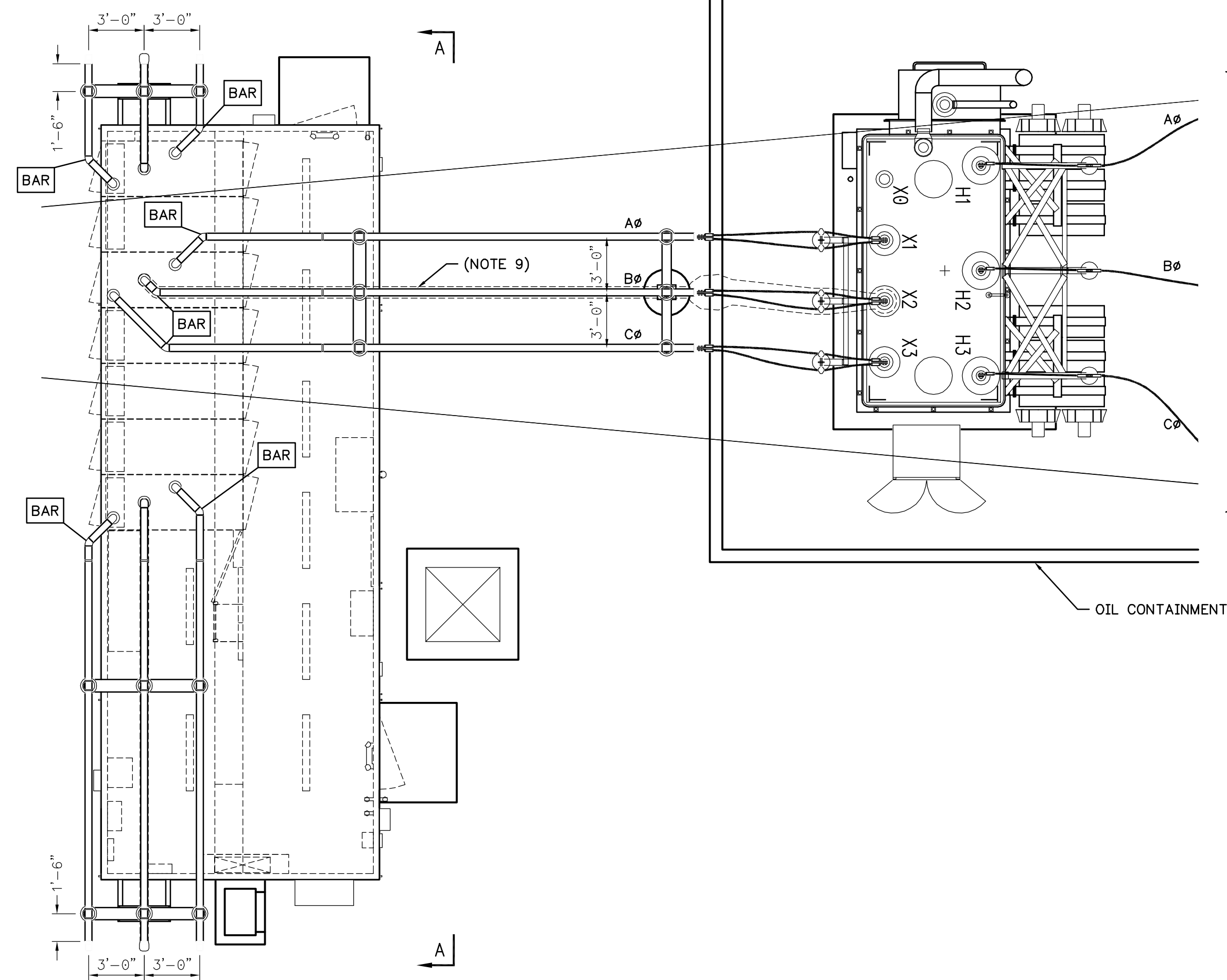


NO.	DATE	REVISIONS	
		DES./DR.	CHECKED
ENGINEER		DES./DR.	CHECKED
APPROVAL		DES./DR.	CHECKED
ELECTRICAL			
PROJECT ENG.	DISCIPLINE ENG.		
DR. I. OREST	CH. I. OREST		
DES. I. OREST	DES. I. OREST		
DATE: 05/27/2010	PROJECT ENG.		
FILE: ENG. E. BROOKHOUSE	APPROVAL ENG.		
SCALE: 1"=20'-0"	SHEET 1 OF 1		
LASSEN SUBSTATION SHASTA COUNTY, CALIFORNIA GENERAL PLAN PROPERTY & TRANSMISSION LAYOUT LASSEN - GP.001			

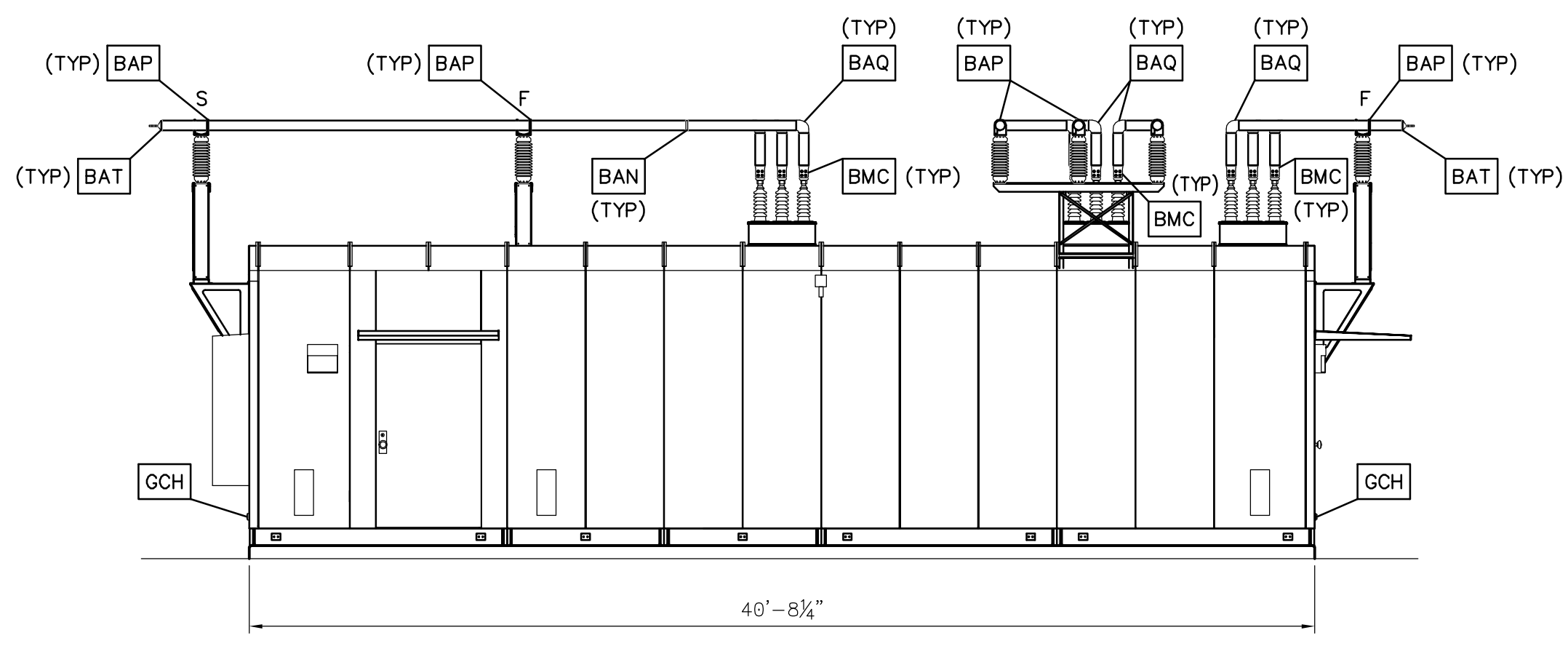
REFERENCE DRAWINGS	
133795	DRAWING LIST
133796	BILL OF MATERIAL
133799	PLANS & ELEVATIONS
133800	BUS CONNECTION DETAILS
133803	GROUNDING PLAN
133804	GROUNDING DETAILS
133801	CONDUIT & CABLE PLAN
133802	CONDUIT & CABLE DETAILS
133850	FOUNDATION PLAN

REVISED 09/18/07 D. HURLEY

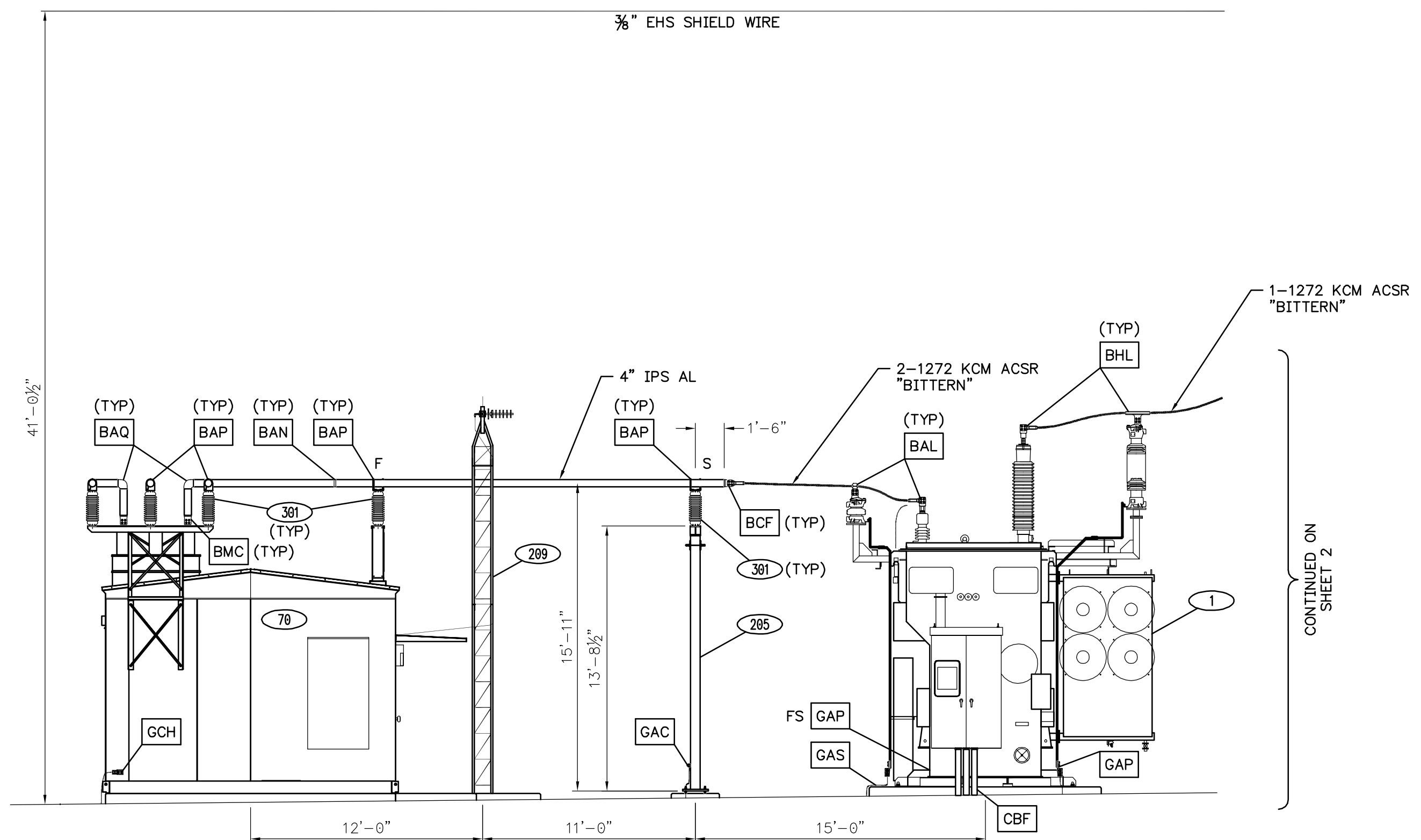


PLAN VIEW

CONTINUED ON SHEET 2



SECTION A-A



ELEVATION 1-1

CONTINUED ON SHEET 2

NOTES

- ALL ELEVATION HEIGHT DIMENSIONS SHOWN ARE FROM BOTTOM OF STEEL.
- "F" INDICATES FIXED BUS SUPPORT TO BE WELDED. "S" INDICATES SLIP BUS SUPPORT NOT TO BE WELDED. "EX" INDICATES EXPANSION BUS TERMINATION.
- FOR SEISMIC CONCERNS PROVIDE ENOUGH SLACK TO ALLOW FOR 6" OF MOVEMENT.
- INSTALL 4/8 AAC DAMPING CONDUCTOR IN BUS SPANS EQUAL TO OR GREATER THAN 18'.
- ADD 1/8" WEEP HOLES ON UNDERSIDE OF BUS NEAR THE CENTER OF THE BUS SPAN.
- "FS" INDICATES "FAR SIDE". "NS" INDICATES "NEAR SIDE".
- FOR TOP OF CONCRETE ELEVATIONS SEE FOUNDATION PLAN (DRAWING 133850).
- MINIMUM CLEARANCE (METAL TO METAL)
138KV PHASE TO PHASE 7'-0"
 PHASE TO GROUND 4'-7"
15KV PHASE TO PHASE 1'-6"
 PHASE TO GROUND 0'-10"
- FOR 15KV & 25KV STATIONS, A 30" PHASE TO GROUND CLEARANCE AND A 46" PHASE TO PHASE CLEARANCE IS REQUIRED. TO CREATE THIS CLEARANCE, COVERS ARE TO BE INSTALLED ON THE TRANSFORMER'S LOW SIDE BUSHINGS, ARRESTORS AND BUS WORK AS WELL AS THE SWITCHGEAR'S BUSHINGS, BUS SUPPORTS AND BUS WORK. COVERING IS TO BE INSTALLED ALONG THE ENTIRE LENGTH OF EACH OF THE SWITCHGEAR'S CENTER PHASE BUS WORK AND EXTENDED TO WHATEVER PIECE OF EQUIPMENT IS ATTACHED TO IT. ADDITIONAL COVERING IS REQUIRED ON EACH OF THE SWITCHGEAR'S TWO OUTER PHASES TO A POINT WHERE THE BUSES BECOME PARALLEL AND THE STANDARD PHASE SPACING IS ACHIEVED.

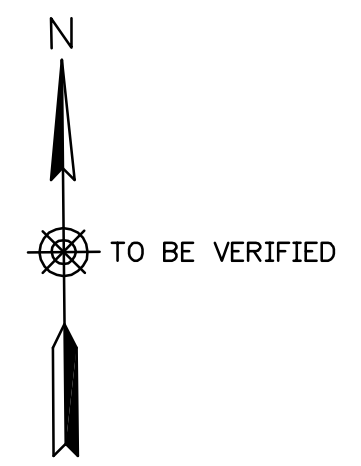
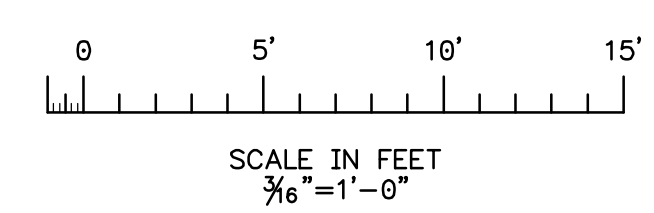
LEGEND

- (XXX) INDICATES ITEM NUMBER SHOWN ON BILL OF MATERIAL, DWG. 133796.
- (BXX) INDICATES BUS CONNECTION DETAIL SHOWN ON DWG. 133800.
- (GXX) INDICATES GROUNDING DETAIL SHOWN ON DWG. 133804.
- (CXX) INDICATES CONDUIT & CABLE DETAIL SHOWN ON DWG. 133802.

REFERENCE DRAWINGS

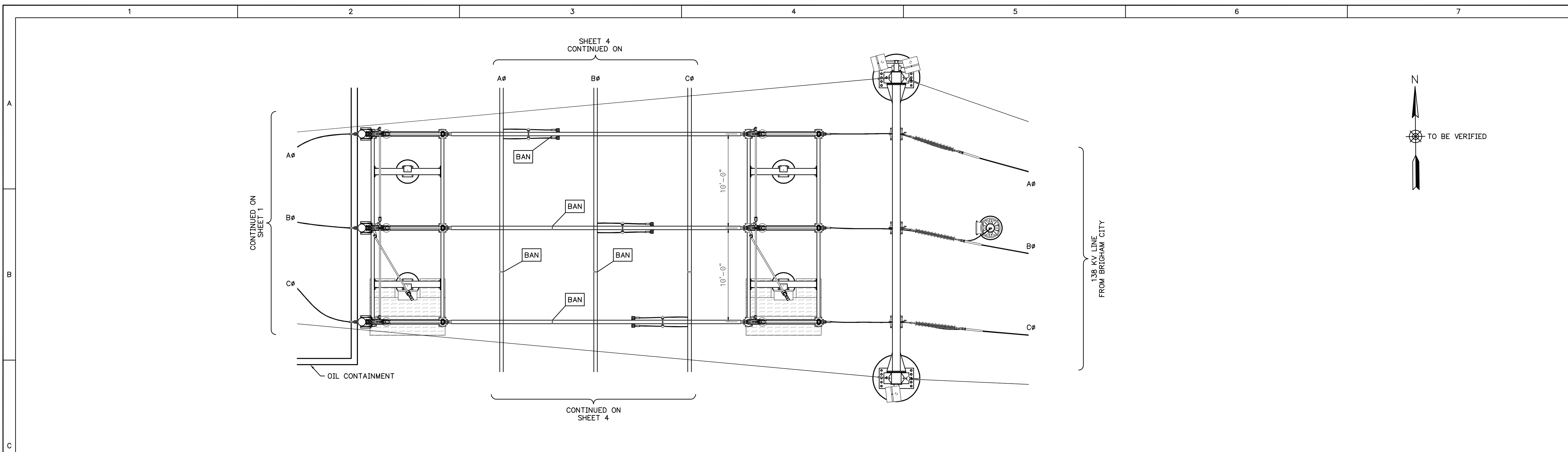
- 133795 DRAWING LIST
- 133796 BILL OF MATERIAL
- 132967 GENERAL PLAN
- 133800 BUS CONNECTION DETAILS
- 133803 GROUNDING PLAN
- 133804 GROUNDING DETAILS
- 133801 CONDUIT & CABLE PLAN
- 133802 CONDUIT & CABLE DETAILS
- 133850 FOUNDATION PLAN

FOR CONCEPTUAL DEVELOPMENT ONLY
PRELIMINARY
 FOR EQUIPMENT RATINGS REFER TO PLANNING DOCUMENTS

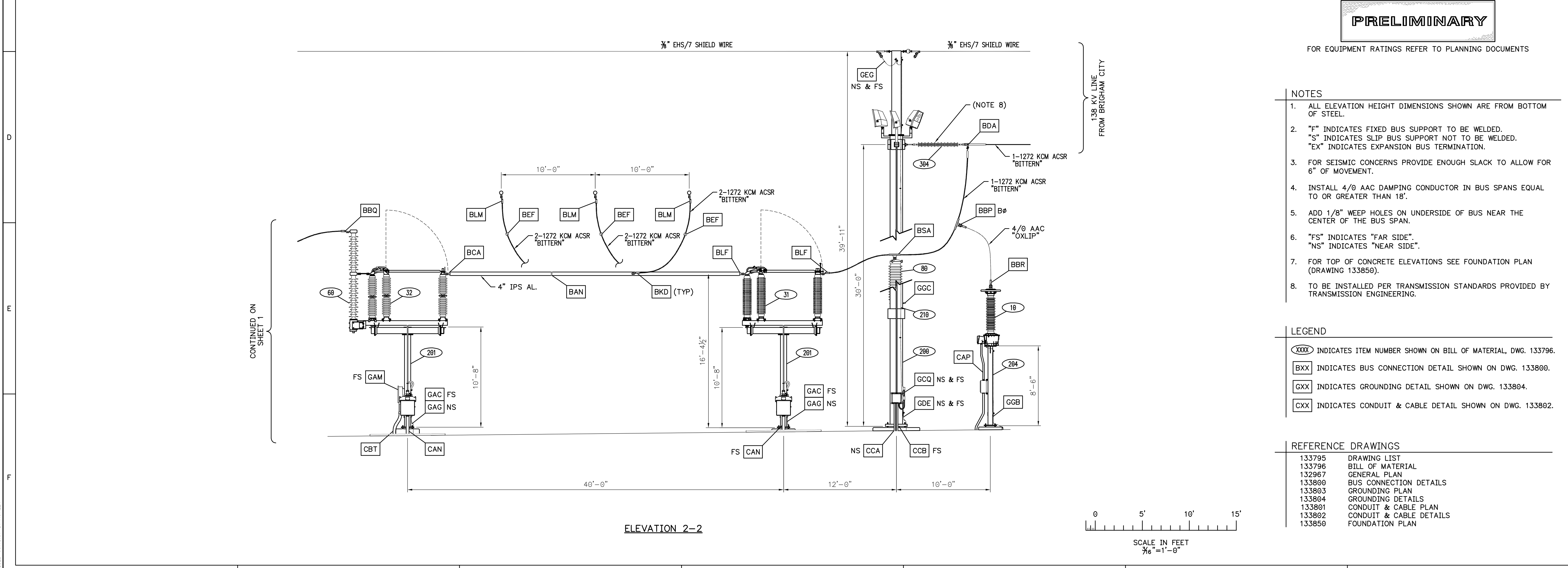


APPROVED	
CHECKED	
DES./DR.	
ENGINEER	
REVISIONS	
NO.	DATE
ELECTRICAL	
PROJECT ENG.	DISCIPLINE ENG.
DATE: 05/27/2010	PROJECT ENG.
DR. E. BROOKHOUSE	DES. I. OREST
DR. I. OREST	CH. I. OREST
SCALE: 3/16"=1'-0"	APPROVAL ENG.
LASSEN SUBSTATION SHASTA COUNTY, CALIFORNIA PLANS & ELEVATIONS ELEVATION 1-1	
LASSEN - PE.001	
REVISION	SHEET
0	1 OF 6

REVISED 09/18/07 D. HURLEY



PLAN VIEW



ELEVATION 2-2

FOR CONCEPTUAL DEVELOPMENT ONLY

PRELIMINARY

FOR EQUIPMENT RATINGS REFER TO PLANNING DOCUMENTS

NOTES

1. ALL ELEVATION HEIGHT DIMENSIONS SHOWN ARE FROM BOTTOM OF STEEL.
2. "F" INDICATES FIXED BUS SUPPORT TO BE WELDED. "S" INDICATES SLIP BUS SUPPORT NOT TO BE WELDED. "EX" INDICATES EXPANSION BUS TERMINATION.
3. FOR SEISMIC CONCERNS PROVIDE ENOUGH SLACK TO ALLOW FOR 6" OF MOVEMENT.
4. INSTALL 4/8" AAC DAMPING CONDUCTOR IN BUS SPANS EQUAL TO OR GREATER THAN 18'.
5. ADD 1/8" WEEP HOLES ON UNDERSIDE OF BUS NEAR THE CENTER OF THE BUS SPAN.
6. "FS" INDICATES "FAR SIDE". "NS" INDICATES "NEAR SIDE".
7. FOR TOP OF CONCRETE ELEVATIONS SEE FOUNDATION PLAN (DRAWING 133850).
8. TO BE INSTALLED PER TRANSMISSION STANDARDS PROVIDED BY TRANSMISSION ENGINEERING.

LEGEND

- (XXX) INDICATES ITEM NUMBER SHOWN ON BILL OF MATERIAL, DWG. 133796.
- (BXX) INDICATES BUS CONNECTION DETAIL SHOWN ON DWG. 133800.
- (GXX) INDICATES GROUNDING DETAIL SHOWN ON DWG. 133804.
- (CXX) INDICATES CONDUIT & CABLE DETAIL SHOWN ON DWG. 133802.

REFERENCE DRAWINGS

133795	DRAWING LIST
133796	BILL OF MATERIAL
132967	GENERAL PLAN
133800	BUS CONNECTION DETAILS
133803	GROUNDING PLAN
133804	GROUNDING DETAILS
133801	CONDUIT & CABLE PLAN
133802	CONDUIT & CABLE DETAILS
133850	FOUNDATION PLAN

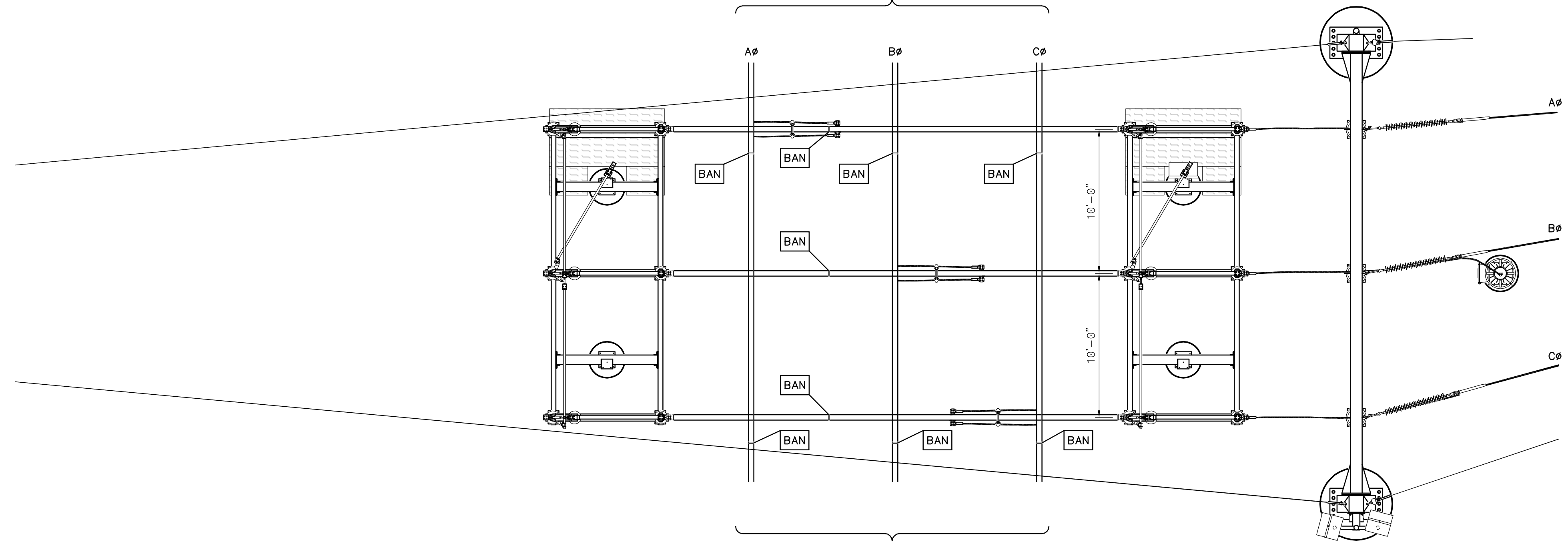
NO.	DATE	REVISIONS	ENGINEER	DES./DR.	CHECKED	APPROVED
ELECTRICAL						
PROJECT NO.	DATE	DESIGNER	CHECKER	APPROVER	SHEET 2	
05/27/2010	05/27/2010	ENG. E. BROOKHOUSE	DR. I. OREST	DR. I. OREST	LASSON - PE.002	
LASSON SUBSTATION SHASTA COUNTY, CALIFORNIA PLANS & ELEVATIONS ELEVATION 2-2						
REVISION	0	LASSON - PE.002				

REVISED: 09/18/07 D. HURLEY

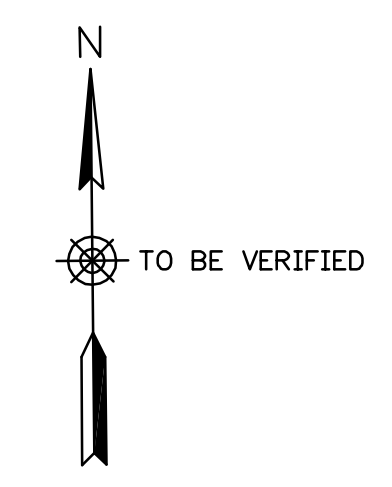
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A B C D E F

SHEET 5 CONTINUED ON



PLAN VIEW



138 KV LINE FROM BEN LOMOND

CONTINUED ON SHEET 5

FOR CONCEPTUAL DEVELOPMENT ONLY

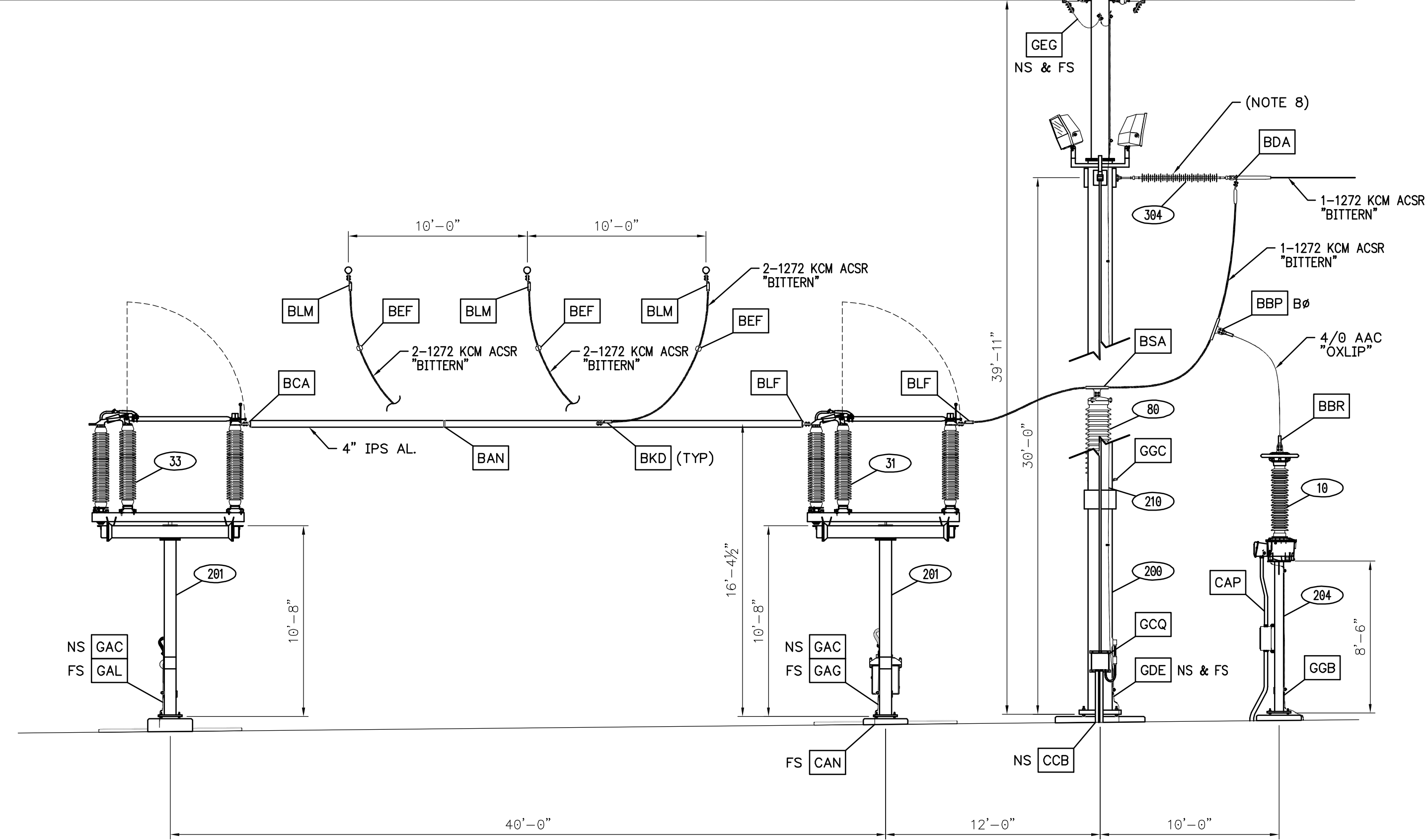
PRELIMINARY

FOR EQUIPMENT RATINGS REFER TO PLANNING DOCUMENTS

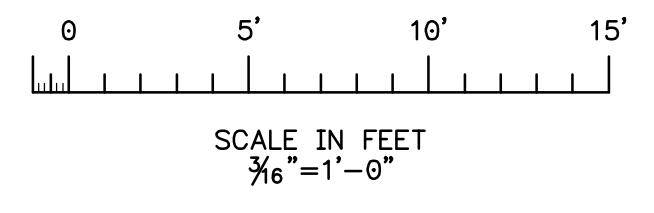
5/8\"/>

5/8\"/>

138 KV LINE FROM BEN LOMOND



ELEVATION 3-3



NOTES

- ALL ELEVATION HEIGHT DIMENSIONS SHOWN ARE FROM BOTTOM OF STEEL.
- "F" INDICATES FIXED BUS SUPPORT TO BE WELDED. "S" INDICATES SLIP BUS SUPPORT NOT TO BE WELDED. "EX" INDICATES EXPANSION BUS TERMINATION.
- FOR SEISMIC CONCERNS PROVIDE ENOUGH SLACK TO ALLOW FOR 6" OF MOVEMENT.
- INSTALL 4/8" AAC DAMPING CONDUCTOR IN BUS SPANS EQUAL TO OR GREATER THAN 18'.
- ADD 1/8" WEEP HOLES ON UNDERSIDE OF BUS NEAR THE CENTER OF THE BUS SPAN.
- "FS" INDICATES "FAR SIDE". "NS" INDICATES "NEAR SIDE".
- FOR TOP OF CONCRETE ELEVATIONS SEE FOUNDATION PLAN (DRAWING 133850).
- TO BE INSTALLED PER TRANSMISSION STANDARDS PROVIDED BY TRANSMISSION ENGINEERING.

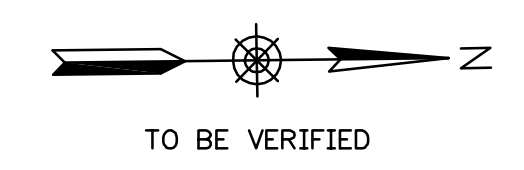
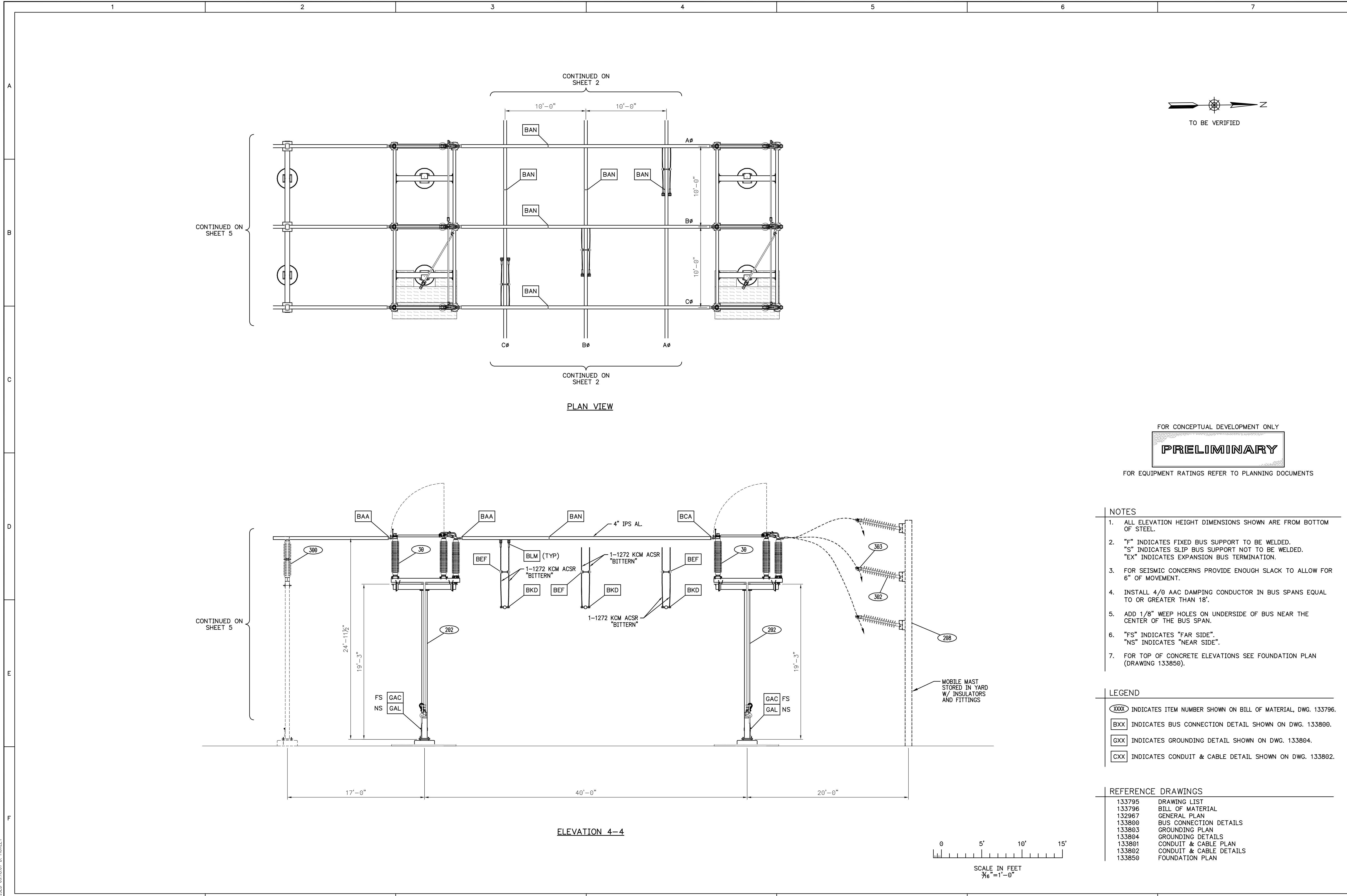
LEGEND

- (XXX) INDICATES ITEM NUMBER SHOWN ON BILL OF MATERIAL, DWG. 133796.
- [BXX] INDICATES BUS CONNECTION DETAIL SHOWN ON DWG. 133800.
- [GXX] INDICATES GROUNDING DETAIL SHOWN ON DWG. 133804.
- [CXX] INDICATES CONDUIT & CABLE DETAIL SHOWN ON DWG. 133802.

REFERENCE DRAWINGS

133795	DRAWING LIST
133796	BILL OF MATERIAL
132967	GENERAL PLAN
133800	BUS CONNECTION DETAILS
133803	GROUNDING PLAN
133804	GROUNDING DETAILS
133801	CONDUIT & CABLE PLAN
133802	CONDUIT & CABLE DETAILS
133850	FOUNDATION PLAN

APPROVED	CHECKED	DES./DR.	ENGINEER	NO.	DATE	REVISIONS		PROJECT ENG. DISCIPLINE ENG.	
									PROJECT ENG. DES.
									APPROVAL ENG. CH.
SHEET 3	LASSEN - PE.003	LASSEN SUBSTATION SHASTA COUNTY, CALIFORNIA PLANS & ELEVATIONS ELEVATION 3-3		PROJECT DATE: 05/27/2010 PROJECT NO.: 133796	DRAWN BY: I. OREST DESIGNED BY: I. OREST	SCALE: 3/8" = 1'-0"	REVISIONS 0		



FOR CONCEPTUAL DEVELOPMENT ONLY
PRELIMINARY

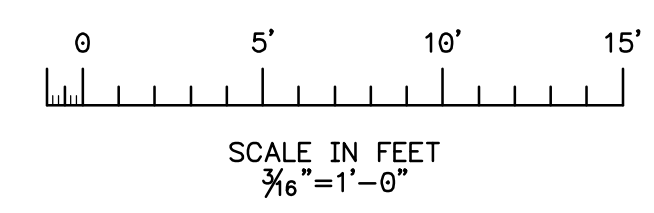
FOR EQUIPMENT RATINGS REFER TO PLANNING DOCUMENTS

- NOTES**
- ALL ELEVATION HEIGHT DIMENSIONS SHOWN ARE FROM BOTTOM OF STEEL.
 - "F" INDICATES FIXED BUS SUPPORT TO BE WELDED. "S" INDICATES SLIP BUS SUPPORT NOT TO BE WELDED. "EX" INDICATES EXPANSION BUS TERMINATION.
 - FOR SEISMIC CONCERNS PROVIDE ENOUGH SLACK TO ALLOW FOR 6" OF MOVEMENT.
 - INSTALL 4/8 AAC DAMPING CONDUCTOR IN BUS SPANS EQUAL TO OR GREATER THAN 18'.
 - ADD 1/8" WEEP HOLES ON UNDERSIDE OF BUS NEAR THE CENTER OF THE BUS SPAN.
 - "FS" INDICATES "FAR SIDE". "NS" INDICATES "NEAR SIDE".
 - FOR TOP OF CONCRETE ELEVATIONS SEE FOUNDATION PLAN (DRAWING 133850).

- LEGEND**
- (XXX) INDICATES ITEM NUMBER SHOWN ON BILL OF MATERIAL, DWG. 133796.
 - [BXX] INDICATES BUS CONNECTION DETAIL SHOWN ON DWG. 133800.
 - [GXX] INDICATES GROUNDING DETAIL SHOWN ON DWG. 133804.
 - [CXX] INDICATES CONDUIT & CABLE DETAIL SHOWN ON DWG. 133802.

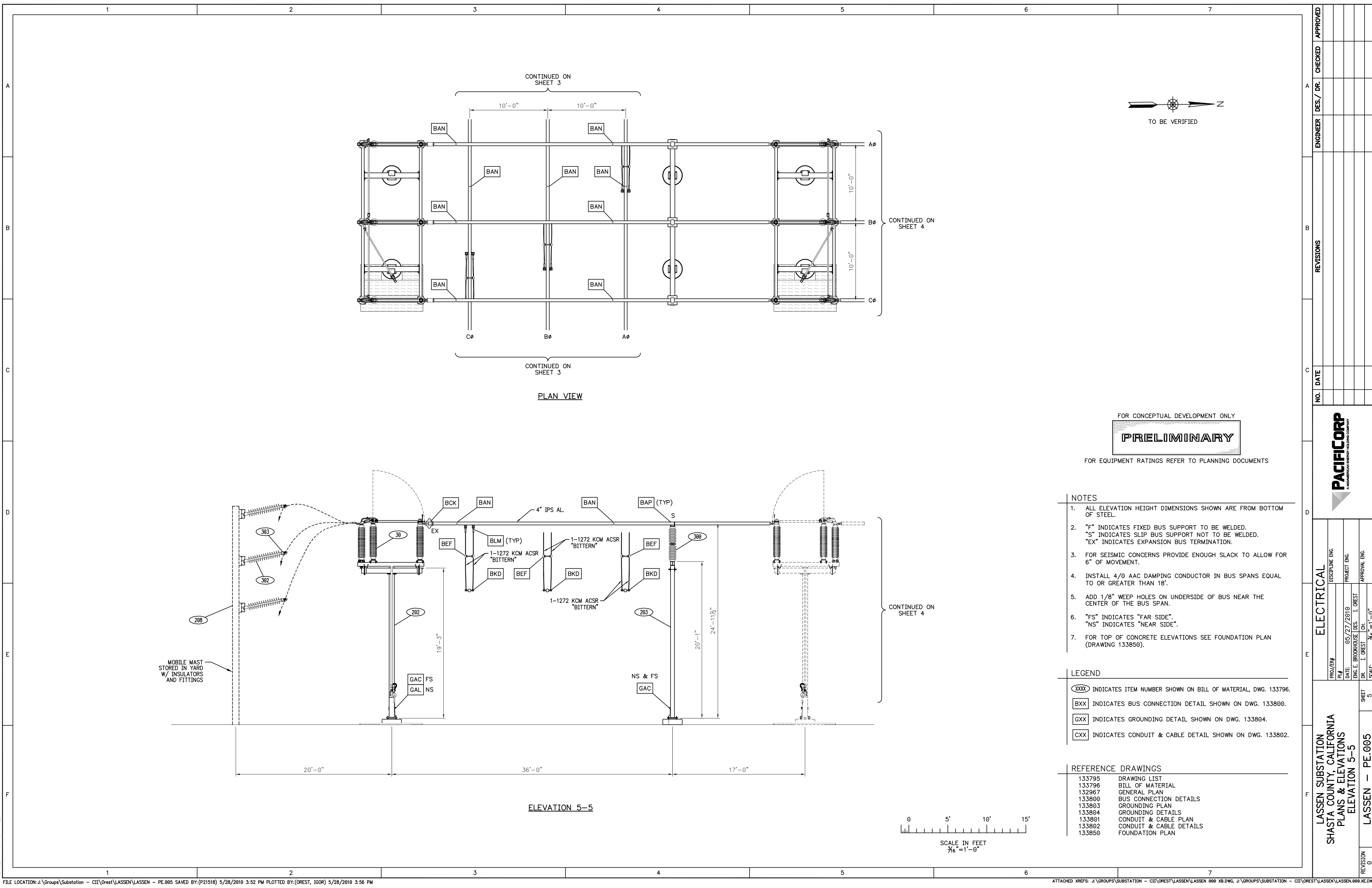
REFERENCE DRAWINGS

133795	DRAWING LIST
133796	BILL OF MATERIAL
132967	GENERAL PLAN
133800	BUS CONNECTION DETAILS
133803	GROUNDING PLAN
133804	GROUNDING DETAILS
133801	CONDUIT & CABLE PLAN
133802	CONDUIT & CABLE DETAILS
133850	FOUNDATION PLAN



NO.	DATE	REVISIONS	ENGINEER	DES./DR.	CHECKED	APPROVED
ELECTRICAL PROJECT ENG. I. OREST DISCIPLINE ENG. I. OREST PROJECT ENG. I. OREST APPROVAL ENG. I. OREST SCALE: 3/16"=1'-0" SHEET 4						
LASSEN SUBSTATION SHASTA COUNTY, CALIFORNIA PLANS & ELEVATIONS ELEVATION 4-4 LASSEN - PE.004						

REVISED 09/18/07 D. HURLEY



CONTINUED ON SHEET 3

CONTINUED ON SHEET 4

CONTINUED ON SHEET 3

PLAN VIEW

FOR CONCEPTUAL DEVELOPMENT ONLY

PRELIMINARY

FOR EQUIPMENT RATINGS REFER TO PLANNING DOCUMENTS

NOTES

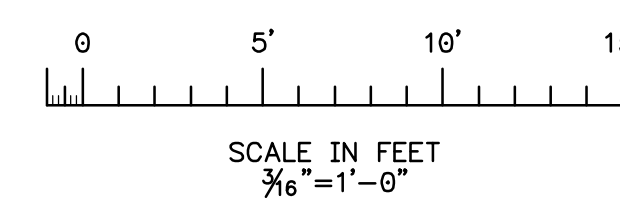
1. ALL ELEVATION HEIGHT DIMENSIONS SHOWN ARE FROM BOTTOM OF STEEL.
2. "F" INDICATES FIXED BUS SUPPORT TO BE WELDED. "S" INDICATES SLIP BUS SUPPORT NOT TO BE WELDED. "EX" INDICATES EXPANSION BUS TERMINATION.
3. FOR SEISMIC CONCERNS PROVIDE ENOUGH SLACK TO ALLOW FOR 6" OF MOVEMENT.
4. INSTALL 4/8 AAC DAMPING CONDUCTOR IN BUS SPANS EQUAL TO OR GREATER THAN 18'.
5. ADD 1/8" WEEP HOLES ON UNDERSIDE OF BUS NEAR THE CENTER OF THE BUS SPAN.
6. "FS" INDICATES "FAR SIDE". "NS" INDICATES "NEAR SIDE".
7. FOR TOP OF CONCRETE ELEVATIONS SEE FOUNDATION PLAN (DRAWING 133850).

LEGEND

- (XXX) INDICATES ITEM NUMBER SHOWN ON BILL OF MATERIAL, DWG. 133796.
- [BXX] INDICATES BUS CONNECTION DETAIL SHOWN ON DWG. 133800.
- [GXX] INDICATES GROUNDING DETAIL SHOWN ON DWG. 133804.
- [CXX] INDICATES CONDUIT & CABLE DETAIL SHOWN ON DWG. 133802.

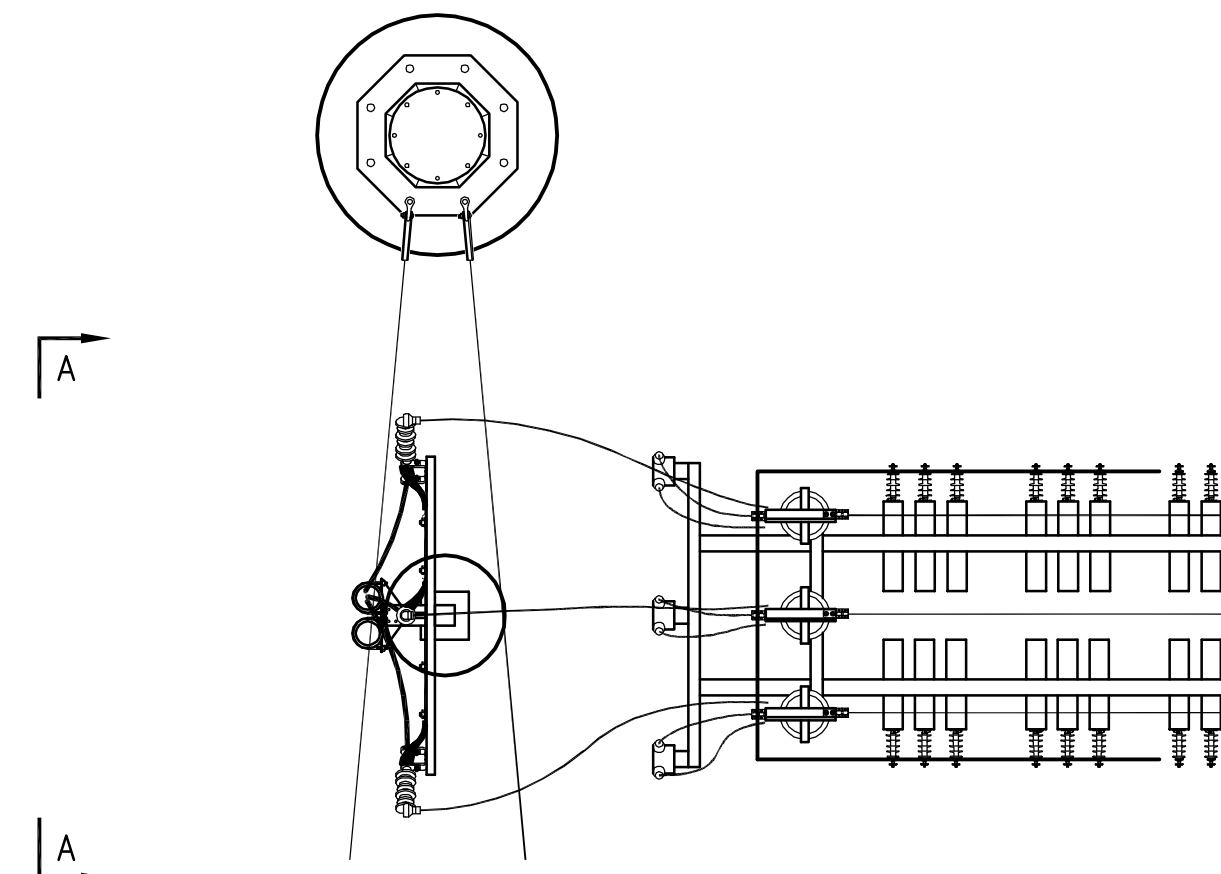
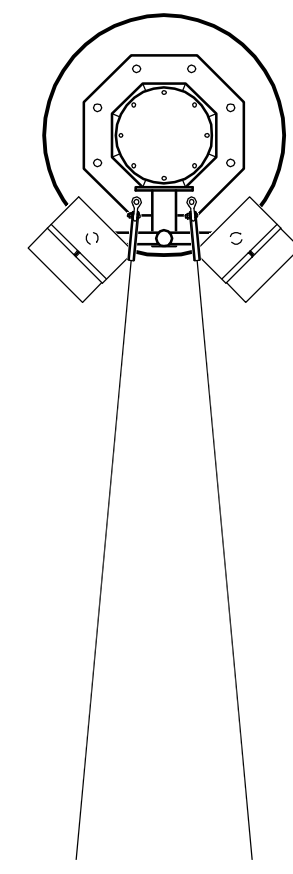
REFERENCE DRAWINGS

133795	DRAWING LIST
133796	BILL OF MATERIAL
132967	GENERAL PLAN
133800	BUS CONNECTION DETAILS
133803	GROUNDING PLAN
133804	GROUNDING DETAILS
133801	CONDUIT & CABLE PLAN
133802	CONDUIT & CABLE DETAILS
133850	FOUNDATION PLAN

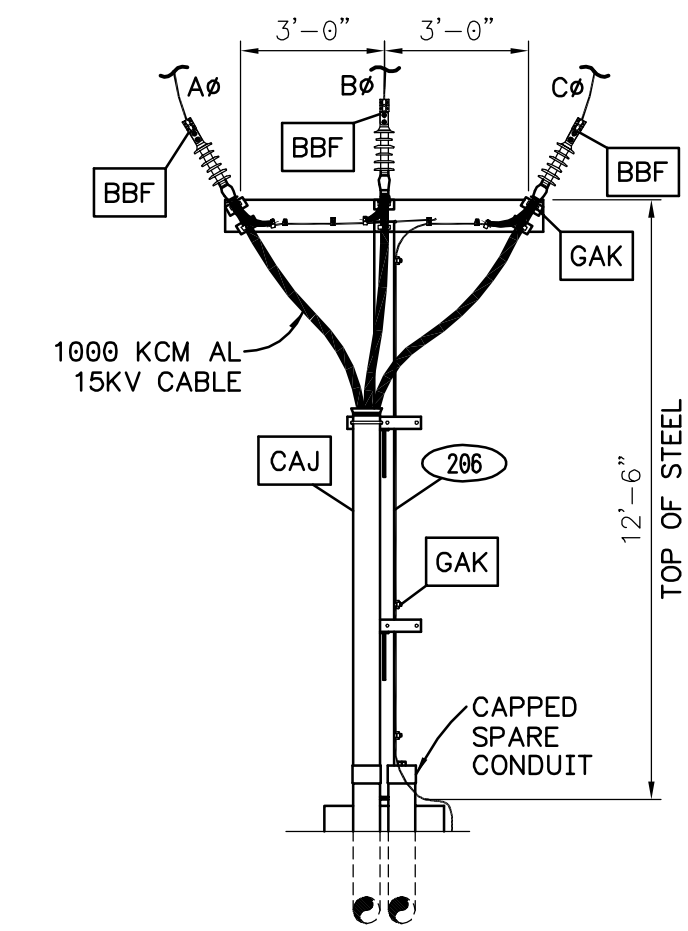


NO.	DATE	REVISIONS	ENGINEER	DES./DR.	CHECKED	APPROVED
ELECTRICAL PROJECT ENG. DATE: 05/27/2010 DISCIPLINE ENG. PROJ. ENG. DR. I. OREST APPROVAL ENG. CH. I. OREST SCALE: 3/16" = 1'-0" SHEET 5						
LASSEN SUBSTATION SHASTA COUNTY, CALIFORNIA PLANS & ELEVATIONS ELEVATION 5-5 LASSEN - PE.005						

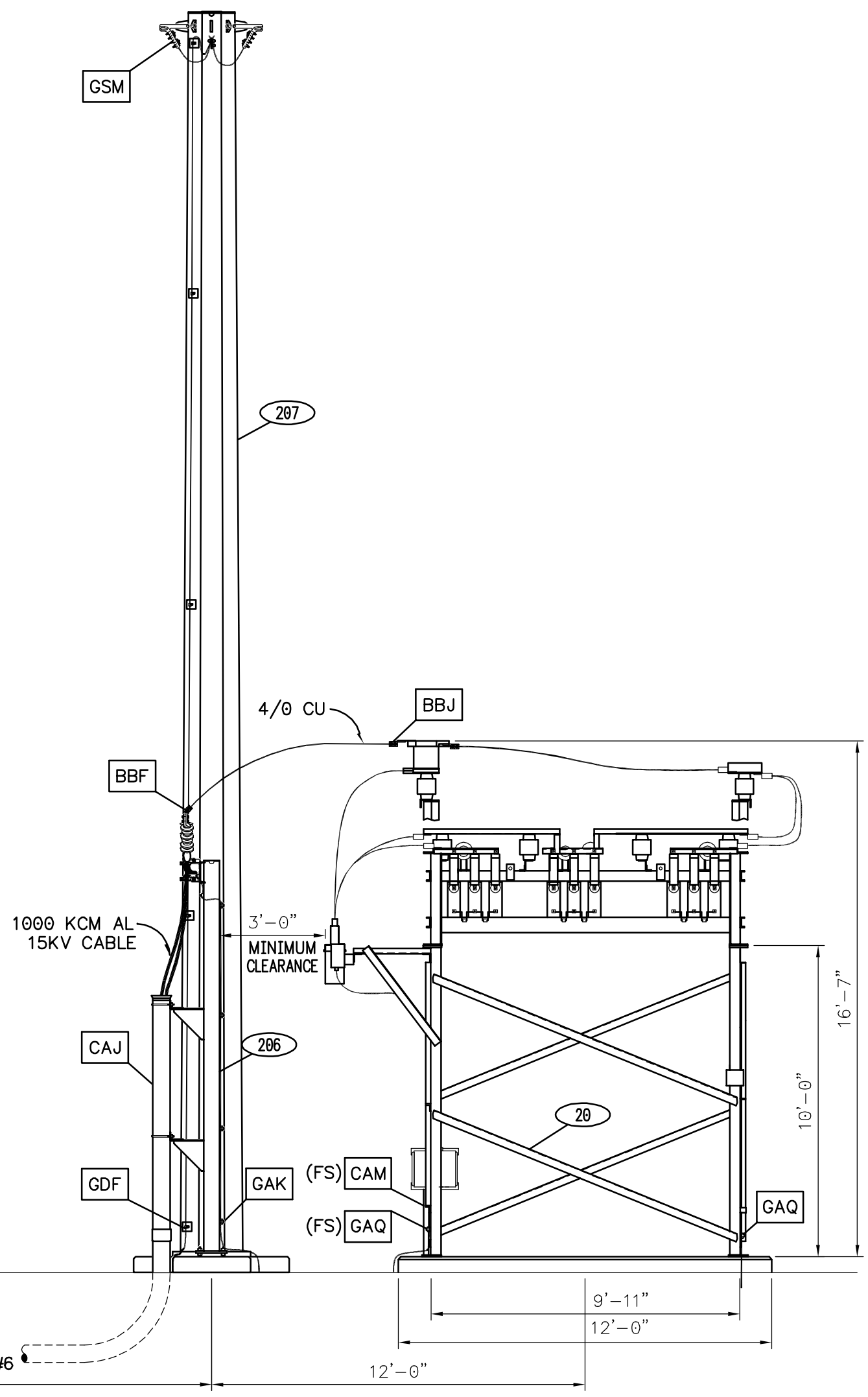
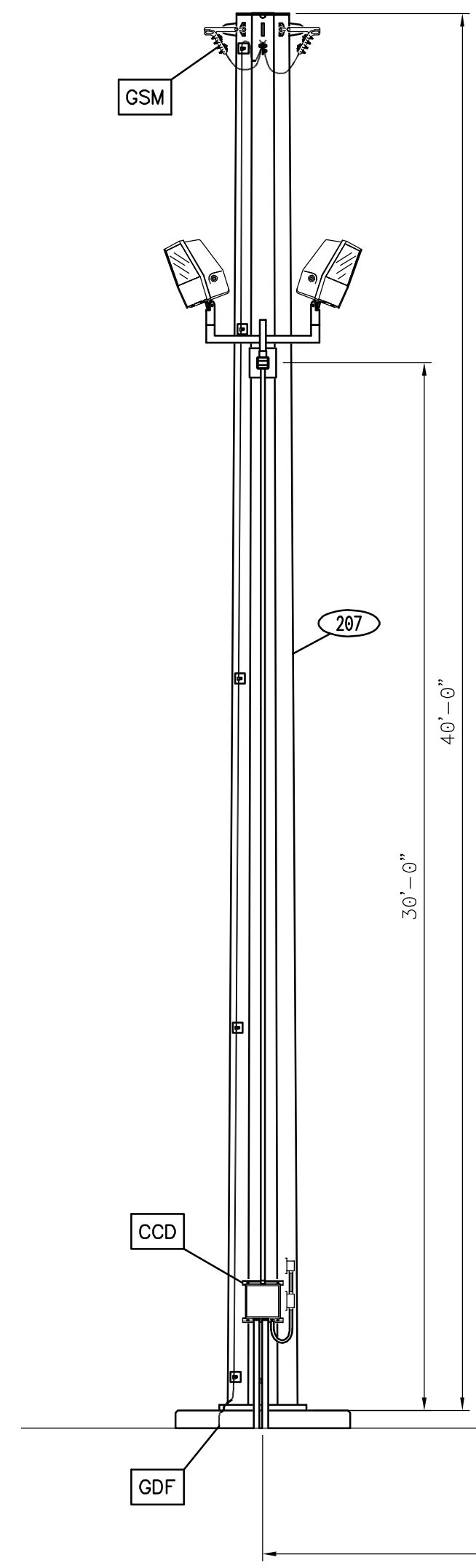
REVISED 09/18/07 D. HURLEY



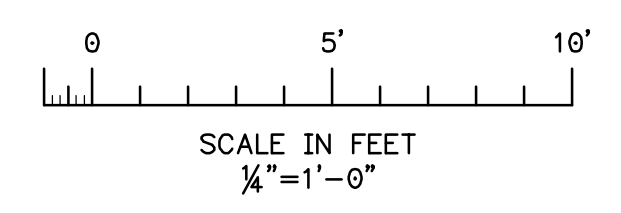
PLAN VIEW



SECTION A-A



ELEVATION 6-6



FOR CONCEPTUAL DEVELOPMENT ONLY
PRELIMINARY

FOR EQUIPMENT RATINGS REFER TO PLANNING DOCUMENTS

NOTES

1. ALL ELEVATION HEIGHT DIMENSIONS SHOWN ARE FROM BOTTOM OF STEEL.
2. CAPACITOR RACK FOUNDATIONS AND MOUNTING LOCATIONS OF CONTROL CABINET MAY VARY WITH MANUFACTURER.
3. FOR TOP OF CONCRETE ELEVATIONS SEE FOUNDATION PLAN (DRAWING 133850).

LEGEND

- (XXX) INDICATES ITEM NUMBER SHOWN ON BILL OF MATERIAL, DWG. 133796.
- (BXX) INDICATES BUS CONNECTION DETAIL SHOWN ON DWG. 133800.
- (GXX) INDICATES GROUNDING DETAIL SHOWN ON DWG. 133804.
- (CXX) INDICATES CONDUIT & CABLE DETAIL SHOWN ON DWG. 133802.

REFERENCE DRAWINGS

133795	DRAWING LIST
133796	BILL OF MATERIAL
132967	GENERAL PLAN
133800	BUS CONNECTION DETAILS
133803	GROUNDING PLAN
133804	GROUNDING DETAILS
133801	CONDUIT & CABLE PLAN
133802	CONDUIT & CABLE DETAILS
133850	FOUNDATION PLAN

NO.	DATE	REVISIONS	ENGINEER	DES./DR.	CHECKED	APPROVED
ELECTRICAL						
PROJECT ENG.	DISCIPLINE ENG.					
DR. I. ORESTI	DR. I. ORESTI					
CH. I. ORESTI	CH. I. ORESTI					
SCALE: 1/4"=1'-0"	SHEET 6					
LASSEN SUBSTATION SHASTA COUNTY, CALIFORNIA PLANS & ELEVATIONS ELEVATION 6-6						
LASSEN - PE.006						

REVISED 09/18/07 D. HURLEY