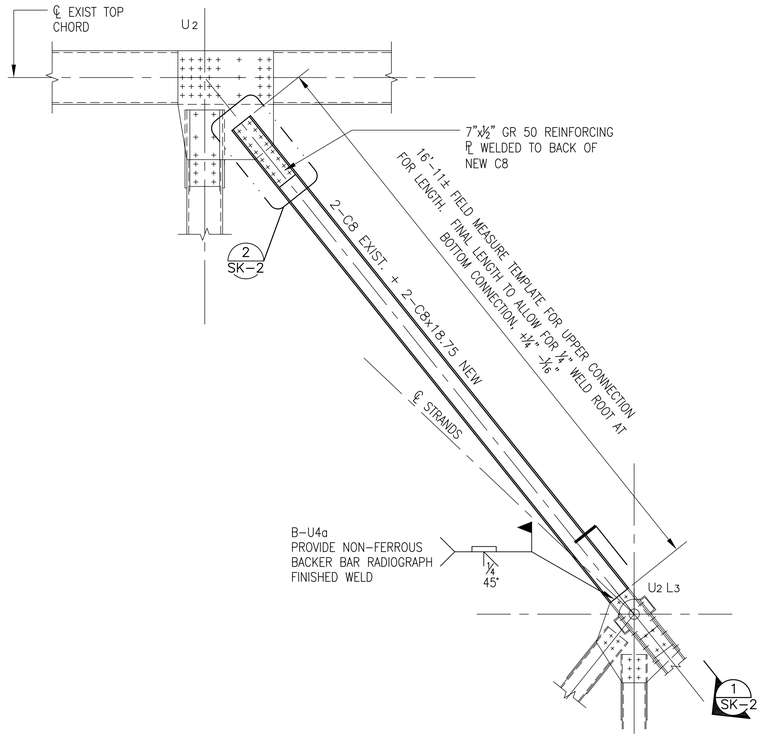
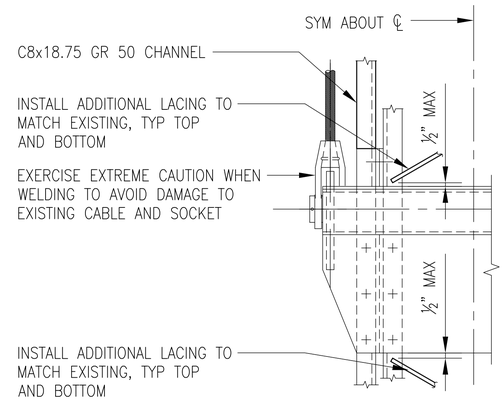


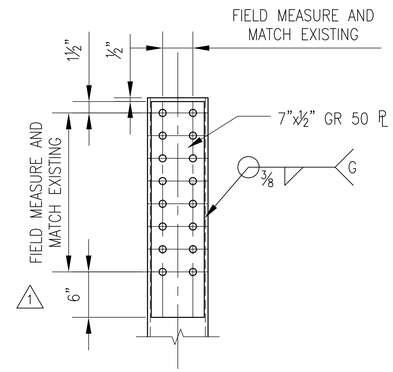
A SK-2 **ELEVATION**

SCALE: 1/2"=1'-0"



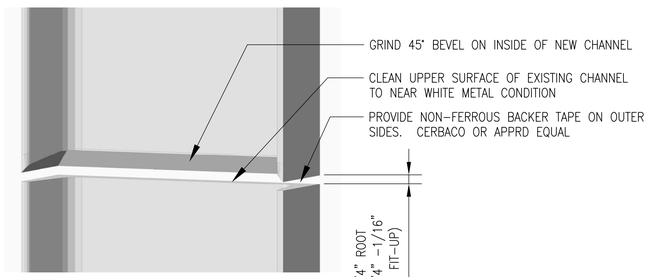
1 SK-2 **SECTION**

SCALE: 1"=1'-0"



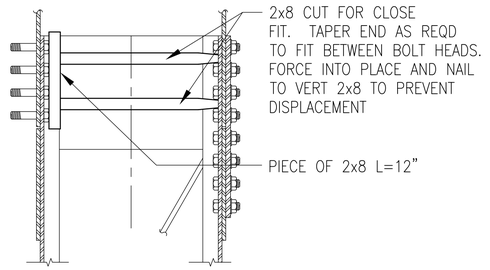
2 SK-2 **DETAIL**

SCALE: 1"=1'-0"



B SK-2 **ISOMETRIC - TYPICAL WELD**

SCALE: 6"=1'-0"



3 SK-2 **RECOMMENDED BOLT BLOCKING DETAIL**

SCALE: 1"=1'-0"

U2-U2L3 RECOMMENDED REINFORCEMENT PROCEDURE

1. THIS PROCEDURE ASSUMES THAT ONE REINFORCEMENT CHANNEL AT EACH JOINT IS INSTALLED PRIOR TO THE INSTALLATION OF THE SECOND CHANNEL. AT NO TIME SHOULD BOLTS IN BOTH UPPER CHANNEL CONNECTIONS BE LOOSE AT THE SAME TIME.
2. FIELD MEASURE AND PRODUCE A TEMPLATE FOR DRILLING UPPER CONNECTION HOLES IN PROPOSED REINFORCEMENT CHANNELS.
3. POSITION THE AZIMUTH ARM TO BE PARALLEL TO THE MAIN TRUSS CONTAINING THE SECTION TO BE REINFORCED, THE DOME ON THE SIDE OF THE AZIMUTH ARM AWAY FROM THE JOINT TO BE REINFORCED AND TENSION TIE DOWN CABLES CLOSEST TO THE JOINT TO BE REINFORCED TO A MINIMUM OF 50 KIPS. CAREFULLY MEASURE THE LENGTH BETWEEN THE FIRST ROW OF BOLT HOLES AND THE TOP OF THE LOWER REINFORCEMENT CHANNEL. RECORD THE TEMPERATURE AT THE TIME OF MEASUREMENT.
4. FABRICATE REINFORCEMENT CHANNEL INCLUDING INSTALLATION OF REINFORCEMENT PLATE, DRILLING OF HOLES AND PREPARATION OF CHANNEL FOR WELDING.
5. POSITION AZIMUTH ARM AND DOME AS IN STEP 3 ABOVE.
6. AT THE UPPER CONNECTION REMOVE TOP EIGHT BOLTS ONE AT A TIME AND REPLACE WITH NEW 1"ø A325 BOLTS. INSURE THAT BOLTS ARE LONG ENOUGH TO ALLOW INSTALLATION OF A WASHER AND NUT WHEN THE REINFORCEMENT CHANNEL AND REINFORCEMENT PLATE ARE INSTALLED. TO INSURE AGAINST LOSS OF BOLTS, INSTALL A NUT ON EACH BOLT FINGER TIGHT.
7. WHEN TOP 8 BOLTS HAVE BEEN REPLACED, INSTALL WOOD BLOCKING BETWEEN THE EXISTING CHANNELS TO INSURE THAT BOLTS ARE NOT DISLODGED DURING INSTALLATION OF THE REINFORCEMENT CHANNEL.
8. REMOVE LOWER EIGHT BOLTS FROM THE CONNECTION. REPLACEMENT BOLTS NEED NOT BE INSTALLED UNTIL NEW CHANNEL HAS BEEN INSTALLED.
9. REMOVE ALL NUTS, REMOVE EXISTING ⅝" SPLICE PLATE AND INSTALL THE CHANNEL ON THE UPPER CONNECTION. INSTALL ALL NUTS FINGER TIGHT AND SUPPORT THE LOWER PORTION OF THE CHANNEL BY CLAMPING TO THE EXISTING CHANNEL. INSTALL NEW BOLTS IN THE LOWER EIGHT HOLES OF THE CONNECTION AND PROVIDE NUTS, FINGER TIGHT.
10. WITH THE AZIMUTH ARM AND DOME IN THE SAME POSITION AS IN STEP 3 ABOVE, WITH THE TIE DOWN FORCE AT THE SAME LEVEL AND WITH THE TEMPERATURE WITHIN +- 5 DEGREES OF THE TEMPERATURE WHEN THE MEMBER MEASUREMENT WAS TAKEN CONFIRM THAT THE ROOT BETWEEN THE EXISTING CHANNEL AND THE REINFORCEMENT CHANNEL IS WITHIN TOLERANCES SPECIFIED BY AWS D1.1 FOR A PREQUALIFIED UB-4a WELD. APPLY NON-FERROUS BACKER MATERIAL AND MAKE THE WELD BETWEEN THE CHANNELS.
11. AN AWS D1.1 CERTIFIED WELDING INSPECTOR SHOULD BE PRESENT DURING WELDING AND SHOULD VISUALLY INSPECT EACH PASS OF THE WELD. FOLLOWING COMPLETION OF ALL U2-U2L3 REINFORCEMENT ALL WELDS SHOULD BE RADIOGRAPHICALLY INSPECTED.
12. FOLLOWING COMPLETION OF THE WELDING, REMOVE BACKER MATERIAL AND, WHERE POSSIBLE, GRIND THE SURFACE OF THE WELD SMOOTH. BOLTS AT THE UPPER CONNECTION SHOULD BE FULLY TENSIONED.

1 13. IT IS PERMISSIBLE TO FULLY INSTALL CHANNELS AND DEFER WELDING TO A LATER DATE PROVIDED UPPER CONNECTION BOLTS ARE FULLY TENSIONED AND THE LOWER PORTION OF THE REINFORCING CHANNEL IS TEMPORARY ATTACHED AT ITS LOWER END. PRIOR TO WELDING THE LOWER CONNECTION THE UPPER CONNECTION SHALL BE LOOSENED TO A FINGER TIGHT CONDITION AND RETENSIONED AFTER WELDING AT THE LOWER CONNECTION HAS BEEN COMPLETED. PRIOR TO LOOSENING THE UPPER CONNECTION THE AZIMUTH, DOME ZENITH ANGLE AND TEMPERATURE SHALL BE AS NOTED IN NOTE 3 ABOVE. AT NO TIME SHALL MORE THAN ONE UPPER CONNECTION BE LOOSENED.

NOTE: PLATES AND CHANNELS SHALL CONFORM TO ASTM A588.

2 5-10/10 REVISE MATERIAL SPECIFICATION AND ADD NOTE 13.

1 5-6/10 REVISE PLATE LENGTH

NATIONAL ASTRONOMY AND IONOSPHERE CENTER
CORNELL UNIVERSITY
ARECIBO RADIO OBSERVATORY

PROPOSED U2-U2L3 REINFORCEMENT

AMMANN & WHITNEY
CONSULTING ENGINEERS, NEW YORK, NY

DRAWN BY: JS	APPROVED	DATE:
DESIGNED BY: JS		SCALE: AS NOTED
CHECKED BY: JG		DWG. NO. SK-2