

US Army Corps
of Engineers

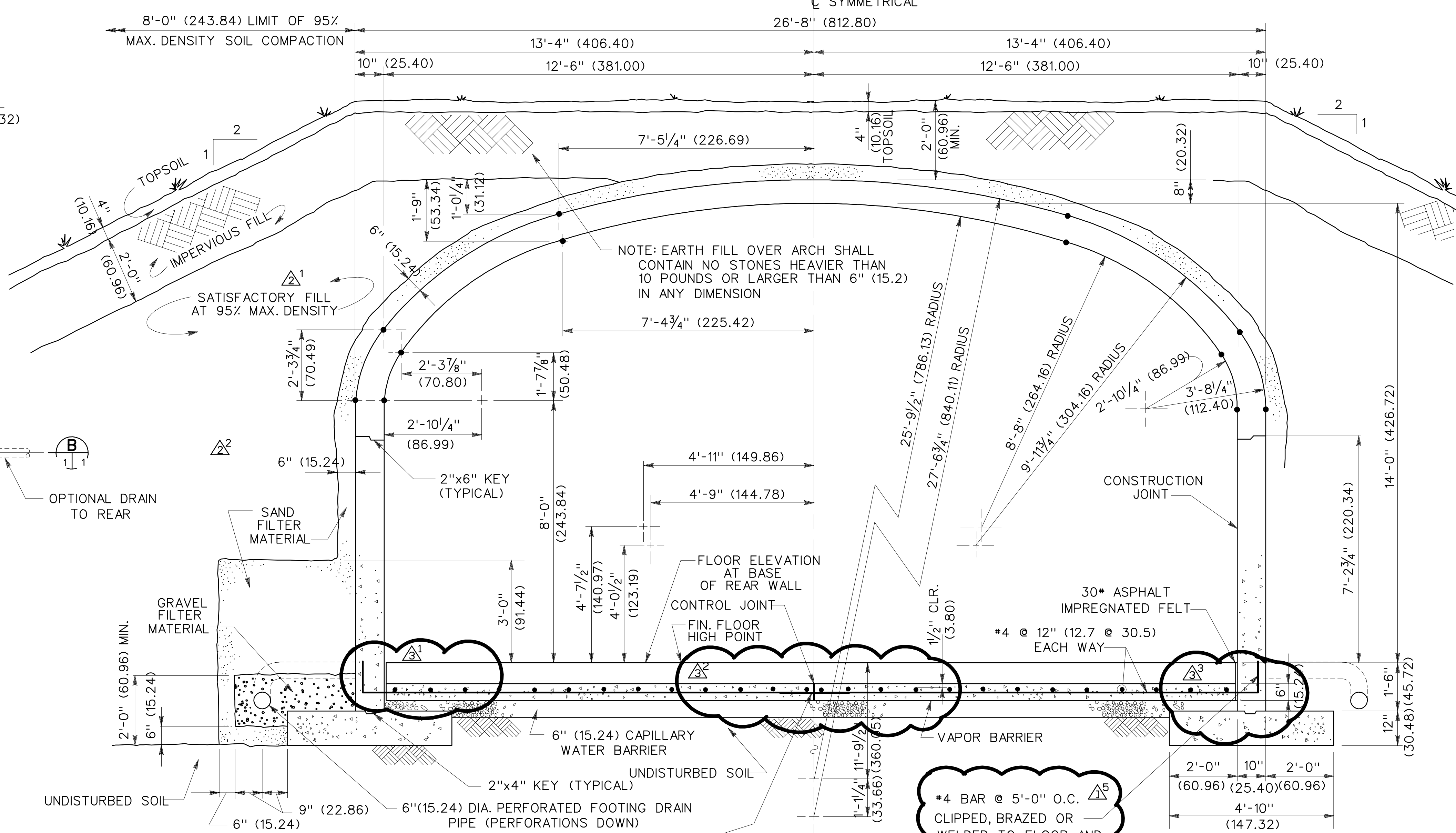
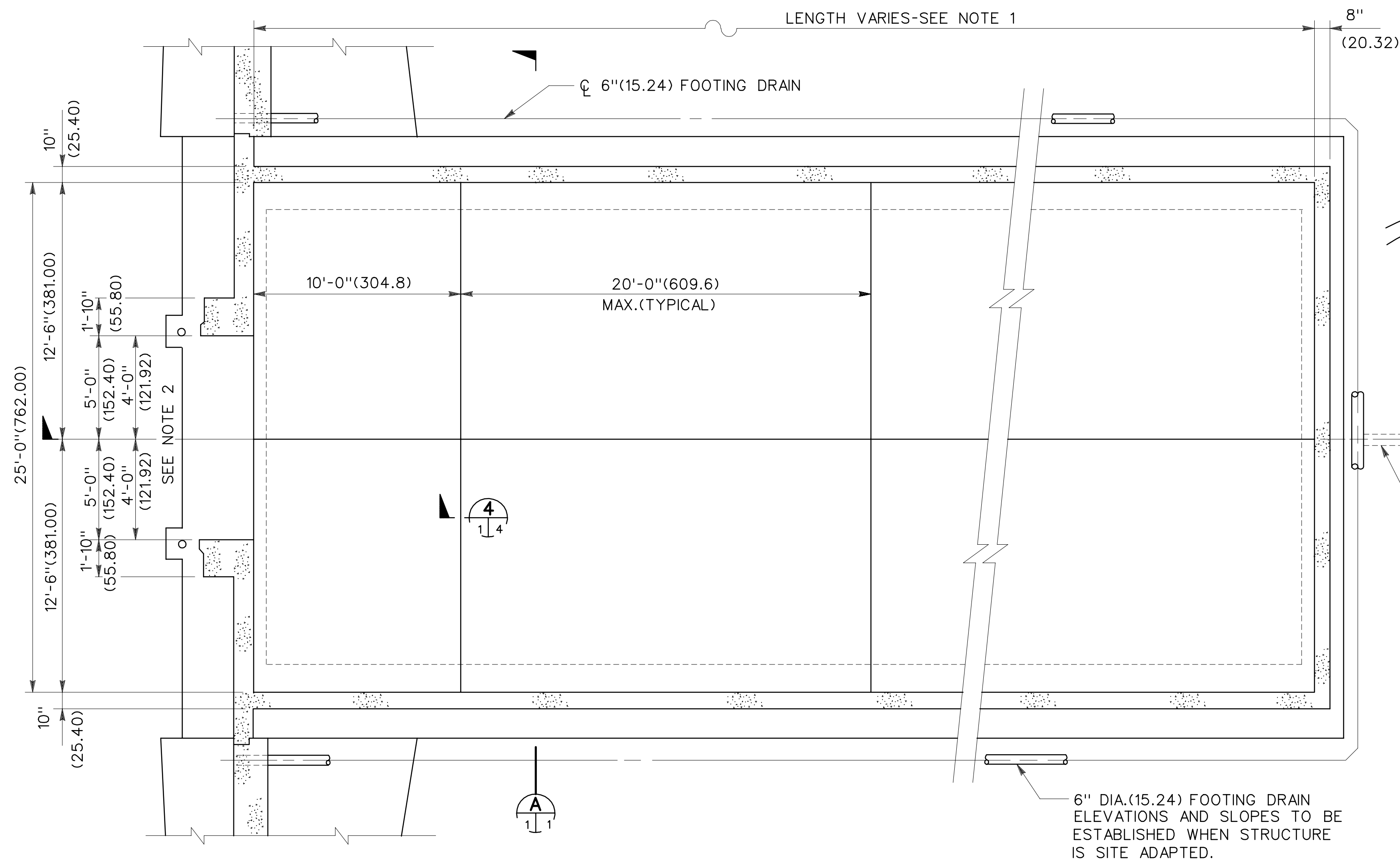
ENGINEERING AND SUPPORT
CENTER, HUNTSVILLE

MAGAZINE, CONCRETE OVAL-ARCH EARTH-COVERED,

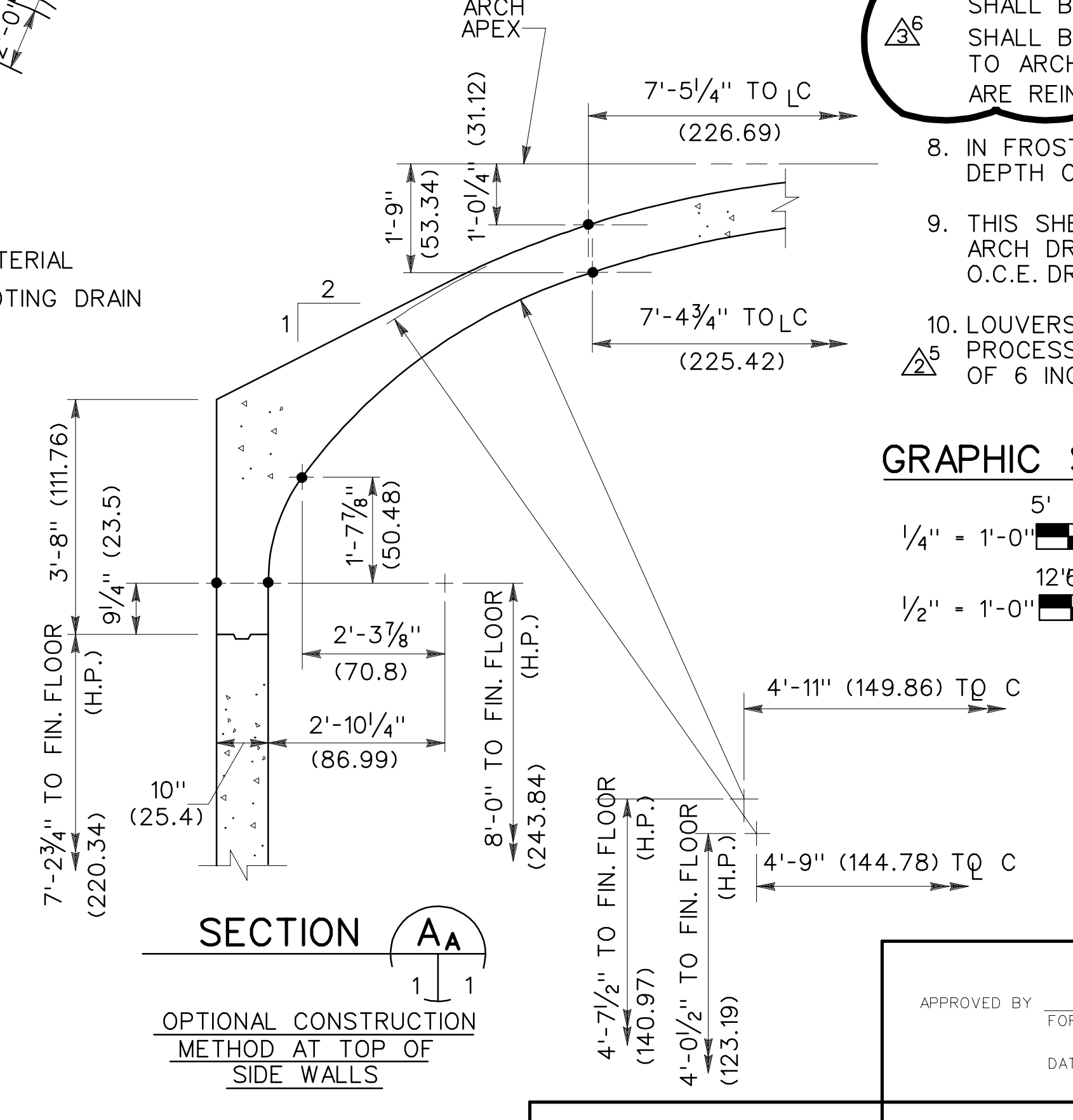
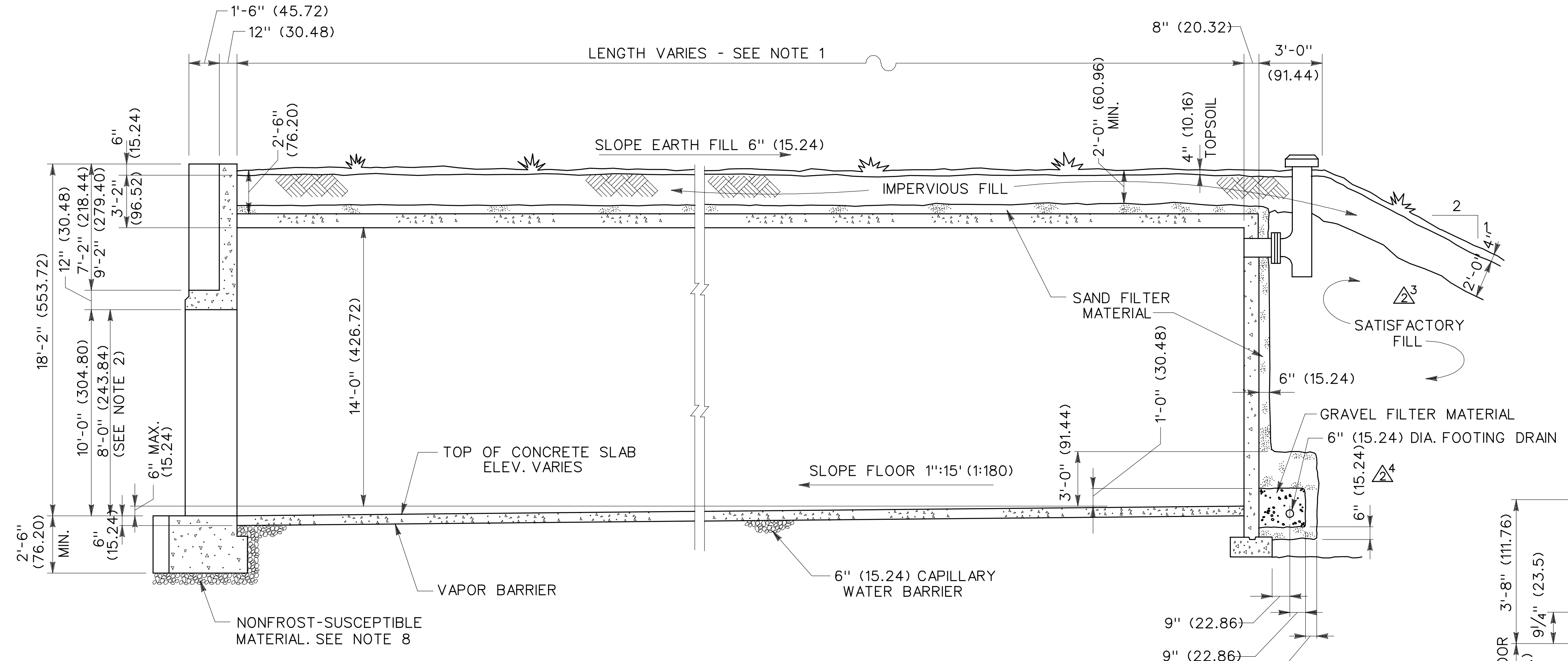
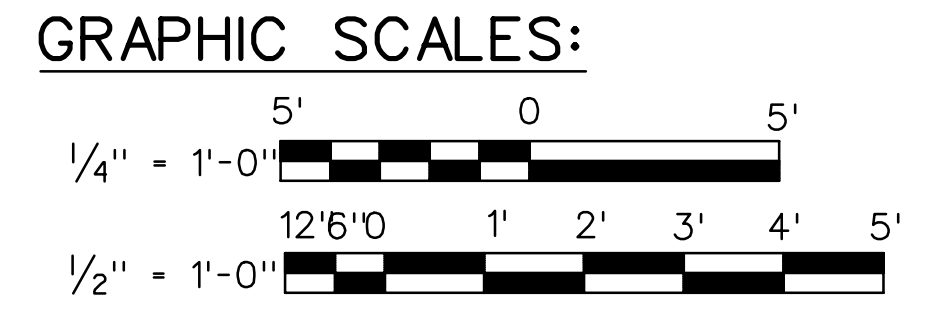
⚠	GENERAL REVISION FOR LIGHTNING PROTECTION	11JUN98	WAW
⚠	GENERAL REVISIONS	30JUN90	AF
⚠	GENERAL REVISION/SIMONS-EASTERN CO.	19JUL84	JYM
SYMBOL	DESCRIPTION	DATE	APPROVAL
BLACK & VEATCH CONSULTING ENGINEERS <small>KANSAS CITY, MISSOURI</small>		DEPARTMENT OF THE ARMY <small>OFFICE OF THE CHIEF OF ENGINEERS MILITARY CONSTRUCTION - ENGINEERING DIVISION WASHINGTON, D.C.</small>	
DRAWN BY:	G.I.C.	MAGAZINE, CONCRETE OVAL-ARCH, EARTH COVERED COVER SHEET	
TRACED BY:	G.I.C.		
CHECKED BY:	H.D.L.		
SUBMITTED BY:	W.V. HILL		
APPROVED:	O.F.M.		
APPROVED:	LEE S. GARRETTE	DATE:	11APR79
CHIEF ADV. TECH. BR.	CHIEF ENGINEERING DIVISION MIL. PROGR., O.C.E.		
APPROVED FOR:		SCALE:	SPEC. NO.
DATE:		DRAWING NUMBER 33-15-74	
		SHEET	OF

APPROVED BY	FOR THE DEPARTMENT OF THE NAVY _____
DATE	_____
APPROVED BY	FOR THE DEPARTMENT OF THE AIR FORCE _____
DATE	_____

CONSULTING ENGINEERS FALLS CHURCH, INDIANA



- NOTES:**
- NORMALLY CONSTRUCTED IN 60'-0" OR 80'-0" LENGTHS. MAXIMUM LENGTH WITH FLOOR SLOPE: 90'-0"
 - DOOR OPENING TO BE SIZED FOR OPTIONAL DOOR SIZE REQUIRED.
 - CONCRETE SHALL HAVE 28 DAY ULTIMATE STRENGTH (f'c) OF 4,000 P.S.I.
 - REINFORCING STEEL SHALL BE ASTM A615 WITH THE FOLLOWING GRADES:
TIES - GRADE 40
ALL OTHERS - GRADE 60
 - DIMENSIONS SHOWN IN PARENTHESES ARE CENTIMETERS UNLESS OTHERWISE NOTED. (FOR INFO ONLY) ALL REBAR METRIC SIZES ARE IN MILLIMETERS.
 - DRAINS TO BE SITE ADAPTED TO DRAIN EITHER TO THE FRONT OR REAR OF THE MAGAZINE.
 - ALL METAL PARTS, TO INCLUDE REINFORCEMENT, LOUVERS, VENTILATOR, DOOR, DOOR FRAME, ETC., SHALL BE MADE ELECTRICALLY CONTINUOUS BY CLIPPING, BRAZING, OR WELDING. ELECTRICAL CONTINUITY SHALL BE PROVIDED ACROSS FLOOR CONSTRUCTION JOINTS AND ACROSS FLOOR ISOLATION JOINTS TO ARCH REINFORCEMENT AT 5 LINEAR FEET INTERVALS. ACCEPTABLE ELECTRICAL CONTINUITY METHODS ARE REINFORCEMENT BARS, COPPER STRAPS, ETC.
 - IN FROST AREAS PROVIDE NONFROST-SUSCEPTIBLE MATERIAL UNDER HEADWALL FOOTING, TO FULL DEPTH OF FROST PENETRATION, OR LOWER BOTTOM OF FOOTING TO FROST PENETRATION DEPTH.
 - THIS SHEET 1 OF 9 PREPARED BY NATHAN C. HALE ASSOCIATES TO DEPICT CONCRETE ARCH. ARCH DRAWN BY NATHAN C. HALE ASSOCIATES. REMAINING INFORMATION TRANSFERRED FROM O.C.E. DRAWING 33-15-73, SHEET 1 OF 9.
 - LOUVERS ARE OPTIONAL. THEIR NECESSITY AND SIZE SHALL BE DETERMINED DURING THE SITE-ADAPTION PROCESS BASED ON MATERIALS TO BE STORED AND GEOGRAPHICAL LOCATIONS. THE LOUVER WIDTH OF 6 INCHES SHALL BE MAINTAINED. THE HEIGHT MAY BE VARIED AS NECESSARY.



SYMBOL	DESCRIPTION	DATE	APPROVAL
⚡	GENERAL REVISION FOR LIGHTNING PROTECTION	11JUN98	WAW
⚡	GENERAL REVISIONS	30JUN90	AF
⚡	GENERAL REVISIONS/SIMONS-EASTERN CO.	19JUL84	JYM

BLACK & VEATCH CONSULTING ENGINEERS
KANSAS CITY, MISSOURI

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

MAGAZINE, CONCRETE OVAL-ARCH, EARTH COVERED PLAN AND SECTIONS

DRAWN BY: B.D.V.
TRACED BY: B.D.V.
CHECKED BY: C.E.
SUBMITTED BY: C.E.

APPROVED: O.F.M. DATE: 11APR79
APPROVED: LEE S. GARRETTE DATE: 11APR79

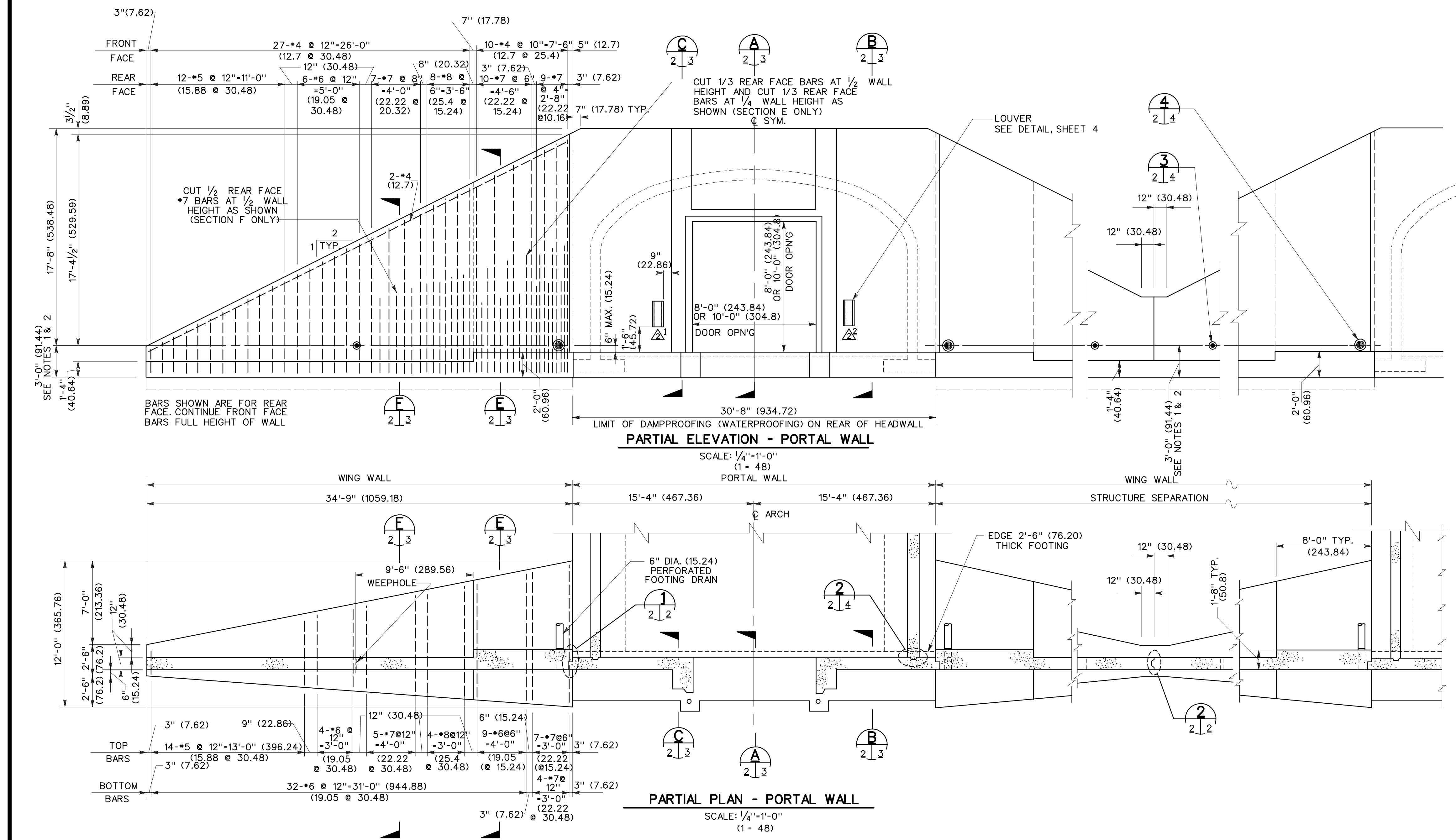
APPROVED FOR: _____
DATE: _____

DRAWING NUMBER: 33-15-74
SHEET 1 OF 9

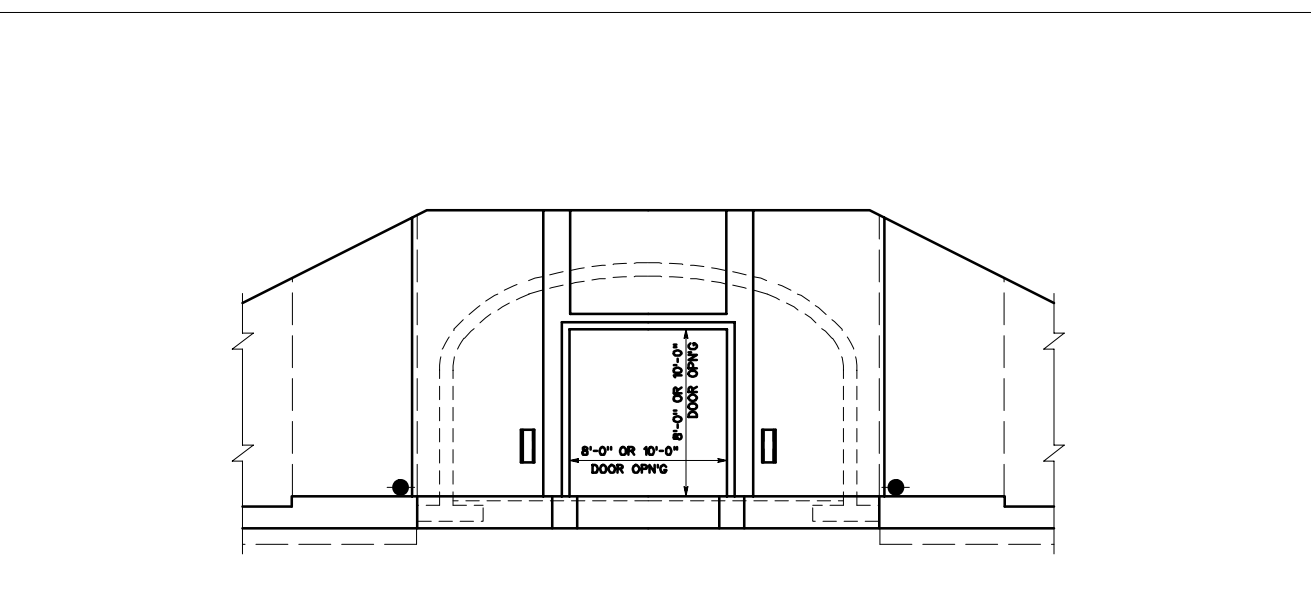
APPROVED BY: _____
FOR THE DEPARTMENT OF THE NAVY
DATE: _____

APPROVED BY: _____
FOR THE DEPARTMENT OF THE AIR FORCE
DATE: _____

CONSULTING ENGINEERS
FALLS CHURCH, INDIANA



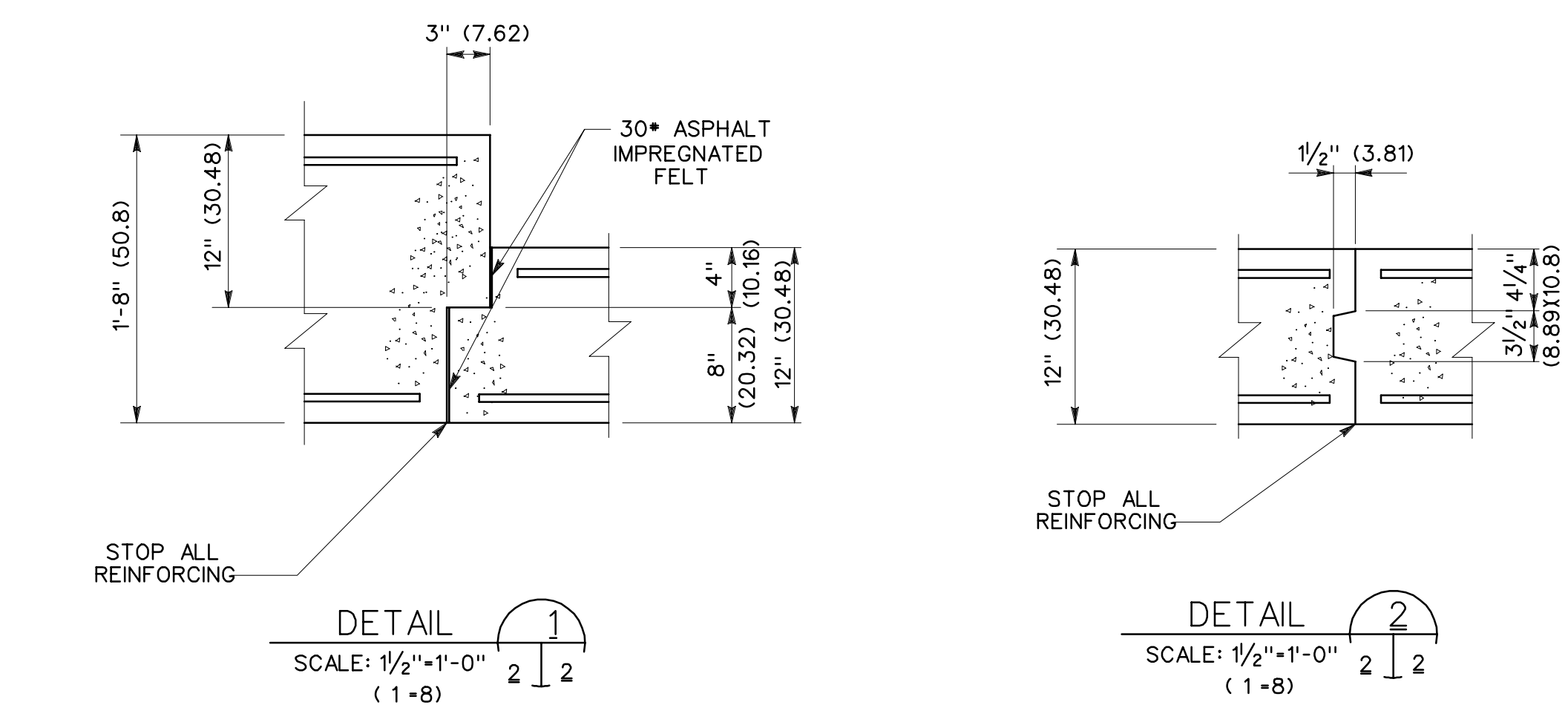
- NOTES:**
- IF, AS A RESULT OF THE FOUNDATION INVESTIGATION OR LOCAL FROST CONDITIONS, IT IS DETERMINED THAT ANY OR ALL WALL FOOTINGS MUST BE LOWERED, THE APPROPRIATE WALL AND FOOTING DESIGNS MUST BE CHECKED AND ADJUSTED AS REQUIRED TO SUIT THESE CONDITIONS.
 - FOOTINGS ARE SIZED FOR A SOIL BEARING VALUE OF 3,000 P.S.F. FOOTINGS MUST BE REDESIGNED IF THE SOILS INVESTIGATION DOES NOT CONFIRM THIS MINIMUM BEARING CAPACITY.
 - ALTERNATE MATERIALS AND/OR SYSTEMS MAY BE SUBMITTED FOR ACCEPTANCE AS A SUBSTITUTE FOR POURED-IN-PLACE WING WALLS, PROVIDED THEY ARE SHOWN TO BE STRUCTURALLY ADEQUATE AND COST EFFECTIVE.
 - PLAN AND ELEVATION OF PORTAL WALL REVISED BY NATHAN C. HALE ASSOCIATES AS REQUIRED TO DEPICT CONCRETE ARCH, REMAINING INFORMATION TRANSFERRED INTACT FROM O.C.E. DRAWING NO. 33-15-73, SHEET 2 OF 9.



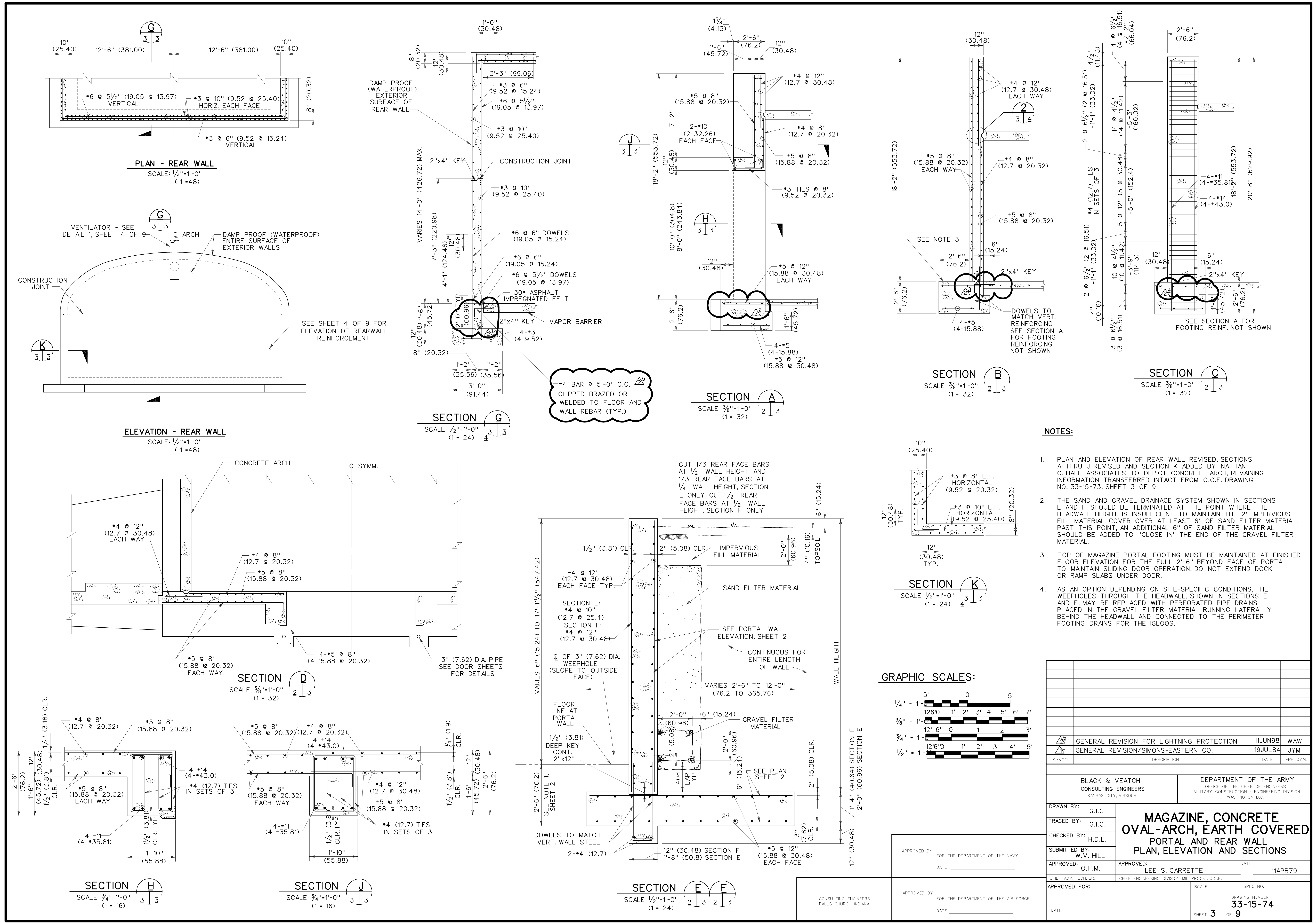
CONCRETE OVAL-ARCH MAGAZINE, EARTH-COVERED

STANDARD MAGAZINE DIMENSIONS
 EXPLOSIVE LIMIT PHYSICAL SECURITY
 APRON COMMENT

STD 33-15-74
 25'x60' OR 80'L, 90' MAX. x14'H
 SLIDING, 8'x8' OR 10'x10' OPENING
 500,000 LBS. NEW HC/DIV. 1.1
 DESIGNED TO ACCOMMODATE IDS
 INSTALLATION. HIGH SECURITY HASP
 (ML-H-29181) NOT SPECIFIED. SEE
 STD 421-80-01. STRUCTURALLY
 ADEQUATE TO STORE CIIC 1
 NONE SHOWN. SEE STD 421-80-01
 RECOMMENDED FOR NEW
 CONSTRUCTION. THE 8' VERTICAL
 SIDE WALLS PERMIT THE BEST
 CUBICAL SPACE UTILIZATION OF
 ANY STANDARD ARCH-TYPE
 MAGAZINE.



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: G.I.C. TRACED BY: G.I.C. CHECKED BY: H.D.L. SUBMITTED BY: W.V. HILL APPROVED: O.F.M. CHIEF ADV. TECH. BR.	APPROVED: LEE S. GARRETTE CHIEF ENGINEERING DIVISION, MIL. PROGN. O.C.E.	DATE: 11APR79	DATE: 19JUL84 APPROVAL: JYM
APPROVED FOR: CONSULTING ENGINEERS FALLS CHURCH, VIRGINIA		APPROVED FOR: FOR THE DEPARTMENT OF THE ARMY DATE:	
		SCALE: SPEC. NO. 33-15-74 SHEET 2 OF 9	

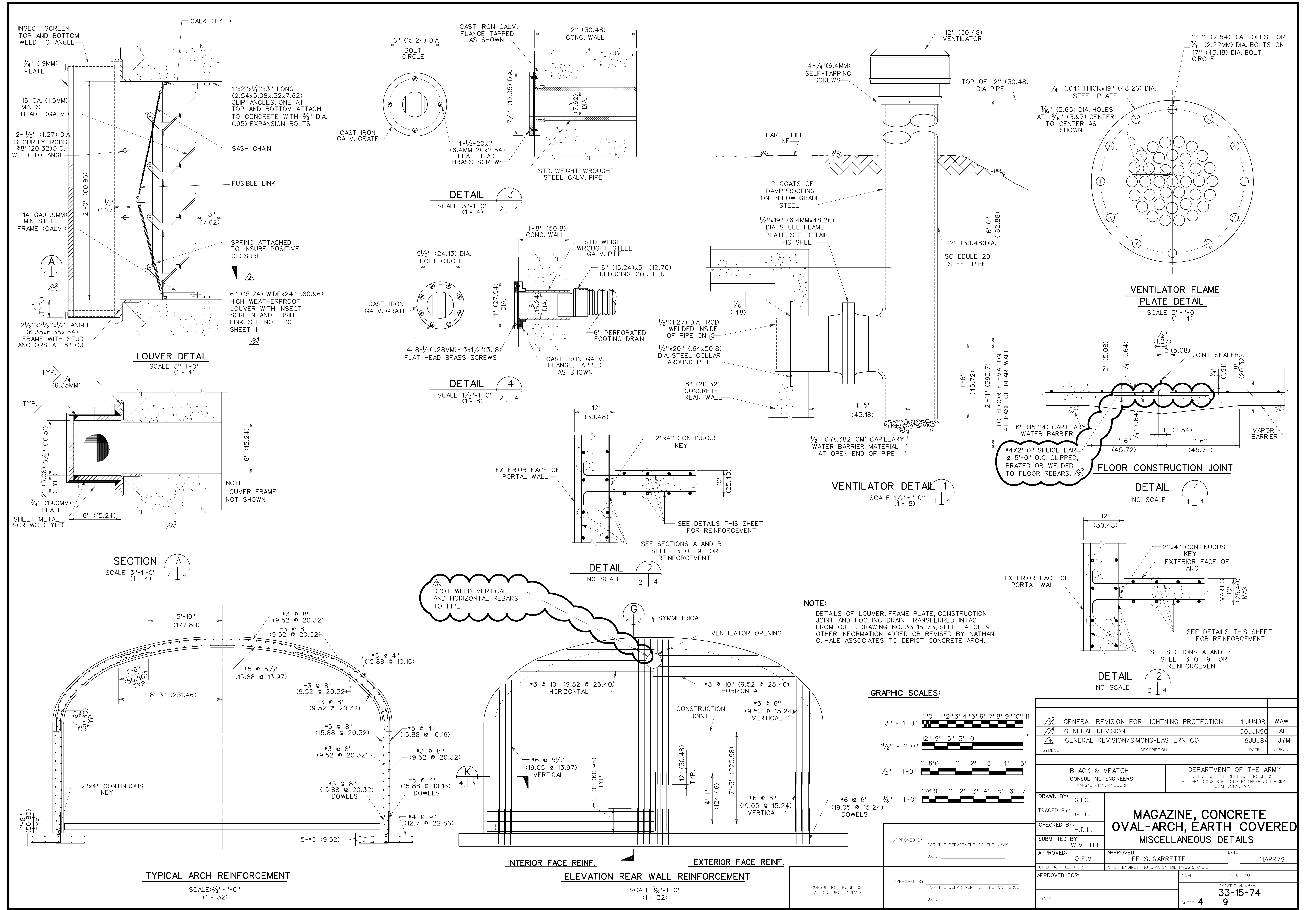


- NOTES:**
1. PLAN AND ELEVATION OF REAR WALL REVISED, SECTIONS A THRU J REVISED AND SECTION K ADDED BY NATHAN C. HALE ASSOCIATES TO DEPICT CONCRETE ARCH, REMAINING INFORMATION TRANSFERRED INTACT FROM O.C.E. DRAWING NO. 33-15-73, SHEET 3 OF 9.
 2. THE SAND AND GRAVEL DRAINAGE SYSTEM SHOWN IN SECTIONS E AND F SHOULD BE TERMINATED AT THE POINT WHERE THE HEADWALL HEIGHT IS INSUFFICIENT TO MAINTAIN THE 2" IMPERVIOUS FILL MATERIAL COVER OVER AT LEAST 6" OF SAND FILTER MATERIAL. PAST THIS POINT, AN ADDITIONAL 6" OF SAND FILTER MATERIAL SHOULD BE ADDED TO "CLOSE IN" THE END OF THE GRAVEL FILTER MATERIAL.
 3. TOP OF MAGAZINE PORTAL FOOTING MUST BE MAINTAINED AT FINISHED FLOOR ELEVATION FOR THE FULL 2'-6" BEYOND FACE OF PORTAL TO MAINTAIN SLIDING DOOR OPERATION. DO NOT EXTEND DOCK OR RAMP SLABS UNDER DOOR.
 4. AS AN OPTION, DEPENDING ON SITE-SPECIFIC CONDITIONS, THE WEEPHOLES THROUGH THE HEADWALL, SHOWN IN SECTIONS E AND F, MAY BE REPLACED WITH PERFORATED PIPE DRAINS PLACED IN THE GRAVEL FILTER MATERIAL RUNNING LATERALLY BEHIND THE HEADWALL AND CONNECTED TO THE PERIMETER FOOTING DRAINS FOR THE IGLOOS.



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⚡	GENERAL REVISION FOR LIGHTNING PROTECTION	11JUN98	WAW
⚡	GENERAL REVISION/SIMONS-EASTERN CO.	19JUL84	JYM

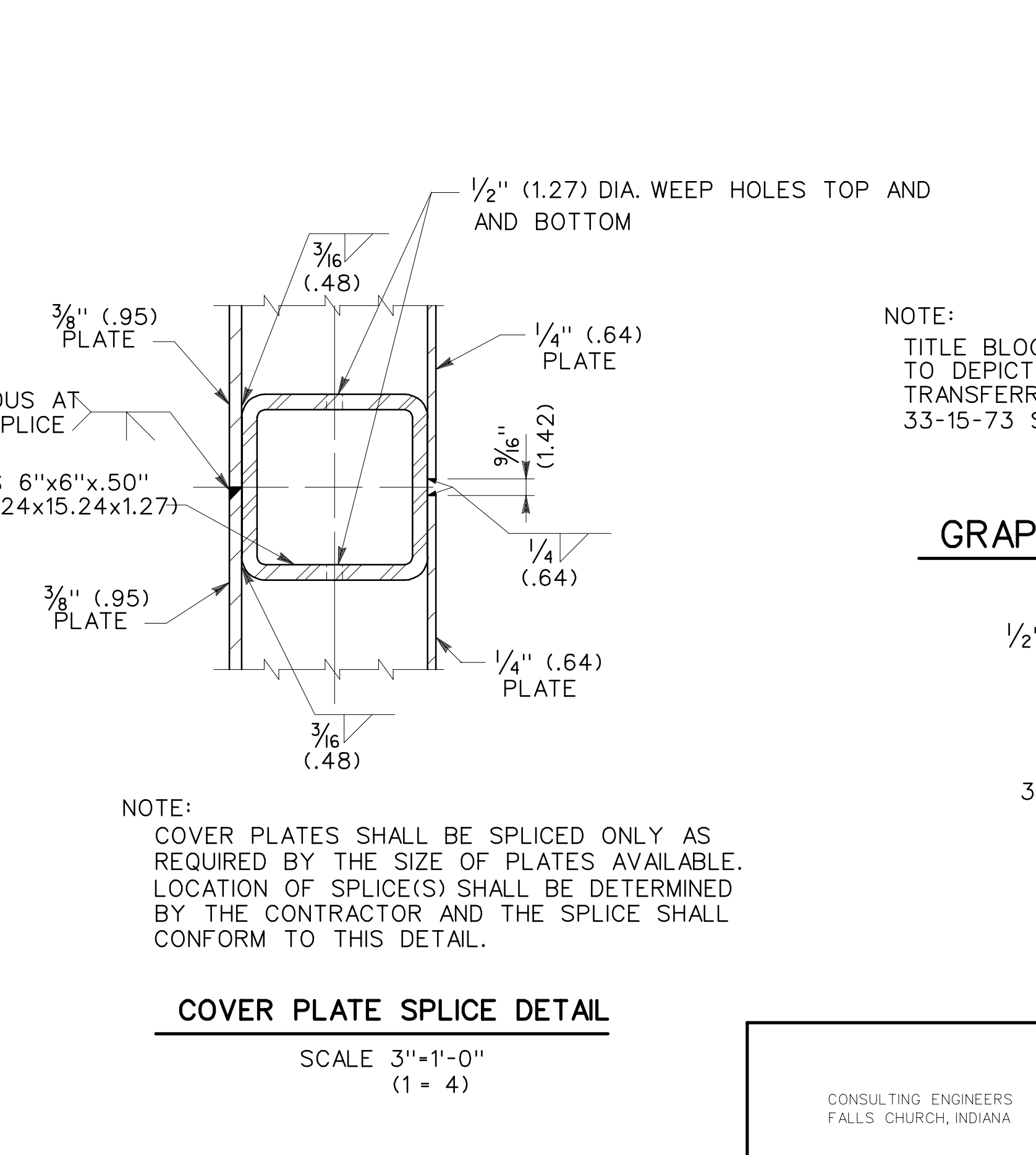
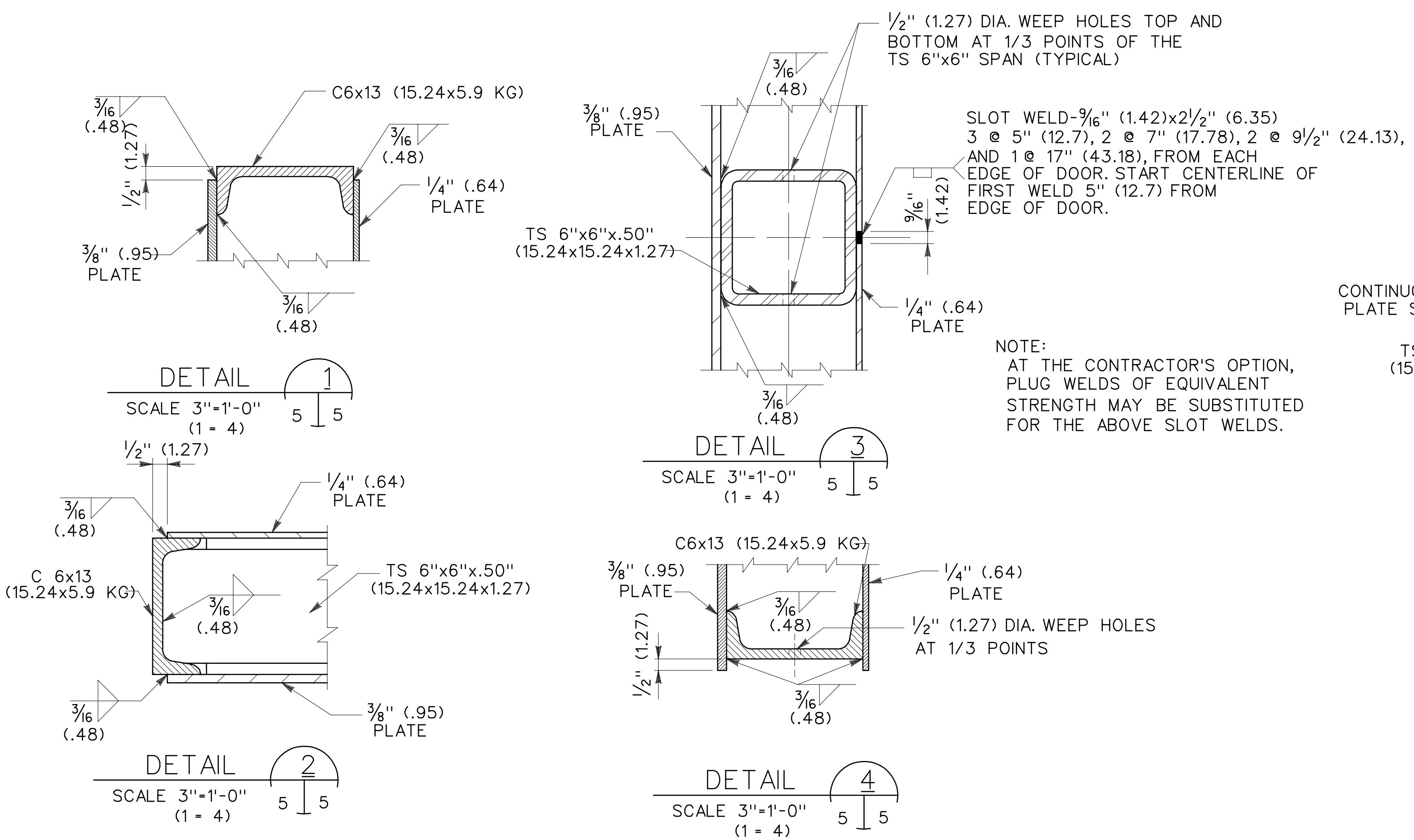
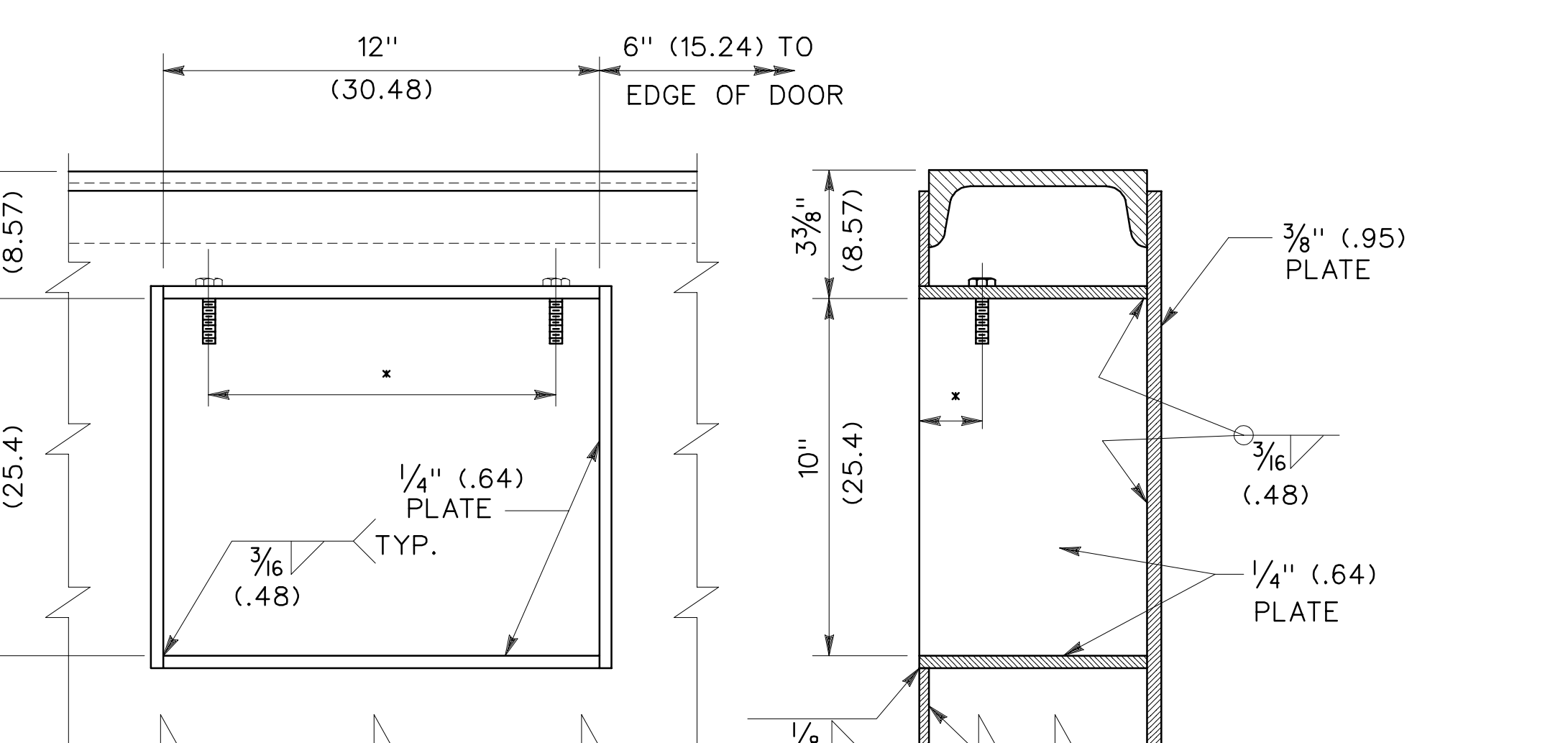
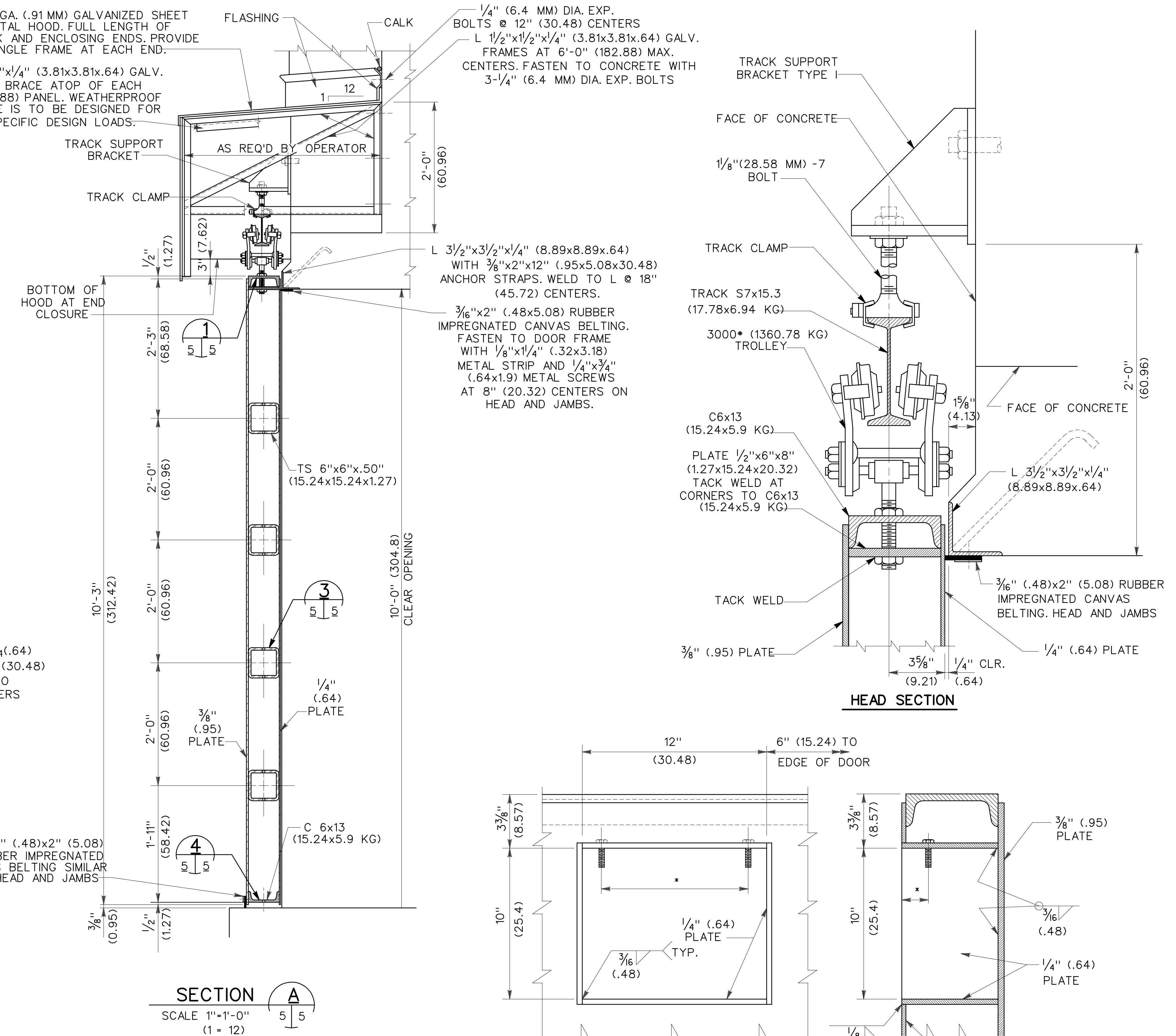
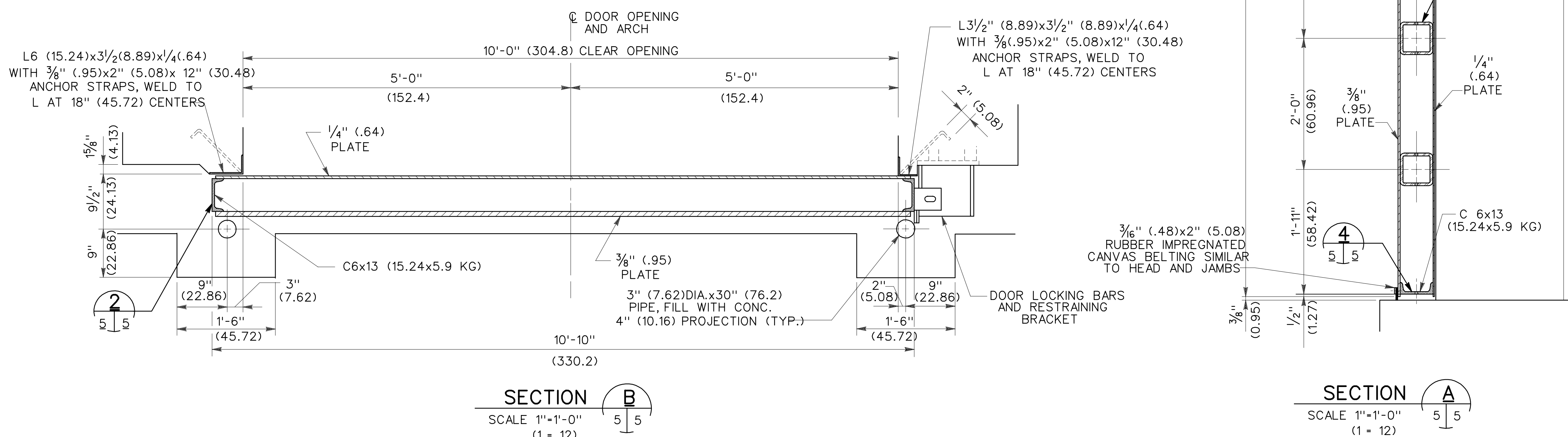
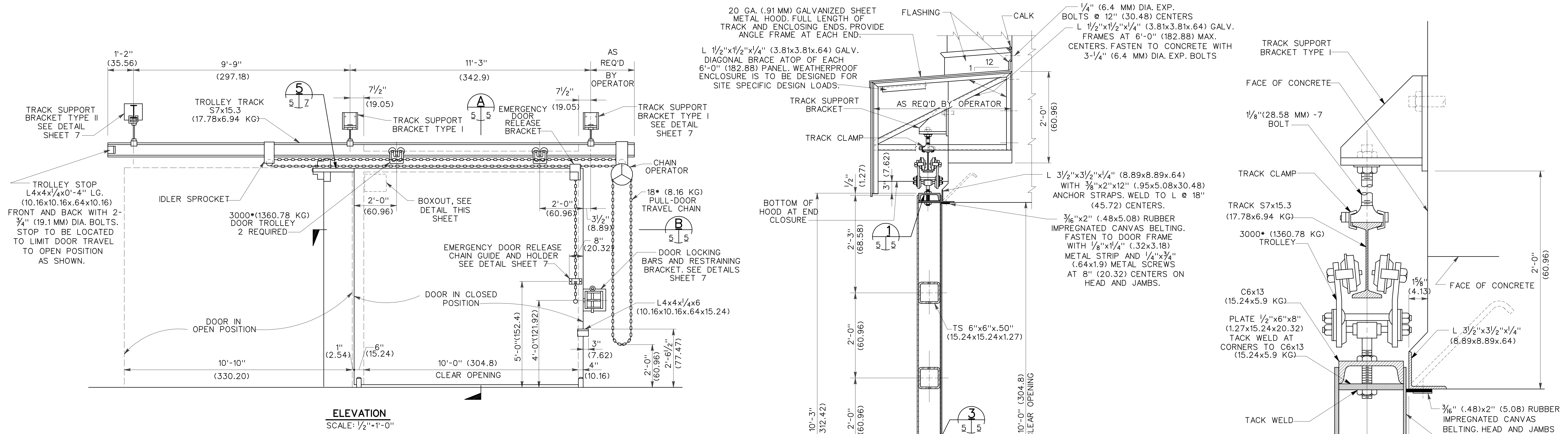
BLACK & VEATCH CONSULTING ENGINEERS KANSAS CITY, MISSOURI		DEPARTMENT OF THE ARMY OFFICE OF THE CHIEF OF ENGINEERS MILITARY CONSTRUCTION - ENGINEERING DIVISION WASHINGTON, D.C.	
DRAWN BY: G.I.C.	TRACED BY: G.I.C.	MAGAZINE, CONCRETE OVAL-ARCH, EARTH COVERED PORTAL AND REAR WALL PLAN, ELEVATION AND SECTIONS	
CHECKED BY: H.D.L.	SUBMITTED BY: W.V. HILL		
APPROVED: O.F.M.	APPROVED: LEE S. GARRETTE		
DATE: _____	DATE: 11APR79		
APPROVED FOR: _____	APPROVED FOR: _____	SCALE: _____	SPEC. NO. _____
DATE: _____	DATE: _____	DRAWING NUMBER 33-15-74	
		SHEET 3 OF 9	



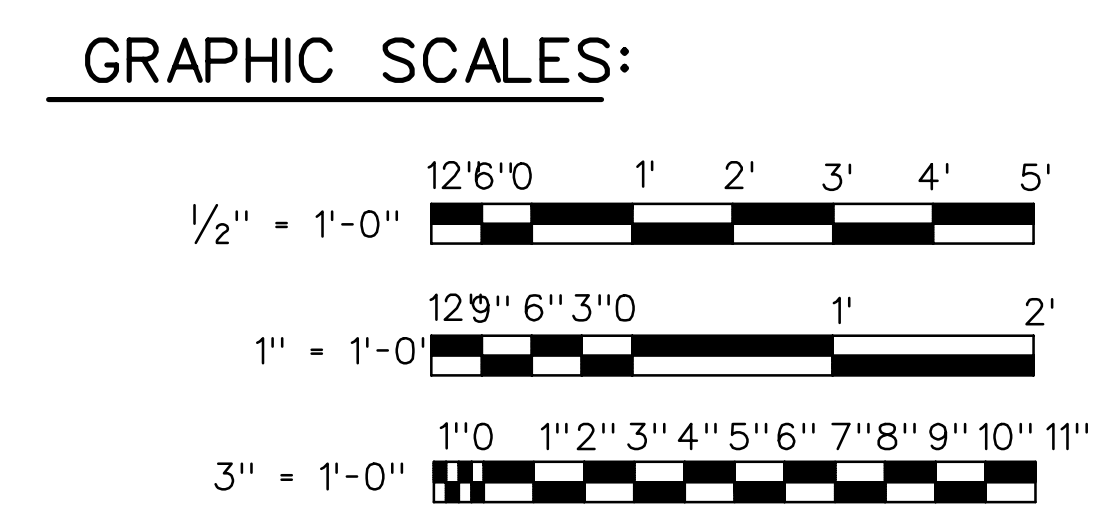
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⚡	GENERAL REVISION	30JUN90	AF
⚡	GENERAL REVISION/SIMONS-EASTERN CO.	19JUL84	JYM

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: G.I.C.	TRACED BY: G.I.C.
CHECKED BY: H.D.L.	SUBMITTED BY: W.V. HILL
APPROVED: O.F.M.	APPROVED: LEE S. GARRETTE
DATE:	DATE: 11APR79
APPROVED FOR:	APPROVED FOR:
DATE:	DATE:

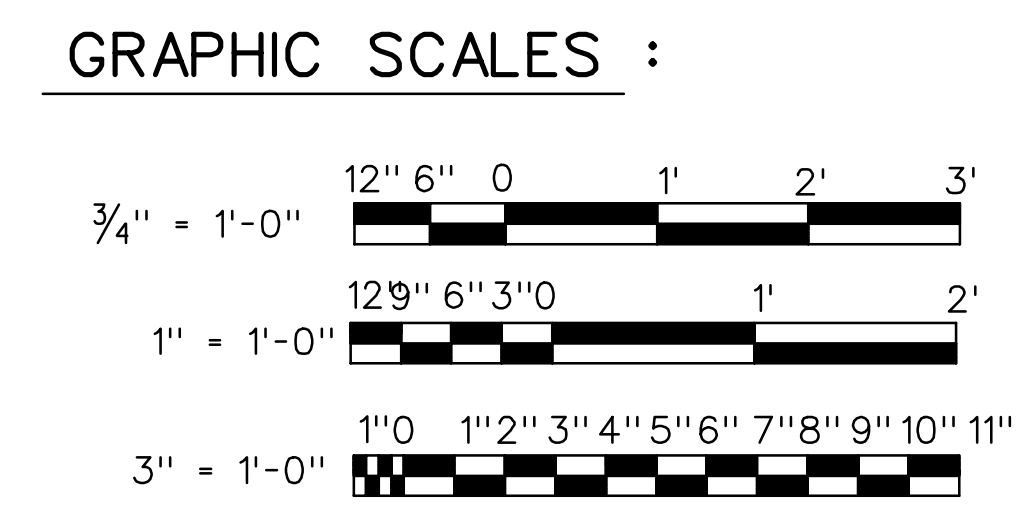
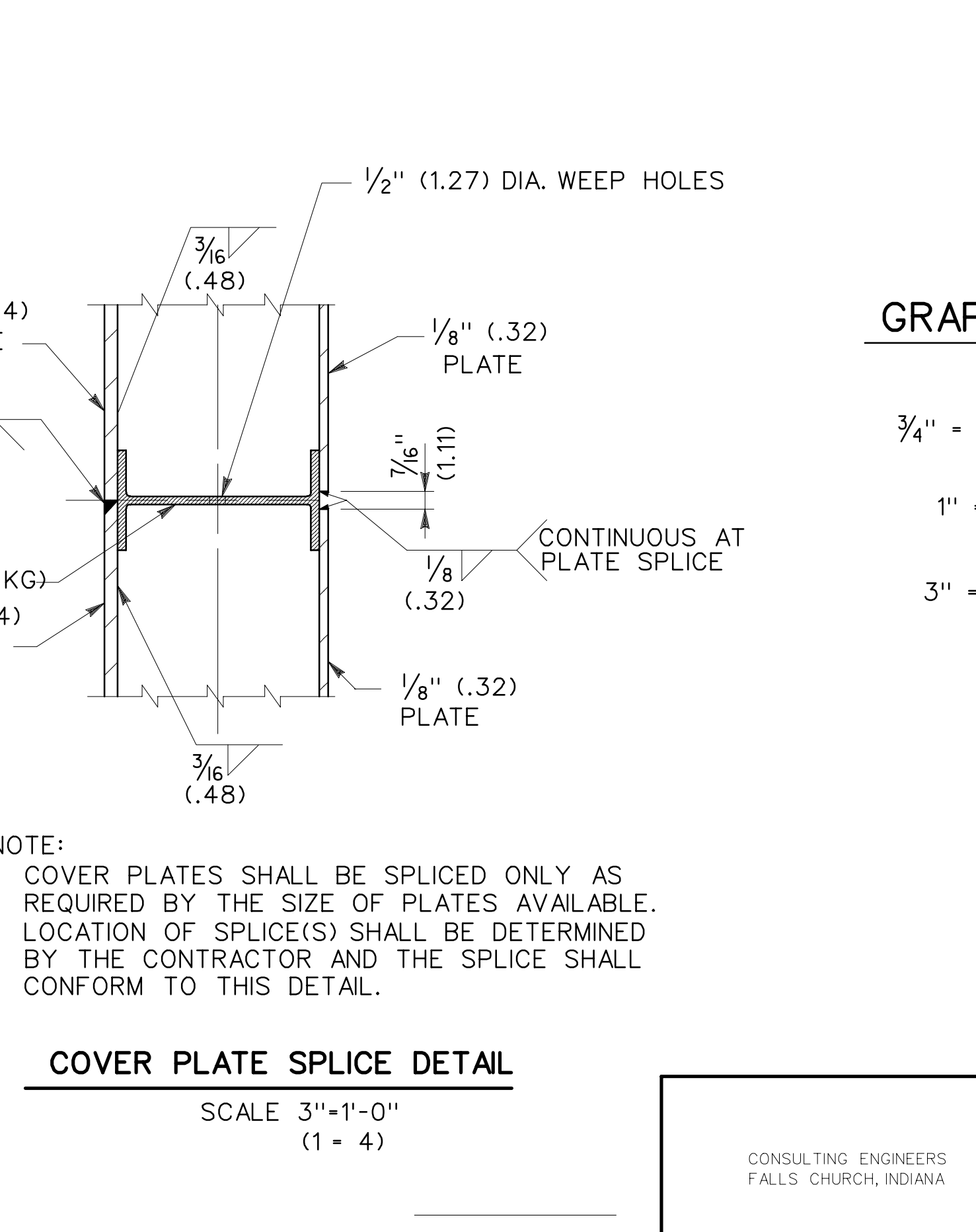
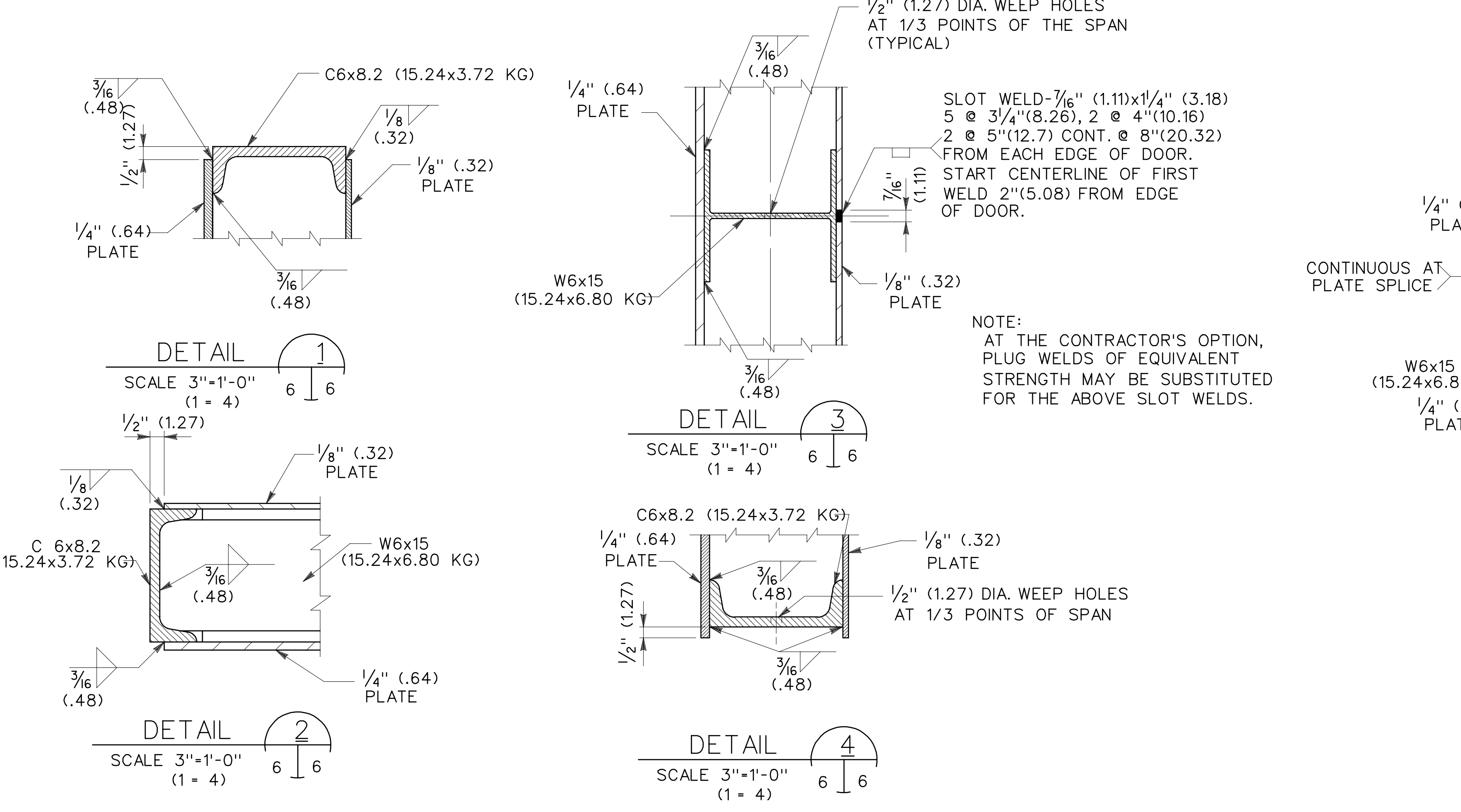
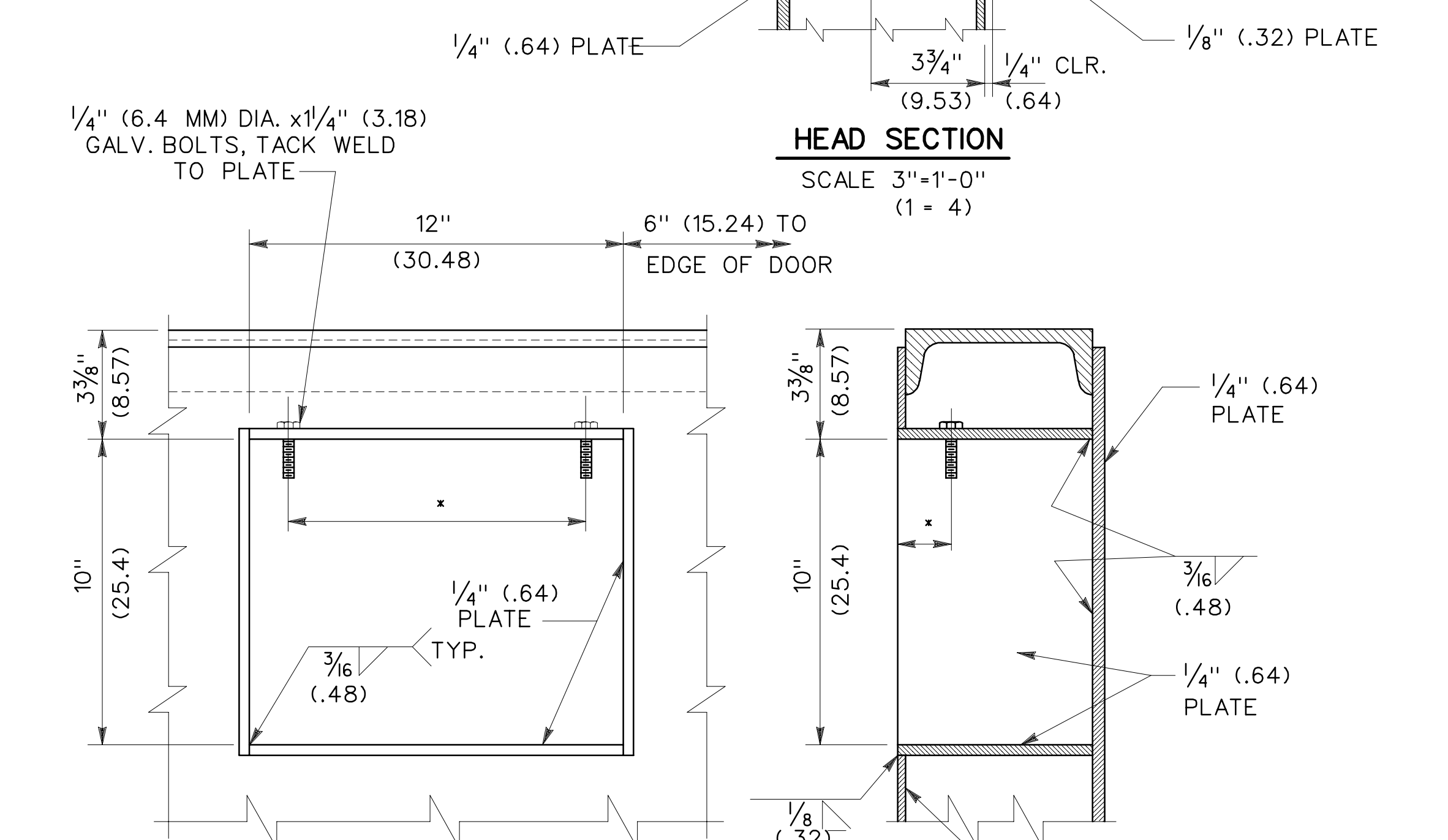
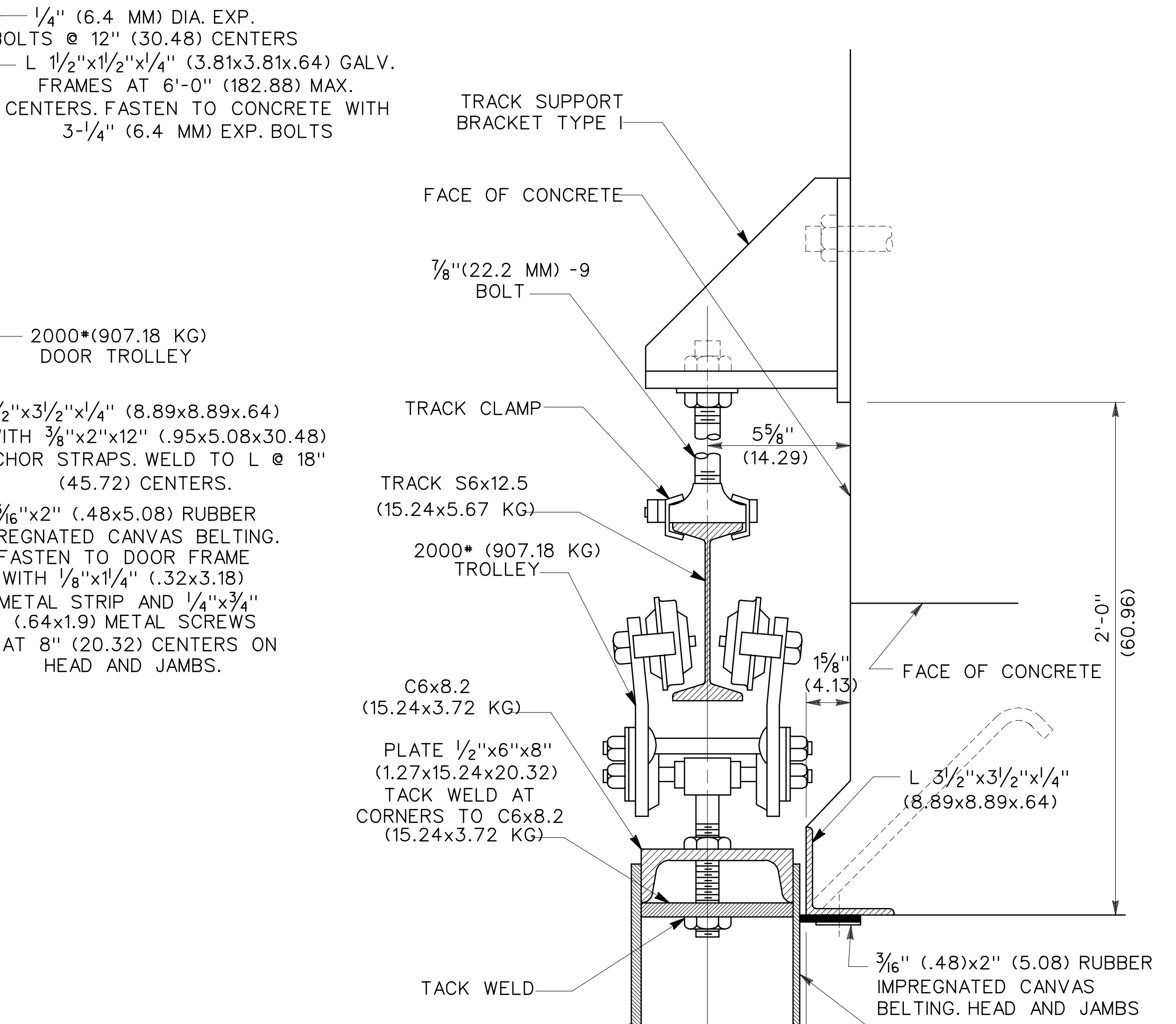
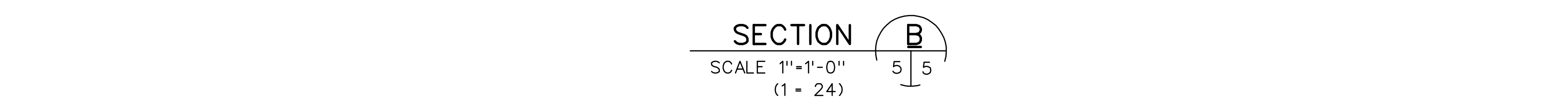
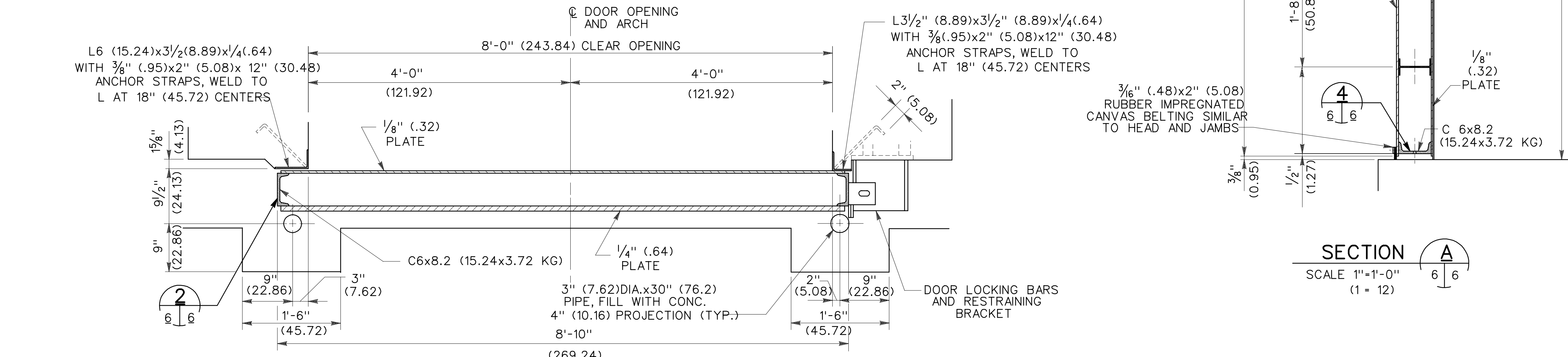
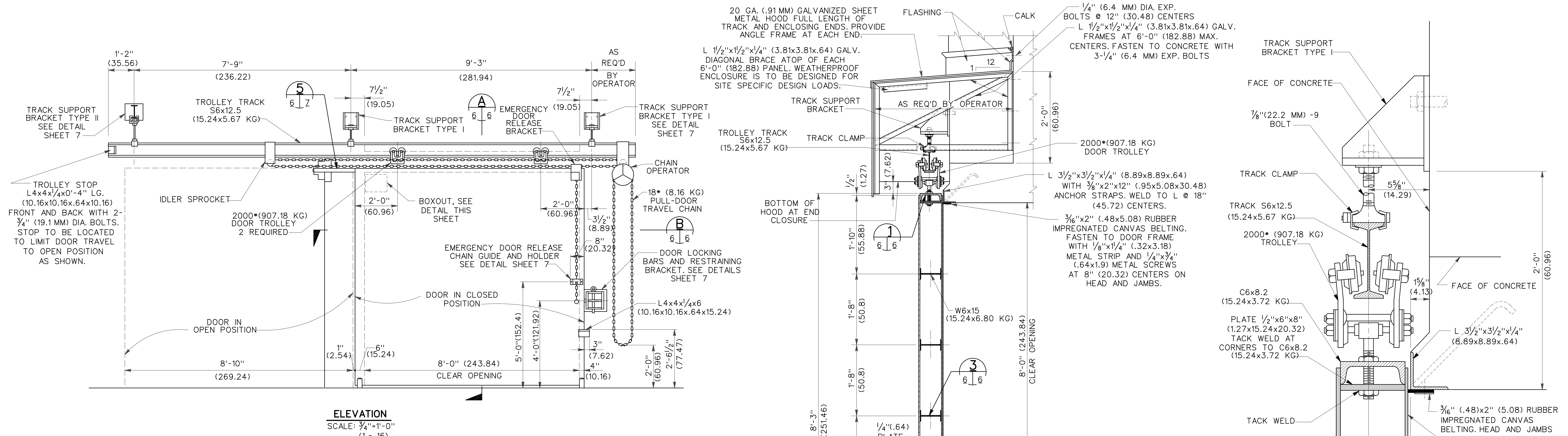
MAGAZINE, CONCRETE OVAL-ARCH, EARTH COVERED MISCELLANEOUS DETAILS	
SCALE: 3/8"=1'-0"	DRAWING NUMBER: 33-15-74
SHEET 4	OF 9



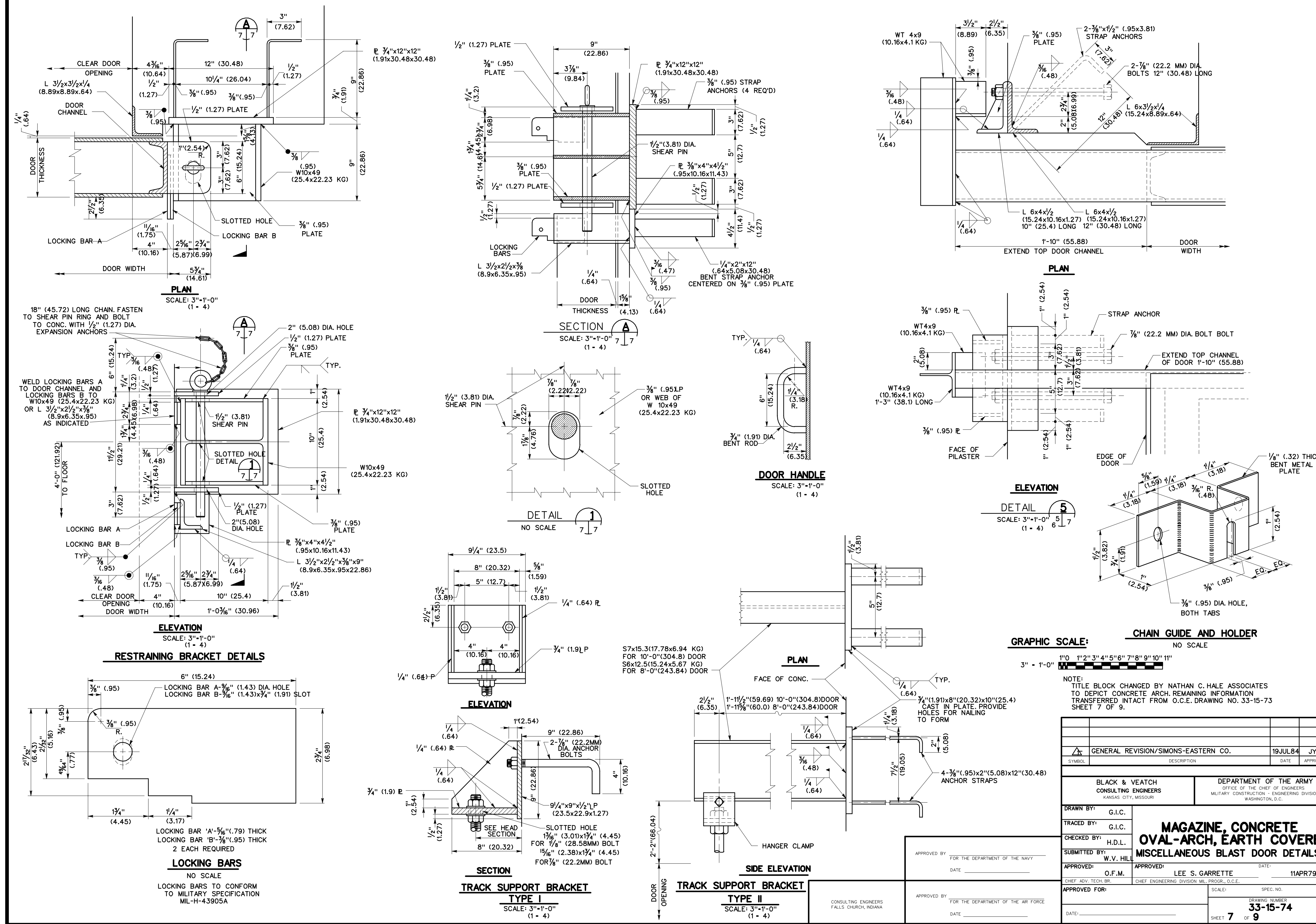
NOTE:
TITLE BLOCK CHANGED BY NATHAN C. HALE ASSOCIATES TO DEPICT CONCRETE ARCH. REMAINING INFORMATION TRANSFERRED INTACT FROM O.C.E. DRAWING NO. 33-15-73 SHEET 5 OF 9.



GENERAL REVISIONS/SIMONS-EASTERN CO.		19JUL84	JYM
BLACK & VEATCH CONSULTING ENGINEERS		DEPARTMENT OF THE ARMY OFFICE OF THE CHIEF OF ENGINEERS MILITARY CONSTRUCTION - ENGINEERING DIVISION WASHINGTON, D.C.	
DRAWN BY: G.I.C.	MAGAZINE, CONCRETE OVAL-ARCH, EARTH COVERED 10'-0" BLAST DOOR		
CHECKED BY: G.I.C.	DATE: 11APR79		
SUBMITTED BY: H.D.L.	APPROVED BY: LEE S. GARRETTE		
APPROVED BY: W.V. HILL	DATE: 11APR79		
APPROVED BY: O.F.M.	DATE: 11APR79		
APPROVED BY: [Signature]	DATE: [Signature]		
DRAWING NUMBER 33-15-74		SHEET 5 OF 9	



GENERAL REVISION/SIMONS-EASTERN CO.		DATE	APPROVAL
BLACK & VEATCH CONSULTING ENGINEERS KANSAS CITY, MISSOURI		19JUL84	JYM
DEPARTMENT OF THE ARMY OFFICE OF THE CHIEF OF ENGINEERS MILITARY CONSTRUCTION - ENGINEERING DIVISION WASHINGTON, D.C.			
MAGAZINE, CONCRETE OVAL-ARCH, EARTH COVERED 8'-0" BLAST DOOR			
DRAWN BY: G.I.C.	TRACED BY: G.I.C.	CHECKED BY: H.D.L.	SUBMITTED BY: W.V. HILL
APPROVED: O.F.M.	APPROVED: LEE S. GARRETTE	DATE: 11APR79	
APPROVED FOR:	DATE:	SPEC. NO.	DRAWING NUMBER
			33-15-74
		SHEET	6 OF 9



GENERAL REVISION/SIMONS-EASTERN CO.		18JUL84	JYM
BLACK & VEATCH CONSULTING ENGINEERS	DEPARTMENT OF THE ARMY	OFFICE OF THE CHIEF OF ENGINEERS MILITARY CONSTRUCTION - ENGINEERING DIVISION WASHINGTON, D.C.	
DRAWN BY: G.I.C.	TRACED BY: G.I.C.	MAGAZINE, CONCRETE OVAL-ARCH, EARTH COVERED MISCELLANEOUS BLAST DOOR DETAILS	
CHECKED BY: H.D.L.	SUBMITTED BY: W.V. HILL	APPROVED: LEE S. GARRETTE	DATE: 11APR79
APPROVED FOR: D.F.M.	CHEF ADV. TECH. CHIEF ENGINEER, DIVISION	SCALE: 33-15-74	SHEET 7 OF 9

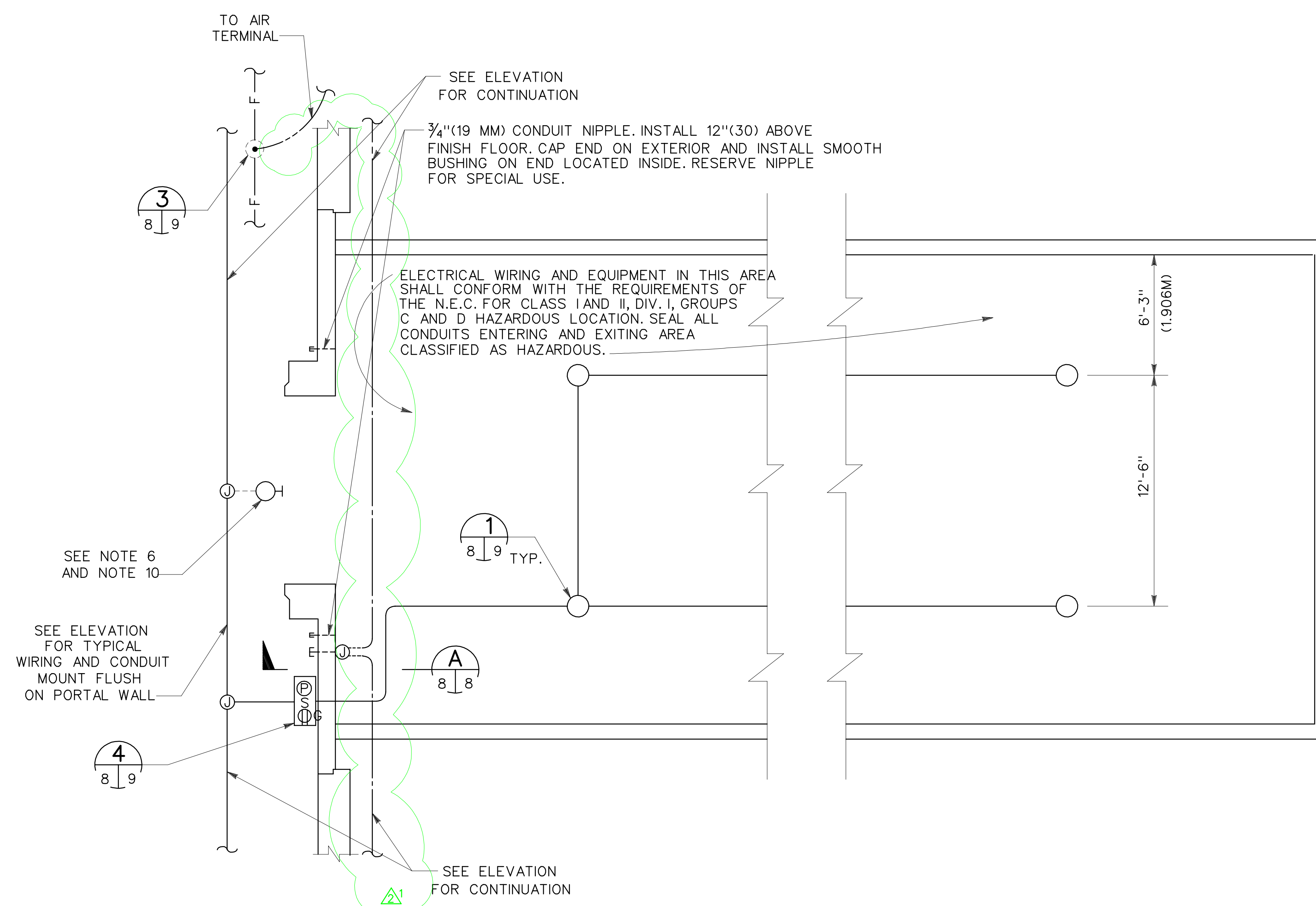
LEGEND (FOR SHEETS 8 OF 9 AND 9 OF 9)

- WALL MOUNTED EXTERIOR LIGHTING FIXTURE. SEE NOTE 6.
- CEILING MOUNTED LIGHTING FIXTURE. SEE DETAIL 8|9
- ⊕ 3-GANG OUTLET BOX WITH SINGLE GANG COVER FOR PILOT LAMP, SINGLE POLE SWITCH AND DUPLEX CONVENIENCE OUTLET WITH GROUND FAULT INTERRUPTER ALL SUITABLE FOR USE OUTDOORS.
- ⊕ JUNCTION BOX, CAST METAL WITH THREADED WALLS OR HUBS.
- CONDUIT RUN CONCEALED BELOW GRADE OR FLOOR SLAB. NOTE: ANY CONDUIT RUN NOT OTHERWISE INDICATED SHALL BE 1/2" (12.7 MM) AND CONTAIN THREE NO. 12 AWG. (3.3 SQ.MM) WIRES. A GREATER NUMBER OF WIRES ARE SHOWN WITH CROSS LINES AS FOLLOWS:
 - ⊕ GROUND CONDUCTOR
- THE LONG CROSS LINE INDICATES THE IDENTIFIED GROUNDED NEUTRAL CONDUCTOR AND THE SHORT CROSS LINES INDICATES THE PHASE CONDUCTORS. UNLESS OTHERWISE INDICATED, ALL CONDUCTORS ARE NO. 12 AWG (3.3SQ.MM)
- CONDUIT RUN INSTALLED EXPOSED ON WALLS OR CEILING. WIRING SHALL BE SAME AS IN NOTE FOR CONCEALED CONDUIT RUN.
- AUXILIARY EMPTY CONDUIT RUN CONCEALED BELOW GRADE OR FLOOR SLAB SIZED AS INDICATED.
- CONDUIT TERMINATED WITH A PLUGGED COUPLING.
- VALVE TYPE SECONDARY SURGE ARRESTER (L.A.)
- ⊕ LIGHTNING AIR TERMINAL. EXTEND 4'-0" (61) ABOVE PROTECTED OBJECT.
- GROUND ROD
- FACILITY COUNTERPOISE SYSTEM, NO. 1/0 AWG. (53.5 SQ.MM) BARE COPPER WIRE.
- DOWN CONDUCTOR FROM AIR TERMINAL, NO. 2 AWG. (33.6 SQ.MM) BARE COPPER WIRE.
- 2'-6" (76.2) UNLESS OTHERWISE INDICATED, THE PARENTHETIC METRIC DIMENSIONS SHOWN ARE IN CENTIMETERS AND ARE MINIMUM ACCEPTABLE.

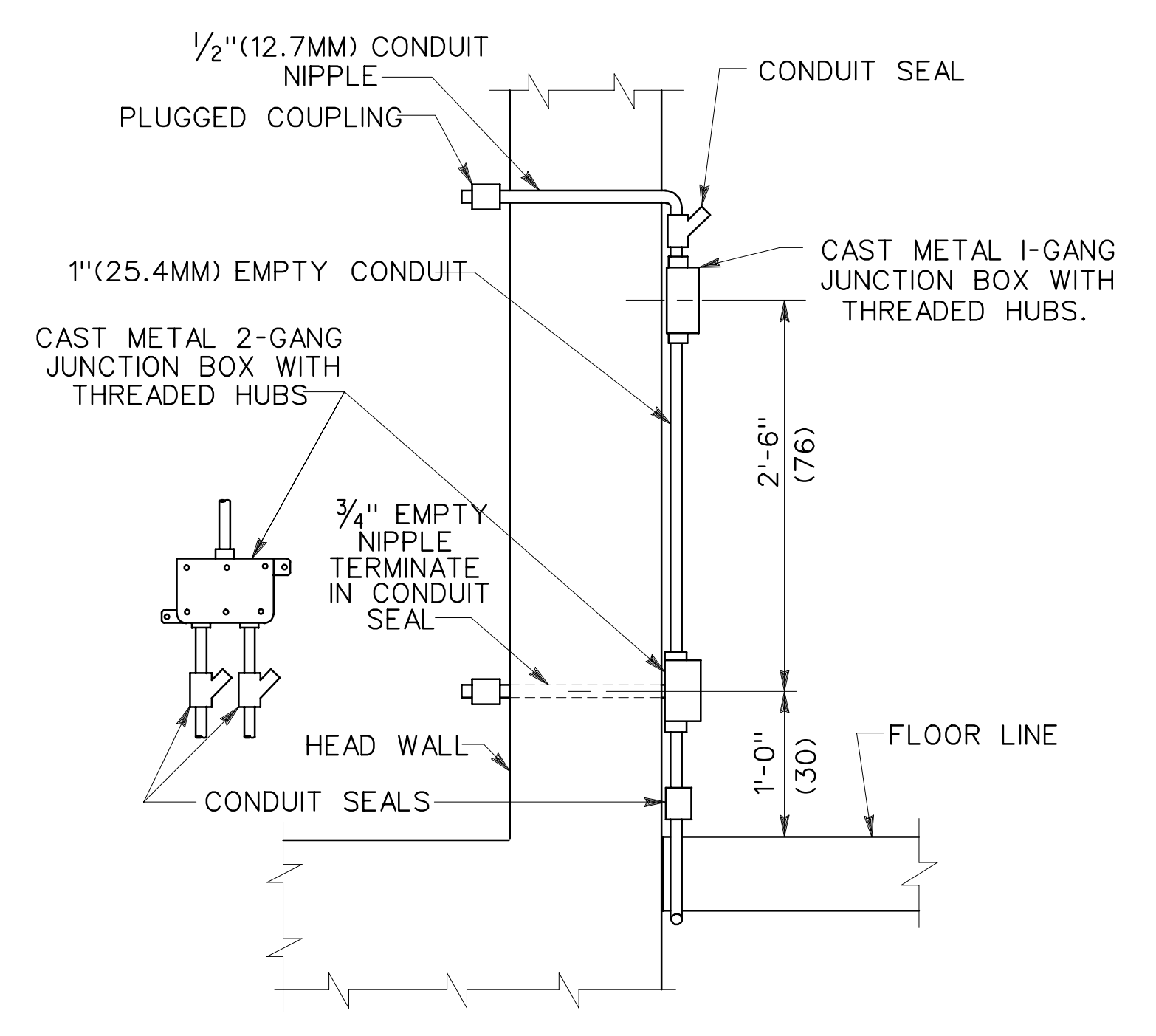
NOTES: (FOR SHEETS 8 OF 9 AND 9 OF 9)

1. HOLES SHALL NOT BE MADE IN CONCRETE ARCH ROOFING FOR INSTALLATION OF ELECTRICAL WORK.
2. THE CONDUIT SYSTEM ON THE FRONT OF STRUCTURE IS TO HAVE SUPPORTS SPACED NOT MORE THAN 8'-0" (243.8). SUPPORTS ON EACH SIDE OF CONSTRUCTION JOINTS SHALL NOT EXCEED 5'-0" (152).
3. RUNNING THREAD COUPLING CONNECTIONS ARE NOT PERMITTED FOR THE RIGID CONDUIT SYSTEMS.
4. FOR THE 120/240 VOLT, SINGLE PHASE, 3-WIRE SERVICE, INSTALL A 1/2" (38.1MM) EMPTY CONDUIT 2'-0" (61) BELOW FINISHED GRADE AND TERMINATE WITH A PLUGGED COUPLING NOT LESS THAN 5'-0" (152) BEYOND PAVED AREA.
5. FOR THE INSTALLATION BY OTHERS OF A TELEPHONE TYPE CABLE, INSTALL 2 1/2" (38.1MM) CONDUITS WITH PULL WIRE, 2'-0" (61) BELOW FINISHED GRADE AND TERMINATE WITH A PLUGGED COUPLING NOT LESS THAN 5'-0" (152) BEYOND PAVED AREA.
6. THE LIGHTING FIXTURE SHOULD BE INCANDESCENT TYPE WBTH-414. ALL EXTERIOR LIGHTS SHALL BE CONNECTED ON THE SAME CIRCUIT TO FACILITATE CONTROL AT THE PANEL BOARD. HOWEVER, NOT MORE THAN EIGHT FIXTURES SHALL BE CONNECTED TO ANY ONE 20 AMP CIRCUIT.
7. THE NUMBER OF INTERIOR LIGHTING FIXTURES VARIES, DEPENDING ON INTERNAL LENGTH OF MAGAZINE, AS FOLLOWS:

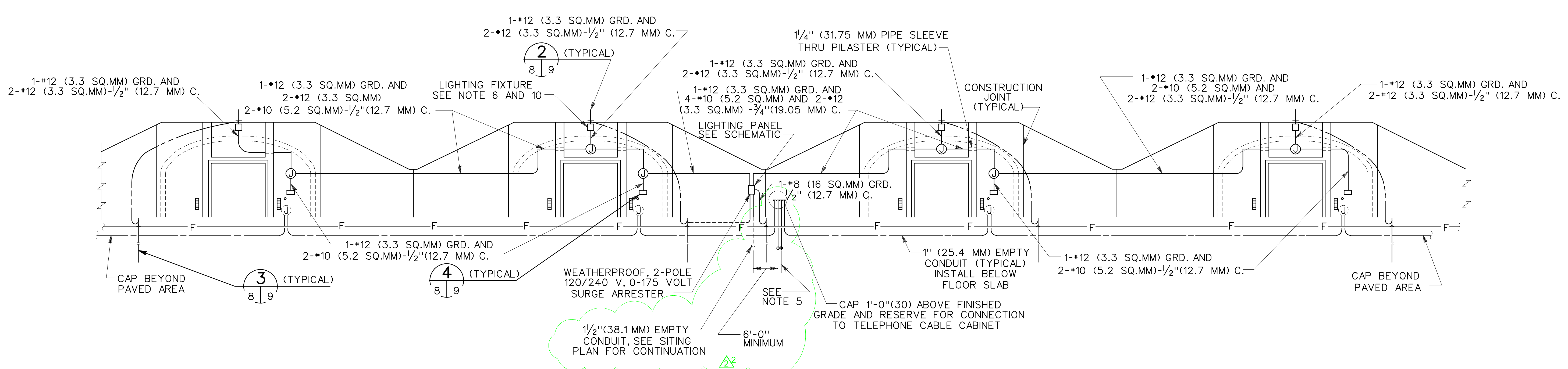
LENGTH OF MAGAZINE	NO. OF FIXTURES
20'-24' (6.1-7.3 M)	4
25'-36' (7.6-11 M)	4
37'-48' (11.3-14.6 M)	4
49'-60' (14.9-18.3 M)	6
61'-89' (18.6-27.1 M)	8
8. INSTALL AN INTERMEDIATE AIR TERMINAL OVER STRUCTURE WHERE INTERIOR LENGTH OF MAGAZINE EXCEEDS 48 FEET (SEE SHEET 9 OF 9).
9. SHEETS 8 AND 9 HAVE BEEN ADAPTED FROM O.C.E. DWG. NO. 33-15-73. SHEETS 8 AND 9 SHOWING ELECTRICAL PROVISIONS FOR SIMILAR STEEL ARCH MAGAZINE. NOTES 7 THRU 9 ARE NEW, AS ARE FIXTURE MOUNTING, GROUND FAULT INTERRUPTER AND AIR TERMINAL PROVISIONS (FOR MAGAZINES LONGER THAN 50 FT.).
10. BRACKET LIGHT FIXTURE AWAY FROM FRONT WALL TO PROVIDE LIGHT ON MAGAZINE DOOR.



PLAN
SCALE: 1/4" = 1'-0"
(1 - 48)



SECTION A
SCALE: 1" = 1'-0"
(1 - 12)

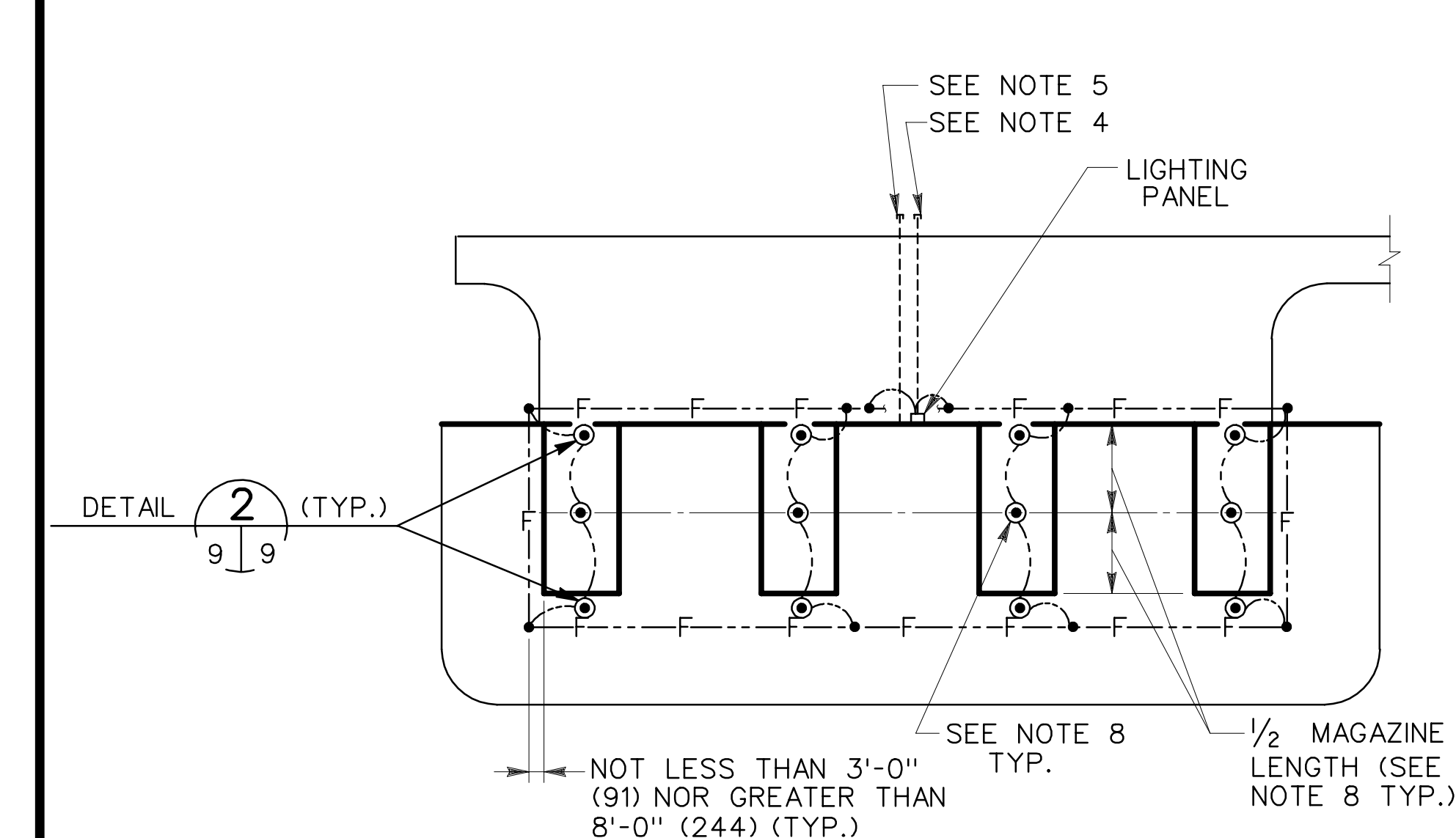


ELEVATION
NOT TO SCALE



SYMBOL	DESCRIPTION	DATE	APPROVAL
⚡	GENERAL REVISION/LIGHTNING PROTECTION	11JUN98	WLS
⚡	GENERAL REVISION/SIMONS-EASTERN CO.	19JUL84	JYM

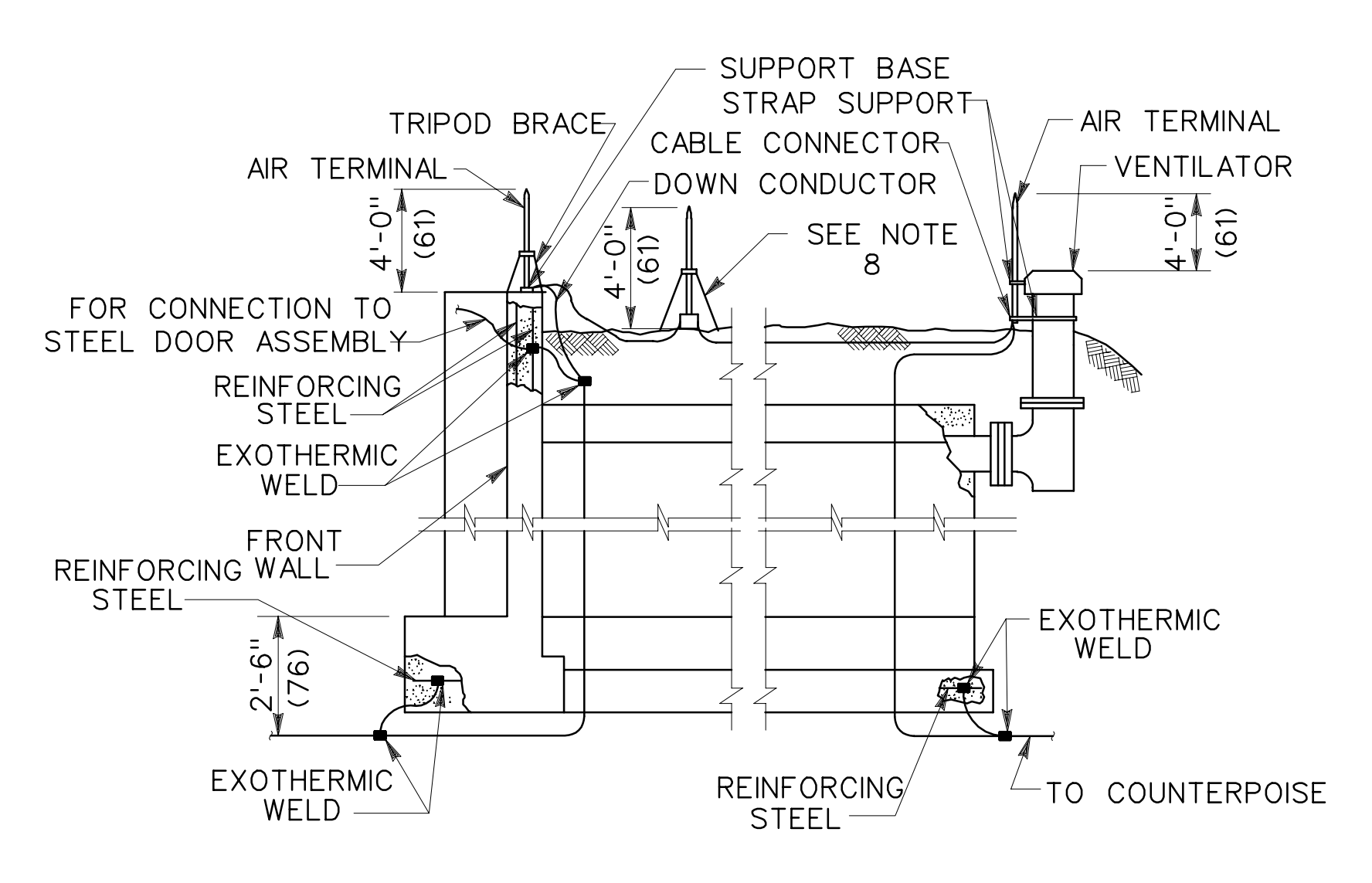
BLACK & VEATCH CONSULTING ENGINEERS KANSAS CITY, MISSOURI		DEPARTMENT OF THE ARMY OFFICE OF THE CHIEF OF ENGINEERS MILITARY CONSTRUCTION - ENGINEERING DIVISION WASHINGTON, D.C.	
DRAWN BY: P.Z.	CHECKED BY: N.J.A.	MAGAZINE, CONCRETE OVAL-ARCH, EARTH COVERED ELECTRICAL PLAN AND SECTIONS	
TRACED BY: P.Z.	SUBMITTED BY: W.V. HILL		
APPROVED BY: O.F.M.	APPROVED: LEE S. GARRETTE	DATE: 11APR79	
APPROVED FOR: CONSULTING ENGINEERS FALLS CHURCH, INDIANA	APPROVED BY: FOR THE DEPARTMENT OF THE AIR FORCE	DATE:	DRAWING NUMBER 33-15-74 SHEET 8 OF 9



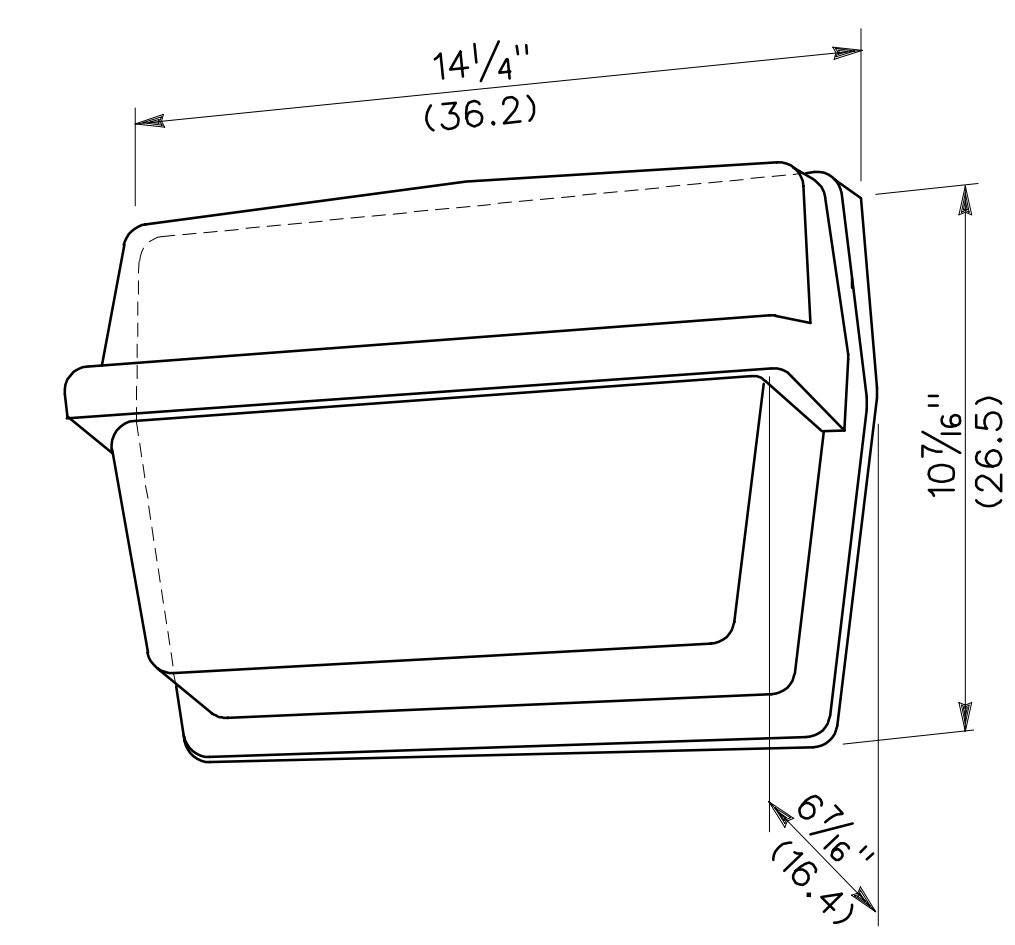
SITING PLAN
NOT TO SCALE

CONNECTED LOAD PER UNIT			
LIGHTING (WATTS)		RECEPTACLES (WATTS)	TOTAL (WATTS)
EXTERIOR	INTERIOR		(1) (2)
250	806	200	1256

- ① ASSUMING A 60 FT. (1829) MAGAZINE
- ② MAX. LOAD - 4 BAYS - 90 FT. (2745) MAGAZINE : 2.81 KVA



DETAIL 2
NOT TO SCALE



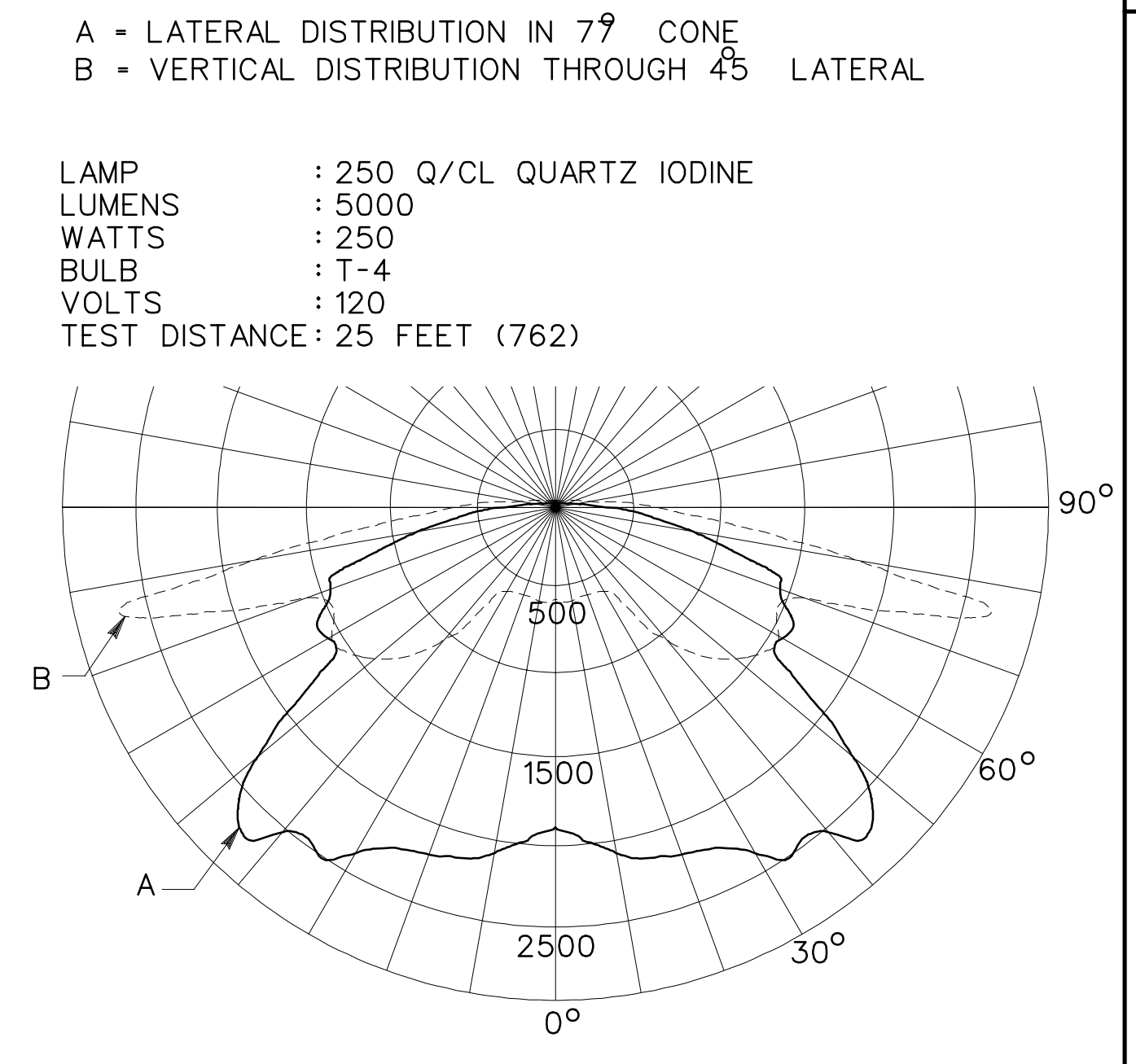
FIXTURE TYPE WBTH-414
(SEE NOTE 10)

WEATHERPROOF INCANDESCENT WALL MOUNTING FIXTURE CONSISTING OF A THERMAL, SHOCK-RESISTING, CRYSTAL PRISMATIC GLASS, ASYMMETRIC ALZAK REFLECTOR AND A DIECAST ALUMINUM HOUSING. THE FIXTURE SHALL BE PREWIRED AND EQUIPPED WITH A DOUBLE CONTACT BAYONET BASE SOCKET FOR A 250 WATT IODINE-QUARTZ, SINGLE ENDED LAMP. THE FIXTURE SHALL BE SUITABLE FOR MOUNTING DIRECTLY ON A WALL WITH CONDUIT ENTRY ON EACH SIDE OR TO A RECESSED OUTLET BOX STUD.

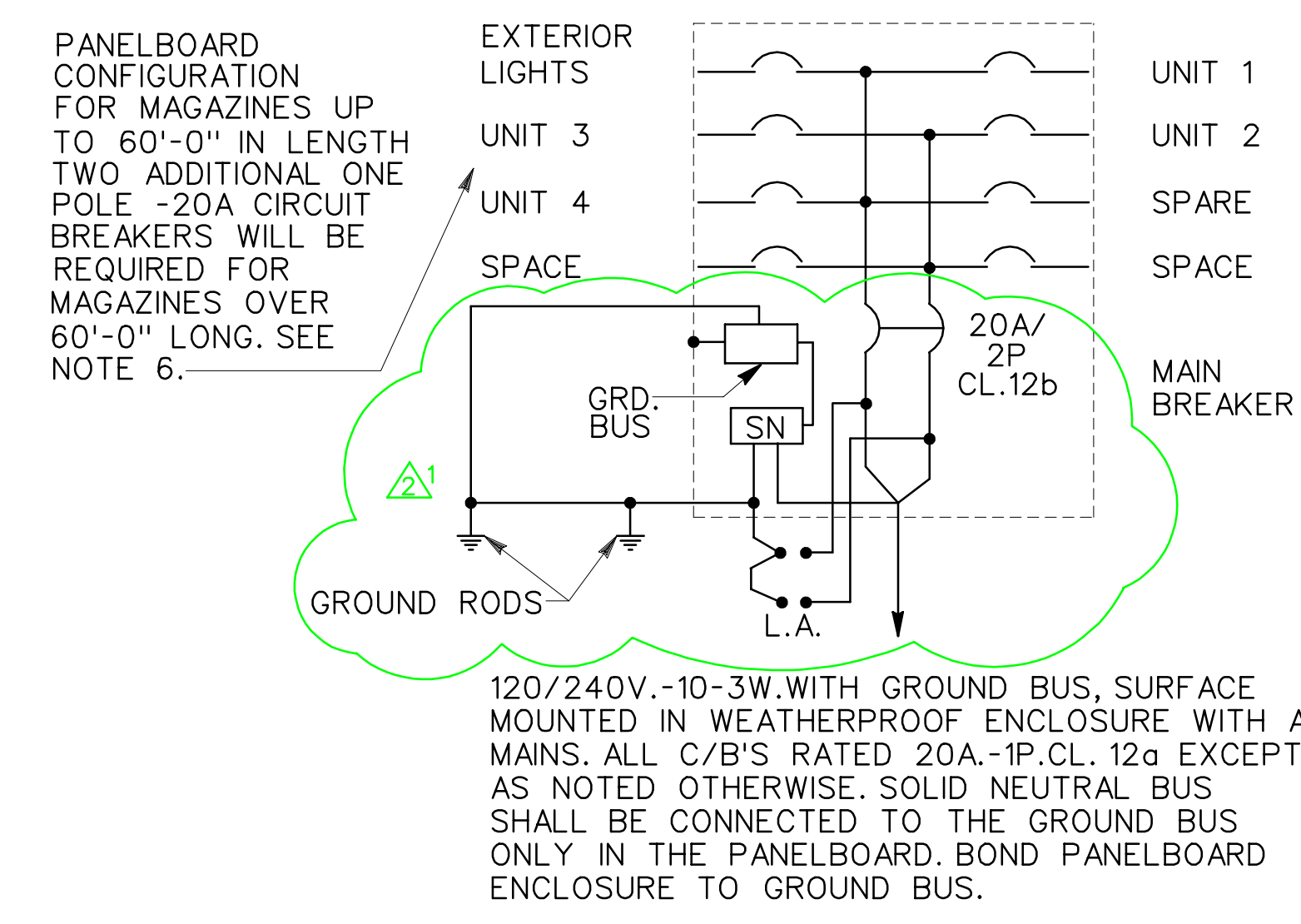
THE FIXTURE SHALL REQUIRE NO TOOLS FOR LAMP REPLACEMENT.

THE CANDLEPOWER VALUES INDICATED ARE TO BE CONSIDERED MINIMUM VALUES OBTAINED WITH STANDARD LAMPS AT RATED VOLTAGE.

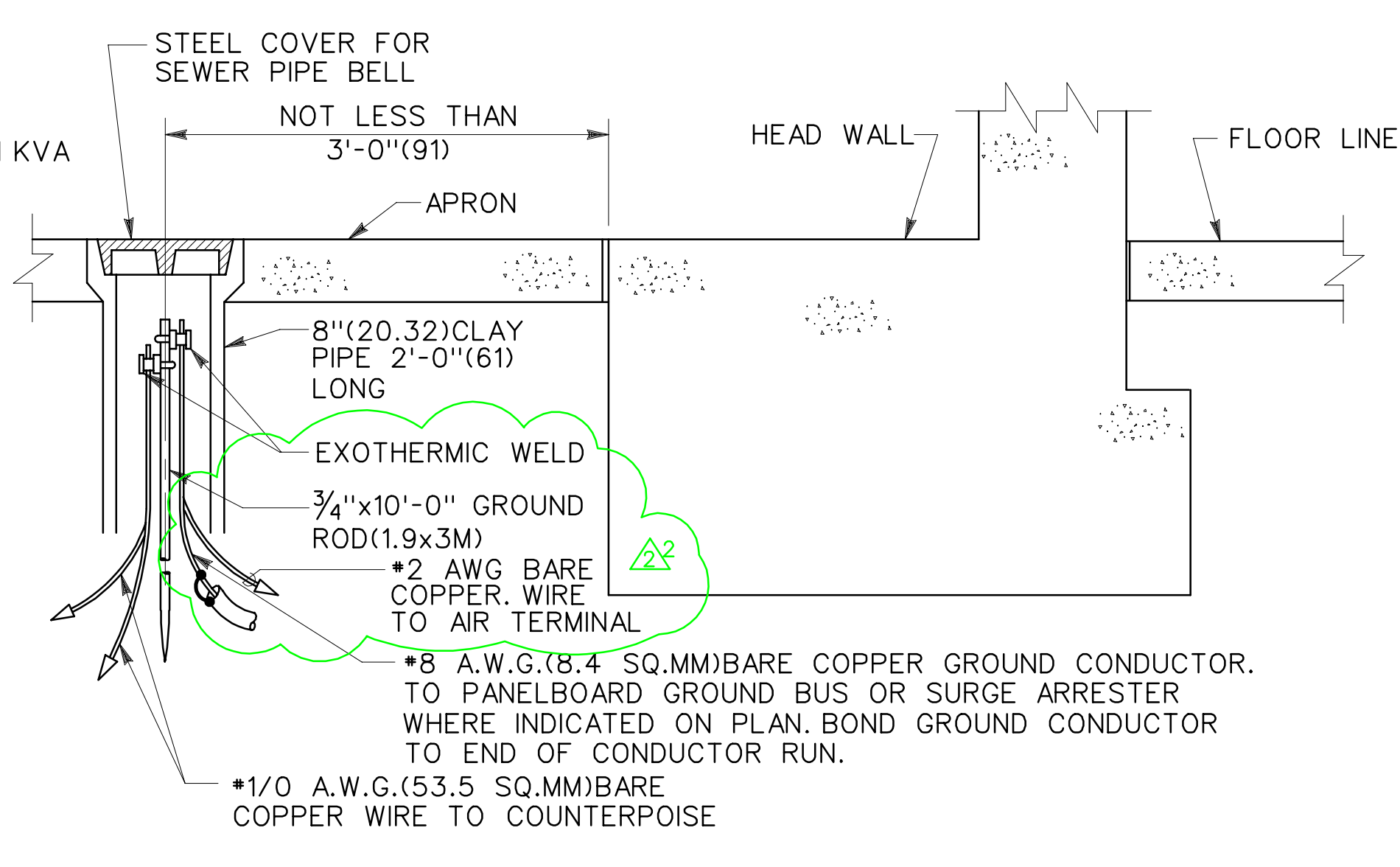
PHOTOMETRIC DISTRIBUTION
STANDARD FIXTURE POSITION



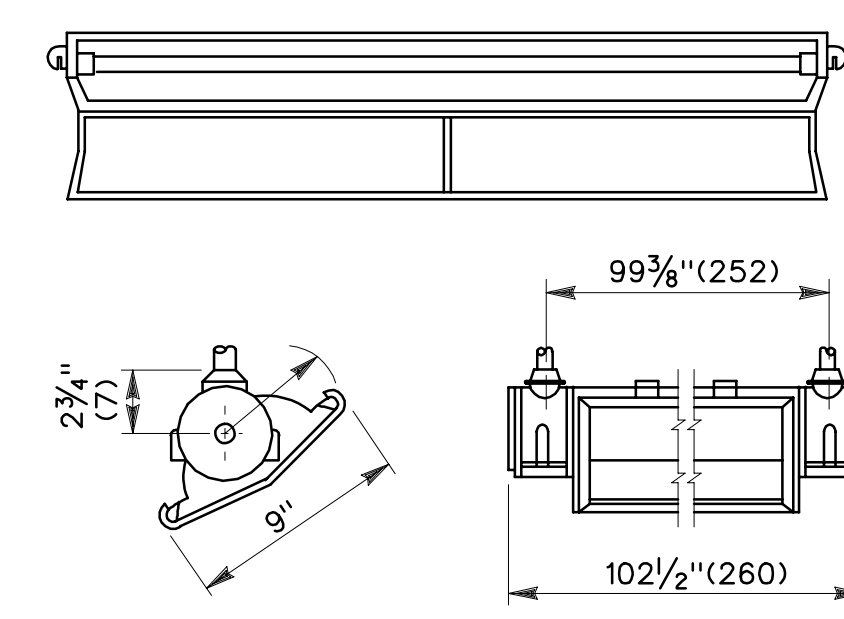
ANGLE DEGREES	DISTRIBUTION DATA	
	A	B
0	1900	480
5	1945	540
10	-	540
15	2190	535
20	-	560
25	2255	560
30	1965	565
35	2550	580
40	2500	770
45	2715	1150
50	2460	1325
55	1965	1425
60	1560	1550
65	1610	1475
70	1435	1500
75	1435	2450
77	777	2715
80	920	2020
85	720	770
90	425	440
95	315	310
105	160	220
115	110	-
125	80	-
135	50	-
145	30	-
155	20	-
165	10	-
175	10	-
180	10	-



LIGHTING PANELBOARD
SCHEMATIC



DETAIL 3
NOT TO SCALE



FIXTURE TYPE WBF-SL-96
(SEE NOTE 10)

FLUORESCENT FLOODLIGHT FIXTURE SUITABLE FOR OUTDOOR INSTALLATION SHALL UTILIZE A 96 INCH (244) RAPID START 1500 MA LAMP (F96T12/CW/SHO). THE FIXTURE SHALL CONSIST OF AN ALZAK ALUMINUM REFLECTOR WITH SPECULAR FINISH, SPRING LOADED PLUNGER TYPE SILVERPLATED CONTACT SOCKETS WITH NEOPRENE BOOTS AND SHALL HAVE PROVISION FOR AMING THROUGHOUT 360 DEGREES ROTATION WITH GRADUATED AMING DIAL. DOOR ASSEMBLY SHALL CONSIST OF A STAINLESS STEEL FRAME WITH A CLEAR ACRYLIC PLASTIC COVER, SPONGE NEOPRENE WEATHERPROOF GASKET WITH STAINLESS STEEL HINGES AND LATCHES. HOUSING SHALL BE FINISHED WITH GREEN ACRYLIC BAKED ENAMEL PAINT OR OTHER APPROVED COLOR. THE FIXTURE SHALL BE EQUIPPED WITH A MOUNTING HUB ASSEMBLY AT EACH END. A THERMALLY PROTECTED WEATHERPROOF BALLAST, NOT INTEGRAL WITH THE FIXTURE SHALL BE PROVIDED. THE BALLAST SHALL BE RATED FOR -20° F (-29C) STARTING IN COLD WEATHER OPERATION. THE CANDLEPOWER VALUES INDICATED ARE TO BE CONSIDERED MINIMUM VALUES OBTAINED WITH STANDARD LAMPS AT RATED VOLTAGE.

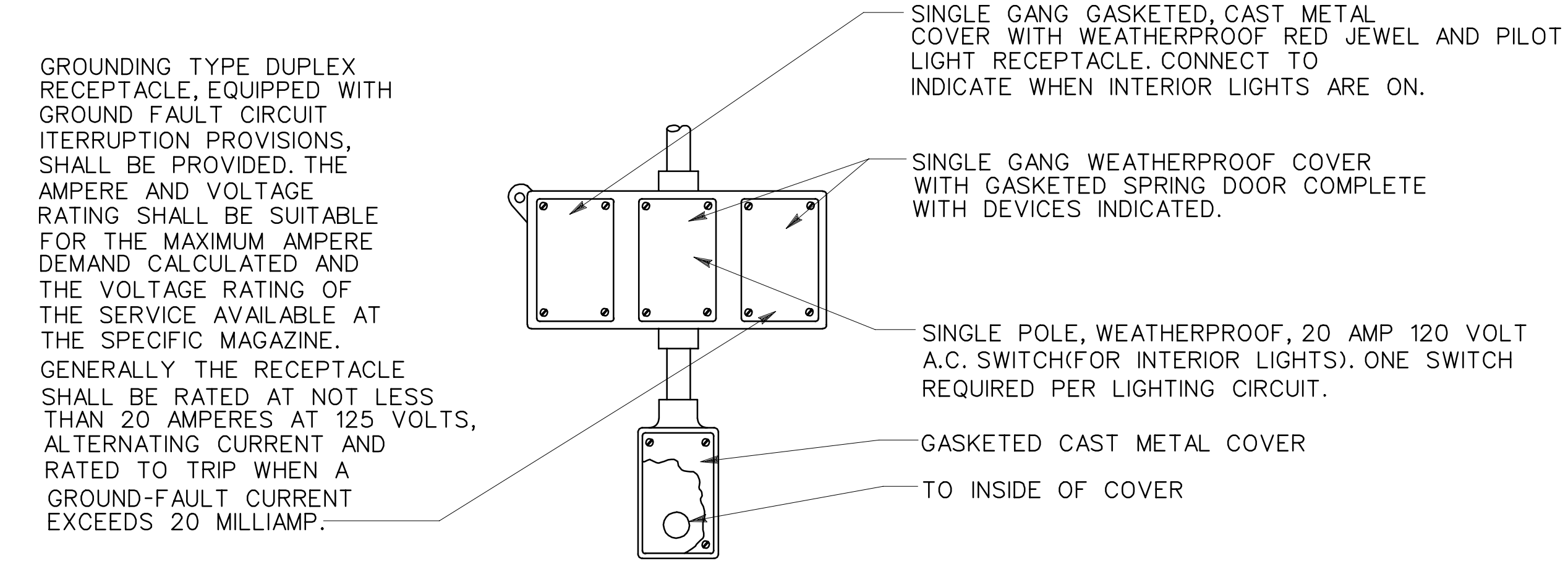
NOMINAL LAMP DATA

LAMP	: F96T12/CW/SHO	AVG. MAX. CANDLEPOWER	4779
WATTS	: 212	BEAM LUMENS	7854
CURRENT	: 1.5 AMPS	BEAM EFFICIENCY	: 59.3%
LUMENS	: 13250	TOTAL EFFICIENCY	: 62.1%
TEST DISTANCE	: 40 FT. (1220)	HOR. BEAM SPREAD	: 100°
		VERT. BEAM SPREAD	: 136°

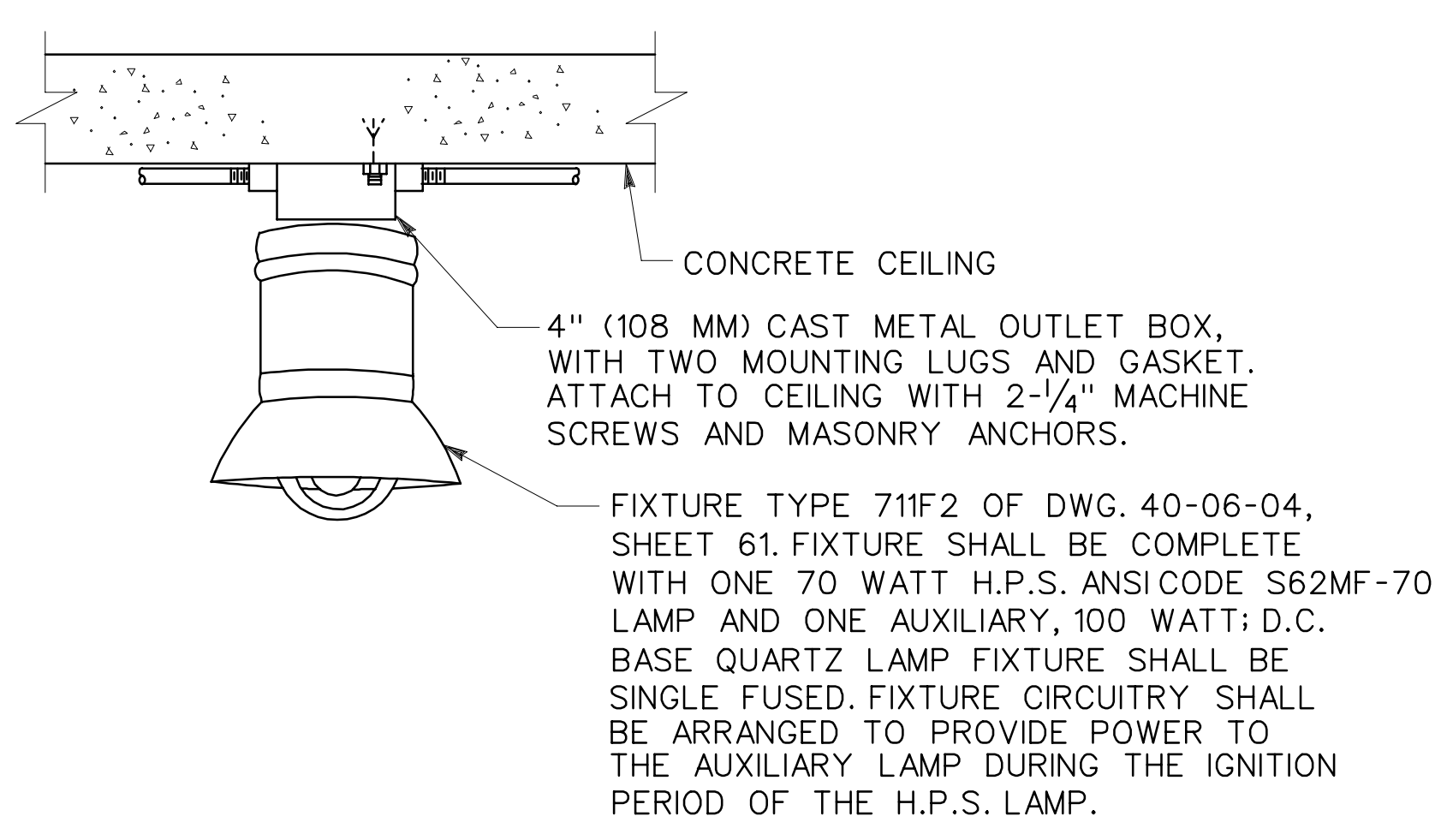
TEST RESULTS

AVE. OF RIGHT AND LEFT SIDES	1	AVE. OF RIGHT AND LEFT SIDES	1	TEMPERATURE	
75°	14.3	75°	14.3	AMB. AIR	CORR FAC
60°	62	60°	62	120°	.72
45°	100	45°	100	110°	.78
30°	100	30°	100	100°	.83
15°	254	15°	254	90°	.90
0°	290	0°	290	80°	.98
15°	254	15°	254	70°	1.00
30°	100	30°	100	60°	1.04
45°	62	45°	62	50°	1.10
60°	26	60°	26	40°	1.15
75°	14	75°	14	30°	1.15
				20°	1.12
				10°	1.07
				0°	.97
				-10°	.84
				-20°	.66

TOTALS OF VERTICAL ZONES
1418199803428 81
3927



DETAIL 4
NOT TO SCALE



DETAIL 1
NOT TO SCALE

NOTE:
REFER TO SHEET 8 FOR NOTES AND LEGEND.

SYMBOL	DESCRIPTION	DATE	APPROVAL
⚡	GENERAL REVISION/LIGHTNING PROTECTION	11JUN98	WLS
⚡	GENERAL REVISION/SIMONS-EASTERN CO.	19JUL84	JYM

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: S.M.C.	CHECKED BY: S.M.C.	<p style="text-align: center;">MAGAZINE, CONCRETE OVAL-ARCH, EARTH COVERED ELECTRICAL DETAILS</p>	
SUBMITTED BY: W.V. HILL	APPROVED BY: O.F.M.		
APPROVED FOR: FOR THE DEPARTMENT OF THE NAVY	DATE	APPROVED: LEE S. GARRETTE	DATE: 11APR79
APPROVED FOR: FOR THE DEPARTMENT OF THE AIR FORCE	DATE	SCALE:	SPEC. NO.
		DRAWING NUMBER 33-15-74	
		SHEET 9 OF 9	