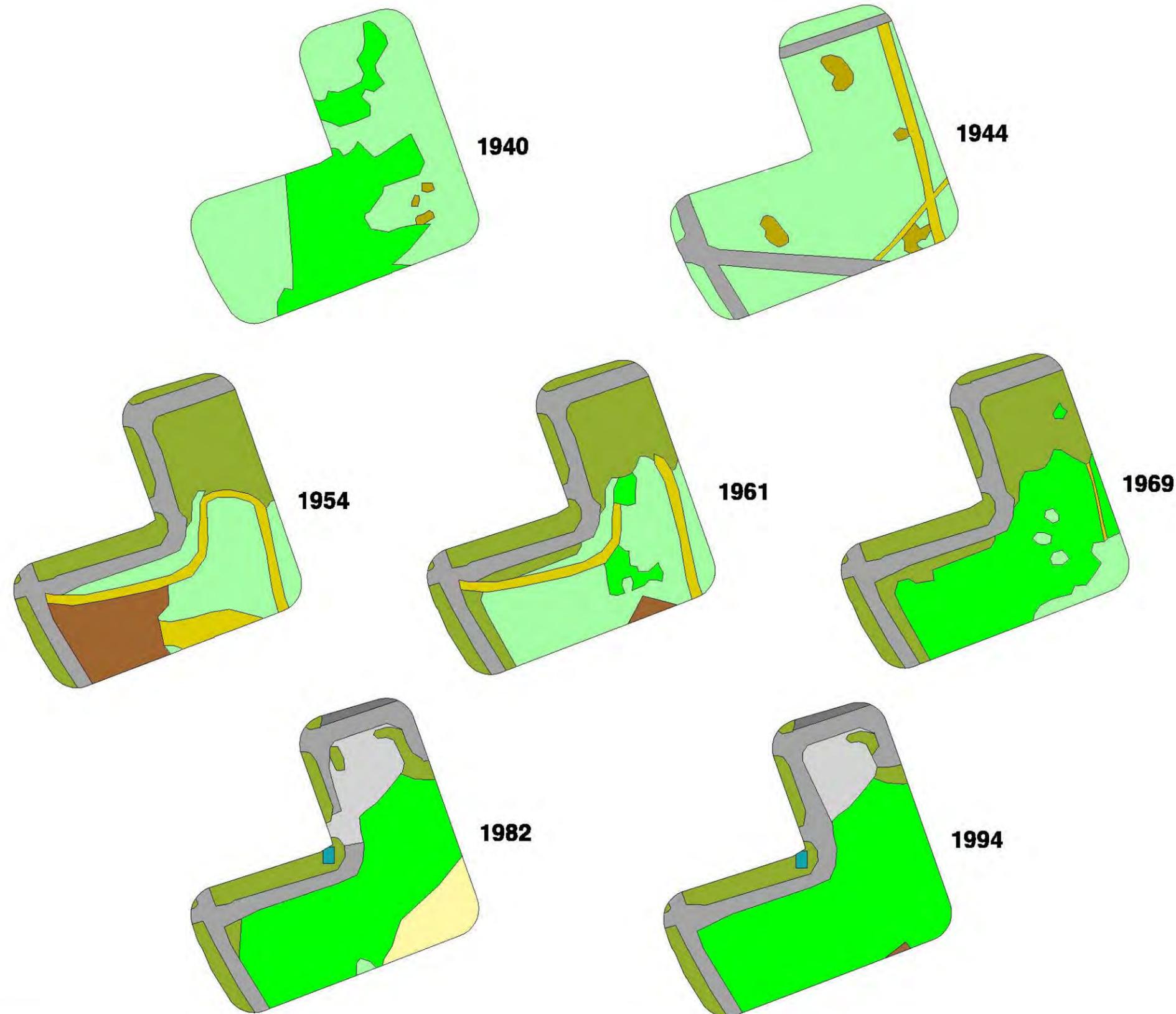


Data source: Planimetric data from IT Corporation  
Prepared by: Geographic Information Science and Technology  
Data prepared: December 14, 1998



**Fig. 2  
Landuse/Cover**

**Old Toxic Training Area**



Landuse/Cover Class:	
	Developed, Bare
	Government Building
	Landscaped Area
	Paved Area
	Structure
	Pile
	Road
	Parking Area
	Trail
	Not Identified
	Bare
	Forest
	Grass
	Scrub/Shrub

Geographic Information Science and Technology  
Oak Ridge National Laboratory  
Oak Ridge, Tennessee

0 30 60 90 120 Meters

0 80 160 240 320 400 Feet

Alabama State Plane East, NAD 83



Data Source: Aerial Photography from U. S. Army COE  
Prepared by: Geographic Information Science and Technology, ORNL  
Date prepared: December 14, 1998

**Table 1. Old Toxic Training Area - Anomaly Resolution**

<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
Yes	1	1940	Cleared area	None
Yes	2	1940	Cleared area	None
Yes	3	1940	Cleared area	None
	4	1944	Trees cleared (associated with road construction)	None
	5	1944	Road	24, 59, 80, 98, 122
	6	1944	Road	24, 59, 80, 98, 122
	7	1944	Road	24, 59, 80, 98, 122
Yes	8	1944	Trail	26, 48, 51 - 53, 72, 74, 89, 90, 92, 93
	9	1944	Trees cleared (associated with road construction)	None
Yes	10	1944	Cleared area	28
Yes	11	1944	Cleared area	28
Yes	12	1944	Cleared area	28
	13	1944	Trees cleared (associated with road construction)	None
Yes	14	1944	Cleared area	None
	15	1944	Trees cleared (associated with road construction)	None
Yes	16	1944	Cleared area	50
Yes	17	1944	Cleared area	42, 43
Yes	18	1944	Cleared area	42, 43
	19	1944	Road	40, 46, 66
	20	1944	Road	35, 37, 40, 115, 134
	21	1944	Trees cleared (associated with road development)	41
	22	1954	Landscaping	55, 75, 96, 97, 120, 121
	23	1954	Road	59, 80, 98, 122
	24	1954	Pre-existing road (first visible 1944)	5 - 7, 59, 80, 98, 122
	25	1954	Landscaping	56, 77, 73, 102, 125
	26	1954	Landscaping (former trail - first visible 1944)	8, 72, 89, 100, 102, 123, 125
	27	1954	Landscaping	56, 69, 70, 77, 100, 102, 104, 109, 123, 125

<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
	28	1954	Landscaping (former cleared area - first visible 1944)	10 - 12, 56, 77
	29	1954	Road	59, 80, 98, 105, 115, 122, 129, 130, 134
	30	1954	Landscaping	57, 76, 106, 128
	31	1954	Landscaping	58, 79, 108, 132
	32	1954	Landscaping	60, 81, 118, 135
	33	1954	Road	59, 80, 115, 130, 134
	34	1954	Landscaping	61, 82, 119, 136
	35	1954	Landscaping (former road - first visible 1944)	20, 61, 82, 119, 136
	36	1954	Landscaping	61, 82, 119, 136
	37	1954	Pre-existing road (first visible 1944)	20, 59, 80, 115, 130, 134
Yes	38	1954	Trail	63, 83, 85, 86, 88
Yes	39	1954	Cleared area	64
	40	1954	Former road (first visible 1944)	19, 20
Yes	41	1954	Cleared area	21, 64
Yes	42	1954	Trail (former cleared area - first visible 1944)	17, 18, 63, 86 – 88
	43	1954	Pre-existing cleared area (first visible 1944)	17, 18
Yes	44	1954	Trail	63, 68, 71, 88
Yes	45	1954	Trail	66
	46	1954	Trail (former road - first visible 1944)	19, 66
Yes	47	1954	Trail	None
	48	1954	Pre-existing trail (first visible 1944)	8
Yes	49	1954	Trail	67, 94
Yes	50	1954	Trail	16, 67, 94
	51	1954	Former trail (first visible 1944)	8
	52	1954	Pre-existing trail (first visible 1944)	8, 74, 90, 92, 93
	53	1954	Former trail (first visible 1944)	8
Yes	54	1954	Trail	71
	55	1961	Pre-existing landscaping (first visible 1954)	22, 75, 96, 97, 120, 121

<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
	56	1961	Pre-existing landscaping (first visible 1954)	25, 27, 28, 77, 78, 100, 102, 104, 109, 123, 125
	57	1961	Pre-existing landscaping (first visible 1954)	30, 76, 106, 128
	58	1961	Pre-existing landscaping (first visible 1954)	31, 79, 108, 132
	59	1961	Pre-existing road (first visible 1954)	5 - 7, 23, 24, 29, 33, 37, 80, 98, 105, 115, 122, 129, 130, 134
	60	1961	Pre-existing landscaping (first visible 1954)	32, 81, 118, 135
	61	1961	Pre-existing landscaping (first visible 1954)	34 - 36, 82, 119, 136
	62	1961	Landscaping (former cleared area - first visible 1954)	84, 116, 117, 137
	63	1961	Pre-existing trail (first visible 1954)	38, 42, 44, 83, 85, 86, 88
	64	1961	Former cleared area (first visible 1954)	39, 41
	65	1961	Landscaping	87, 116
	66	1961	Former trail (partially visible 1944, partially visible 1954)	19, 45, 46
Yes	67	1961	Cleared area (former trail - first visible 1954)	49, 50, 94, 95
	68	1961	Former trail (first visible 1954)	44
	69	1961	Former landscaping (first visible 1954)	27
	70	1961	Former landscaping (first visible 1954)	27
	71	1961	Former trail (first visible 1954)	44, 54
Yes	72	1961	Trail	8, 26, 89, 90
	73	1961	Pre-existing landscaping (first visible 1954)	25, 77
	74	1961	Pre-existing trail (first visible 1944)	8, 52, 90, 92, 93
	75	1969	Pre-existing landscaping (first visible 1954)	22, 55, 96, 97, 120, 121
	76	1969	Pre-existing landscaping (first visible 1954)	30, 57, 106, 128
	77	1969	Pre-existing landscaping (first visible 1954)	25, 27, 28, 56, 73, 100, 102, 104, 106, 123, 125
	78	1969	Former landscaping (first visible 1954)	56, 101
	79	1969	Pre-existing landscaping (first visible 1954)	31, 58, 108, 132

<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
	80	1969	Pre-existing road (first visible 1954)	5 - 7, 23, 24, 29, 33, 37, 59, 98, 105, 115, 122, 129, 130, 134
	81	1969	Pre-existing landscaping (first visible 1954)	32, 60, 118, 135
	82	1969	Pre-existing landscaping (first visible 1954)	34 - 36, 61, 119, 136
	83	1969	Road widened (former trail - first visible 1954)	38, 63, 115, 130, 134
	84	1969	Pre-existing landscaping (first visible 1954)	62, 116, 117, 137
	85	1969	Former trail (first visible 1954)	38, 63
	86	1969	Former trail (first visible 1954)	38, 42, 63
	87	1969	Pre-existing landscaping (first visible 1961)	42, 65, 116
	88	1969	Former trail (first visible 1954)	38, 42, 44, 63
	89	1969	Landscaping (former trail - first visible 1961)	8, 26, 72, 109
	90	1969	Former trail (first visible 1944)	8, 52, 72, 74
Yes	91	1969	Trail	110, 112
	92	1969	Former trail (first visible 1944)	8, 52, 74
	93	1969	Former trail (first visible 1944)	8, 52, 74
	94	1969	Former cleared area (first visible 1961)	49, 50, 67
	95	1969	Former cleared area (first visible 1961)	67
	96	1982	Pre-existing landscaping (first visible 1954)	22, 55, 75, 120
	97	1982	Paved area (former landscaping - first visible 1954)	22, 55, 75, 121
	98	1982	Pre-existing road (first visible 1944)	5 - 7, 23, 24, 29, 59, 80, 122
	99	1982	Road	122, 124
	100	1982	Pre-existing landscaping (first visible 1954)	26, 27, 56, 77, 123
	101	1982	Landscaping	78, 124
	102	1982	Pre-existing landscaping (first visible 1954)	25 - 27, 56, 77, 125
	103	1982	Parking lot	126
	104	1982	Pre-existing landscaping (first visible 1954)	27, 56, 77, 127
	105	1982	Pre-existing road (first visible 1954) (attributed as parking lot on Figure 2 in error)	29, 59, 80, 129
	106	1982	Pre-existing landscaping (first visible 1954)	30, 57, 76, 128

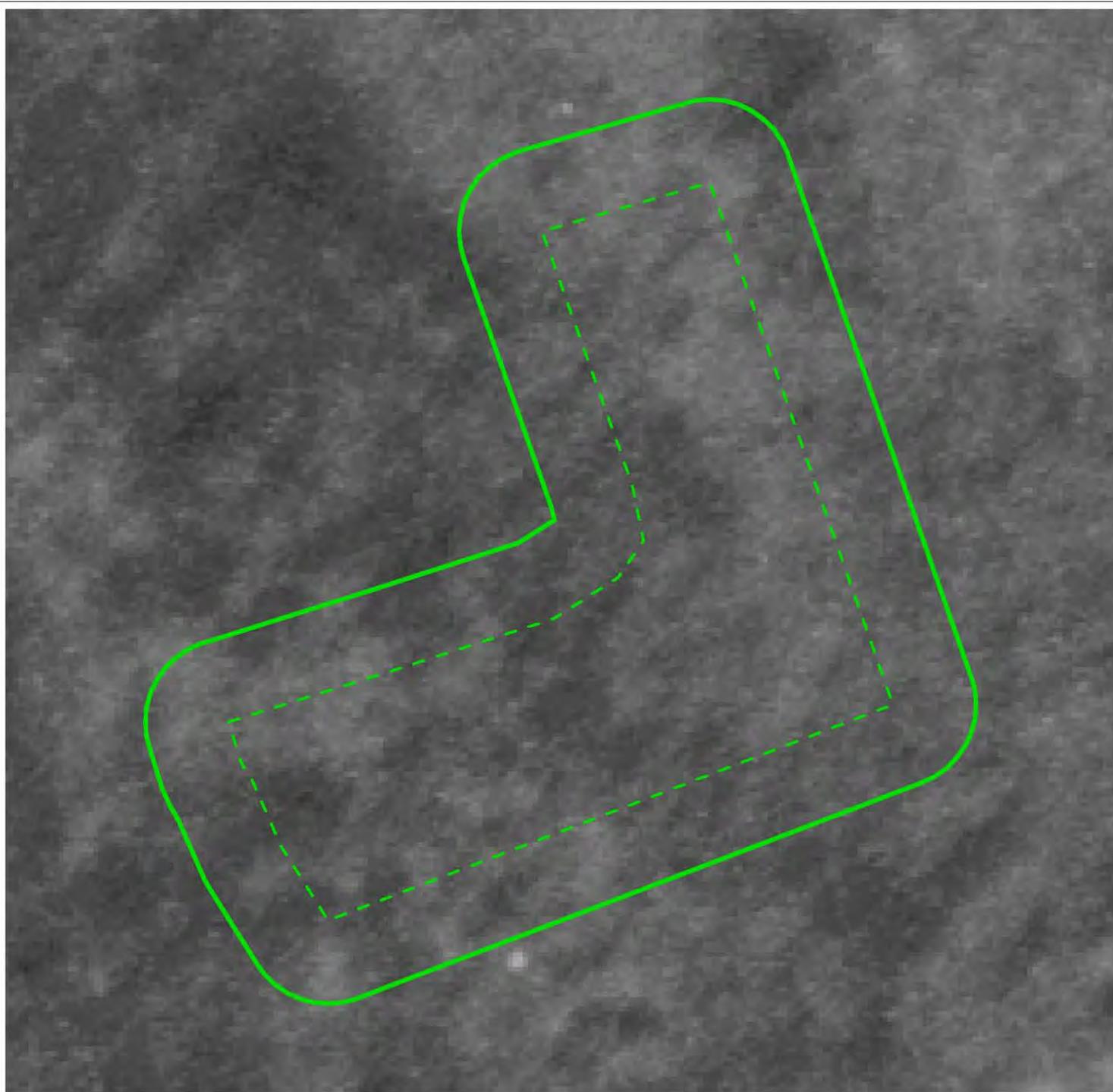
<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
	107	1982	Building	131
	108	1982	Pre-existing landscaping (first visible 1954)	31, 58, 79, 132
	109	1982	Former landscaping (first visible 1954)	27, 56, 77, 89
	110	1982	Former trail (first visible 1969)	91
Yes	111	1982	Trees partially cleared	None
Yes	112	1982	Trees partially cleared (former trail - first visible 1969)	91
Yes	113	1982	Trees partially cleared	None
Yes	114	1982	Trees cleared	None
	115	1982	Pre-existing road (first visible 1954)	20, 29, 33, 37, 59, 80, 83, 130, 134
	116	1982	Former landscaping (first visible 1954)	62, 65, 84, 87
	117	1982	Pre-existing landscaping (first visible 1954)	62, 84, 137
	118	1982	Pre-existing landscaping (first visible 1954)	32, 60, 81, 135
	119	1982	Pre-existing landscaping (first visible 1954)	34 - 36, 61, 82, 136
	120	1994	Pre-existing landscaping (first visible 1954)	22, 55, 75, 96
	121	1994	Pre-existing paved area (first visible 1982)	22, 55, 75, 97
	122	1994	Pre-existing road (first visible 1954)	5 - 7, 23, 24, 29, 59, 80, 98, 99
	123	1994	Pre-existing landscaping (first visible 1954)	26, 27, 56, 77, 100
	124	1994	Road	99, 101
	125	1994	Pre-existing landscaping (first visible 1954)	25 - 27, 56, 77, 102
	126	1994	Pre-existing parking lot (first visible 1982)	103
	127	1994	Parking lot (former landscaping)	104
	128	1994	Pre-existing landscaping (first visible 1954)	30, 57, 76, 106
	129	1994	Pre-existing road (first visible 1954)	29, 33, 37, 59, 80, 83, 105
	130	1994	Pre-existing road (first visible 1954)	29, 59, 80, 115
	131	1994	Pre-existing building (first visible 1982)	107
	132	1994	Pre-existing landscaping (first visible 1954)	31, 58, 79, 108
	133	1994	Road widened	None
	134	1994	Pre-existing road (first visible 1954)	20, 29, 33, 37, 59, 80, 83, 115

<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
	135	1994	Pre-existing landscaping (first visible 1954)	32, 60, 81, 118
	136	1994	Pre-existing landscaping (first visible 1954)	34 - 36, 61, 82, 119
	137	1994	Former landscaping (first visible 1961)	62, 84, 117
	138	1994	Cleared area (parking area)	None

<sup>1</sup> Related anomalies refer to anomalies which are carried forward from year to year (e.g., a trail) or anomalies which change (e.g., the extension or widening of a trail or cleared area).

#### **17.4 ANOMALIES OF POTENTIAL CONCERN**

One hundred thirty-eight anomalies were identified during the photographic interpretation of the Old Toxic Training Area. All anomalies have been resolved. Twenty-eight anomalies are considered to be of potential concern. To facilitate anomaly tracking, the anomalies of potential concern were mapped using the anomaly tracking number assigned in the year-by-year analysis (see Table 2 and Fig. 4). Table 2 provides information for each anomaly of potential concern, including the anomaly tracking number, coordinates for the approximate center of the anomaly (coordinates provided in Alabama State Plane East, North American Datum [NAD] 83), the year the change occurred, and the reason for the anomaly.



1937

**Fig. 3a**  
**Old Toxic Training Area**  
**Historical Photograph Anomalies**  
**Ft. McClellan**

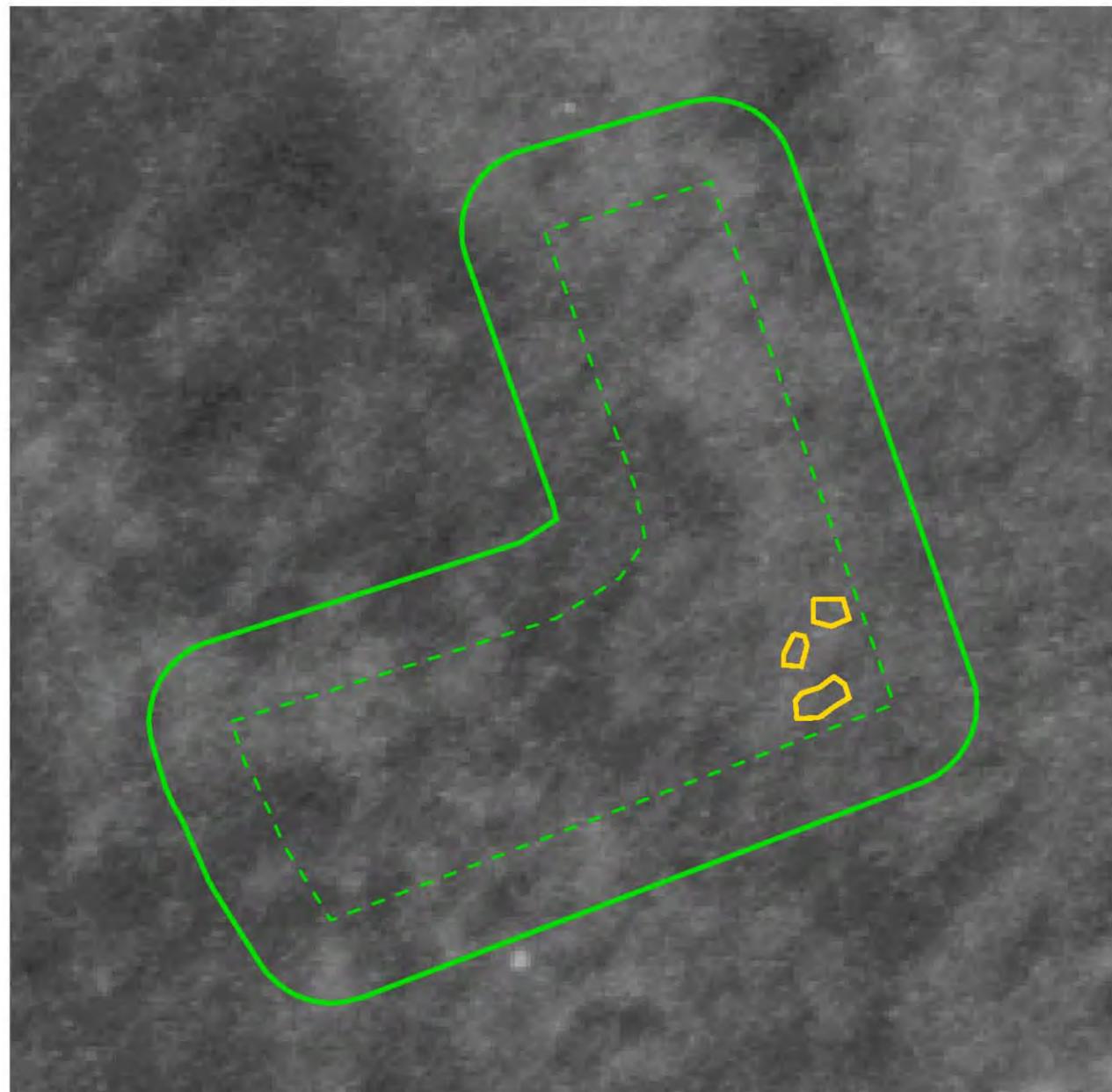


0 50 100 150 200 250 Feet

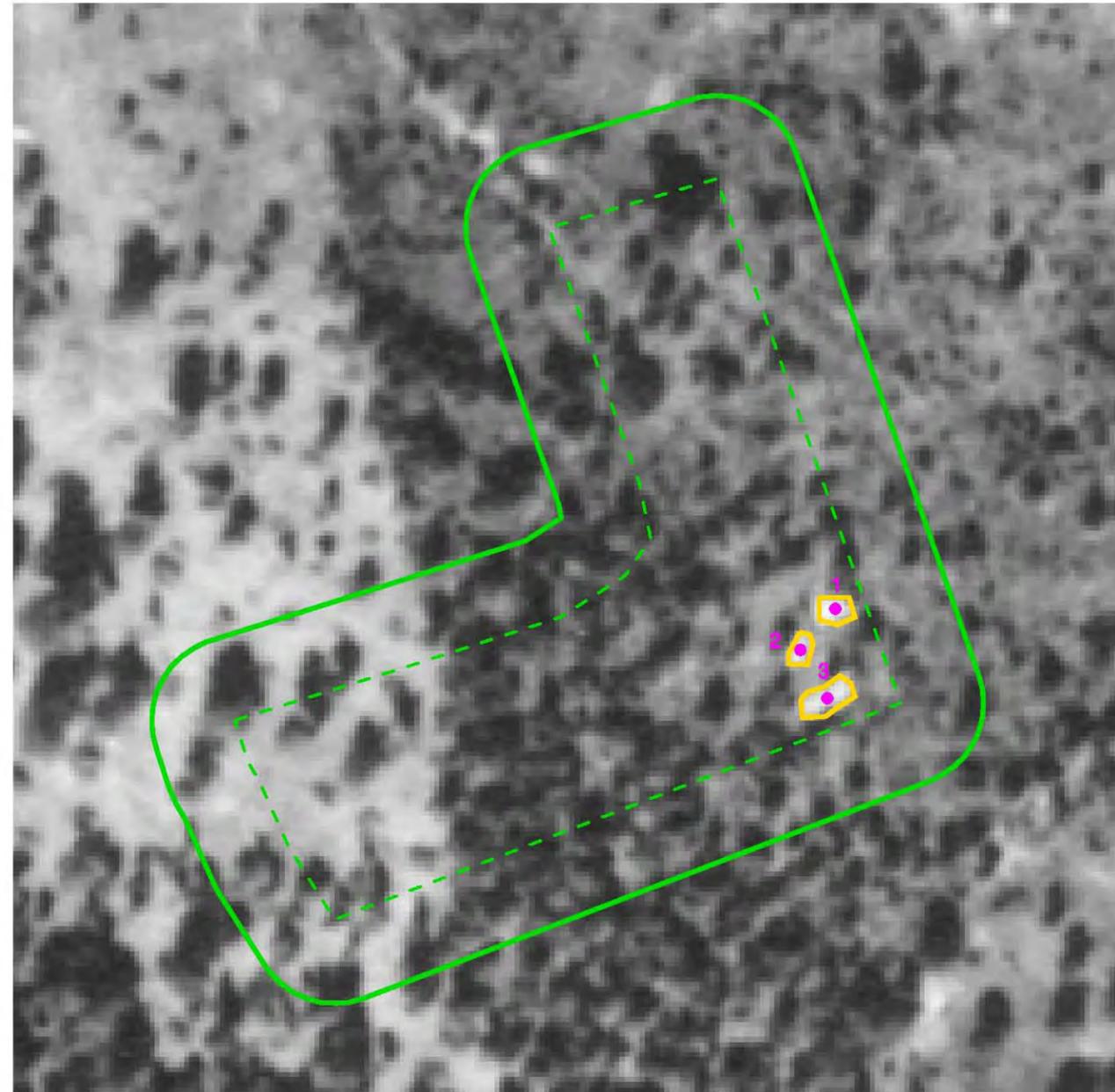
0 20 40 60 80 Meters

-  Anomaly
-  AOC Boundary
-  AOC Buffer

Data source: Aerial Photography from U.S. Army COE  
Prepared by: Geographic Information and Technology, ORNL  
Date prepared: December 14, 1998



1937



1940

**Fig. 3b**  
**Old Toxic Training Area**  
**Historical Photograph Anomalies**  
**Ft. McClellan**

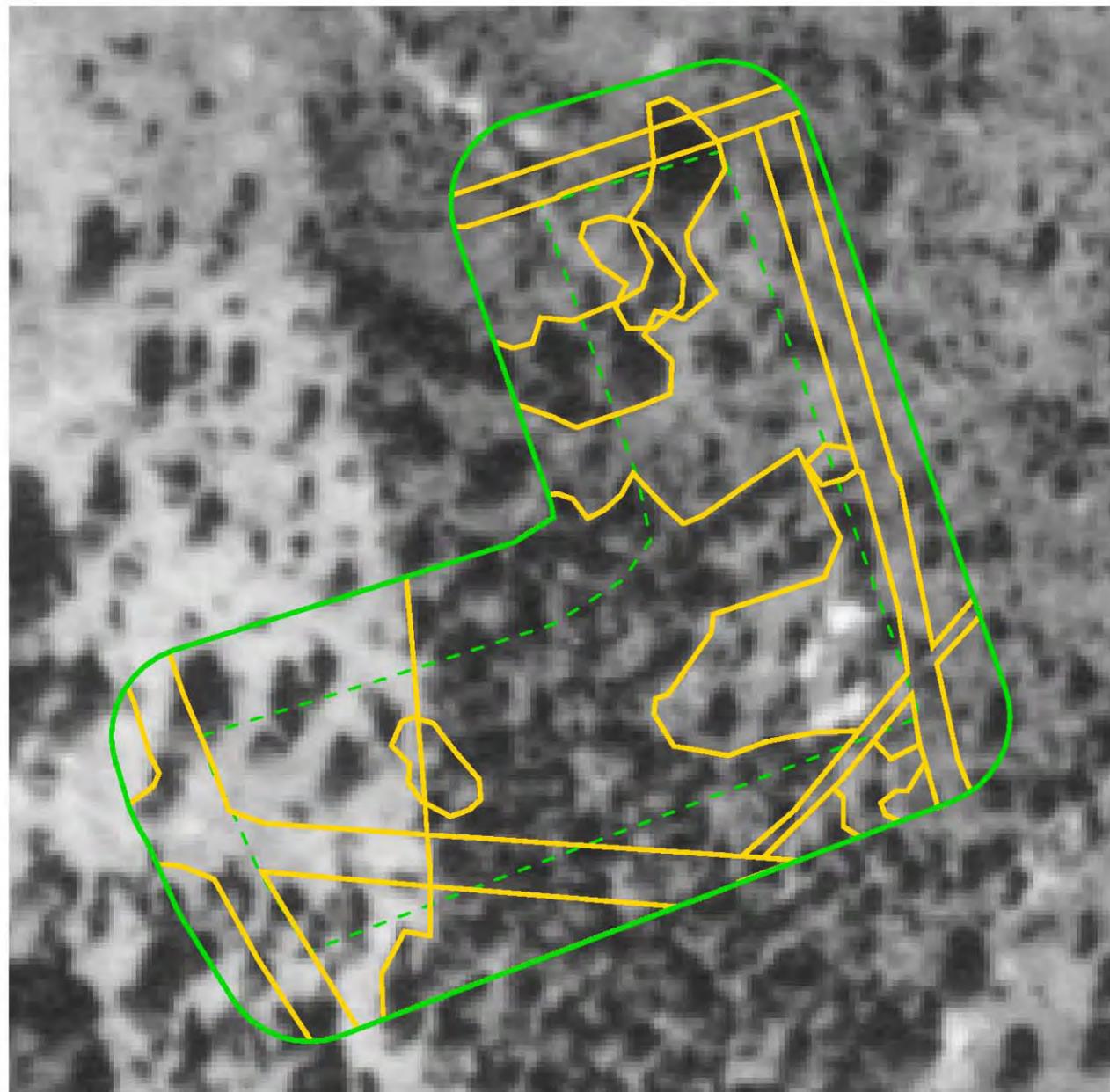


0 100 200 300 400 500 Feet

0 50 100 150 Meters

- Anomaly
- - - AOC Boundary
- AOC Buffer

Data source: Aerial Photography from U.S. Army COE  
 Prepared by: Geographic Information and Technology, ORNL  
 Date prepared: December 14, 1998



1940



1944

**Fig. 3c**  
**Old Toxic Training Area**  
**Historical Photograph Anomalies**  
**Ft. McClellan**



0 100 200 300 400 500 Feet

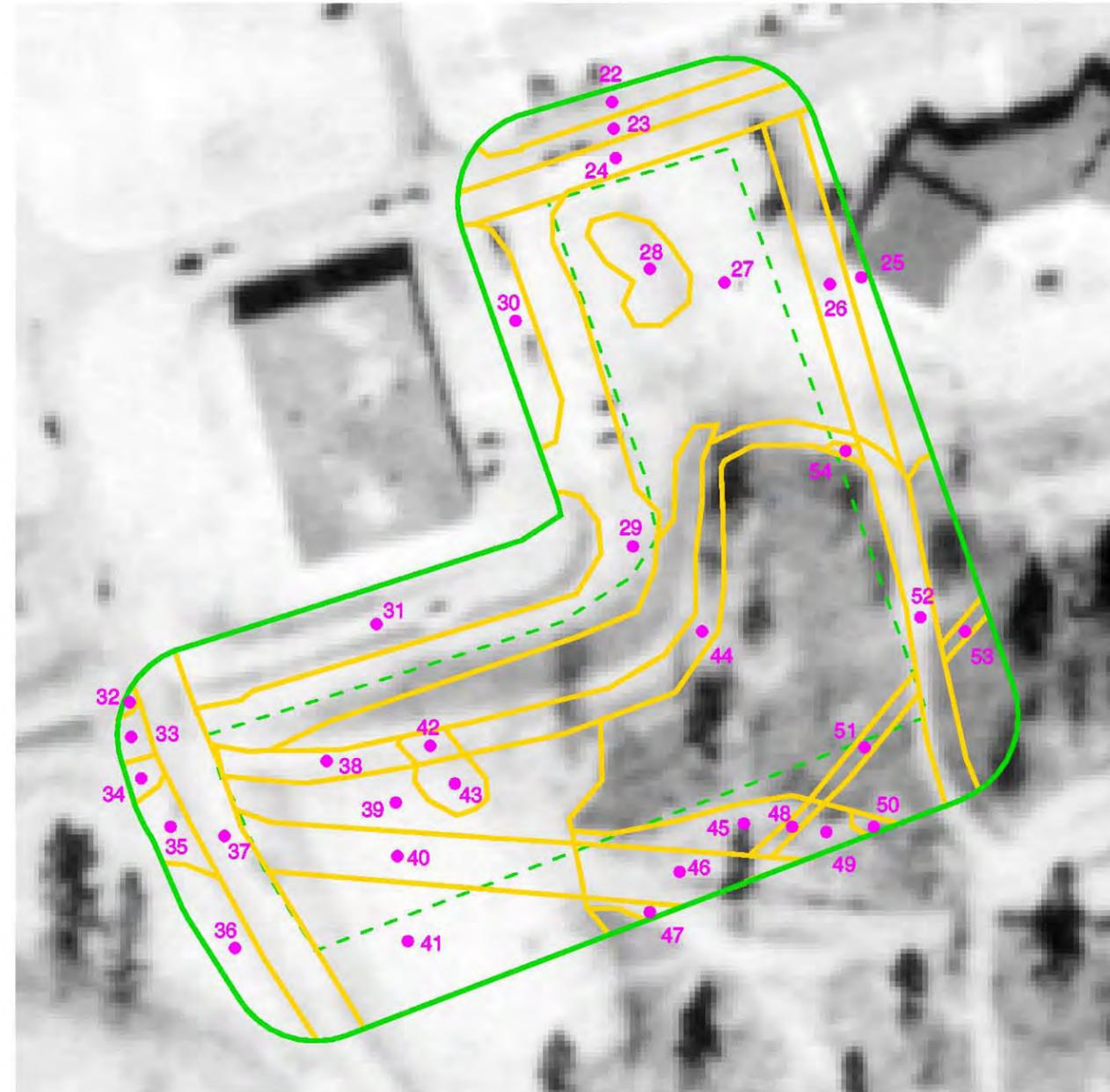
0 50 100 150 Meters

- Anomaly
- - - AOC Boundary
- AOC Buffer

Data source: Aerial Photography from U.S. Army COE  
 Prepared by: Geographic Information and Technology, ORNL  
 Date prepared: December 14, 1998



1944



1954

**Fig. 3d**  
**Old Toxic Training Area**  
**Historical Photograph Anomalies**  
**Ft. McClellan**

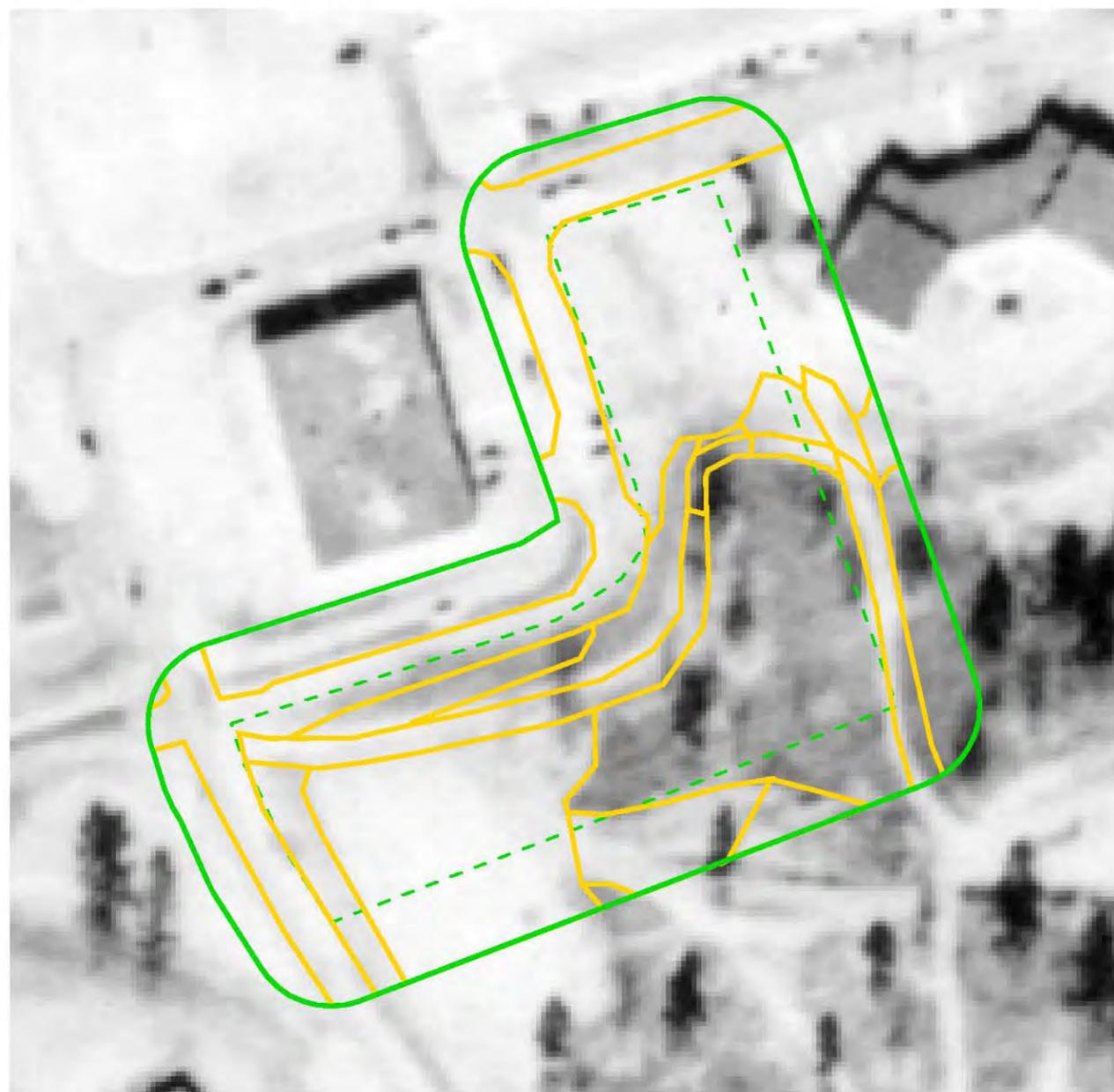


0 100 200 300 400 500 Feet

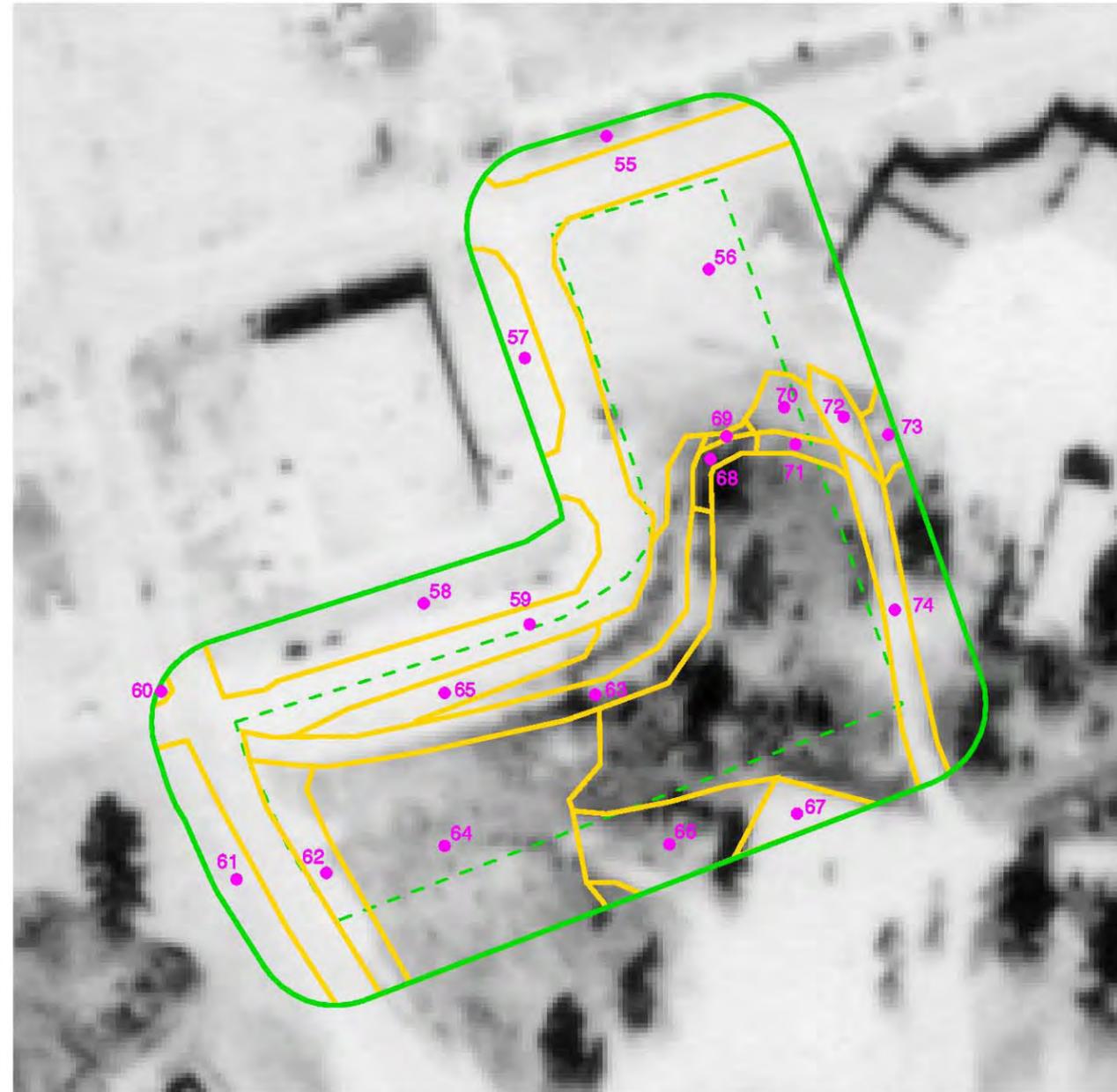
0 50 100 150 Meters

- Anomaly
- - - AOC Boundary
- AOC Buffer

Data source: Aerial Photography from U.S. Army COE  
 Prepared by: Geographic Information and Technology, ORNL  
 Date prepared: December 14, 1998



1954



1961

**Fig. 3e**  
**Old Toxic Training Area**  
**Historical Photograph Anomalies**  
**Ft. McClellan**



0 100 200 300 400 500 Feet

0 50 100 150 Meters

- Anomaly
- - - AOC Boundary
- AOC Buffer

Data source: Aerial Photography from U.S. Army COE  
 Prepared by: Geographic Information and Technology, ORNL  
 Date prepared: December 14, 1998



1961



1969

**Fig. 3f**  
**Old Toxic Training Area**  
**Historical Photograph Anomalies**  
**Ft. McClellan**



0 100 200 300 400 500 Feet

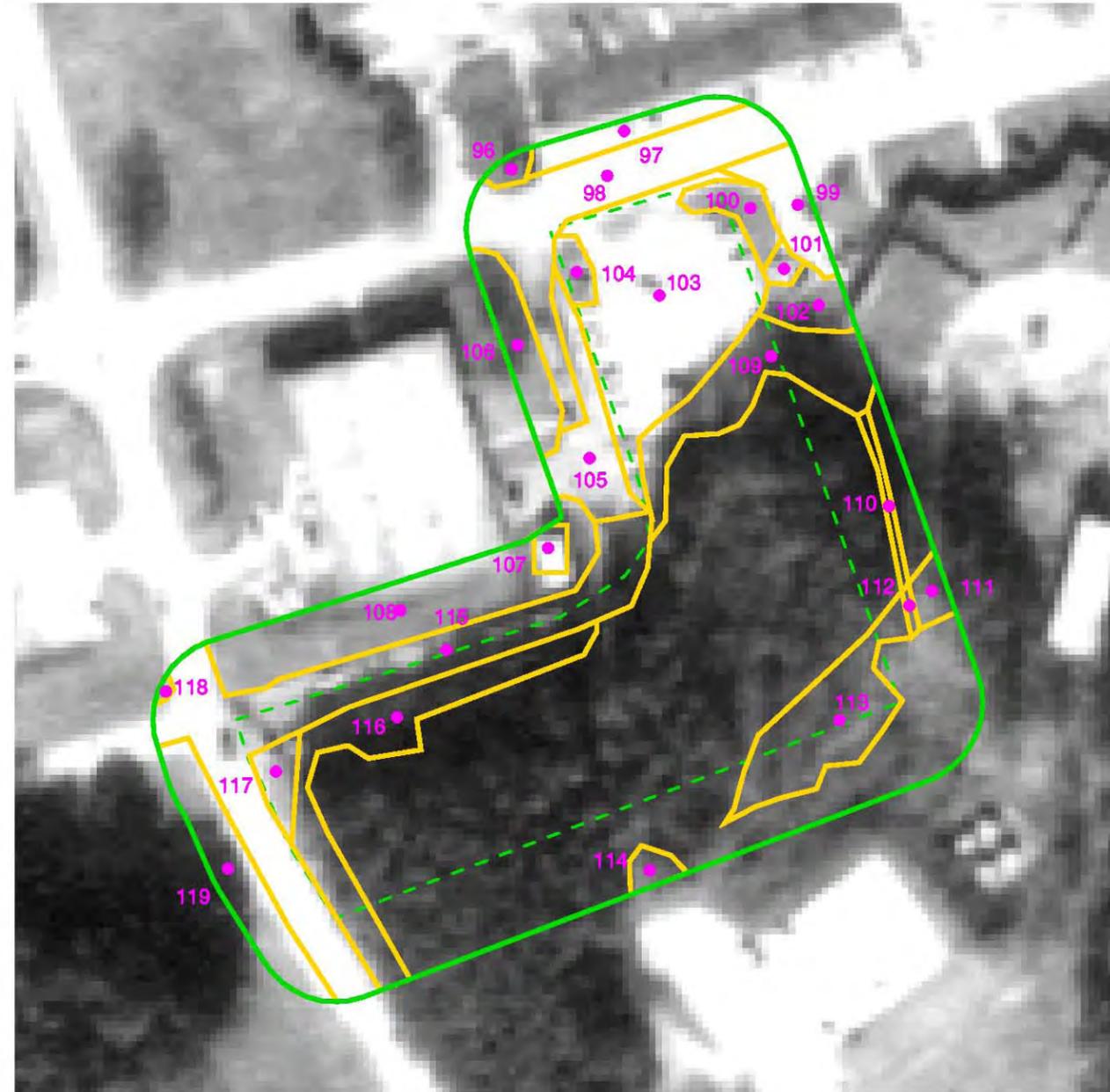
0 50 100 150 Meters

- Anomaly
- - - AOC Boundary
- AOC Buffer

Data source: Aerial Photography from U.S. Army COE  
 Prepared by: Geographic Information and Technology, ORNL  
 Date prepared: December 14, 1998



1969



1982

**Fig. 3g**  
**Old Toxic Training Area**  
**Historical Photograph Anomalies**  
**Ft. McClellan**



0 100 200 300 400 500 Feet

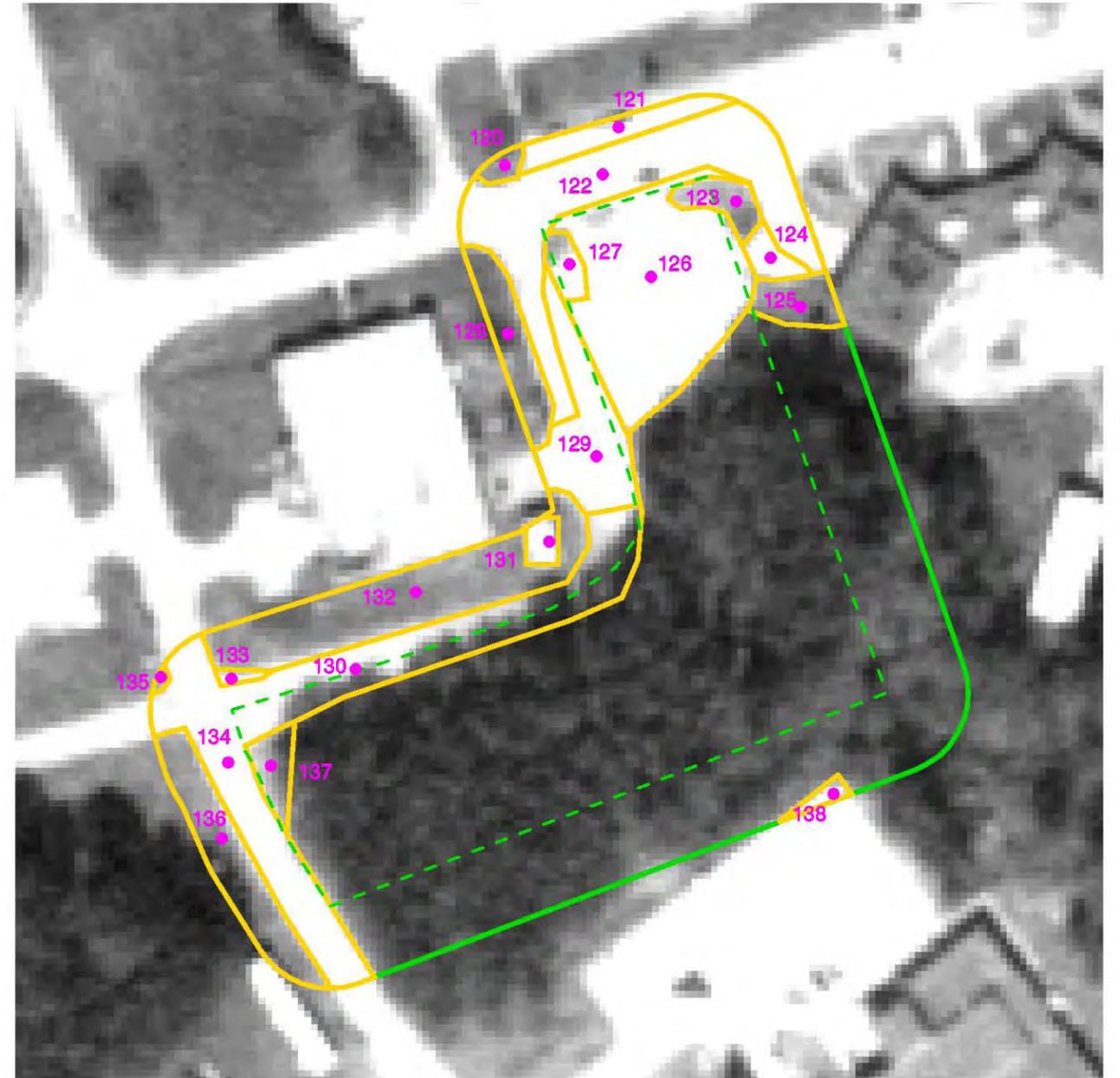
0 50 100 150 Meters

- Anomaly
- - - AOC Boundary
- AOC Buffer

Data source: Aerial Photography from U.S. Army COE  
 Prepared by: Geographic Information and Technology, ORNL  
 Date prepared: December 14, 1998



1982



1994

**Fig. 3h**  
**Old Toxic Training Area**  
**Historical Photograph Anomalies**  
**Ft. McClellan**



0 100 200 300 400 500 Feet

0 50 100 150 Meters

- Anomaly
- - - AOC Boundary
- AOC Buffer

Data source: Aerial Photography from U.S. Army COE  
 Prepared by: Geographic Information and Technology, ORNL  
 Date prepared: December 14, 1998

**Table 2. Old Toxic Training Area - Anomalies of Concern**

Anomaly #	Alabama State Plane Coordinates (approximate anomaly center)		Year of Change	Discussion
	X-Coordinate	Y-Coordinate		
1	668349.78741	1167073.62121	1940	This area was cleared prior to the acquisition of the 1940 photographs. By 1944, vegetation regrowth was underway.
2	668328.71421	1167048.71653	1940	This area was cleared prior to the acquisition of the 1940 photographs. By 1944, vegetation regrowth was underway.
3	668344.99805	1167019.98035	1940	This area was cleared prior to the acquisition of the 1940 photographs. By 1944, vegetation regrowth was underway.
8	668358.40826	1167178.98720	1944	A new trail was established through the eastern portion of the study area. By 1954, the northern half of the trail was no longer in use and by 1969, the southern portion of the trail was no longer in use.
10	668220.47461	1167277.64808	1944	This area was cleared between 1940 and 1944. By 1954, this area was part of a large landscaped area (mowed). The area remained landscaped through 1969. Between 1969 and 1982 the area was paved for use as a parking lot.
11	668244.42142	1167252.74339	1944	This area was cleared between 1940 and 1944. By 1954, this area was part of a large landscaped area (mowed). The area remained landscaped through 1969. Between 1969 and 1982 the area was paved for use as a parking lot.
12	668242.50568	1167238.37530	1944	This area was cleared between 1940 and 1944. By 1954, this area was part of a large landscaped area (mowed). The area remained landscaped through 1969. Between 1969 and 1982 the area was paved for use as a parking lot.
14	668341.16656	1167156.95613	1944	This small area was cleared between 1940 and 1944. Vegetation regrowth is evident in the 1954 and 1961 photographs and by 1969, the area had become reforested.
16	668361.28188	1166977.83395	1944	This area was cleared prior to the acquisition of the 1944 photographs. Vegetation regrowth slowly proceeded through 1954, 1961, and 1969. By 1982, the area had become reforested.
17	668103.61415	1167003.69651	1944	This area was cleared between 1940 and 1944. Photographs acquired in 1954 show that the area remained clear and a trail ran through the northern-most portion of the area. The trail remained evident in photographs acquired in 1961, but by 1982, vegetation regrowth was evident through the area.
18	668128.51884	1166981.66544	1944	This area was cleared between 1940 and 1944. In 1954 the area remained clear. 1961 photographs show that the area had some groundcover (grass) and by 1969, the area had begun to revegetate (trees). By 1982, the area had become reforested.

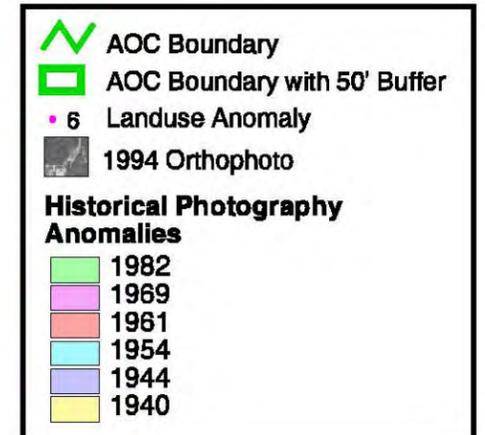
Anomaly #	Alabama State Plane Coordinates (approximate anomaly center)		Year of Change	Discussion
	X-Coordinate	Y-Coordinate		
38	668055.72052	1166992.20204	1954	A new trail was established in this portion of the study area between 1944 and 1954. Most of the trail remained in use in 1961. By 1969, most of the trail was no longer in use and had become reforested. The western-most portion of the trail was no longer in use prior to the acquisition of the 1982 photographs.
39	668094.03543	1166969.21310	1954	This area was cleared between 1944 and 1954. By 1961, grass was growing across this area and by 1969, the area had become reforested.
41	668100.74053	1166892.58329	1954	This area was cleared between 1944 and 1954. By 1961, the western portion of this area was landscaped and grass was growing across the eastern portion of the area. The 1969 photographs show the western portion of the area landscaped and the remaining area reforested. By 1982, the landscaped portion of the area was revegetating and by 1992, the entire area had become reforested.
42	668113.19288	1167000.82290	1954	A new trail was established in this area of the study area between 1944 and 1954. This trail went through anomaly of potential concern 17. The trail remained in use through 1961 and by 1969, vegetation regrowth was occurring along the trail. By 1982, the area had become reforested.
44	668263.57888	1167064.04249	1954	A new trail was established in this area of the study area between 1944 and 1954. Most of the trail remained in use in 1961. By 1969, the trail had become reforested.
45	668286.56782	1166957.71863	1954	A new trail was present in this area in the 1954 photographs. By 1961, much of the trail was no longer evident and by 1969, the area had become reforested.
47	668234.84270	1166908.86713	1954	This small trail was in use here in 1954. By 1961, the trail was no longer in use and the area was slightly overgrown with vegetation.
49	668332.54570	1166952.92927	1954	This small trail was in use here in 1954. By 1961, the trail was no longer in use and the area was slightly overgrown with vegetation.
50	668358.40826	1166955.80288	1954	This small trail was in use here in 1954. By 1961, the trail was no longer in use and the area was slightly overgrown with vegetation.
54	668343.08230	1167163.66124	1954	A trail was in use in this portion of the study area in 1954. By 1961, vegetation regrowth was underway and by 1969, the trail had become reforested.
67	668325.84059	1166951.97139	1961	This area was cleared between 1954 and 1961. By 1969, the northern portion of this area had become revegetated while the southern portion was maintained. By 1982 the entire area had become reforested.
72	668353.61890	1167188.56593	1961	In 1961 a trail was evident in this location. This trail was part of the trail discussed as anomaly of potential concern 8, above. This new trail appears to be an extension of the original trail. By 1969, the southern portion of the trail had revegetated, while the northern portion of the trail remained clear. By 1982, the area had become reforested.

Anomaly #	Alabama State Plane Coordinates (approximate anomaly center)		Year of Change	Discussion
	X-Coordinate	Y-Coordinate		
91	668385.22870	1167124.38846	1969	In 1969 a new trail was evident in this area. The trail was not evident in photographs acquired in 1982.
111	668408.21764	1167084.15781	1982	Selected trees were cleared from this area between 1969 and 1982. By 1994, vegetation regrowth was underway.
112	668394.80742	1167075.53696	1982	Selected trees were cleared from this area between 1969 and 1982. By 1994, vegetation regrowth was underway.
113	668352.66103	1167006.57013	1982	Selected trees were cleared from this area between 1969 and 1982. By 1994, vegetation regrowth was underway.
114	668238.67419	1166916.53011	1982	Trees were cleared from this area between 1969 and 1982. By 1994, vegetation regrowth was underway.



**Fig. 4  
Anomalies of Concern**

**Old Toxic Training Area**



Geographic Information Science  
and Technology  
Oak Ridge National Laboratory  
Oak Ridge, Tennessee

0 10 20 30 40 50 Meters

0 50 100 150 Feet

Alabama State Plane East, NAD83



Data Source: Aerial Photography from U. S. Army ODE  
Prepared by: Geographic Information Science and Technology, ORNL  
Date prepared: December 18, 1998

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