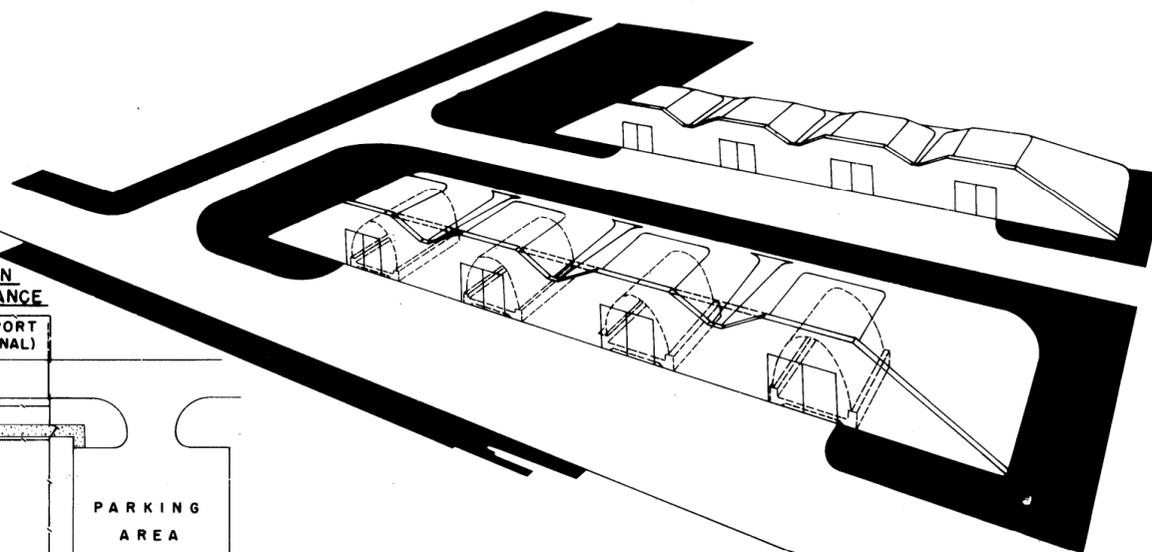


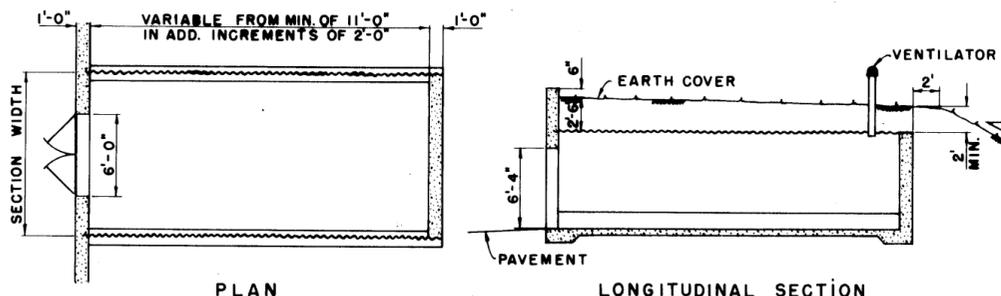
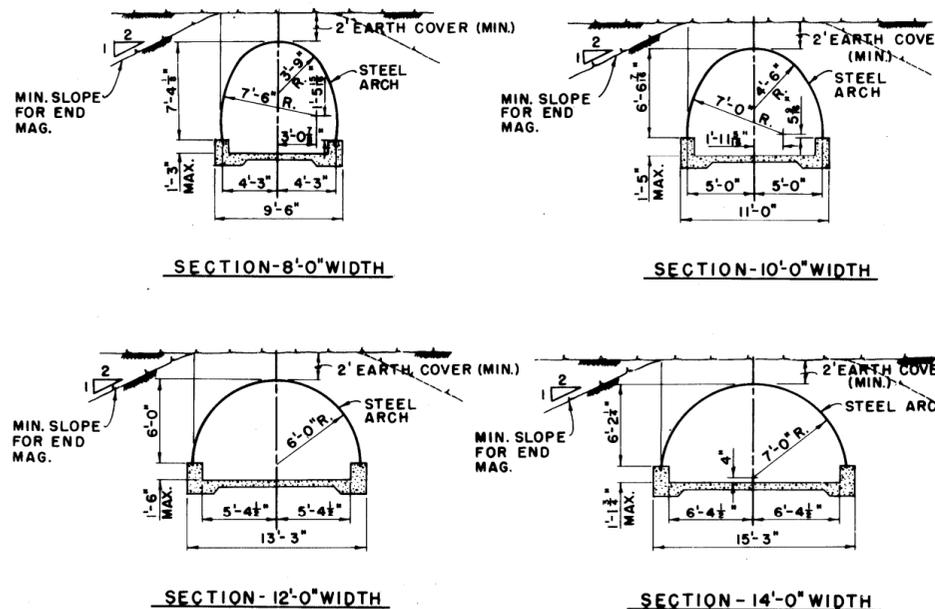
SITING PLAN
NOT TO SCALE

MINIMUM DIMENSIONS FOR SITING		
SYMBOL	DETERMINE BY FORMULAS	SEPARATION
A	MAGAZINES SIDE-TO-SIDE ②	$D = 1.25 W^{1/3}$
	MAGAZINES SIDE-TO-BACK	$D = 1.25 W^{1/3}$
B	MAGAZINES BACK-TO-BACK	$D = 1.50 W^{1/3}$
C	MAGAZINES FRONT-TO-BACK	$D = 4.50 W^{1/3}$
D	INTRALINE BARRICADED ③ ④	$D = 9.0 W^{1/3}$
E	INTRALINE UNBARRICADED	$D = 18.0 W^{1/3}$
	DETERMINE FROM TABLES ON SHT. 2	TABLE COL.
F	INHABITED BLDG. BARRICADED ③	A 3
G	INHABITED BLDG. UNBARRICADED	A 4
H	PUBLIC HWY. & R.R. BARRICADE ③	A 5
I	PUBLIC HWY. & R.R. UNBARRICADED	A 6
J	JOINT MIL.-CIV. AIRFIELD FACILITIES	B & C -
K	MIL. AIRFIELD FACILITIES	B & C -

- NOTES**
- IN SEPARATION FORMULAS 'D' IS IN FEET AND 'W' IS THE CUBE ROOT OF THE MASS-DETONATING EXPLOSIVE LOADING IN POUNDS.
 - MINIMUM SEPARATION IS 7 FEET.
 - SEE SHEET 2, TABLE A, NOTE 1.
 - STRUCTURES OF UNEQUAL EXPLOSIVE LOADINGS AND/OR DISSIMILAR CONSTRUCTION MUST BE ANALYZED FOR SITING BOTH AS PROSPECTIVE DONORS AND TARGETS. GREATEST SEPARATION THUS DETERMINED GOVERNS EXCEPT THAT SEPARATION BETWEEN AN EXPLOSIVES OPERATING BUILDING AND NEAREST MAGAZINE WILL BE COMPUTED ON EXPLOSIVE LOADING OF MAGAZINE.



PERSPECTIVE



STEEL ARCH MAGAZINES



REFERENCE MATERIAL

- THE FOLLOWING DOCUMENTS HAVE BEEN UTILIZED IN THE DEVELOPMENT OF THIS DEFINITIVE.
- D.O.D. DIRECTIVE NO. 4146.17 "QUANTITY-DISTANCE STANDARDS FOR MANUFACTURING, HANDLING AND STORAGE OF MASS-DETONATING EXPLOSIVES AND AMMUNITION."
 - D.O.D. DIRECTIVE NO. 4146.1 "EXPLOSIVES SAFETY STANDARDS FOR AIRFIELDS, LIGHTER-THAN-AIR FACILITIES, HELIPORTS AND SEADROMES."
 - SFM-1 "ATOMIC WEAPONS STORAGE FACILITIES MANUAL."
 - AFM-127-100 "EXPLOSIVES SAFETY MANUAL."
 - TM 9-1000 "CARE, HANDLING, PRESERVATION AND DESTRUCTION OF AMMUNITION."
 - MULTIPLE MEMO, 210-64/3, ASESB, 26 FEB 64, TO SERVICE SECRETARIES, SUBJECT: "SITING OF MAGAZINES."
 - AFM 207-1 "AEROSPACE SYSTEMS SECURITY."

DESIGN GUIDE

ARCHITECTURAL
ENTRANCE LOCATION AND BUILDING SITING TO BE VARIED TO SUIT LOCAL CONDITIONS AND MISSION CAPABILITY REQUIREMENTS WITHIN LIMITATIONS OF MINIMUM DIMENSIONS FOR SITING. SITING DRAWINGS SUBMITTED FOR ASESB REVIEW MUST SHOW MAXIMUM QUANTITY OF EXPLOSIVES TO BE POSITIONED IN EACH STRUCTURE AND CLASS OR TYPE THEREOF.

STRUCTURAL
RETAINING WALLS SHALL BE DESIGNED TO RESIST LOAD OF EARTH FILL INDICATED AND A UNIFORM LIVE LOAD ON FILL OF 40 PSF.
STEEL ARCHES SHALL BE NO. 8 U.S. STD. GA. 2"x6" ANNULAR CORRUGATED GALVANIZED STRUCTURAL PLATE CONFORMING TO AASHTO DES M-167-57. THICKNESS OF ARCHES SHALL NOT BE LESS THAN:
ARCH WIDTH (FT) 11' OR LESS 18' TO 20' 22' TO 24' 26' 28' TO 30'
U.S. STD. GAUGE 8 7 5 3 1
LENGTH MAY BE VARIED IN 2 FT INCREMENTS FROM DIMENSIONS SHOWN.
ALL REINFORCED CONCRETE SHALL BE CLASS A (3,000 PSI) PER OCE GUIDE SPEC. CE-204. REINFORCING STEEL SHALL BE TYPE 11, GRADE C, QQ-S-832.
FLOORS SHALL SLOPE TO FRONT FOR DRAINAGE AT A PITCH OF 1" ON 10'
SLOPE FOR DRAINAGE ON APRONS AND RAMPS SHALL NOT EXCEED 2%. PERIPHERAL FOOTING DRAINS SHALL BE PROVIDED.
EARTH COVERING SHALL BE COMPACTED TO EXTENT REQUIRED FOR STABILITY OF ARCHES; SHALL NOT BE LESS THAN TWO FEET THICK AT CROWN OF ARCHES, GRADED TO DRAIN; AND WHERE UNSUPPORTED BY VERTICAL HEADWALLS SLOPED TO GRADE AT NOT LESS THAN 1 TO 2. EARTH COVERING MAY BE VALLEED BETWEEN MAGAZINES.
DOLLY WHEEL LOADINGS ON MAGAZINE FLOOR WILL NOT EXCEED 2,000 LBS PER WHEEL ON SMALL PNEUMATIC OR SOLID RUBBER TIRES. WHEEL LOADS ON RAMPS AND APRONS WILL NOT EXCEED 9,000 POUNDS PER WHEEL.
EXTERIOR SURFACES OF MAGAZINE IN CONTACT WITH EARTH SHALL BE WATERPROOFED.

UTILITIES
DRAINAGE: AS REQUIRED BY SITE.

VENTILATION
MAGAZINES INTENDED FOR WEAPONS CONTAINING CERTAIN ACTIVE MATERIALS MUST BE VENTILATED. VENTILATION OF OTHERS IS OPTIONAL BUT IS DISCOURAGED BECAUSE OF CONDENSATION PROBLEMS. CONSULT DASA SFM-1.

ELECTRICAL
LIGHTING
INTERIOR 5 FOOT-CANDLES AT FLOOR LEVEL. EXTERIOR NOT LESS THAN 1.0 FOOT-CANDLES ON APRON IN FRONT OF ENTRANCE DOORS.
INTERIOR FIXTURES SHALL BE GENERAL-PURPOSE TYPE AND LOCATED SO AS TO BE LEAST LIKELY TO DAMAGE.
EXTERIOR FIXTURES SHALL BE WATERPROOF.
CONTROL SWITCHES SHALL BE MOUNTED ON EXTERIOR OF THE HEADWALL OF EACH MAGAZINE.

POWER OUTLETS
AT LEAST ONE 110 V., 15 A. GROUNDED CONVENIENCE OUTLET SHOULD BE PROVIDED IN EACH MAGAZINE.

CONDUIT SYSTEM
SOLID, HEAVY-WALLED, GALVANIZED STEEL WITH HUB-TYPE BOXES.

LIGHTNING PROTECTION
SEE SHEET 5, STANDARD DRAWING 33-15-65.

SEEDING
WHERE PRACTICAL, EARTH COVERING OVER STRUCTURES AND EARTH SURFACES OF BARRICADES SHALL BE SEED TO PREVENT SOIL EROSION.
WHERE RAINFALL IS INSUFFICIENT TO MAINTAIN GRASS COVER A LAYER OF CRUSHED ROCK OR GRAVEL MAY BE SUBSTITUTED.

FIRE PROTECTION NONE
PLUMBING NONE

INTRUSION - DETECTION EQUIPMENT
PROVIDE CONDUIT SYSTEM FOR INSTALLATION OF INTRUSION - DETECTION EQUIPMENT.

STANDARD DRAWINGS
FOR CONSTRUCTION USE WORKING DRAWINGS 33-15-65 (7 SHEETS). THE FOLLOWING DRAWINGS ARE AVAILABLE FOR ASSOCIATED STRUCTURES: SENTRY BOX (5'-4"x7'-0") - 27-04-03, PASS-THRU SENTRY HOUSE (18'-0"x18'-0") - 60-18-06, AMMO STORAGE SECURITY GUARD HOUSE (1324 SQ FT) - AD 27-04-05, AMMO ASSEMBLY & CHECKOUT (82'-8"x75'-0") - AD 35-80-04R2, 1GL00, STORAGE, EARTH-COVERED STEEL ARCH (26'-0"x60'-0") - AM 38-18-64, SHOP, POST AMMUNITION MAINTENANCE - 38-26-34

GROSS AREA VARIES
NET AREA VARIES

GENERAL REVISIONS		IS. MAR. 65	DATE	APPROVAL
SYMBOL	DESCRIPTION			

BLACK & VEATCH CONSULTING ENGINEERS KANSAS CITY, MISSOURI
DEFENSE ATOMIC SUPPORT AGENCY OFFICE OF THE CHIEF OF ENGINEERS WASHINGTON, D.C.

EARTH COVERED STEEL ARCH MAGAZINES LAYOUT, PLANS AND SECTIONS

DRAWN BY: R.E.J.
TRACED BY: R.E.J.
CHECKED BY: J.G.G.
SUBMITTED BY: J.G.G.
DATE: 10 JAN 1965

SCALE: AS NOTED SPEC. NO. DRAWING NUMBER
DEF 33-15-65
SHEET 1 OF 2