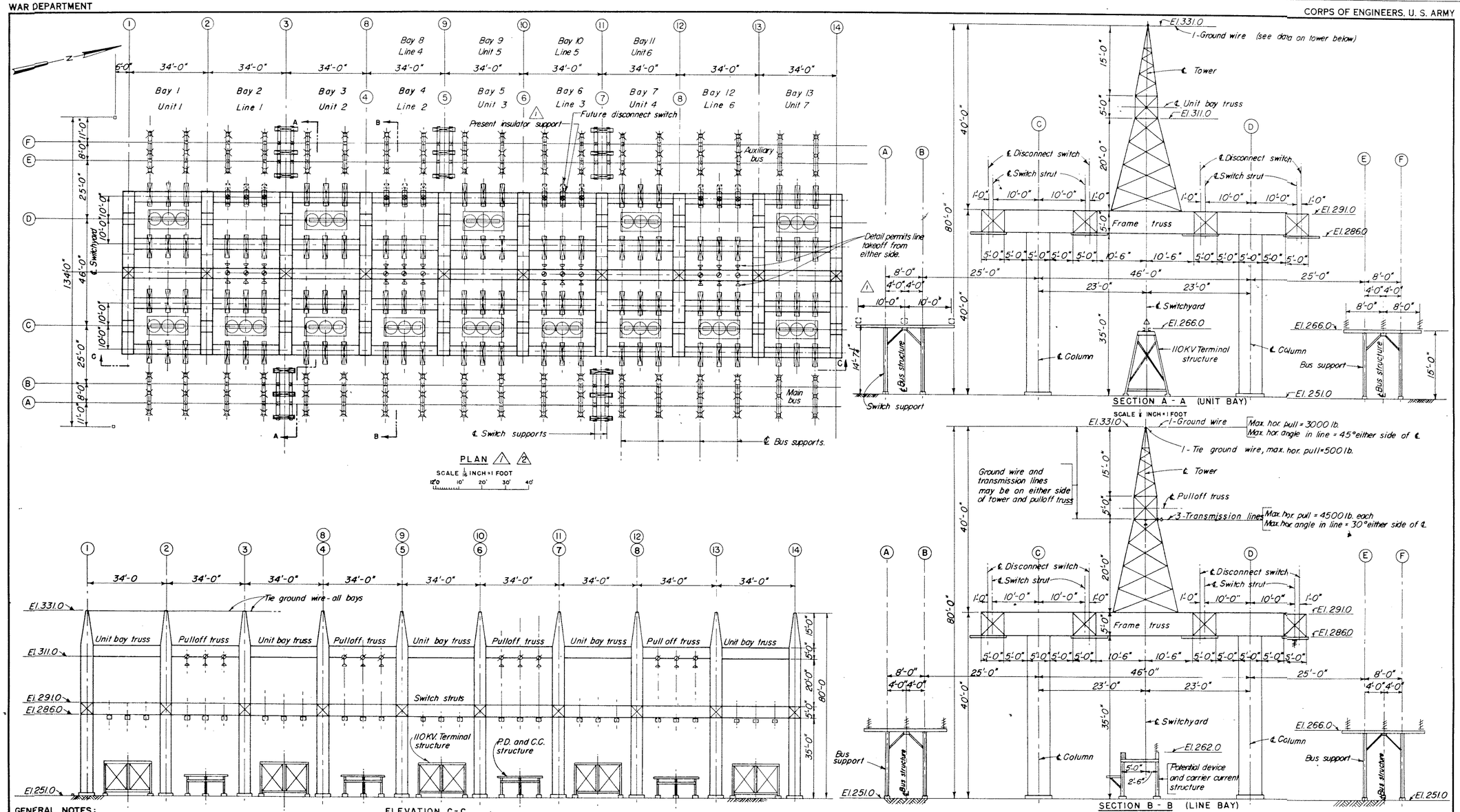
442

WAR DEPARTMENT

CORPS OF ENGINEERS, U. S. ARMY



GENERAL NOTES:

1. All material hot dip galvanized after fabrication.
2. Gusset plates 3/8" thick unless otherwise noted.
3. Holes 13/16 ϕ, bolts 3/4 ϕ except as noted, minimum spacing 2".
4. All single lacing to be inside trusses unless otherwise shown.
5. Palnuts (or equal) used for locknuts on all bolts.
6. Bolts to be long enough to accomodate locknut device.
7. Bolt heads to be on outside face of members, where possible.
8.
9. All bolted connections to have a minimum of 2 bolts unless shown otherwise.
10. Items shown on this drawing will be furnished under supply specification 508.8 and installed by the General Contractor under contract item (319) of specification 508B.
11. Structural steel shall conform to Fed. Spec. QQ-S-741, Type I, Grade B, Class I, with the exception that the modifications of paragraph F-2a(1), as indicated in Amendment No. 3 shall be waived.
12. Bolts shall conform to Fed. Spec. FF-B-571a, Class C, Type B-2 Head and Type A-2 Nut.

REFERENCES:

YS202A	Tower, Pulloff Truss and Unit Bay Truss Details
YS203A	Frame Truss Details
YS204A	Switch Strut and Column Details
YS205A	Misc. Frames and Details
YS801A	Anchor Bolt Location and Base Plates
YE200A	Electrical Equipment-General Plan
YC206A	Concrete Outline and Reinforcement-Footing

EQUIPMENT DESIGNATION				
DESCRIPTION	NEAR SIDE	FAR SIDE	BOTH SIDES	El.
Pedestal insulator 5" B.C.				
Strain insulator				
Disconnect switch				
Disconnect switch (future)				
Special H.V. terminator				
Capacitor				
Channel support for pedestal insulator				

13. Zinc for coating structural steel shall conform to the requirements of A.S.T.M. Designation B6-48, "Slab Zinc (Spelter)" and shall be equal to the grade designated as "Prime Western".

COMPANION DRAWINGS: YS202A TO YS205A AND YS801A

ROANOKE RIVER BASIN
BUGGS ISLAND RESERVOIR
ROANOKE RIVER, VA. - N. C.

SWITCHYARD
STRUCTURAL STEEL
PLAN AND SECTIONS

SCALE: AS SHOWN — SHEET NO. 248

NO.	DATE	REVISION	REV.	APP.	APP.
2	5-11-51	REVISED TO INCLUDE UNITS 5, 6 AND 7	JO	T.C.G.	O.M.
1	12-1-49	ADDED SPEC. NO. 508-B, MINOR REVISIONS	P.E.M.	T.C.G.	O.M.

CHAS. T. MAIN, INC.
ENGINEER
BOSTON MASSACHUSETTS

U. S. ENGINEER OFFICE, NORFOLK, VA. — OCTOBER 1947

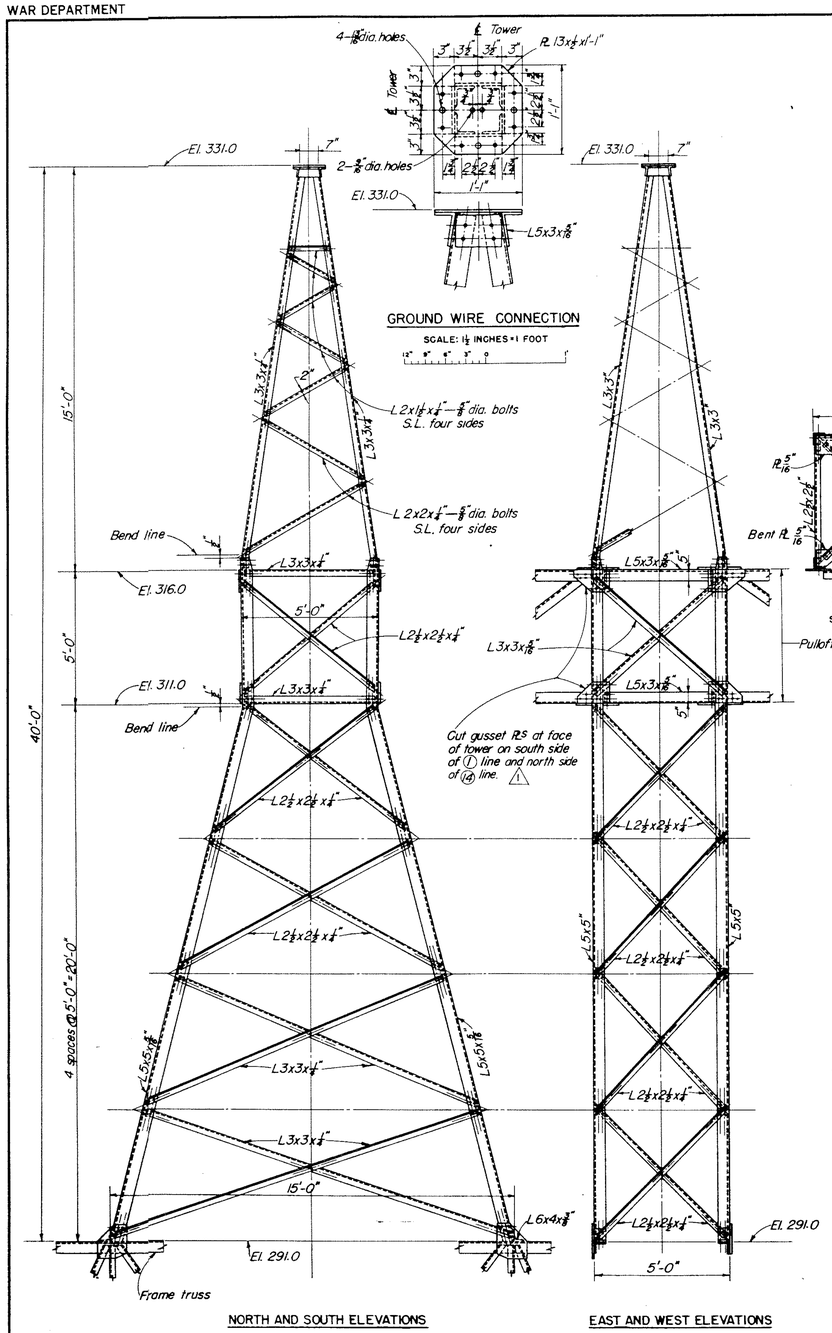
SUBMITTED: Ojus Malphus, HEAD, STRUCTURAL SECTION — APPROVAL RECOMMENDED: [signature], CHIEF, CONTROL BRANCH — APPROVED: [signature], CORPS OF ENGINEERS, DISTRICT ENGINEER

SUBMITTED: [signature] MEMBER OF FIRM — 7-1-47 DATE — DRAWN BY: R.A.G. / T.H.B. — CHECKED BY: R.R. / S.S. — TRACED BY: E.K. — REC'D. 9-8-47 — REV. E.E. T.C.G. — TO ACCOMPANY SPECIFICATION — FILE NO. YS 201A-2

S-10

R-47

.../reference files/jkpstr.dgn Jan. 08, 2002 08:06:01



GROUND WIRE CONNECTION

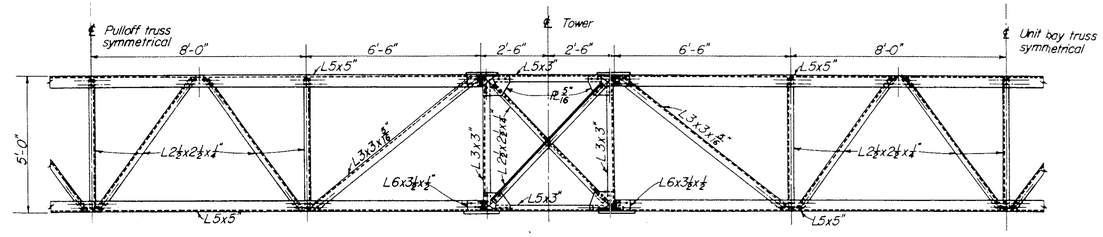
SCALE: 1 1/2 INCHES = 1 FOOT

NORTH AND SOUTH ELEVATIONS

EAST AND WEST ELEVATIONS

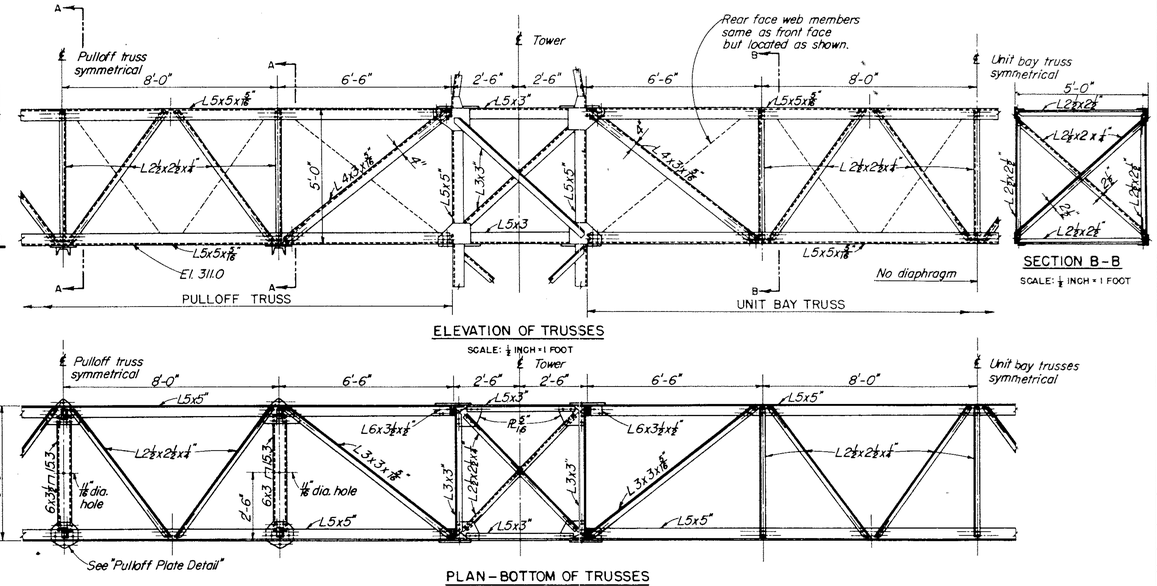
PULLOFF TOWER

SCALE: 1/4 INCH = 1 FOOT



PLAN – TOP OF TRUSSES

SCALE: 1/4 INCH = 1 FOOT



ELEVATION OF TRUSSES

SCALE: 1/4 INCH = 1 FOOT

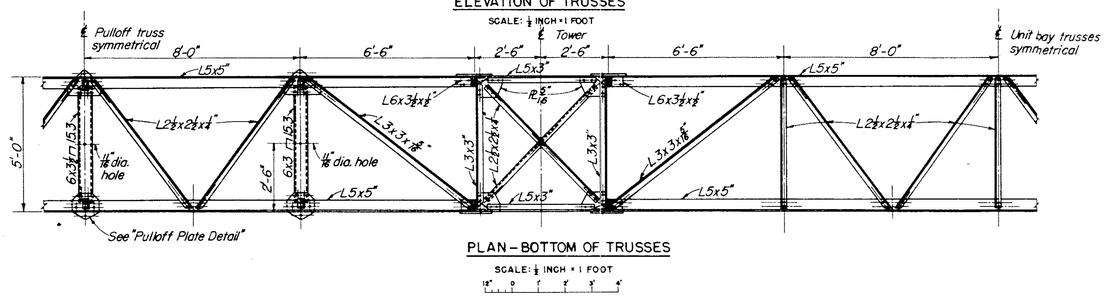
SECTION A-A

SCALE: 1/4 INCH = 1 FOOT

Pulloff or unit bay trusses

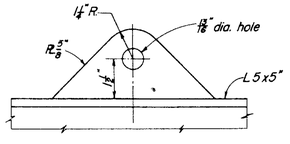
SECTION B-B

SCALE: 1/4 INCH = 1 FOOT



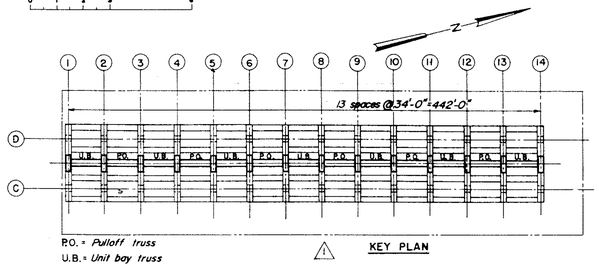
PLAN – BOTTOM OF TRUSSES

SCALE: 1/4 INCH = 1 FOOT



PULLOFF PLATE DETAIL

SCALE: 6 INCHES = 1 FOOT



P.O. = Pulloff truss

U.B. = Unit bay truss

KEY PLAN

NOTES:

1. For general notes and references see YS201A.

COMPANION DRAWINGS: YS201A, YS203A TO YS205A

ROANOKE RIVER BASIN
-BUGGS ISLAND RESERVOIR
ROANOKE RIVER, VA.—N. C.

SWITCHYARD

STRUCTURAL STEEL

TOWER, PULLOFF TRUSS, AND UNIT BAY TRUSS DETAILS

IN SHEETS — SCALE: AS SHOWN — SHEET NO.

U. S. ENGINEER OFFICE, NORFOLK, VA. — JULY 1950

NO.	DATE	REVISION	REV.	APP.	APP.
1	5-16-51	Revised to include Units 5, 6 and 7	P.E.M.	T.C.G.	O.M.

CHAS. T. MAIN, INC.
ENGINEER
BOSTON MASSACHUSETTS

SUBMITTED: C. T. Eshleman, Chief, Design Section, Structural Division — NUMBER OF FIRM — DATE 7-1-47

DRAWN BY: H.S.M. — CHECKED BY: S.S. — TRACED BY: A.J.S.

SUBMITTED: Ogden Malphurs, Chief, Engineering Division

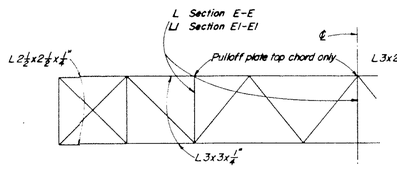
APPROVAL RECOMMENDED: G. H. Robin, Chief, Construction Division

APPROVED: G. H. Cady, Col., Corps of Engineers, District Engineer

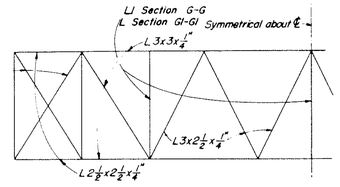
REC'D. — APP. [redacted]

FILE NO. YS202A-1

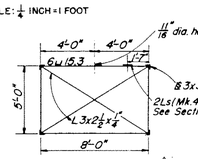
S-11



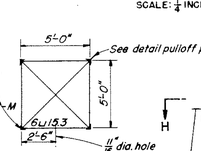
SECTION E-E AND EI-EI
SECTION EI-EI OPPOSITE HAND (EXCEPT AS NOTED) 1
SCALE: ¼ INCH = 1 FOOT



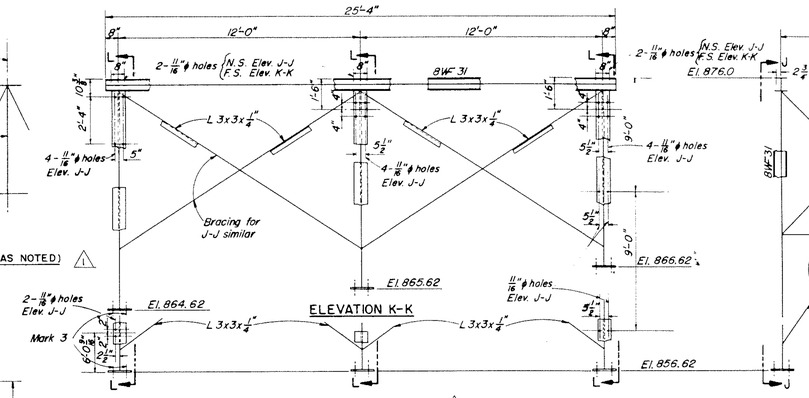
SECTION G-G AND GI-GI
SECTION GI-GI OPPOSITE HAND (EXCEPT AS NOTED) 1
SCALE: ¼ INCH = 1 FOOT



SECTION F-F 2
SCALE: ¼ INCH = 1 FOOT

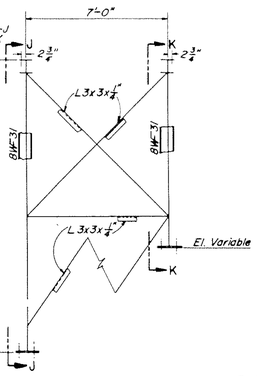


SECTION D-D
SCALE: ¼ INCH = 1 FOOT

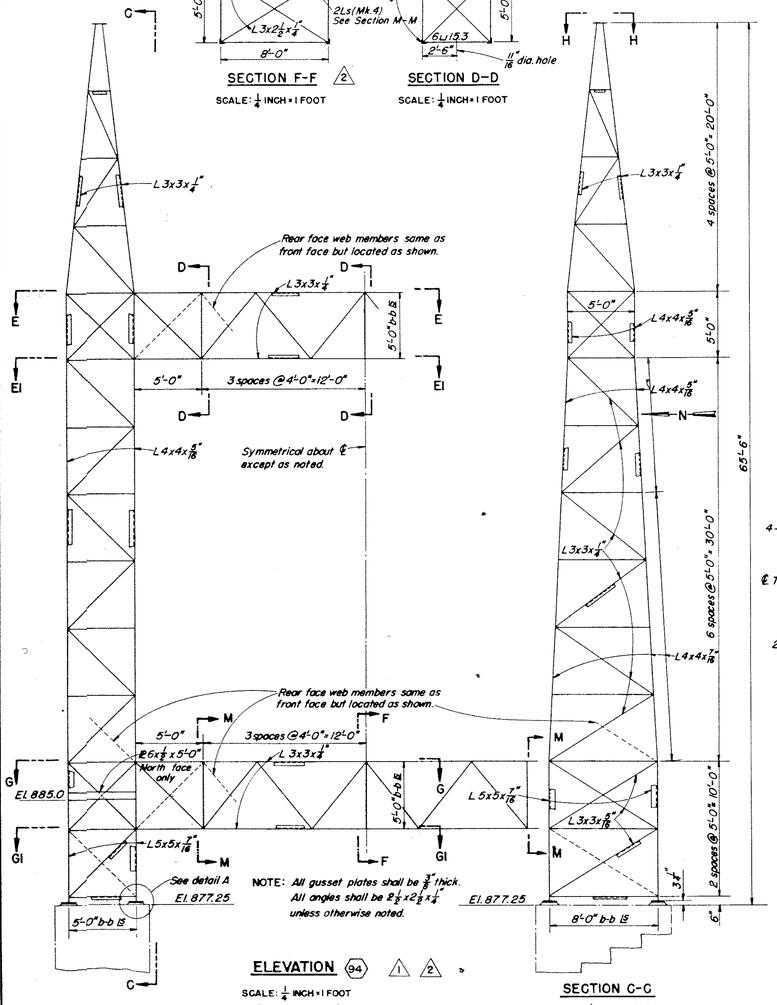


ELEVATION K-K

ELEVATION J-J 2



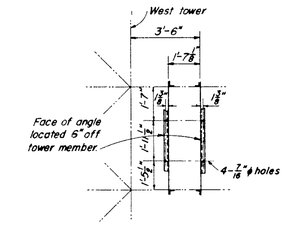
SECTION L-L 2



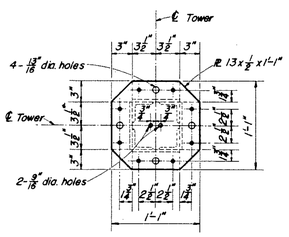
ELEVATION 94 1 2
SCALE: ¼ INCH = 1 FOOT

SECTION C-C
SCALE: ¼ INCH = 1 FOOT

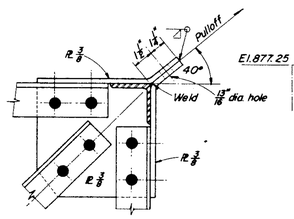
EST. WT. 17,000 LBS.



2 ELEVATION LOOKING NORTH
SCALE: ⅜ INCH = 1 FOOT



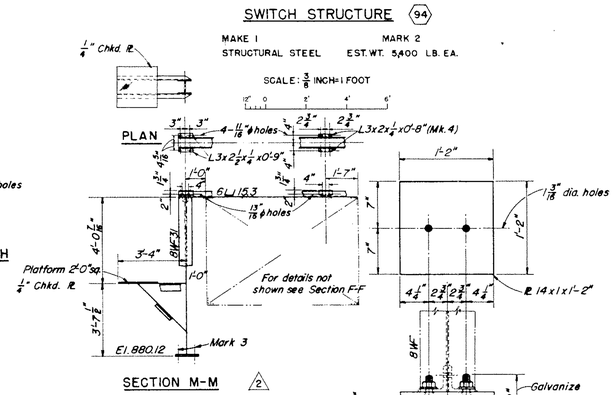
SECTION H-H
SCALE: 1½ INCHES = 1 FOOT



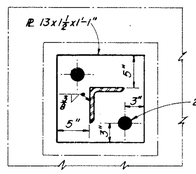
DETAIL-PULLOFF PLATE
SCALE: 3 INCHES = 1 FOOT

SWITCH STRUCTURE 94

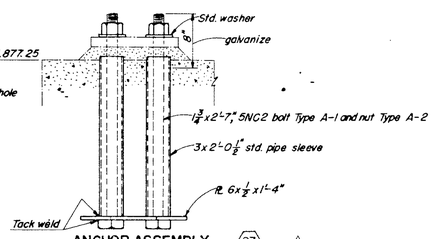
MAKE 1 MARK 2
STRUCTURAL STEEL EST. WT. 5,400 LB. EA.
SCALE: ⅜ INCH = 1 FOOT



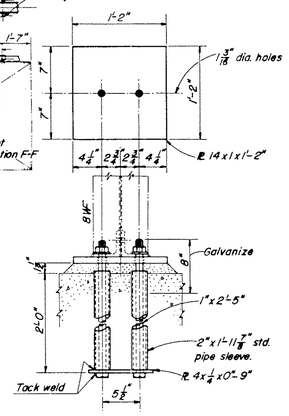
SECTION M-M 2
SCALE: ⅜ INCH = 1 FOOT



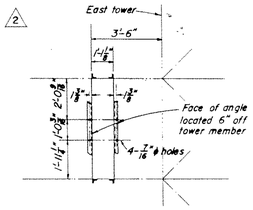
DETAIL A 2
MAKE 8 MARK 3 EST. WT. 90 LB. EA.
SCALE: 1½ INCHES = 1 FOOT 97



ANCHOR ASSEMBLY 97 1
MAKE 8 MARK 1 EST. WT. 95 LB. EA.
SCALE: 1½ INCHES = 1 FOOT



ANCHOR BOLT ASSEMBLY
MAKE 8 MARK 3 EST. WT. 90 LB. EA.
SCALE: 1½ INCHES = 1 FOOT 97



ELEVATION LOOKING NORTH 2
SCALE: ⅜ INCH = 1 FOOT

NOTES:

1. Material shall be marked and piece marks prefixed by PS 810B-Mk.
2. Numbers shown thus ◯ are contract payment item numbers.
3. All material to be hot dip galvanized after shopwork.
4. Zinc for coating shall conform to the requirements of ASTM Designation B6-48 "Slab Zinc" (Spelter) and shall be equal to the grade designated as "Prime Western."
5. All field connections shall be bolted.
6. All bolted connections to have a minimum of 2 bolts.
7. Holes 13/16" DIA. bolts ¾" DIA. minimum spacing 2 inches.
8. Provide Palnuts or approved equal for locknuts on all bolts.
9. Bolt heads to be on outside face of members where possible.
10. Structural steel shall meet the requirements of one of the following:
    (1) Federal Specification QQ-S-741, Type I, Grade B, with the exception that the modifications of paragraph F-2a(1), as indicated in amendment 3 shall be waived.
    (2) ASTM Designation A7-49T.
11. Bolts shall meet the requirements of Federal Specification FF-B-571a, bolts Type B-2 and nuts Type A-2.

REVISION	DATE	DESCRIPTION	BY	APP.	APP
2	7-2-52	ADDED CONNECTIONS FOR ELECTRICAL EQUIPMENT		R.C.K	T.C.G.
1	12-10-51	MINOR REVISIONS	PEM	E.E.	T.C.G.

CORPS OF ENGINEERS
U.S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NORFOLK, VA.

ROANOKE RIVER BASIN, SMITH RIVER, VIRGINIA
PHILPOTT RESERVOIR PROJECT

POWERHOUSE

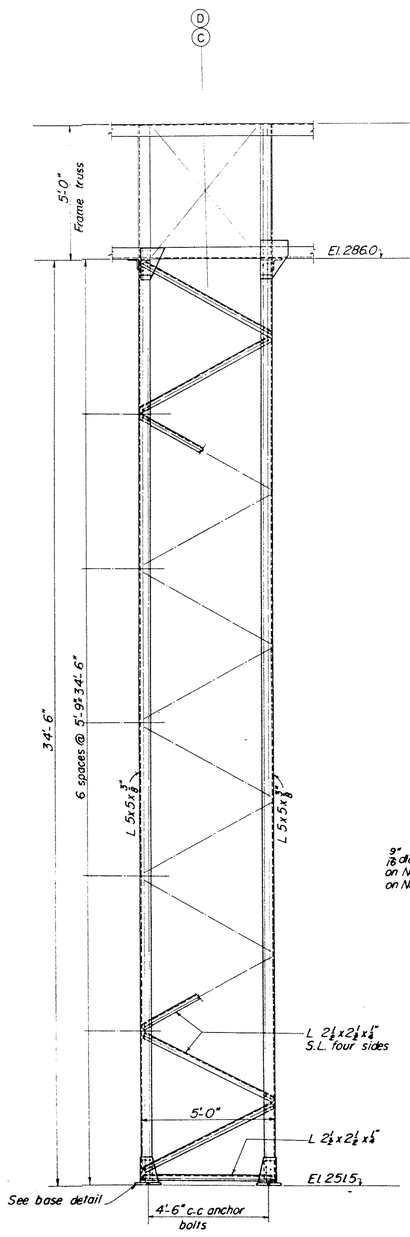
TOWER AND SWITCH STRUCTURE

DRAWN: T.S.
TRACED: J.P.D.
CHECKED: E.C.
REVIEWED:
SUBMITTED: Thomas C. Gatley, CHIEF, STRUCTURAL SECTION
APPROVED: Eric Maghum, CHIEF, DESIGN BRANCH
APPROVED: O. K. Robins, CHIEF, ENGINEERING DIVISION
APPROVED: [illegible], DISTRICT ENGINEER
SCALE: AS SHOWN JULY 1951
TO ACCOMPANY SPECIFICATION NO. 58-A
SHEET NO. 77 FILE PS810B-2

.../reference files/jkpstr.dgn Jan. 08, 2002 08:07:16

WAR DEPARTMENT

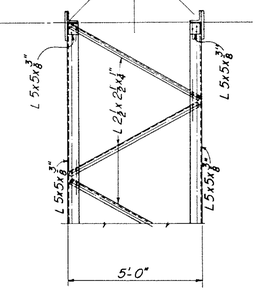
CORPS OF ENGINEERS, U. S. ARMY



NORTH OR SOUTH ELEVATION

ELEVATION OF COLUMN

SCALE: ½ INCH = 1 FOOT

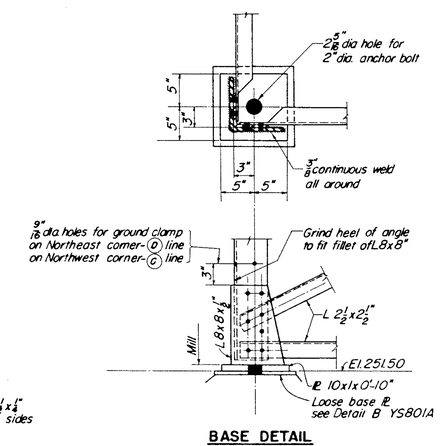


EAST OR WEST ELEVATION

Parts not shown same as North Elevation

ELEVATION OF COLUMN

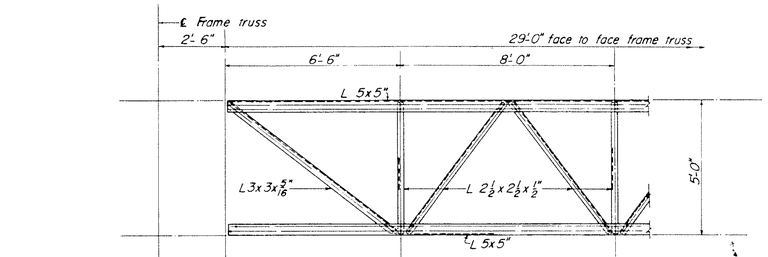
SCALE: ½ INCH = 1 FOOT



BASE DETAIL

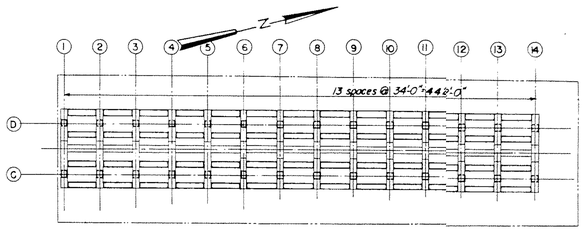
SCALE: 1½ INCHES = 1 FOOT

12" 9" 6" 3" 0 1'

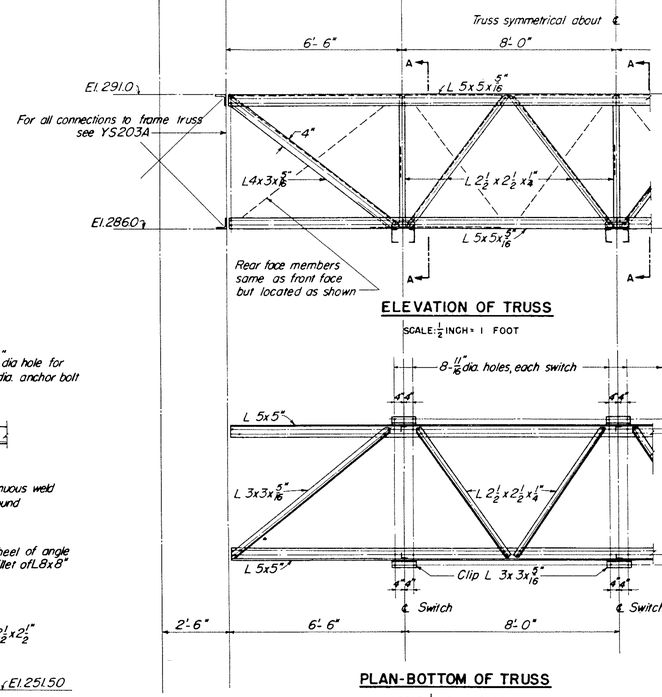


PLAN-TOP OF TRUSS

SCALE: ½ INCH = 1 FOOT



1 KEY PLAN

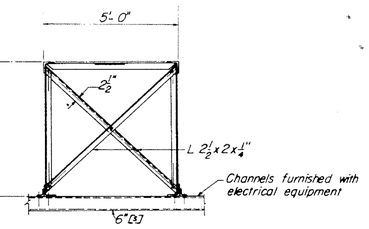


ELEVATION OF TRUSS

SCALE: ½ INCH = 1 FOOT

PLAN-BOTTOM OF TRUSS

SCALE: ½ INCH = 1 FOOT



SECTION A-A

SCALE: ½ INCH = 1 FOOT

NOTES:

1. *For general notes and reference drawings see YS201A.*
2. *All welds continuous.*

COMPANION DRAWINGS: YS201A TO YS203A, YS 205A

NO.	DATE	REVISION	REV.	APP.	APP.
1	5-16-51	Revised to include Units 5, 6 and 7	Y.E.M.	T.C.G.	O.M.

CHAS. T. MAIN, INC.
ENGINEER
BOSTON MASSACHUSETTS

SUBMITTED: A. E. Eckley, Chief Engineer, Member of Firm — DATE 7-1-47

DRAWN BY: L. F. C. CHECKED BY: S. S. TRACED BY: E. M. B.

REC'D. APP.

ROANOKE RIVER BASIN
BUGGS ISLAND RESERVOIR
ROANOKE RIVER, VA.—N. C.

SWITCHYARD

STRUCTURAL STEEL

SWITCH STRUT AND COLUMN DETAILS

IN SHEETS SCALE: AS SHOWN SHEET NO.

U. S. ENGINEER OFFICE, NORFOLK, VA. JULY 1950

SUBMITTED: Chief, Design Branch — APPROVAL RECOMMENDED: Chief, Engineering Division — APPROVED: Lt. Colonel, Corps of Engineers, District Engineer

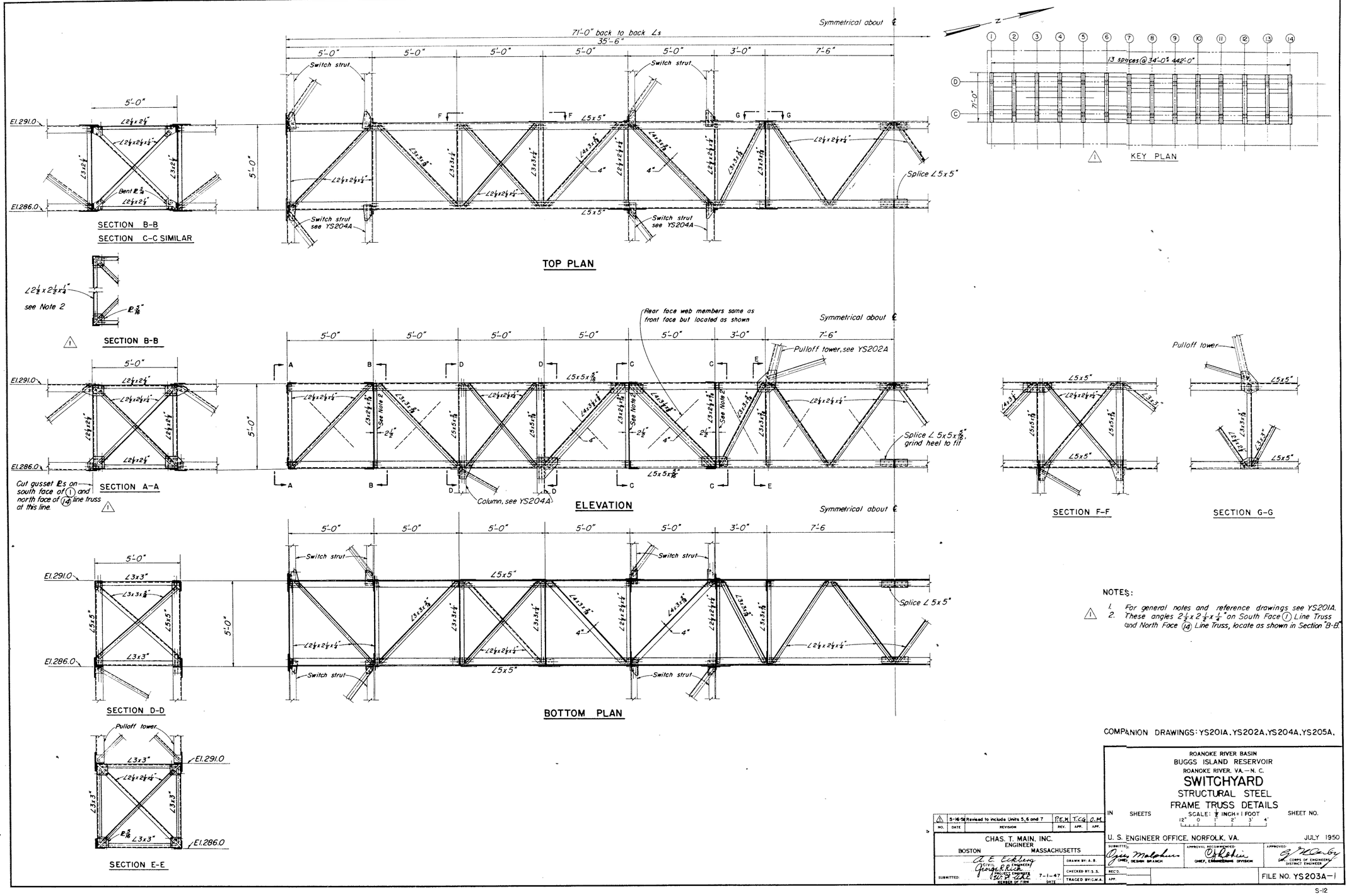
FILE NO. YS204A-1

S-13

R-50

WAR DEPARTMENT

CORPS OF ENGINEERS, U. S. ARMY



NOTES:

1. For general notes and reference drawings see YS201A.
2. These angles 2½ x 2½ x ¼" on South Face (1) Line Truss and North Face (14) Line Truss, locate as shown in Section "B-B".

COMPANION DRAWINGS: YS201A, YS202A, YS204A, YS205A.

NO.	DATE	REVISION	REV.	APP.	APP.
1	5-16-51	Revised to include Units 5, 6 and 7	P.E.M.	T.C.G.	O.M.

CHAS. T. MAIN, INC.
ENGINEER
BOSTON MASSACHUSETTS

SUBMITTED: A. E. Eckberg, CIVIL ENGINEER; George R. Rich, PROJECT ENGINEER; W. F. Uhl, MEMBER OF FIRM — DATE 7-1-47

DRAWN BY: A. B.
CHECKED BY: S. S.
TRACED BY: G.M.A.

ROANOKE RIVER BASIN
BUGGS ISLAND RESERVOIR
ROANOKE RIVER, VA.—N. C.

SWITCHYARD
STRUCTURAL STEEL
FRAME TRUSS DETAILS

IN SHEETS — SCALE: ½ INCH = 1 FOOT — SHEET NO.

U. S. ENGINEER OFFICE, NORFOLK, VA. — JULY 1950

SUBMITTED: Ojies Malphurs, CHIEF, DESIGN BRANCH — APPROVAL RECOMMENDED: O. Robin, CHIEF, ENGINEERING DIVISION — APPROVED: G. M. Darby, COL., CORPS OF ENGINEERS, DISTRICT ENGINEER

REC'D.
APP.

FILE NO. YS203A-1

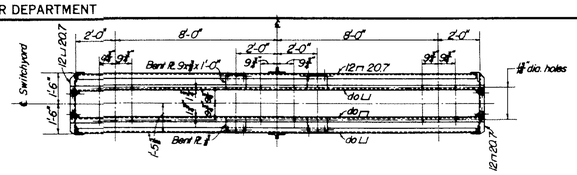
S-12

R-51

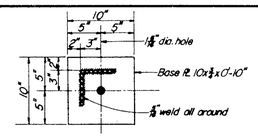
.../reference files/jkpstr.dgn Jan. 08, 2002 08:08:23

WAR DEPARTMENT

CORPS OF ENGINEERS, U. S. ARMY

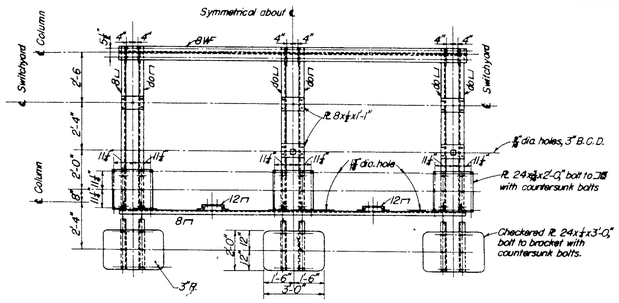


PLAN A-A

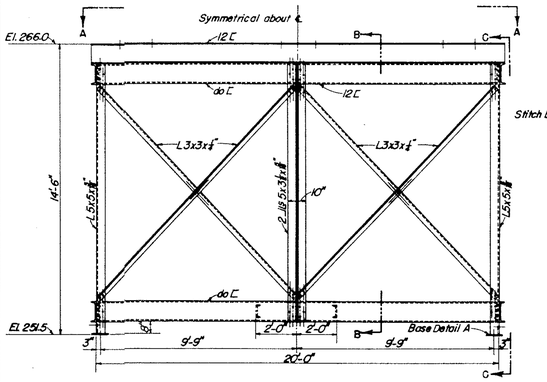


BASE DETAIL A

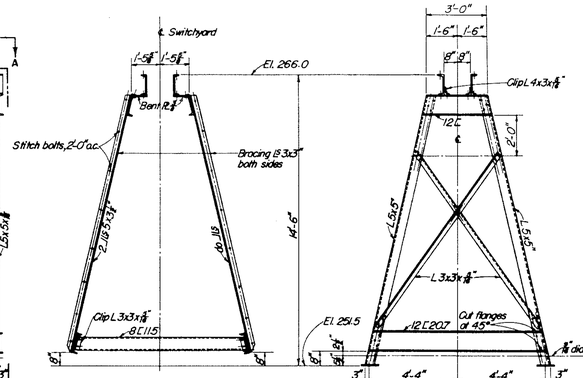
SCALE: 1 1/2 INCHES = 1 FOOT



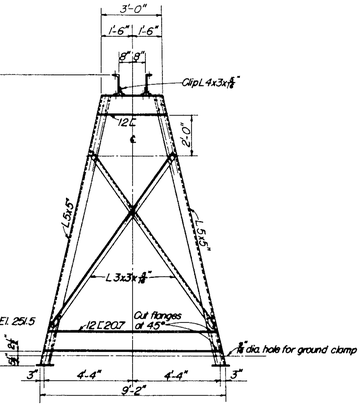
PLAN D-D



ELEVATION



SECTION B-B

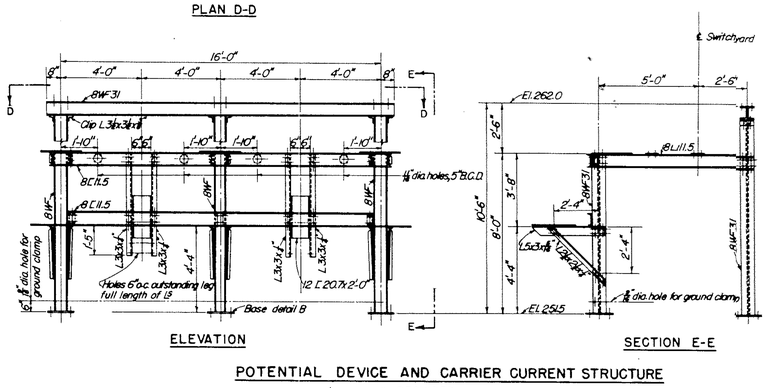


SECTION C-C

110 KV TERMINAL STRUCTURE

7 REQUIRED

SCALE: 1/4 INCH = 1 FOOT



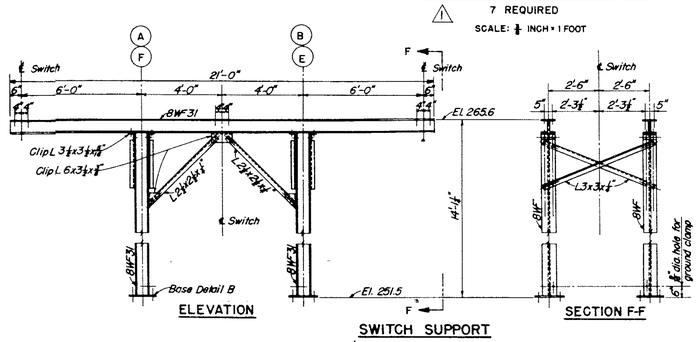
ELEVATION

SECTION E-E

POTENTIAL DEVICE AND CARRIER CURRENT STRUCTURE

6 REQUIRED

SCALE: 1/4 INCH = 1 FOOT



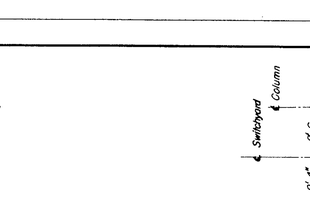
ELEVATION

SECTION F-F

SWITCH SUPPORT

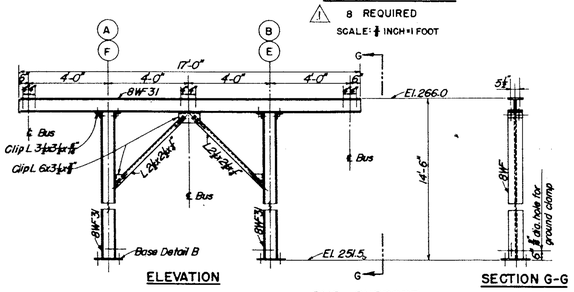
8 REQUIRED

SCALE: 1/4 INCH = 1 FOOT



BASE DETAIL B

SCALE: 1 1/2 INCHES = 1 FOOT



ELEVATION

SECTION G-G

BUS SUPPORT

52 REQUIRED

SCALE: 1/4 INCH = 1 FOOT

NOTES:

1. Bolts for all structures on this sheet 3/4" dia., holes 1 1/8" dia. unless otherwise noted.
2. For general notes and references see YS201A.
3. All welds continuous.

COMPANION DRAWINGS: YS201A TO YS204A

NO.	DATE	REVISION	REV.	APP.	APP.
1	5-16-51	Revised to include Units 5, 6, 7 and altered terminal structure.	P.E.M.	T.C.G.	[illegible]

CHAS. T. MAIN, INC.
ENGINEER
BOSTON MASSACHUSETTS

SUBMITTED: G. E. Eckberg, Jun. Engineer; Geo. R. Bort, Jun. Engineer; H. W. Ott — REPORT OF FIRM — DATE 7-1-47

DRAWN BY: A.B.
CHECKED BY: S.S.
TRACED BY: A.J.S.
REC'D.
APP.

ROANOKE RIVER BASIN
BUGGS ISLAND RESERVOIR
ROANOKE RIVER, VA.—N. C.

SWITCHYARD

STRUCTURAL STEEL
MISCELLANEOUS FRAMES AND DETAILS

IN SHEETS — SCALE: AS SHOWN — SHEET NO.

U. S. ENGINEER OFFICE, NORFOLK, VA. — JULY 1950

SUBMITTED: Geo. Malphus, CHIEF, DESIGN BRANCH
APPROVAL RECOMMENDED: O. Rotkin, CHIEF, ENGINEERING DIVISION
APPROVED: [illegible], COL., CORPS OF ENGINEERS, DISTRICT ENGINEER

FILE NO. YS205A-1

S-14

R-52

.../reference files/jkpstr.dgn Jan. 08, 2002 08:09:08