104-07

AEHA

UNITED STATES ARMY ENVIRONMENTAL HYGIENE AGENCY

ABERDEEN PROVING GROUND, MD 21010-5422

RADIATION PROTECTION STUDY NO. 28-43-0025-86
CLOSEOUT SURVEY OF BUNKERS E801-E811
SENECA ARMY DEPOT
ROMULUS, NEW YORK
29-31 JULY 1985

DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

REPLY TO
ATTENTION OF

HSHB-RH

SUBJECT: Radiation Protection Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, New York, 29-31 July 1985

Commander
US Army Materiel Command
ATTN: AMCSG
5001 Eisenhower Avenue
Alexandria, VA 22333-0001

EXECUTIVE SUMMARY

The purpose and recommendation of the enclosed report follow:

a. Purpose. To determine the presence and extent of radioactive contamination and whether the bunkers (E801-E811) and the surrounding area met the radioactive contamination guidelines following decontamination.

b. Recommendation. To ensure regulatory compliance, the bunkers surveyed (E801-E811) need no longer be identified as a contaminated area and may be utilized for unrestricted use.

FOR THE COMMANDER:

for RALPH R. CARESTIA
Colonel, MS
Director, Radiation and
Environmental Sciences

Encl

CF:
HQDA(DASG-PSP)(wo/encl)
Cdr, HSC (HSCL-P)(w/encl)
Comdt, AHS (HSHA-IPM)(w/encl)
Cdr, DESCOM (AMSDS-T)(w/encl)
Cdr, WRAMC (PVNTMED Svc)(w/encl)
Cdr, MEDDAC, Ft Devens (PVNTMED Svc)(2 cy)(w/encl)
Cdr, USAEHA Fld Spt Actv, Ft Meade (w/encl)

DEPARTMENT OF THE ARMY
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RADIATION PROTECTION STUDY NO. 28-43-0025-86
CLOSEOUT SURVEY OF BUNKERS E801-E811
SENECA ARMY DEPOT
ROMULUS, NEW YORK
29-31 JULY 1985

1. AUTHORITY. Letter, SEAD, SDSSE-AX, 11 February 1985, subject: Request for Assistance, and endorsements thereto.

2. REFERENCES. See Appendix A for a listing of references.

3. PURPOSE. This study was performed to determine the presence and extent of radioactive contamination and whether the bunkers (E801-E811) and the surrounding area met the radioactive contamination guidelines following decontamination.

4. GENERAL.

a. An entrance briefing was held with Mr. Thomas Battaglia, DAC, Safety Manager. An exit briefing, to include a discussion of the findings, was held with Mr. Tom Stinic, DAC, RPO.

b. Also attached as Appendices are:

(1) A listing of abbreviations used in this report (Appendix B).

(2) A list of survey instruments used during the study (Appendix C).

(3) The results of the wipe test analysis for gross alpha and gross beta activities (Appendix D).

(4) The results of the direct instrument readings of alpha, beta, and gamma surface contamination inside the bunkers (Appendix E).

(5) Area diagrams of the bunkers (E801-E811), indicating the location of the wipe tests (numerical) and instrument readings (alphabetical) (Appendix F).

(6) The results of the soil sample analysis for gross alpha and gross beta activities (Appendix G).

(7) The results of the soil sample analysis for gamma activities (Appendix H).

(8) The results of direct instrument readings of alpha, beta, and gamma surface contamination outside the bunkers (Appendix I).

(9) Area diagrams of the bunkers (E801-E811), indicating the location of the soil samples (numerical) and instrument readings (alphabetical) (Appendix J).

5. BACKGROUND.

a. Seneca Army Depot covers approximately 10,000 acres, a large portion of which is occupied by munition bunkers. In the early 1940's approximately 2,000 barrels of pitchblende ore were stored in 11 of these bunkers (E801-E811) for a short period of time. After the removal of the ore, the normal storage of munitions was resumed.

b. Seneca Army Depot was tasked with and performed the decontamination of the 11 bunkers. The Army RADCON team surveyed the 11 bunkers with 2 separate RADCON units during the week of 13 May 1985 (Reference 3).

6. FINDINGS.

a. General.

(1) The road in front of the 11 bunkers was barricaded to prevent unauthorized entry.

(2) Bunker E801 contained various items of equipment and protective clothing that was used in the decontamination process.

b. Survey Results.

(1) Instrumentation Survey Inside Bunkers. The results of the instrument survey inside the 11 bunkers indicated that the highest gamma reading was 15 µR/hr (804-D and 805-C); the highest beta reading was 400-500 cpm (804-D); and the highest alpha reading was 2,000 cpm (808-C). The gamma readings were taken approximately 1 meter above the floor surface. Background inside the bunkers was determined to be 10 µR/hr for gamma, 0-5 cpm for beta, and zero cpm for alpha.

(2) Instrumentation Survey Outside Bunkers. The results of the instrument survey outside the 11 bunkers indicated that the highest gamma reading was 150 µR/hr (804-D). This was a very localized area on the gravel and tar area. Alpha and beta readings were all equal to background levels. Background outside the bunkers was also determined to be 10 µR/hr for gamma, and zero cpm for alpha and beta.

(3) Wipe Samples. In all 11 bunkers, 100 cm^2 wipe samples were taken to determine removable alpha and beta contamination. The highest gross beta count was $(3.6 \pm 0.4) \times 10^{-5}$ µCi (804-133) which was the same location (804-D) that had the highest instrument reading of gamma and beta contamination. The highest gross alpha count was $(2.1 \pm 0.3) \times 10^{-5}$ µCi (804-135). The majority of the wipe samples were less than the counter's lower level of detection: $<1.2 \times 10^{-6}$ µCi for gross beta and $<5.7 \times 10^{-7}$ µCi for gross alpha.

(4) Soil Samples. The soil samples were taken to determine the gross alpha, beta, and gamma activities in the soil surrounding the pads of all 11 bunkers. The highest gross beta count was $(4.3 \pm 0.5) \times 10^{-5}$ µCi per gram (804-2); the highest alpha count was $(5.0 \pm 0.8) \times 10^{-5}$ µCi per gram (806-2); and the highest gamma count was $(6.2 \pm 0.8) \times 10^{-6}$ µCi per gram of Pb-214 (806-2). The average gross beta was 3.1×10^{-5} µCi per gram and the average gross alpha count was 2.5×10^{-5} µCi per gram. The gamma activities were all below 15 pCi/gram and are within the normal background levels.

7. CONCLUSION. A review of the findings indicated that after decontamination the bunkers (E801-E811) and the surrounding area conformed to the requirements for unrestricted use.

8. RECOMMENDATION. Based on the findings in this report, the 11 bunkers surveyed (E801-E811) should no longer be identified as a contaminated area and may be utilized for unrestricted use (AR 385-11, Table 4-3).

Stuart M. Altman
STUART M. ALTMAN
Health Physicist
Health Physics Division

Eugene W. Potter LTC, MS
HARRIS EDGE
Health Physicist
Health Physics Division

APPROVED:

Eugene W. Potter
EUGENE W. POTTER
LTC, MS
Chief, Health Physics Division

APPENDIX A

REFERENCES

1. AR 40-5, 1 June 1985, Preventive Medicine.

2. AR 385-11, 1 May 1980, Ionizing Radiation Protection (Licensing, Control, Transportation, Disposal, and Radiation Safety).

3. Draft, US Army RADCON Team Survey at Seneca Army Depot, 13-17 May 1985.

4. Letter, USAEHA, HSHB-RH, 14 August 1985, subject: Preliminary Report, Radiation Protection Study No. 28-43-0025-85, Seneca Army Depot, New York, 29-31 July 1985.

5. Title 10, Code of Federal Regulations, 1985 rev, Part 20, Standards for Protection Against Radiation.

6. NCRP Report No. 45, 1975, Natural Background Radiation in the United States.

APPENDIX B

ABBREVIATIONS

CFR	Code of Federal Regulations
cpm	counts per minute
DAC	Department of the Army Civilian
dpm	disintegrations per minute
EPA	US Environmental Protection Agency
NCRP	National Council on Radiation Protection and Measurements
NRC	US Nuclear Regulatory Commission
Pb	lead
pCi	picocurie
RPO	Radiation Protection Officer
µCi	microcurie
µR/hr	microroentgens per hour

APPENDIX C

RADIATION SURVEY EQUIPMENT USED

1. Eberline Model PRM-7, Micro R Ratemeters, SN 398 and SN 273, calibrated 14 June 1985 and 30 May 1985, respectively.

2. Eberline Model PAC-1-SAGA, Portable Alpha Counter, SN 1602, with probe, Model AC-3, alpha scintillation crystal, calibrated 9 May 1985.

3. Eberline Model E-520, Geiger Counter, SN 2308, with probe, Model HP-210, calibrated 8 July 1985.

APPENDIX D

RESULTS OF WIPE TEST ANALYSIS FOR GROSS ALPHA AND GROSS BETA ACTIVITIES

Radn Prot Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, NY, 29-31 Jul 85

Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviations Gross Beta	Gross Alpha
803-1	I0467	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-2	I0468	$(2.3 \pm 1.2) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-3	I0469	$(1.5 \pm 1.0) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-4	I0470	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-5	I0471	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-6	I0472	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-7	I0473	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-8	I0474	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-9	I0475	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-10	I0476	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-11	I0477	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-12	I0478	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-13	I0479	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-14	I0480	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-15	I0481	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-16	I0482	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-17	I0483	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-18	I0484	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-19	I0485	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-20	I0486	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-34	I0487	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-35	I0488	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-37	I0489	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-38	I0490	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$

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Sample Identification	Lab Number	Micocurie Per Wipe Test Sample ±2 Standard Deviations Gross Beta	Gross Alpha
802-39	I0491	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-41	I0492	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-42	I0493	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-43	I0494	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-45	I0495	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-46	I0496	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-47	I0497	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-49	I0498	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-50	I0499	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-51	I0500	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-52	I0501	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-53	I0502	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-54	I0503	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-55	I0504	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-56	I0505	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-57	I0506	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-58	I0507	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-59	I0508	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-60	I0509	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-61	I0510	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-62	10511	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-63	I0512	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-64	I0513	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-65	I0514	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-66	I0515	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-67	I0516	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$

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Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviations Gross Beta	Gross Alpha
804-101	I0517	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
804-102	I0518	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
804-103	I0519	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
804-104	I0520	$(2.8 \pm 1.2) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
804-105	I0521	$(2.0 \pm 0.3) \times 10^{-5}$	$(9.3 \pm 2.0) \times 10^{-6}$
804-106	I0522	$< 1.2 \times 10^{-6}$	$(7.7 \pm 6.7) \times 10^{-7}$
804-107	I0523	$(2.4 \pm 1.2) \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
804-108	I0524	$(2.6 \pm 0.3) \times 10^{-5}$	$(1.3 \pm 0.2) \times 10^{-5}$
804-109	I0525	$(3.8 \pm 1.4) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
804-110	I0526	$(2.9 \pm 0.4) \times 10^{-5}$	$(1.8 \pm 0.3) \times 10^{-5}$
804-111	I0527	$(2.0 \pm 1.1) \times 10^{-6}$	$(6.5 \pm 6.3) \times 10^{-7}$
804-112	I0528	$(2.4 \pm 0.3) \times 10^{-5}$	$(1.7 \pm 0.3) \times 10^{-5}$
804-113	I0529	$(1.2 \pm 0.2) \times 10^{-5}$	$(9.2 \pm 2.0) \times 10^{-6}$
804-114	I0530	$(4.9 \pm 1.5) \times 10^{-6}$	$(2.2 \pm 1.0) \times 10^{-6}$
804-115	I0531	$(2.1 \pm 0.3) \times 10^{-5}$	$(1.4 \pm 0.3) \times 10^{-5}$
804-116	I0532	$< 1.2 \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
804-117	I0533	$(1.5 \pm 0.3) \times 10^{-5}$	$(9.1 \pm 2.0) \times 10^{-6}$
804-118	I0534	$(4.7 \pm 1.5) \times 10^{-6}$	$(2.5 \pm 1.1) \times 10^{-6}$
804-119	I0535	$(3.1 \pm 0.4) \times 10^{-5}$	$(1.9 \pm 0.3) \times 10^{-5}$
804-120	I0536	$(4.3 \pm 1.5) \times 10^{-6}$	$(2.2 \pm 1.0) \times 10^{-6}$
804-121	I0537	$(8.5 \pm 2.0) \times 10^{-6}$	$(6.1 \pm 1.7) \times 10^{-6}$
804-122	I0538	$(3.6 \pm 1.4) \times 10^{-6}$	$(1.6 \pm 0.9) \times 10^{-6}$
804-123	I0539	$(2.2 \pm 0.3) \times 10^{-5}$	$(7.8 \pm 1.9) \times 10^{-6}$
804-124	I0540	$(7.6 \pm 1.8) \times 10^{-6}$	$(3.0 \pm 1.2) \times 10^{-6}$
804-125	I0541	$(2.9 \pm 0.3) \times 10^{-5}$	$(1.6 \pm 0.3) \times 10^{-5}$
804-126	I0542	$(2.4 \pm 1.2) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$

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Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviations	
		Gross Beta	Gross Alpha
804-127	I0543	$(1.3 \pm 0.2) \times 10^{-5}$	$(7.8 \pm 1.9) \times 10^{-6}$
804-128	I0544	$(2.8 \pm 1.3) \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
804-129	I0545	$(1.9 \pm 0.3) \times 10^{-5}$	$(1.3 \pm 0.2) \times 10^{-5}$
804-130	I0546	$(3.2 \pm 1.3) \times 10^{-6}$	$(1.4 \pm 0.9) \times 10^{-6}$
804-131	I0547	$(3.2 \pm 0.4) \times 10^{-5}$	$(1.9 \pm 0.3) \times 10^{-5}$
804-132	I0548	$(2.5 \pm 1.2) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
804-133	I0549	$(3.6 \pm 0.4) \times 10^{-5}$	$(1.7 \pm 0.3) \times 10^{-5}$
804-134	I0550	$(3.0 \pm 0.4) \times 10^{-5}$	$(1.9 \pm 0.3) \times 10^{-5}$
804-135	I0551	$(3.3 \pm 0.4) \times 10^{-5}$	$(2.1 \pm 0.3) \times 10^{-5}$
804-136	I0552	$(2.4 \pm 1.2) \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
804-137	I0553	$(1.8 \pm 0.3) \times 10^{-5}$	$(1.2 \pm 0.2) \times 10^{-5}$
804-138	I0554	$(4.5 \pm 1.5) \times 10^{-6}$	$(2.1 \pm 1.0) \times 10^{-6}$
804-139	I0555	$(2.9 \pm 0.3) \times 10^{-5}$	$(1.2 \pm 0.2) \times 10^{-5}$
804-140	I0556	$(1.8 \pm 0.3) \times 10^{-5}$	$(1.4 \pm 0.3) \times 10^{-5}$
804-141	I0557	$(1.8 \pm 1.1) \times 10^{-6}$	$(6.5 \pm 6.3) \times 10^{-7}$
804-142	I0558	$(1.4 \pm 0.3) \times 10^{-5}$	$(1.1 \pm 0.2) \times 10^{-5}$
804-143	I0559	$(2.7 \pm 1.2) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
804-144	I0560	$(2.6 \pm 0.3) \times 10^{-5}$	$(1.2 \pm 0.2) \times 10^{-5}$
804-145	I0561	$< 1.2 \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
804-146	I0562	$(2.4 \pm 0.3) \times 10^{-5}$	$(1.7 \pm 0.3) \times 10^{-5}$
804-147	I0563	$(6.3 \pm 1.7) \times 10^{-6}$	$(2.0 \pm 0.1) \times 10^{-6}$
804-148	I0564	$(1.5 \pm 1.0) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
805-1	I0565	$(3.7 \pm 1.4) \times 10^{-6}$	$(2.3 \pm 1.1) \times 10^{-6}$
805-2	I0566	$(5.2 \pm 1.6) \times 10^{-6}$	$(3.6 \pm 1.3) \times 10^{-6}$
805-3	I0567	$(6.8 \pm 1.8) \times 10^{-6}$	$(3.9 \pm 1.3) \times 10^{-6}$
805-4	I0568	$(2.1 \pm 1.1) \times 10^{-6}$	$(7.6 \pm 6.7) \times 10^{-7}$

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Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviation: Gross Beta	Gross Alpha
805-5	I0569	$(1.7 \pm 1.1) \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$
805-6	I0570	$(1.9 \pm 1.1) \times 10^{-6}$	$(1.7 \pm 0.9) \times 10^{-6}$
805-7	I0571	$(3.5 \pm 1.4) \times 10^{-6}$	$(1.7 \pm 0.9) \times 10^{-6}$
805-8	I0572	$(3.7 \pm 1.4) \times 10^{-6}$	$(1.9 \pm 1.0) \times 10^{-6}$
805-9	I0573	$(3.1 \pm 1.3) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
805-10	I0574	$(1.6 \pm 1.1) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
805-11	I0575	$(6.6 \pm 1.8) \times 10^{-6}$	$(3.2 \pm 1.2) \times 10^{-6}$
805-12	I0576	$(2.5 \pm 1.2) \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
805-13	I0577	$(3.0 \pm 1.3) \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$
805-14	I0578	$(1.2 \pm 1.0) \times 10^{-6}$	$(2.1 \pm 1.0) \times 10^{-6}$
805-15	I0579	$(1.7 \pm 1.1) \times 10^{-6}$	$(1.4 \pm 0.9) \times 10^{-6}$
805-16	I0580	$(7.2 \pm 1.8) \times 10^{-6}$	$(2.2 \pm 1.0) \times 10^{-6}$
805-17	I0581	$(4.7 \pm 1.5) \times 10^{-6}$	$(2.2 \pm 1.0) \times 10^{-6}$
805-18	I0582	$(2.9 \pm 1.3) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
805-19	I0583	$(1.6 \pm 1.1) \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$
805-20	I0584	$(3.0 \pm 1.3) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
805-21	I0585	$< 1.2 \times 10^{-6}$	$(6.5 \pm 6.3) \times 10^{-7}$
805-22	I0586	$(1.3 \pm 1.0) \times 10^{-6}$	$(7.6 \pm 6.7) \times 10^{-7}$
805-144	I0587	$(1.2 \pm 1.0) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
805-150	I0588	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
805-151	I0589	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
805-152	I0590	$< 1.2 \times 10^{-6}$	$(6.5 \pm 6.3) \times 10^{-7}$
806-1	I0591	$(5.2 \pm 1.6) \times 10^{-6}$	$(2.1 \pm 1.0) \times 10^{-6}$
806-2	I0592	$(9.1 \pm 2.0) \times 10^{-6}$	$(4.9 \pm 1.5) \times 10^{-6}$
806-3	I0593	$(3.0 \pm 0.4) \times 10^{-5}$	$(1.4 \pm 0.3) \times 10^{-5}$
806-4	I0594	$(6.1 \pm 1.7) \times 10^{-6}$	$(2.5 \pm 1.1) \times 10^{-6}$

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Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviation Gross Beta	Gross Alpha
806-5	I0595	$(2.9 \pm 1.3) \times 10^{-6}$	$(8.8 \pm 7.0) \times 10^{-7}$
806-6	I0596	$(6.0 \pm 1.7) \times 10^{-6}$	$(2.9 \pm 1.2) \times 10^{-6}$
806-7	I0597	$(7.7 \pm 1.9) \times 10^{-6}$	$(4.5 \pm 1.4) \times 10^{-6}$
806-8	I0598	$(3.5 \pm 1.4) \times 10^{-6}$	$(9.9 \pm 7.4) \times 10^{-7}$
806-9	I0599	$(2.5 \pm 1.2) \times 10^{-6}$	$(9.9 \pm 7.4) \times 10^{-7}$
806-10	I0600	$(1.3 \pm 1.0) \times 10^{-6}$	$(1.4 \pm 0.9) \times 10^{-6}$
806-11	I0601	$(2.1 \pm 1.2) \times 10^{-6}$	$(1.8 \pm 0.9) \times 10^{-6}$
806-12	I0602	$(1.9 \pm 1.1) \times 10^{-6}$	$(6.5 \pm 6.3) \times 10^{-7}$
806-13	I0603	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
806-14	I0604	$(1.6 \pm 1.1) \times 10^{-6}$	$(1.4 \pm 0.9) \times 10^{-6}$
806-15	I0605	$(3.1 \pm 1.3) \times 10^{-6}$	$(3.0 \pm 1.2) \times 10^{-6}$
806-16	I0606	$(3.1 \pm 1.3) \times 10^{-6}$	$(1.6 \pm 0.9) \times 10^{-6}$
806-17	I0607	$(1.8 \pm 1.1) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
806-18	I0608	$(4.5 \pm 1.5) \times 10^{-6}$	$(2.5 \pm 1.1) \times 10^{-6}$
806-19	I0609	$(3.2 \pm 1.3) \times 10^{-6}$	$(2.0 \pm 1.0) \times 10^{-6}$
806-20	I0610	$(3.9 \pm 1.4) \times 10^{-6}$	$(2.9 \pm 1.2) \times 10^{-6}$
806-21	I0611	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
806-22	I0612	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
806-23	I0613	$(1.4 \pm 1.0) \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$
806-24	I0614	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
807-1	I0615	$(1.5 \pm 1.0) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
807-2	I0616	$(4.6 \pm 1.5) \times 10^{-6}$	$(1.6 \pm 0.9) \times 10^{-6}$
807-3	I0617	$(7.7 \pm 1.9) \times 10^{-6}$	$(4.9 \pm 1.5) \times 10^{-6}$
807-4	I0618	$(1.9 \pm 1.1) \times 10^{-6}$	$(7.6 \pm 6.7) \times 10^{-7}$
807-5	I0619	no sample provided	no sample provided
807-6	I0620	$(2.8 \pm 1.3) \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$

Radn Prot Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, NY, 29-31 Jul 85

Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviations Gross Beta	Gross Alpha
807-7	I0621	$(2.0 \pm 1.1) \times 10^{-6}$	$(8.8 \pm 7.0) \times 10^{-7}$
807-8	I0622	no sample provided	no sample provided
807-9	I0623	$(1.4 \pm 1.0) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
807-10	I0624	$(2.2 \pm 1.2) \times 10^{-6}$	$(8.8 \pm 7.0) \times 10^{-7}$
807-11	I0625	$(3.7 \pm 1.4) \times 10^{-6}$	$(8.8 \pm 7.0) \times 10^{-7}$
807-12	I0626	$(1.9 \pm 1.1) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
807-13	I0627	no sample provided	no sample provided
807-14	I0628	$(1.8 \pm 1.1) \times 10^{-6}$	$(6.5 \pm 6.3) \times 10^{-7}$
807-15	I0629	$(2.0 \pm 1.1) \times 10^{-6}$	$(7.6 \pm 6.7) \times 10^{-7}$
807-16	I0630	no sample provided	no sample provided
807-17	I0631	$(2.2 \pm 1.2) \times 10^{-6}$	$(7.6 \pm 6.7) \times 10^{-7}$
807-18	I0632	$< 1.2 \times 10^{-6}$	$(8.8 \pm 7.0) \times 10^{-7}$
807-19	I0533	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
807-20	I0634	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
801-2	I0635	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-3	I0636	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-6	I0637	$(1.3 \pm 1.0) \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-7	I0638	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-10	I0639	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-11	I0640	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-14	I0641	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-15	I0642	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-19	I0643	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-20	I0644	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-21	I0645	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-24	I0646	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$

Radn Prot Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, NY, 29-31 Jul 85

Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviations	
		Gross Beta	Gross Alpha
801-25	I0647	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-28	I0648	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-29	I0649	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-32	I0650	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-33	I0651	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-1	I0652	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-2	I0653	$< 1.3 \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$
808-3	I0654	$(7.8 \pm 1.9) \times 10^{-6}$	$(4.4 \pm 1.4) \times 10^{-6}$
808-4	I0655	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-5	I0656	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-6	I0657	$< 1.3 \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$
808-7	I0658	$< 1.3 \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$
808-8	I0659	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-9	I0660	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-10	I0661	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-11	I0662	$(1.7 \pm 1.2) \times 10^{-6}$	$(2.2 \pm 1.0) \times 10^{-6}$
808-12	I0663	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-13	I0664	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-14	I0665	$< 1.3 \times 10^{-6}$	$(7.2 \pm 6.8) \times 10^{-7}$
808-15	I0666	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-16	I0667	$(1.6 \pm 1.1) \times 10^{-6}$	$(7.2 \pm 6.8) \times 10^{-7}$
808-17	I0668	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-18	I0669	$(1.3 \pm 1.0) \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-19	I0670	$< 1.3 \times 10^{-6}$	$(7.2 \pm 6.8) \times 10^{-7}$
808-20	I0671	$< 1.3 \times 10^{-6}$	$(7.2 \pm 6.8) \times 10^{-7}$
809-01	I0672	$(1.4 \pm 1.1) \times 10^{-6}$	$< 6.6 \times 10^{-7}$

Radn Prot Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, NY, 29-31 Jul 85

Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviations Gross Beta	Gross Alpha
809-2	I0673	$(1.4 \pm 1.1) \times 10^{-6}$	$(1.8 \pm 1.0) \times 10^{-6}$
809-3	I0674	$(4.7 \pm 1.6) \times 10^{-6}$	$(4.2 \pm 1.4) \times 10^{-6}$
809-4	I0675	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
809-5	I0676	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$ 7
809-6	I0677	$< 1.3 \times 10^{-6}$	$(9.4 \pm 7.5) \times 10^{-7}$
809-7	I0678	$(1.6 \pm 1.2) \times 10^{-6}$	$(2.5 \pm 1.1) \times 10^{-6}$
809-8	I0679	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
809-9	I0680	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
809-10	I0681	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
809-11	I0682	$< 1.3 \times 10^{-6}$	$(8.3 \pm 7.2) \times 10^{-7}$
809-12	I0683	$< 1.3 \times 10^{-6}$	$(7.2 \pm 6.8) \times 10^{-7}$
809-13	I0684	$< 1.3 \times 10^{-6}$	$(8.3 \pm 7.2) \times 10^{-7}$
809-14	I0685	$< 1.3 \times 10^{-6}$	$(7.2 \pm 6.8) \times 10^{-7}$
809-15	I0686	$(2.6 \pm 1.3) \times 10^{-6}$	$(1.6 \pm 0.9) \times 10^{-6}$
809-16	I0687	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
809-17	I0688	$(1.4 \pm 1.1) \times 10^{-6}$	$(9.4 \pm 7.5) \times 10^{-7}$
809-18	I0689	$(1.6 \pm 1.1) \times 10^{-6}$	$(1.5 \pm 0.9) \times 10^{-6}$
809-19	I0690	$(2.0 \pm 1.2) \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
809-20	I0691	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-1	I0692	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-2	I0693	$(4.0 \pm 1.5) \times 10^{-6}$	$(3.2 \pm 1.2) \times 10^{-6}$
810-3	I0694	$(2.9 \pm 1.3) \times 10^{-6}$	$(1.7 \pm 0.9) \times 10^{-6}$
810-4	I0695	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-5	I0696	$< 1.3 \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
810-6	I0697	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-7	I0698	$(4.6 \pm 1.6) \times 10^{-6}$	$(4.9 \pm 1.5) \times 10^{-6}$

Radn Prot Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, NY, 29-31 Jul 85

Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviations Gross Beta	Gross Alpha
810-8	I0699	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-9	I0700	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-10	I0701	$< 1.3 \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
810-11	I0702	$(1.4 \pm 1.1) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
810-12	I0703	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-13	I0704	$(1.9 \pm 1.1) \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-14	I0705	$< 1.3 \times 10^{-6}$	$(8.3 \pm 7.2) \times 10^{-7}$
810-15	I0706	$< 1.3 \times 10^{-6}$	$(9.4 \pm 7.5) \times 10^{-7}$
810-16	I0707	$(1.4 \pm 1.1) \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-17	I0708	$(1.5 \pm 1.1) \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-18	I0709	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-19	I0710	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-20	I0711	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
811-1	I0712	$(2.4 \pm 1.3) \times 10^{-6}$	$(2.1 \pm 1.0) \times 10^{-6}$
811-2	I0713	$(6.7 \pm 1.8) \times 10^{-6}$	$(5.0 \pm 1.5) \times 10^{-6}$
811-3	I0714	$(8.3 \pm 2.0) \times 10^{-6}$	$(6.3 \pm 1.7) \times 10^{-6}$
811-4	I0715	$(2.8 \pm 1.3) \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
811-5	I0716	$(2.9 \pm 1.3) \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
811-6	I0717	$(3.1 \pm 1.3) \times 10^{-6}$	$(1.6 \pm 0.9) \times 10^{-6}$
811-7	I0718	$(2.2 \pm 1.2) \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
811-8	I0719	$(1.6 \pm 1.1) \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$
811-9	I0720	$(1.4 \pm 1.1) \times 10^{-6}$	$< 6.6 \times 10^{-7}$
811-10	I0721	$(2.6 \pm 1.2) \times 10^{-6}$	$(1.9 \pm 1.0) \times 10^{-6}$
811-11	I0722	$(2.8 \pm 1.3) \times 10^{-6}$	$(2.1 \pm 1.0) \times 10^{-6}$
811-12	I0723	$(2.1 \pm 1.2) \times 10^{-6}$	$(2.1 \pm 1.0) \times 10^{-6}$
811-13	I0724	$(2.2 \pm 1.2) \times 10^{-6}$	$(1.5 \pm 0.9) \times 10^{-6}$

Radn Prot Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, NY, 29-31 Jul 85

Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviation Gross Beta	Gross Alpha
811-14	I0725	$(1.7 \pm 1.1) \times 10^{-6}$	$(2.2 \pm 1.0) \times 10^{-6}$
811-15	I0726	$(3.1 \pm 1.3) \times 10^{-6}$	$(1.9 \pm 1.0) \times 10^{-6}$
811-16	I0727	$(2.4 \pm 1.2) \times 10^{-6}$	$(7.7 \pm 6.7) \times 10^{-7}$
811-17	I0728	$(3.3 \pm 1.3) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
811-18	I0729	$(5.0 \pm 1.6) \times 10^{-6}$	$(3.0 \pm 1.2) \times 10^{-6}$
811-19	I0730	$(1.7 \pm 1.1) \times 10^{-6}$	$(2.1 \pm 1.0) \times 10^{-6}$
811-20	I0731	$(4.0 \pm 1.5) \times 10^{-6}$	$(2.6 \pm 1.1) \times 10^{-6}$

APPENDIX E

RESULTS OF DIRECT INSTRUMENT READINGS OF SURFACE CONTAMINATION INSIDE THE BUNKERS.

Location*	Gamma	Beta	Alpha
801-A	10 µR/hr	5-10 cpm	0 cpm
801-B	10 µR/hr	10 cpm	0 cpm
801-C	10 µR/hr	5-10 cpm	0 cpm
801-D	10 µR/hr	5-10 cpm	0 cpm
801-E	10 µR/hr	5-10 cpm	0 cpm
801-F	10 µR/hr	5-10 cpm	0 cpm
801-G	10 µR/hr	5-10 cpm	0 cpm
802	10 µR/hr	5-10 cpm	0 cpm
803	10 µR/hr	5-10 cpm	0 cpm
804-A	5 µR/hr	100-200 cpm	2 cpm
804-B	7 µR/hr	100-200 cpm	3 cpm
804-C	6 µR/hr	100 cpm	0 cpm
804-D	15 µR/hr	400-500 cpm	3 cpm
804-E	9 µR/hr	75 cpm	2 cpm
804-F	9 µR/hr	20 cpm	0 cpm
805-A	11 µR/hr	50-100 cpm	0 cpm
805-B	14 µR/hr	100 cpm	0 cpm
805-C	15 µR/hr	300-400 cpm	3 cpm
805-D	11 µR/hr	50 cpm	0 cpm
806-A	10 µR/hr	10-30 cpm	100 cpm
806-B	10 µR/hr	0 cpm	50 cpm
806-C	11 µR/hr	10-20 cpm	100 cpm
806-D	11 µR/hr	0 cpm	60 cpm
806-E	12 µR/hr	30 cpm	300 cpm
807-A	11 µR/hr	0 cpm	0 cpm
807-B	11 µR/hr	50 cpm	0 cpm
807-C	10 µR/hr	25-50 cpm	0 cpm
807-D	10 µR/hr	25-50 cpm	0 cpm
808-A	10 µR/hr	20-25 cpm	0 cpm
808-B	10 µR/hr	20-25 cpm	0 cpm
808-C	11 µR/hr	200-300 cpm	2000 cpm
808-D	10 µR/hr	20-25 cpm	0 cpm
809-A	10 µR/hr	30-40 cpm	0 cpm
809-B	10 µR/hr	20-30 cpm	50 cpm
809-C	10 µR/hr	20-30 cpm	0 cpm
809-D	10 µR/hr	20-30 cpm	0 cpm
810-A	10 µR/hr	20-30 cpm	0 cpm
810-B	10 µR/hr	0 cpm	0 cpm
810-C	11 µR/hr	20-30 cpm	0 cpm
810-D	11 µR/hr	25-35 cpm	0 cpm
811-A	10 µR/hr	10-15 cpm	0 cpm
811-B	11 µR/hr	10-20 cpm	0 cpm
811-C	11 µR/hr	15 cpm	0 cpm
811-D	10 µR/hr	10-15 cpm	0 cpm
811-E	10 µR/hr	10-15 cpm	0 cpm
811-F	10 µR/hr	10-15 cpm	0 cpm

* approximately 1 meter from surface

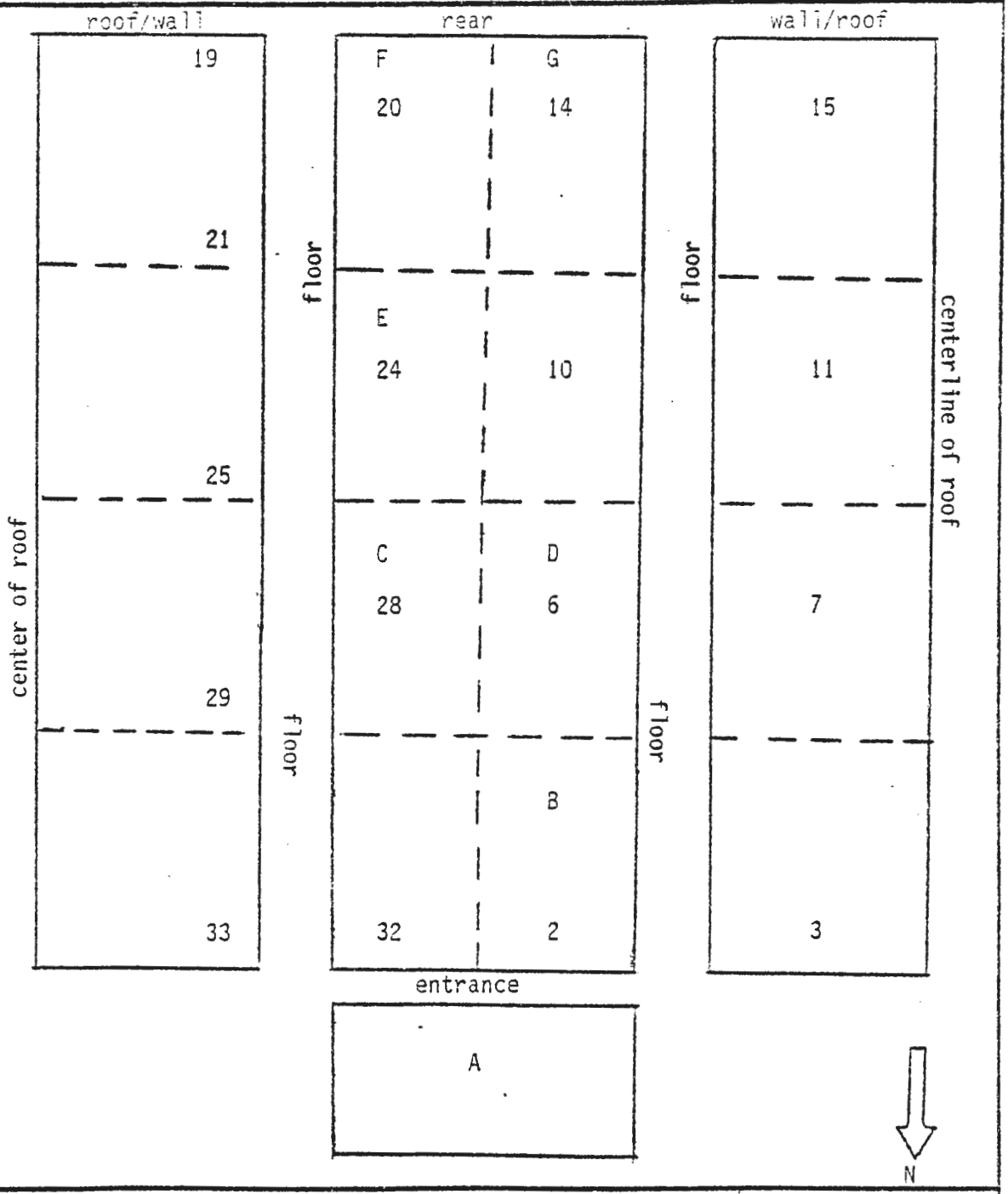
APPENDIX F

AREA DIAGRAMS OF BUNKERS (E801-E811) INDICATING THE LOCATION OF WIPE TESTS AND INSTRUMENT READINGS

BUNKER E801

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E801

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

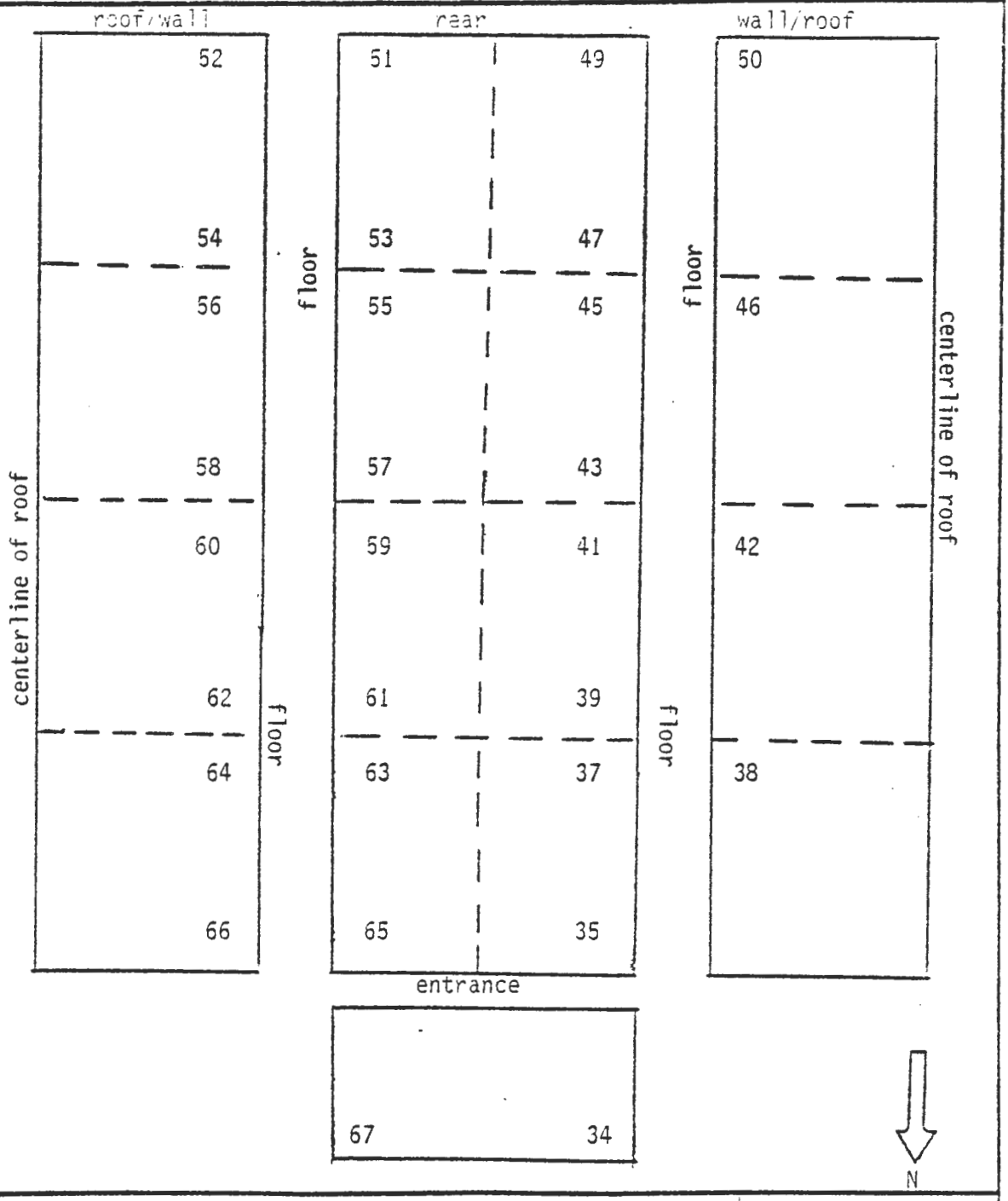
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E802

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E802

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

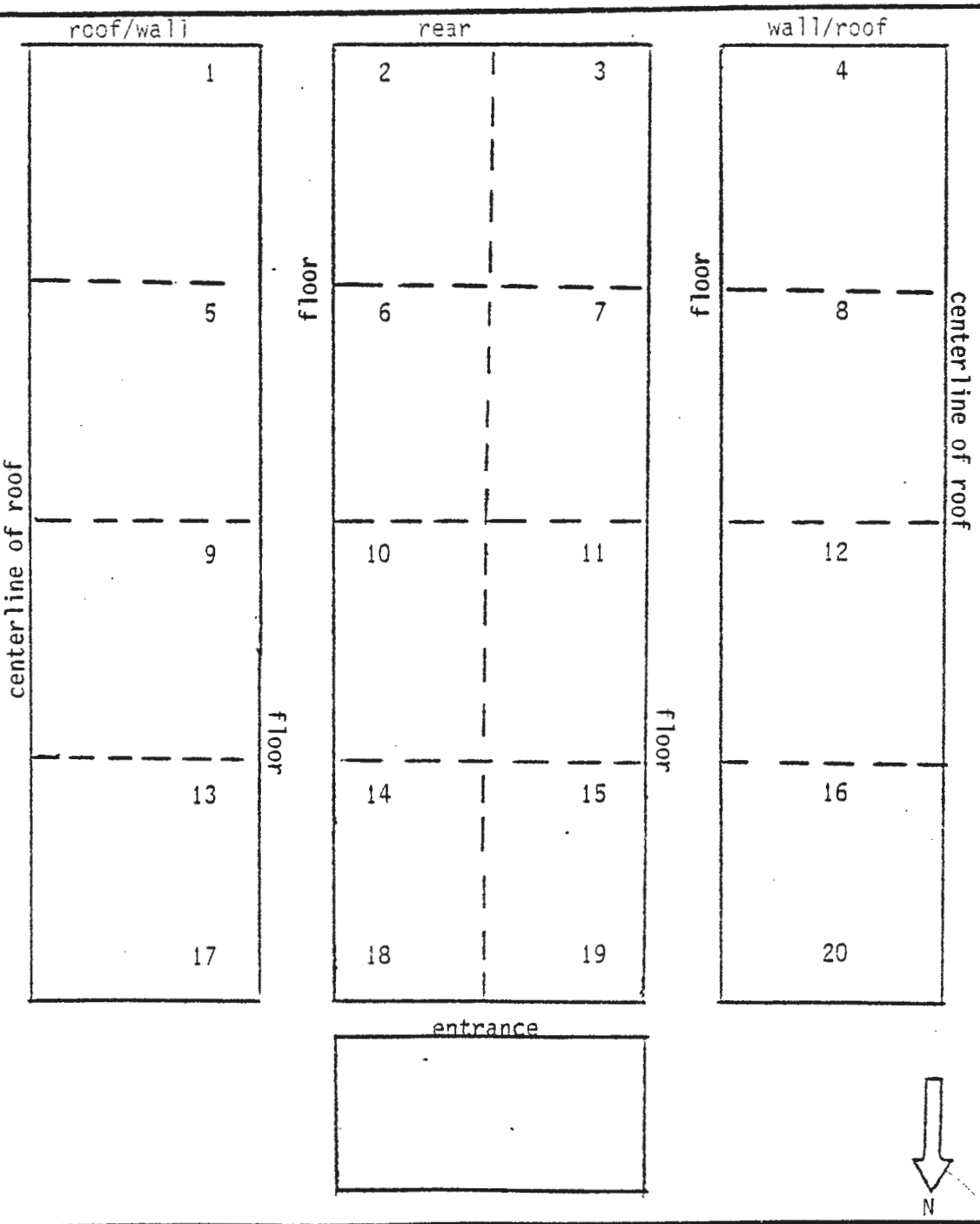
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E803

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E803

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

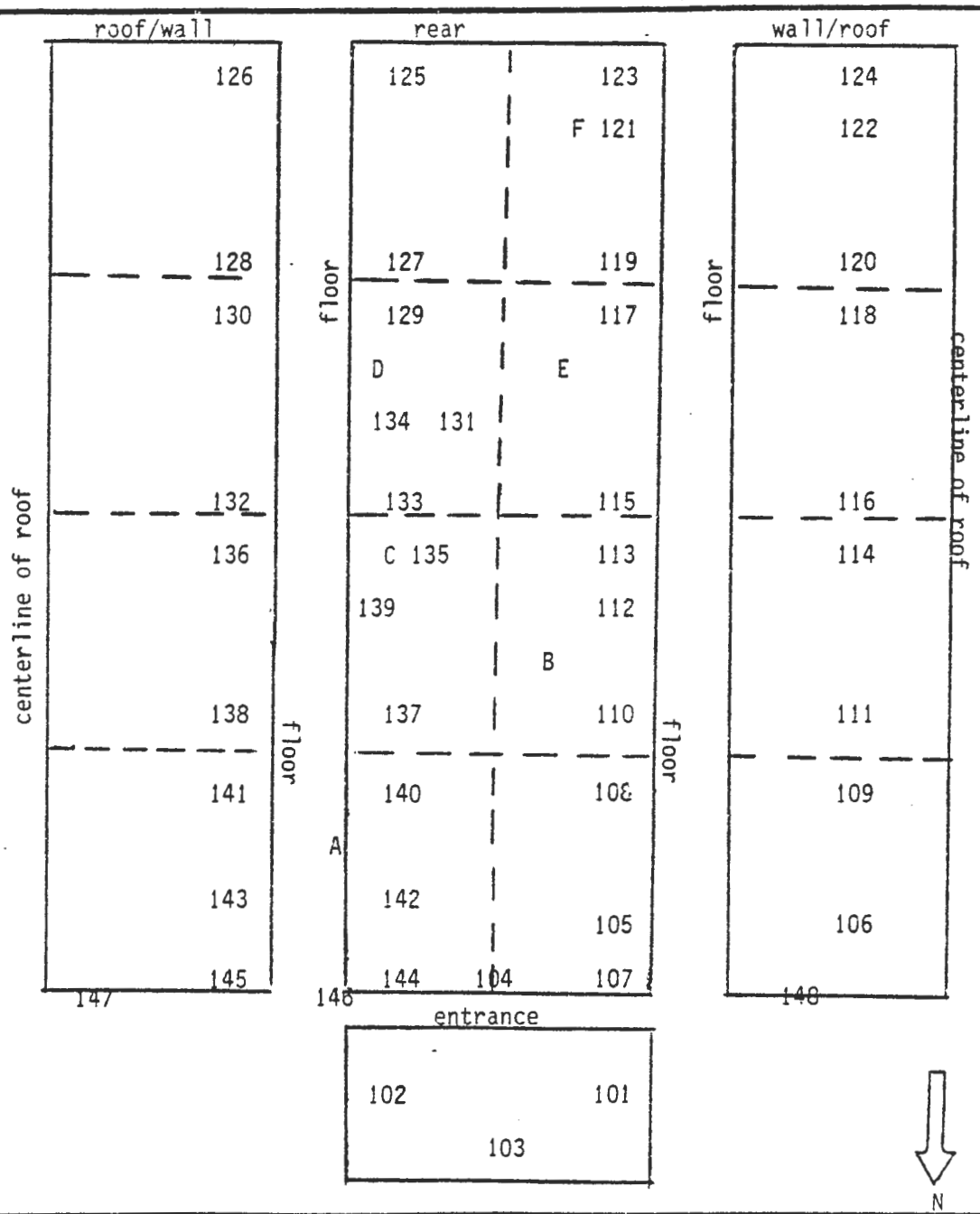
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E804

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E804	DATE 19 Aug 85
U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY	DRAWN SMA
UNITED STATES ARMY MEDICAL DEPARTMENT	APPROVED EWP
	SCALE NTS
	PLATE NA

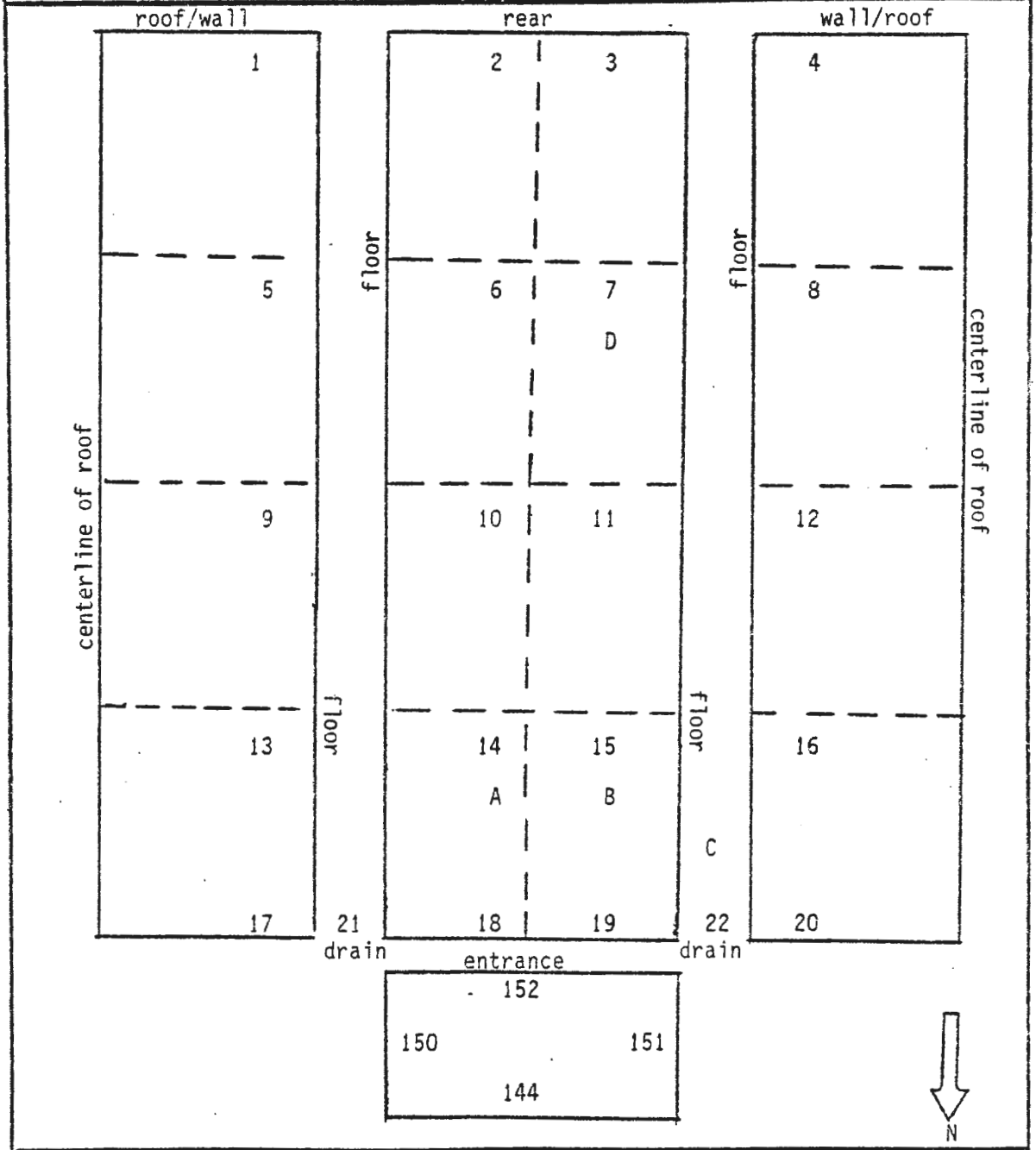
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E805

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E805

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

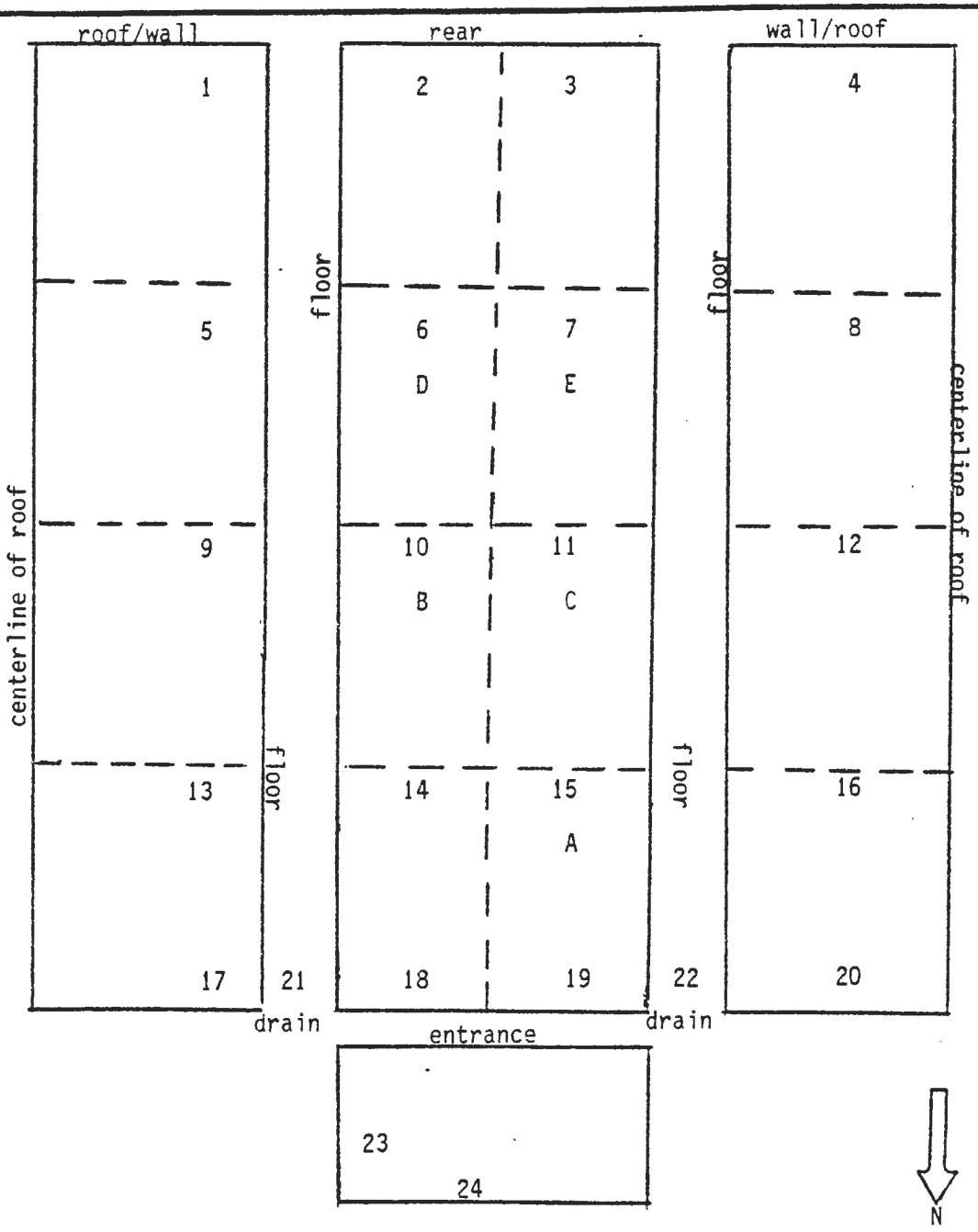
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E806

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E806

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

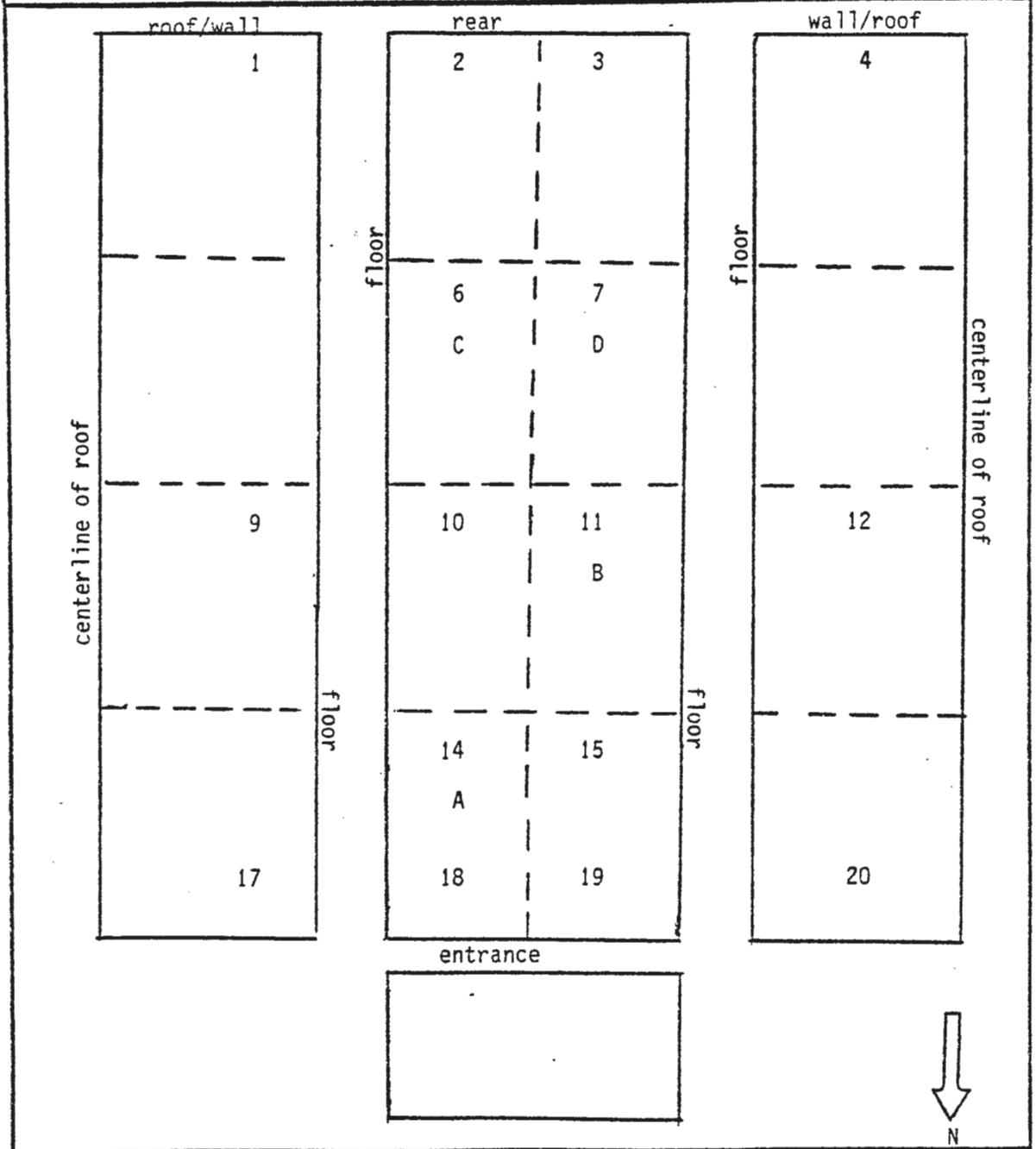
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E807

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E807

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED FWP
SCALE NTS
PLATE NA

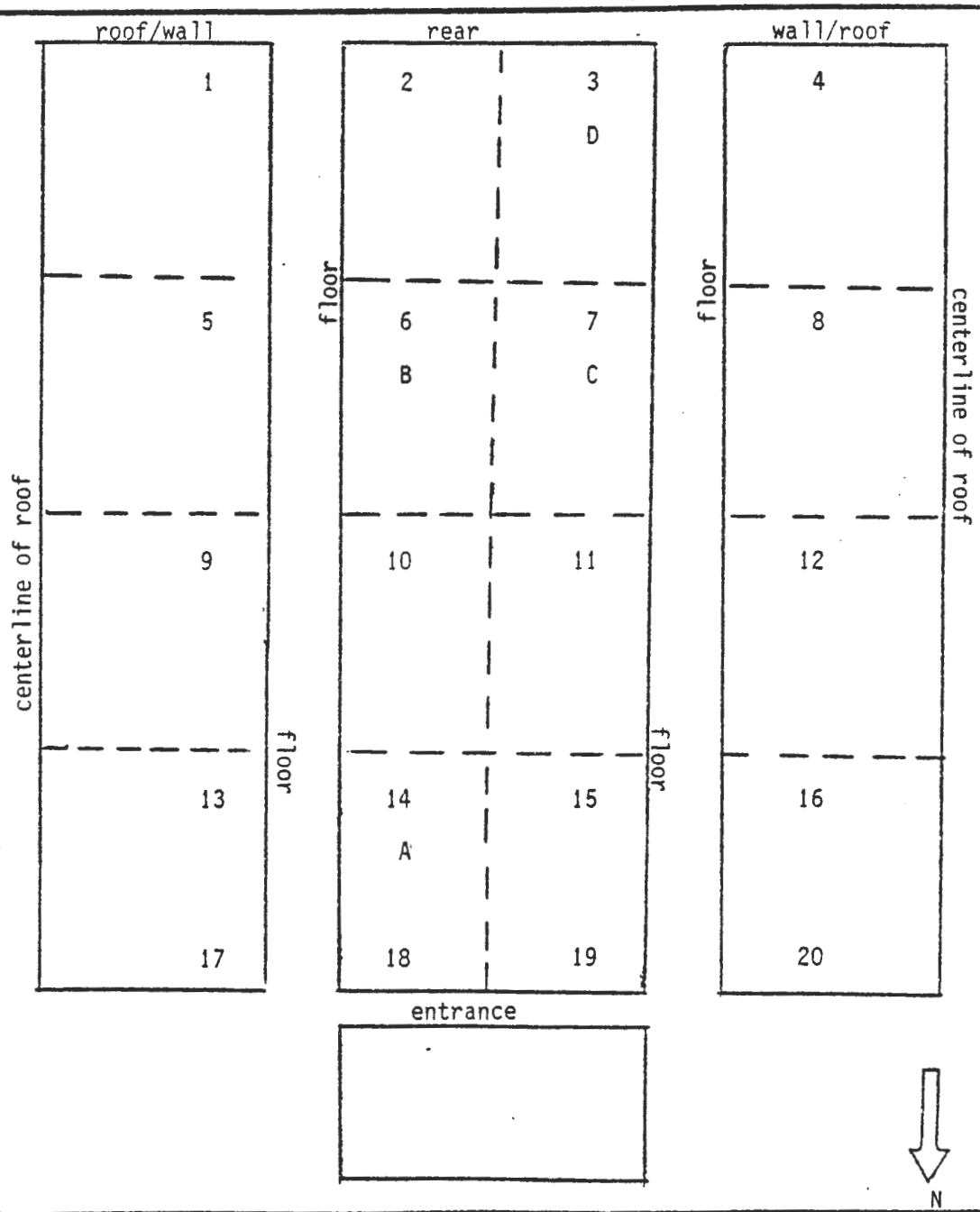
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E808

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E808

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

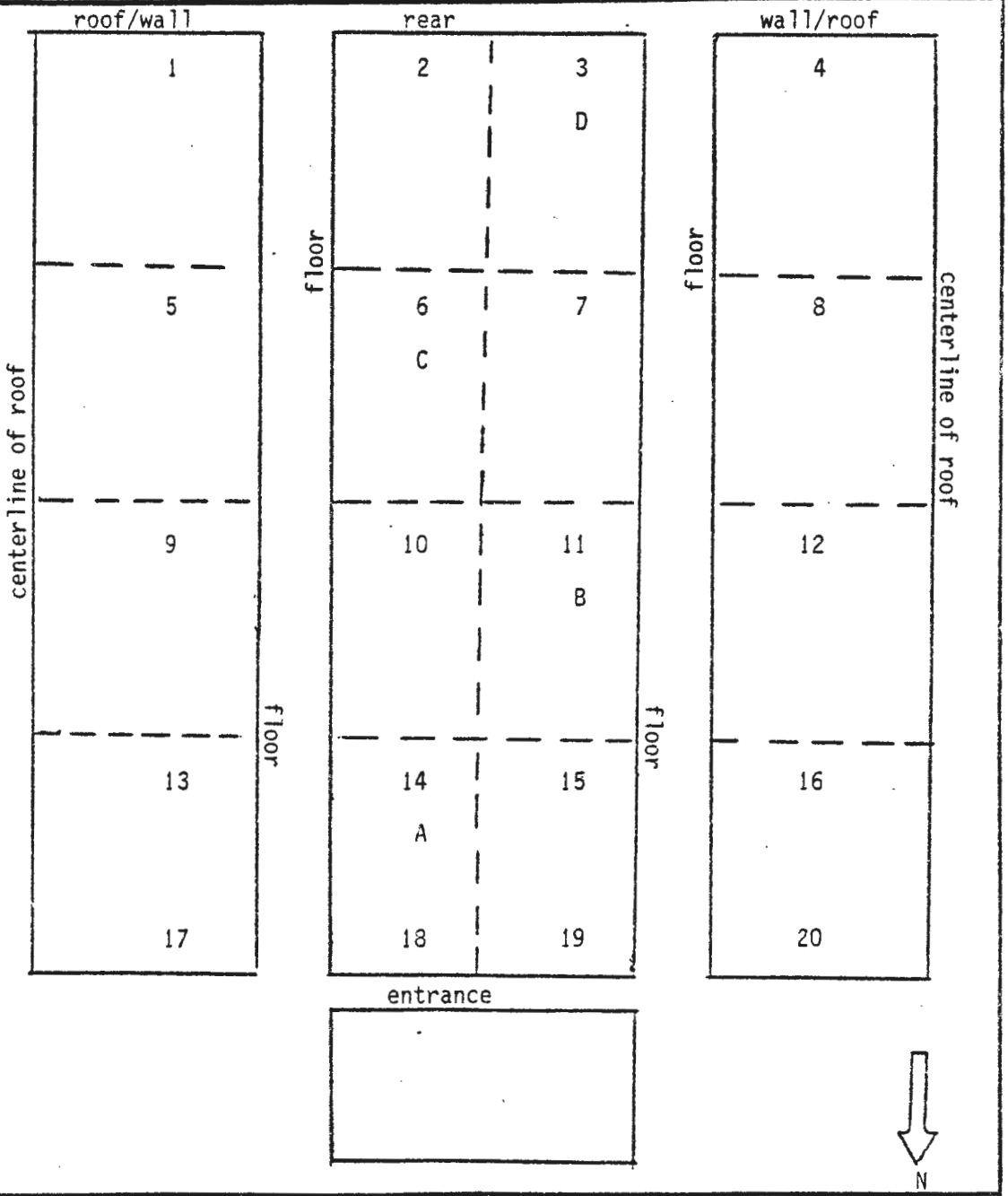
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E809

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E809

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

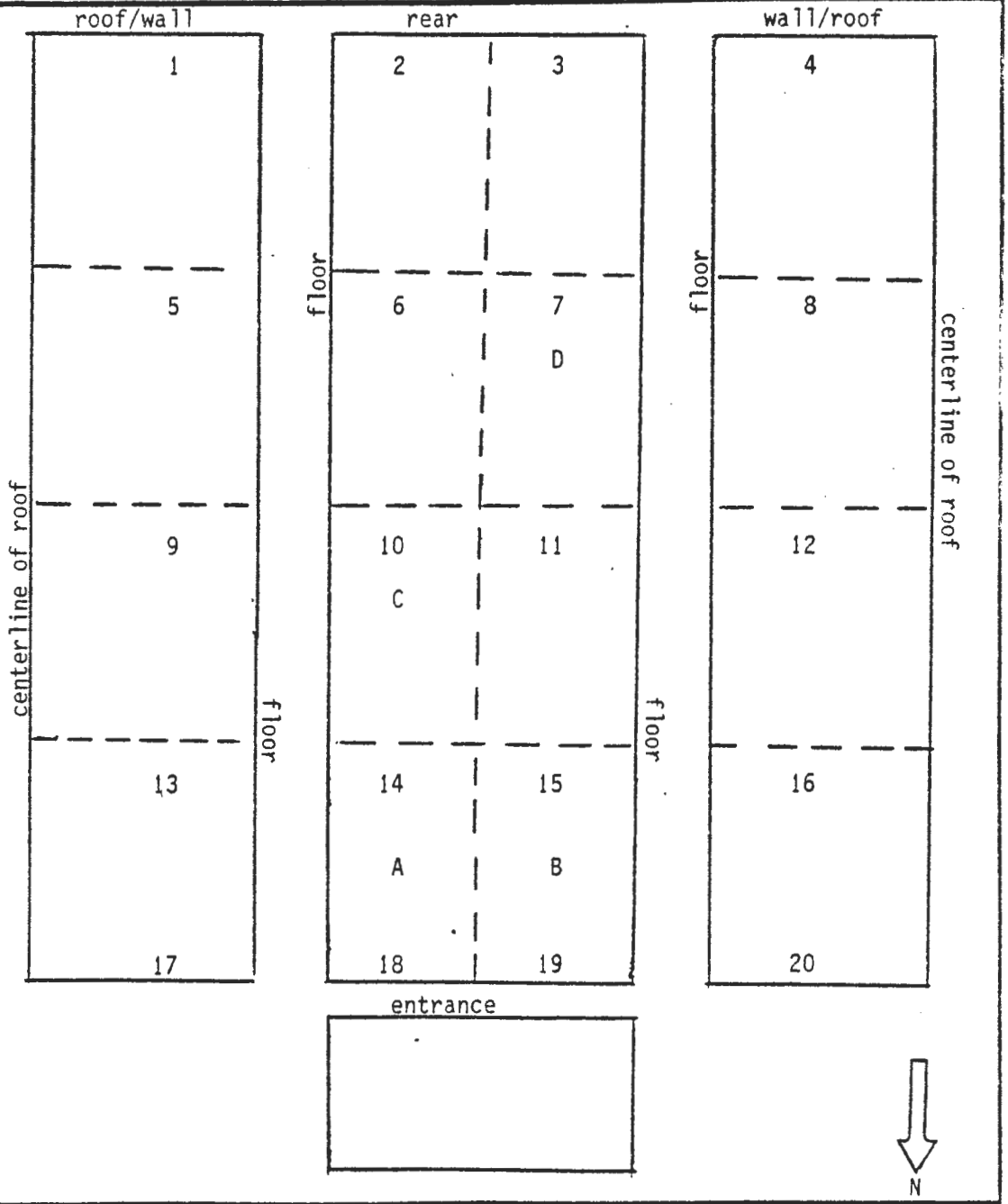
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E810

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E810

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

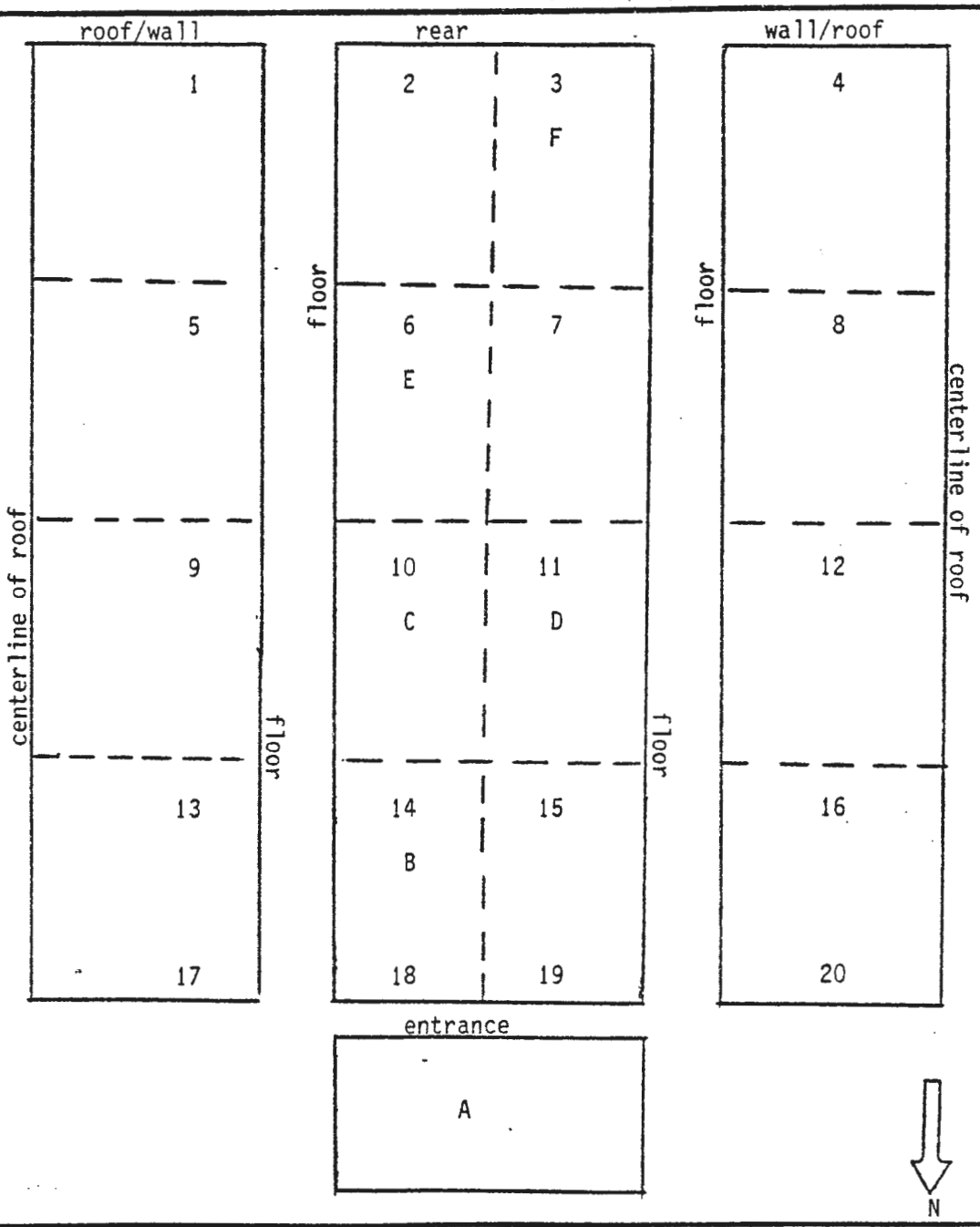
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E811

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E811

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

APPENDIX G

RESULTS OF ANALYZING SOIL SAMPLES
FOR GROSS ALPHA AND BETA ACTIVITIES

Sample Identification	AQAO Number	Microcurie Per Gram ±2 Standard Deviations Gross Alpha	Gross Beta
801-3	I0453	$(1.4 \pm 0.5) \times 10^{-5}$	$(2.8 \pm 0.4) \times 10^{-5}$
802-3	I0454	$(1.0 \pm 0.4) \times 10^{-5}$	$(1.8 \pm 0.3) \times 10^{-5}$
803-2	I0455	$(1.4 \pm 0.5) \times 10^{-5}$	$(2.5 \pm 0.4) \times 10^{-5}$
804-2	I0456	$(4.7 \pm 0.8) \times 10^{-5}$	$(4.3 \pm 0.5) \times 10^{-5}$
804-3	I0457	$(2.0 \pm 0.6) \times 10^{-5}$	$(3.0 \pm 0.4) \times 10^{-5}$
804-4	I0458	$(3.3 \pm 0.7) \times 10^{-5}$	$(3.7 \pm 0.4) \times 10^{-5}$
805-2	I0459	$(1.9 \pm 0.5) \times 10^{-5}$	$(2.4 \pm 0.4) \times 10^{-5}$
806-2	I0460	$(5.0 \pm 0.8) \times 10^{-5}$	$(4.0 \pm 0.5) \times 10^{-5}$
807-2	I0461	$(1.9 \pm 0.5) \times 10^{-5}$	$(3.0 \pm 0.4) \times 10^{-5}$
808-2	I0462	$(1.9 \pm 0.5) \times 10^{-5}$	$(2.8 \pm 0.4) \times 10^{-5}$
809-2	I0463	$(1.7 \pm 0.5) \times 10^{-5}$	$(2.6 \pm 0.4) \times 10^{-5}$
810-1	I0464	$(3.7 \pm 0.7) \times 10^{-5}$	$(3.4 \pm 0.4) \times 10^{-5}$
811-2	I0465	$(2.9 \pm 0.6) \times 10^{-5}$	$(3.4 \pm 0.4) \times 10^{-5}$
811-1	I0466	$(2.0 \pm 0.6) \times 10^{-5}$	$(3.2 \pm 0.4) \times 10^{-5}$

APPENDIX H

RESULTS OF ANALYZING SOIL SAMPLES FOR GAMMA ACTIVITIES

Sample Identification	Lab Number	Microcurie per Gram ±2 Standard Deviations Cesium-137	Lead-214	Bismuth-214
801-3	I0453	$(1.0 \pm 0.2) \times 10^{-6}$	$(1.6 \pm 0.3) \times 10^{-6}$	$(1.6 \pm 0.5) \times 10^{-6}$
802-3	I0454	$(1.4 \pm 0.2) \times 10^{-6}$	$(1.2 \pm 0.3) \times 10^{-6}$	$< 6 \times 10^{-7}$
803-2	I0455	$(1.1 \pm 0.2) \times 10^{-6}$	$(1.3 \pm 0.3) \times 10^{-6}$	$< 7 \times 10^{-7}$
804-2	I0456	$< 2 \times 10^{-7}$	$(5.5 \pm 0.7) \times 10^{-6}$	$(4.6 \pm 0.7) \times 10^{-6}$
804-3	I0457	$< 1 \times 10^{-7}$	$(1.8 \pm 0.3) \times 10^{-6}$	$(1.4 \pm 0.3) \times 10^{-6}$
804-4	I0458	$< 2 \times 10^{-7}$	$(4.4 \pm 0.6) \times 10^{-6}$	$(3.4 \pm 0.5) \times 10^{-6}$
805-2	I0459	$< 2 \times 10^{-7}$	$(1.7 \pm 0.3) \times 10^{-6}$	$(1.3 \pm 0.4) \times 10^{-6}$
806-2	I0460	$< 4 \times 10^{-7}$	$(6.2 \pm 0.8) \times 10^{-6}$	$(5.6 \pm 0.8) \times 10^{-6}$
807-2	I0461	$< 1 \times 10^{-7}$	$(1.9 \pm 0.3) \times 10^{-6}$	$(1.5 \pm 0.3) \times 10^{-6}$
808-2	I0462	$< 2 \times 10^{-7}$	$(2.2 \pm 0.4) \times 10^{-6}$	$(2.2 \pm 0.4) \times 10^{-6}$
809-2	I0463	$< 1 \times 10^{-7}$	$(1.2 \pm 0.4) \times 10^{-6}$	$(1.0 \pm 0.3) \times 10^{-6}$
810-1	I0464	$< 2 \times 10^{-7}$	$(3.9 \pm 0.5) \times 10^{-6}$	$(3.5 \pm 0.6) \times 10^{-6}$
811-2	I0465	$(4.4 \pm 2.1) \times 10^{-7}$	$(3.2 \pm 0.4) \times 10^{-6}$	$(2.6 \pm 0.4) \times 10^{-6}$
811-1	I0466	$< 2 \times 10^{-7}$	$(1.9 \pm 0.4) \times 10^{-6}$	$< 8 \times 10^{-7}$

APPENDIX I

RESULTS OF DIRECT INSTRUMENT READINGS OF SURFACE CONTAMINATION OUTSIDE OF BUNKERS.

Location*	Gamma	Beta	Alpha
801-A	8 µR/hr	0	0
801-B	10 µR/hr	0	0
801-C	11 µR/hr	0	0
802-A	10 µR/hr	0	0
802-B	10 µR/hr	0	0
802-C	10 µR/hr	0	0
803-A	9 µR/hr	0	0
803-B	10 µR/hr	0	0
803-C	11 µR/hr	0	0
804-A	22 µR/hr	0	0
804-B	15 µR/hr	0	0
804-C	16 µR/hr	0	0
804-D	150 µR/hr	0	0
805-A	10 µR/hr	0	0
805-B	21 µR/hr	0	0
805-C	31 µR/hr	0	0
806-A	10 µR/hr	0	0
806-B	10 µR/hr	0	0
806-C	10 µR/hr	0	0
807-A	10 µR/hr	0	0
807-B	10 µR/hr	0	0
808-A	10 µR/hr	0	0
808-B	15 µR/hr	0	0
808-C	15 µR/hr	0	0
809-A	10 µR/hr	0	0
809-B	10 µR/hr	0	0
809-C	12 µR/hr	0	0
810-A	10 µR/hr	0	0
810-B	10 µR/hr	0	0
810-C	15 µR/hr	0	0
811-A	15 µR/hr	0	0
811-B	16 µR/hr	0	0

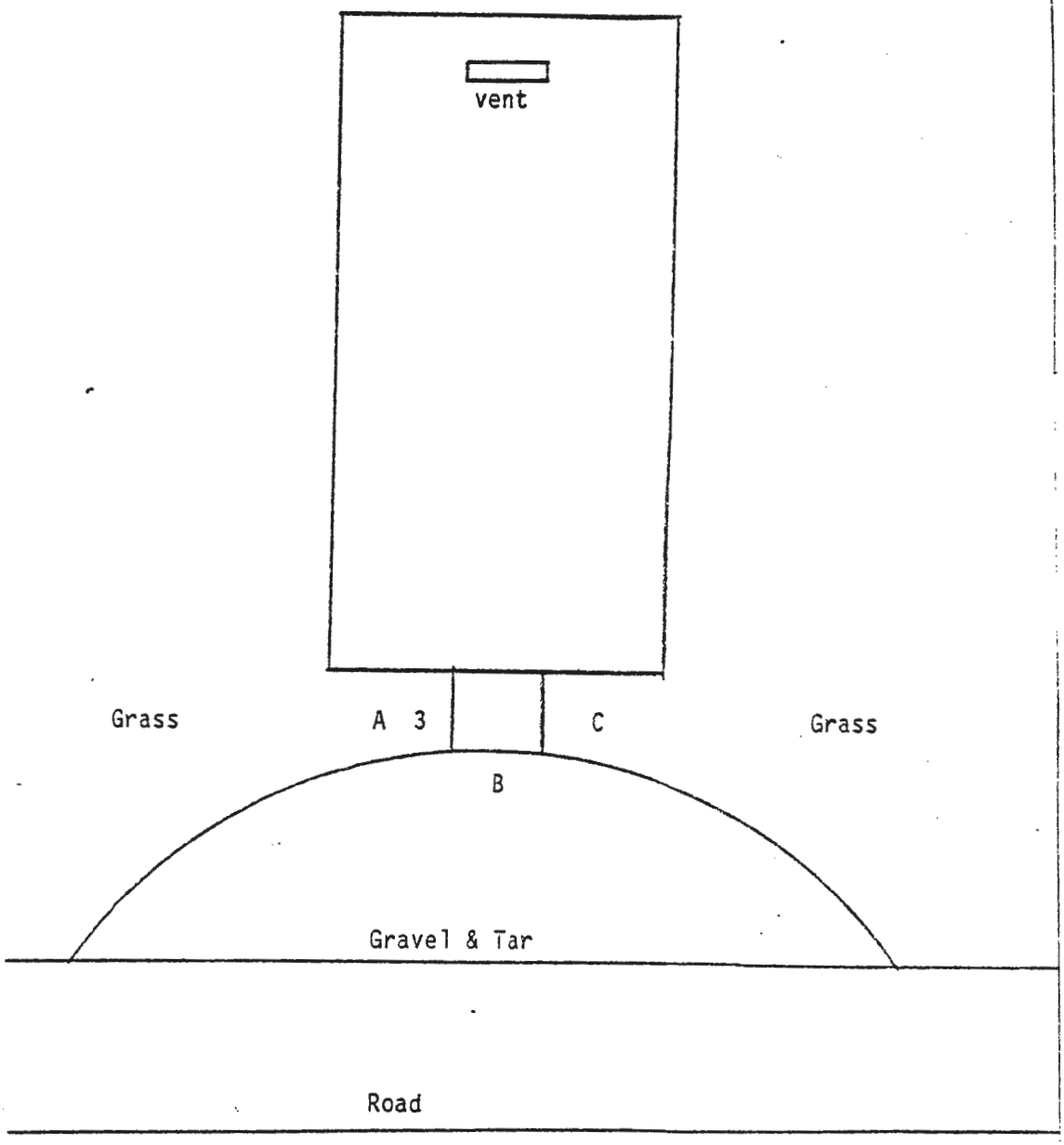
* approximately 1 meter from surface

APPENDIX J

AREA DIAGRAMS OF BUNKERS (E801-E811) INDICATING THE LOCATION OF SOIL SAMPLES AND INSTRUMENT READINGS

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E801 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

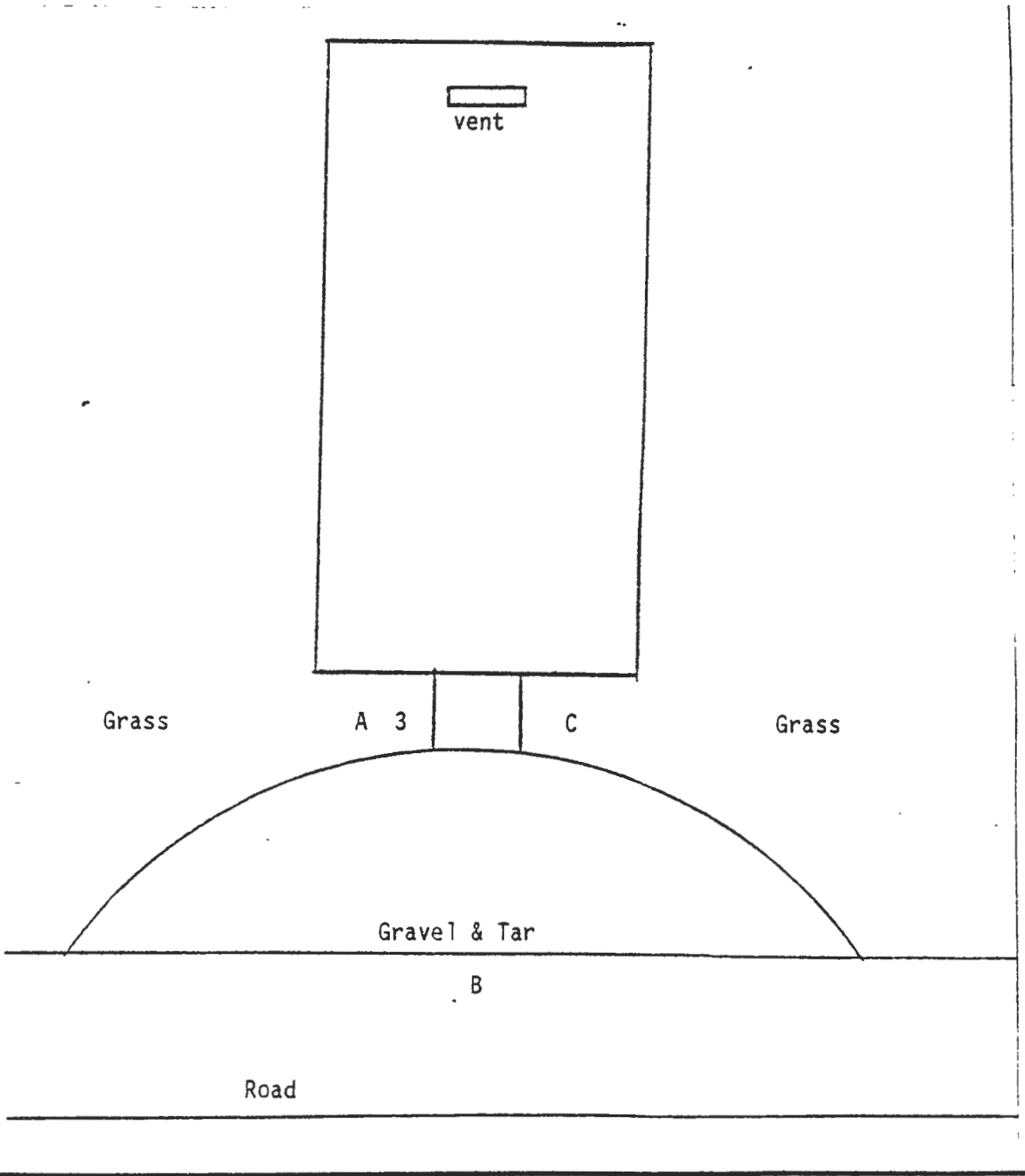
DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E802 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

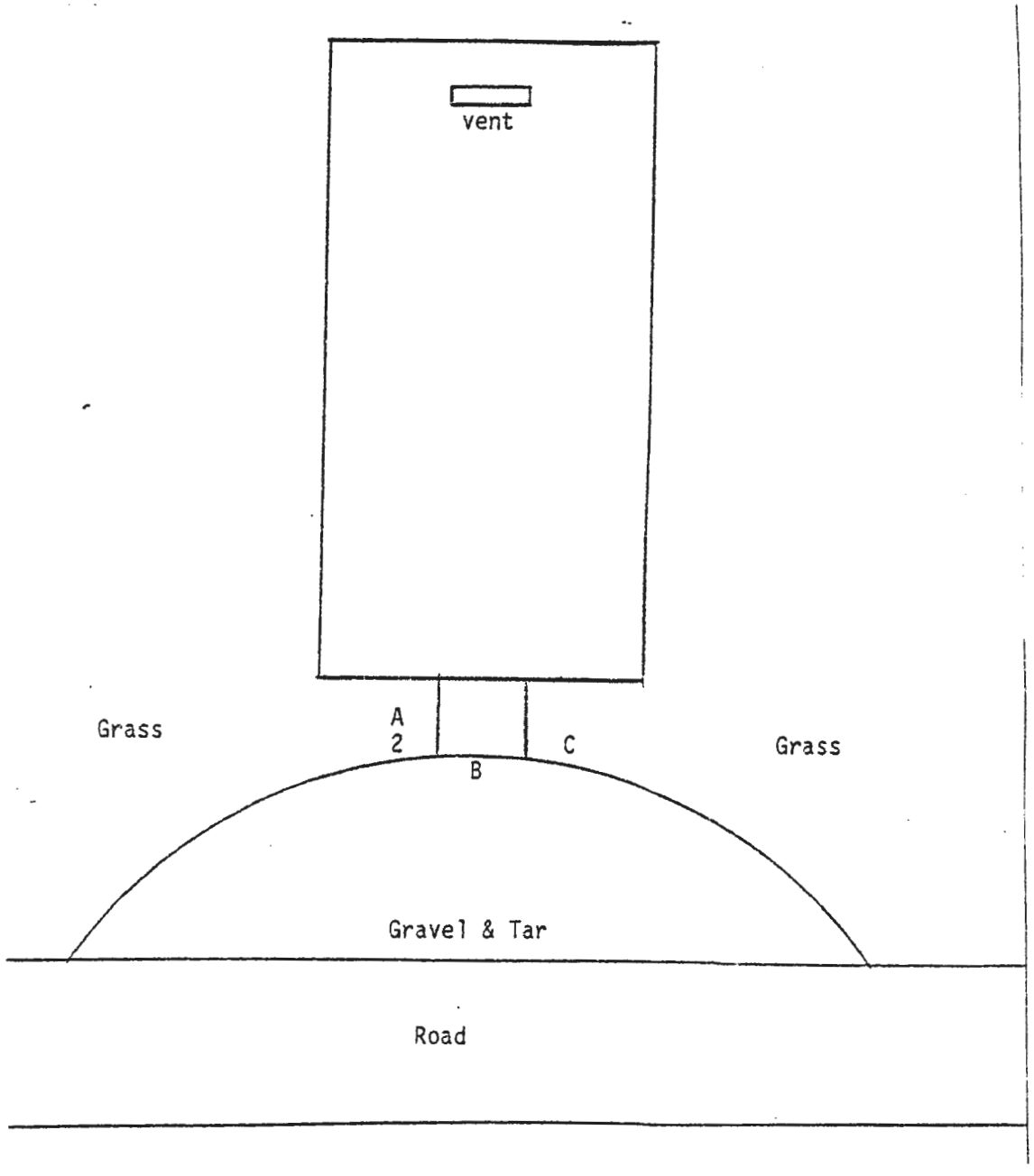
DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E803 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

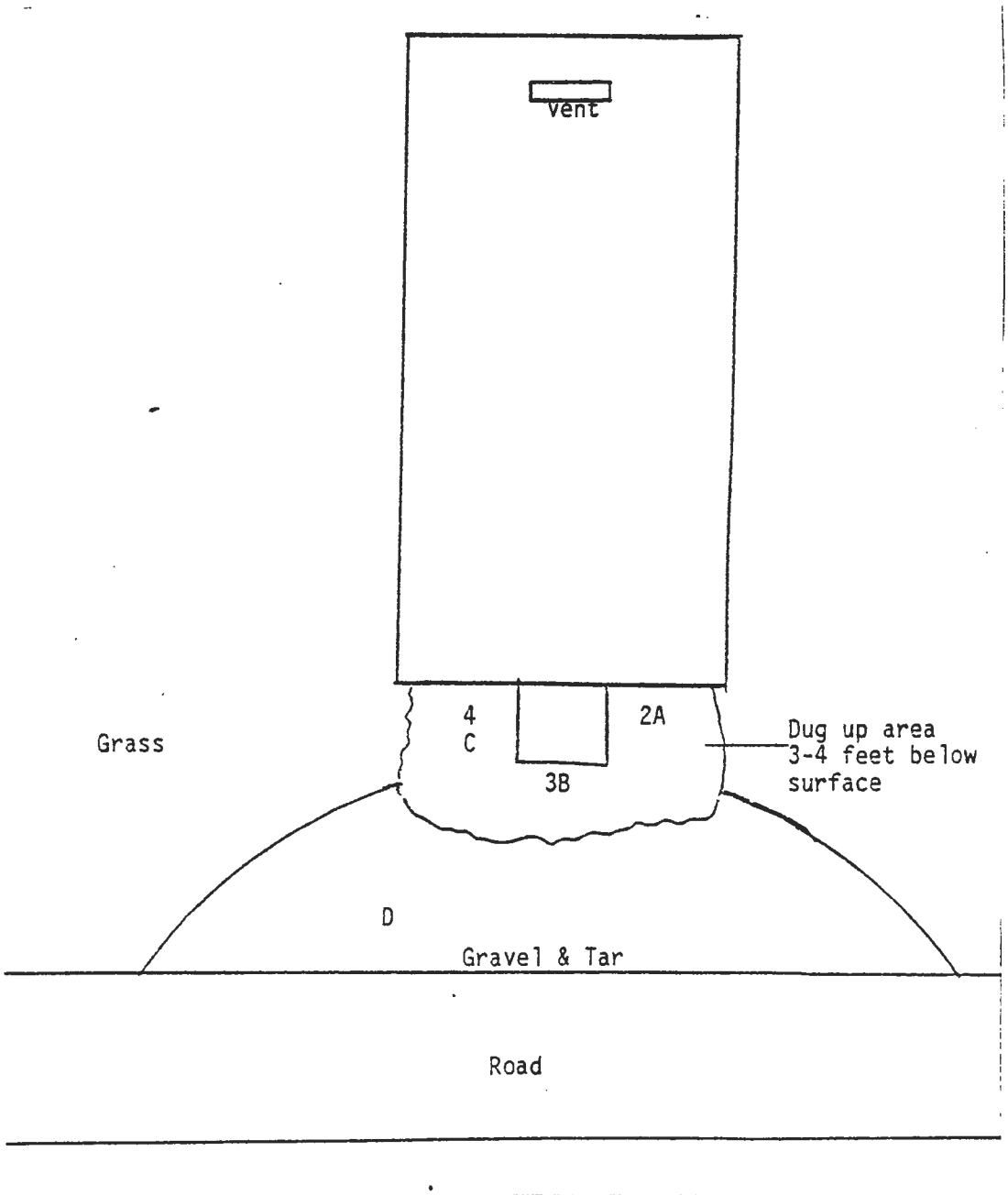
DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E804 (Plan View)

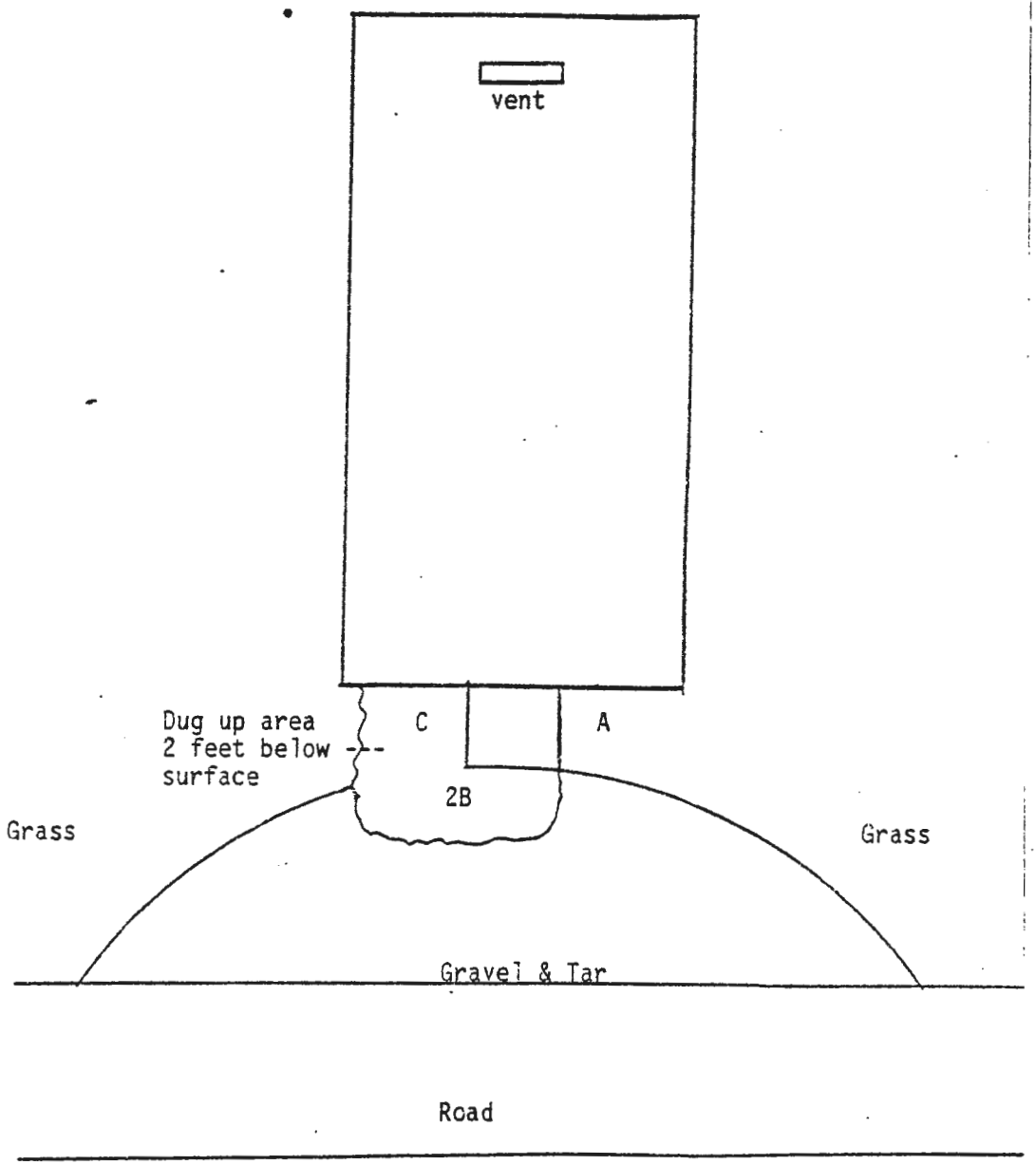
U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E805 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

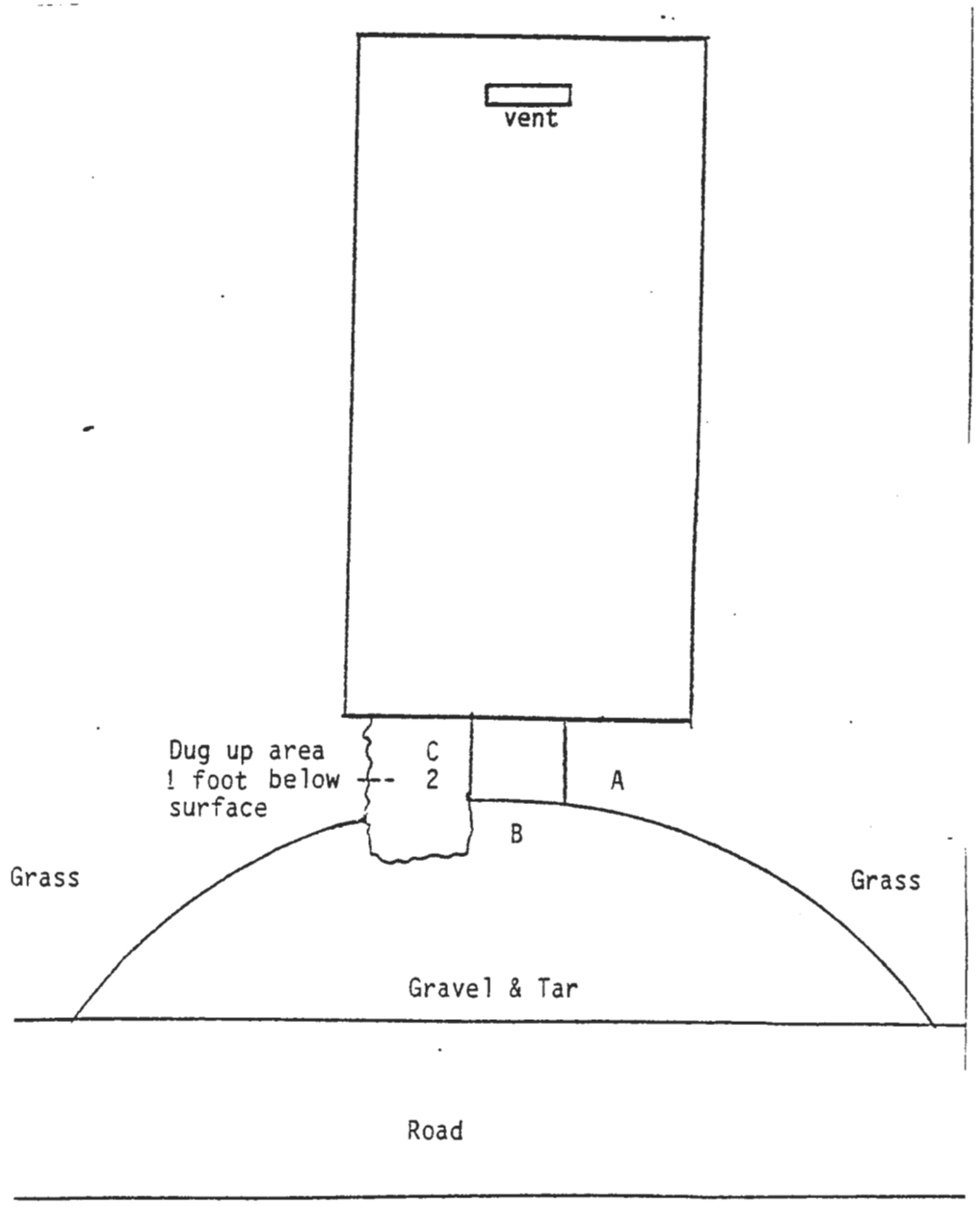
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E806 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

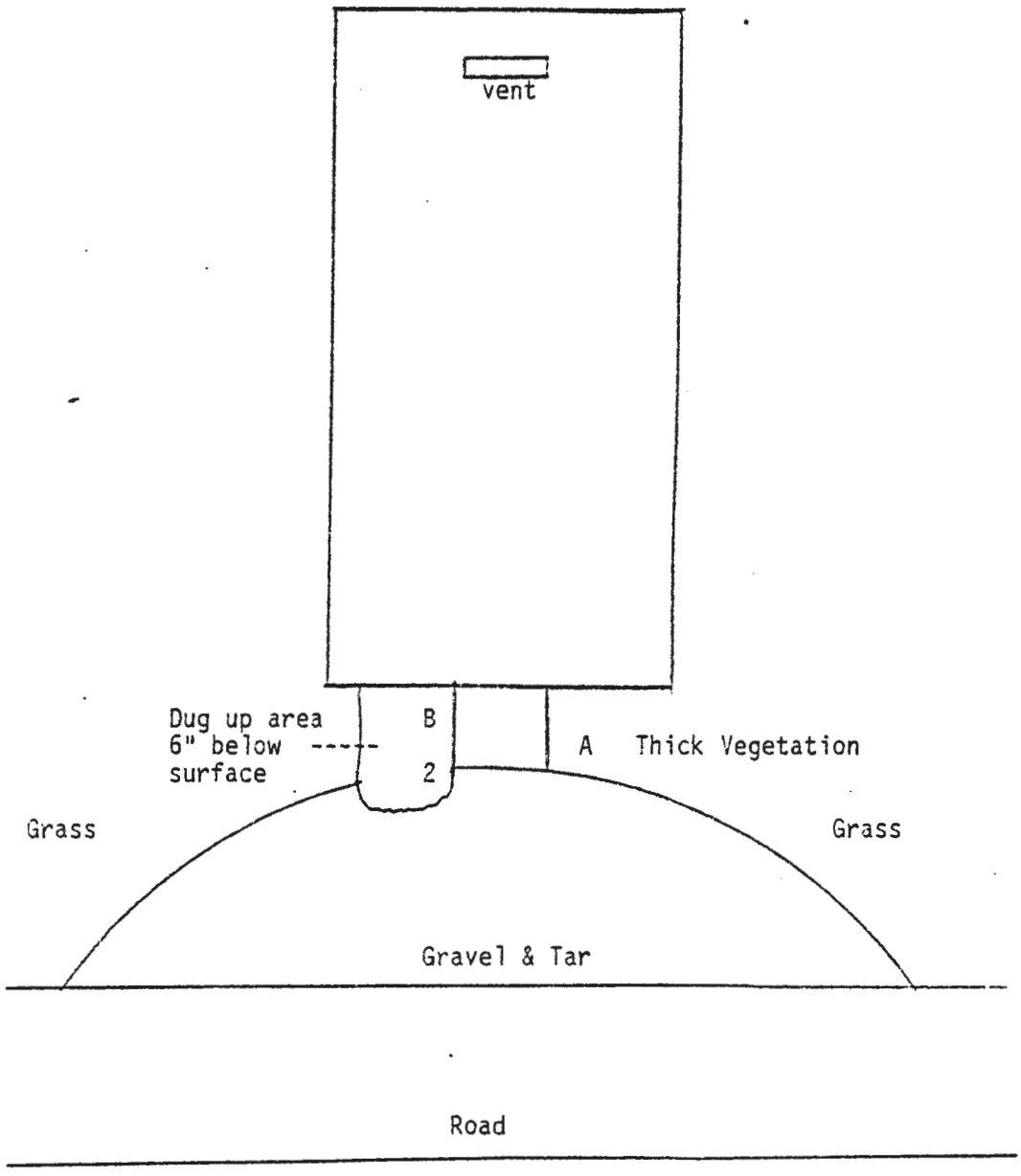
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E807

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

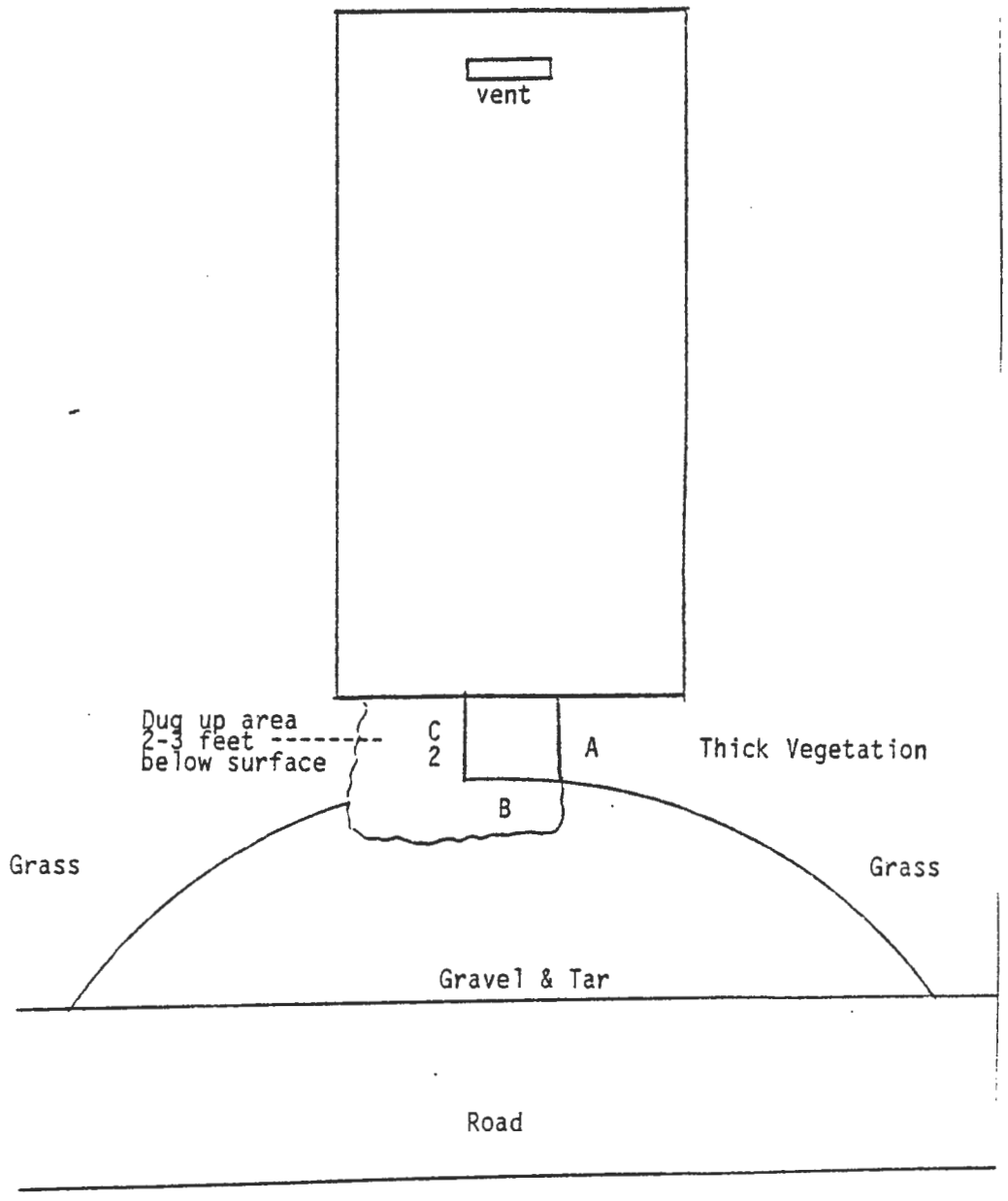
DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E808 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

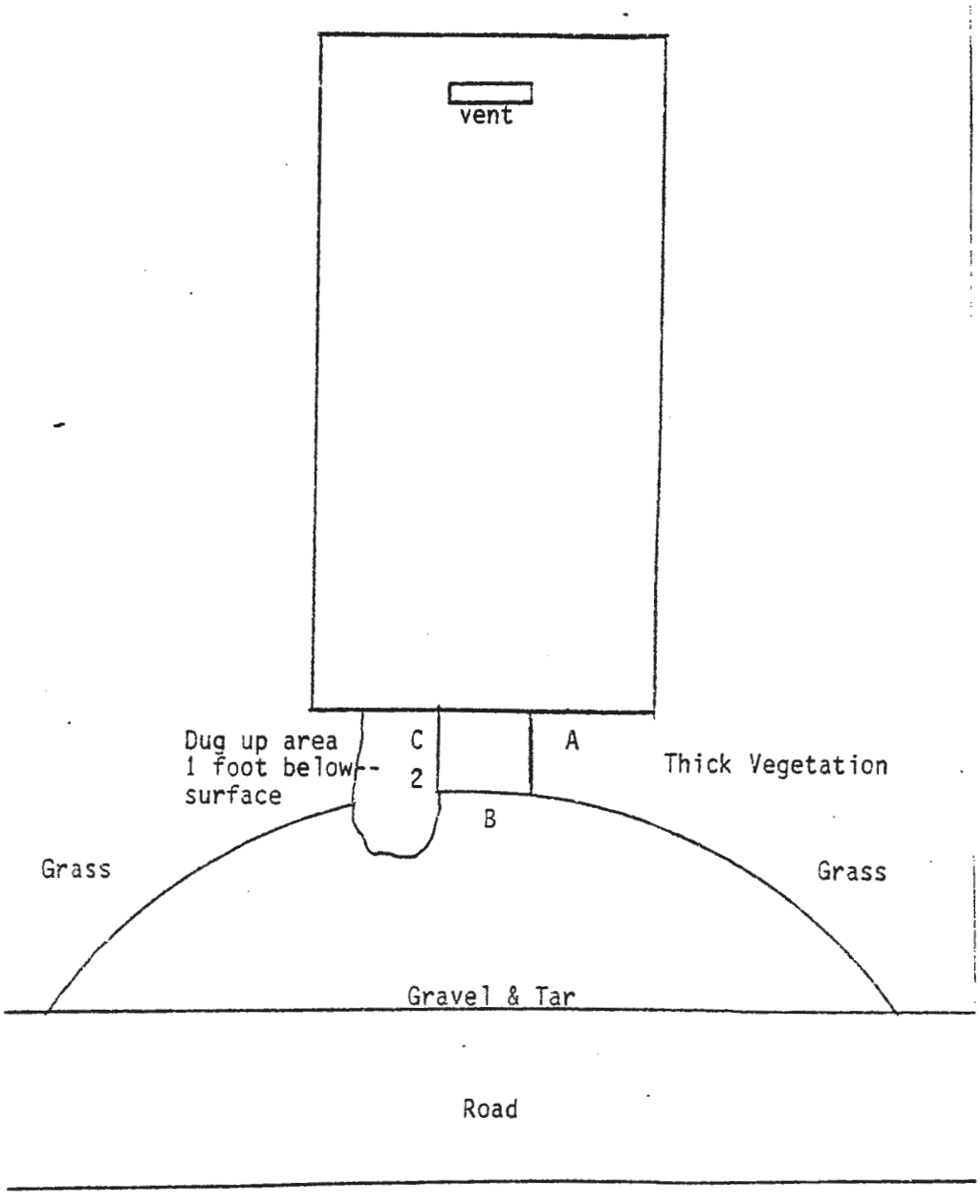
DATE 19 Aug 85
DRAWN SMA
APPROVED FWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E809 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

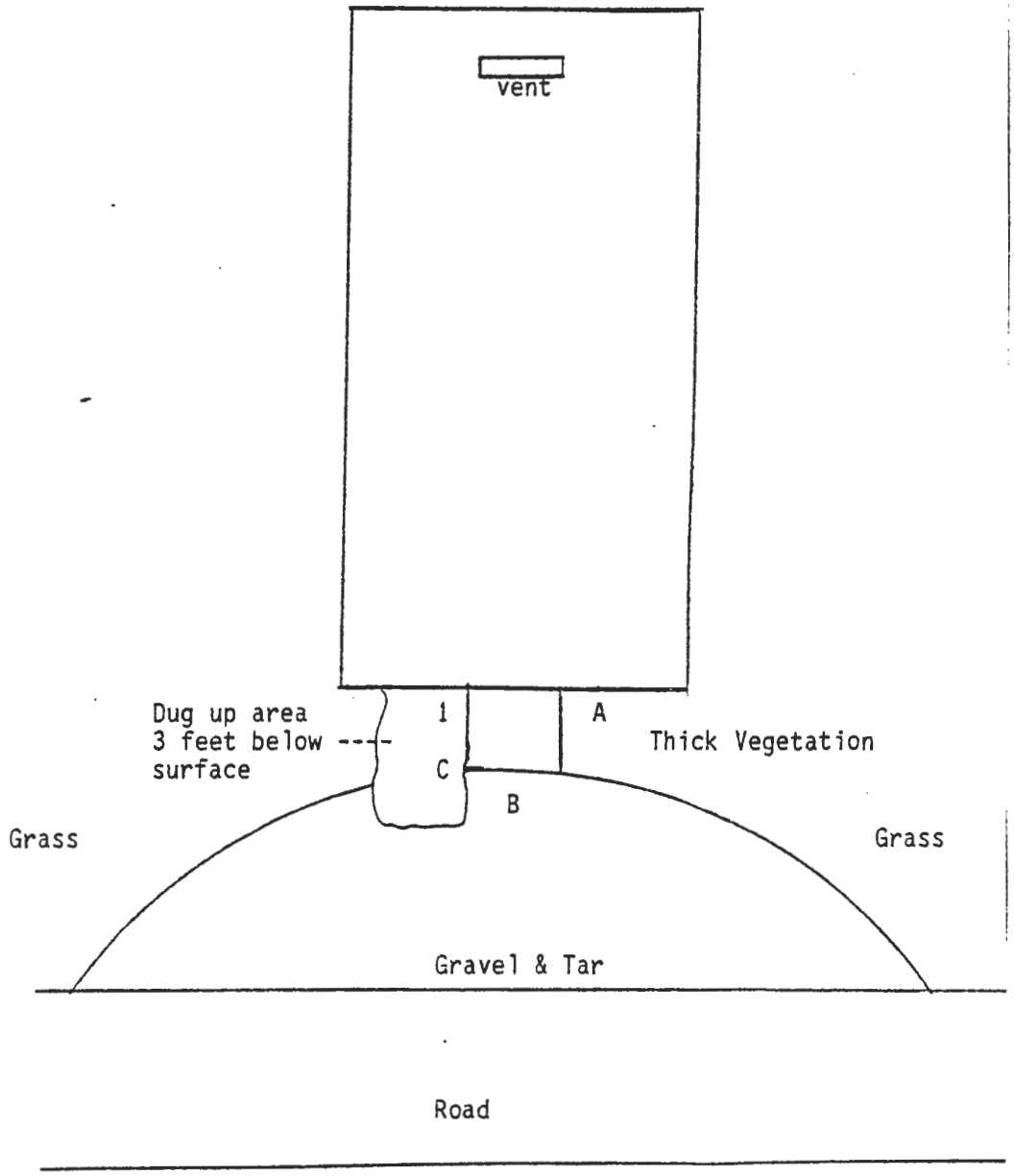
DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E810 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

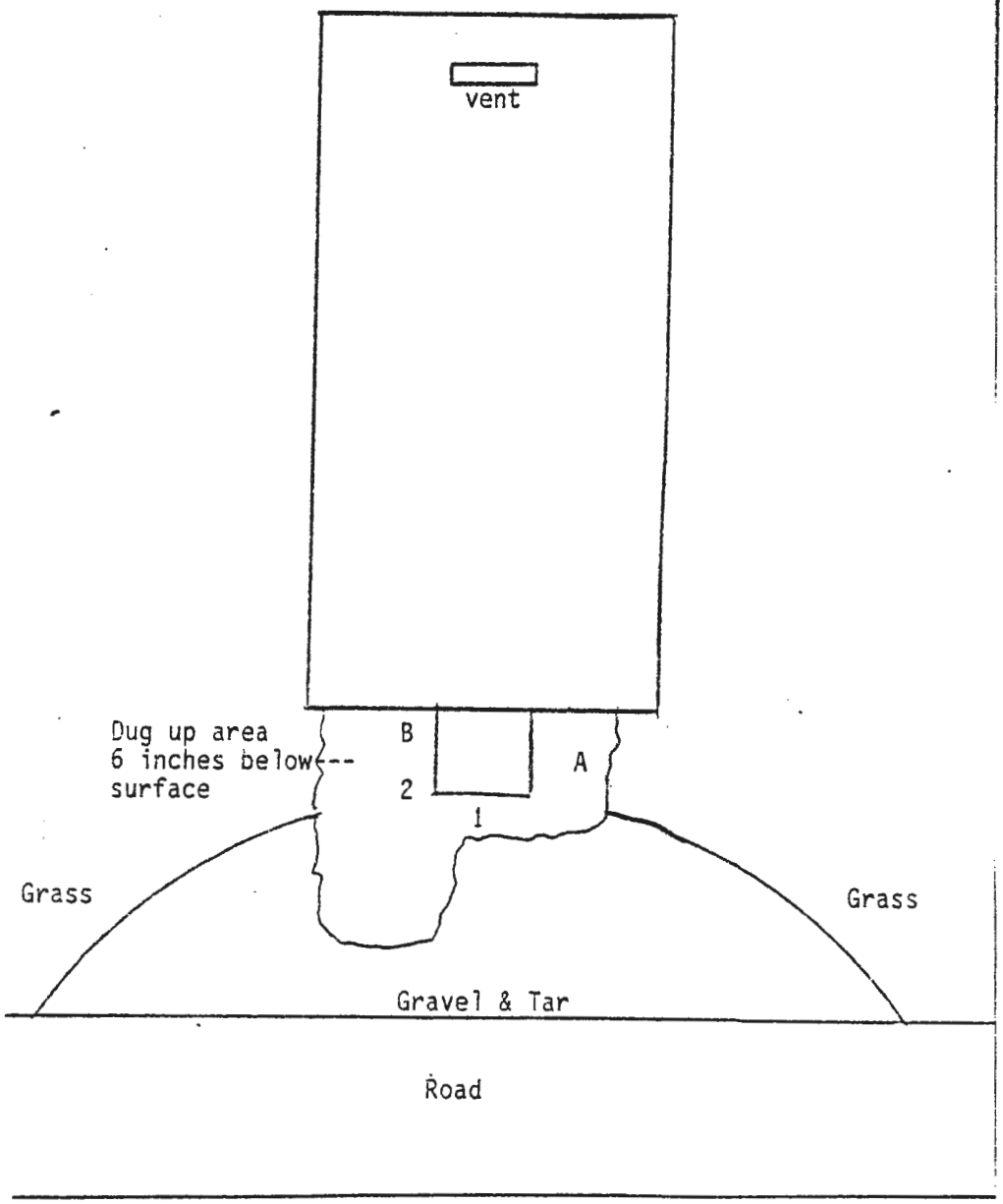
DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E811 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

REPLY TO
ATTENTION OF

HSHB-RH

26 DEC 1985

SUBJECT: Radiation Protection Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, New York, 29-31 July 1985

Commander
US Army Materiel Command
ATTN: AMCSG
5001 Eisenhower Avenue
Alexandria, VA 22333-0001

EXECUTIVE SUMMARY

The purpose and recommendation of the enclosed report follow:

a. Purpose. To determine the presence and extent of radioactive contamination and whether the bunkers (E801-E811) and the surrounding area met the radioactive contamination guidelines following decontamination.

b. Recommendation. To ensure regulatory compliance, the bunkers surveyed (E801-E811) need no longer be identified as a contaminated area and may be utilized for unrestricted use.

FOR THE COMMANDER:

Arthur B Wall LTC MS

for RALPH R. CARESTIA
Colonel, MS
Director, Radiation and
Environmental Sciences

Encl

CF:
HQDA(DASG-PSP)(wo/encl)
Cdr, HSC (HSCL-P)(w/encl)
Comdt, AHS (HSHA-IPM)(w/encl)
Cdr, DESCOM (AMSDS-T)(w/encl)
Cdr, WRAMC (PVNTMED Svc)(w/encl)
Cdr, MEDDAC, Ft Devens (PVNTMED Svc)(2 cy)(w/encl)
Cdr, USAEHA Fld Spt Actv, Ft Meade (w/encl)

DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

REPLY TO
ATTENTION OF

HSHB-RH

RADIATION PROTECTION STUDY NO. 28-43-0025-86
CLOSEOUT SURVEY OF BUNKERS E801-E811
SENECA ARMY DEPOT
ROMULUS, NEW YORK
29-31 JULY 1985

1. AUTHORITY. Letter, SEAD, SDSSE-AX, 11 February 1985, subject: Request for Assistance, and endorsements thereto.

2. REFERENCES. See Appendix A for a listing of references.

3. PURPOSE. This study was performed to determine the presence and extent of radioactive contamination and whether the bunkers (E801-E811) and the surrounding area met the radioactive contamination guidelines following decontamination.

4. GENERAL.

a. An entrance briefing was held with Mr. Thomas Battaglia, DAC, Safety Manager. An exit briefing, to include a discussion of the findings, was held with Mr. Tom Stinic, DAC, RPO.

b. Also attached as Appendices are:

(1) A listing of abbreviations used in this report (Appendix B).

(2) A list of survey instruments used during the study (Appendix C).

(3) The results of the wipe test analysis for gross alpha and gross beta activities (Appendix D).

(4) The results of the direct instrument readings of alpha, beta, and gamma surface contamination inside the bunkers (Appendix E).

(5) Area diagrams of the bunkers (E801-E811), indicating the location of the wipe tests (numerical) and instrument readings (alphabetical) (Appendix F).

(6) The results of the soil sample analysis for gross alpha and gross beta activities (Appendix G).

(7) The results of the soil sample analysis for gamma activities (Appendix H).

(8) The results of direct instrument readings of alpha, beta, and gamma surface contamination outside the bunkers (Appendix I).

(9) Area diagrams of the bunkers (E801-E811), indicating the location of the soil samples (numerical) and instrument readings (alphabetical) (Appendix J).

5. BACKGROUND.

a. Seneca Army Depot covers approximately 10,000 acres, a large portion of which is occupied by munition bunkers. In the early 1940's approximately 2,000 barrels of pitchblende ore were stored in 11 of these bunkers (E801-E811) for a short period of time. After the removal of the ore, the normal storage of munitions was resumed.

b. Seneca Army Depot was tasked with and performed the decontamination of the 11 bunkers. The Army RADCON team surveyed the 11 bunkers with 2 separate RADCON units during the week of 13 May 1985 (Reference 3).

6. FINDINGS.

a. General.

(1) The road in front of the 11 bunkers was barricaded to prevent unauthorized entry.

(2) Bunker E801 contained various items of equipment and protective clothing that was used in the decontamination process.

b. Survey Results.

(1) Instrumentation Survey Inside Bunkers. The results of the instrument survey inside the 11 bunkers indicated that the highest gamma reading was 15 µR/hr (804-D and 805-C); the highest beta reading was 400-500 cpm (804-D); and the highest alpha reading was 2,000 cpm (808-C). The gamma readings were taken approximately 1 meter above the floor surface. Background inside the bunkers was determined to be 10 µR/hr for gamma, 0-5 cpm for beta, and zero cpm for alpha.

(2) Instrumentation Survey Outside Bunkers. The results of the instrument survey outside the 11 bunkers indicated that the highest gamma reading was 150 µR/hr (804-D). This was a very localized area on the gravel and tar area. Alpha and beta readings were all equal to background levels. Background outside the bunkers was also determined to be 10 µR/hr for gamma, and zero cpm for alpha and beta.

(3) Wipe Samples. In all 11 bunkers, 100 cm^2 wipe samples were taken to determine removable alpha and beta contamination. The highest gross beta count was $(3.6 \pm 0.4) \times 10^{-5}$ µCi (804-133) which was the same location (804-D) that had the highest instrument reading of gamma and beta contamination. The highest gross alpha count was $(2.1 \pm 0.3) \times 10^{-5}$ µCi (804-135). The majority of the wipe samples were less than the counter's lower level of detection: $<1.2 \times 10^{-6}$ µCi for gross beta and $<5.7 \times 10^{-7}$ µCi for gross alpha.

(4) Soil Samples. The soil samples were taken to determine the gross alpha, beta, and gamma activities in the soil surrounding the pads of all 11 bunkers. The highest gross beta count was $(4.3 \pm 0.5) \times 10^{-5}$ µCi per gram (804-2); the highest alpha count was $(5.0 \pm 0.8) \times 10^{-5}$ µCi per gram (806-2); and the highest gamma count was $(6.2 \pm 0.8) \times 10^{-6}$ µCi per gram of Pb-214 (806-2). The average gross beta was 3.1×10^{-5} µCi per gram and the average gross alpha count was 2.5×10^{-5} µCi per gram. The gamma activities were all below 15 pCi/gram and are within the normal background levels.

7. CONCLUSION. A review of the findings indicated that after decontamination the bunkers (E801-E811) and the surrounding area conformed to the requirements for unrestricted use.

8. RECOMMENDATION. Based on the findings in this report, the 11 bunkers surveyed (E801-E811) should no longer be identified as a contaminated area and may be utilized for unrestricted use (AR 385-11, Table 4-3).

Stuart M. Altman
STUART M. ALTMAN
Health Physicist
Health Physics Division

Eugene W. Potter LTC, MS
for HARRIS EDGE
Health Physicist
Health Physics Division

APPROVED:

Eugene W. Potter
EUGENE W. POTTER
LTC, MS
Chief, Health Physics Division

APPENDIX A

REFERENCES

1. AR 40-5, 1 June 1985, Preventive Medicine.

2. AR 385-11, 1 May 1980, Ionizing Radiation Protection (Licensing, Control, Transportation, Disposal, and Radiation Safety).

3. Draft, US Army RADCON Team Survey at Seneca Army Depot, 13-17 May 1985.

4. Letter, USAEHA, HSHB-RH, 14 August 1985, subject: Preliminary Report, Radiation Protection Study No. 28-43-0025-85, Seneca Army Depot, New York, 29-31 July 1985.

5. Title 10, Code of Federal Regulations, 1985 rev, Part 20, Standards for Protection Against Radiation.

6. NCRP Report No. 45, 1975, Natural Background Radiation in the United States.

APPENDIX B

ABBREVIATIONS

CFR	Code of Federal Regulations
cpm	counts per minute
DAC	Department of the Army Civilian
dpm	disintegrations per minute
EPA	US Environmental Protection Agency
NCRP	National Council on Radiation Protection and Measurements
NRC	US Nuclear Regulatory Commission
Pb	lead
pCi	picocurie
RPO	Radiation Protection Officer
µCi	microcurie
µR/hr	microroentgens per hour

APPENDIX C

RADIATION SURVEY EQUIPMENT USED

1. Eberline Model PRM-7, Micro R Ratemeters, SN 398 and SN 273, calibrated 14 June 1985 and 30 May 1985, respectively.

2. Eberline Model PAC-1-SAGA, Portable Alpha Counter, SN 1602, with probe, Model AC-3, alpha scintillation crystal, calibrated 9 May 1985.

3. Eberline Model E-520, Geiger Counter, SN 2308, with probe, Model HP-210, calibrated 8 July 1985.

APPENDIX D

RESULTS OF WIPE TEST ANALYSIS FOR GROSS ALPHA AND GROSS BETA ACTIVITIES

Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviations	
		Gross Beta	Gross Alpha
803-1	I0467	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-2	I0468	$(2.3 \pm 1.2) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-3	I0469	$(1.5 \pm 1.0) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-4	I0470	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-5	I0471	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-6	I0472	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-7	I0473	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-8	I0474	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-9	I0475	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-10	I0476	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-11	I0477	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-12	I0478	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-13	I0479	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-14	I0480	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-15	I0481	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-16	I0482	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-17	I0483	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-18	I0484	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-19	I0485	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
803-20	I0486	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-34	I0487	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-35	I0488	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-37	I0489	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-38	I0490	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$

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Sample Identification	Lab Number	Micocurie Per Wipe Test Sample ±2 Standard Deviations Gross Beta	Gross Alpha
802-39	I0491	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-41	I0492	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-42	I0493	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-43	I0494	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-45	I0495	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-46	I0496	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-47	I0497	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-49	I0498	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-50	I0499	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-51	I0500	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-52	I0501	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-53	I0502	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-54	I0503	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-55	I0504	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-56	I0505	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-57	I0506	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-58	I0507	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-59	I0508	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-60	I0509	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-61	I0510	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-62	I0511	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-63	I0512	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-64	I0513	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-65	I0514	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-66	I0515	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
802-67	I0516	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$

Radn Prot Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, NY, 29-31 Jul 85

Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviations Gross Beta	Gross Alpha
804-101	I0517	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
804-102	I0518	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
804-103	I0519	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
804-104	I0520	$(2.8 \pm 1.2) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
804-105	I0521	$(2.0 \pm 0.3) \times 10^{-5}$	$(9.3 \pm 2.0) \times 10^{-6}$
804-106	I0522	$< 1.2 \times 10^{-6}$	$(7.7 \pm 6.7) \times 10^{-7}$
804-107	I0523	$(2.4 \pm 1.2) \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
804-108	I0524	$(2.6 \pm 0.3) \times 10^{-5}$	$(1.3 \pm 0.2) \times 10^{-5}$
804-109	I0525	$(3.8 \pm 1.4) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
804-110	I0526	$(2.9 \pm 0.4) \times 10^{-5}$	$(1.8 \pm 0.3) \times 10^{-5}$
804-111	I0527	$(2.0 \pm 1.1) \times 10^{-6}$	$(6.5 \pm 6.3) \times 10^{-7}$
804-112	I0528	$(2.4 \pm 0.3) \times 10^{-5}$	$(1.7 \pm 0.3) \times 10^{-5}$
804-113	I0529	$(1.2 \pm 0.2) \times 10^{-5}$	$(9.2 \pm 2.0) \times 10^{-6}$
804-114	I0530	$(4.9 \pm 1.5) \times 10^{-6}$	$(2.2 \pm 1.0) \times 10^{-6}$
804-115	I0531	$(2.1 \pm 0.3) \times 10^{-5}$	$(1.4 \pm 0.3) \times 10^{-5}$
804-116	I0532	$< 1.2 \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
804-117	I0533	$(1.5 \pm 0.3) \times 10^{-5}$	$(9.1 \pm 2.0) \times 10^{-6}$
804-118	I0534	$(4.7 \pm 1.5) \times 10^{-6}$	$(2.5 \pm 1.1) \times 10^{-6}$
804-119	I0535	$(3.1 \pm 0.4) \times 10^{-5}$	$(1.9 \pm 0.3) \times 10^{-5}$
804-120	I0536	$(4.3 \pm 1.5) \times 10^{-6}$	$(2.2 \pm 1.0) \times 10^{-6}$
804-121	I0537	$(8.5 \pm 2.0) \times 10^{-6}$	$(6.1 \pm 1.7) \times 10^{-6}$
804-122	I0538	$(3.6 \pm 1.4) \times 10^{-6}$	$(1.6 \pm 0.9) \times 10^{-6}$
804-123	I0539	$(2.2 \pm 0.3) \times 10^{-5}$	$(7.8 \pm 1.9) \times 10^{-6}$
804-124	I0540	$(7.6 \pm 1.8) \times 10^{-6}$	$(3.0 \pm 1.2) \times 10^{-6}$
804-125	I0541	$(2.9 \pm 0.3) \times 10^{-5}$	$(1.6 \pm 0.3) \times 10^{-5}$
804-126	I0542	$(2.4 \pm 1.2) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$

Radn Prot Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, NY, 29-31 Jul 85

Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviations Gross Beta	Gross Alpha
804-127	I0543	$(1.3 \pm 0.2) \times 10^{-5}$	$(7.8 \pm 1.9) \times 10^{-6}$
804-128	I0544	$(2.8 \pm 1.3) \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
804-129	I0545	$(1.9 \pm 0.3) \times 10^{-5}$	$(1.3 \pm 0.2) \times 10^{-5}$
804-130	I0546	$(3.2 \pm 1.3) \times 10^{-6}$	$(1.4 \pm 0.9) \times 10^{-6}$
804-131	I0547	$(3.2 \pm 0.4) \times 10^{-5}$	$(1.9 \pm 0.3) \times 10^{-5}$
804-132	I0548	$(2.5 \pm 1.2) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
804-133	I0549	$(3.6 \pm 0.4) \times 10^{-5}$	$(1.7 \pm 0.3) \times 10^{-5}$
804-134	I0550	$(3.0 \pm 0.4) \times 10^{-5}$	$(1.9 \pm 0.3) \times 10^{-5}$
804-135	I0551	$(3.3 \pm 0.4) \times 10^{-5}$	$(2.1 \pm 0.3) \times 10^{-5}$
804-136	I0552	$(2.4 \pm 1.2) \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
804-137	I0553	$(1.8 \pm 0.3) \times 10^{-5}$	$(1.2 \pm 0.2) \times 10^{-5}$
804-138	I0554	$(4.5 \pm 1.5) \times 10^{-6}$	$(2.1 \pm 1.0) \times 10^{-6}$
804-139	I0555	$(2.9 \pm 0.3) \times 10^{-5}$	$(1.2 \pm 0.2) \times 10^{-5}$
804-140	I0556	$(1.8 \pm 0.3) \times 10^{-5}$	$(1.4 \pm 0.3) \times 10^{-5}$
804-141	I0557	$(1.8 \pm 1.1) \times 10^{-6}$	$(6.5 \pm 6.3) \times 10^{-7}$
804-142	I0558	$(1.4 \pm 0.3) \times 10^{-5}$	$(1.1 \pm 0.2) \times 10^{-5}$
804-143	I0559	$(2.7 \pm 1.2) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
804-144	I0560	$(2.6 \pm 0.3) \times 10^{-5}$	$(1.2 \pm 0.2) \times 10^{-5}$
804-145	I0561	$< 1.2 \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
804-146	I0562	$(2.4 \pm 0.3) \times 10^{-5}$	$(1.7 \pm 0.3) \times 10^{-5}$
804-147	I0563	$(6.3 \pm 1.7) \times 10^{-6}$	$(2.0 \pm 0.1) \times 10^{-6}$
804-148	I0564	$(1.5 \pm 1.0) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
805-1	I0565	$(3.7 \pm 1.4) \times 10^{-5}$	$(2.3 \pm 1.1) \times 10^{-6}$
805-2	I0566	$(5.2 \pm 1.6) \times 10^{-5}$	$(3.6 \pm 1.3) \times 10^{-6}$
805-3	I0567	$(6.8 \pm 1.8) \times 10^{-6}$	$(3.9 \pm 1.3) \times 10^{-6}$
805-4	I0568	$(2.1 \pm 1.1) \times 10^{-6}$	$(7.6 \pm 6.7) \times 10^{-7}$

Radn Prot Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, NY, 29-31 Jul 85

Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviations	
		Gross Beta	Gross Alpha
805-5	I0569	$(1.7 \pm 1.1) \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$
805-6	I0570	$(1.9 \pm 1.1) \times 10^{-6}$	$(1.7 \pm 0.9) \times 10^{-6}$
805-7	I0571	$(3.5 \pm 1.4) \times 10^{-6}$	$(1.7 \pm 0.9) \times 10^{-6}$
805-8	I0572	$(3.7 \pm 1.4) \times 10^{-6}$	$(1.9 \pm 1.0) \times 10^{-6}$
805-9	I0573	$(3.1 \pm 1.3) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
805-10	I0574	$(1.6 \pm 1.1) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
805-11	I0575	$(6.6 \pm 1.8) \times 10^{-6}$	$(3.2 \pm 1.2) \times 10^{-6}$
805-12	I0576	$(2.5 \pm 1.2) \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
805-13	I0577	$(3.0 \pm 1.3) \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$
805-14	I0578	$(1.2 \pm 1.0) \times 10^{-6}$	$(2.1 \pm 1.0) \times 10^{-6}$
805-15	I0579	$(1.7 \pm 1.1) \times 10^{-6}$	$(1.4 \pm 0.9) \times 10^{-6}$
805-16	I0580	$(7.2 \pm 1.8) \times 10^{-6}$	$(2.2 \pm 1.0) \times 10^{-6}$
805-17	I0581	$(4.7 \pm 1.5) \times 10^{-6}$	$(2.2 \pm 1.0) \times 10^{-6}$
805-18	I0582	$(2.9 \pm 1.3) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
805-19	I0583	$(1.6 \pm 1.1) \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$
805-20	I0584	$(3.0 \pm 1.3) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
805-21	I0585	$< 1.2 \times 10^{-6}$	$(6.5 \pm 6.3) \times 10^{-7}$
805-22	I0586	$(1.3 \pm 1.0) \times 10^{-6}$	$(7.6 \pm 6.7) \times 10^{-7}$
805-144	I0587	$(1.2 \pm 1.0) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
805-150	I0588	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
805-151	I0589	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
805-152	I0590	$< 1.2 \times 10^{-6}$	$(6.5 \pm 6.3) \times 10^{-7}$
806-1	I0591	$(5.2 \pm 1.6) \times 10^{-6}$	$(2.1 \pm 1.0) \times 10^{-6}$
806-2	I0592	$(9.1 \pm 2.0) \times 10^{-6}$	$(4.9 \pm 1.5) \times 10^{-6}$
806-3	I0593	$(3.0 \pm 0.4) \times 10^{-5}$	$(1.4 \pm 0.3) \times 10^{-5}$
806-4	I0594	$(6.1 \pm 1.7) \times 10^{-6}$	$(2.5 \pm 1.1) \times 10^{-6}$

Radn Prot Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, NY, 29-31 Jul 85

Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviations Gross Beta	Gross Alpha
806-5	I0595	$(2.9 \pm 1.3) \times 10^{-6}$	$(8.8 \pm 7.0) \times 10^{-7}$
806-6	I0596	$(6.0 \pm 1.7) \times 10^{-6}$	$(2.9 \pm 1.2) \times 10^{-6}$
806-7	I0597	$(7.7 \pm 1.9) \times 10^{-6}$	$(4.5 \pm 1.4) \times 10^{-6}$
806-8	I0598	$(3.5 \pm 1.4) \times 10^{-6}$	$(9.9 \pm 7.4) \times 10^{-7}$
806-9	I0599	$(2.5 \pm 1.2) \times 10^{-6}$	$(9.9 \pm 7.4) \times 10^{-7}$
806-10	I0600	$(1.3 \pm 1.0) \times 10^{-6}$	$(1.4 \pm 0.9) \times 10^{-6}$
806-11	I0601	$(2.1 \pm 1.2) \times 10^{-6}$	$(1.8 \pm 0.9) \times 10^{-6}$
806-12	I0602	$(1.9 \pm 1.1) \times 10^{-6}$	$(6.5 \pm 6.3) \times 10^{-7}$
806-13	I0603	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
806-14	I0604	$(1.6 \pm 1.1) \times 10^{-6}$	$(1.4 \pm 0.9) \times 10^{-6}$
806-15	I0605	$(3.1 \pm 1.3) \times 10^{-6}$	$(3.0 \pm 1.2) \times 10^{-6}$
806-16	I0606	$(3.1 \pm 1.3) \times 10^{-6}$	$(1.6 \pm 0.9) \times 10^{-6}$
806-17	I0607	$(1.8 \pm 1.1) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
806-18	I0608	$(4.5 \pm 1.5) \times 10^{-6}$	$(2.5 \pm 1.1) \times 10^{-6}$
806-19	I0609	$(3.2 \pm 1.3) \times 10^{-6}$	$(2.0 \pm 1.0) \times 10^{-6}$
806-20	I0610	$(3.9 \pm 1.4) \times 10^{-6}$	$(2.9 \pm 1.2) \times 10^{-6}$
806-21	I0611	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
806-22	I0612	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
806-23	I0613	$(1.4 \pm 1.0) \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$
806-24	I0614	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
807-1	I0615	$(1.5 \pm 1.0) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
807-2	I0616	$(4.6 \pm 1.5) \times 10^{-6}$	$(1.6 \pm 0.9) \times 10^{-6}$
807-3	I0617	$(7.7 \pm 1.9) \times 10^{-6}$	$(4.9 \pm 1.5) \times 10^{-6}$
807-4	I0618	$(1.9 \pm 1.1) \times 10^{-6}$	$(7.6 \pm 6.7) \times 10^{-7}$
807-5	I0619	no sample provided	no sample provided
807-6	I0620	$(2.8 \pm 1.3) \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$

Radn Prot Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, NY, 29-31 Jul 85

Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviations Gross Beta	Gross Alpha
807-7	I0621	$(2.0 \pm 1.1) \times 10^{-6}$	$(8.8 \pm 7.0) \times 10^{-7}$
807-8	I0622	no sample provided	no sample provided
807-9	I0623	$(1.4 \pm 1.0) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
807-10	I0624	$(2.2 \pm 1.2) \times 10^{-6}$	$(8.8 \pm 7.0) \times 10^{-7}$
807-11	I0625	$(3.7 \pm 1.4) \times 10^{-6}$	$(8.8 \pm 7.0) \times 10^{-7}$
807-12	I0626	$(1.9 \pm 1.1) \times 10^{-6}$	$< 5.7 \times 10^{-7}$
807-13	I0627	no sample provided	no sample provided
807-14	I0628	$(1.8 \pm 1.1) \times 10^{-6}$	$(6.5 \pm 6.3) \times 10^{-7}$
807-15	I0629	$(2.0 \pm 1.1) \times 10^{-6}$	$(7.6 \pm 6.7) \times 10^{-7}$
807-16	I0630	no sample provided	no sample provided
807-17	I0631	$(2.2 \pm 1.2) \times 10^{-6}$	$(7.6 \pm 6.7) \times 10^{-7}$
807-18	I0632	$< 1.2 \times 10^{-6}$	$(8.8 \pm 7.0) \times 10^{-7}$
807-19	I0633	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
807-20	I0634	$< 1.2 \times 10^{-6}$	$< 5.7 \times 10^{-7}$
801-2	I0635	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-3	I0636	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-6	I0637	$(1.3 \pm 1.0) \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-7	I0638	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-10	I0639	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-11	I0640	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-14	I0641	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-15	I0642	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-19	I0643	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-20	I0644	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-21	I0645	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-24	I0646	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$

Radn Prot Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, NY, 29-31 Jul 85

Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviations Gross Beta	Gross Alpha
801-25	I0647	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-28	I0648	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-29	I0649	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-32	I0650	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
801-33	I0651	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-1	I0652	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-2	I0653	$< 1.3 \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$
808-3	I0654	$(7.8 \pm 1.9) \times 10^{-6}$	$(4.4 \pm 1.4) \times 10^{-6}$
808-4	I0655	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-5	I0656	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-6	I0657	$< 1.3 \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$
808-7	I0658	$< 1.3 \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$
808-8	I0659	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-9	I0660	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-10	I0661	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-11	I0662	$(1.7 \pm 1.2) \times 10^{-6}$	$(2.2 \pm 1.0) \times 10^{-6}$
808-12	I0663	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-13	I0664	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-14	I0665	$< 1.3 \times 10^{-6}$	$(7.2 \pm 6.8) \times 10^{-7}$
808-15	I0666	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-16	I0667	$(1.6 \pm 1.1) \times 10^{-6}$	$(7.2 \pm 6.8) \times 10^{-7}$
808-17	I0668	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-18	I0669	$(1.3 \pm 1.0) \times 10^{-6}$	$< 6.6 \times 10^{-7}$
808-19	I0670	$< 1.3 \times 10^{-6}$	$(7.2 \pm 6.8) \times 10^{-7}$
808-20	I0671	$< 1.3 \times 10^{-6}$	$(7.2 \pm 6.8) \times 10^{-7}$
809-01	I0672	$(1.4 \pm 1.1) \times 10^{-6}$	$< 6.6 \times 10^{-7}$

Radn Prot Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, NY, 29-31 Jul 85

Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviation: Gross Beta	Gross Alpha
809-2	I0673	$(1.4 \pm 1.1) \times 10^{-6}$	$(1.8 \pm 1.0) \times 10^{-6}$
809-3	I0674	$(4.7 \pm 1.6) \times 10^{-6}$	$(4.2 \pm 1.4) \times 10^{-6}$
809-4	I0675	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
809-5	I0676	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$ 7
809-6	I0677	$< 1.3 \times 10^{-6}$	$(9.4 \pm 7.5) \times 10^{-7}$
809-7	I0678	$(1.6 \pm 1.2) \times 10^{-6}$	$(2.5 \pm 1.1) \times 10^{-6}$
809-8	I0679	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
809-9	I0680	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
809-10	I0681	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
809-11	I0682	$< 1.3 \times 10^{-6}$	$(8.3 \pm 7.2) \times 10^{-7}$
809-12	I0683	$< 1.3 \times 10^{-6}$	$(7.2 \pm 6.8) \times 10^{-7}$
809-13	I0684	$< 1.3 \times 10^{-6}$	$(8.3 \pm 7.2) \times 10^{-7}$
809-14	I0685	$< 1.3 \times 10^{-6}$	$(7.2 \pm 6.8) \times 10^{-7}$
809-15	I0686	$(2.6 \pm 1.3) \times 10^{-6}$	$(1.6 \pm 0.9) \times 10^{-6}$
809-16	I0687	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
809-17	I0688	$(1.4 \pm 1.1) \times 10^{-6}$	$(9.4 \pm 7.5) \times 10^{-7}$
809-18	I0689	$(1.6 \pm 1.1) \times 10^{-6}$	$(1.5 \pm 0.9) \times 10^{-6}$
809-19	I0690	$(2.0 \pm 1.2) \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
809-20	I0691	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-1	I0692	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-2	I0693	$(4.0 \pm 1.5) \times 10^{-6}$	$(3.2 \pm 1.2) \times 10^{-6}$
810-3	I0694	$(2.9 \pm 1.3) \times 10^{-6}$	$(1.7 \pm 0.9) \times 10^{-6}$
810-4	I0695	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-5	I0696	$< 1.3 \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
810-6	I0697	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-7	I0698	$(4.6 \pm 1.6) \times 10^{-6}$	$(4.9 \pm 1.5) \times 10^{-6}$

Radn Prot Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, NY, 29-31 Jul 85

Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviations Gross Beta	Gross Alpha
810-8	I0699	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-9	I0700	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-10	I0701	$< 1.3 \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
810-11	I0702	$(1.4 \pm 1.1) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
810-12	I0703	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-13	I0704	$(1.9 \pm 1.1) \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-14	I0705	$< 1.3 \times 10^{-6}$	$(8.3 \pm 7.2) \times 10^{-7}$
810-15	I0706	$< 1.3 \times 10^{-6}$	$(9.4 \pm 7.5) \times 10^{-7}$
810-16	I0707	$(1.4 \pm 1.1) \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-17	I0708	$(1.5 \pm 1.1) \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-18	I0709	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-19	I0710	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
810-20	I0711	$< 1.3 \times 10^{-6}$	$< 6.6 \times 10^{-7}$
811-1	I0712	$(2.4 \pm 1.3) \times 10^{-6}$	$(2.1 \pm 1.0) \times 10^{-6}$
811-2	I0713	$(6.7 \pm 1.8) \times 10^{-6}$	$(5.0 \pm 1.5) \times 10^{-6}$
811-3	I0714	$(8.3 \pm 2.0) \times 10^{-6}$	$(6.3 \pm 1.7) \times 10^{-6}$
811-4	I0715	$(2.8 \pm 1.3) \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
811-5	I0716	$(2.9 \pm 1.3) \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
811-6	I0717	$(3.1 \pm 1.3) \times 10^{-6}$	$(1.6 \pm 0.9) \times 10^{-6}$
811-7	I0718	$(2.2 \pm 1.2) \times 10^{-6}$	$(1.3 \pm 0.8) \times 10^{-6}$
811-8	I0719	$(1.6 \pm 1.1) \times 10^{-6}$	$(1.2 \pm 0.8) \times 10^{-6}$
811-9	I0720	$(1.4 \pm 1.1) \times 10^{-6}$	$< 6.6 \times 10^{-7}$
811-10	I0721	$(2.6 \pm 1.2) \times 10^{-6}$	$(1.9 \pm 1.0) \times 10^{-6}$
811-11	I0722	$(2.8 \pm 1.3) \times 10^{-6}$	$(2.1 \pm 1.0) \times 10^{-6}$
811-12	I0723	$(2.1 \pm 1.2) \times 10^{-6}$	$(2.1 \pm 1.0) \times 10^{-6}$
811-13	I0724	$(2.2 \pm 1.2) \times 10^{-6}$	$(1.5 \pm 0.9) \times 10^{-6}$

Radn Prot Study No. 28-43-0025-86, Closeout Survey of Bunkers E801-E811, Seneca Army Depot, Romulus, NY, 29-31 Jul 85

Sample Identification	Lab Number	Microcurie Per Wipe Test Sample ±2 Standard Deviation Gross Beta	Gross Alpha
811-14	I0725	$(1.7 \pm 1.1) \times 10^{-6}$	$(2.2 \pm 1.0) \times 10^{-6}$
811-15	I0726	$(3.1 \pm 1.3) \times 10^{-6}$	$(1.9 \pm 1.0) \times 10^{-6}$
811-16	I0727	$(2.4 \pm 1.2) \times 10^{-6}$	$(7.7 \pm 6.7) \times 10^{-7}$
811-17	I0728	$(3.3 \pm 1.3) \times 10^{-6}$	$(1.1 \pm 0.8) \times 10^{-6}$
811-18	I0729	$(5.0 \pm 1.6) \times 10^{-6}$	$(3.0 \pm 1.2) \times 10^{-6}$
811-19	I0730	$(1.7 \pm 1.1) \times 10^{-6}$	$(2.1 \pm 1.0) \times 10^{-6}$
811-20	I0731	$(4.0 \pm 1.5) \times 10^{-6}$	$(2.6 \pm 1.1) \times 10^{-6}$

APPENDIX E

RESULTS OF DIRECT INSTRUMENT READINGS OF SURFACE CONTAMINATION INSIDE THE BUNKERS.

Location*	Gamma	Beta	Alpha
801-A	10 µR/hr	5-10 cpm	0 cpm
801-B	10 µR/hr	10 cpm	0 cpm
801-C	10 µR/hr	5-10 cpm	0 cpm
801-D	10 µR/hr	5-10 cpm	0 cpm
801-E	10 µR/hr	5-10 cpm	0 cpm
801-F	10 µR/hr	5-10 cpm	0 cpm
801-G	10 µR/hr	5-10 cpm	0 cpm
802	10 µR/hr	5-10 cpm	0 cpm
803	10 µR/hr	5-10 cpm	0 cpm
804-A	5 µR/hr	100-200 cpm	2 cpm
804-B	7 µR/hr	100-200 cpm	3 cpm
804-C	6 µR/hr	100 cpm	0 cpm
804-D	15 µR/hr	400-500 cpm	3 cpm
804-E	9 µR/hr	75 cpm	2 cpm
804-F	9 µR/hr	20 cpm	0 cpm
805-A	11 µR/hr	50-100 cpm	0 cpm
805-B	14 µR/hr	100 cpm	0 cpm
805-C	15 µR/hr	300-400 cpm	3 cpm
805-D	11 µR/hr	50 cpm	0 cpm
806-A	10 µR/hr	10-30 cpm	100 cpm
806-B	10 µR/hr	0 cpm	50 cpm
806-C	11 µR/hr	10-20 cpm	100 cpm
806-D	11 µR/hr	0 cpm	60 cpm
806-E	12 µR/hr	30 cpm	300 cpm
807-A	11 µR/hr	0 cpm	0 cpm
807-B	11 µR/hr	50 cpm	0 cpm
807-C	10 µR/hr	25-50 cpm	0 cpm
807-D	10 µR/hr	25-50 cpm	0 cpm
808-A	10 µR/hr	20-25 cpm	0 cpm
808-B	10 µR/hr	20-25 cpm	0 cpm
808-C	11 µR/hr	200-300 cpm	2000 cpm
808-D	10 µR/hr	20-25 cpm	0 cpm
809-A	10 µR/hr	30-40 cpm	0 cpm
809-B	10 µR/hr	20-30 cpm	50 cpm
809-C	10 µR/hr	20-30 cpm	0 cpm
809-D	10 µR/hr	20-30 cpm	0 cpm
810-A	10 µR/hr	20-30 cpm	0 cpm
810-B	10 µR/hr	0 cpm	0 cpm
810-C	11 µR/hr	20-30 cpm	0 cpm
810-D	11 µR/hr	25-35 cpm	0 cpm
811-A	10 µR/hr	10-15 cpm	0 cpm
811-B	11 µR/hr	10-20 cpm	0 cpm
811-C	11 µR/hr	15 cpm	0 cpm
811-D	10 µR/hr	10-15 cpm	0 cpm
811-E	10 µR/hr	10-15 cpm	0 cpm
811-F	10 µR/hr	10-15 cpm	0 cpm

* approximately 1 meter from surface

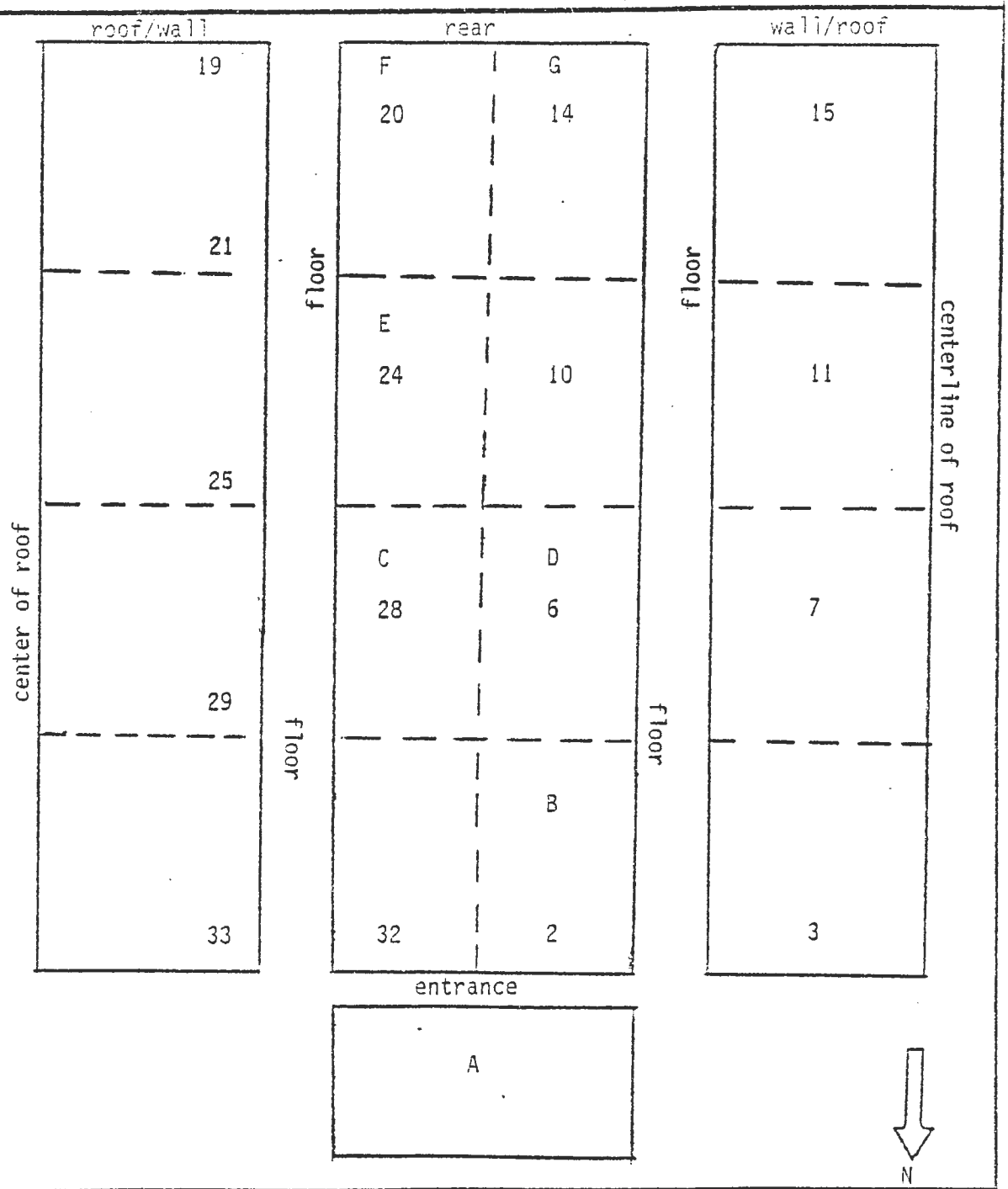
APPENDIX F

AREA DIAGRAMS OF BUNKERS (E801-E811) INDICATING THE LOCATION OF WIPE TESTS AND INSTRUMENT READINGS

BUNKER E801

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E801

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

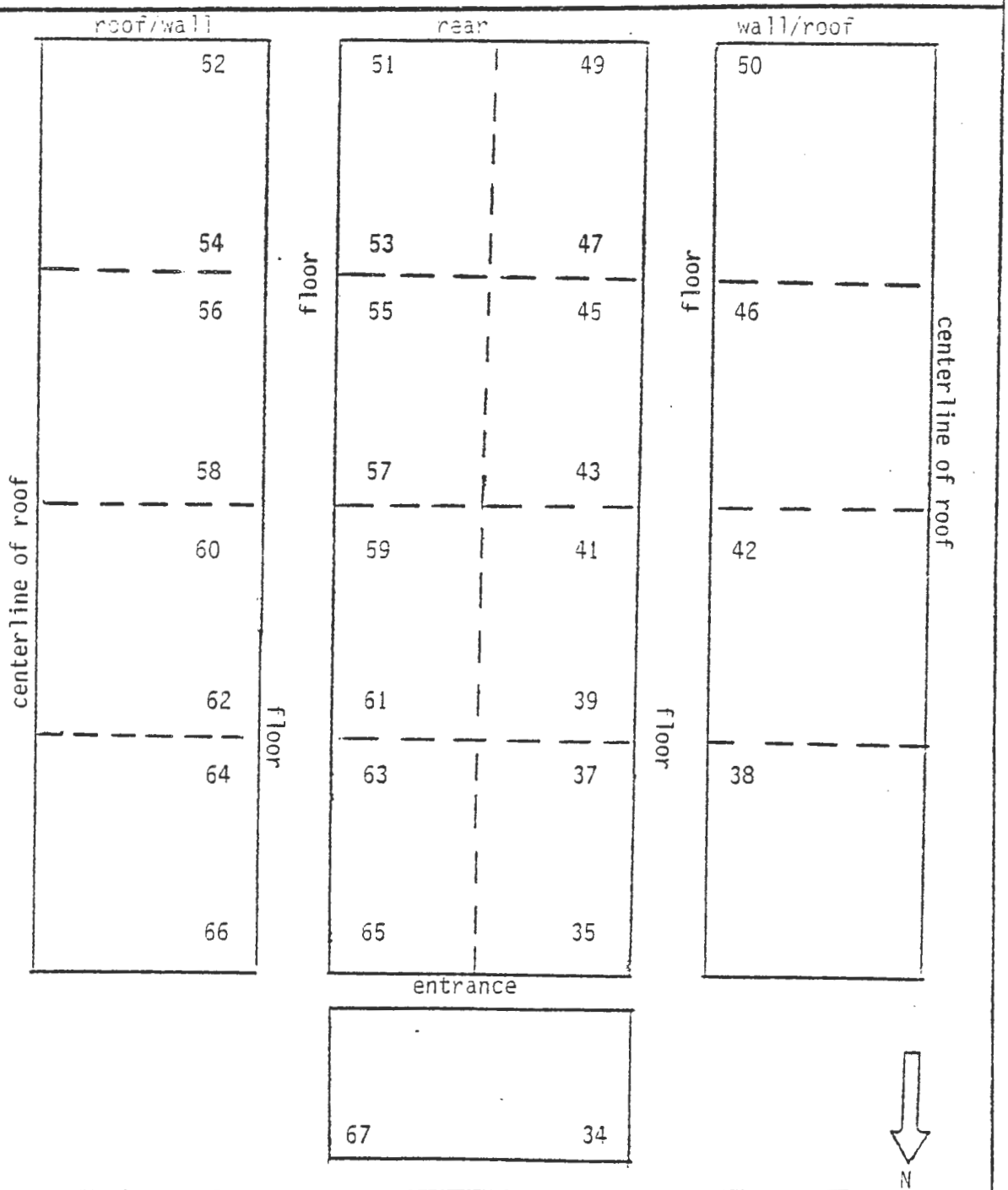
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E802

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E802

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

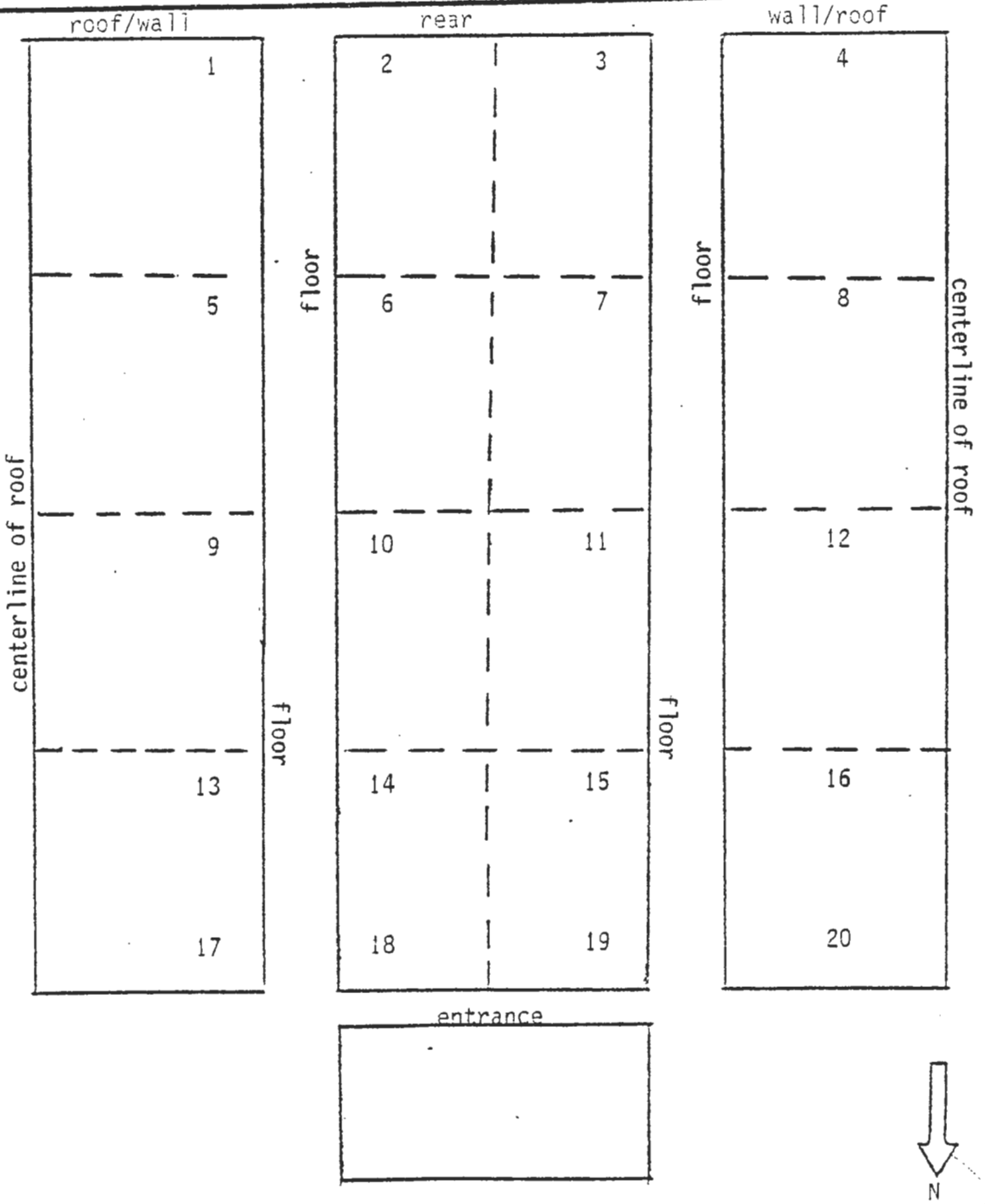
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E803

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E803

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

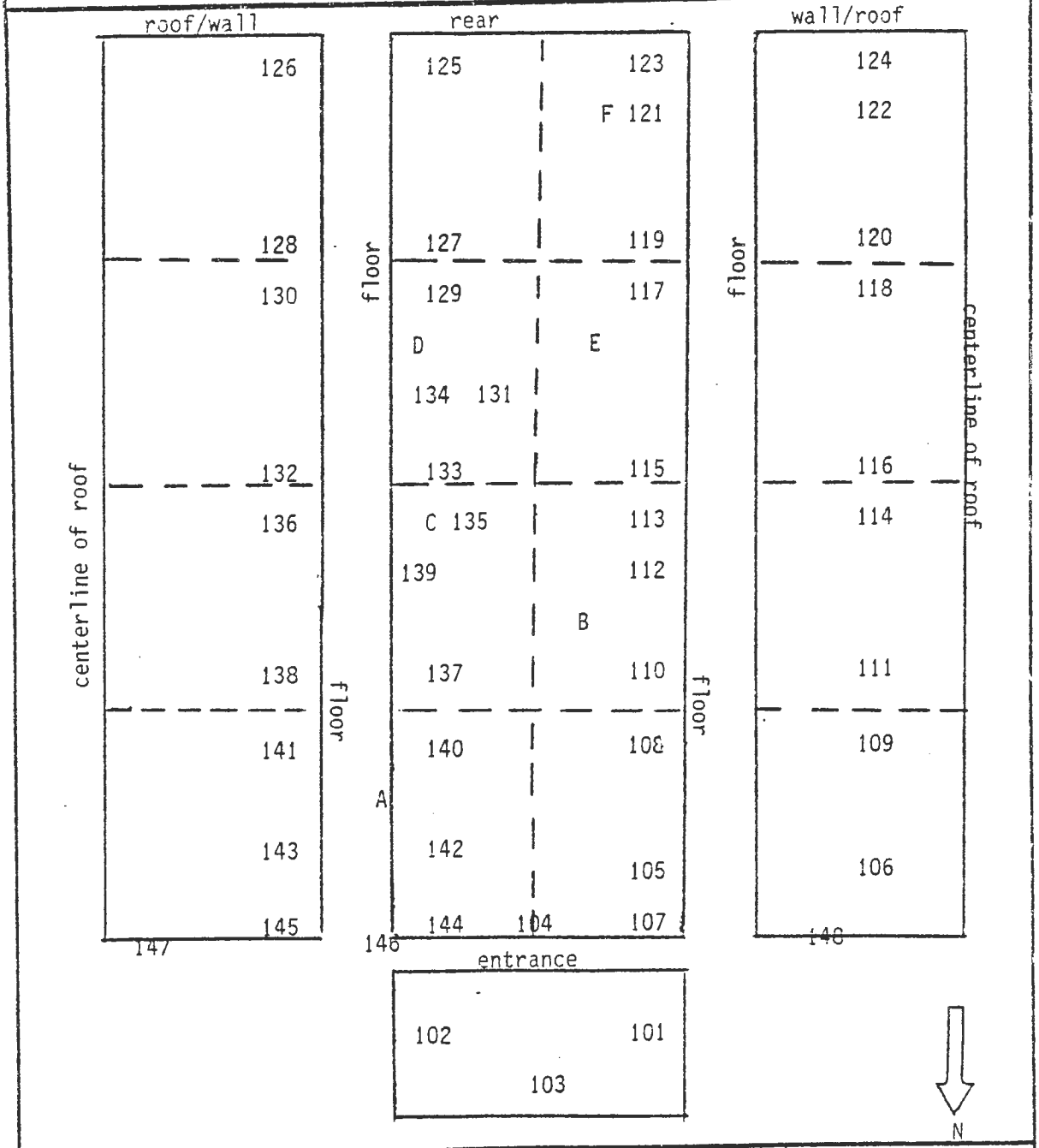
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E804

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E804

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

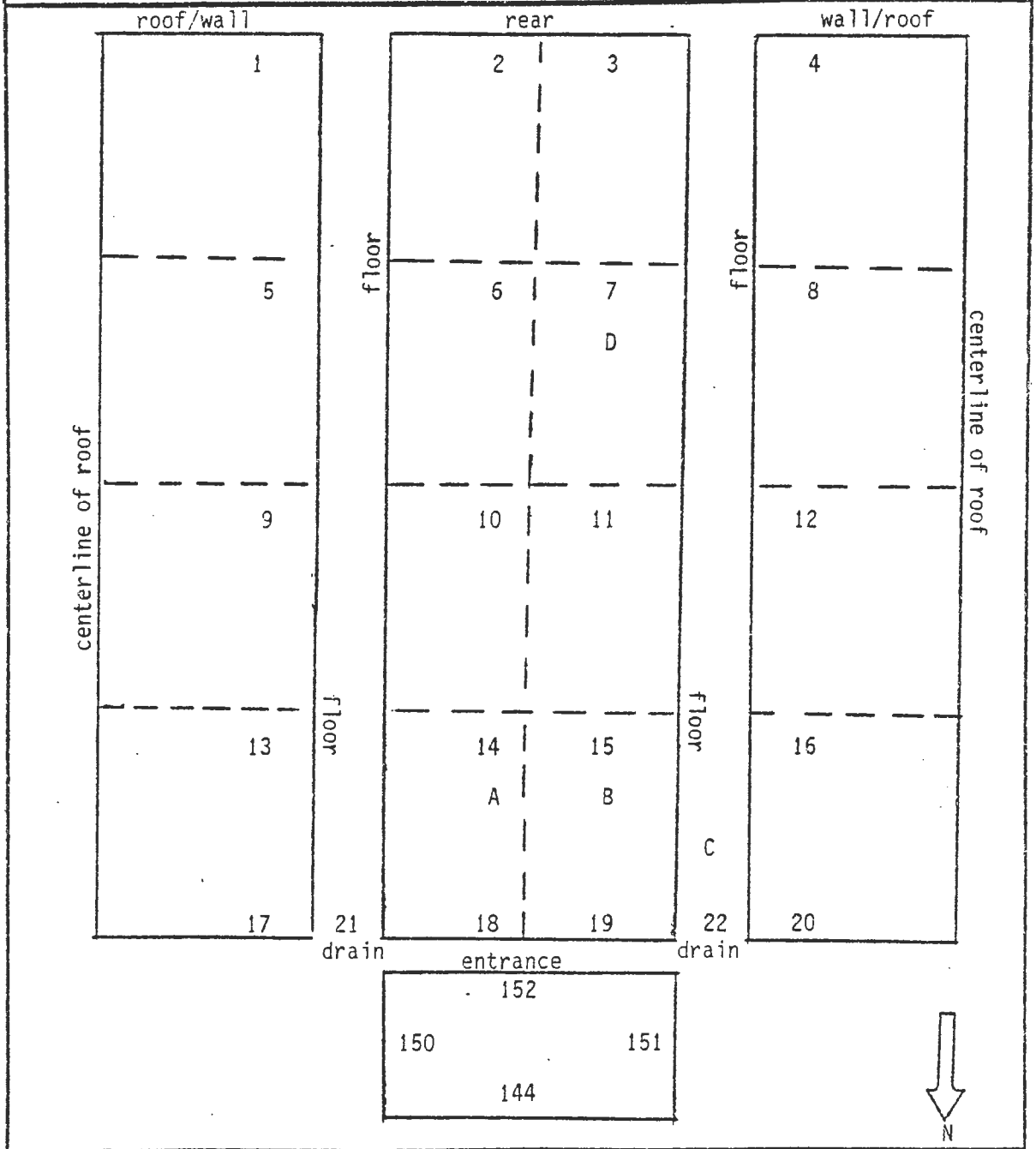
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E805

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E805

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

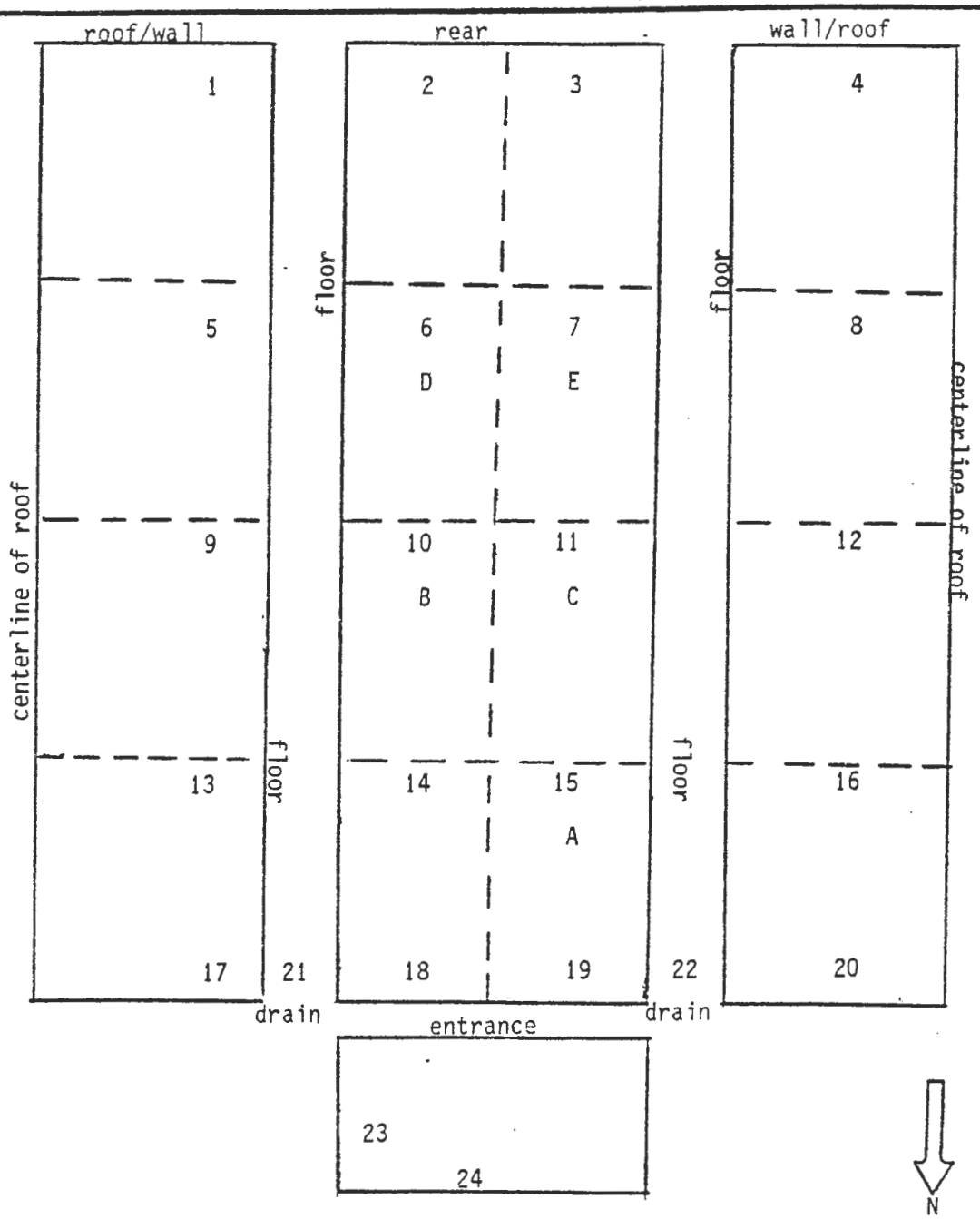
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E806

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E806

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

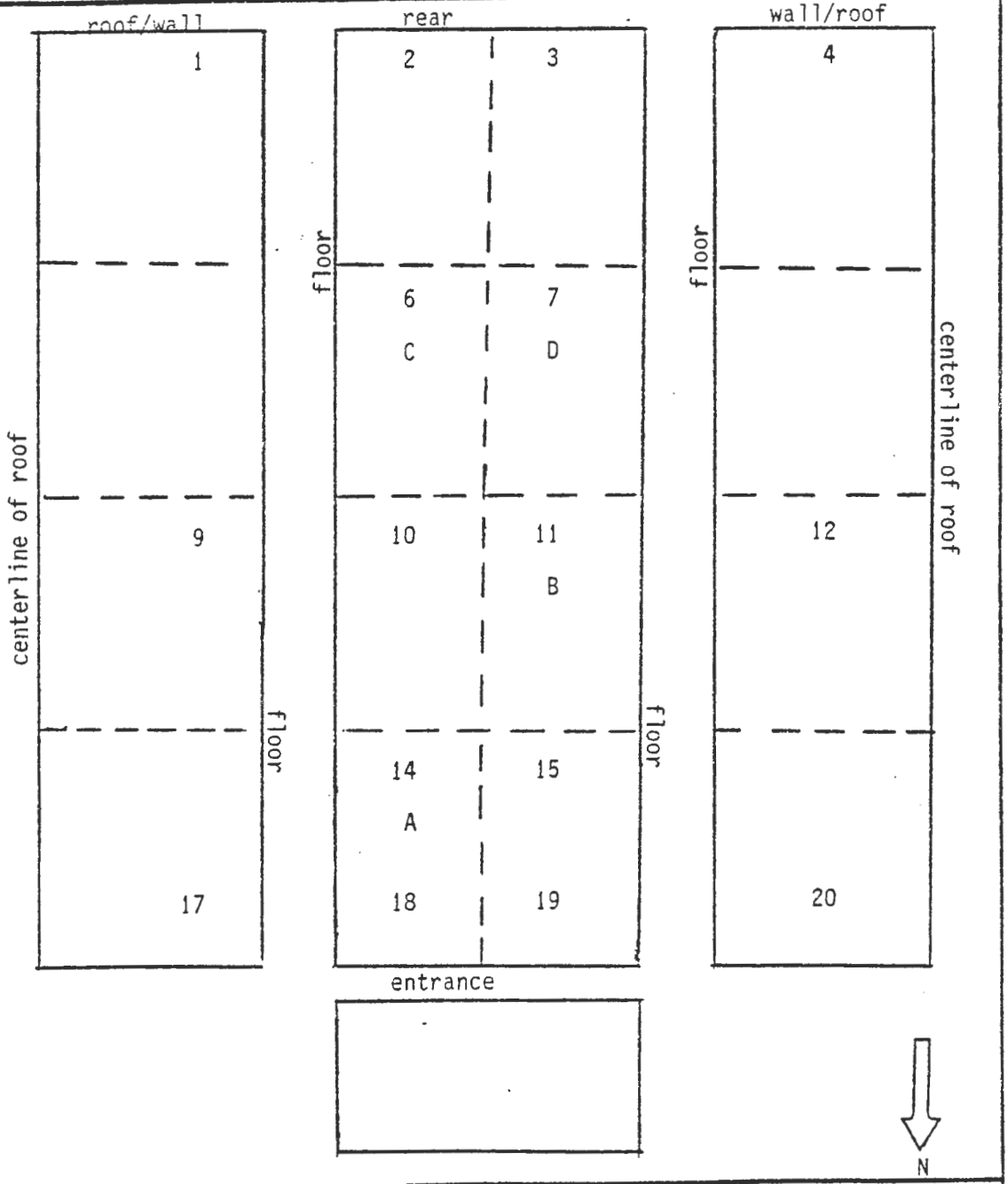
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E807

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E807

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

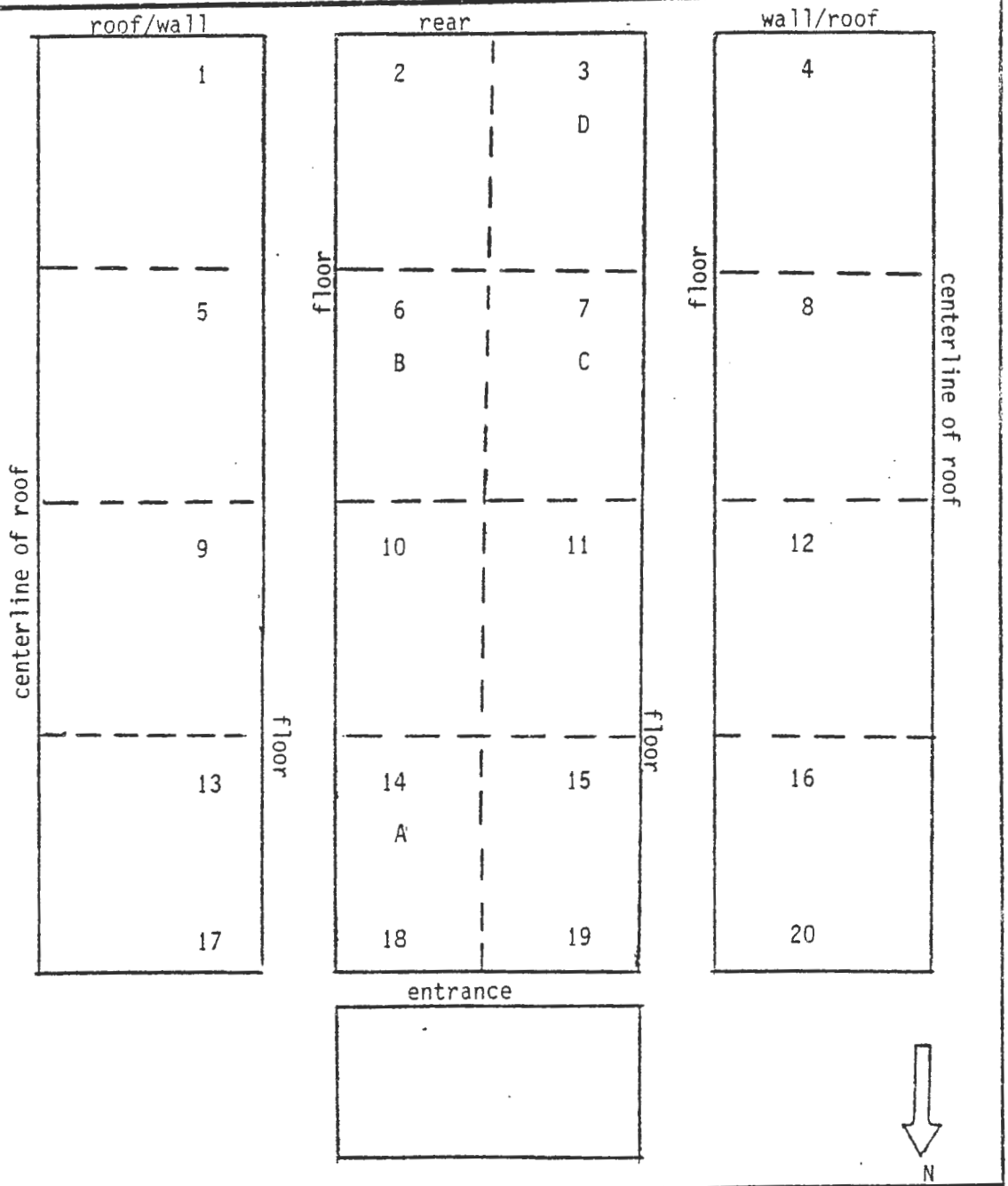
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E808

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E808

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

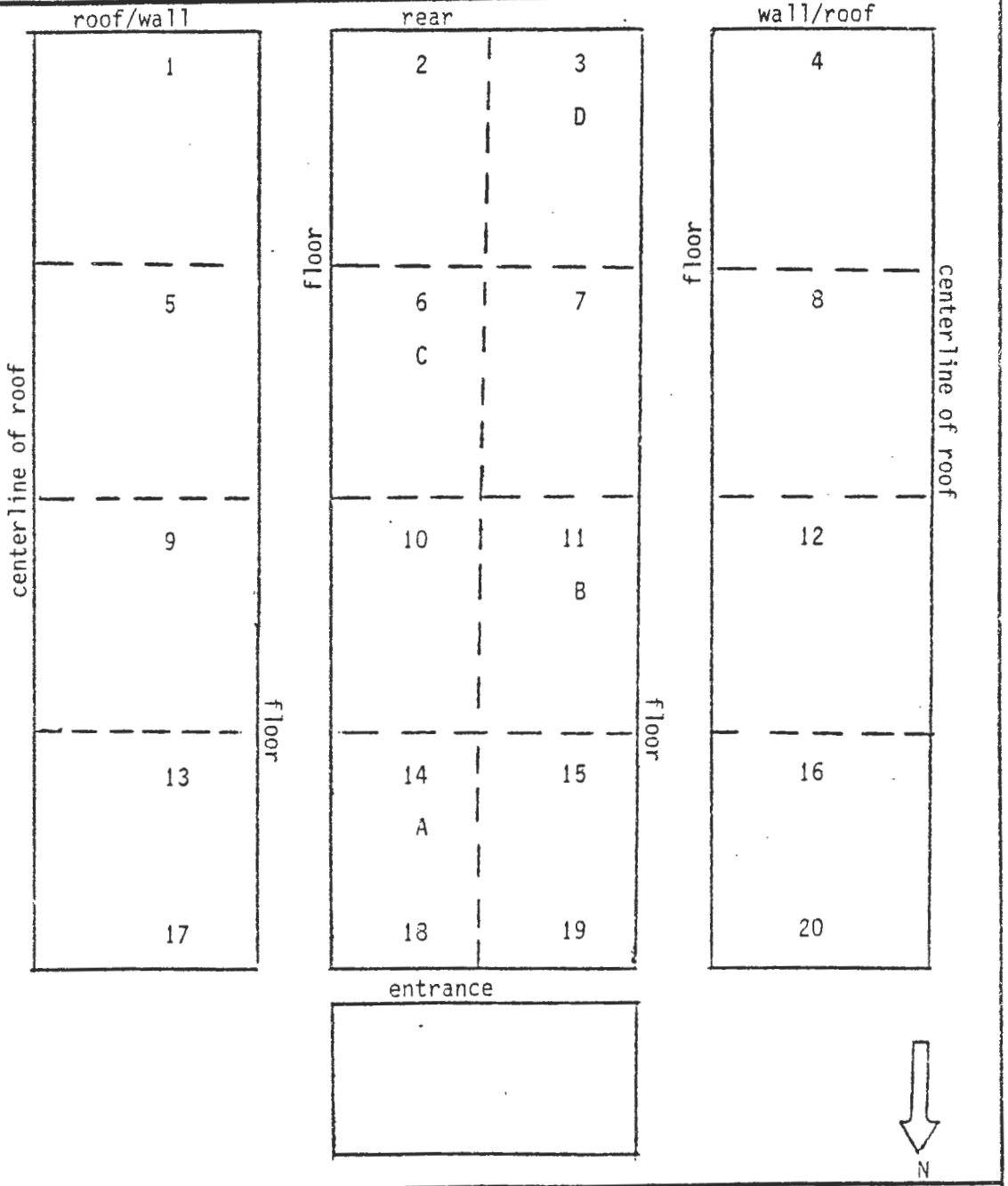
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E809

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E809

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

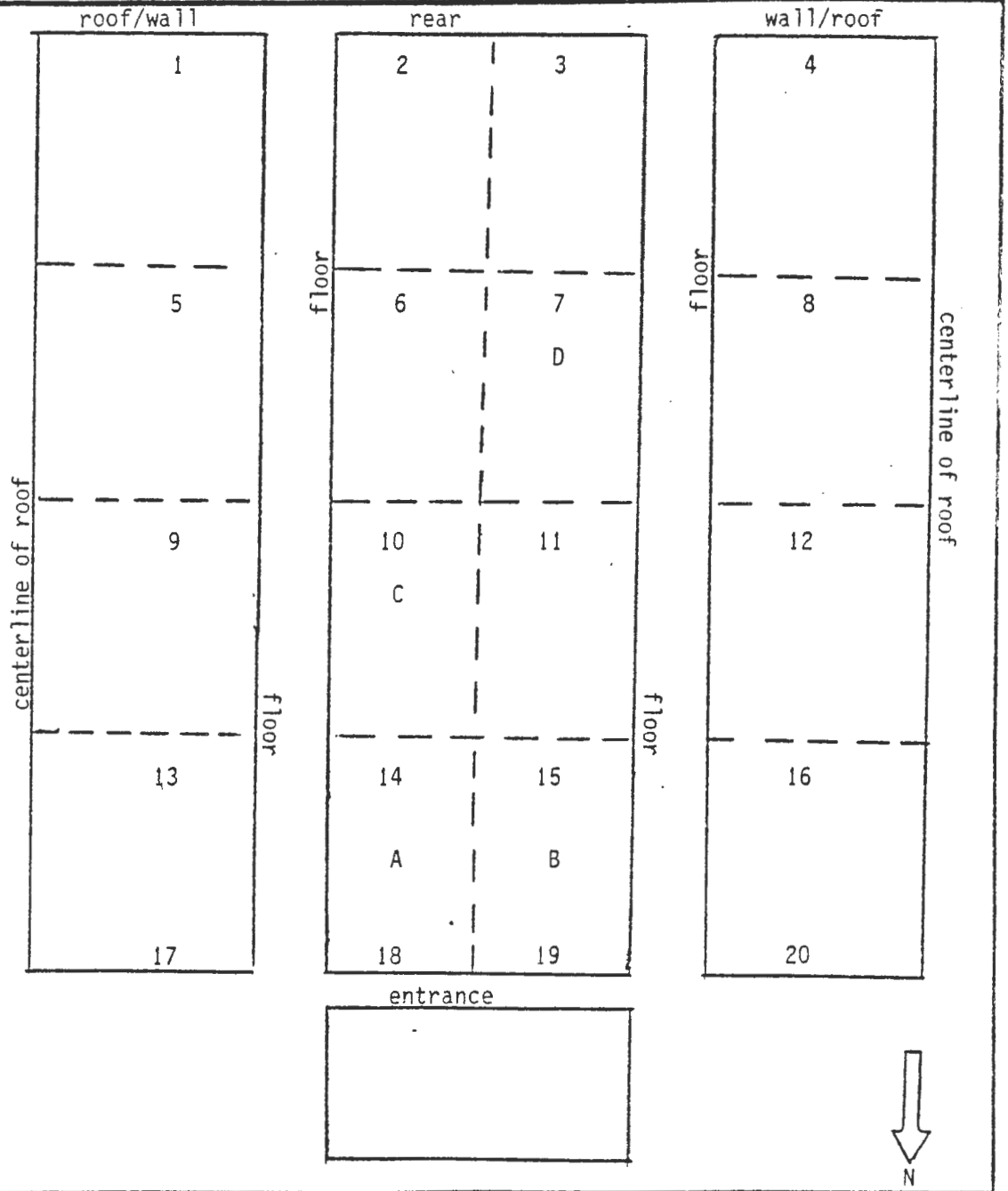
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E810

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E810

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

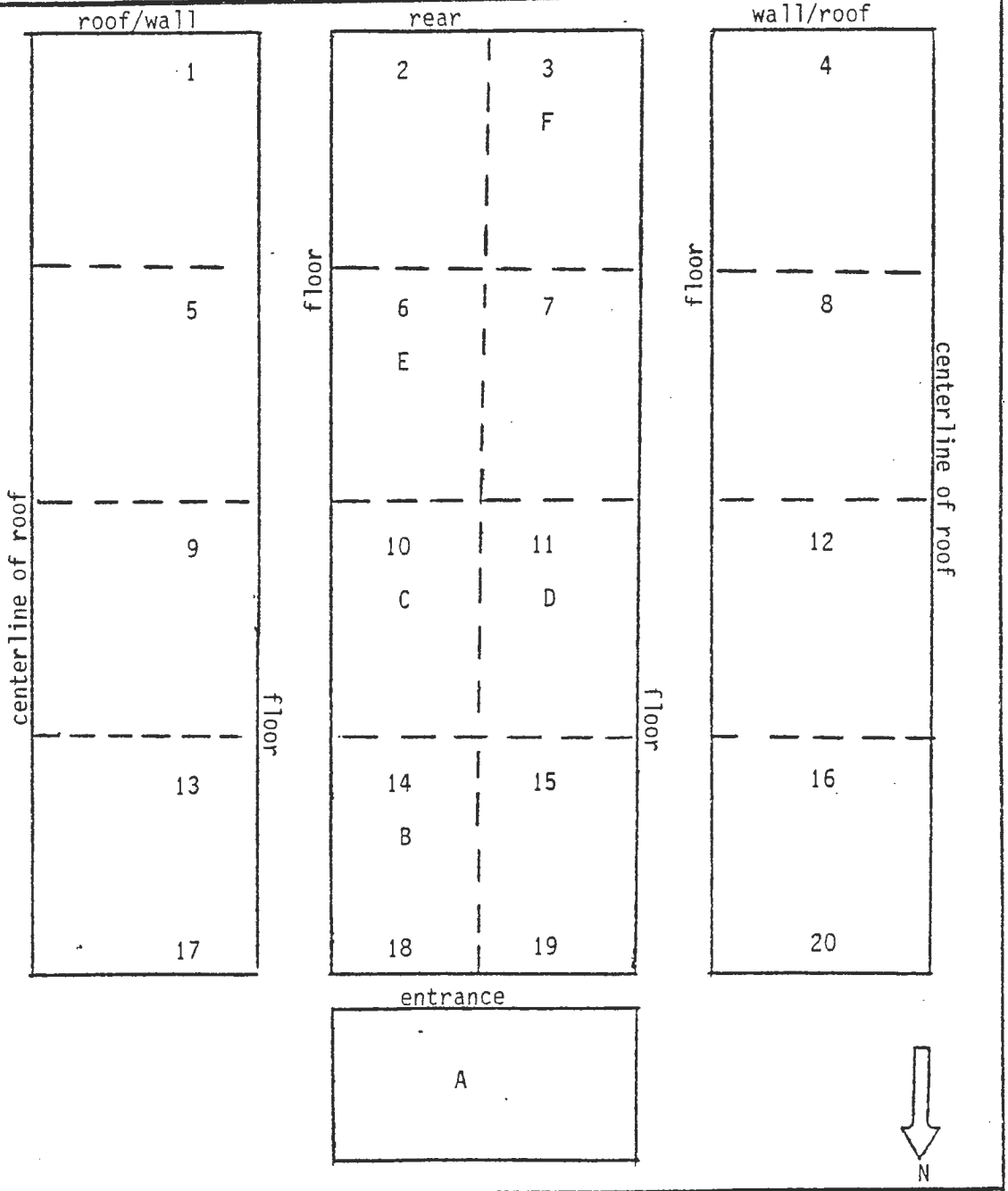
AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

BUNKER E811

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



Bunker E811

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

APPENDIX G

RESULTS OF ANALYZING SOIL SAMPLES
FOR GROSS ALPHA AND BETA ACTIVITIES

Sample Identification	AQAO Number	Microcurie Per Gram ±2 Standard Deviations Gross Alpha	Gross Beta
801-3	I0453	$(1.4 \pm 0.5) \times 10^{-5}$	$(2.8 \pm 0.4) \times 10^{-5}$
802-3	I0454	$(1.0 \pm 0.4) \times 10^{-5}$	$(1.8 \pm 0.3) \times 10^{-5}$
803-2	I0455	$(1.4 \pm 0.5) \times 10^{-5}$	$(2.5 \pm 0.4) \times 10^{-5}$
804-2	I0456	$(4.7 \pm 0.8) \times 10^{-5}$	$(4.3 \pm 0.5) \times 10^{-5}$
804-3	I0457	$(2.0 \pm 0.6) \times 10^{-5}$	$(3.0 \pm 0.4) \times 10^{-5}$
804-4	I0458	$(3.3 \pm 0.7) \times 10^{-5}$	$(3.7 \pm 0.4) \times 10^{-5}$
805-2	I0459	$(1.9 \pm 0.5) \times 10^{-5}$	$(2.4 \pm 0.4) \times 10^{-5}$
806-2	I0460	$(5.0 \pm 0.8) \times 10^{-5}$	$(4.0 \pm 0.5) \times 10^{-5}$
807-2	I0461	$(1.9 \pm 0.5) \times 10^{-5}$	$(3.0 \pm 0.4) \times 10^{-5}$
808-2	I0462	$(1.9 \pm 0.5) \times 10^{-5}$	$(2.8 \pm 0.4) \times 10^{-5}$
809-2	I0463	$(1.7 \pm 0.5) \times 10^{-5}$	$(2.6 \pm 0.4) \times 10^{-5}$
810-1	I0464	$(3.7 \pm 0.7) \times 10^{-5}$	$(3.4 \pm 0.4) \times 10^{-5}$
811-2	I0465	$(2.9 \pm 0.6) \times 10^{-5}$	$(3.4 \pm 0.4) \times 10^{-5}$
811-1	I0466	$(2.0 \pm 0.6) \times 10^{-5}$	$(3.2 \pm 0.4) \times 10^{-5}$

APPENDIX H

RESULTS OF ANALYZING SOIL SAMPLES FOR GAMMA ACTIVITIES

Sample Identification	Lab Number	Microcurie per Gram ±2 Standard Deviations		
		Cesium-137	Lead-214	Bismuth-214
801-3	I0453	$(1.0 \pm 0.2) \times 10^{-6}$	$(1.6 \pm 0.3) \times 10^{-6}$	$(1.6 \pm 0.5) \times 10^{-6}$
802-3	I0454	$(1.4 \pm 0.2) \times 10^{-6}$	$(1.2 \pm 0.3) \times 10^{-6}$	$< 6 \times 10^{-7}$
803-2	I0455	$(1.1 \pm 0.2) \times 10^{-6}$	$(1.3 \pm 0.3) \times 10^{-6}$	$< 7 \times 10^{-7}$
804-2	I0456	$< 2 \times 10^{-7}$	$(5.5 \pm 0.7) \times 10^{-6}$	$(4.6 \pm 0.7) \times 10^{-6}$
804-3	I0457	$< 1 \times 10^{-7}$	$(1.8 \pm 0.3) \times 10^{-6}$	$(1.4 \pm 0.3) \times 10^{-6}$
804-4	I0458	$< 2 \times 10^{-7}$	$(4.4 \pm 0.6) \times 10^{-6}$	$(3.4 \pm 0.5) \times 10^{-6}$
805-2	I0459	$< 2 \times 10^{-7}$	$(1.7 \pm 0.3) \times 10^{-6}$	$(1.3 \pm 0.4) \times 10^{-6}$
806-2	I0460	$< 4 \times 10^{-7}$	$(6.2 \pm 0.8) \times 10^{-6}$	$(5.6 \pm 0.8) \times 10^{-6}$
807-2	I0461	$< 1 \times 10^{-7}$	$(1.9 \pm 0.3) \times 10^{-6}$	$(1.5 \pm 0.3) \times 10^{-6}$
808-2	I0462	$< 2 \times 10^{-7}$	$(2.2 \pm 0.4) \times 10^{-6}$	$(2.2 \pm 0.4) \times 10^{-6}$
809-2	I0463	$< 1 \times 10^{-7}$	$(1.2 \pm 0.4) \times 10^{-6}$	$(1.0 \pm 0.3) \times 10^{-6}$
810-1	I0464	$< 2 \times 10^{-7}$	$(3.9 \pm 0.5) \times 10^{-6}$	$(3.5 \pm 0.6) \times 10^{-6}$
811-2	I0465	$(4.4 \pm 2.1) \times 10^{-7}$	$(3.2 \pm 0.4) \times 10^{-6}$	$(2.6 \pm 0.4) \times 10^{-6}$
811-1	I0466	$< 2 \times 10^{-7}$	$(1.9 \pm 0.4) \times 10^{-6}$	$< 8 \times 10^{-7}$

APPENDIX I

RESULTS OF DIRECT INSTRUMENT READINGS OF SURFACE CONTAMINATION OUTSIDE OF BUNKERS.

Location*	Gamma	Beta	Alpha
801-A	8 µR/hr	0	0
801-B	10 µR/hr	0	0
801-C	11 µR/hr	0	0
802-A	10 µR/hr	0	0
802-B	10 µR/hr	0	0
802-C	10 µR/hr	0	0
803-A	9 µR/hr	0	0
803-B	10 µR/hr	0	0
803-C	11 µR/hr	0	0
804-A	22 µR/hr	0	0
804-B	15 µR/hr	0	0
804-C	16 µR/hr	0	0
804-D	150 µR/hr	0	0
805-A	10 µR/hr	0	0
805-B	21 µR/hr	0	0
805-C	31 µR/hr	0	0
806-A	10 µR/hr	0	0
806-B	10 µR/hr	0	0
806-C	10 µR/hr	0	0
807-A	10 µR/hr	0	0
807-B	10 µR/hr	0	0
808-A	10 µR/hr	0	0
808-B	15 µR/hr	0	0
808-C	15 µR/hr	0	0
809-A	10 µR/hr	0	0
809-B	10 µR/hr	0	0
809-C	12 µR/hr	0	0
810-A	10 µR/hr	0	0
810-B	10 µR/hr	0	0
810-C	15 µR/hr	0	0
811-A	15 µR/hr	0	0
811-B	16 µR/hr	0	0

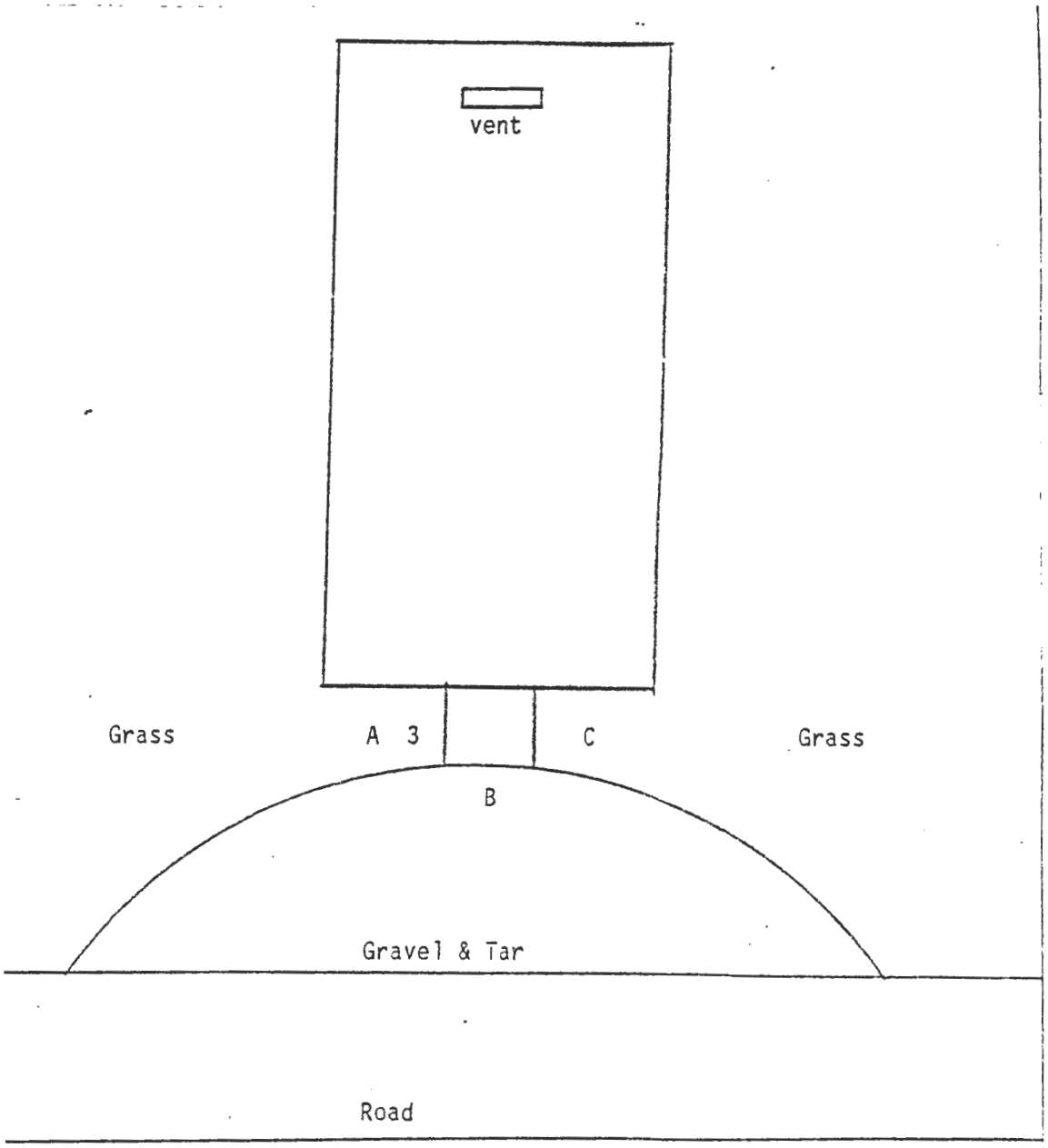
* approximately 1 meter from surface

APPENDIX J

AREA DIAGRAMS OF BUNKERS (E801-E811) INDICATING THE LOCATION OF SOIL SAMPLES AND INSTRUMENT READINGS

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E801 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

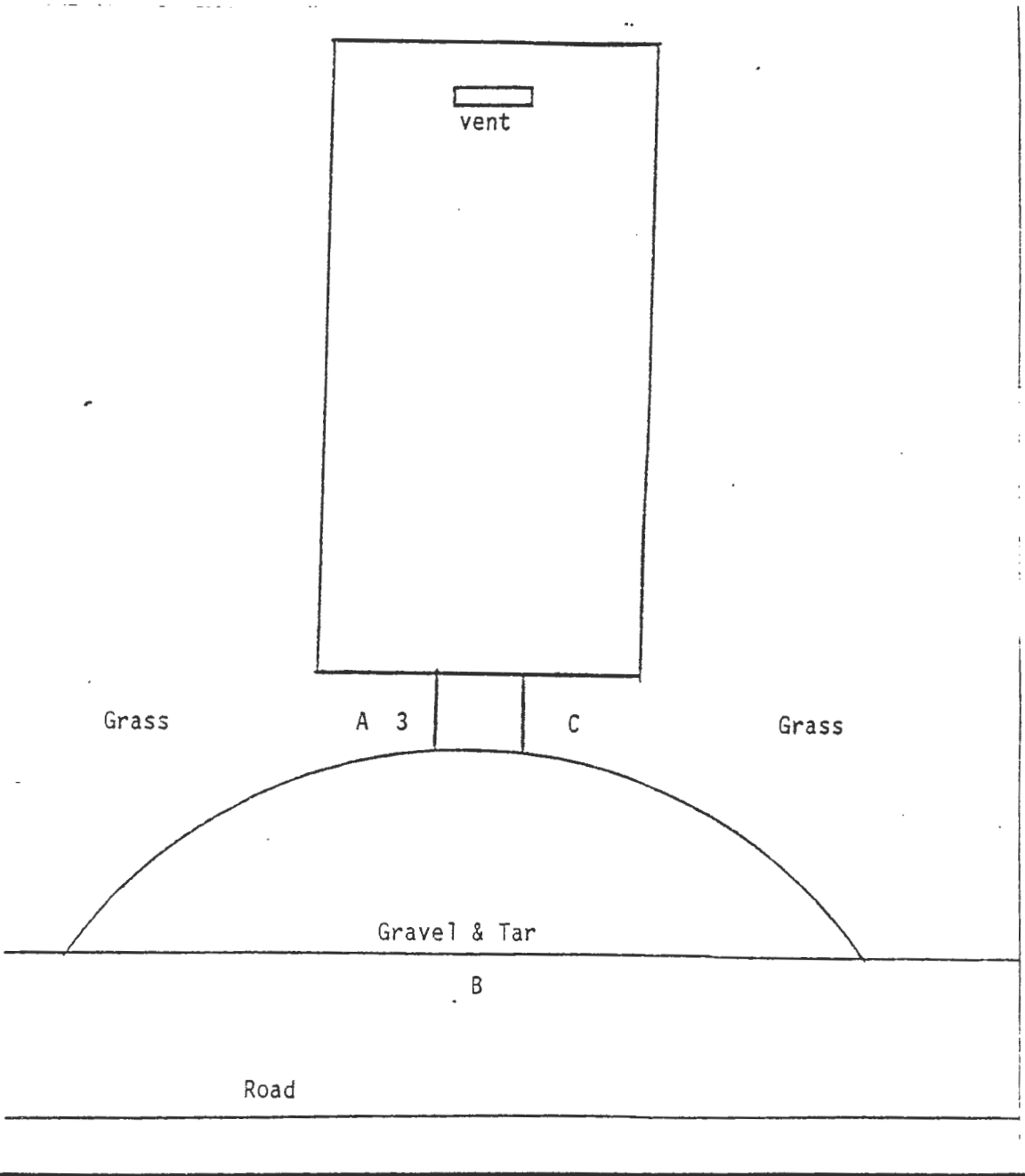
DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E802 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

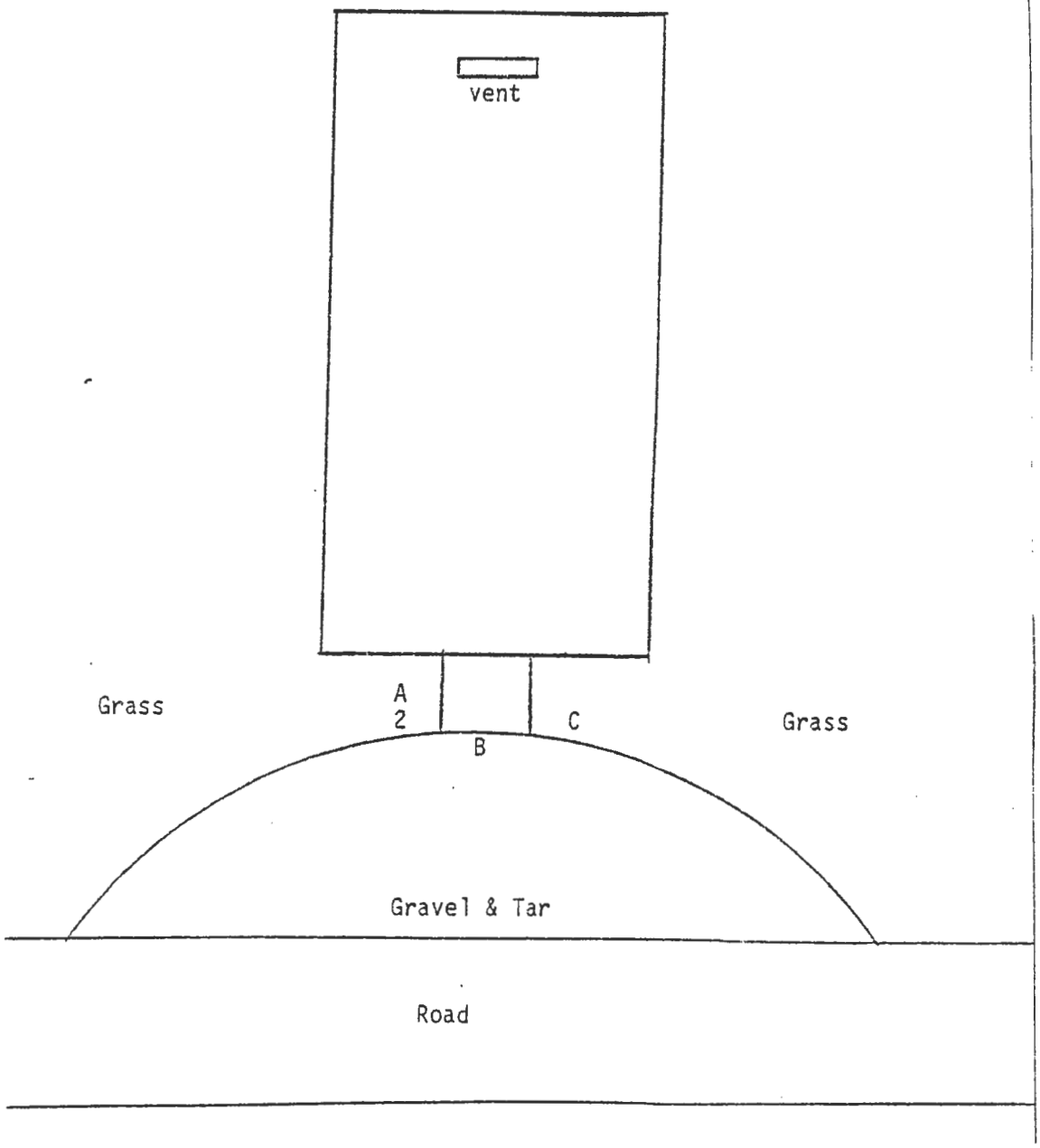
DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E803 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

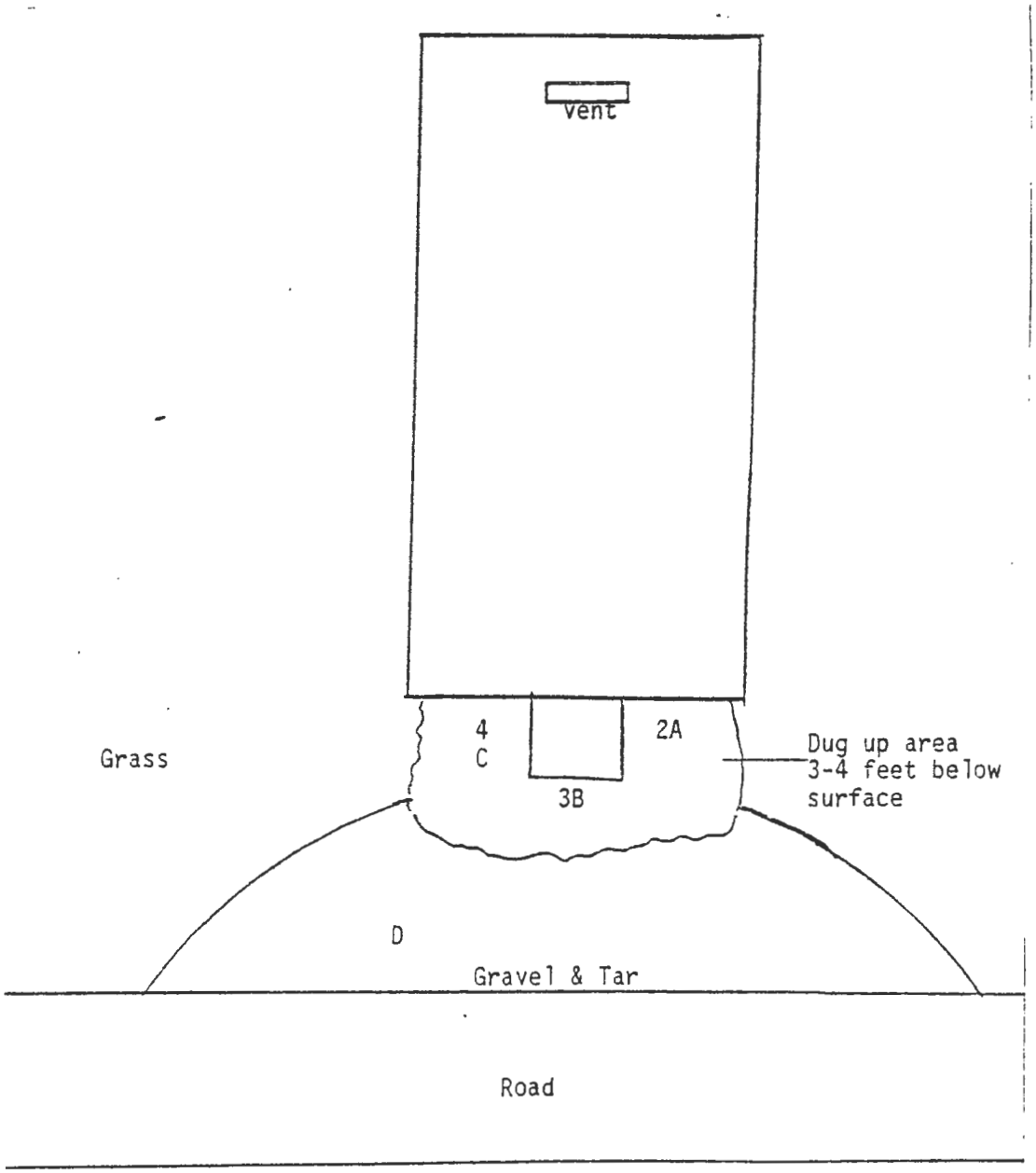
DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E804 (Plan View)

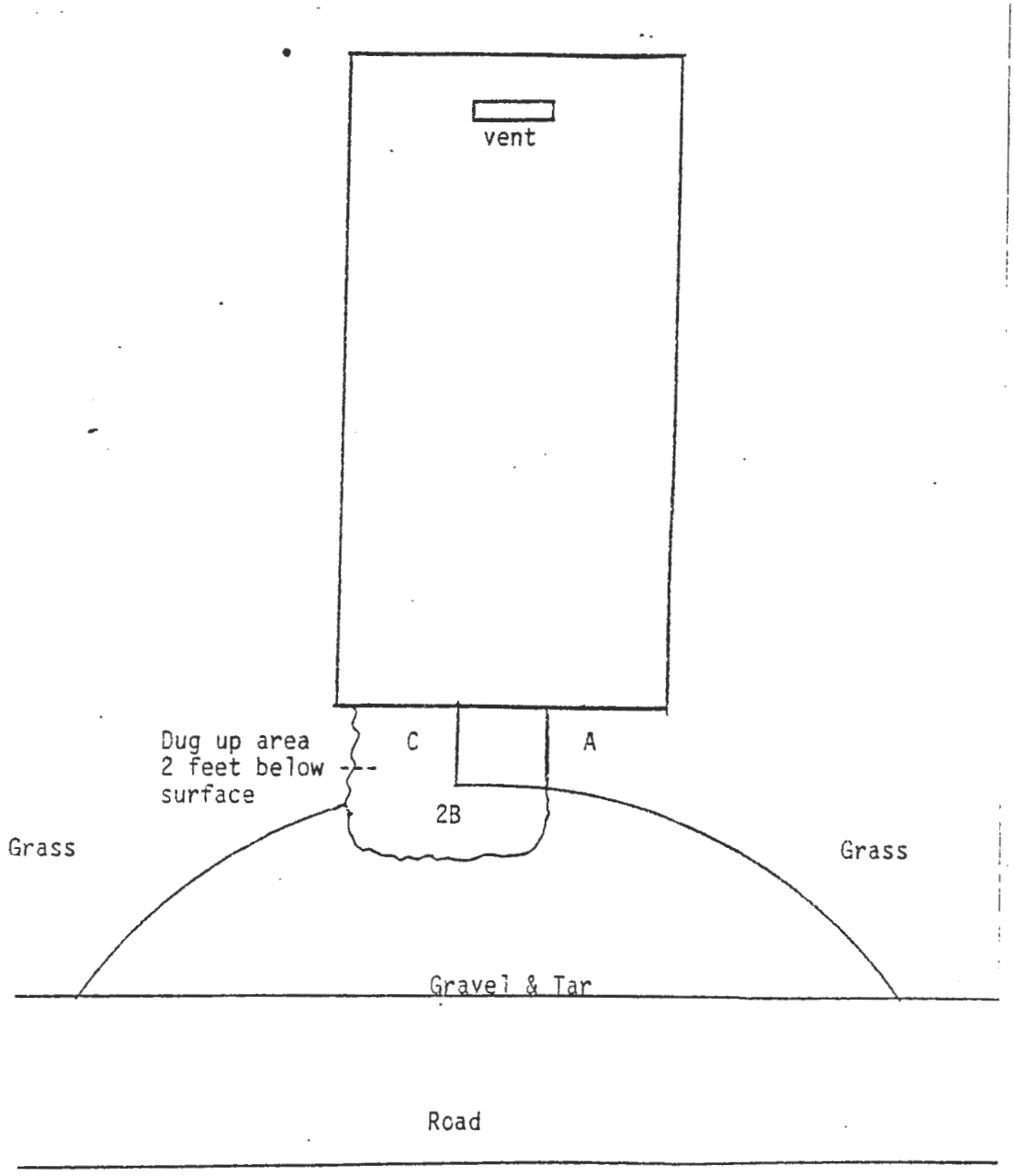
U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E805 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

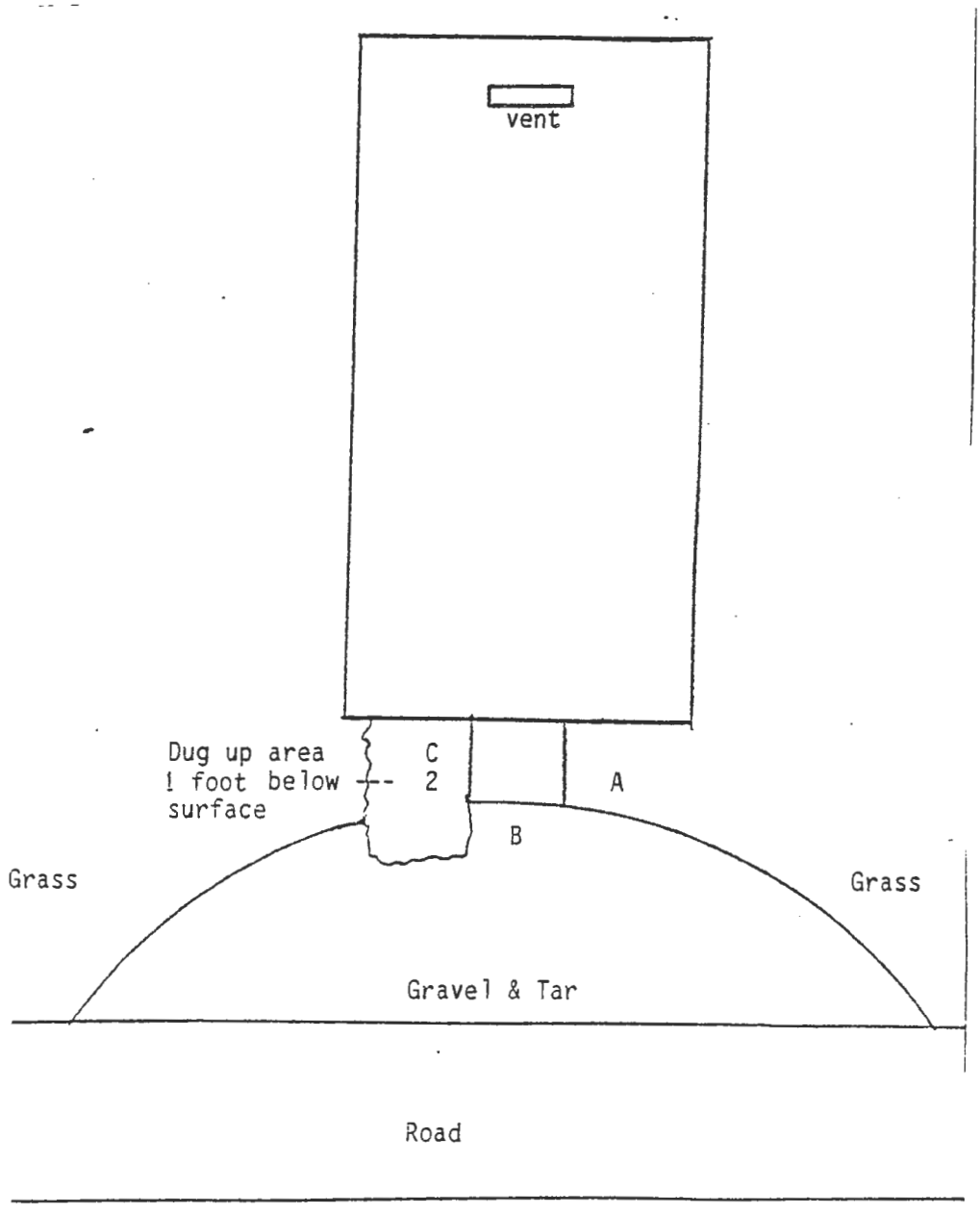
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E806 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

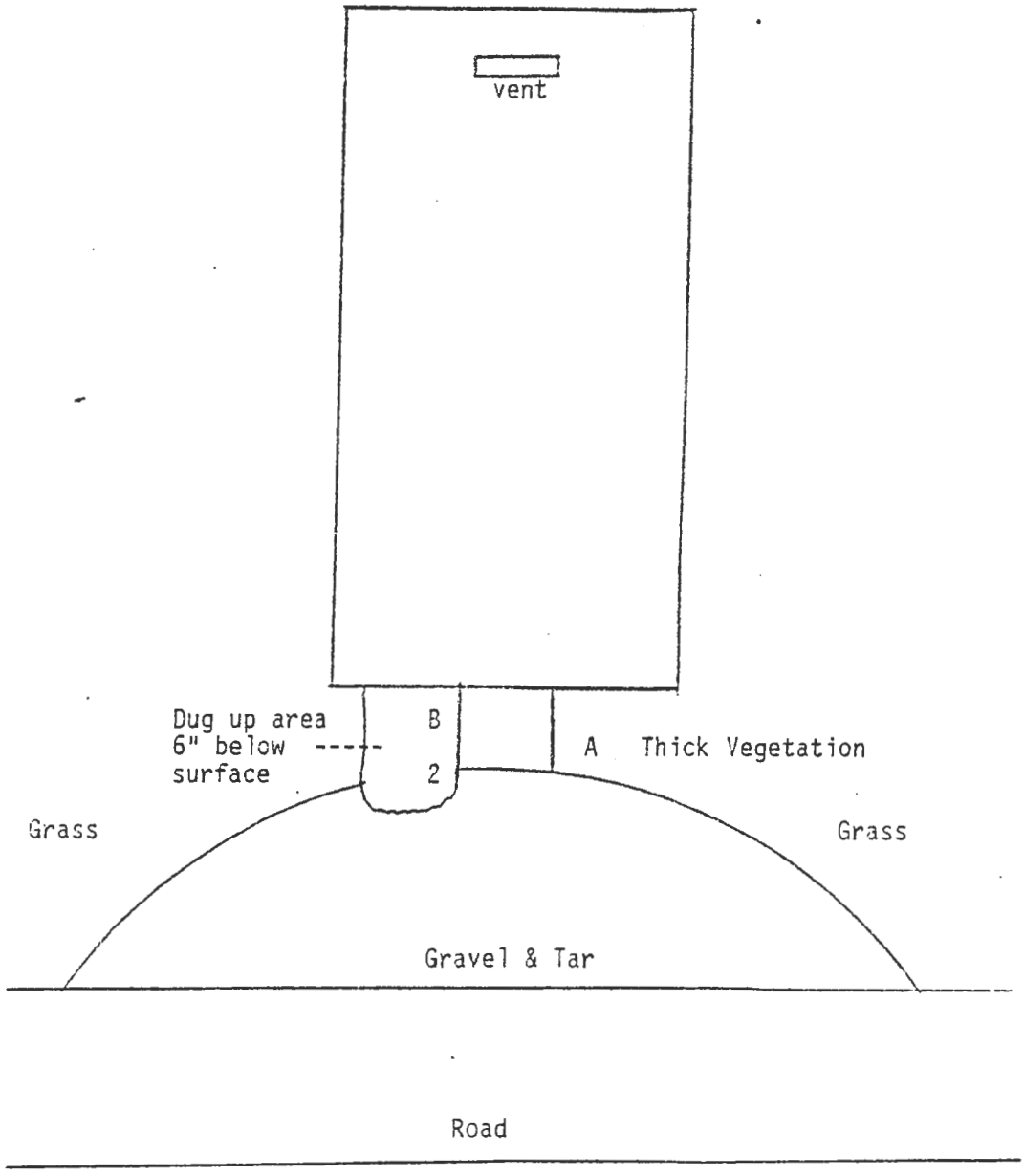
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E807

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

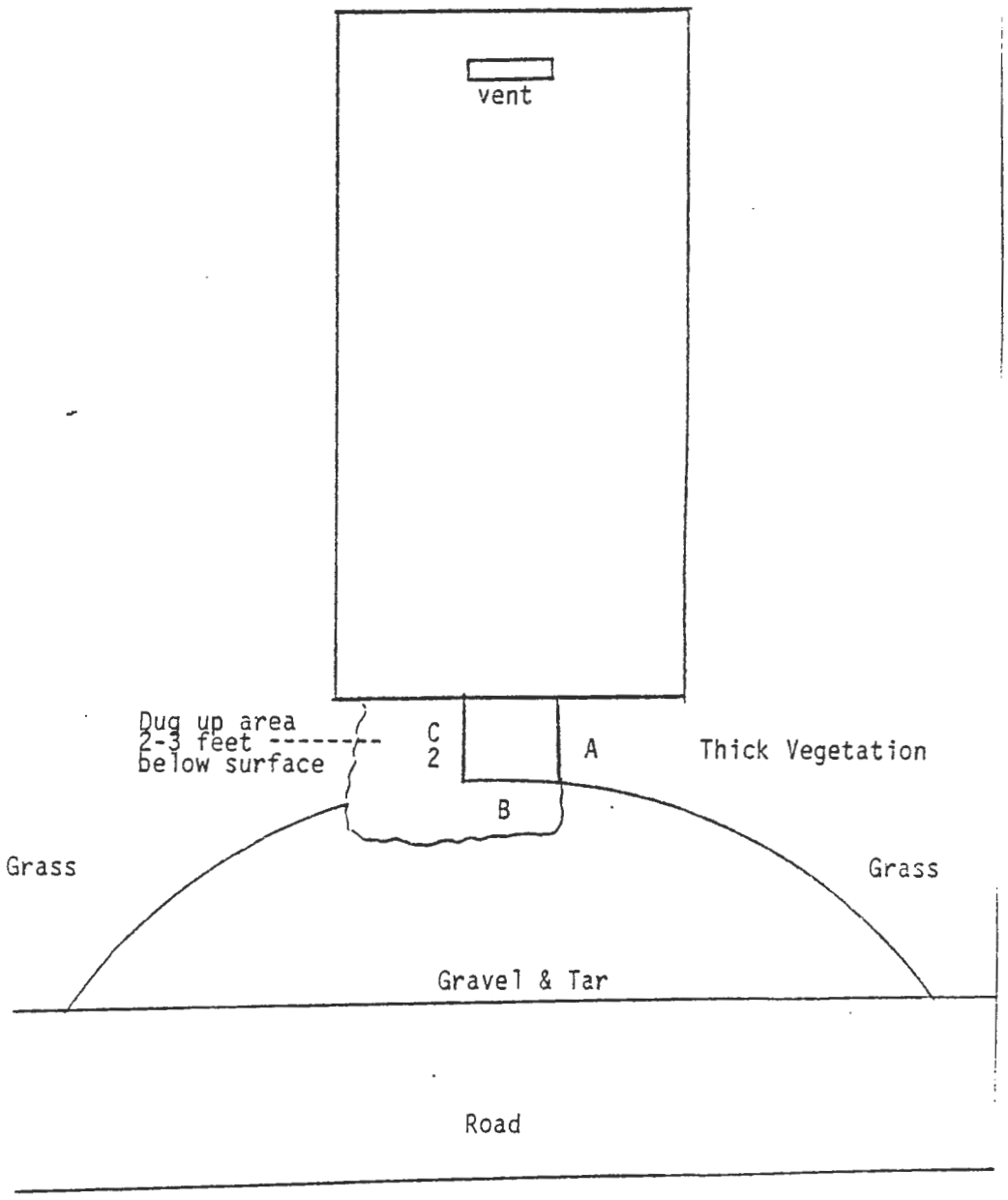
DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E808 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

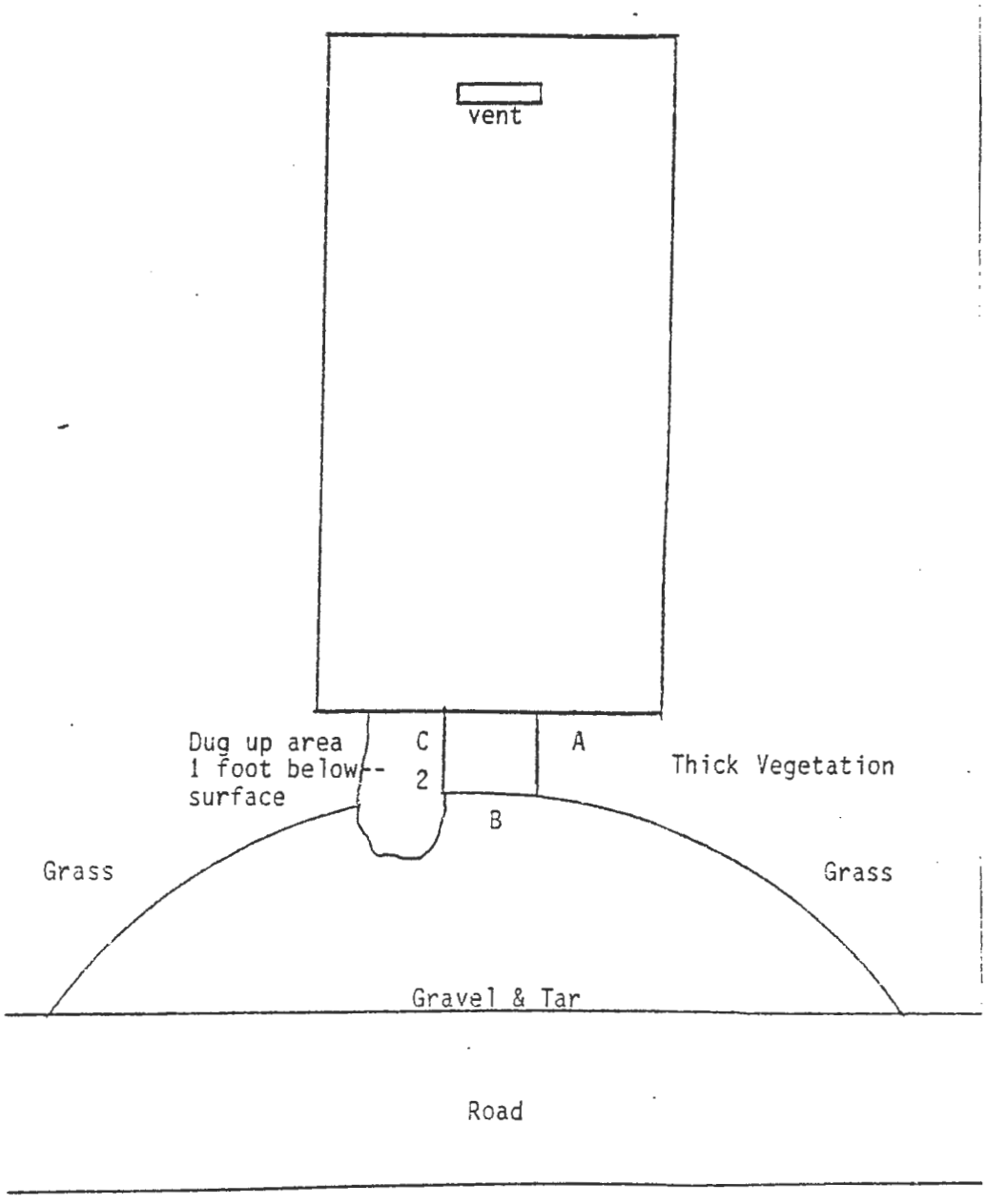
DATE 19 Aug 85
DRAWN SMA
APPROVED FWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E809 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

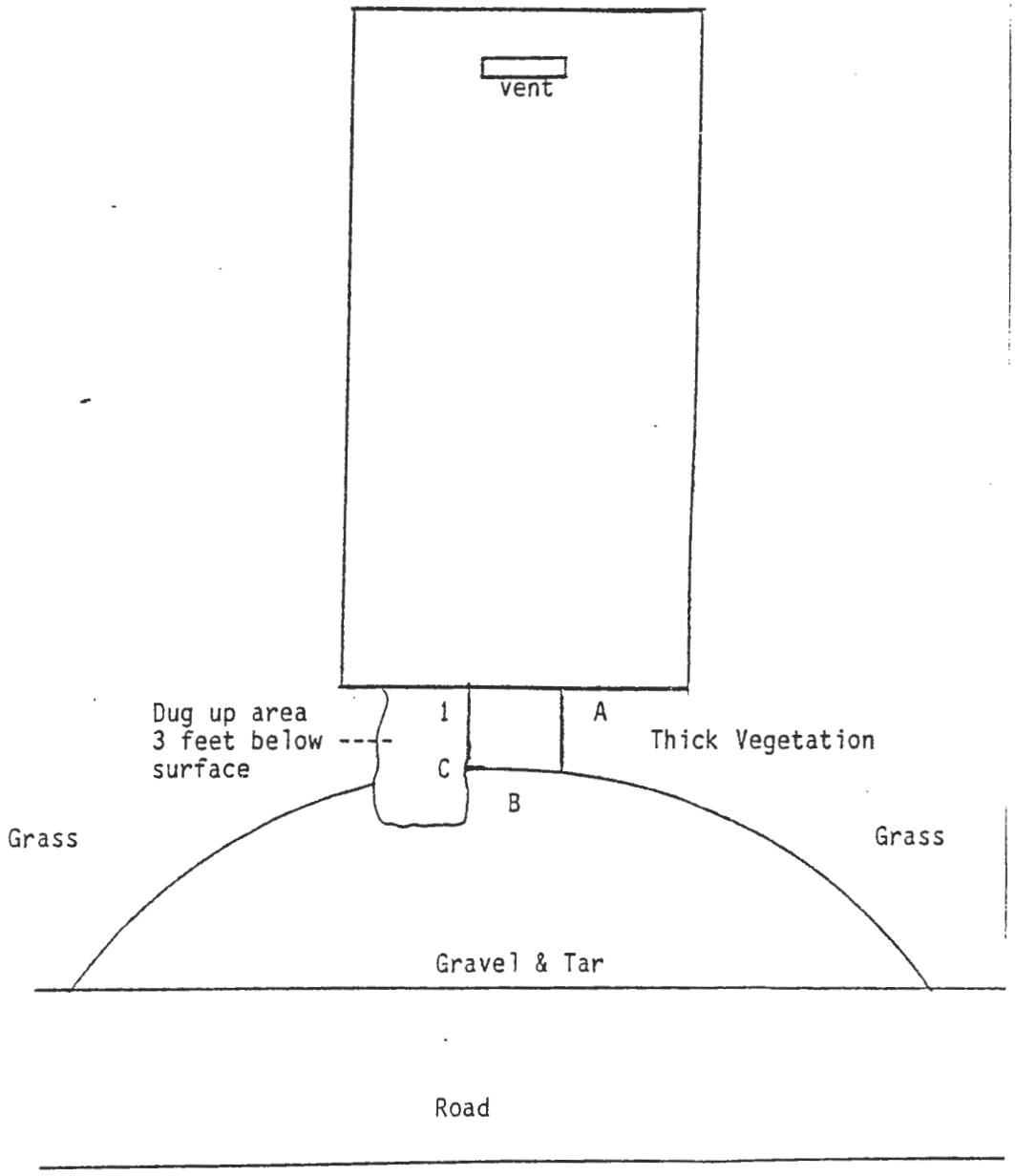
DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E810 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

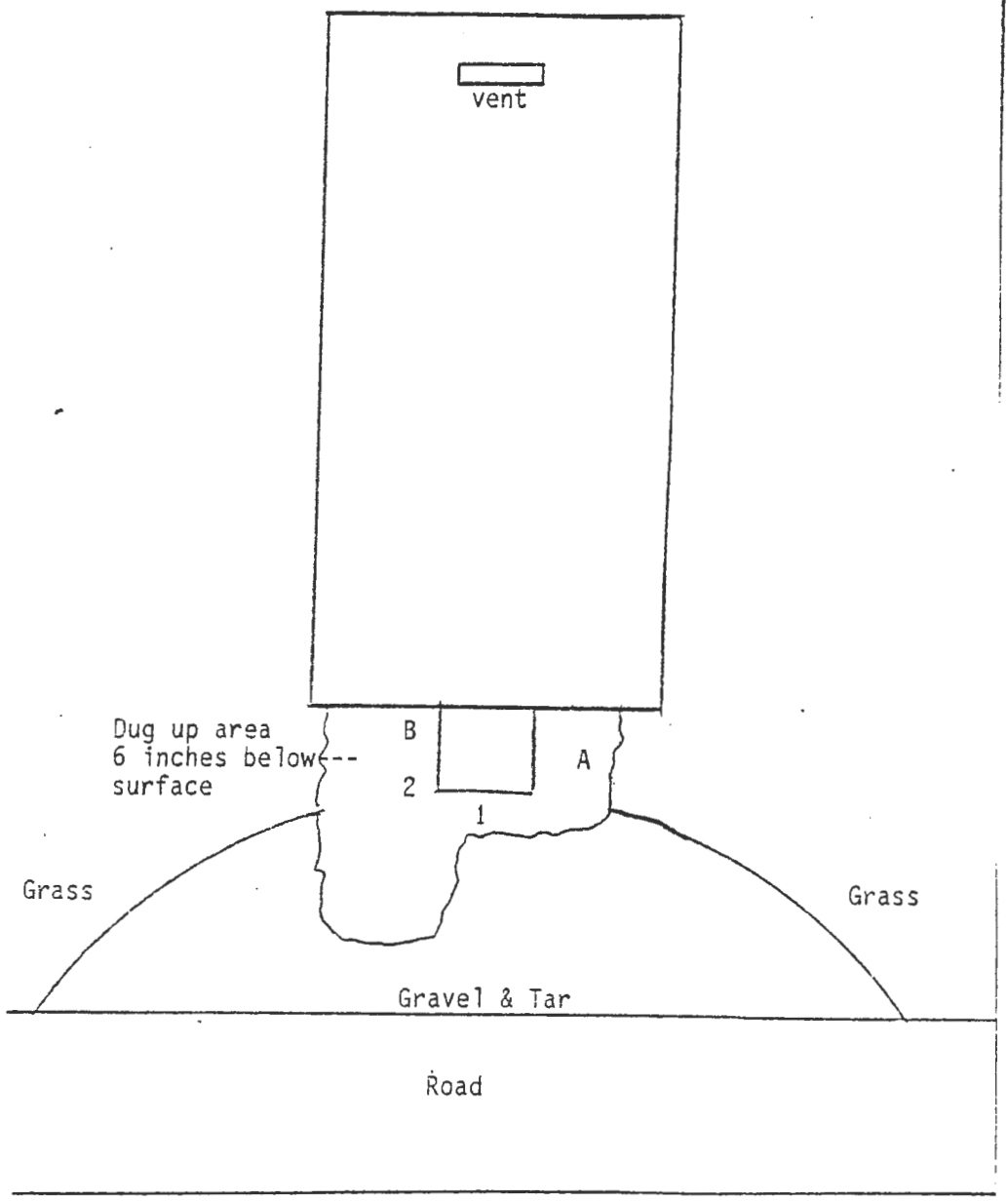
DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.

GRAPHICAL ILLUSTRATION

For use of this form see AEHA Form 6 SOP; the proponent is HSE-AT.



BUNKER E811 (Plan View)

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY

UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 19 Aug 85
DRAWN SMA
APPROVED EWP
SCALE NTS
PLATE NA

AEHA Form 6, 1 Jun 80

Replaces USAEHA Form 15, 12 Aug 74, which will be used.