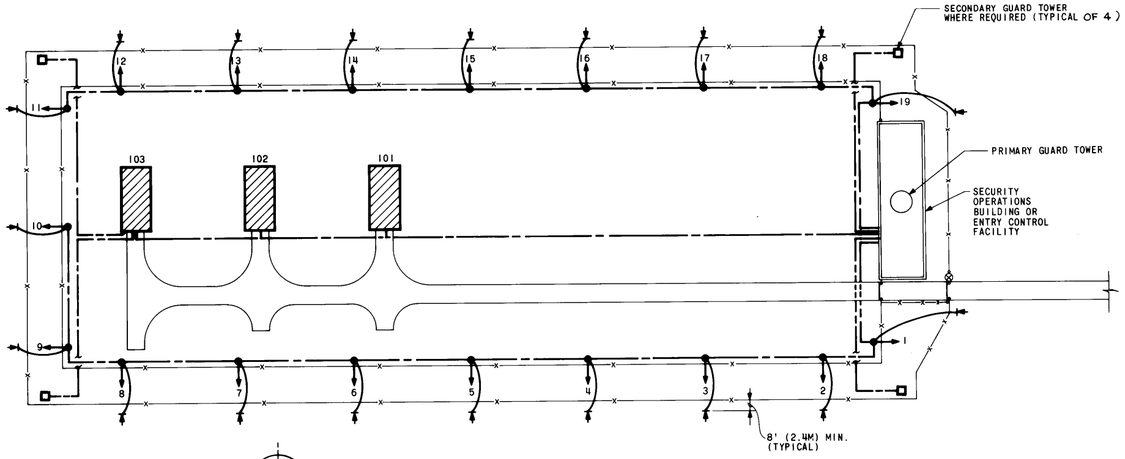

GENERAL LAYOUT △A

SCALE: 1"=50' (1/600)

LEGEND

—x— FENCE LINE

UNDERGROUND PRIMARY 5-CONDUCTOR, DIRECT BURIAL TYPE POWER CABLE. SEE FEEDER SCHEDULE ON SHEET 8 FOR SIZES.

12 POLE MOUNTED FLOODLIGHT. ARROWED LINE INDICATES LUMINAIRE ORIENTATION AND AIMING POINT. NUMERAL INDICATES POLE NO.. AIMING POINT OUT FROM POLE WHEN USING THE HIGH PRESSURE SODIUM FLOODLIGHT TYPE FHPS-250 SHALL BE 25 FEET (7.6M). POLE SPACING SHOWN IS FOR HIGH PRESSURE SODIUM FLOODLIGHT TYPE FHPS-250. △A

102 STORAGE MAGAZINE. THE NUMERAL IS THE IDENTIFICATION NUMBER.

UNDERGROUND SECONDARY 3-CONDUCTOR, NO. 12 AWG. (1.5 SQ.MM) DIRECT BURIAL TYPE POWER CABLE.

ILLUMINATED PERIMETER WARNING SIGN INSTALLED 100 FEET (30M) APART. SEE DETAIL ON SHEET - 6.

△A SCALE: 1/600 1" = 50'

(0) (12m) (24m) (48m) (72m) (96m)

0' 25' 50' 75' 100' 200' 300'

REFERENCE MATERIAL

THE FOLLOWING PUBLICATIONS WERE USED IN DEVELOPMENT OF THIS DEFINITIVE: (ANY REVISIONS THERETO WILL BE COMPLIED WITH).

1. TM 5-811-1 ELECTRICAL DESIGN, ELECTRIC POWER SUPPLY AND DISTRIBUTION.
2. AR 190-11 PHYSICAL SECURITY OF WEAPONS, AMMUNITION, AND EXPLOSIVES.
3. FM 19-30 PHYSICAL SECURITY
4. ILLUMINATING ENGINEERING SOCIETY LIGHTING HANDBOOK
5. NATIONAL ELECTRIC MANUFACTURERS ASSOCIATION FLOODLIGHT CLASSIFICATION.
6. △A CEGS-16505 PROTECTIVE LIGHTING SYSTEM

RELATED DRAWINGS

DRAWING NO. DEF 141-32-01 SECURITY OPERATIONS BUILDING
DRAWING NO. DEF 141-32-02 ENTRY CONTROL FACILITY
DRAWING NO. DEF 872-90-01 PERIMETER WARNING SIGN
DRAWING NO. DEF 872-10-01 FENCE DETAIL AND VEHICLE BARRIER △B

LIGHTING DESIGN GUIDES △A

GENERAL: THIS DRAWING APPLIES TO PROTECTIVE SECURITY LIGHTING FOR A TYPICAL SMALL, MEDIUM AND LARGE WEAPONS STORAGE AREA. THE LIGHTING SHALL BE DESIGNED TO PROVIDE A MINIMUM OF 1.0 FOOTCANDLE (10.8 LUX) OF ILLUMINATION MEASURED HORIZONTALLY AT GROUND LEVEL AND SHALL CONSIST OF A 50 FOOT (15M) WIDE LIGHTED STRIP EXTENDING 18 FEET (5.4M) MIN. IN FRONT OF EACH MAGAZINE, OTHER STORAGE STRUCTURE AND EACH ENTRANCE TO ANY OPERATING BUILDING. LIGHTING SHALL ALSO BE DESIGNED TO PROVIDE A MINIMUM OF 0.2 FOOTCANDLE (2 LUX) OF ILLUMINATION MEASURED HORIZONTALLY 6 INCHES (15 CM) ABOVE GROUND LEVEL AND SHALL CONSIST OF A LIGHTED STRIP ALONG THE SITE PERIMETER. THE LIGHTED STRIP SHALL BEGIN AT THE INNER FENCE LINE AND EXTEND 30 FEET (10M) BEYOND THE OUTER FENCE LINE. LIGHTING SHALL BE CONTROLLED BY SWITCHES LOCATED IN THE SECURITY BUILDING. DETAILS AND WIRING OF SECURITY LIGHTING CONTROL PANELS ARE SHOWN ON SHEET - 5. THE SYSTEM SHALL BE SO DESIGNED THAT FAILURE OF ONE LIGHT WILL NOT RENDER THE ENTIRE SYSTEM OR SECTOR OF THE SYSTEM INOPERABLE.

LUMINAIRES AT MAGAZINES: TO ILLUMINATE THE LIGHTED STRIP IN FRONT OF MAGAZINES, OTHER STORAGE STRUCTURES AND ENTRANCES TO OPERATING BUILDINGS, USE A FLOODLIGHT WHOSE LAMPS ARE OF THE HIGH PRESSURE SODIUM TYPE. FIXTURE DETAILS ARE SHOWN ON SHEET 6.

LUMINAIRES ALONG THE SITE PERIMETER: TO ILLUMINATE THE LIGHTED STRIP ALONG THE SITE PERIMETER, USE A FLOODLIGHT WHOSE LAMPS ARE OF THE HIGH PRESSURE SODIUM TYPE. FIXTURE DETAILS ARE SHOWN ON SHEET 6.

FOOTCANDLE MEASUREMENT: UPON COMPLETION OF THE INSTALLATION, THE LEVEL OF ILLUMINATION SHALL BE VERIFIED BY USE OF A PHOTOMETER WITH A LOW RANGE FULL SCALE READING OF 2 FOOTCANDLES. THE PHOTOMETER SHOULD HAVE ITS CALIBRATION CHECKED IMMEDIATELY BEFORE SURVEY. READINGS SHALL BE TAKEN WITH THE PHOTOMETER IN THE HORIZONTAL POSITION AND THE CELL DIRECTED UPWARD, AVOID CASTING SHADOWS ON THE INSTRUMENT DURING THE READING.

CABLE: ALL DISTRIBUTION CIRCUITS SHALL BE DIRECT BURIAL TYPE. DETAILS OF THREE BURIAL METHODS ARE SHOWN ON SHEET - 7. METHOD TYPE I OR II SHOULD BE USED WHEN THE TELEPHONE CABLE IS BEING INSTALLED CONCURRENTLY WITH THE POWER CABLE. WHEN THE TELEPHONE CABLE IS NOT INSTALLED CONCURRENTLY WITH THE POWER CABLE, METHOD TYPE III SHOULD BE USED. TO DETERMINE THE SIZE OF THE FEEDER CONDUCTORS, VOLTS-DROP CALCULATIONS SHOULD BE MADE SIMILAR TO THAT SHOWN ON SHEET - 8 FOR A TYPICAL 380Y-220 VOLT SYSTEM. TO CORRECT THE UNDERVOLTAGE CONDITION, CONDUCTOR SIZES SHOULD BE SELECTED AND BOOST-BUCK TRANSFORMER CONNECTIONS USED WHICH WOULD PRODUCE VOLTAGES NOT MORE THAN 5 PERCENT ABOVE OR BELOW NORMAL.

POLES: FLOODLIGHT FIXTURES TO ILLUMINATE THE LIGHTED STRIP ALONG THE SITE PERIMETER SHALL BE MOUNTED ON POLES INDIVIDUALLY GROUNDED AND NO HIGHER THAN 20 FEET (9M) LOCATED INSIDE BUT NOT CLOSER THAN 8 FEET (2.4M) FROM THE INNER FENCE LINE. TYPICAL DETAILS ARE SHOWN ON SHEET - 6 AND 7. WOOD OR METAL POLES ARE OPTIONAL.

SYMBOL	DESCRIPTION	BY	DATE	APPROVAL
△B	GENERAL REVISIONS	DFH	6/92	DAM
△A	GENERAL REVISIONS	HSMM	1/96	MD

REVISIONS

BLACK & VEATCH
CONSULTING ENGINEERS
KANSAS CITY, MISSOURI

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION — ENGINEERING DIVISION
WASHINGTON, D. C.

DRAWN BY: JLP
TRACED BY: JLP
CHECKED BY: NJA
SUBMITTED: MLL
APPROVED: CHIEF, ENG. TECH. DIV.

WEAPONS STORAGE AREA
SECURITY LIGHTING SYSTEM
GENERAL LAYOUT - SMALL SITE

REVISIONS APPROVED DATE: 3/7/87
CHIEF, ENG. DIV.

APPROVED FOR:
DATE:

SCALE: AS NOTED SPEC. NO. NONE
DRAWING NUMBER △A DEF 812-30-01
SHEET 1 OF 8

THIS DWG SUPERSEDES DWG 40-04-10