



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
2405 GUN SHED ROAD
JOINT BASE SAN ANTONIO FORT SAM HOUSTON, TX 78234-1223

February 16, 2018

ATTN: Document Control Desk
Deputy Director, Division of Decommissioning, Uranium Recovery and Waste Programs
Office of Nuclear Material Safety and Safeguards
Mailstop T8 F5
US Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Deputy Director:

We request that you amend US Nuclear Regulatory Commission License Number SUC-1593 (docket number 040-9083) to correct the location of the Radiation Control Area at Donnelly Training Area, Fort Wainwright, Alaska.

We have enclosed "M101 Impact Areas," dated February 16, 2018, which should replace a similar document dated December 31, 2015 that is currently incorporated in the license by reference. The only change to "M101 Impact Areas" is the map on page 2.

We also enclose a memorandum from Headquarters, US Army Alaska that provides evidence and justification for our requested change.

Thank you for your consideration. If you have any questions concerning this letter, please contact me by telephone at (210) 466-0368 or by email at robert.n.cherry.civ@mail.mil.

Sincerely,

A handwritten signature in black ink, reading "Robert N. Cherry".

Robert N. Cherry
License Radiation Safety Officer

[Enclosures](#)

Enclosure 1

M101 Impact Areas, February 16, 2018

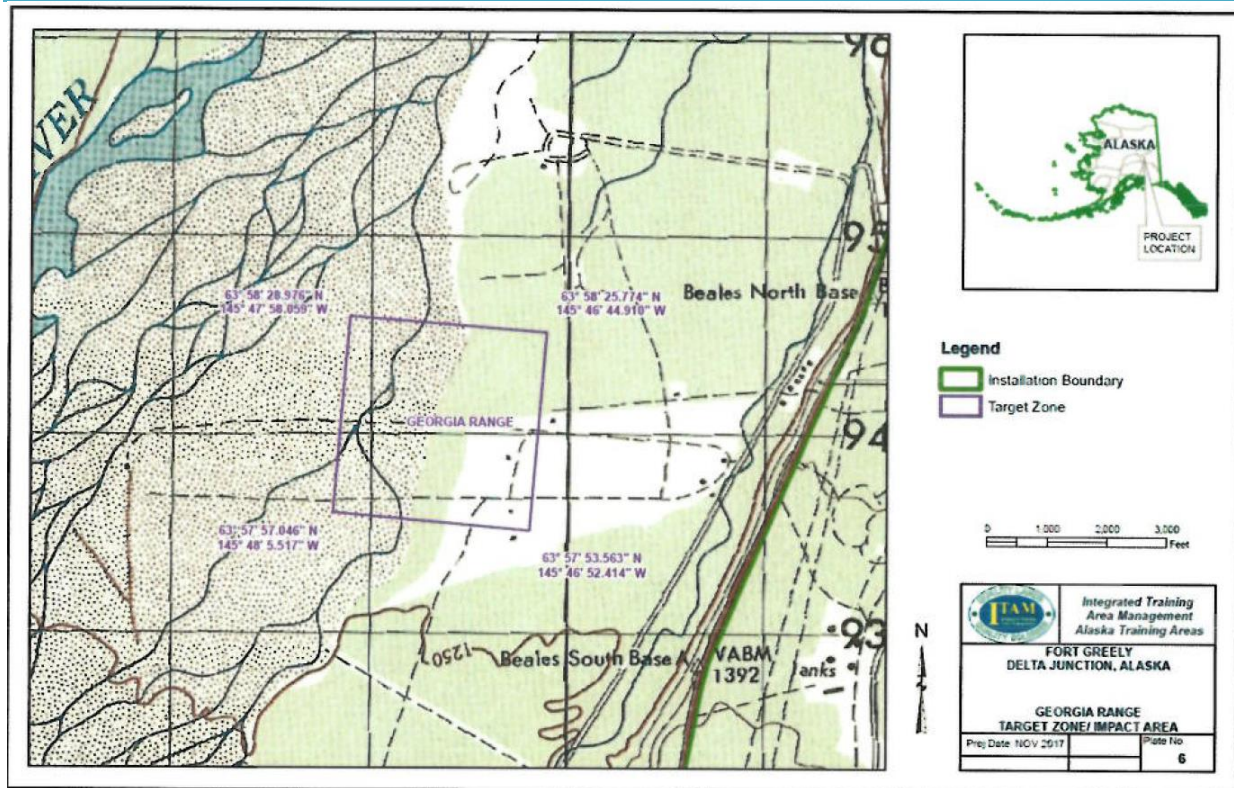
February 16, 2018*

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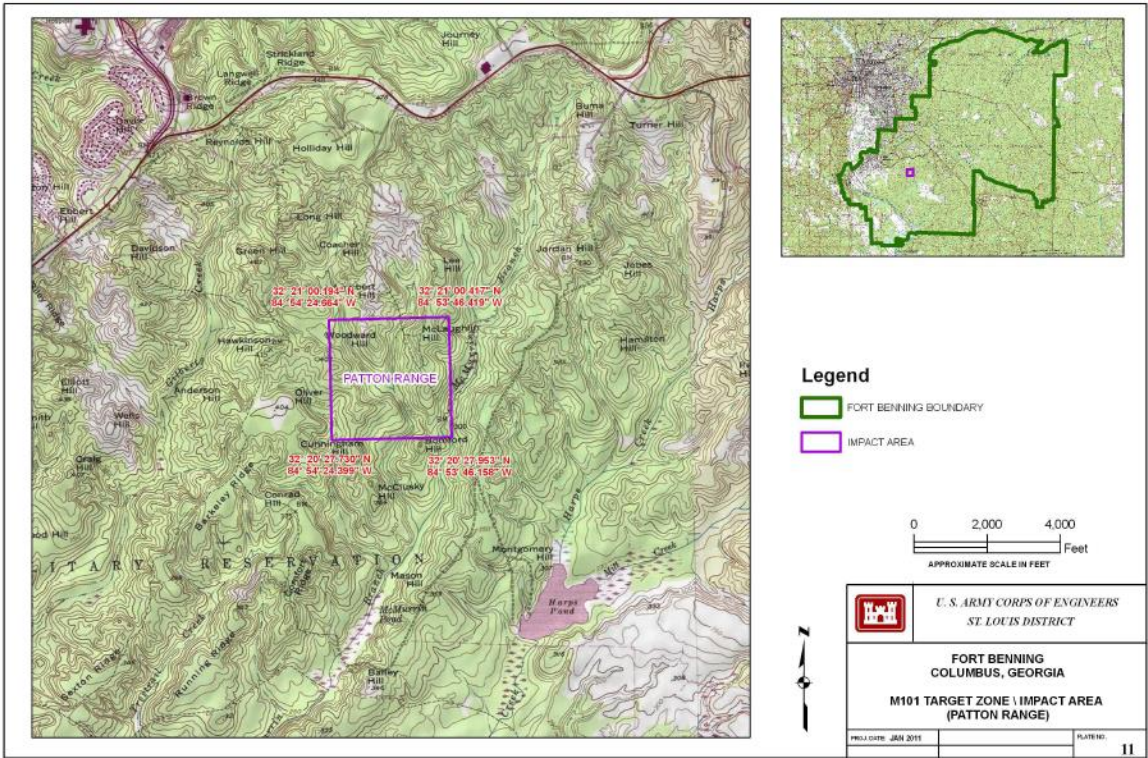
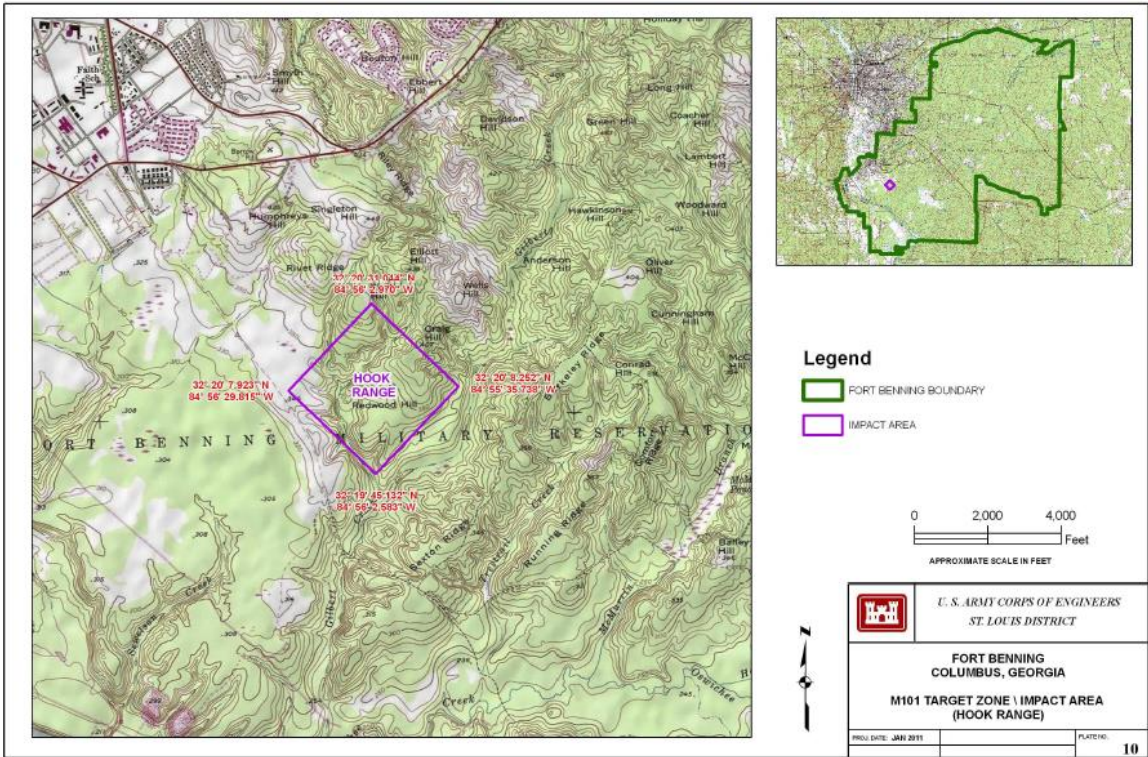
* This document supersedes “M101 Impact Areas,” dated December 31, 2015.

Donnelly Training Area, Fort Wainwright AK

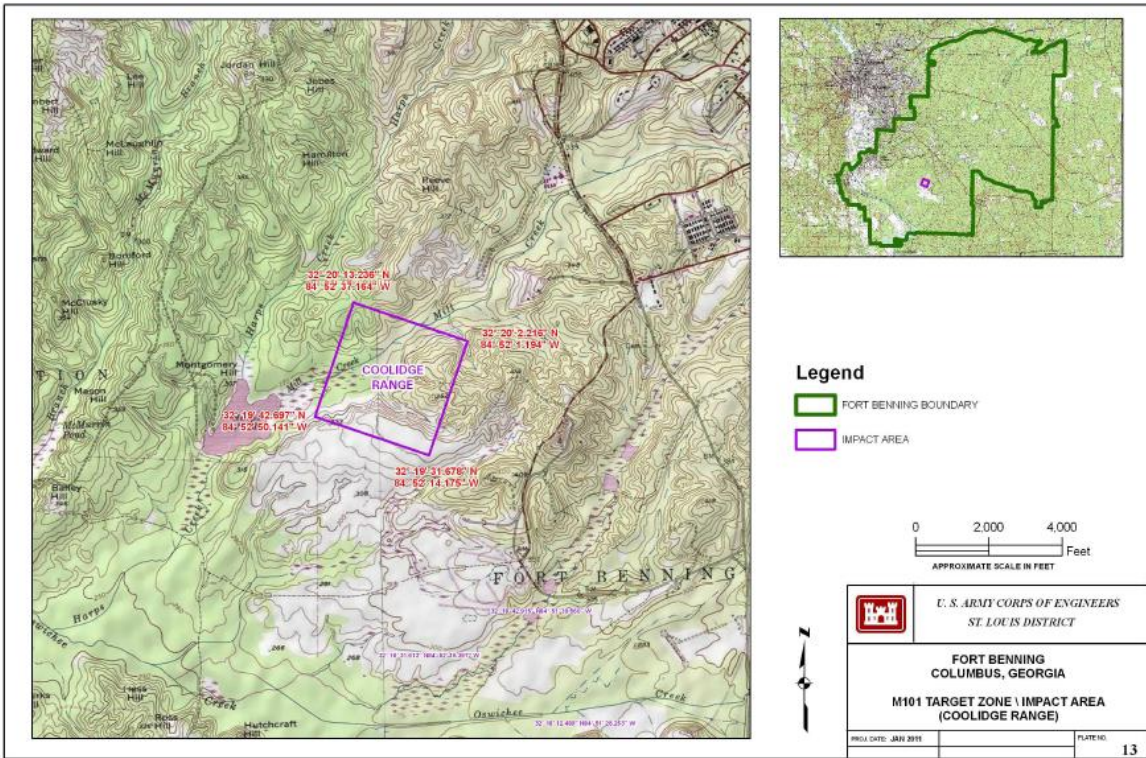
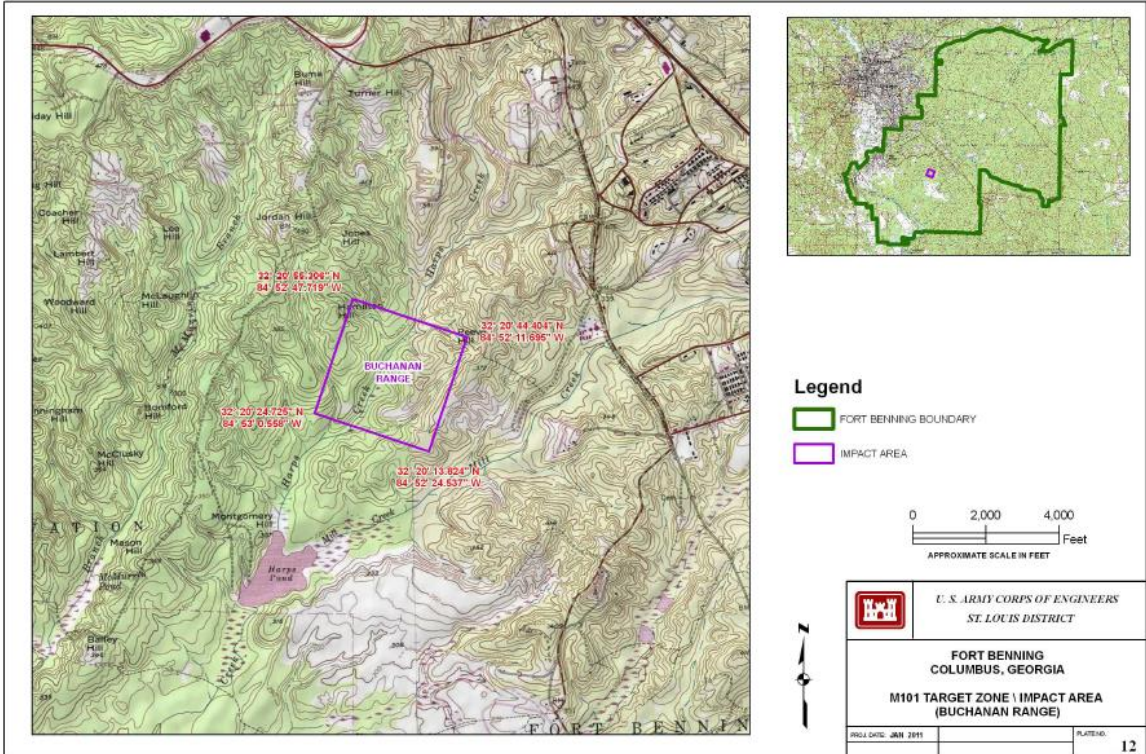


Area formerly part of Fort Greely, now under administrative control of Fort Wainwright

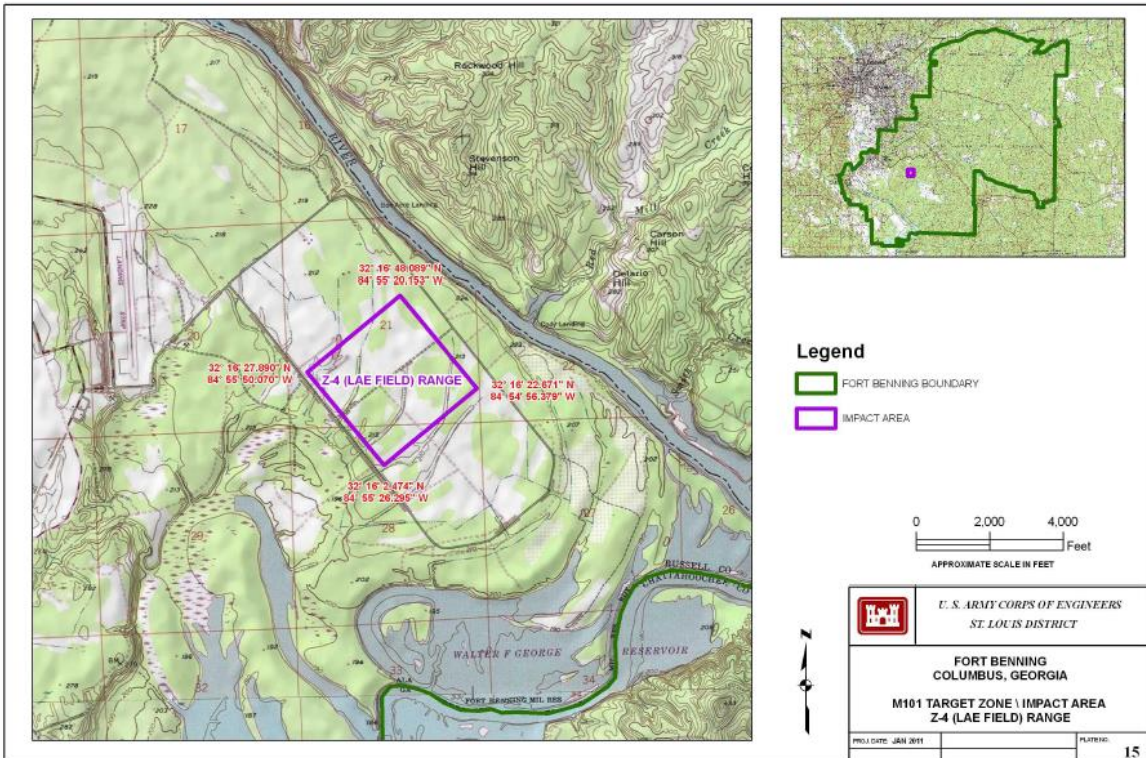
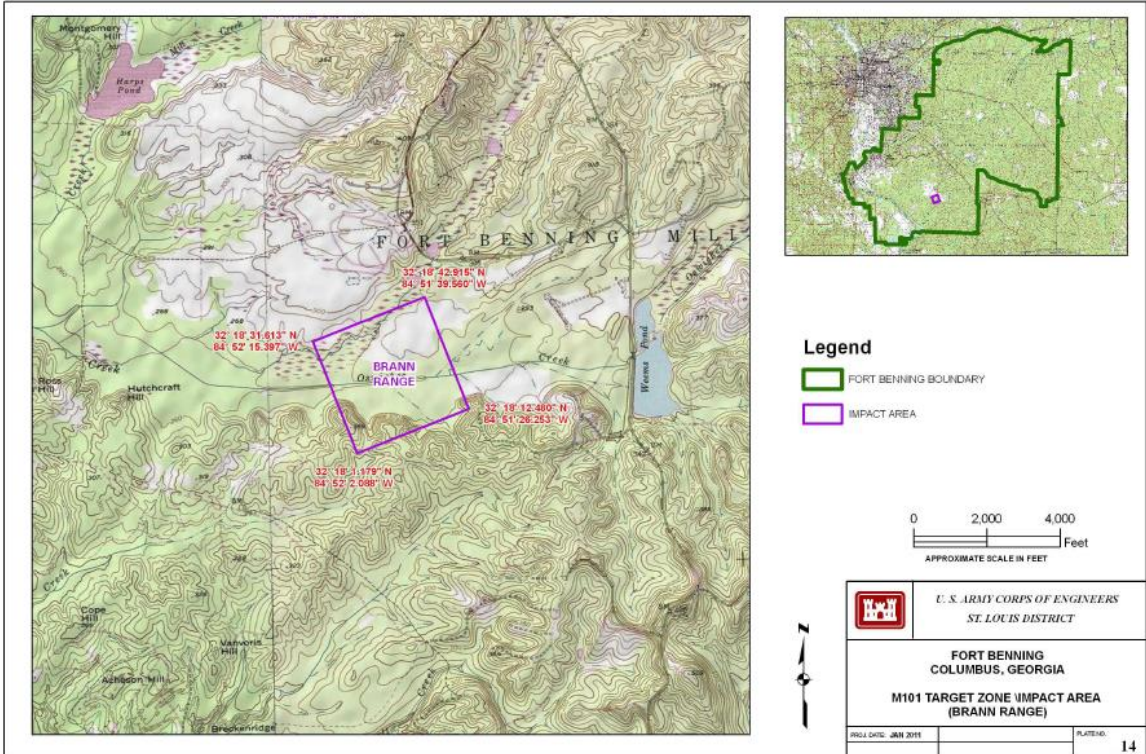
Fort Benning GA



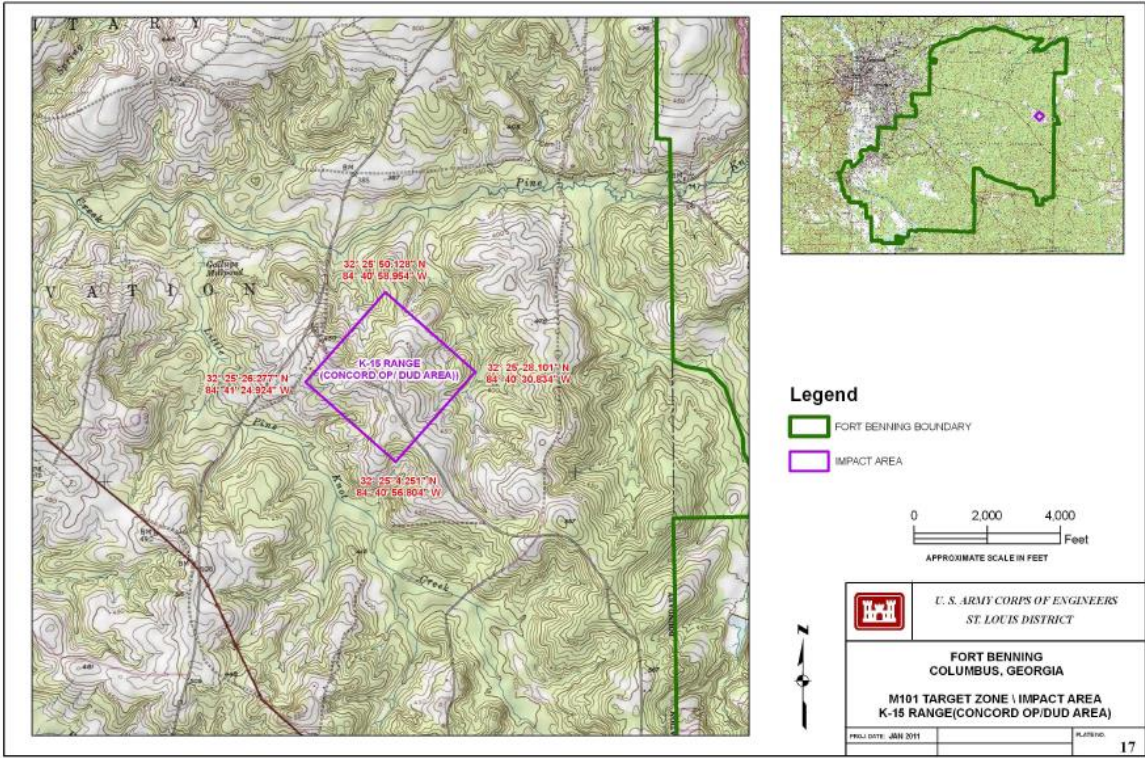
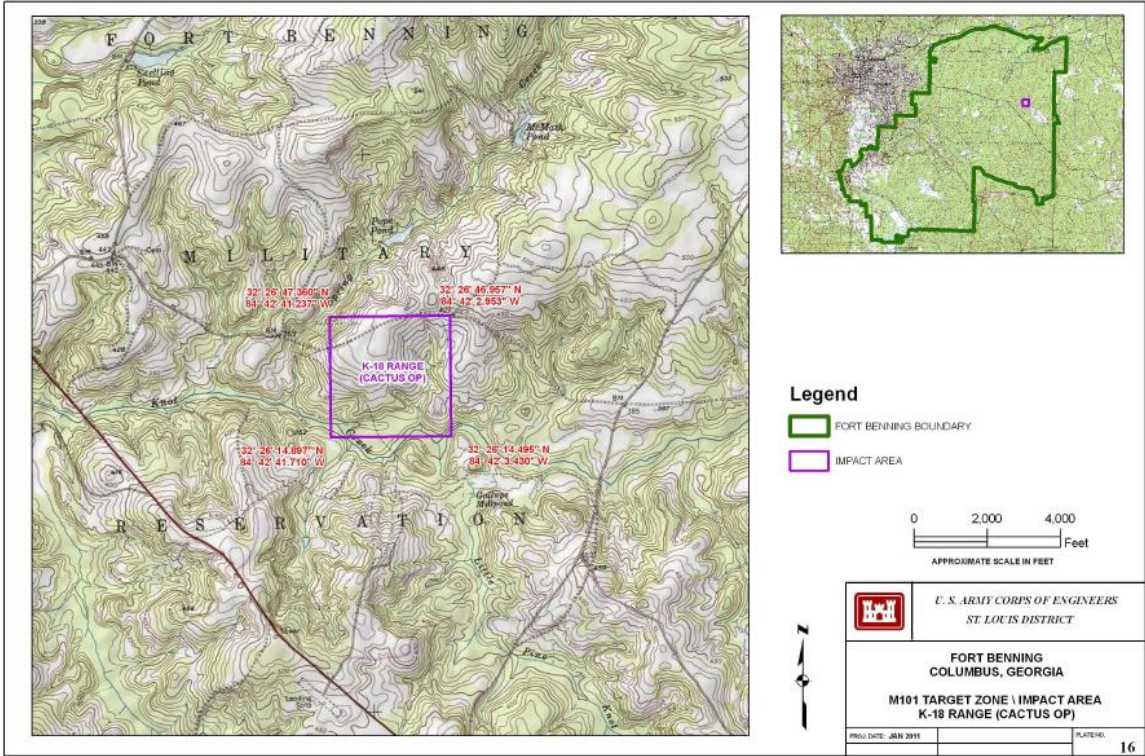
M101 Impact Areas

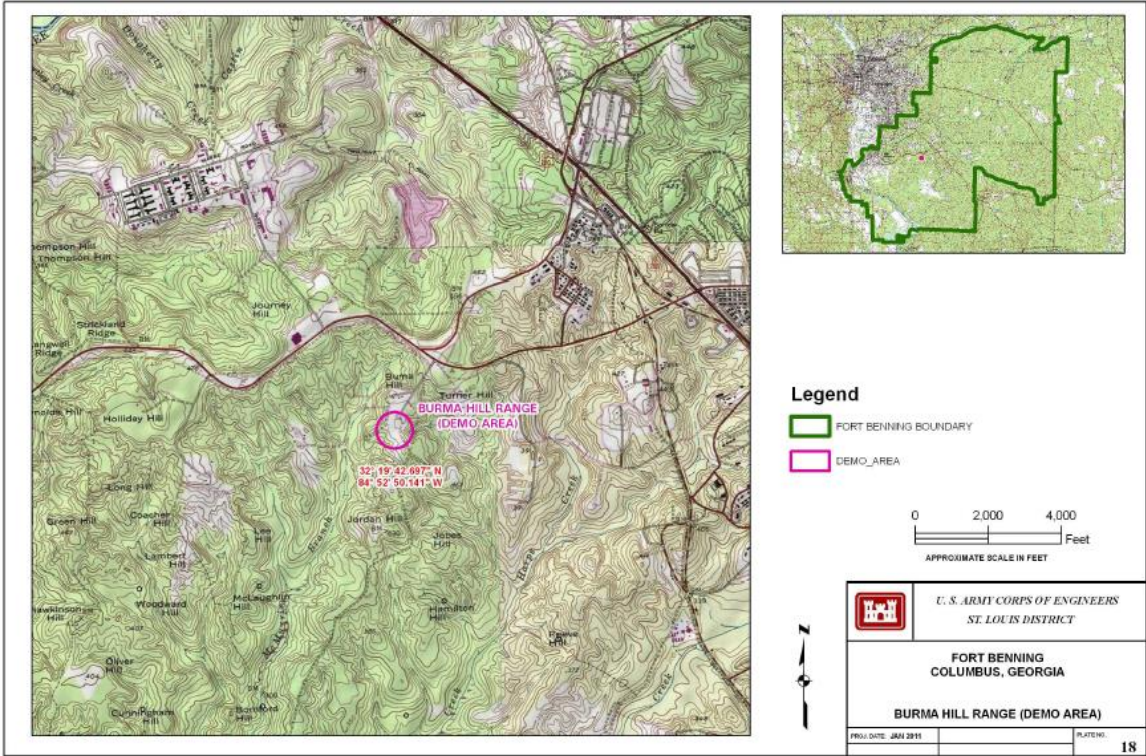


M101 Impact Areas

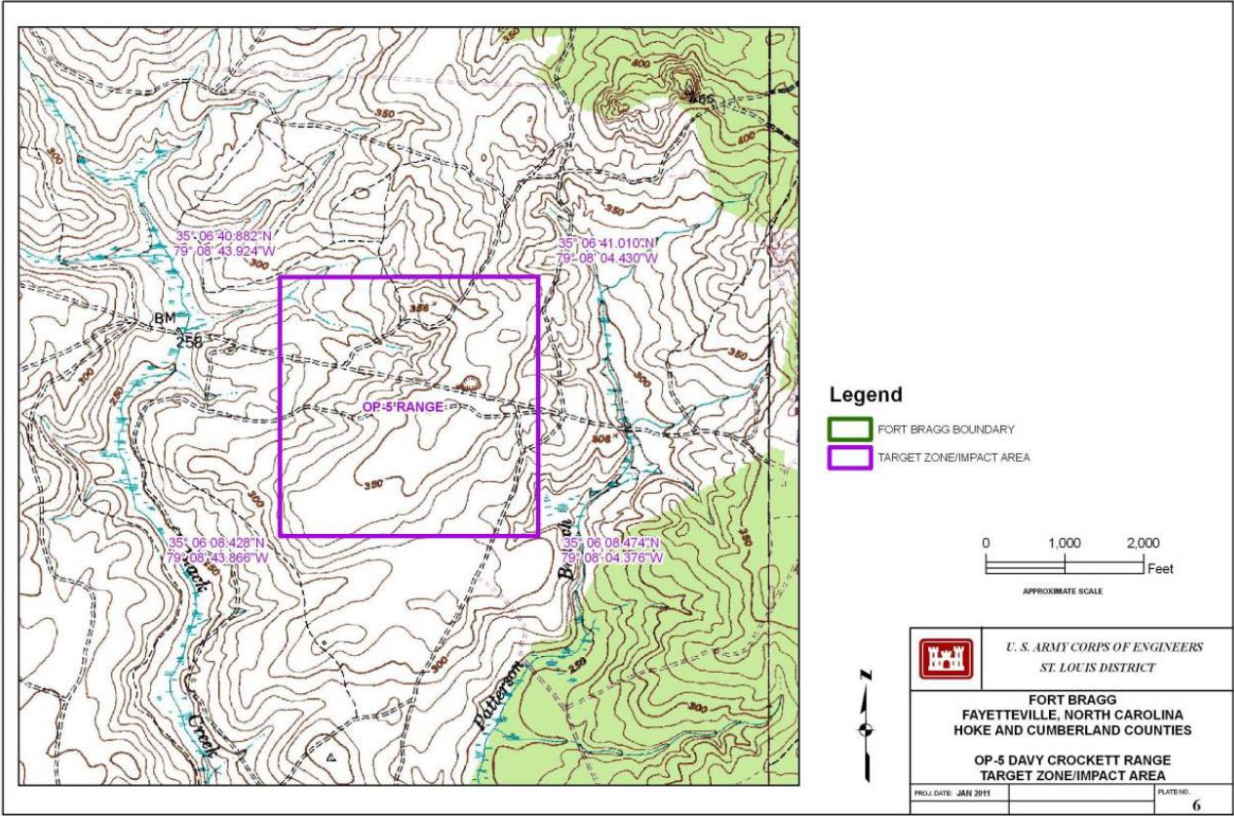


M101 Impact Areas

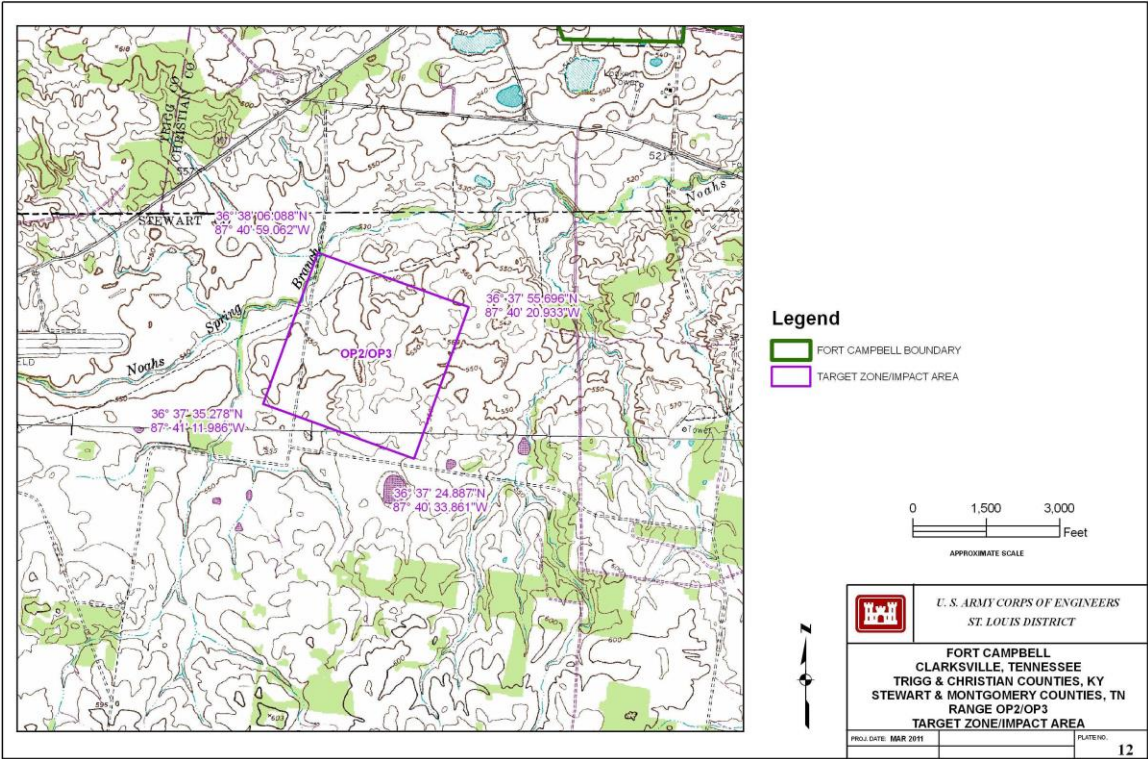




Fort Bragg NC

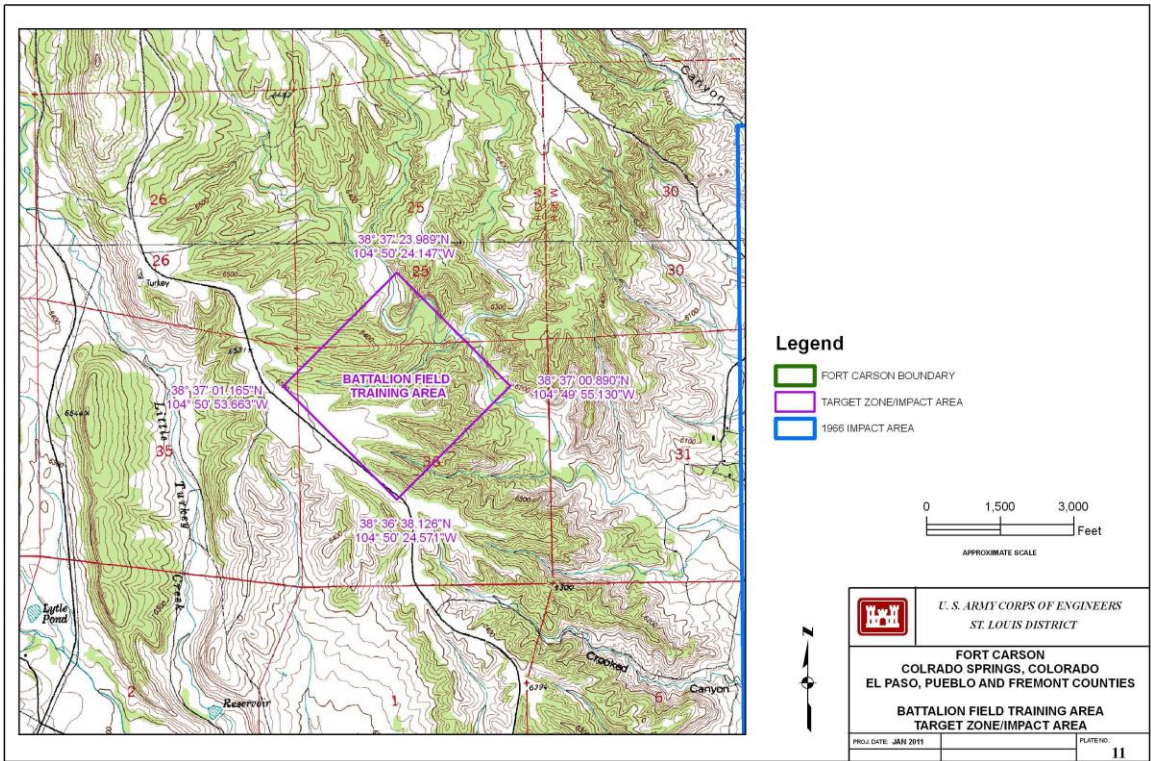
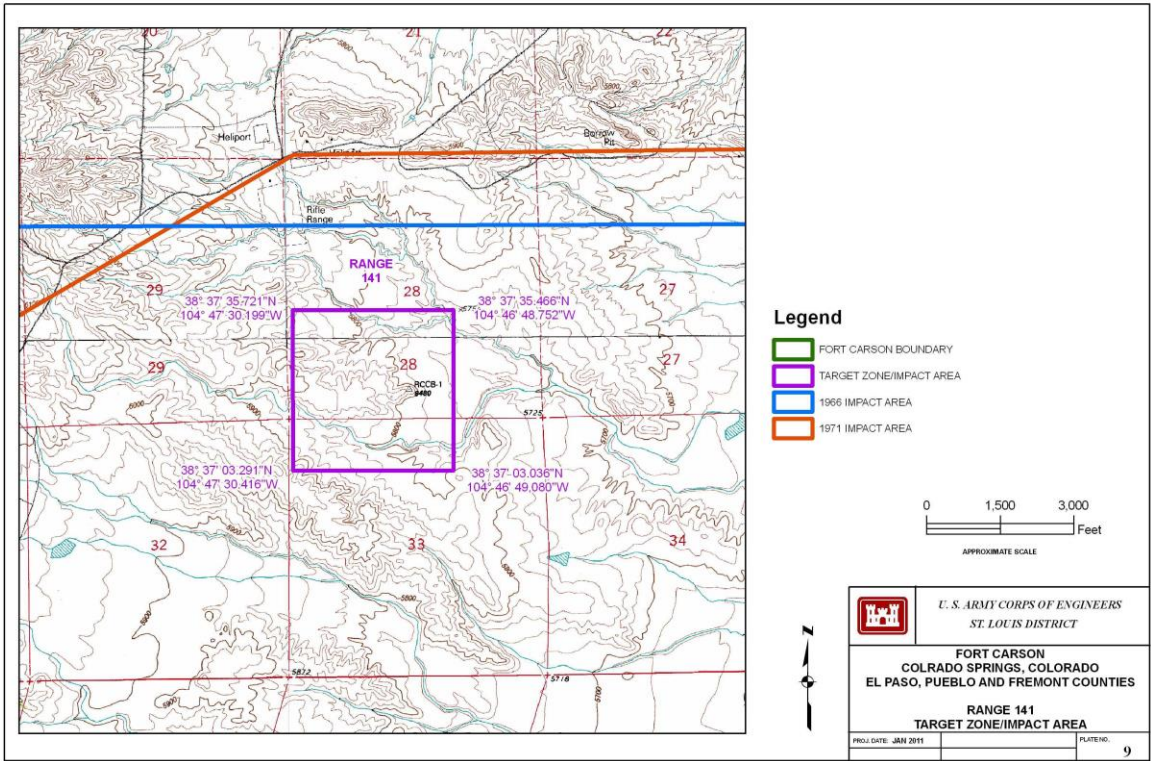


Fort Campbell KY

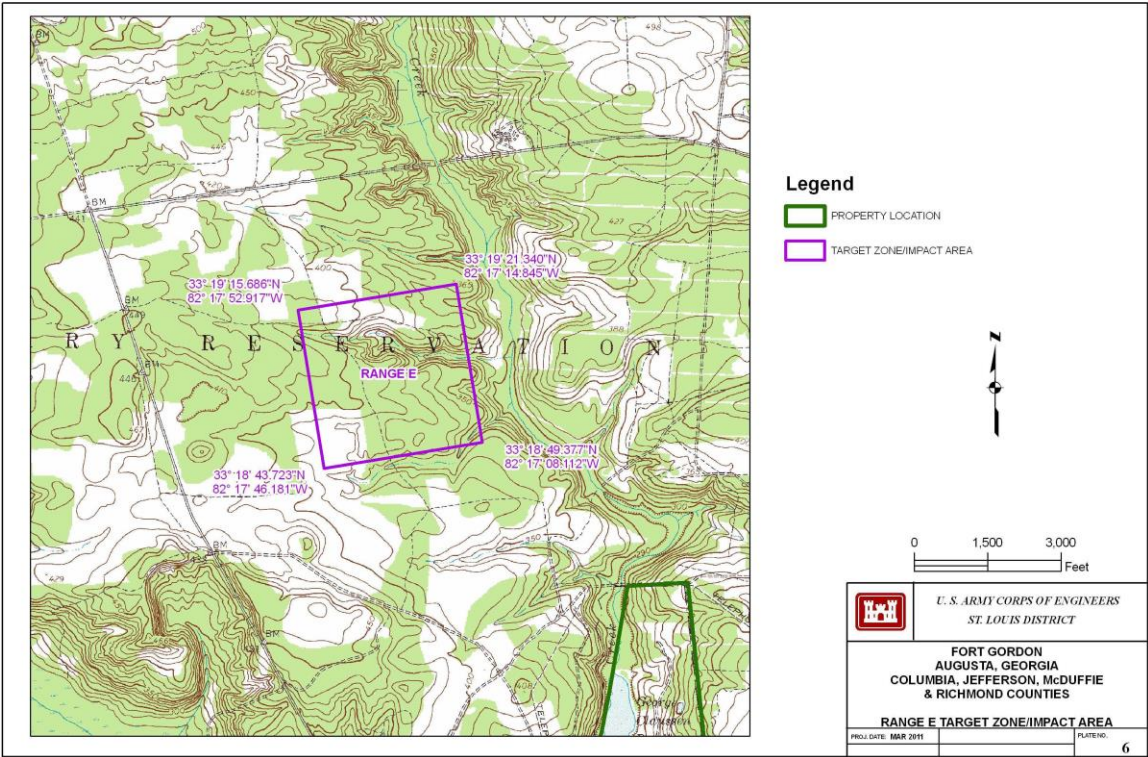


The M101 target zone/impact area is in Tennessee

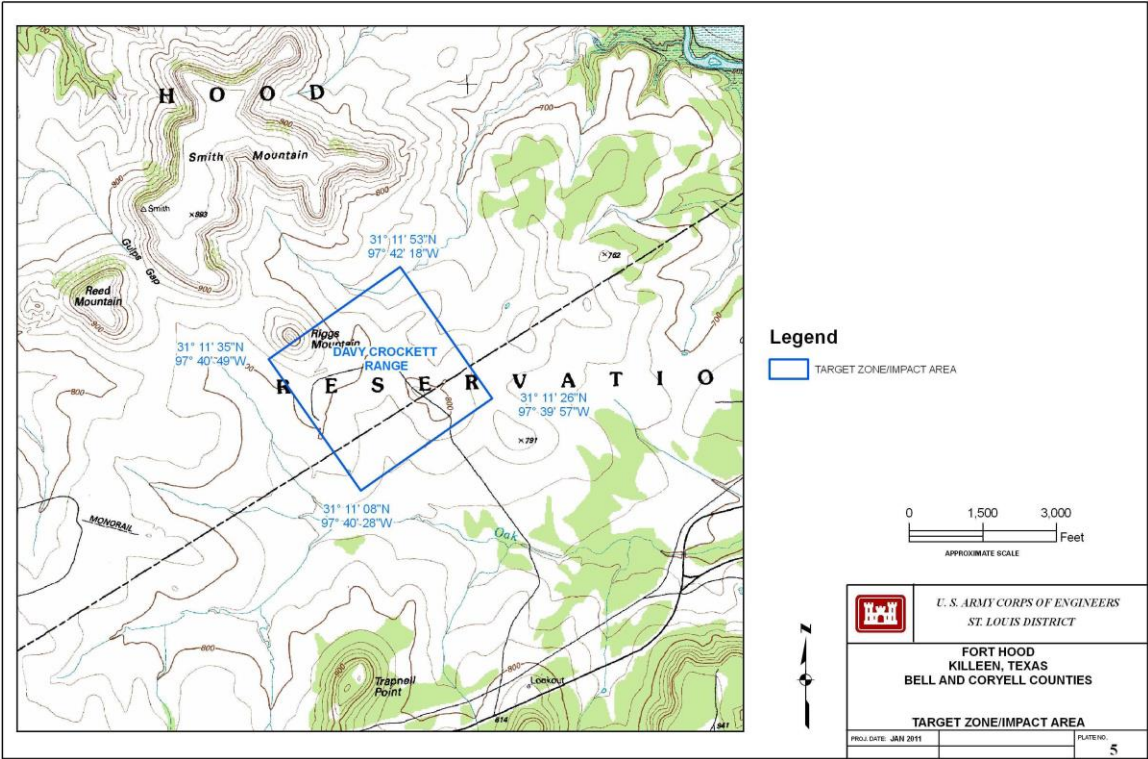
Fort Carson CO



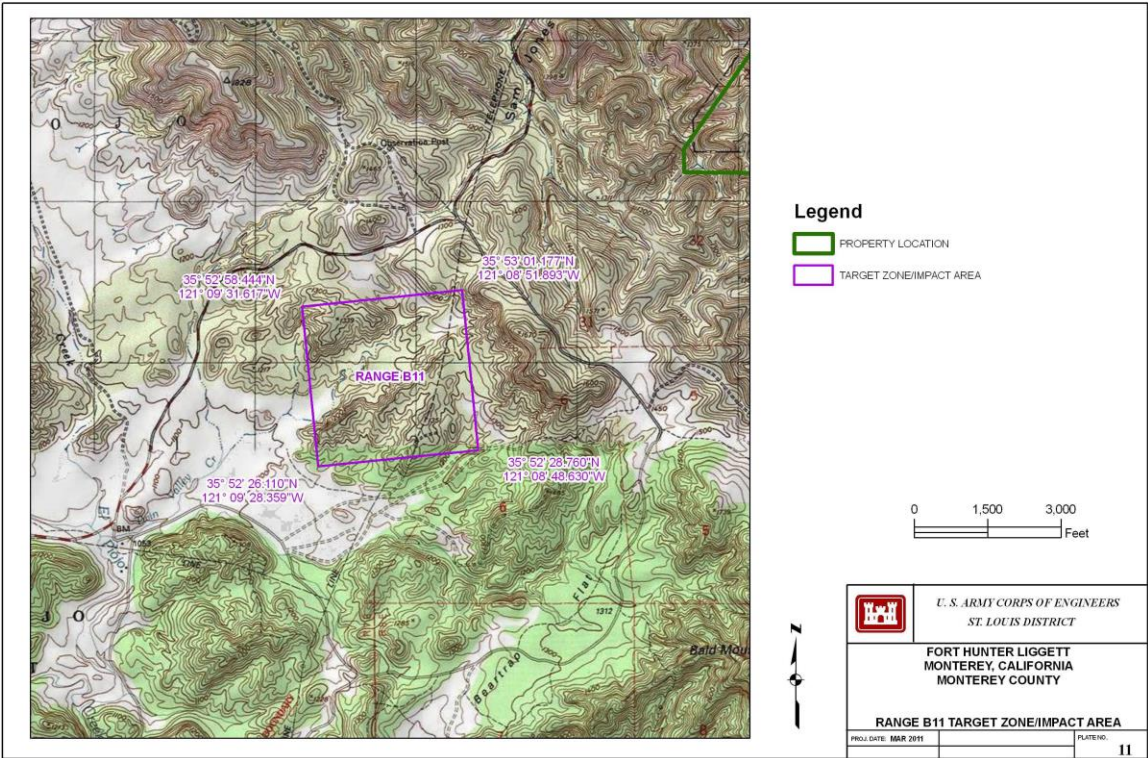
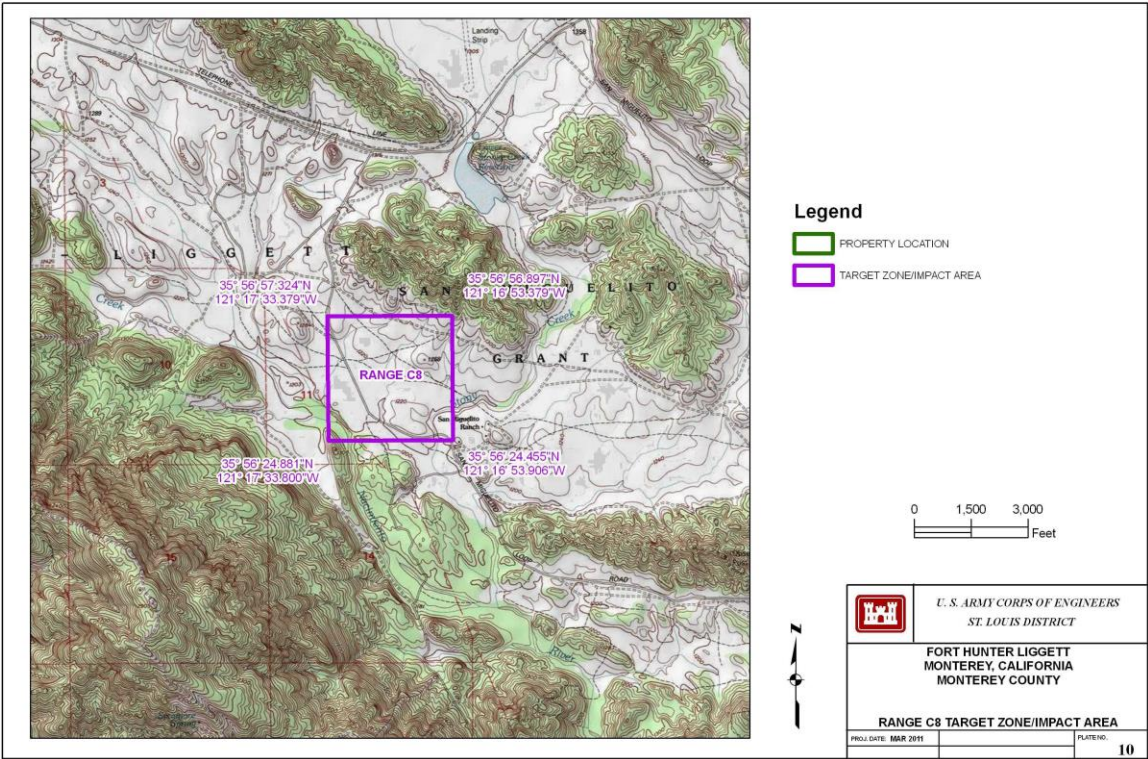
Fort Gordon GA

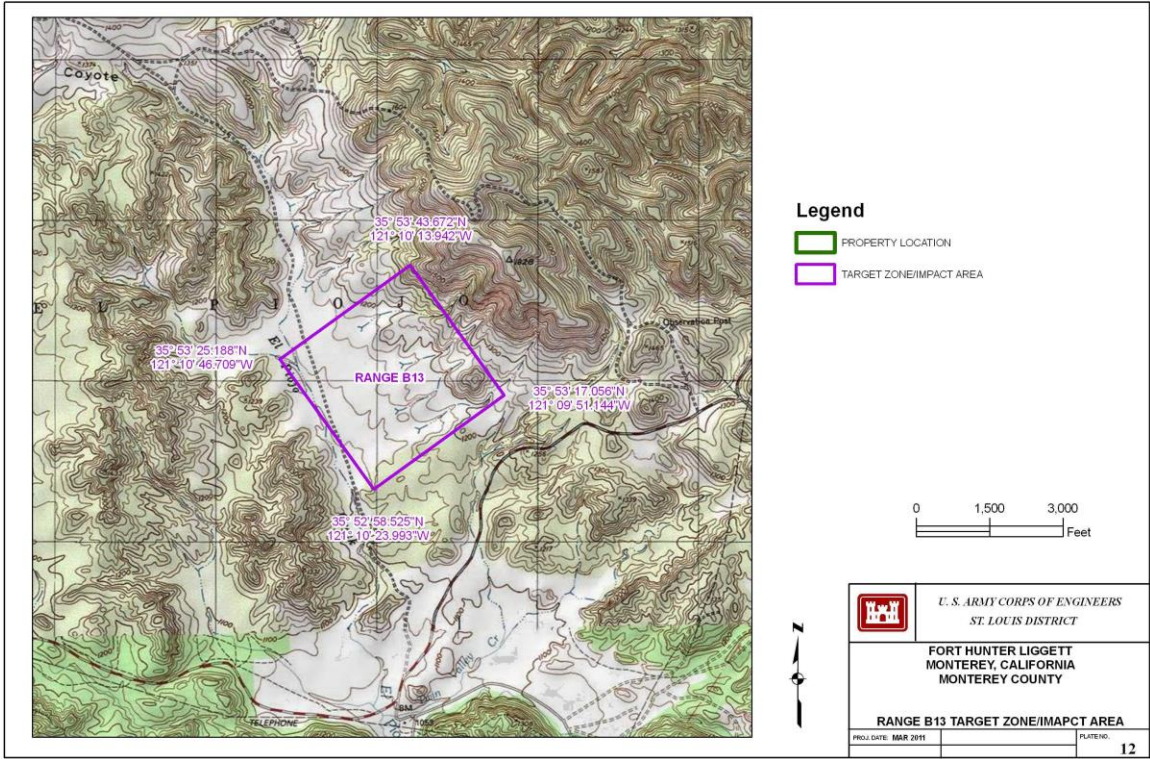


Fort Hood TX

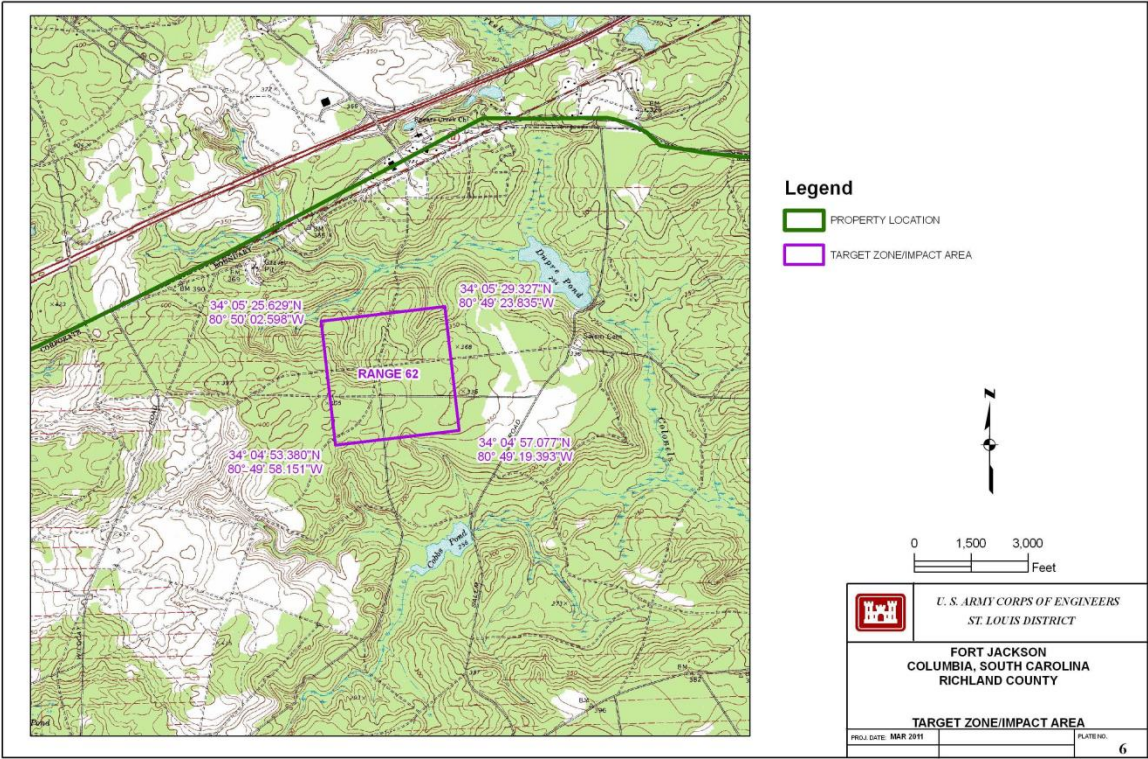


Fort Hunter Liggett CA

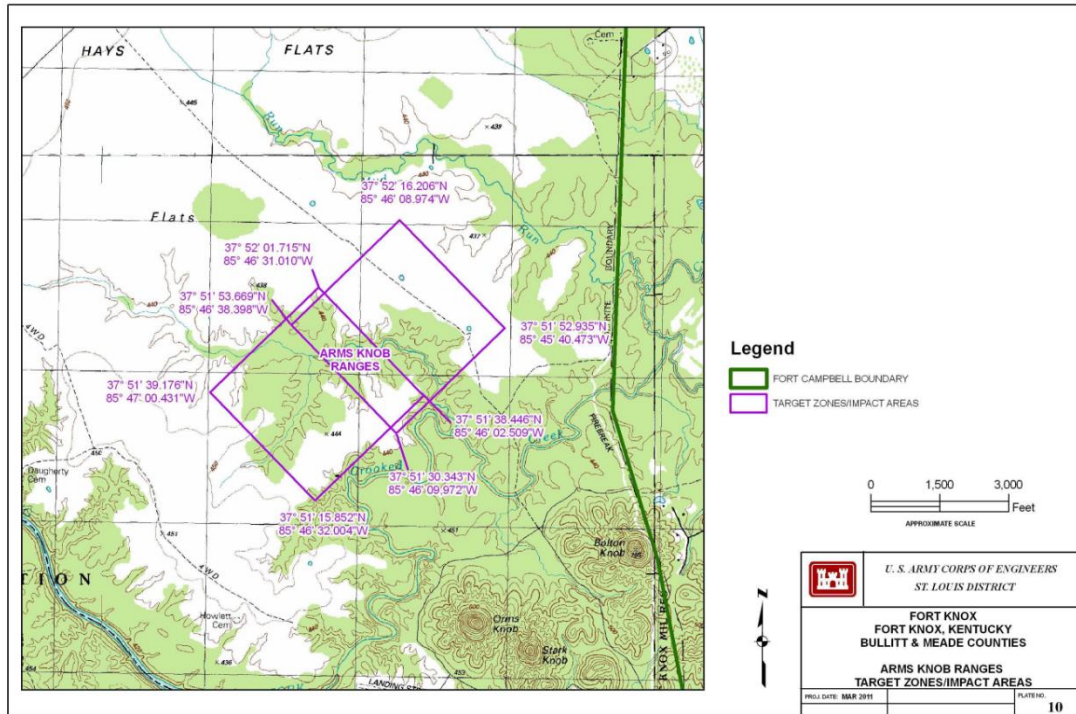




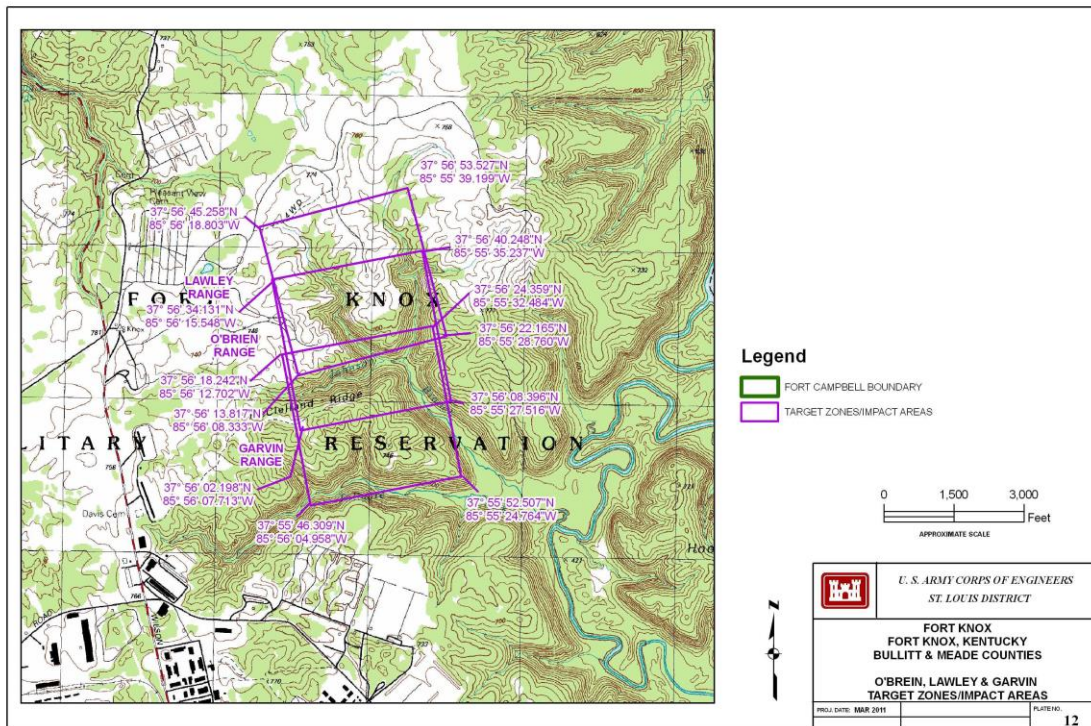
Fort Jackson SC



Fort Knox KY

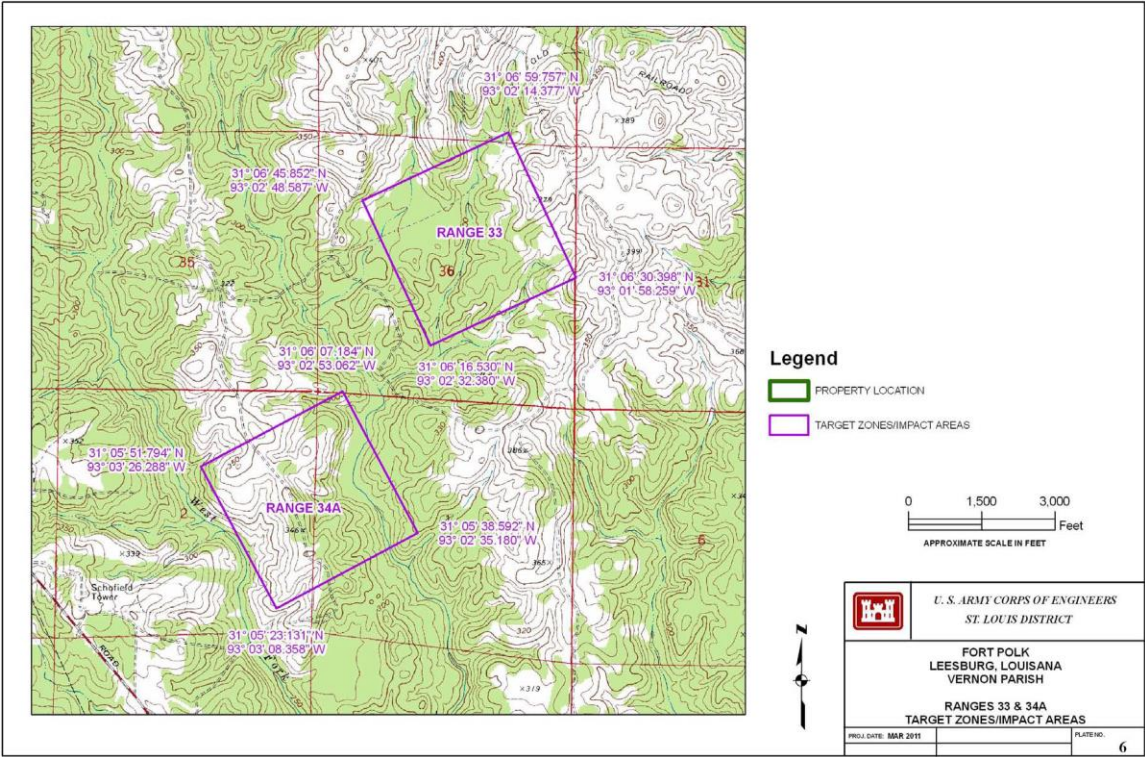


The legend should read "FORT KNOX BOUNDARY"

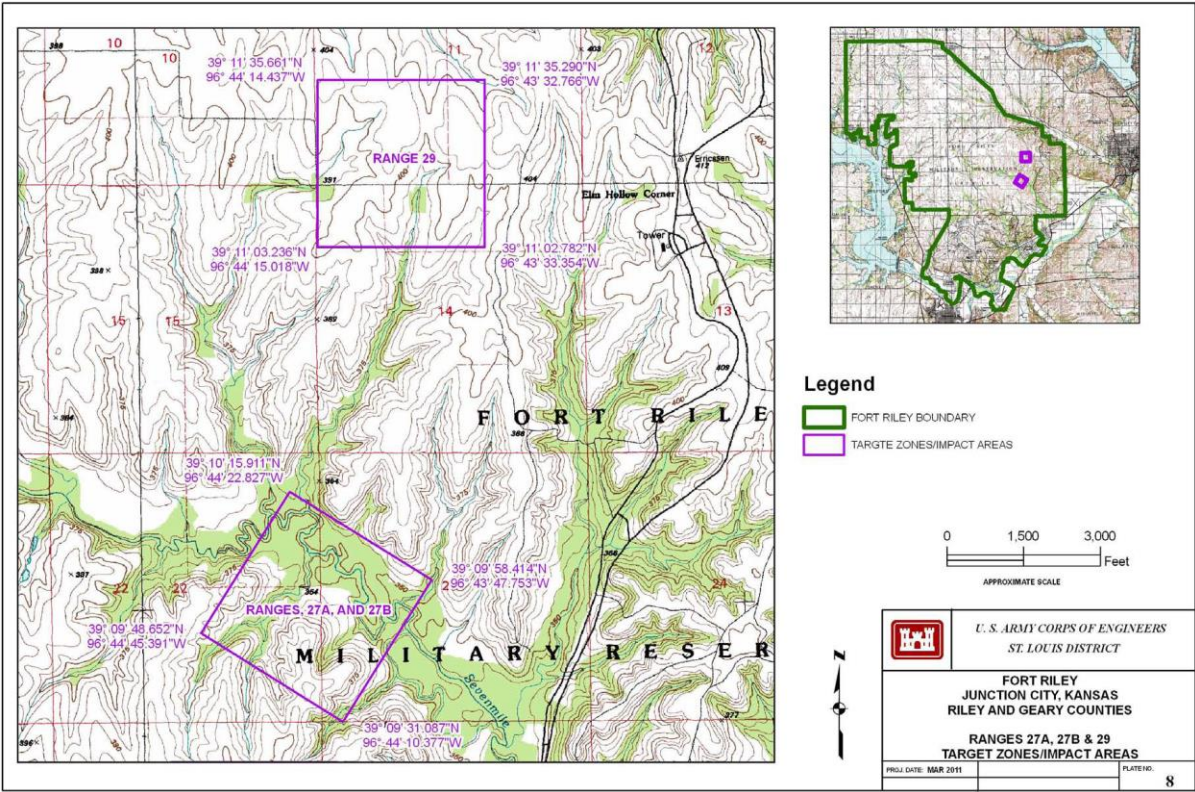


M101 firing was on the O'Brien (aka O'Brein) Range.
The legend should read "FORT KNOX BOUNDARY."

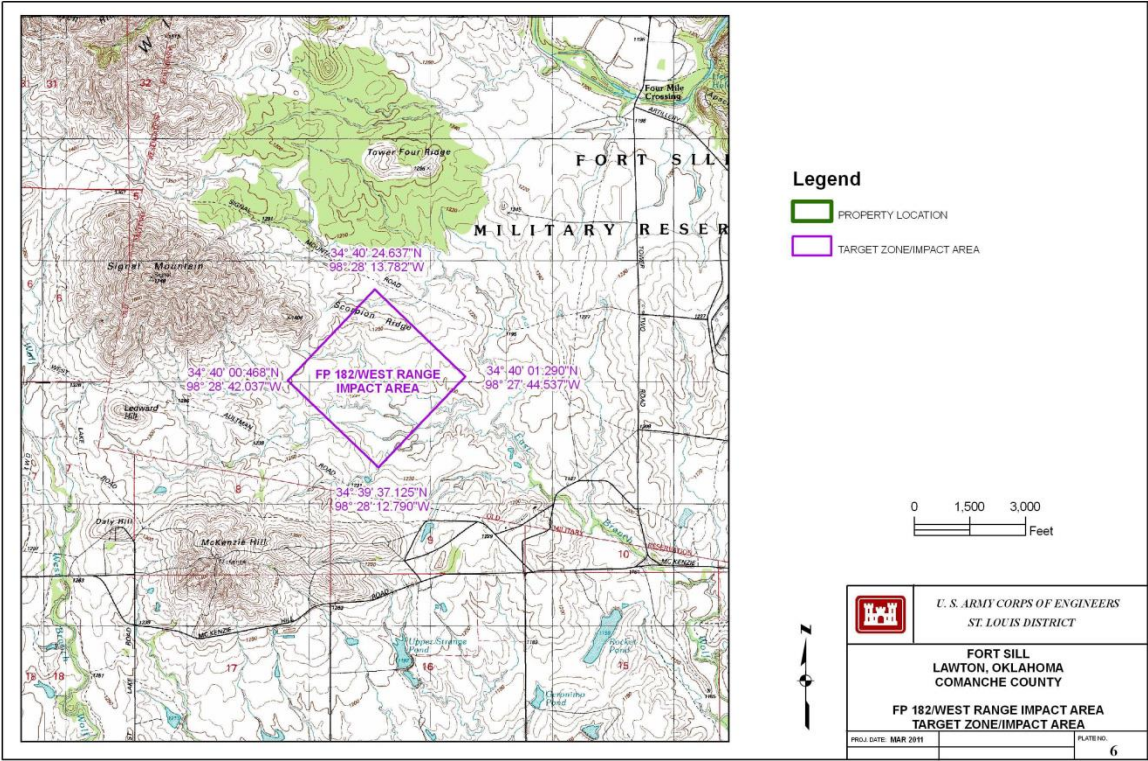
Fort Polk LA



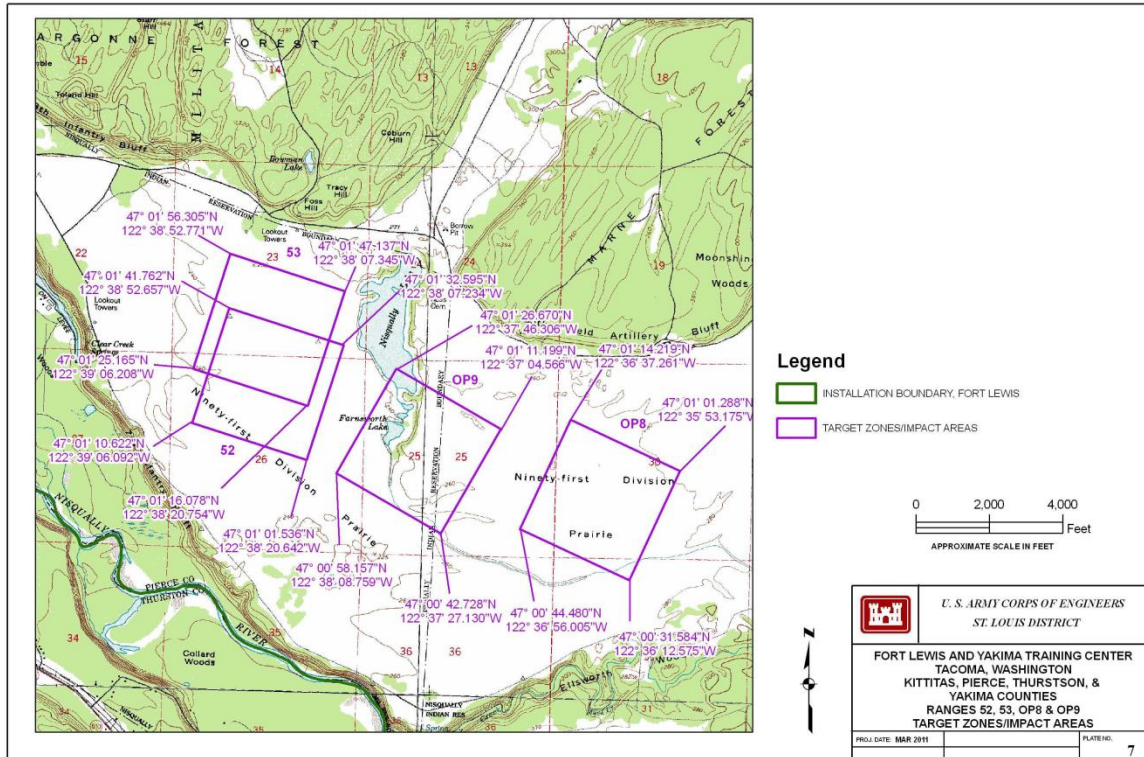
Fort Riley KS



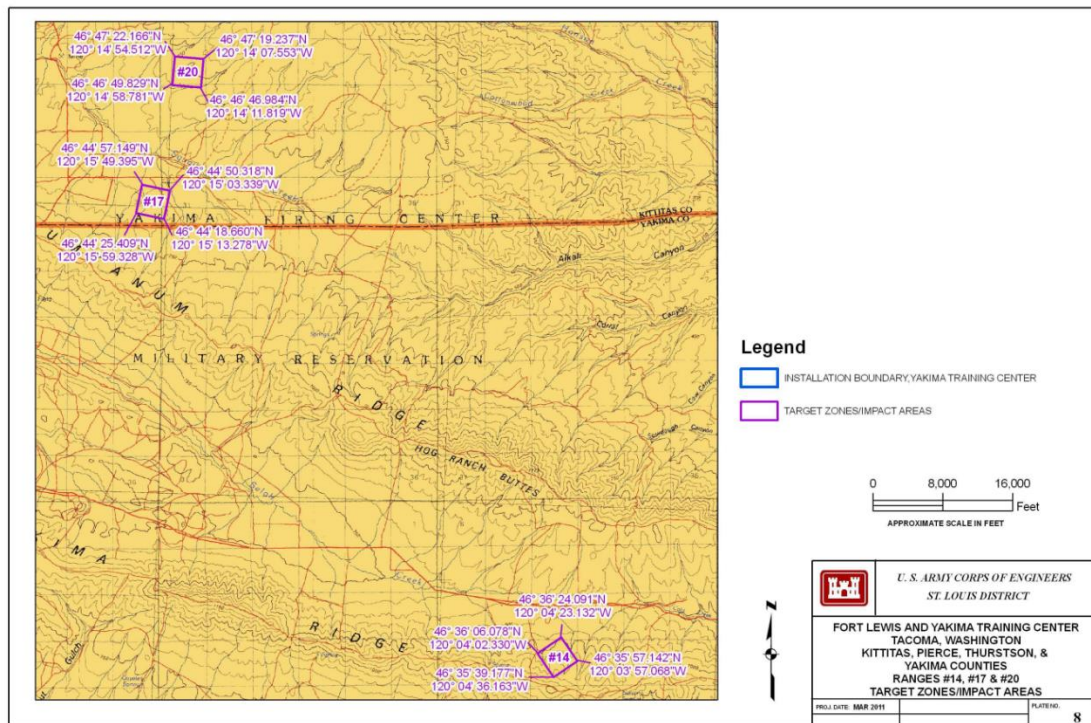
Fort Sill OK



Joint Base Lewis-McChord/Yakima Training Center WA

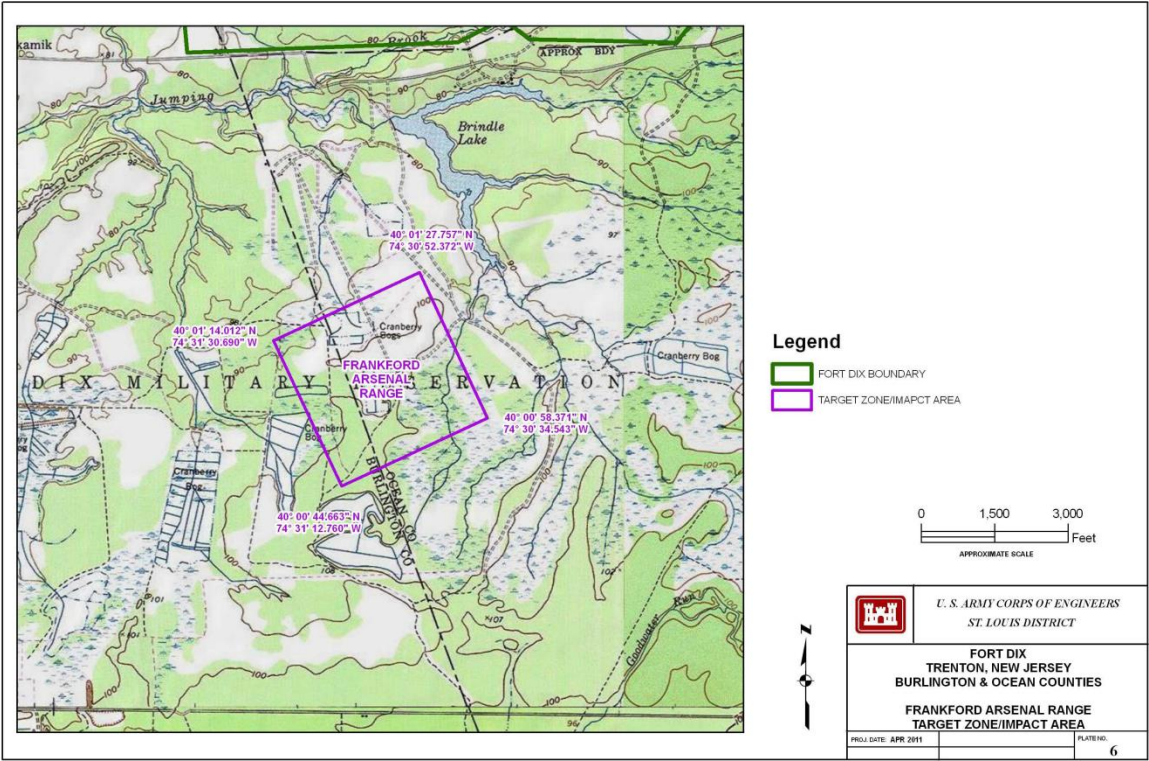


Range 53 is not an M101 impact area; range 52, OP8 and OP9 are M101 impact areas

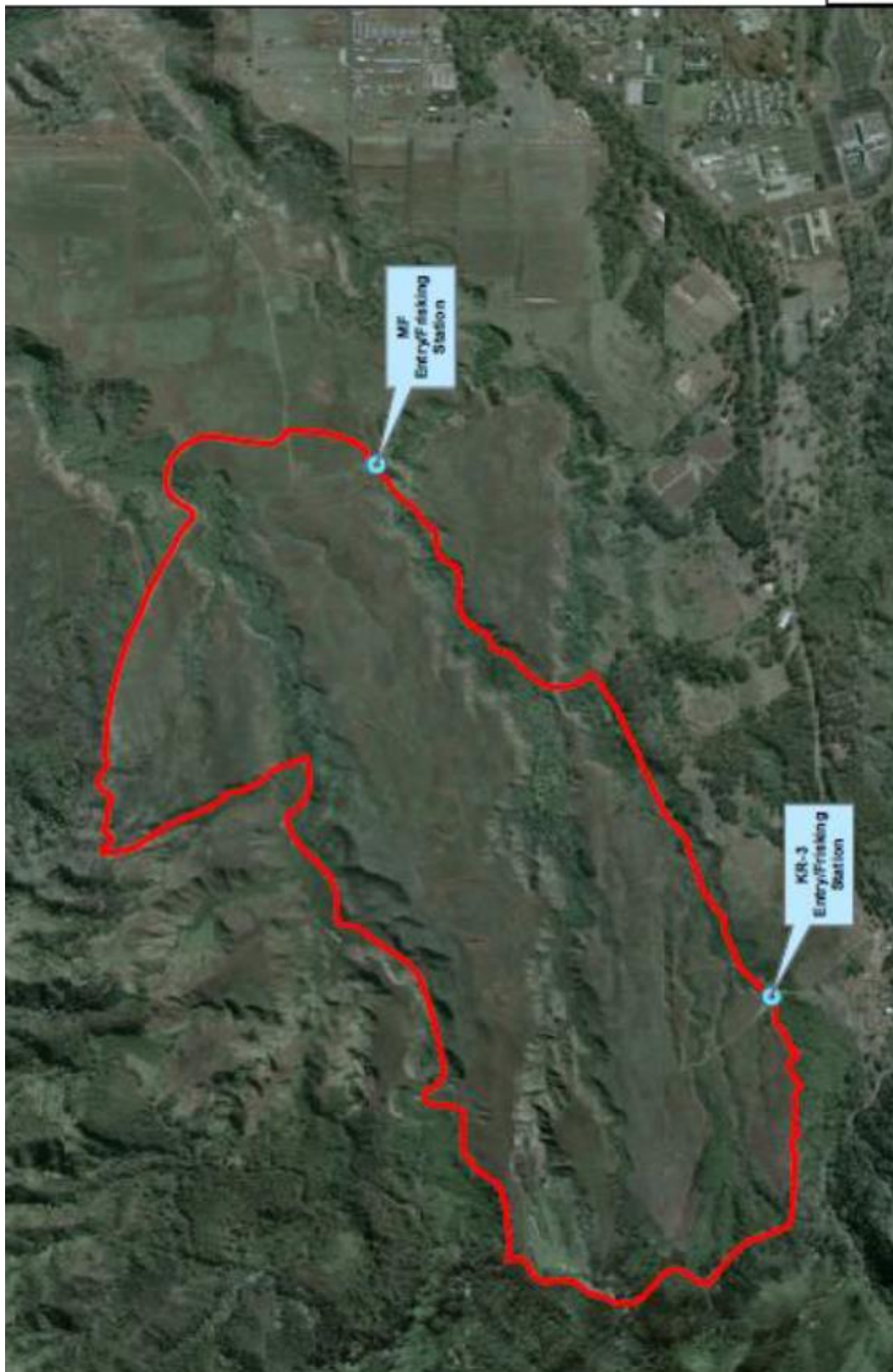


The westing coordinate for the west corner of Range #14 should read "120° 05' 02.330" W."

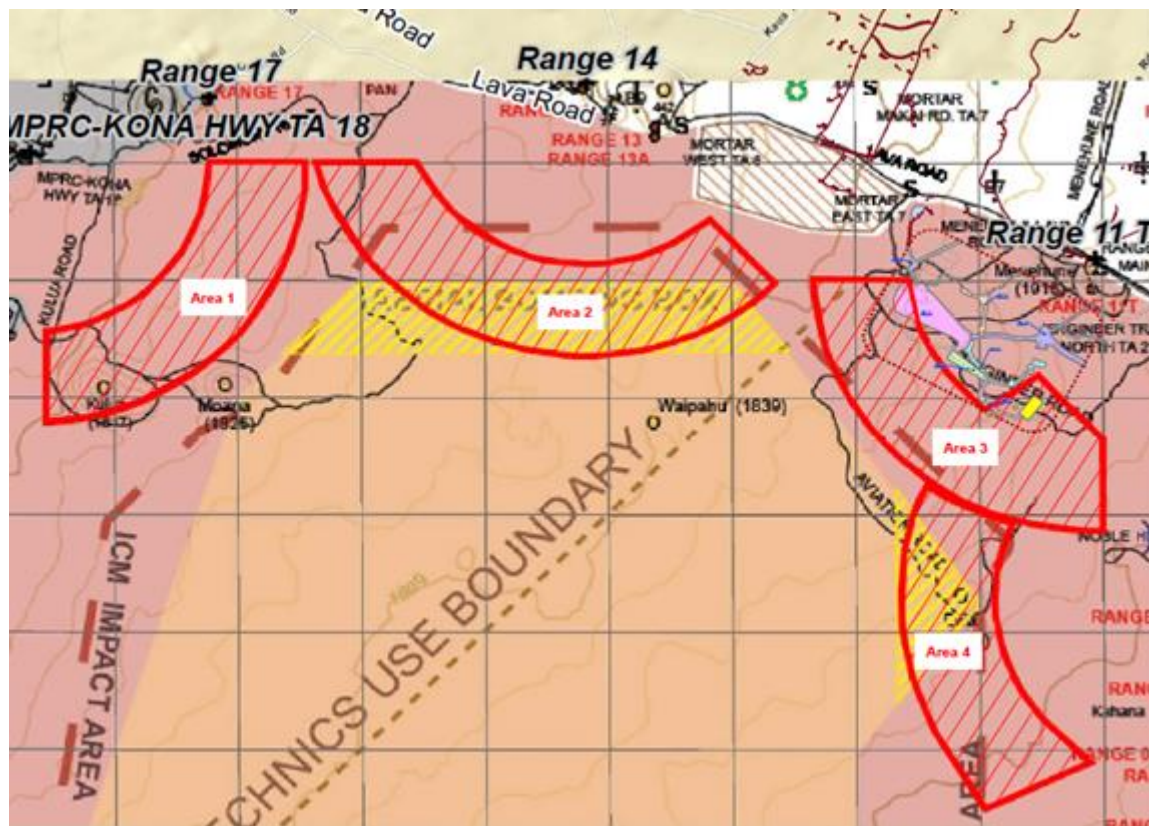
Joint Base McGuire-Dix-Lakehurst NJ



Schofield Barracks/Pohakuloa Training Area HI



M101 Impact Area at Schofield Barracks



M101 Impact Areas at Pohakuloa Training Area

Enclosure 2

Supporting information for requested change



DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY ALASKA
724 POSTAL SERVICE LOOP #5000
JOINT BASE ELMENDORF-RICHARDSON ALASKA 99505-5000

APVR-ROP


MEMORANDUM THRU Garrison Commander, Fort Wainwright, 1060 Gaffney Road #6000,
Fort Wainwright, Alaska 99703-6000

FOR IMCOM Radiation Safety Staff Officer (IMSO), (ATTN: Dr. Cherry), 2405 Gun Shed
Road, JBSA Fort Sam Houston, Texas 78234-1223

SUBJECT: Request for Administrative Adjustment to Installation Specific Archive Search
Report on the Use of Cartridge, 20mm Spotting M101 Davy Crockett light Weapon M28 at
Fort Greely, Alaska, October 2008

1. Purpose. The purpose of this memorandum is to request an administrative change to the subject report. The requested change is to correct discrepancies in the reported location of the firing point and resulting Surface Danger Area Diagram (SDAD).
2. Background. During the site survey conducted as part of the initial investigation (in 2008) there were some errors in the reporting and recording of location information. For example the pictures on page 16 of the report (Figure 8 & 9) describe the location as Georgia Range, when this is in fact Colorado Range. These ranges are several hundred meters apart. Another factor is that the map datum for this area has changed several times since the original location was recorded. Datum conversions also factor into the error in this case.
3. Analysis. Attached at is a detailed technical report from the Installation Range Officer, prepared in coordination with our Graphic Information System (GIS) Analyst. They have reviewed the records, found additional photographic and historical evidence, and conducted geo-referenced correlation.
4. Recommendation. Recommend approval of the corrected location of the Target Zone/Impact Area (Enclosure 1) as currently recorded Appendix I, Plate #6, as well as corrections to other figures and plates described in the attached technical report.
5. POC for this memo is Derek Mills, Donnelly Training Area Range Officer, (email: derek.w.mills.civ@mail.mil), or phone 907-873-1447.

Encl
as


JEFFREY S. CRAPO
COL, IN
G3/5/7

6 December 2017

reba
MEMORANDUM THRU Director, Training Support Activity - Alaska, 724 Postal Service Loop #5000, Joint Base Elmendorf-Richardson, Alaska 99505-5000

FOR USARAK G3, 724 Postal Service Loop #5000, Joint Base Elmendorf-Richardson, Alaska 99505-5000

SUBJECT: Analysis to Support Administrative Adjustment to Installation Specific Archive Search Report on the Use of Cartridge, 20mm Spotting M101 Davy Crockett light Weapon M28 at Fort Greely, Alaska, October 2008

1. Purpose. To provide a technical analysis of additional research conducted concerning the documented location, in the subject report, of the potential depleted uranium target area resulting from suspected firing of the 20mm spotting round for the M28 Davy Crockett.

2. References.

a. Installation Specific Archive Search Report on the Use of Cartridge, 20mm Spotting M101 Davy Crockett Light Weapons M28 at Fort Greely, Alaska, dtd October 2008.

b. Land Use Study, 172d Infantry Brigade (Alaska), dtd 13 August 1976.

c. Archived historical maps, various sources.

d. Archived historical pictures, various sources.

3. Background. In 2005 during the construction of the BAX at Schofield Barracks an M101 tail fin assembly was found. These rounds contain depleted uranium, and as such are regulated by the Nuclear Regulatory Commission (NRC). This resulted in an Army wide archive review of all installations to determine the possible presence of M101 depleted uranium rounds at other installations. The subject report was rendered concerning the suspected presence of the round at Ft. Greely (Donnelly Training Area). During our review of the report we identified several inconsistencies in the data concerning the location of the range and the resulting target area.

4. Facts Bearing on the Problem.

a. The survey team coordinated through the Cold Regions Test Center (CRTC) for information and access to the range area to conduct the survey. At no time was any coordination conducted with the local Range Control regarding the purpose of the visit.

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b. The archive research did not have available some relevant data concerning range locations and construction information. After the study was completed additional historical reports, pictures, maps, and Geo-Spatial Information System (GIS) correlated data were found or derived.

c. The range location in the report was incorrectly identified. The report list the location as Georgia Range, when in fact, the survey team was to the north on Colorado Range. Enclosure 9 contains a copy of the picture (taken from Figure 8 of the report) in the report that is geo-referenced and plots the location on Colorado Range.

d. There is a high probability that the survey team did not properly translate the coordinates as part of the change in map datum when it was converted to the current NAD83/WGS84. This conversion normally results in a difference of location of approximately 200-300 meters in grid location.

e. The mapped location of the firing point in the final report has it located to the East of the Range Road. The picture at Enclosure 8 (taken from Figure 7 of the report) clearly shows the firing point to the West of the road.

f. The plot of the firing point on the map in Figure 6 (and Appendix I-7) in the report does not correlate to the Surface Danger Area Diagram as plotted on Plate 4 in Appendix I of the report.

5. Analysis. The analytical process used in determining the accurate location of the firing point required both ortho-correcting imagery so that the scale was on the same from one picture to the next. Then the imagery was geo-referenced to the maps so that the imagery matched the available mapping. Additionally, care was taken to ensure that the appropriate map datum was used/derived based on the timeframe of the source information. This methodology was applied throughout the process to maintain accuracy of the data derived.

a. Enclosure 1 is an aerial view of the range dated in 1957. This picture is not included in the report. It shows that the KD Range was constructed prior to the development of Georgia Range for the use of Davy Crockett.

b. Enclosure 2 is an aerial view of the range dated 1962. This picture is not included in the report. This picture shows the initial construction of two ranges to South of the KD Range. It also shows that the range was, including the firing point, is on the west side of the Range Road.

c. Enclosure 3 is an aerial view of the range dated 1968. This picture is not included in the report. This picture shows the completed ranges in relation to the KD Range.

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d. Enclosure 4 is the 1962 Mt Hayes D-4 NW map sheet. This map is included in the report at Figure 6, and in Appendix I. This is the only direct map reference to the location of the Davy Crockett Range.

e. Enclosure 5 is the 1975 Hayes D-4 NW map sheet. This map is not included in the report. The specific references and locations to the Davy Crockett Range were removed.

f. Enclosure 6 is an extract from the Land Use Study (Reference b). This reference is not included in the report. This study describes in detail the location and use of Georgia Range.

g. Enclosure 7 is a correlation of the two map references (Enclosure 4 & 5) and a plot of the firing point grid from the Land Use Study (Enclosure 6). All three references are based on the NAD27 map datum. As shown on the map the grid called out in the land use study matches the plot of the firing point on the map.

h. Enclosure 8 is a historical photo of Georgia Range. It appears in Figure 7 and Figure 9 of the report. The picture has been annotated with some key terrain features to assist in geo-referencing this to maps and other imagery. This picture clearly shows that the firing point is on the West side of the Range Road.

i. Enclosure 9 is a review of the pictures contained in the report. The vertical arrows were in the report and were used to verify the location of the range. On the historical photo we added the line indicating the range view from the KD range. The prominent point of land that is correlated confirms that the location identified in the report is, in fact, the KD Range.

j. Enclosure 10 is an extract from Plate 4 of the report. Using geo-referencing we have plotted several key points. First is the grid location based on the picture in Figure 8, this clearly plots on the KD Range. The second location is the plotted location of the firing point contained in the report and used in determining the potentially contaminated area. Third, is the actual location of the firing point based on the Land Use Study.

k. Enclosure 11 is a comparison of the SDAD plot contained in the original report and the corrected plot based on the additional information and our GIS analysis.

l. Enclosure 12 is a close up view of the corrected SDAD overlaid on the most current imagery. This show that the current location of the KD range DOES NOT fall within the designated DU target area.

m. Enclosure 13 is a geo-referenced plot of the corrected SDAD over the 1962 map plot for the range. This shows an almost perfect correlation with the corrected SDAD.

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light Weapon M28 at Fort Greely, Alaska, October 2008

n. Enclosures 14 – 19 are the revisions to the plates in Appendix I of the report based on the corrected version of the SDAD. The specific changes to the LAT/LONG for the corrected box are listed as well as on the diagram.

5. Recommendation. Adopt the corrected SDAD based on the additional information and analysis, and make an administrative correction to the record to be used to update all other documents concerning this action, to include the current NRC licensing action.

6. Point of Contact. David Patterson, Sustainable Range Program Manager, U.S. Army Alaska. Phone: 907-384-3266, and email david.w.patterson.civ@mail.mil.

Encl
as

Derek W. Mills
DEREK MILLS
Installation Range Officer
Donnelly Training Area

APVR-ROP

SUBJECT: Request for Administrative Adjustment to Installation Specific Archive Search Report on the Use of Cartridge, 20mm Spotting M101 Davy Crockett light Weapon M28 at Fort Greely, Alaska, October 2008

Historic Photos - 1957



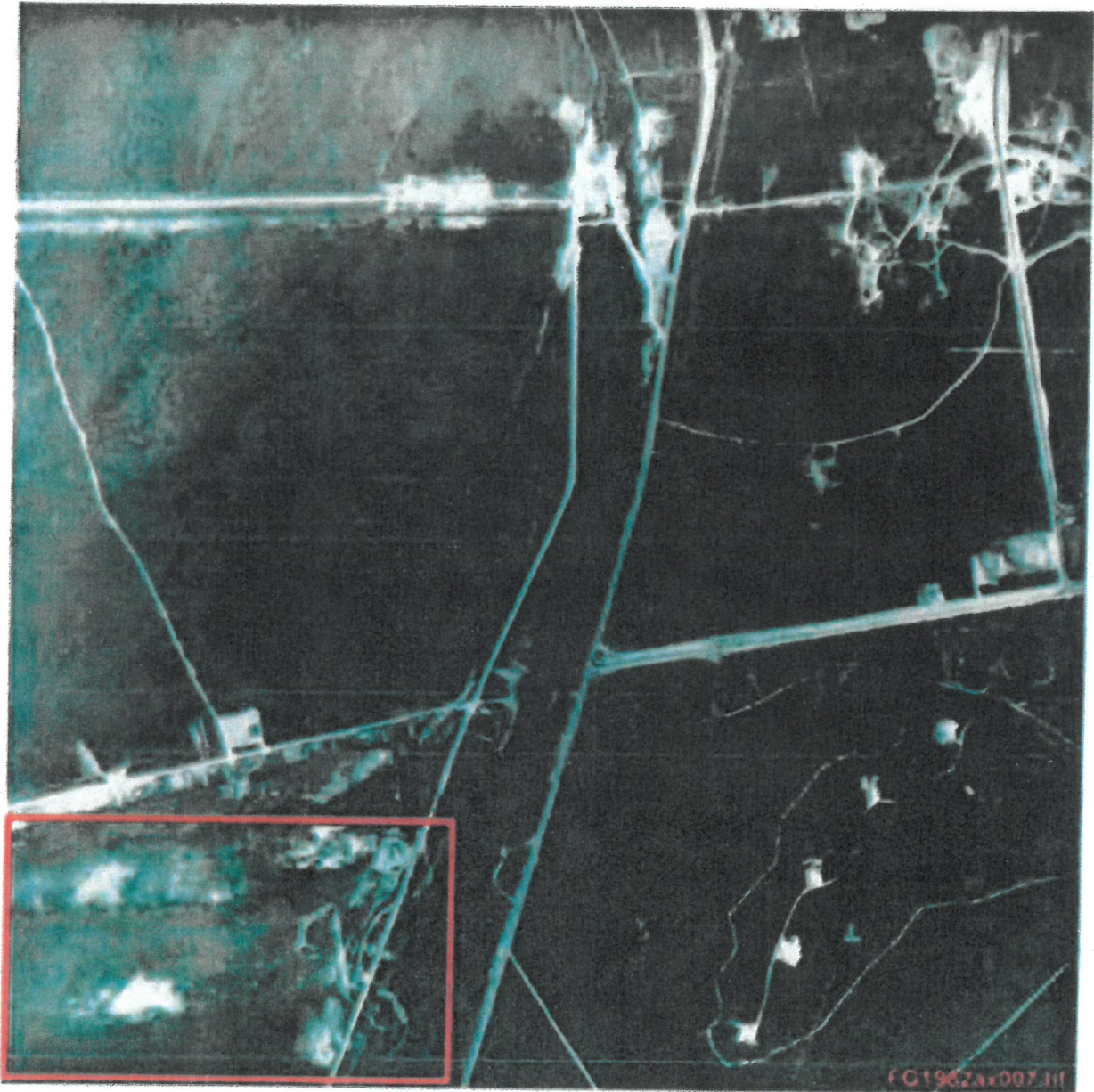
NOTE: 1957 – In this view there are no ranges to the south of the KD Range. This shows that all of the berms on the KD Range were constructed before any Davy Crockett testing occurred. Therefore the dirt used in construction of the range could not have been contaminated with DU.

ENCLOSURE 1

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Weapon M28 at Fort Greely, Alaska, October 2008

Historic Photos - 1962



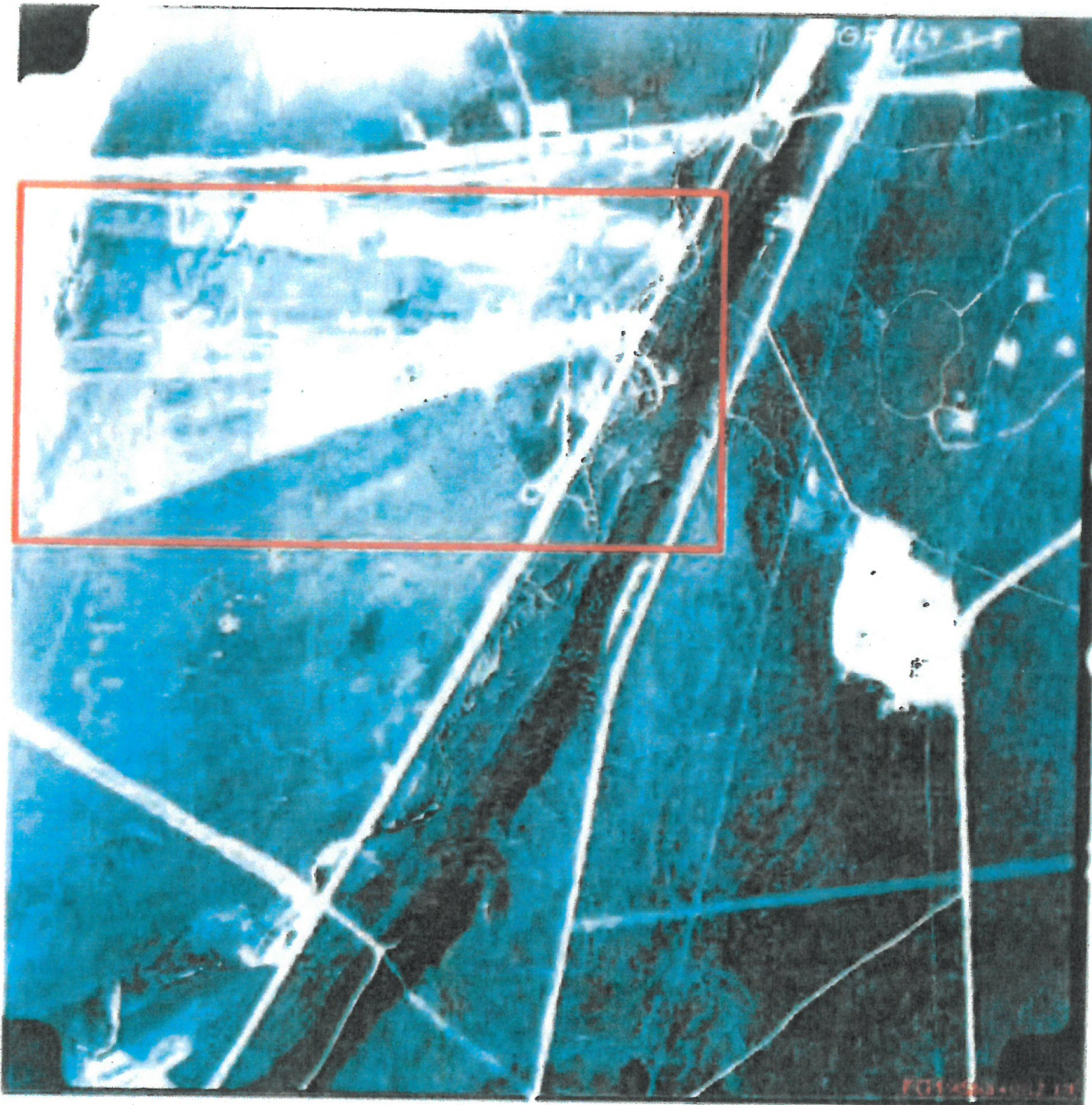
NOTE: 1962 – The red box shows the development of two new ranges to the south of the KD Range. The range to the immediate south was originally named Georgia Range and was the designated Davy Crockett Range. The name of this range was later changed to Colorado South.

ENCLOSURE 2

APVR-ROP

SUBJECT: Request for Administrative Adjustment to Installation Specific Archive Search Report on the Use of Cartridge, 20mm Spotting M101 Davy Crockett light Weapon M28 at Fort Greely, Alaska, October 2008

Historic Photos - 1968



NOTE: 1968 – The red box shows the completed ranges to the south of the KD Range. At the time the ranges were completed the range directly to the south of the KD range was designated as Georgia Range, specifically for use of Davy Crockett. The next range to the south was designated as the Recoilless Rifle Range.

ENCLOSURE 3

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Historic Map: Mt Hayes D-4 NW, dtd 1962



NOTE: 1962 – This map corroborates the information in the imagery concerning the location of the ranges. The red box shows the map location for the new ranges being built south of the KD Range. The range to the immediate south was originally named Georgia Range and was the designated Davy Crockett Range.

ENCLOSURE 4

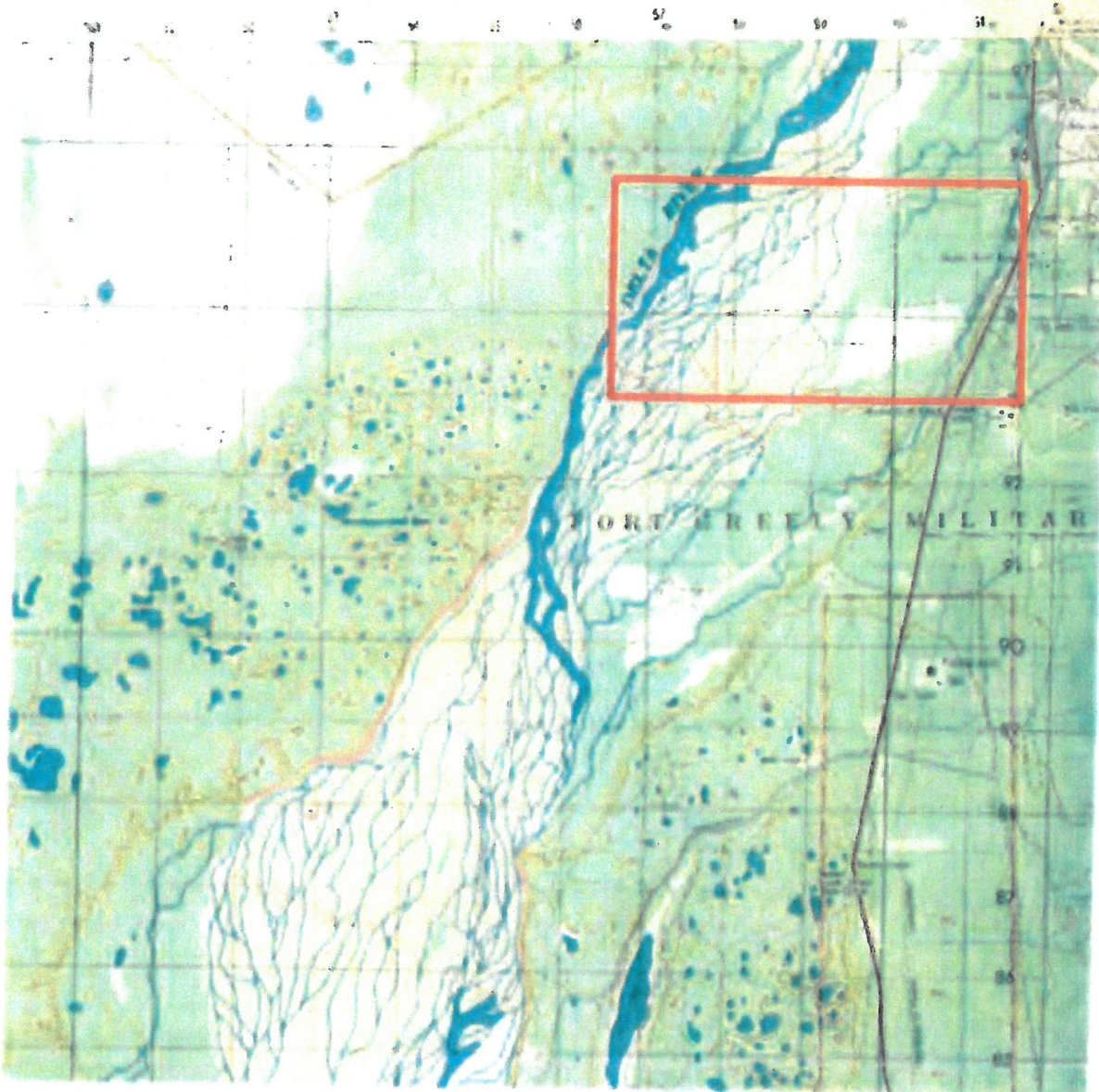
APVR-ROP

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Historic Map: Mt Hayes D-4 NW, dtd 1975

ALASKA 1:50,000

MT. HAYES D-4



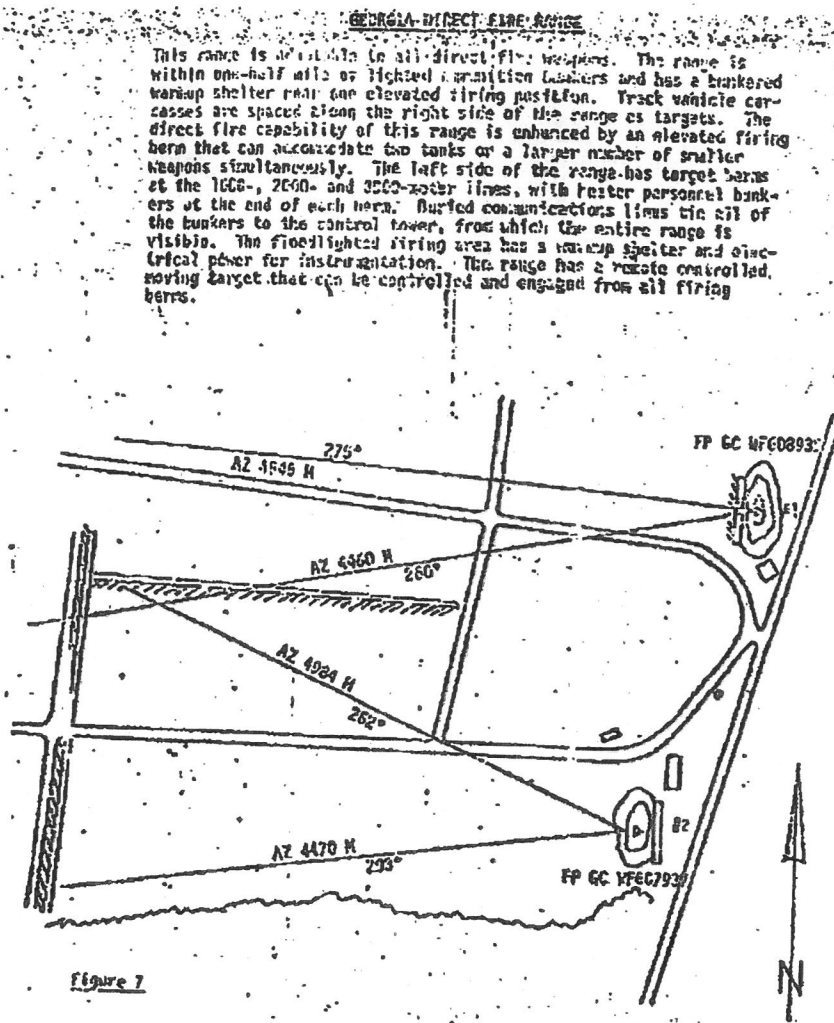
NOTE: 1975 – The red box shows the map location for the same ranges south of the KD Range. The specific designations were removed from this version of the map. Shortly after this the names changed and Georgia Range (Davy Crockett) became known as Colorado South.

ENCLOSURE 5

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Extract from 172d Infantry Brigade (AK) Land Use Study, dtd 13 August 1976
172d Infantry Brigade (Alaska), Land Use Study, dtd 13 August 1976



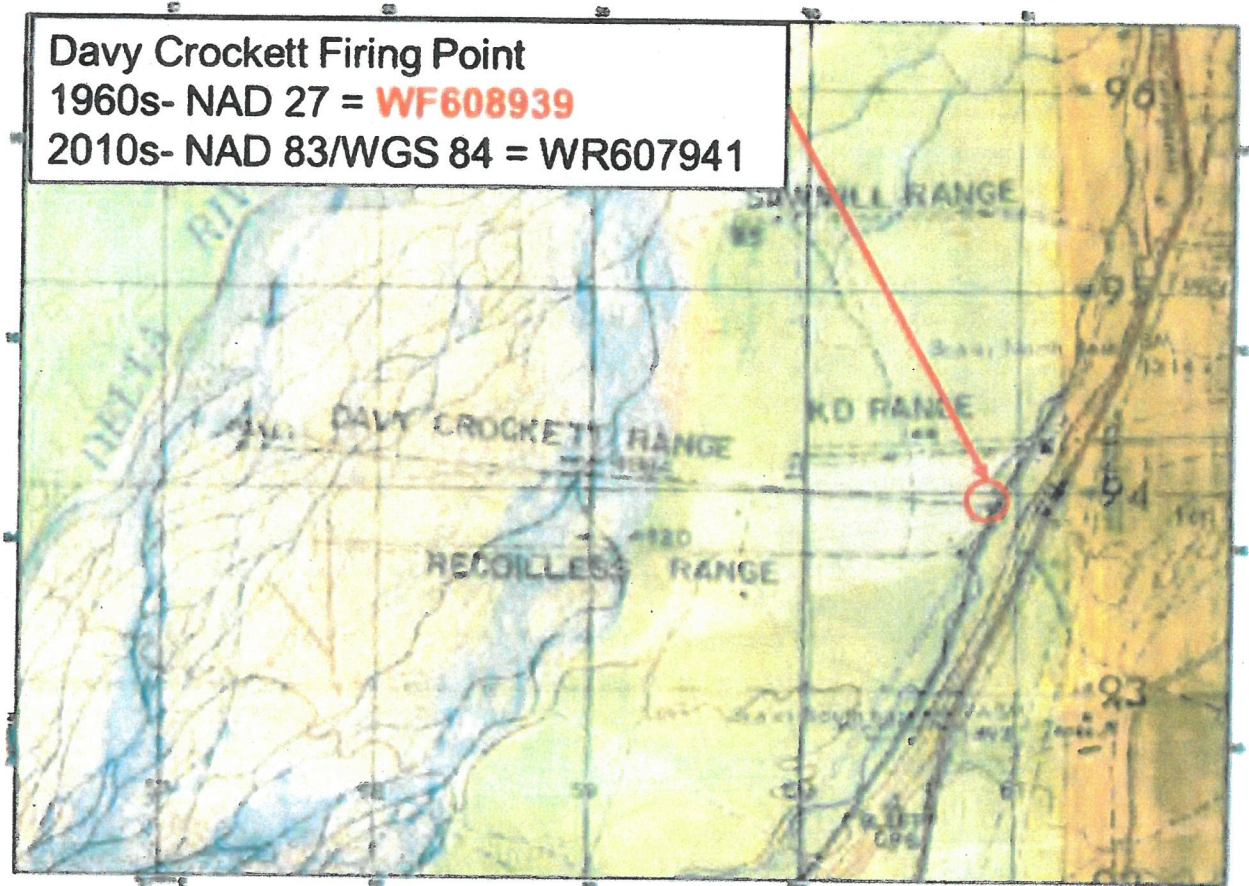
NOTE: This reference provides a description of the Georgia Direct Fire Range, and provides the grid coordinates for the Davy Crockett Range firing point (WF608939). The road to the immediate right of the firing point is the range road. The firing point is to the West (left) for the road

ENCLOSURE 6

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Overlay of Historic maps from 1962 and 1975 with annotated coordinates



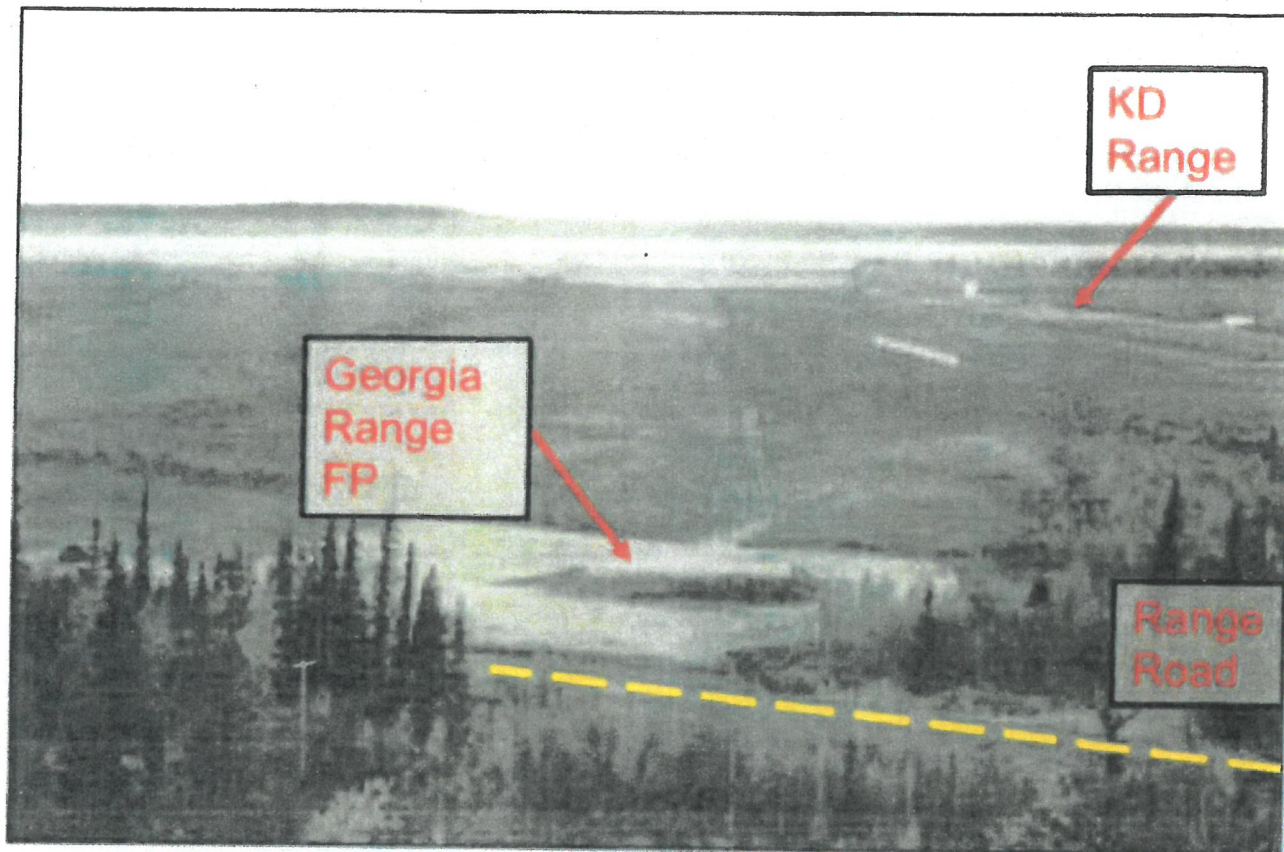
NOTE: This picture is a graphical overlay of the 1962 and 1975 maps and then using the information from the Land Use Report plotting the actual location of the firing point for the Davy Crockett Range. This used three separate data points to confirm the location. The grid coordinate was then converted from the original map datum (NAD27) to the current map Datum (NAD83/WGS84).

ENCLOSURE 7

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Photograph taken from the Installation Specific ASR – Fort Greely, Cartridge, 20mm Spotting M101, Davy Crockett Light Weapon M28, Figure 7, page 12.



NOTE: Annotations were added to the picture to provide clarity on what is seen in the picture. The locations of the firing point in relation to the KD Range, as described in the Land Use Study, is correlated with this photo. Again, note that the firing point is on the West side of the Range Road.

ENCLOSURE 8

APVR-ROP

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The following photos are from the Installation Specific ASR – Fort Greely, Cartridge, 20mm Spotting M101, Davy Crockett Light Weapon M28, Figures 8 & 9, page 16. The KD Range View line was added for clarity.



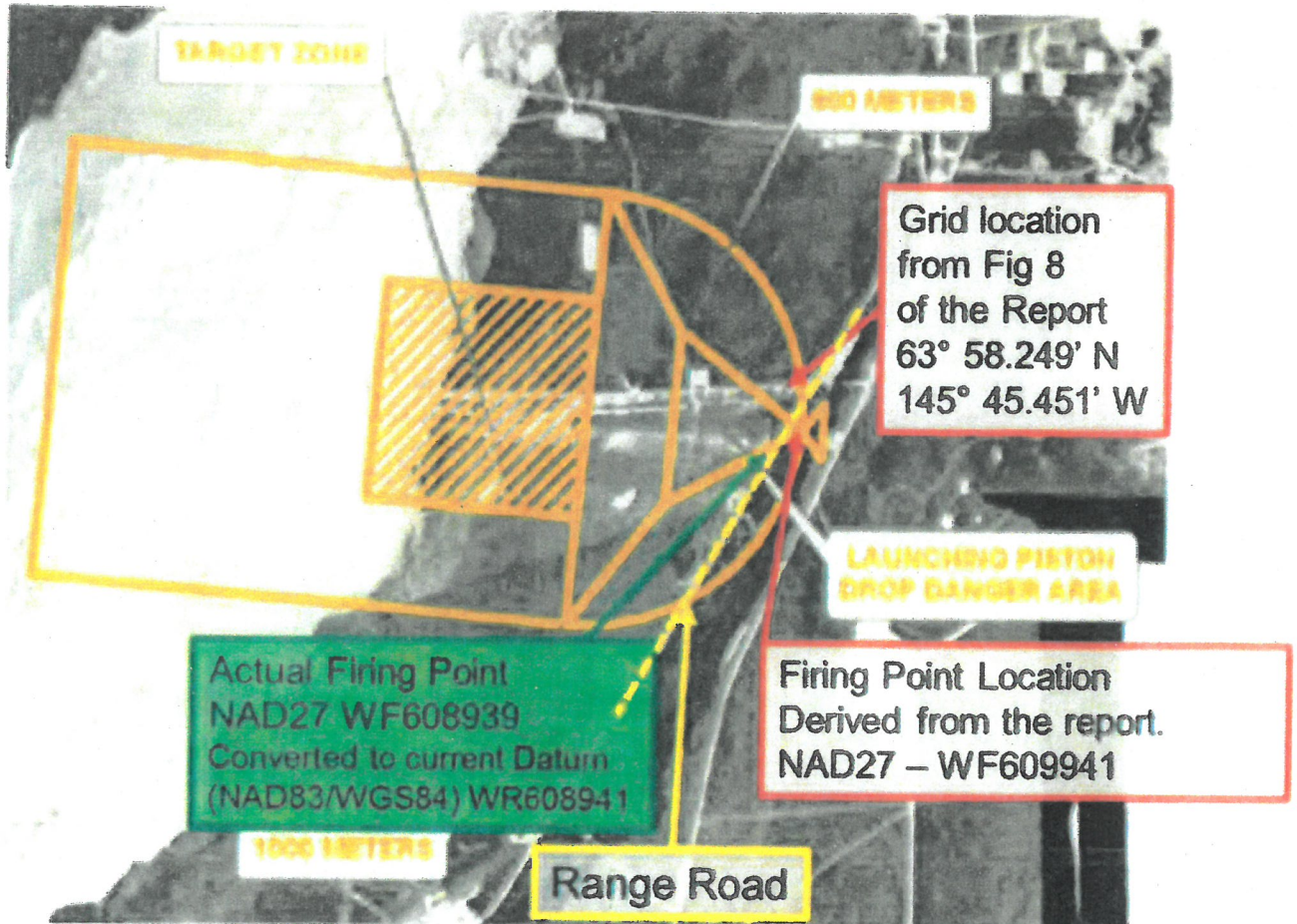
NOTE: The red arrow from right to left in the first picture was added to show the visual line of the KD Range. The vertical arrows are from the pictures in the report and show a visual correlation for the KD Range. The other color pictures from the report are cited as being the location of the original range. The location reference in the third picture is plotted on the Enclosure 10 and shows that the pictured location is actually the KD Range.

ENCLOSURE 9

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Extract from Plate 4 from the report – Annotated with documented reference points



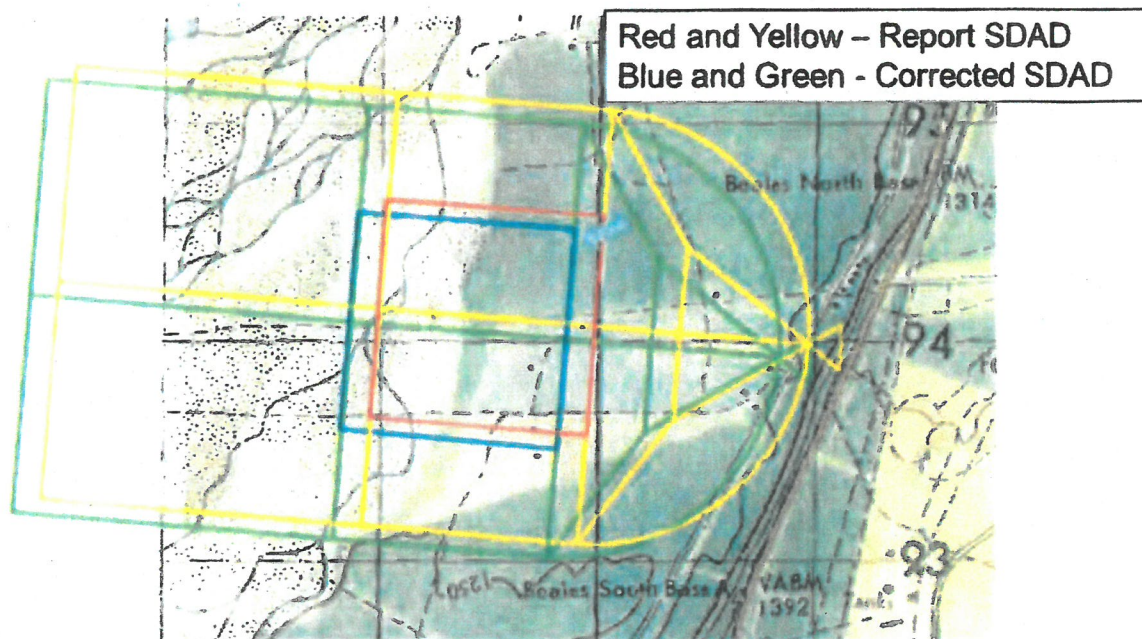
NOTE: Based on ortho-correcting the imagery and geo-referencing them with the map information from the time of the range we were able to derive the actual location for the firing point. The actual firing point is over 200 meters away, further to the South and West from what is currently in the report

ENCLOSURE 10

APVR-ROP

SUBJECT: Request for Administrative Adjustment to Installation Specific Archive
Search Report on the Use of Cartridge, 20mm Spotting M101 Davy Crockett light
Weapon M28 at Fort Greely, Alaska, October 2008

Comparison of Surface Danger Area Diagrams (SDAD) for both locations



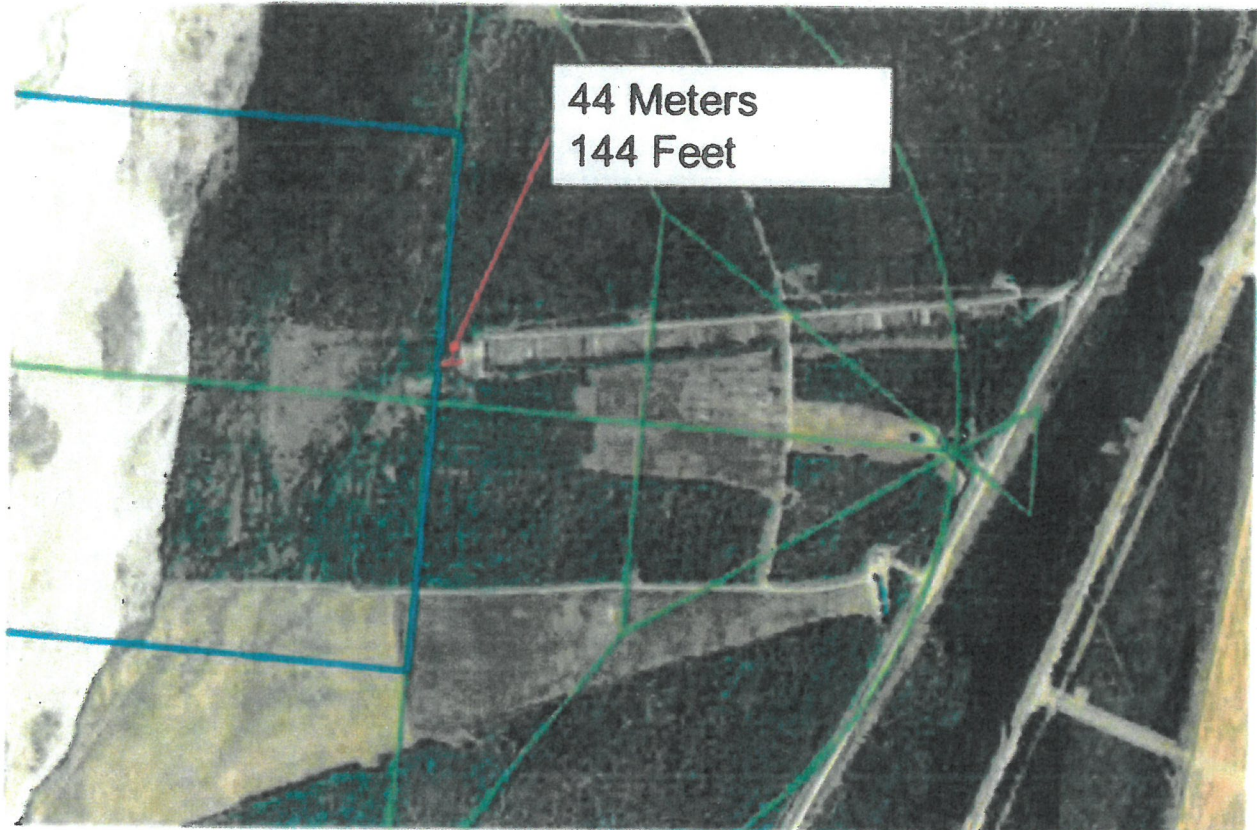
NOTE: The diagram in yellow with the red target area box is from the original report.
The diagram in green with the blue target box area depicts the corrected location.

ENCLOSURE 11

APVR-ROP

SUBJECT: Request for Administrative Adjustment to Installation Specific Archive Search Report on the Use of Cartridge, 20mm Spotting M101 Davy Crockett light Weapon M28 at Fort Greely, Alaska, October 2008

The corrected SDAD geo-referenced to 2015 imagery.



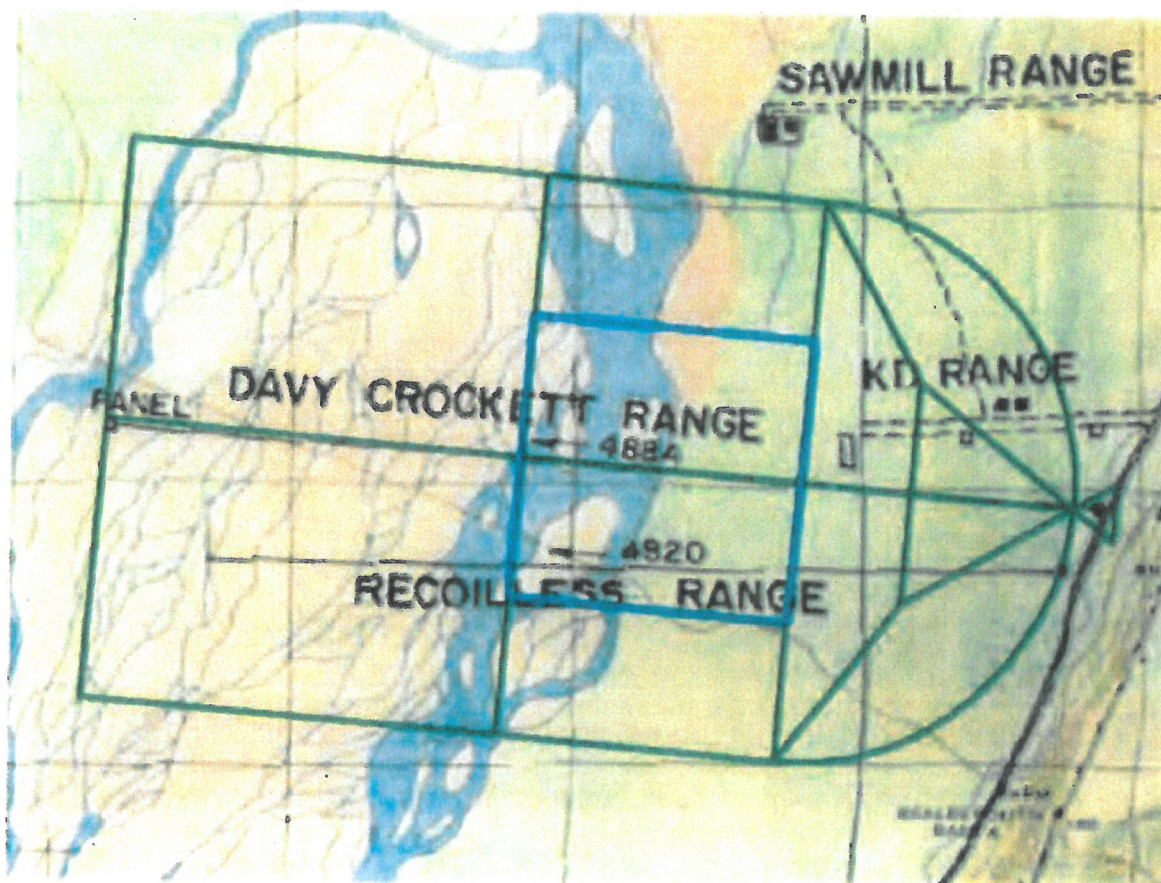
NOTE: The corrected SDAD shifts the eastern edge of the target box to the West. As a result the closest point of the target box to the KD range is 144 ft west of the end of the KD Range.

ENCLOSURE 12

APVR-ROP

SUBJECT: Request for Administrative Adjustment to Installation Specific Archive Search Report on the Use of Cartridge, 20mm Spotting M101 Davy Crockett light Weapon M28 at Fort Greely, Alaska, October 2008

The corrected SDAD overlaid on the original 1962 map.



NOTE: This diagram is a plot of the corrected SDAD and the original map plot of the range in 1962. This validates the corrected SDAD as being true and accurate based on all information gathered.

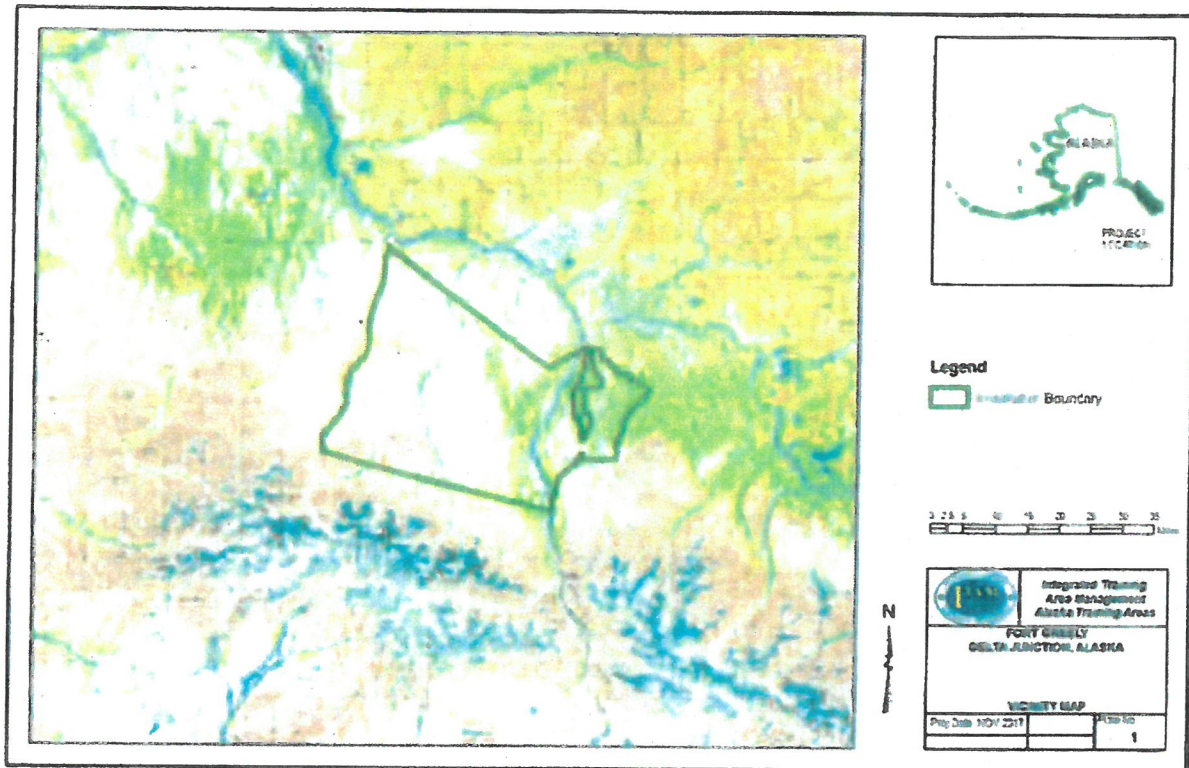
ENCLOSURE 13

APVR-ROP

SUBJECT: Request for Administrative Adjustment to Installation Specific Archive
Search Report on the Use of Cartridge, 20mm Spotting M101 Davy Crockett light
Weapon M28 at Fort Greely, Alaska, October 2008

The following enclosures are updates to the plates in Appendix I of the original report.

REVISION TO PLATE 1 – No Change.

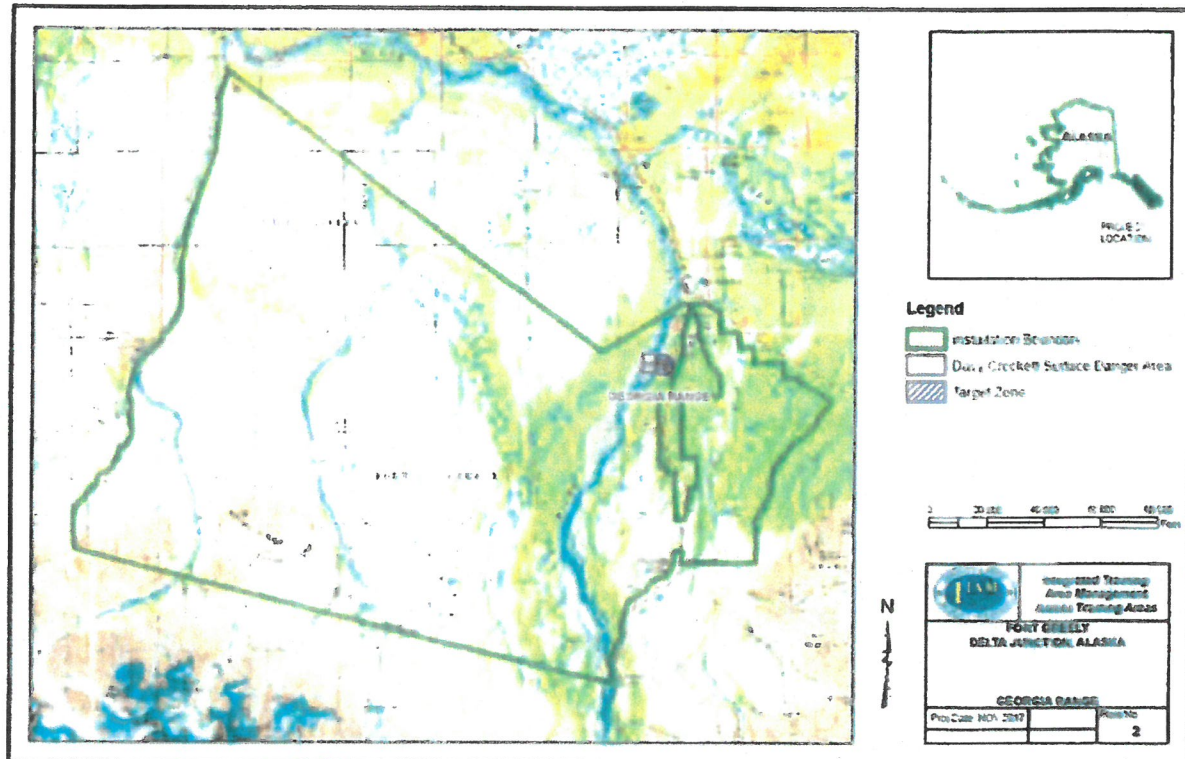


ENCLOSURE 14

APVR-ROP

SUBJECT: Request for Administrative Adjustment to Installation Specific Archive Search Report on the Use of Cartridge, 20mm Spotting M101 Davy Crockett light Weapon M28 at Fort Greely, Alaska, October 2008

REVISION TO PLATE 2

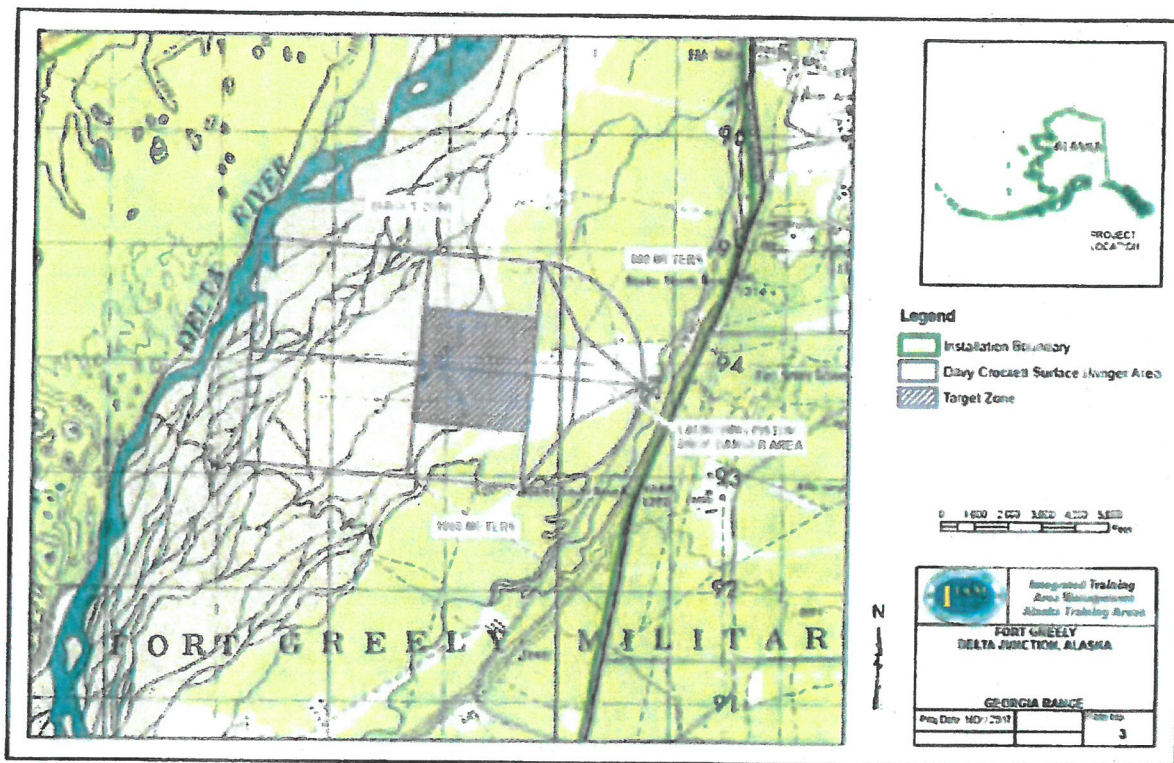


ENCLOSURE 15

APVR-ROP

SUBJECT: Request for Administrative Adjustment to Installation Specific Archive Search Report on the Use of Cartridge, 20mm Spotting M101 Davy Crockett light Weapon M28 at Fort Greely, Alaska, October 2008

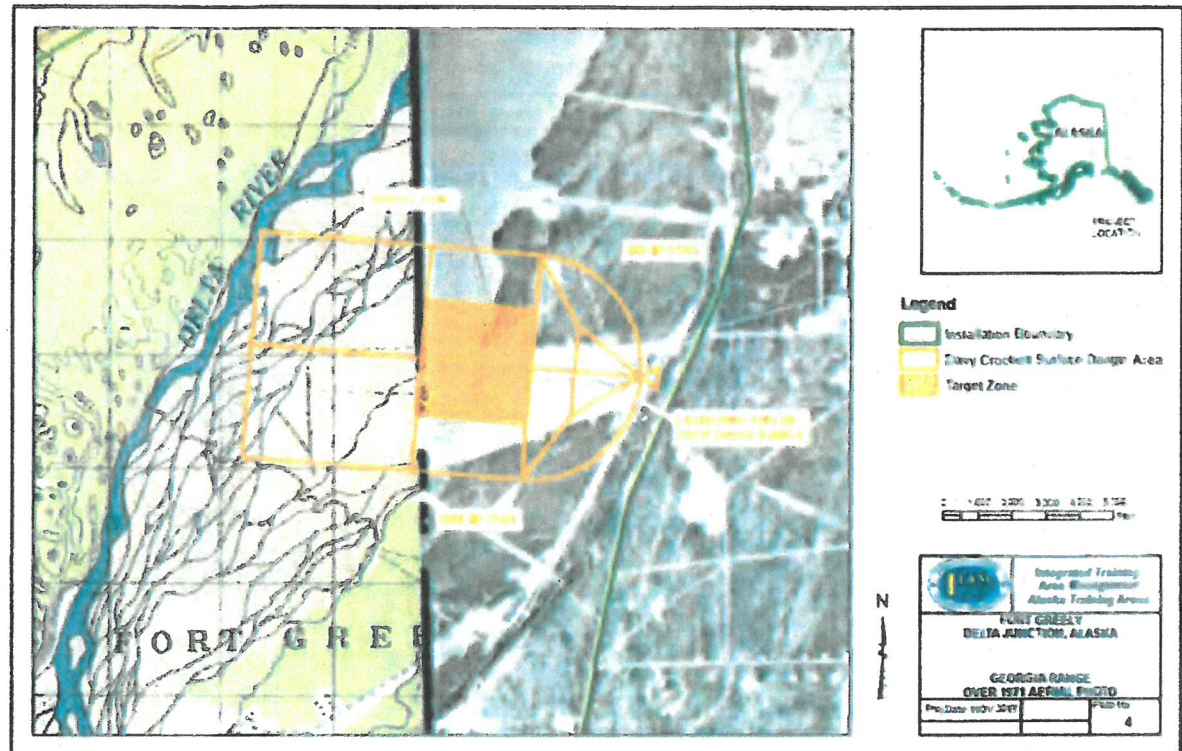
REVISION TO PLATE 3



APVR-ROP

SUBJECT: Request for Administrative Adjustment to Installation Specific Archive Search Report on the Use of Cartridge, 20mm Spotting M101 Davy Crockett light Weapon M28 at Fort Greely, Alaska, October 2008

REVISION TO PLATE 4

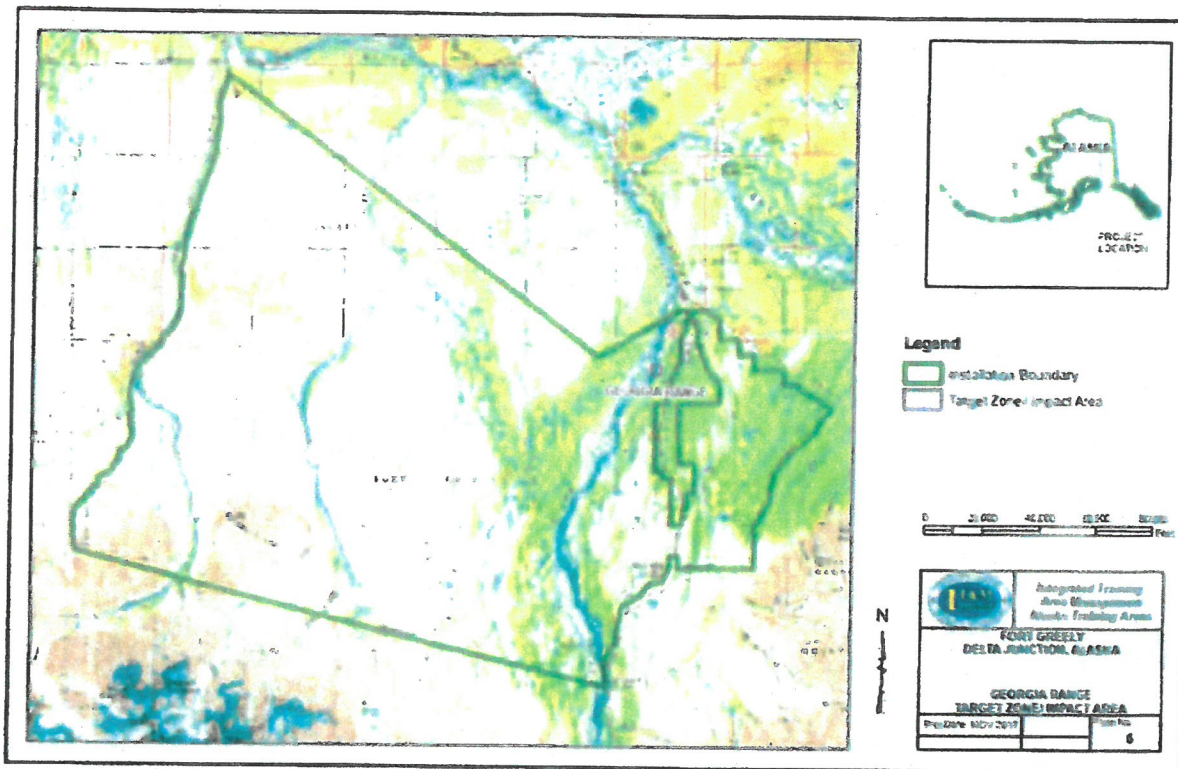


ENCLOSURE 17

APVR-ROP

SUBJECT: Request for Administrative Adjustment to Installation Specific Archive
Search Report on the Use of Cartridge, 20mm Spotting M101 Davy Crockett light
Weapon M28 at Fort Greely, Alaska, October 2008

REVISION TO PLATE 5

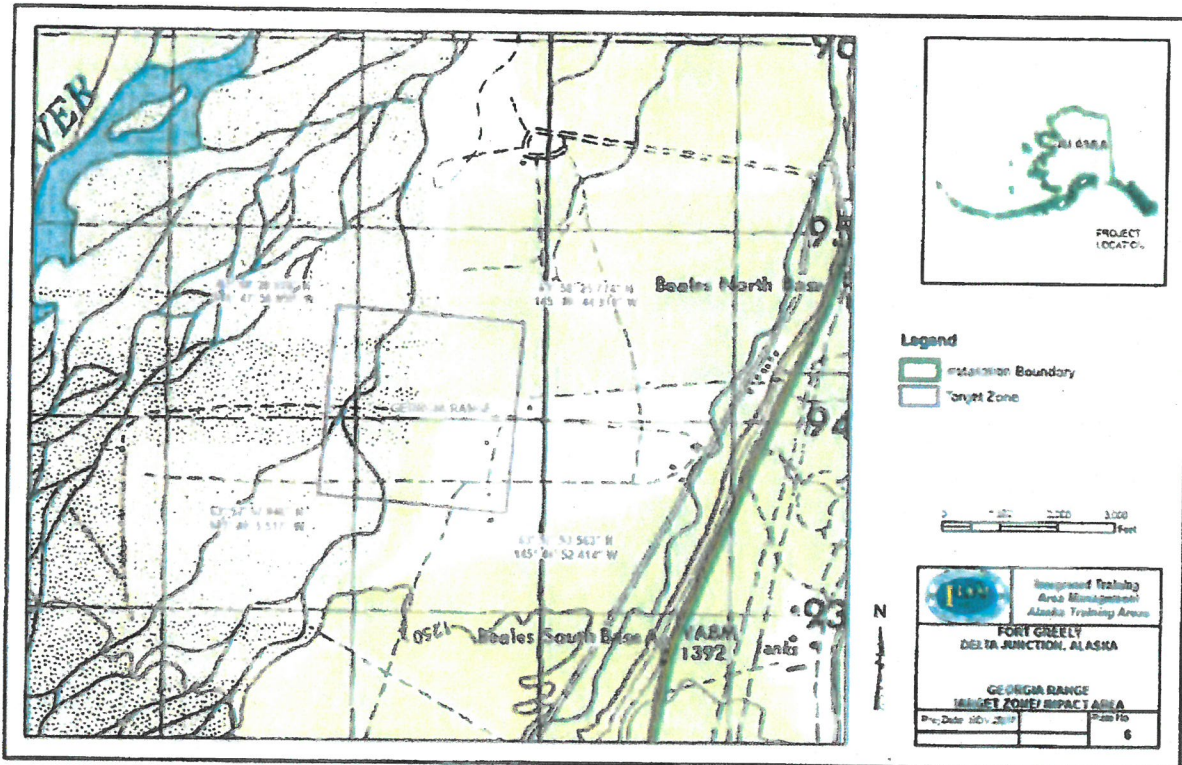


ENCLOSURE 18

APVR-ROP

SUBJECT: Request for Administrative Adjustment to Installation Specific Archive Search Report on the Use of Cartridge, 20mm Spotting M101 Davy Crockett light Weapon M28 at Fort Greely, Alaska, October 2008

REVISION TO PLATE 6



FT GREELY SDAD CORRECTED LAT/LONG

POSITION	ORIGINAL REPORT (OCT 2008)		REQUESTED CORRECTION	
	LATITUDE	LONGITUDE	LATITUDE	LONGITUDE
NW	63° 58' 30.561" N	145° 47' 48.533" W	63° 58' 28.976" N	145° 47' 58.059" W
NE	63° 58' 27.721" N	145° 46' 35.305" W	63° 58' 25.774" N	145° 46' 44.910" W
SE	63° 57' 55.475" N	145° 46' 41.983" W	63° 57' 53.563" N	145° 46' 52.414" W
SW	63° 57' 58.596" N	145° 47' 55.171" W	63° 57' 57.046" N	145° 48' 5.517" W

ENCLOSURE 19