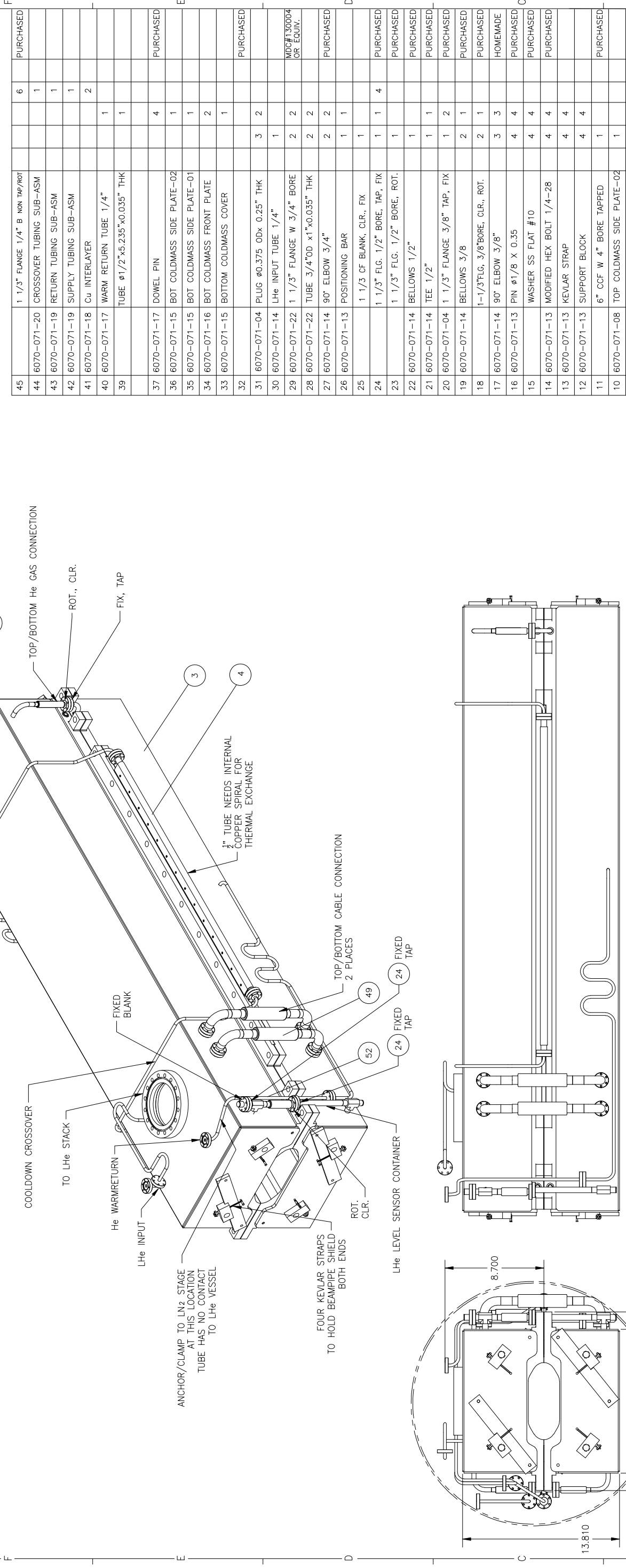


REVISIONS		DATE	APP.
NO.	DESCRIPTION		
1	1/3" FLANGE 1/4" B NON TAP/ROT		
2	CROSSOVER TUBING SUB-ASM		
3	RETURN TUBING SUB-ASM		
4	SUPPLY TUBING SUB-ASM		
5	Cu INTERLAYER		
6	WARM RETURN TUBE 1/4"		
7	TUBE Ø1/2"x5.235"x0.035" THK		
8	DOWEL PIN		
9	BOT COLDMASS SIDE PLATE-02		
10	BOT COLDMASS SIDE PLATE-01		
11	BOT COLDMASS FRONT PLATE		
12	BOTTOM COLDMASS COVER		
13	PLUG Ø0.375 ODx 0.25" THK		
14	LHe INPUT TUBE 1/4"		
15	1 1/3" FLANGE W 3/4" BORE		
16	TUBE 3/4"OD x1"x0.035" THK		
17	90° ELBOW 3/4"		
18	POSITIONING BAR		
19	1 1/3 OF BLANK, CLR., FIX		
20	1 1/3" FLG. 1/2" BORE, TAP, FIX		
21	1 1/3" FLG. 1/2" BORE, ROT.		
22	BELLOWS 1/2"		
23	TEE 1/2"		
24	1 1/3" FLANGE 3/8"		
25	1-1/3"FLG. 3/8"BORE, CLR., ROT.		
26	90° ELBOW 3/8"		
27	PIN Ø1/8 X 0.35		
28	WASHER SS FLAT #10		
29	MODIFIED HEX BOLT 1/4-28		
30	KEVLAR STRAP		
31	SUPPORT BLOCK		
32	6" CCF W 4" BORE TAPPED		
33	TOP COLDMASS SIDE PLATE-02		
34	TOP COLDMASS SIDE PLATE-01		
35	TOP COLDMASS FRONT PLATE		
36	TOP COLDMASS BASE PLATE		
37	TOP COLDMASS SUB-ASSM		
38	TOP COLDMASS SUB-ASSM		
39	TOP COLDMASS SUB-ASSM		
40	ASSEMBLY		



ITEM	DWG. NO.	DESCRIPTION	QTY	REMARKS	REV.
45		1 1/3" FLANGE 1/4" B NON TAP/ROT	6		6 PURCHASED
44	6070-071-20	CROSSOVER TUBING SUB-ASM	1		1 PURCHASED
43	6070-071-19	RETURN TUBING SUB-ASM	1		1 PURCHASED
42	6070-071-19	SUPPLY TUBING SUB-ASM	1		1 PURCHASED
41	6070-071-18	Cu INTERLAYER	2		2 PURCHASED
40	6070-071-17	WARM RETURN TUBE 1/4"	1		1 PURCHASED
39		TUBE Ø1/2"x5.235"x0.035" THK	1		1 PURCHASED
37	6070-071-17	DOWEL PIN	4		4 PURCHASED
36	6070-071-15	BOT COLDMASS SIDE PLATE-02	1		1 PURCHASED
35	6070-071-15	BOT COLDMASS SIDE PLATE-01	1		1 PURCHASED
34	6070-071-16	BOT COLDMASS FRONT PLATE	2		2 PURCHASED
33	6070-071-15	BOTTOM COLDMASS COVER	1		1 PURCHASED
32		PLUG Ø0.375 ODx 0.25" THK	3		3 PURCHASED
31	6070-071-04	LHe INPUT TUBE 1/4"	1		1 PURCHASED
30	6070-071-14	1 1/3" FLANGE W 3/4" BORE	2		2 PURCHASED
29	6070-071-22	TUBE 3/4"OD x1"x0.035" THK	2		2 PURCHASED
28	6070-071-22	TUBE 3/4"OD x1"x0.035" THK	2		2 PURCHASED
27	6070-071-14	90° ELBOW 3/4"	2		2 PURCHASED
26	6070-071-13	POSITIONING BAR	1		1 PURCHASED
25		1 1/3 OF BLANK, CLR., FIX	1		1 PURCHASED
24		1 1/3" FLG. 1/2" BORE, TAP, FIX	1		1 PURCHASED
23		1 1/3" FLG. 1/2" BORE, ROT.	1		1 PURCHASED
22	6070-071-14	BELLOWS 1/2"	1		1 PURCHASED
21	6070-071-14	TEE 1/2"	1		1 PURCHASED
20	6070-071-04	1 1/3" FLANGE 3/8" TAP, FIX	1		1 PURCHASED
19	6070-071-14	BELLOWS 3/8"	2		2 PURCHASED
18		1-1/3"FLG. 3/8"BORE, CLR., ROT.	2		2 PURCHASED
17	6070-071-14	90° ELBOW 3/8"	3		3 PURCHASED
16	6070-071-13	PIN Ø1/8 X 0.35	4		4 PURCHASED
15		WASHER SS FLAT #10	4		4 PURCHASED
14	6070-071-13	MODIFIED HEX BOLT 1/4-28	4		4 PURCHASED
13	6070-071-13	KEVLAR STRAP	4		4 PURCHASED
12	6070-071-13	SUPPORT BLOCK	4		4 PURCHASED
11		6" CCF W 4" BORE TAPPED	1		1 PURCHASED
10	6070-071-08	TOP COLDMASS SIDE PLATE-02	1		1 PURCHASED
9	6070-071-08	TOP COLDMASS SIDE PLATE-01	1		1 PURCHASED
8	6070-071-09	TOP COLDMASS FRONT PLATE	2		2 PURCHASED
7	6070-071-12	TOP/BOT COLDMASS BASE PLATE	1		1 PURCHASED
6	6070-071-10	TOP COLDMASS COVER	1		1 PURCHASED
5	6070-064	HALF 8-40 MAGNET	1		1 PURCHASED
4	6070-071-07	COOLDOWN PLATE SUB-ASSM	1		1 PURCHASED
3	6070-071-06	BOTTOM COLDMASS SUB-ASSM	1		1 PURCHASED
2	6070-071-04	TOP COLDMASS SUB-ASSM	1		1 PURCHASED
1	6070-071-01	ASSEMBLY	1		1 PURCHASED

ITEM	DWG. NO.	DESCRIPTION	QTY	REMARKS	REV.
63	6070-071-10	BASE PLATE PIN	6		6 PURCHASED
62	6070-071-25	SURVEY MARKING TOOL	1+1		1 PURCHASED
61	6070-071-13	STRAP PIN	4		4 PURCHASED
60		STEEL SET SCREW 1/2-13 x 1-5/8 LG.	2		2 PURCHASED
59		McMaster-Carr #91375A718	2		2 PURCHASED
58		1 1/3" FLANGE 1/4" B-TAP/ROT	1		1 PURCHASED
57		1 1/3" FLANGE 1/4" B-NON TAP/NON ROT	1		1 PURCHASED
56		TUBE 1/2"ODx29"Lx0.035"WALL	2		2 PURCHASED
55	6070-071-19	TUBING CLAMP	6		6 PURCHASED
54	6070-071-17	SPACER	2		2 PURCHASED
53	6070-071-22	TUBE 1/4" -07	1		1 PURCHASED
52	6070-071-22	WARMRETURN TUBING SUB-ASM	1		1 PURCHASED
51	6070-071-22	1 1/3" FLANGE 3/4" B ROT	2		2 PURCHASED
50	6070-071-22	BELLOWS 3/4"	2		2 PURCHASED
49	6070-071-22	3/4" BELLOWS SPOOL SUB	2		2 PURCHASED
48		BRID TINNED COPPER 7/32" 4 FT.	4		4 PURCHASED
47		ANCHOR WIRE KS22	5		5 PURCHASED
46		1 1/3" FLANGE 1/4"BORE TAP/FIX	4		4 PURCHASED

ITEM	DWG. NO.	DESCRIPTION	QTY	REMARKS	REV.
65		BOTTOM COLDMASS SUPER-INSULATION BLANKET	10		10 PURCHASED
64		TOP COLDMASS SUPER-INSULATION BLANKET	10		10 PURCHASED

D 1 D-6070-071-01 & D-6070-071-02
SCALE: 1:4
QTY.: 1 REQ'D.
NOTE:
1. SEE D-6070-071-02 FOR MORE DETAILS
2. TWO HALF BOXES ARE BOLTED TOGETHER THROUGH SIDE TABS
3. TWO HALF BOXES ARE INDIVIDUALLY LEAK CHECKED.
4. ALL TUBES ARE CONNECTED THROUGH 1 1/3" MINI FLANGES

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CFSR-c 8-40 Wiggler Cold Mass Vessel
Assembly - Sheet 1

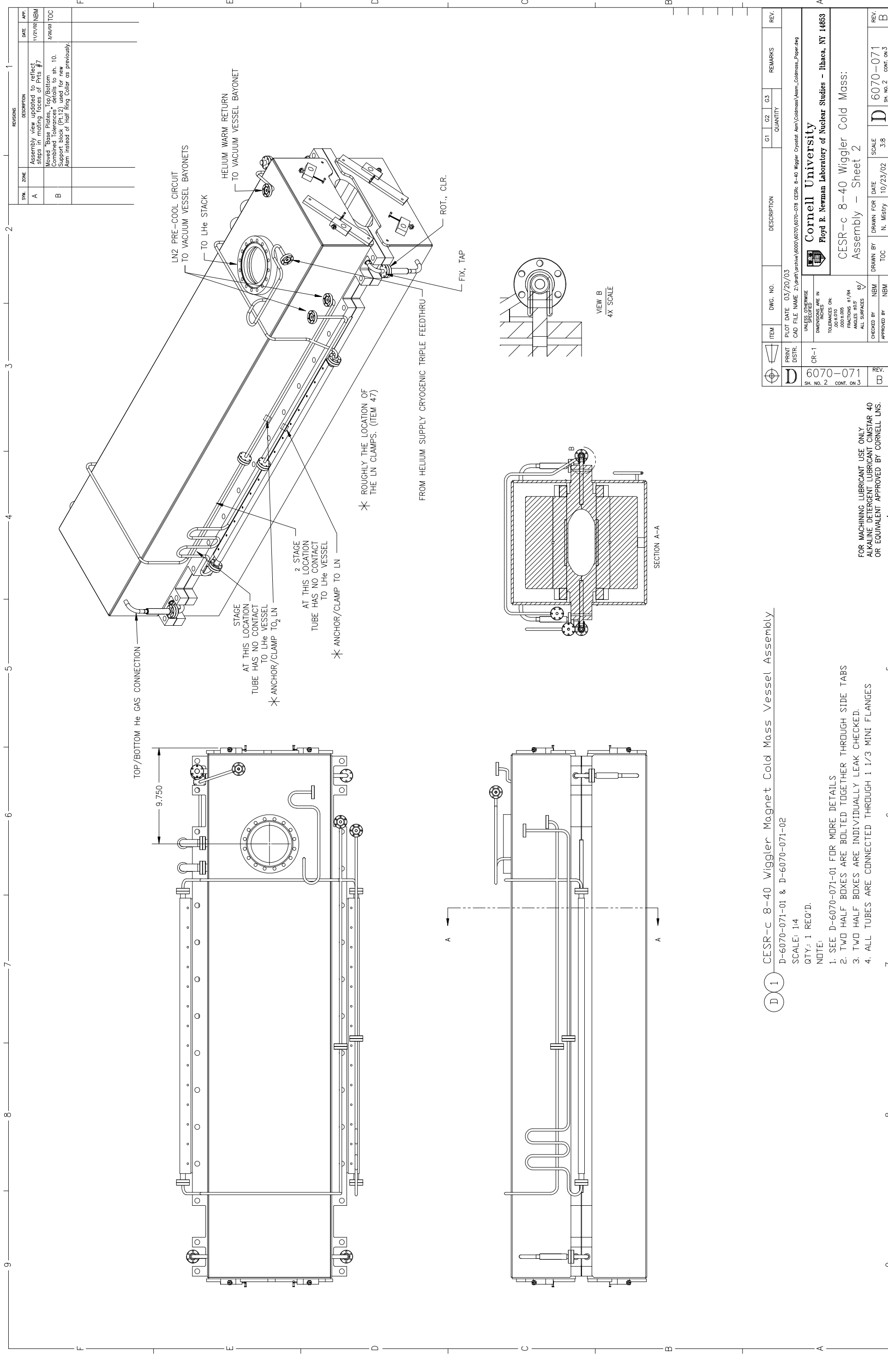
UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES ON FRACTIONS ±1/64
ON DECIMALS ±0.005
ANGLES ±0.5°
ALL SURFACES RZ

CHECKED BY: Yun HE
APPROVED BY: Yun HE

DATE: 01/09/03
SCALE: 1:4

REV. 1
D 6070-071

FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CNSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LNS.



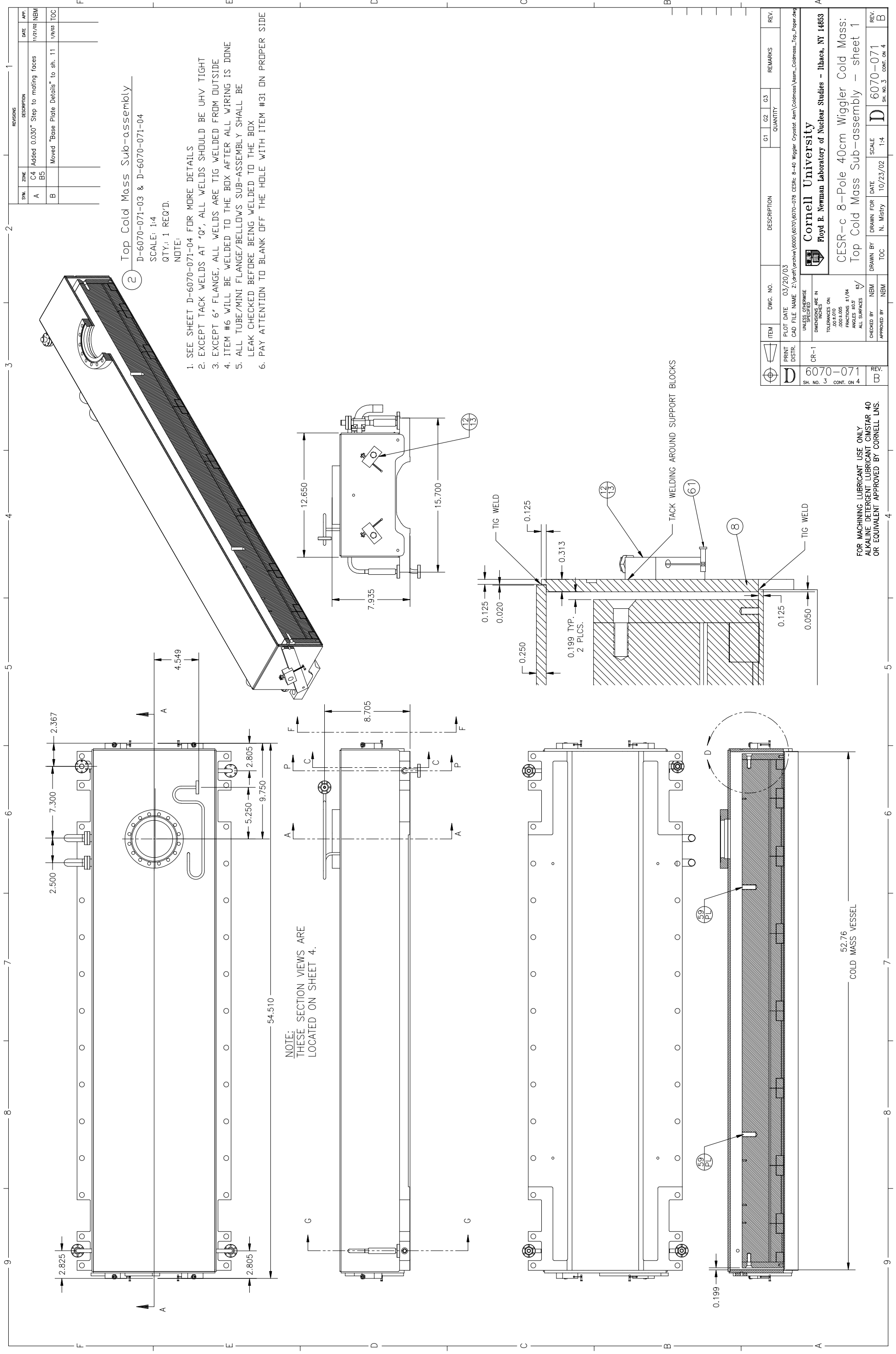
SYN.	ZONE	DESCRIPTION	DATE	APP.
A		Assembly view updated to reflect steps in mating faces of Pts #7	11/21/08	NBM
B		Moved Base Plates, Top/Bottom Support block (Pt.12) used for new Arm instead of Half Ring Collar as previously.	3/29/09	TOC

ITEM	DWG. NO.	DESCRIPTION	QTY	REV.
D	6070-071	CESR-c 8-40 Wiggler Cold Mass Assembly - Sheet 2	1	B
PRINT DISTR. CR-1 PLOT DATE 03/20/03 CAD FILE NAME Z:\net\erisha\6000\6070-071 CESR-c 8-40 Wiggler Cold Mass Assembly - Sheet 2.dwg UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ±1/64 DECIMALS ±0.005 ANGLES ±0.5 ALL SURFACES BY CHECKED BY NBM APPROVED BY NBM DRAWN FOR DATE 10/23/02 N. Mistry SCALE 3:8 D 6070-071 SH. NO. 2 CONT. ON 3 REV. B				

FOR MACHINING LUBRICANT USE ONLY
 ALKALINE DETERGENT LUBRICANT CIMSTAR 40
 OR EQUIVALENT APPROVED BY CORNELL LNS.

D 1 CESR-c 8-40 Wiggler Magnet Cold Mass Vessel Assembly
 SCALE: 1:4
 QTY: 1 REQ'D.
 NOTE:
 1. SEE D-6070-071-01 FOR MORE DETAILS
 2. TWO HALF BOXES ARE BOLTED TOGETHER THROUGH SIDE TABS
 3. TWO HALF BOXES ARE INDIVIDUALLY LEAK CHECKED.
 4. ALL TUBES ARE CONNECTED THROUGH 1 1/3 MINI FLANGES

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 CESR-c 8-40 Wiggler Cold Mass Assembly - Sheet 2



2 Top Cold Mass Sub-assembly
 D-6070-071-03 & D-6070-071-04

SCALE: 1:4
 QTY.: 1 REQ'D.
 NOTE:

1. SEE SHEET D-6070-071-04 FOR MORE DETAILS
2. EXCEPT TACK WELDS AT 'Q', ALL WELDS SHOULD BE UHV TIGHT
3. EXCEPT 6" FLANGE, ALL WELDS ARE TIG WELDED FROM OUTSIDE
4. ITEM #6 WILL BE WELDED TO THE BOX AFTER ALL WIRING IS DONE
5. ALL TUBE/MINI FLANGE/BELLOWS SUB-ASSEMBLY SHALL BE LEAK CHECKED BEFORE BEING WELDED TO THE BOX
6. PAY ATTENTION TO BLANK OFF THE HOLE WITH ITEM #31 ON PROPER SIDE

REVISIONS		
SN.	ZONE	DESCRIPTION
A	C4	Added 0.030" Step to mating faces
B	B5	Moved "Base Plate Details" to sh. 11

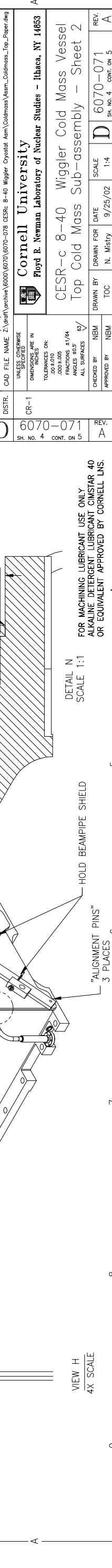
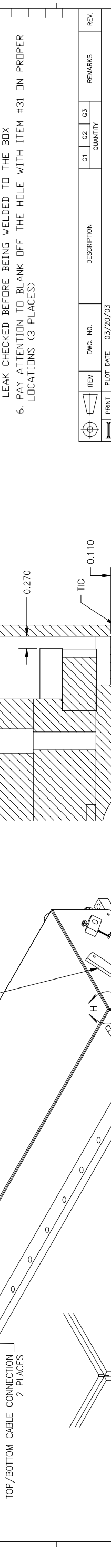
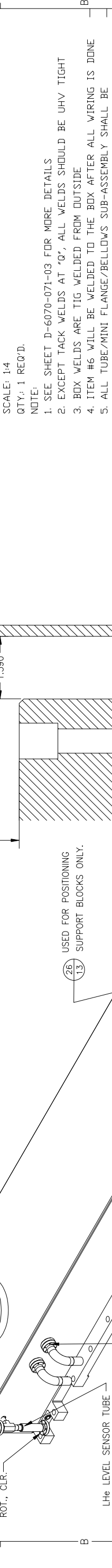
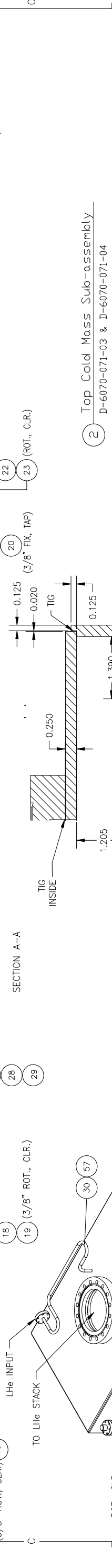
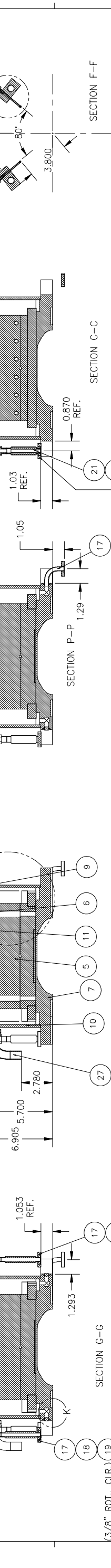
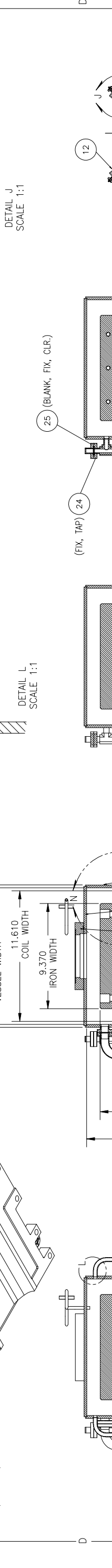
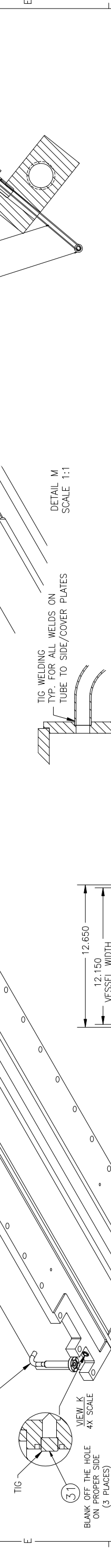
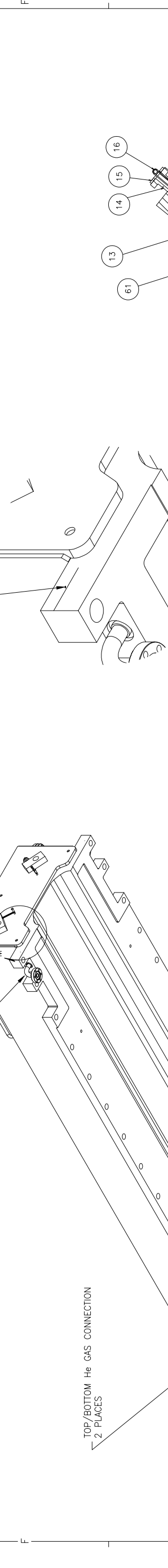
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UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ON: FRACTIONS ±1/64 DECIMALS ±0.005 ANGLES ±0.5 ALL SURFACES					
CHECKED BY NBM	DRAWN FOR N. Mistry	DATE 10/23/02	SCALE 1:4	DRAWN BY TOC	REV. B
APPROVED BY NBM					6070-071 CONT. ON 4

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CESR-c 8-Pole 40cm Wiggler Cold Mass:
 Top Cold Mass Sub-assembly - sheet 1

FOR MACHINING LUBRICANT USE ONLY
 ALKALINE DETERGENT LUBRICANT CIMSTAR 40
 OR EQUIVALENT APPROVED BY CORNELL LNS.

REVISIONS		DATE	APP.
SYN.	ZONE	DESCRIPTION	
A		Moved "Base Plate, Pattern Details" to sh. 11	BJ/20/04 TOC



2 Top Cold Mass Sub-assembly
D-6070-071-03 & D-6070-071-04
SCALE: 1:4
QTY.: 1 REQ'D.
NOTE:
1. SEE SHEET D-6070-071-03 FOR MORE DETAILS
2. EXCEPT TACK WELDS AT "Q", ALL WELDS SHOULD BE UHV TIGHT
3. BOX WELDS ARE TIG WELDED FROM OUTSIDE
4. ITEM #6 WILL BE WELDED TO THE BOX AFTER ALL WIRING IS DONE
5. ALL TUBE/MINI FLANGE/BELLOWS SUB-ASSEMBLY SHALL BE LEAK CHECKED BEFORE BEING WELDED TO THE BOX
6. PAY ATTENTION TO BLANK OFF THE HOLE WITH ITEM #31 ON PROPER LOCATIONS (3 PLACES)

ITEM	DWG. NO.	DESCRIPTION	Q1	Q2	Q3	REMARKS	REV.
D	6070-071	Top Cold Mass Sub-assembly					A

PRINT DATE: 03/20/03
CAD FILE NAME: Z:\draft\archive\6000\6070\078 CESrc 8-40 Wiggler Crystal_Asm\Coldmass_Top_Paper.dwg

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON: 0.001±0.005 FRACTIONS ±1/64 ANGLES ±0.5 ALL SURFACES

CHECKED BY: NBM
APPROVED BY: NBM

DRAWN FOR DATE: 9/25/02
SCALE: 1:4

REV. A
REV. D
REV. A

6070-071 CONT. ON 5
6070-071 CONT. ON 5
6070-071 CONT. ON 5

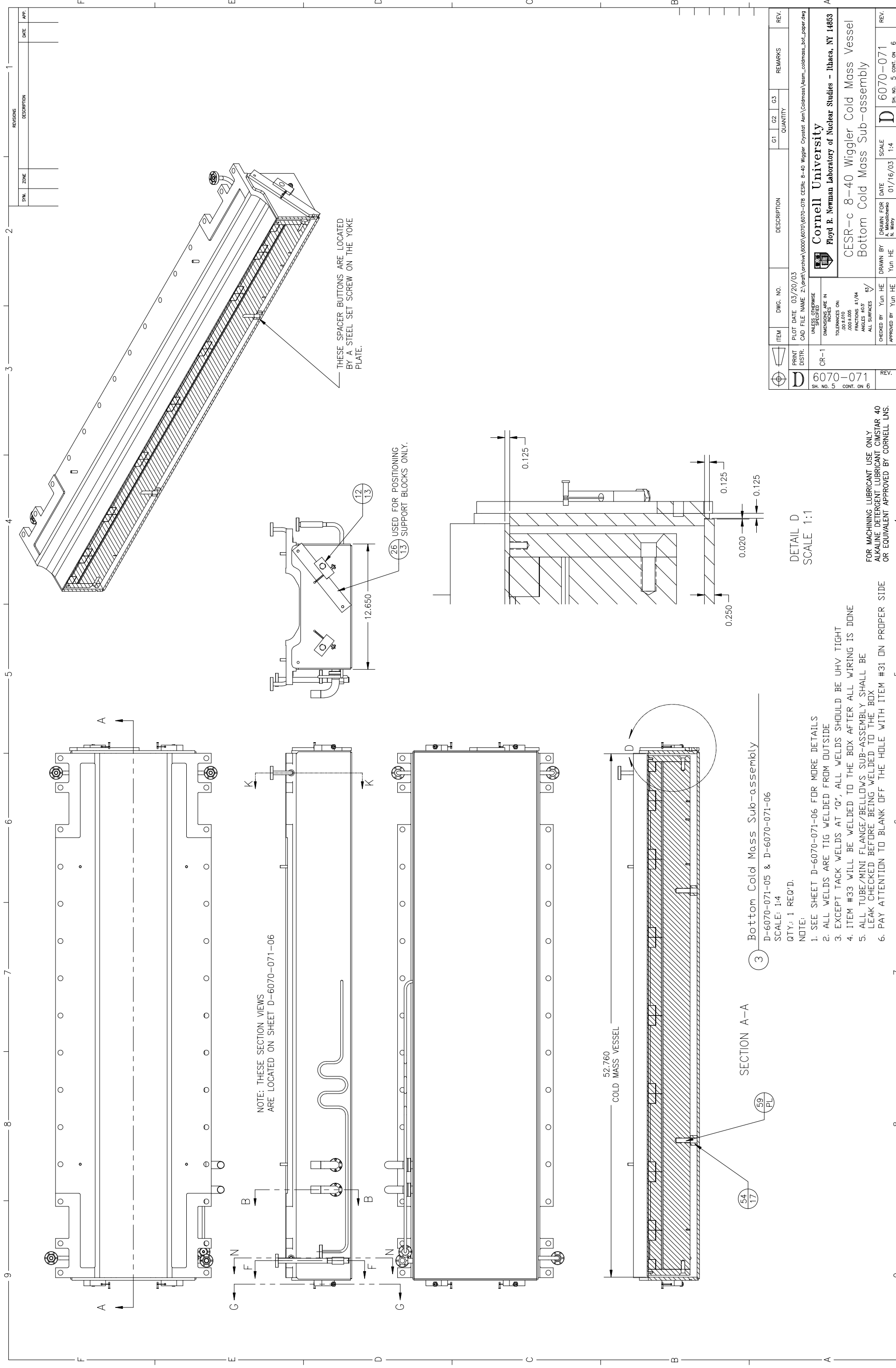
9/25/02
1:4
D
6070-071
CONT. ON 5

9/25/02
1:4
D
6070-071
CONT. ON 5

9/25/02
1:4
D
6070-071
CONT. ON 5

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CESR-c 8-40 Wiggler Cold Mass Vessel
Top Cold Mass Sub-assembly - Sheet 2



SYN.	ZONE	DATE	APP.

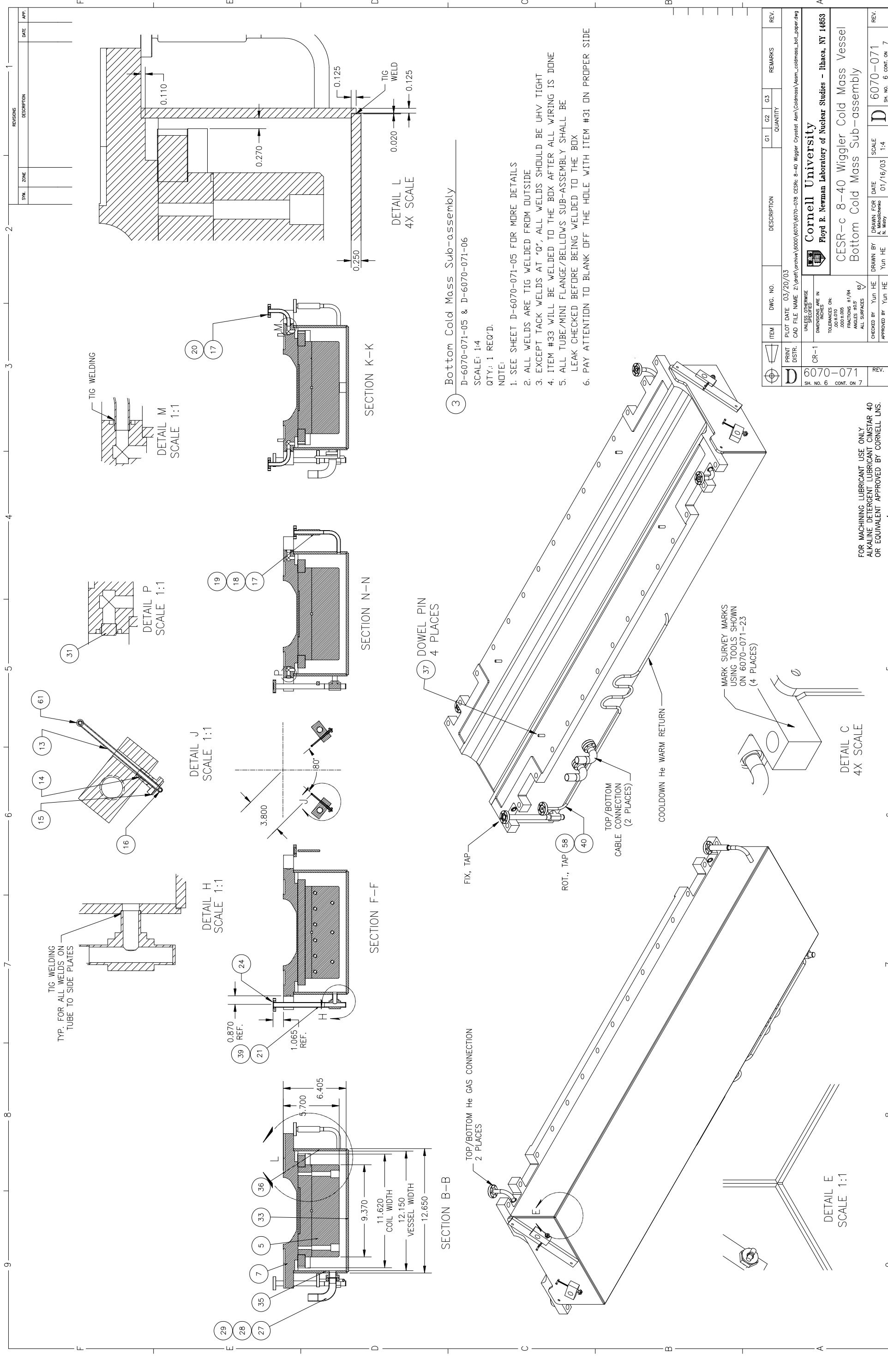
REVISIONS	DESCRIPTION	DATE	APP.
1			
2			
3			
4			
5			
6			
7			
8			
9			

ITEM	DWG. NO.	DESCRIPTION	QUANTITY	REV.
PRINT DISTR.	PLOT DATE			
CR-1	03/20/03			
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UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ±1/64 DECIMALS ±0.005 ANGLES ±0.5° ALL SURFACES				
CHECKED BY: Yun HE DRAWN BY: Yun HE APPROVED BY: Yun HE				
DRAWN FOR DATE: 01/16/03 SCALE: 1:4 REV. D 6070-071				
SH. NO. 5 CONT. ON 6				

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 CESR-c 8-40 Wiggler Cold Mass Vessel
 Bottom Cold Mass Sub-assembly

DETAIL D
 SCALE 1:1
 FOR MACHINING LUBRICANT USE ONLY
 ALKALINE DETERGENT LUBRICANT CIMSTAR 40
 OR EQUIVALENT APPROVED BY CORNELL LNS.

SECTION A-A
 52.760 COLD MASS VESSEL
 54 17
 59 PL
 3 Bottom Cold Mass Sub-assembly
 D-6070-071-05 & D-6070-071-06
 SCALE: 1:4
 QTY: 1 REQ'D.
 NOTE:
 1. SEE SHEET D-6070-071-06 FOR MORE DETAILS
 2. ALL WELDS ARE TIG WELDED FROM OUTSIDE
 3. EXCEPT TACK WELDS AT "G", ALL WELDS SHOULD BE UHV TIGHT
 4. ITEM #33 WILL BE WELDED TO THE BOX AFTER ALL WIRING IS DONE
 5. ALL TUBE/MINI FLANGE/BELLOWS SUB-ASSEMBLY SHALL BE LEAK CHECKED BEFORE BEING WELDED TO THE BOX
 6. PAY ATTENTION TO BLANK OFF THE HOLE WITH ITEM #31 ON PROPER SIDE



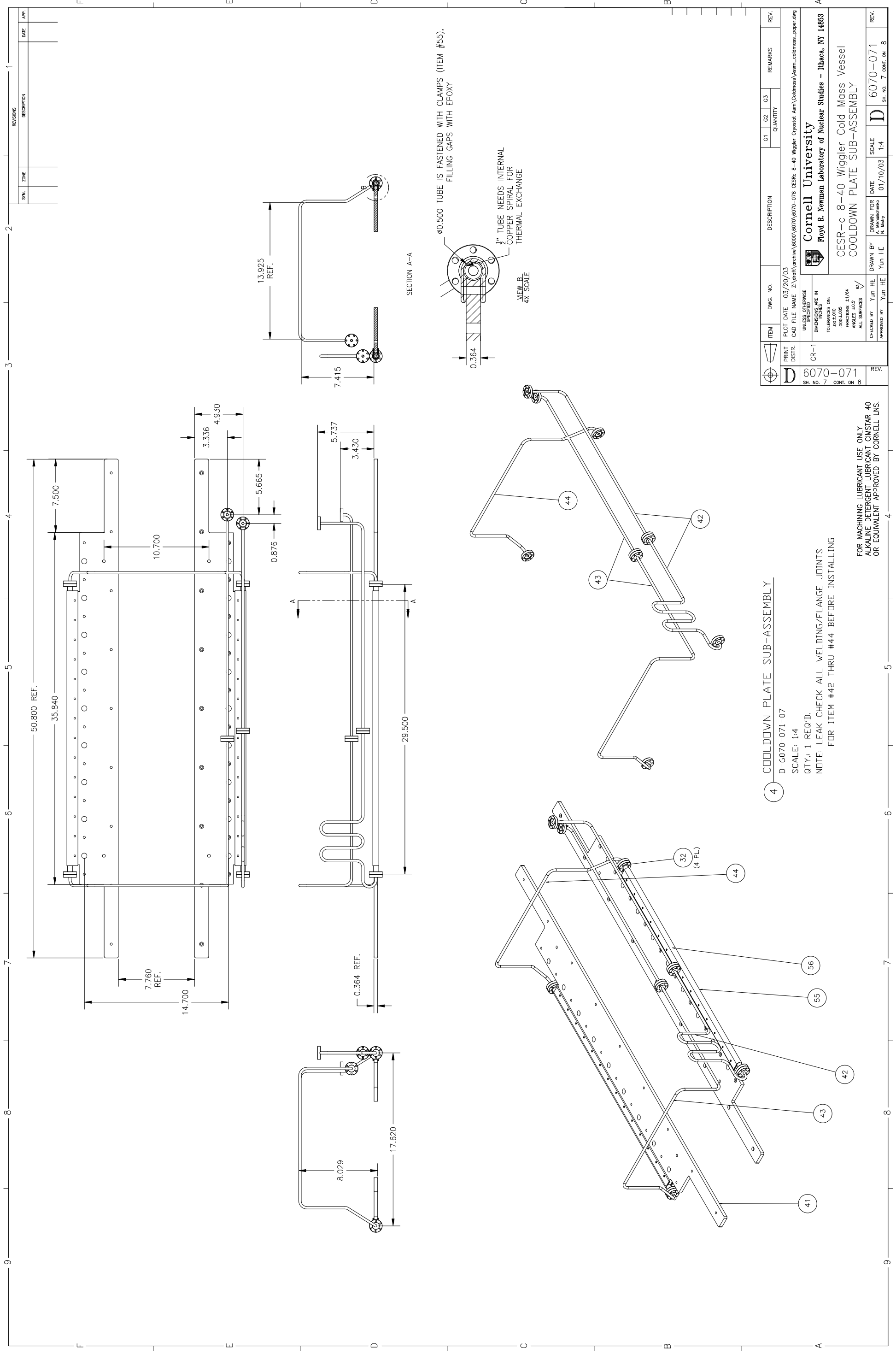
REV.	SYN.	ZONE	DESCRIPTION	DATE	APP.

- 3 Bottom Cold Mass Sub-assembly
 D-6070-071-05 & D-6070-071-06
 SCALE: 1:4
 QTY.: 1 REQ'D.
 NOTE:
 1. SEE SHEET D-6070-071-05 FOR MORE DETAILS
 2. ALL WELDS ARE TIG WELDED FROM OUTSIDE
 3. EXCEPT TACK WELDS AT "Q", ALL WELDS SHOULD BE UHV TIGHT
 4. ITEM #33 WILL BE WELDED TO THE BOX AFTER ALL WIRING IS DONE
 5. ALL TUBE/MINI FLANGE/BELLOWS SUB-ASSEMBLY SHALL BE LEAK CHECKED BEFORE BEING WELDED TO THE BOX
 6. PAY ATTENTION TO BLANK OFF THE HOLE WITH ITEM #31 ON PROPER SIDE

ITEM	DWG. NO.	DESCRIPTION	Q1	Q2	Q3	REMARKS	REV.
D	6070-071	Bottom Cold Mass Sub-assembly					
PRINT DATE 03/20/03 PLOT FILE NAME Z:\draft\archwa\6000\6070\6070-071-06 CESR 8-40 Wiggler Cryostat Arm\Coldmass\Asm_coldmass_bot_upper.dwg UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: 0.005 ± 0.005 FRACTIONS ± 1/64 ANGLES ± 0.5 ALL SURFACES CHECKED BY Yun HE DRAWN BY Yun HE APPROVED BY Yun HE DATE 01/16/03 SCALE 1:4 D 6070-071 SH. NO. 6 CONT. ON 7							

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 CESR-c 8-40 Wiggler Cold Mass Vessel
 Bottom Cold Mass Sub-assembly

FOR MACHINING LUBRICANT USE ONLY
 ALKALINE DETERGENT LUBRICANT CIMSTAR 40
 OR EQUIVALENT APPROVED BY CORNELL LNS.



4 COOLDOWN PLATE SUB-ASSEMBLY

D-6070-071-07

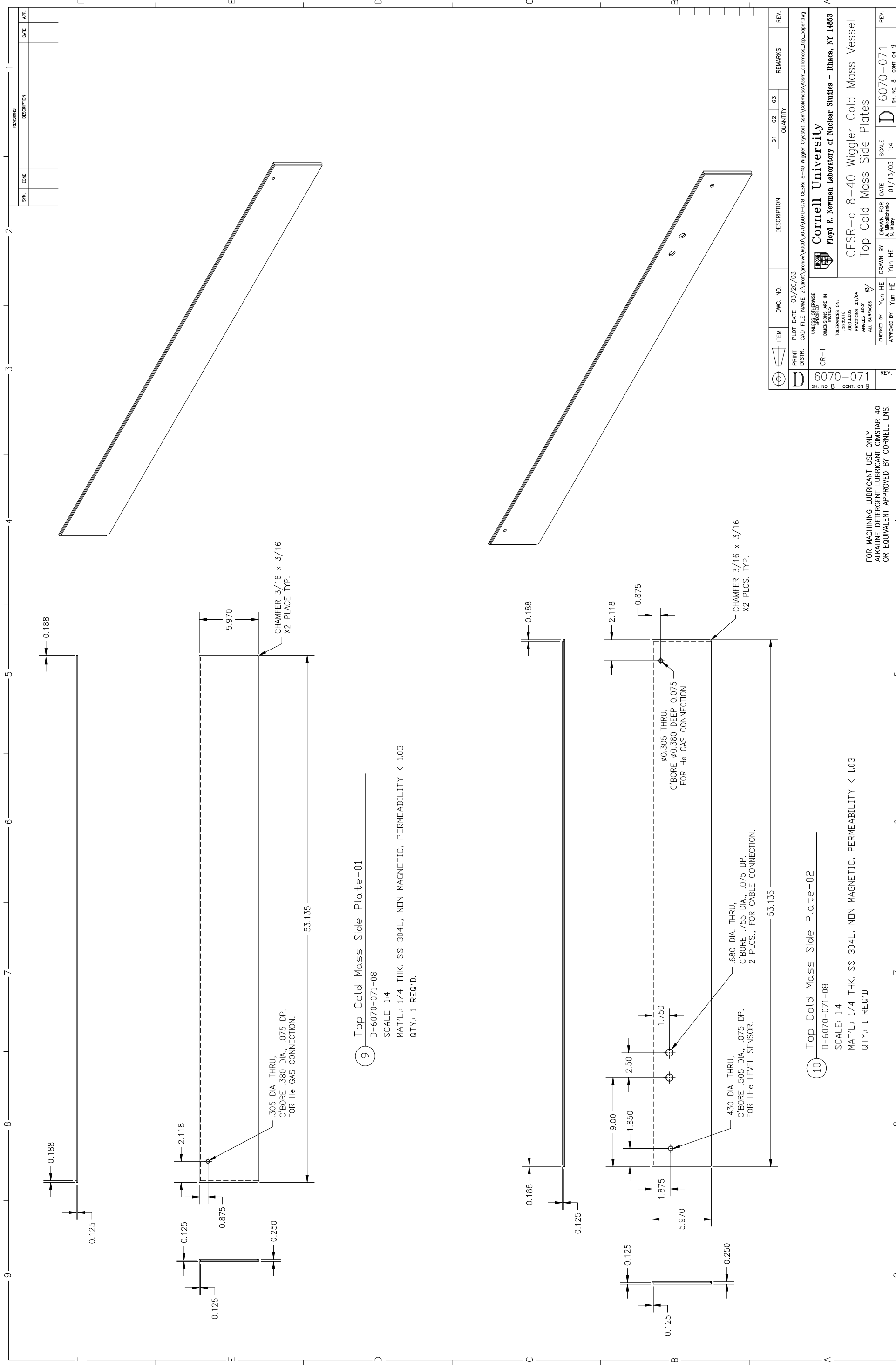
SCALE: 1:4

QTY: 1 REQ'D.

NOTE: LEAK CHECK ALL WELDING/FLANGE JOINTS FOR ITEM #42 THRU #44 BEFORE INSTALLING

FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LNS.

ITEM	DWG. NO.	DESCRIPTION	QTY	G1	G2	G3	REMARKS	REV.
D	6070-071	CR-1						
PRINT DATE: 03/20/03 PLOT FILE NAME: Z:\print\archive\6000\6070\6070-078 CESR-c 8-40 Wiggler Cryostat Asm\Coldmass_Asm_coldmass_upper.dwg UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ON: 0.00±0.005 FRACTIONS ±1/64 ANGLES ±0.5 ALL SURFACES R/								
Cornell University Floyd B. Newman Laboratory of Nuclear Studies - Ithaca, NY 14853 CESR-c 8-40 Wiggler Cold Mass Vessel COOLDOWN PLATE SUB-ASSEMBLY								
APPROVED BY	Yun HE	DRAWN BY	Yun HE	DATE	01/10/03	SCALE	1:4	REV.
CHECKED BY	Yun HE	DRAWN FOR	A. Malachuk					D 6070-071
								SH. NO. 7 CONT. ON 8



9 Top Cold Mass Side Plate-01
 D-6070-071-08
 SCALE: 1:4
 MAT'L: 1/4 THK. SS 304L, NDN MAGNETIC, PERMEABILITY < 1.03
 QTY: 1 REQ'D.

10 Top Cold Mass Side Plate-02
 D-6070-071-08
 SCALE: 1:4
 MAT'L: 1/4 THK. SS 304L, NDN MAGNETIC, PERMEABILITY < 1.03
 QTY: 1 REQ'D.

SYN.	ZONE	DATE	APP.

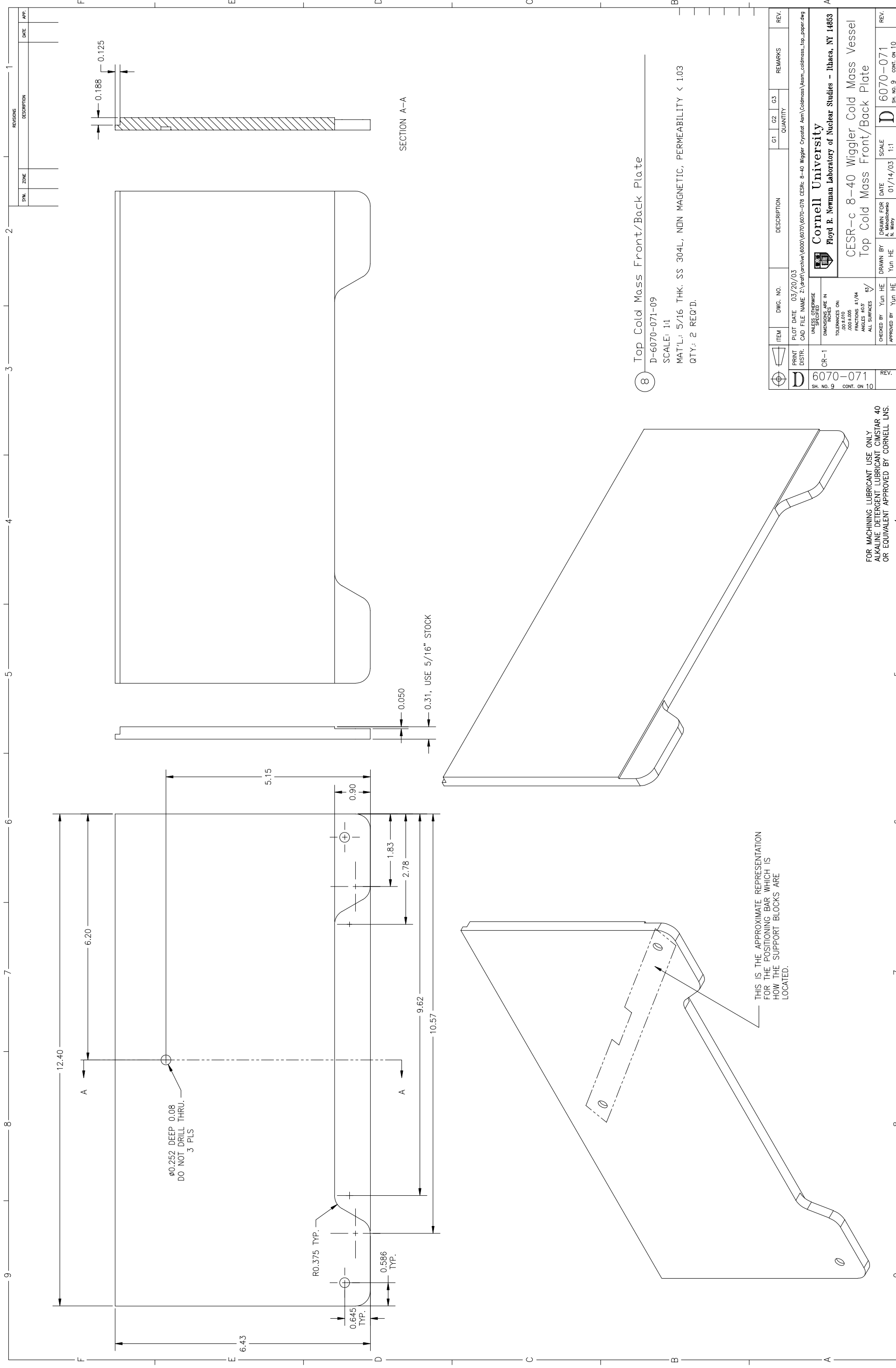
REV.	DESCRIPTION

PRINT DISTR.	CR-1	ITEM		DWG. NO.		DESCRIPTION		QUANTITY		REV.	
PLOT DATE	03/20/03	CAD FILE NAME	Z:\draft\archiva\6070\6070-078 CESrc 8-40 Wiggler Crystal Arm\Coldmass_Arm_top_upper.dwg								
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: ONES 0.00±0.005 FRACTIONS ±1/64 ANGLES ±0.5 ALL SURFACES											
		CHECKED BY	Yun HE	DRAWN BY	Yun HE	DATE	01/13/03	SCALE	1:4	REV.	
		APPROVED BY	Yun HE								

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CESR-c 8-40 Wiggler Cold Mass Vessel
 Top Cold Mass Side Plates

FOR MACHINING LUBRICANT USE ONLY
 ALKALINE DETERGENT LUBRICANT CIMSTAR 40
 OR EQUIVALENT APPROVED BY CORNELL LNS.

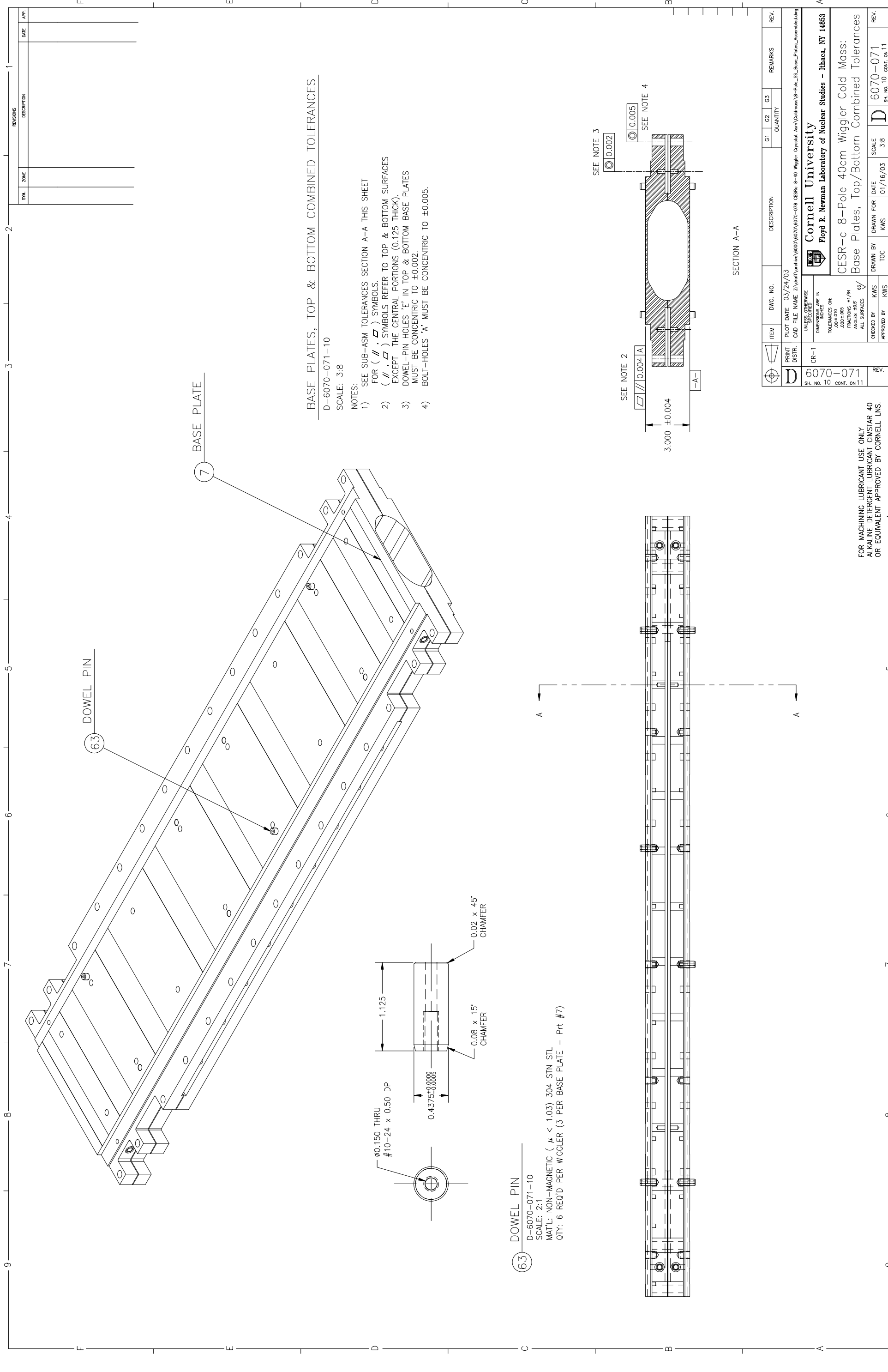


8 Top Cold Mass Front/Back Plate
 D-6070-071-09
 SCALE: 1:1
 MAT'L: 5/16 THK. SS 304L, NON MAGNETIC, PERMEABILITY < 1.03
 QTY: 2 REQ'D.

THIS IS THE APPROXIMATE REPRESENTATION FOR THE POSITIONING BAR WHICH IS HOW THE SUPPORT BLOCKS ARE LOCATED.

FOR MACHINING LUBRICANT USE ONLY
 ALKALINE DETERGENT LUBRICANT CIMSTAR 40
 OR EQUIVALENT APPROVED BY CORNELL LNS.

ITEM	DWG. NO.	DESCRIPTION	QTY	G1	G2	G3	REMARKS	REV.
8	D-6070-071-09	Top Cold Mass Front/Back Plate						
PRINT DATE: 03/20/03 PLOT FILE NAME: z:\draft\archive\6000\6070\6070-078 CESrc 8-40 Wiggler Crystal Asm\Coldmass\Asm_coldmass_top_lower.dwg DIST: CR-1 UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS: ±1/64 DECIMALS: ±0.005 ANGLES: ±0.5 ALL SURFACES: RZ								
Cornell University Floyd B. Newman Laboratory of Nuclear Studies - Ithaca, NY 14853 CESR-c 8-40 Wiggler Cold Mass Vessel Top Cold Mass Front/Back Plate								
CHECKED BY: Yun HE APPROVED BY: Yun HE			DRAWN FOR DATE: 01/14/03 A. Minichieno			SCALE: 1:1 SH. NO. 9 CONT. ON 10		
6070-071 CONT. ON 10			6070-071 CONT. ON 10			REV. D		



BASE PLATES, TOP & BOTTOM COMBINED TOLERANCES
 D-6070-071-10
 SCALE: 3:8

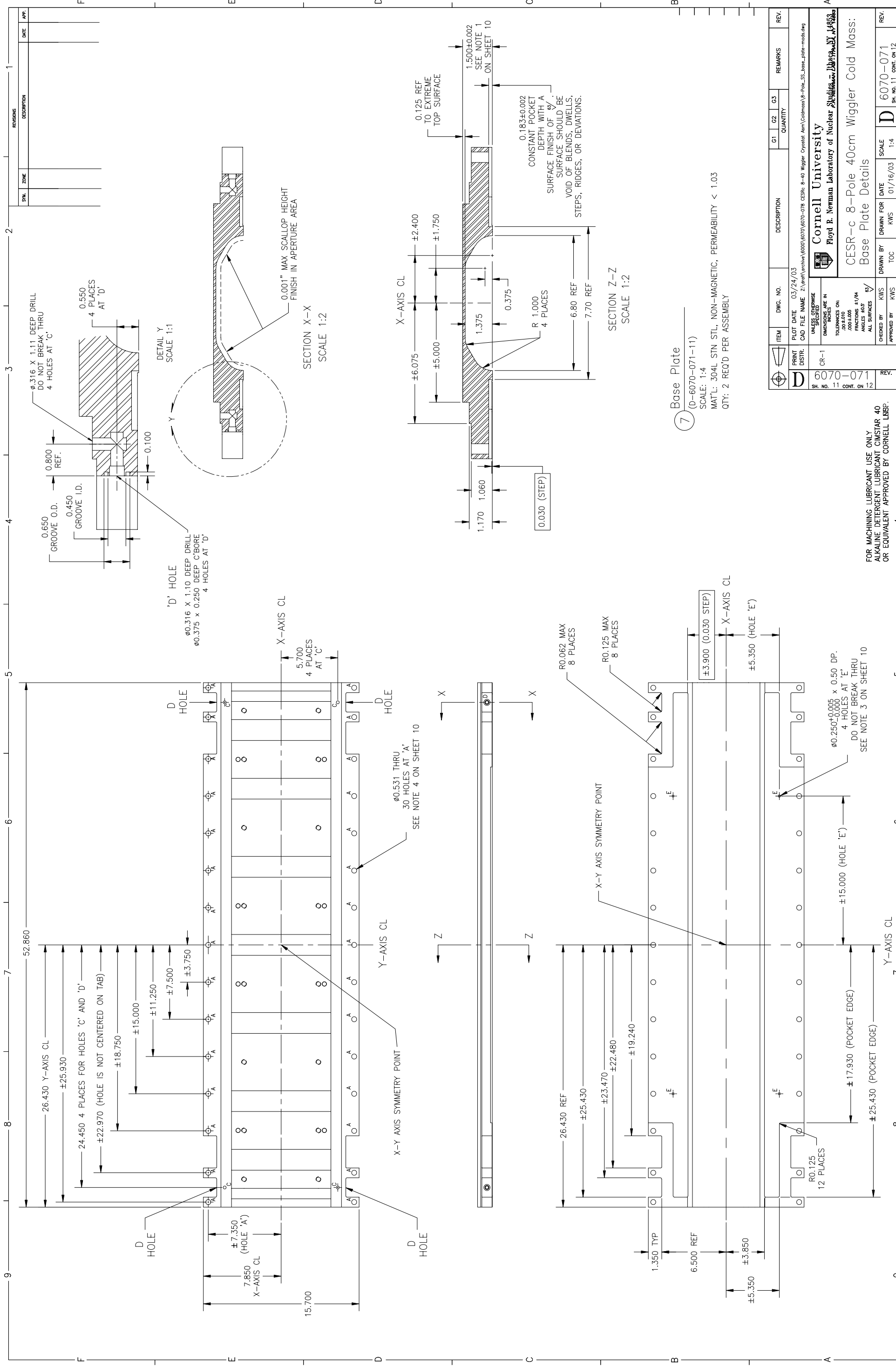
NOTES:
 1) SEE SUB-ASM TOLERANCES SECTION A-A THIS SHEET FOR (// , \varnothing) SYMBOLS.
 2) (// , \varnothing) SYMBOLS REFER TO TOP & BOTTOM SURFACES EXCEPT THE CENTRAL PORTIONS (0.125 THICK).
 3) DOWEL-PIN HOLES 'E' IN TOP & BOTTOM BASE PLATES MUST BE CONCENTRIC TO ±0.002.
 4) BOLT-HOLES 'A' MUST BE CONCENTRIC TO ±0.005.

63 DOWEL PIN
 D-6070-071-10
 SCALE: 2:1
 MAT'L: NON-MAGNETIC ($\mu < 1.03$) 304 STN STL
 QTY: 6 REQ'D PER WIGGLER (3 PER BASE PLATE - Prt #7)

SECTION A-A

ITEM	DWG. NO.	DESCRIPTION	Q1	Q2	Q3	REMARKS	REV.	
PRINT DISTR.	PLOT DATE 03/24/03	DESCRIPTION	QUANTITY					
CR-1	CAD FILE NAME Z:\vart\arthen\6000\6070\078 CESR 8-40 Wiggler Crystal Arm\6-Pole_S_S_Base_Plates_Assembled.dwg							
UNLESS OTHERWISE SPECIFIED		Cornell University Floyd R. Newman Laboratory of Nuclear Studies - Ithaca, NY 14853						
DIMENSIONS ARE IN INCHES		CESR-c 8-Pole 40cm Wiggler Cold Mass: Base Plates, Top/Bottom Combined Tolerances						
TOLERANCES ON:		DRAWN BY TOC						
FRACTIONS ±1/64		DATE 01/16/03						
DECIMALS ±0.005		SCALE 3:8						
ANGLES ±0.5		APPROVED BY KWS						
ALL SURFACES $\sqrt{\text{R}}$		REV. D 6070-071						
CHECKED BY KWS		SH. NO. 10 CONT. ON 11						
APPROVED BY KWS								

FOR MACHINING LUBRICANT USE ONLY
 ALKALINE DETERGENT LUBRICANT CIMSTAR 40
 OR EQUIVALENT APPROVED BY CORNELL LNS.

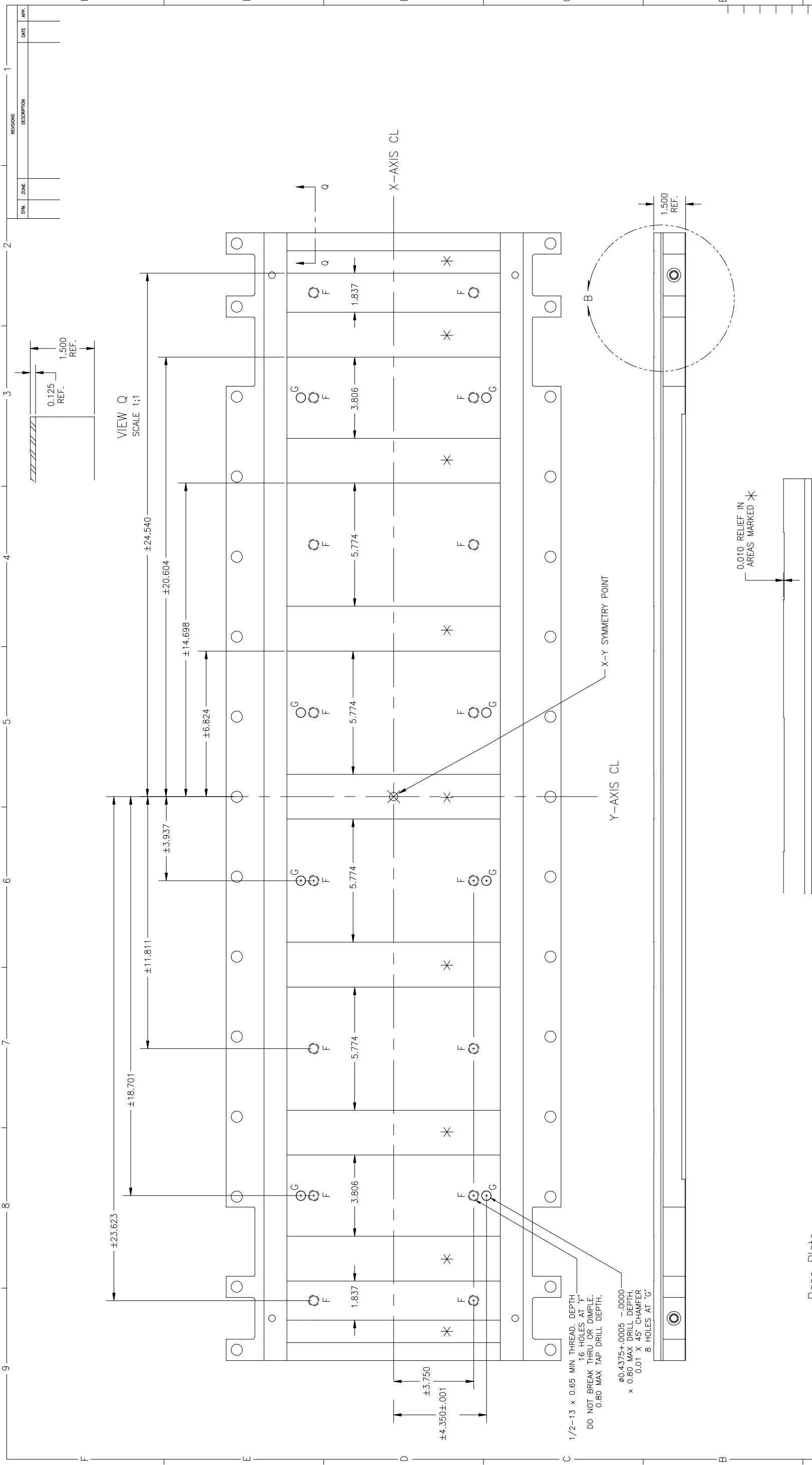


7 Base Plate
 (D-6070-071-11)
 SCALE: 1:4
 MATL: 304L STN STL, NON-MAGNETIC, PERMEABILITY < 1.03
 QTY: 2 REQ'D PER ASSEMBLY

ITEM	DWG. NO.	DESCRIPTION	Q1	Q2	Q3	REMARKS	REV.
1	6070-071	Base Plate					
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

Cornell University
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 Ithaca, NY 14853
 CESR-c 8-Pole 40cm Wiggler Cold Mass:
 Base Plate Details

FOR MACHINING LUBRICANT USE ONLY
 ALKALINE DETERGENT LUBRICANT CIMSTAR 40
 OR EQUIVALENT APPROVED BY CORNELL LDRP.



ITEM	DWG. NO.	DESCRIPTION	Q1	Q2	Q3	REMARKS	REV.
PRINT DISTR.	PLOT DATE 03/24/03 CAD FILE NAME Z:\proj\active\6000\6070\6070-078 CESRc 8-40 Wiggler Crystal Arm\Coldmass\8-Pole_SS_base_plate-mods.dwg						
D 6070-071	CR-1	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ±1/64 DECIMALS ±0.005 ANGLES ±0.5 ALL SURFACES					
APPROVED BY	CHECKED BY KWS	DRAWN BY KWS	DATE 01/16/03	SCALE AS NOTED	6070-071	REV. D	SH. NO. 12 CONT. ON 13

SYL.	ZONE	DESCRIPTION	DATE	APP.

Base Plate
(D-6070-071-12)
SCALE: 1:2
MAT'L: 304L STN STL, NON-MAGNETIC, PERMEABILITY < 1.03

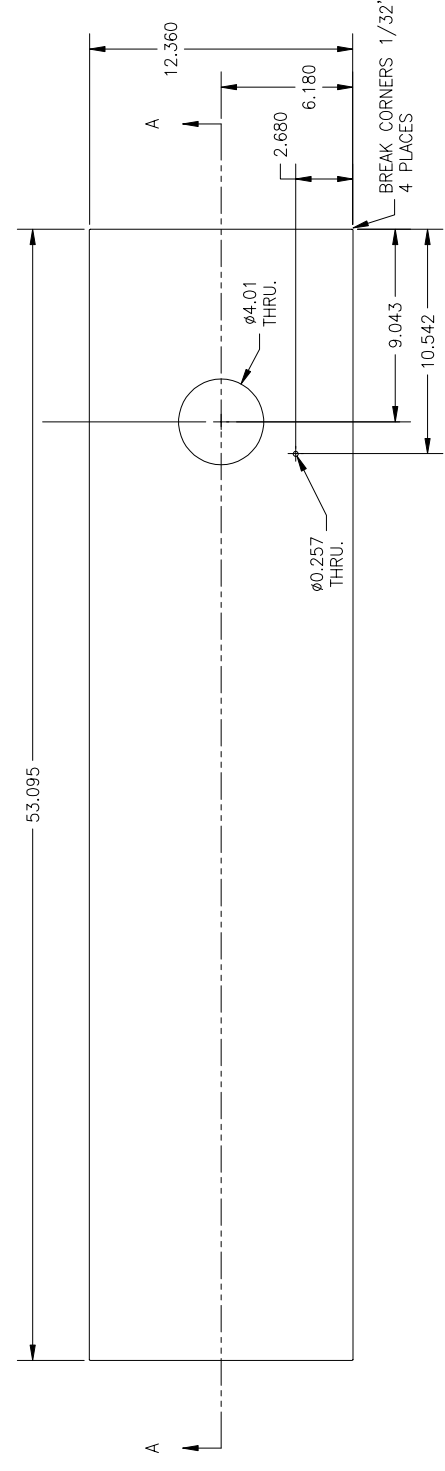
Cornell University
Floyd B. Newman Laboratory of Nuclear Studies - Ithaca, NY 14853

CESR-c 8-Pole 40cm Wiggler Cold Mass:
Base Plate, Pattern Details

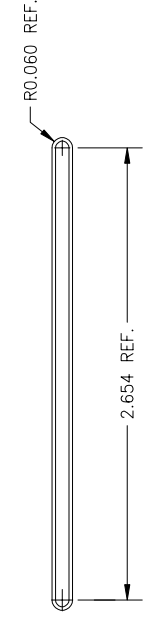
FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LNS.

DETAIL B
SCALE 1.5:1

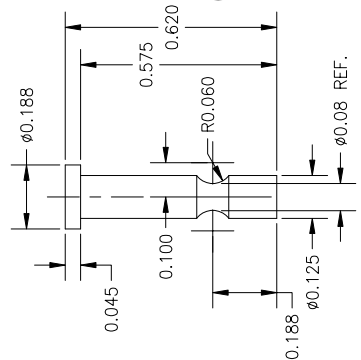
REV	SYMBOL	DATE	DESCRIPTION	APP.



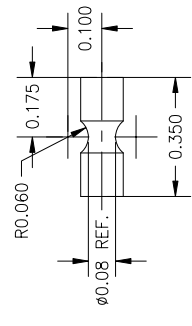
6 Top Cold Mass Cover
 D-6070-071-13
 SCALE: 1:4
 MAT'L: 1/4 THK. SS 304L, NON MAGNETIC, PERMEABILITY < 1.03
 QTY: 1 REQ'D.
 NOTE: FIT TO THE OPENING AFTER THE SIDE & FRONT/BACK PLATES ARE WELDED TO BASE PLATE.



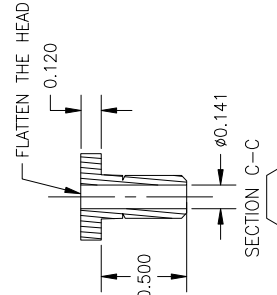
13 KEVLAR STRAP
 D-6070-017-13
 SCALE: 2:1
 MAT'L: KEVLAR, 3 TURNS OF Ø0.009 WIRE FROM MCMASTER-CARR
 QTY: 8 REQ'D, SUPPLIED



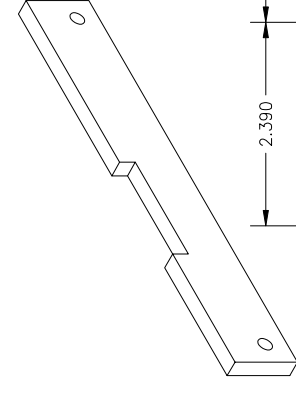
61 STRAP PIN
 D-6070-017-13
 SCALE: 4:1
 MAT'L: SS 304
 QTY: 8 REQ'D



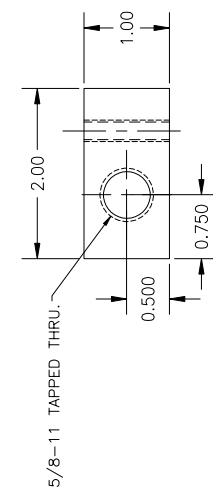
16 PIN 1/8 x 0.35
 D-6070-017-13
 SCALE: 4:1
 MAT'L: SS 304
 QTY: 8 REQ'D



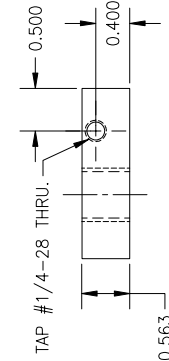
14 MODIFIED HEX BOLT 1/4-28
 D-6070-017-13
 SCALE: 2:1
 MAT'L: SS 304
 QTY: 8 REQ'D, MODIFY FROM STD BOLT



26 POSITIONING BAR
 D-6070-017-13
 SCALE: 1:1
 MAT'L: .30 THK. SS 304L, NON MAGNETIC, PERMEABILITY < 1.03
 QTY: 2 REQ'D.



12 SUPPORT BLOCK
 D-6070-017-13
 SCALE: 1:1
 MAT'L: 9/16 THK. SS 304L, NON MAGNETIC, PERMEABILITY < 1.03
 QTY: 8 REQ'D.



12 TAP #1/4-28 THRU.
 D-6070-017-13
 SCALE: 1:1
 MAT'L: 9/16 THK. SS 304L, NON MAGNETIC, PERMEABILITY < 1.03
 QTY: 8 REQ'D.

ITEM	DWG. NO.	DESCRIPTION	QTY	G1	G2	G3	REMARKS	REV.
6	D-6070-071-13	Top Cold Mass Cover	1					
12	D-6070-017-13	Support Block	8					
13	D-6070-017-13	Kevlar Strap	8					
14	D-6070-017-13	Modified Hex Bolt	8					
16	D-6070-017-13	Pin	8					
61	D-6070-017-13	Strap Pin	8					
26	D-6070-017-13	Positioning Bar	2					

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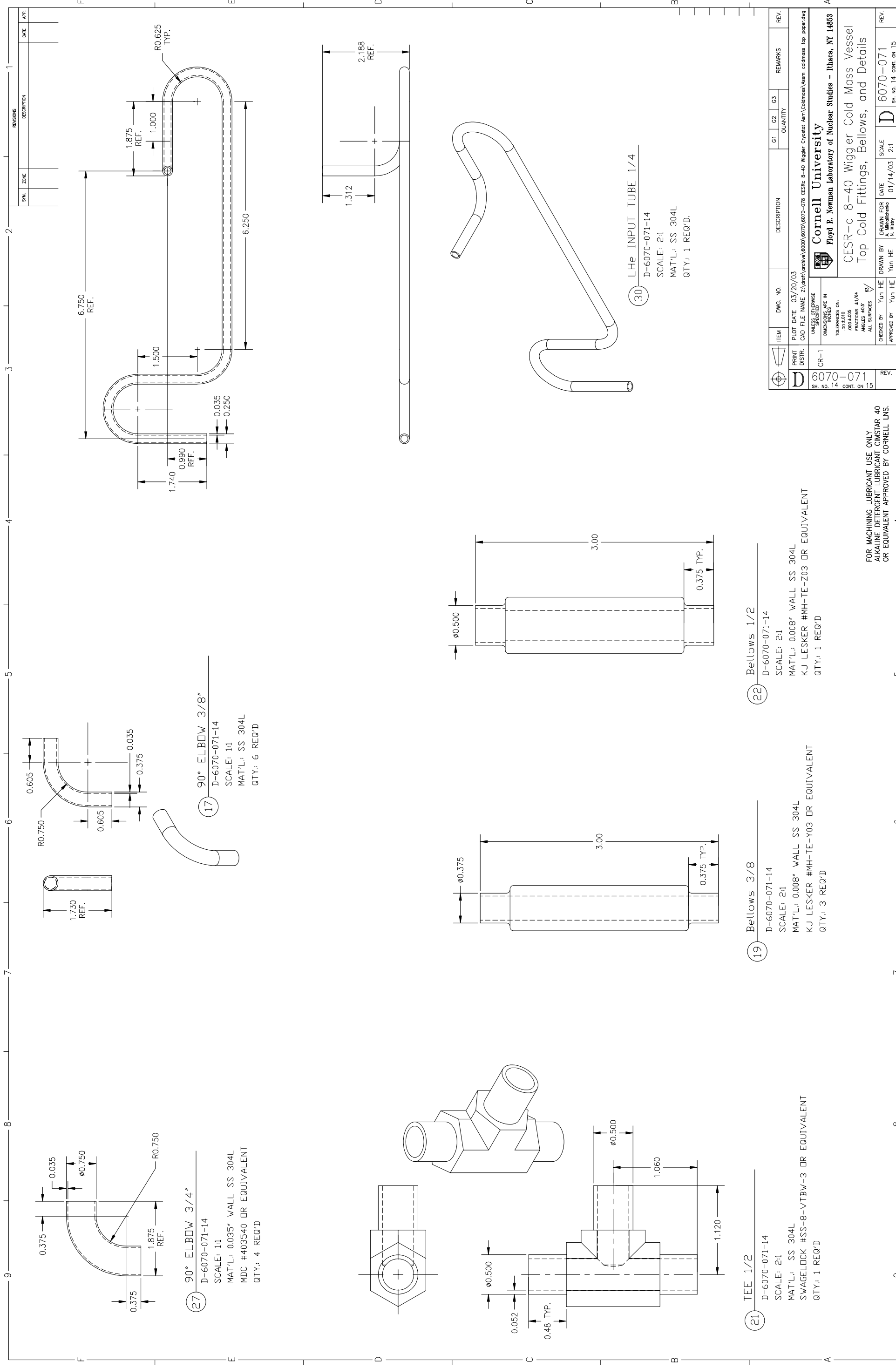
PRINT DATE: 03/20/03
 PLOT FILE NAME: Z:\pfd\work\6000\6070\6070-071 CES-c 8-40 Wiggler Cryostat_Asm\Coldmass_top_paper.dwg

UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 TOLERANCES ON: FRACTIONS ±1/64, DECIMALS ±0.005, ANGLES ±0.5
 ALL SURFACES TO BE FINISHED

CHECKED BY: Yun He
 DRAWN BY: Yun He
 DATE: 01/14/03
 SCALE: 1:4

REV. 14
 6070-071
 CONT. OF 14

FOR MACHINING LUBRICANT USE ONLY
 ALKALINE DETERGENT LUBRICANT CIMSTAR 40
 OR EQUIVALENT APPROVED BY CORNELL LNS.



REV.	DATE	DESCRIPTION	SYN.	ZONE	APP.

27 90° ELBOW 3/4"
 D-6070-071-14
 SCALE: 1:1
 MAT'L: 0.035" WALL SS 304L
 MDC #403540 DR EQUIVALENT
 QTY: 4 REQ'D

17 90° ELBOW 3/8"
 D-6070-071-14
 SCALE: 1:1
 MAT'L: SS 304L
 QTY: 6 REQ'D

21 TEE 1/2
 D-6070-071-14
 SCALE: 2:1
 MAT'L: SS 304L
 SWAGELOCK #SS-8-VTBW-3 DR EQUIVALENT
 QTY: 1 REQ'D

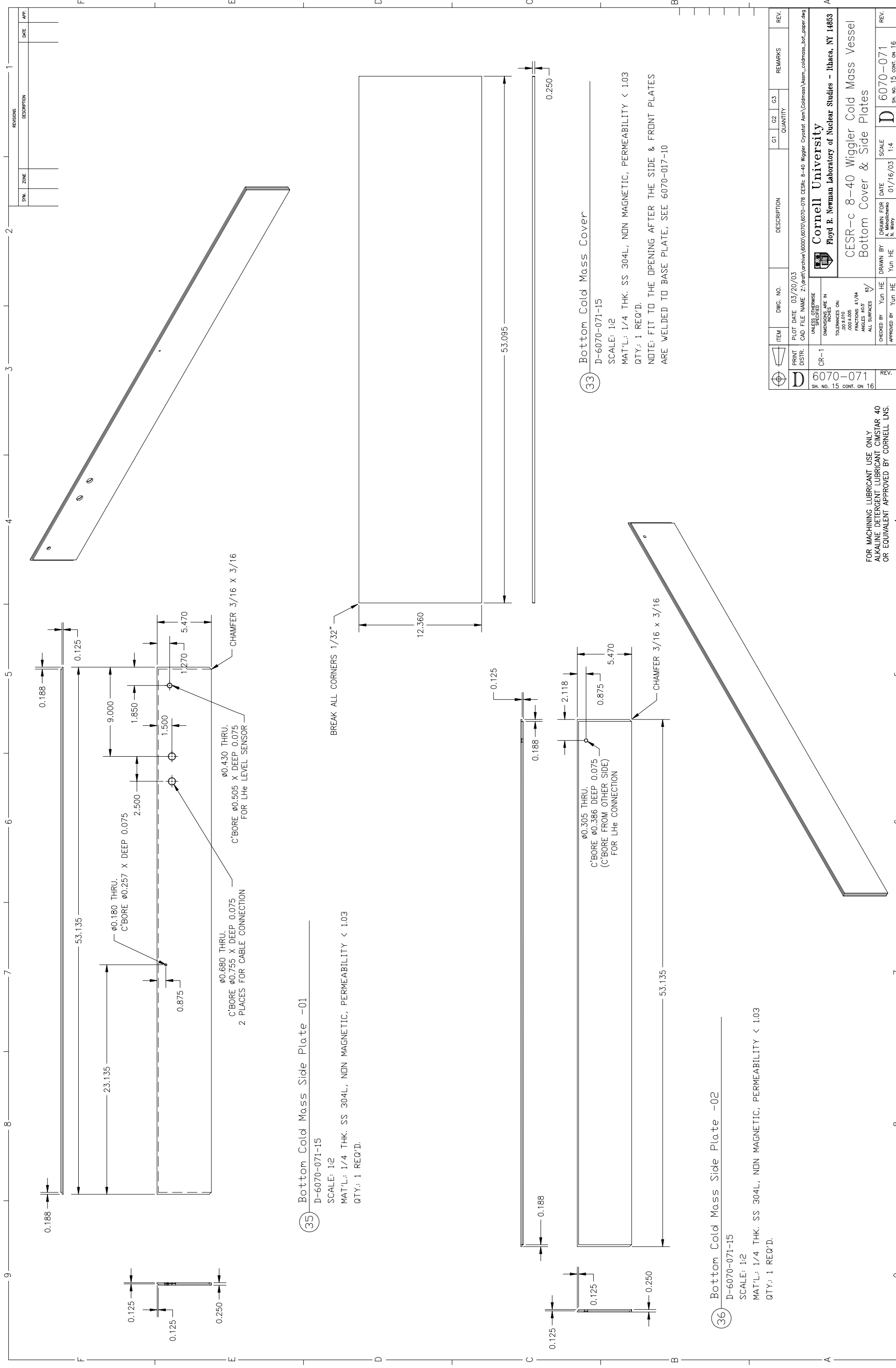
19 Bellows 3/8
 D-6070-071-14
 SCALE: 2:1
 MAT'L: 0.008" WALL SS 304L
 KJ LESKER #MH-TE-Y03 DR EQUIVALENT
 QTY: 3 REQ'D

22 Bellows 1/2
 D-6070-071-14
 SCALE: 2:1
 MAT'L: 0.008" WALL SS 304L
 KJ LESKER #MH-TE-Z03 DR EQUIVALENT
 QTY: 1 REQ'D

30 LHe INPUT TUBE 1/4
 D-6070-071-14
 SCALE: 2:1
 MAT'L: SS 304L
 QTY: 1 REQ'D

ITEM	DWG. NO.	DESCRIPTION	QTY	G1	G2	G3	REMARKS	REV.
PRINT								
DISTR.								
6070-071								
14								
15								
CR-1								
PLOT DATE: 03/20/03 CAD FILE NAME: Z:\cadd\work\6070\6070-078 CESR 8-40 Wiggler Crystal Asm\Coldmass\Asm_top.papr.dwg UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: 0.001±0.005 FRACTIONS: 1/4 ANGLES: ±0.5 ALL SURFACES: R								
Cornell University Floyd B. Newman Laboratory of Nuclear Studies - Ithaca, NY 14853 CESR-c 8-40 Wiggler Cold Mass Vessel Top Cold Fittings, Bellows, and Details								
REV.	DATE	BY	SCALE					
D	01/14/03	Yun He	2:1					
6070-071								
14								
15								
CHECKED BY: Yun He DRAWN FOR: Yun He APPROVED BY: Yun He								
D 6070-071 SH. NO. 14 CONT. ON 15								

FOR MACHINING LUBRICANT USE ONLY
 ALKALINE DETERGENT LUBRICANT CIMSTAR 40
 OR EQUIVALENT APPROVED BY CORNELL LNS.



REV.	DATE	DESCRIPTION

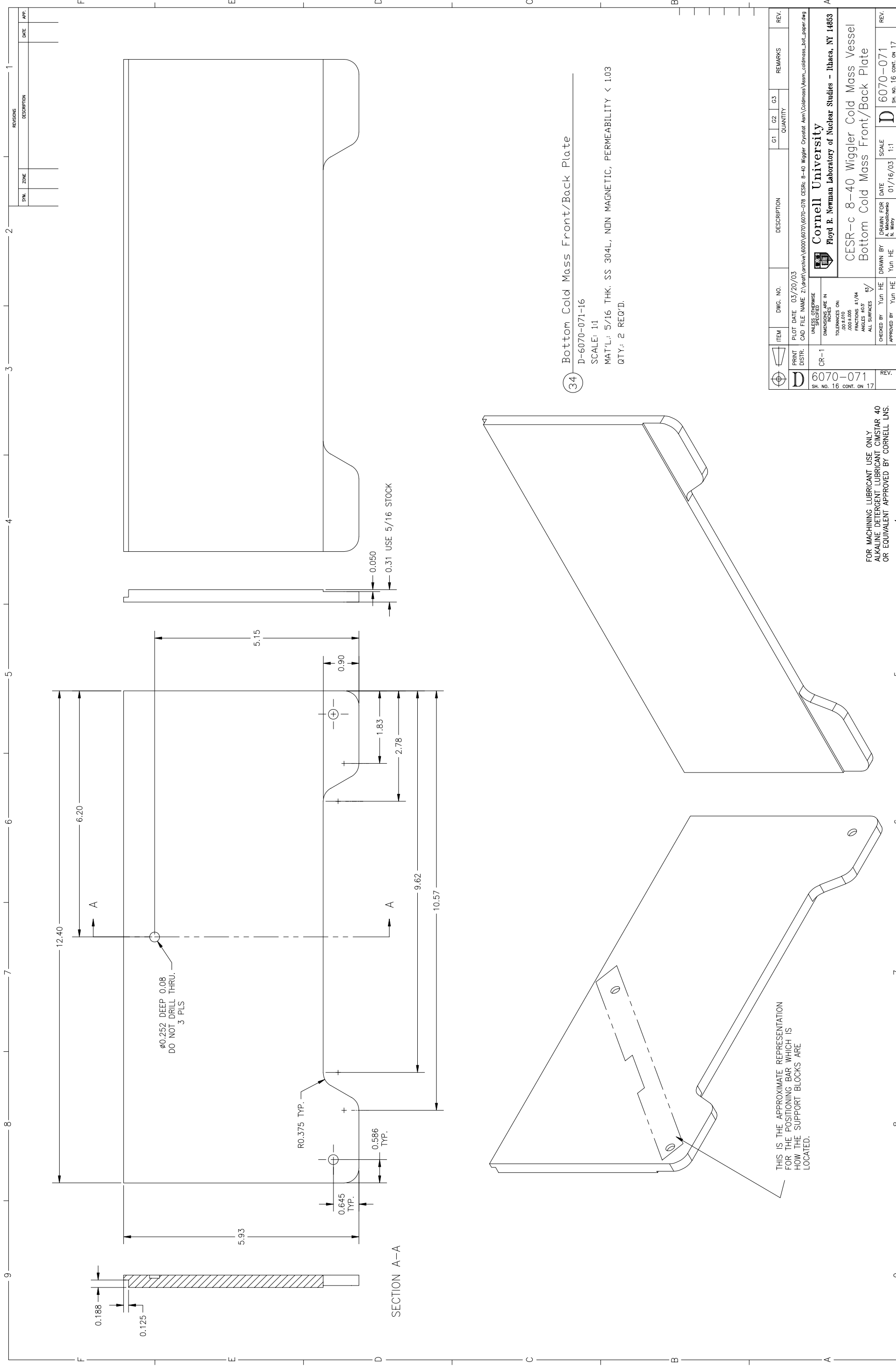
ITEM	DWG. NO.	DESCRIPTION	QTY	REV.
33	D-6070-071-15	Bottom Cold Mass Cover	1	D

PRINT	PLOT DATE	03/20/03	
DISTR.	CAD FILE NAME	Z:\draft\archive\6000\6070\6070-078 CESRc B-40 Wiggler Crystal Arm\Coldmass\asm_coldmass_bot_paper.dwg	
CR-1	UNLESS OTHERWISE SPECIFIED	DIMENSIONS ARE IN INCHES	
	TOLERANCES ON FRACTIONS	±1/64	
	ANGLES	±0.5	
	ALL SURFACES	BY	
CHECKED BY	Yun HE	DATE	01/16/03
APPROVED BY	Yun HE	SCALE	1:4
REV.	6070-071	SCALE	1:4
REV.	6070-071	SCALE	1:4

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CESR-c 8-40 Wiggler Cold Mass Vessel
 Bottom Cover & Side Plates

FOR MACHINING LUBRICANT USE ONLY
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 OR EQUIVALENT APPROVED BY CORNELL LNS.



34 Bottom Cold Mass Front/Back Plate

D-6070-071-16

SCALE: 1:1

MAT'L: 5/16 THK. SS 304L, NON MAGNETIC, PERMEABILITY < 1.03

QTY: 2 REQ'D.

THIS IS THE APPROXIMATE REPRESENTATION FOR THE POSITIONING BAR WHICH IS HOW THE SUPPORT BLOCKS ARE LOCATED.

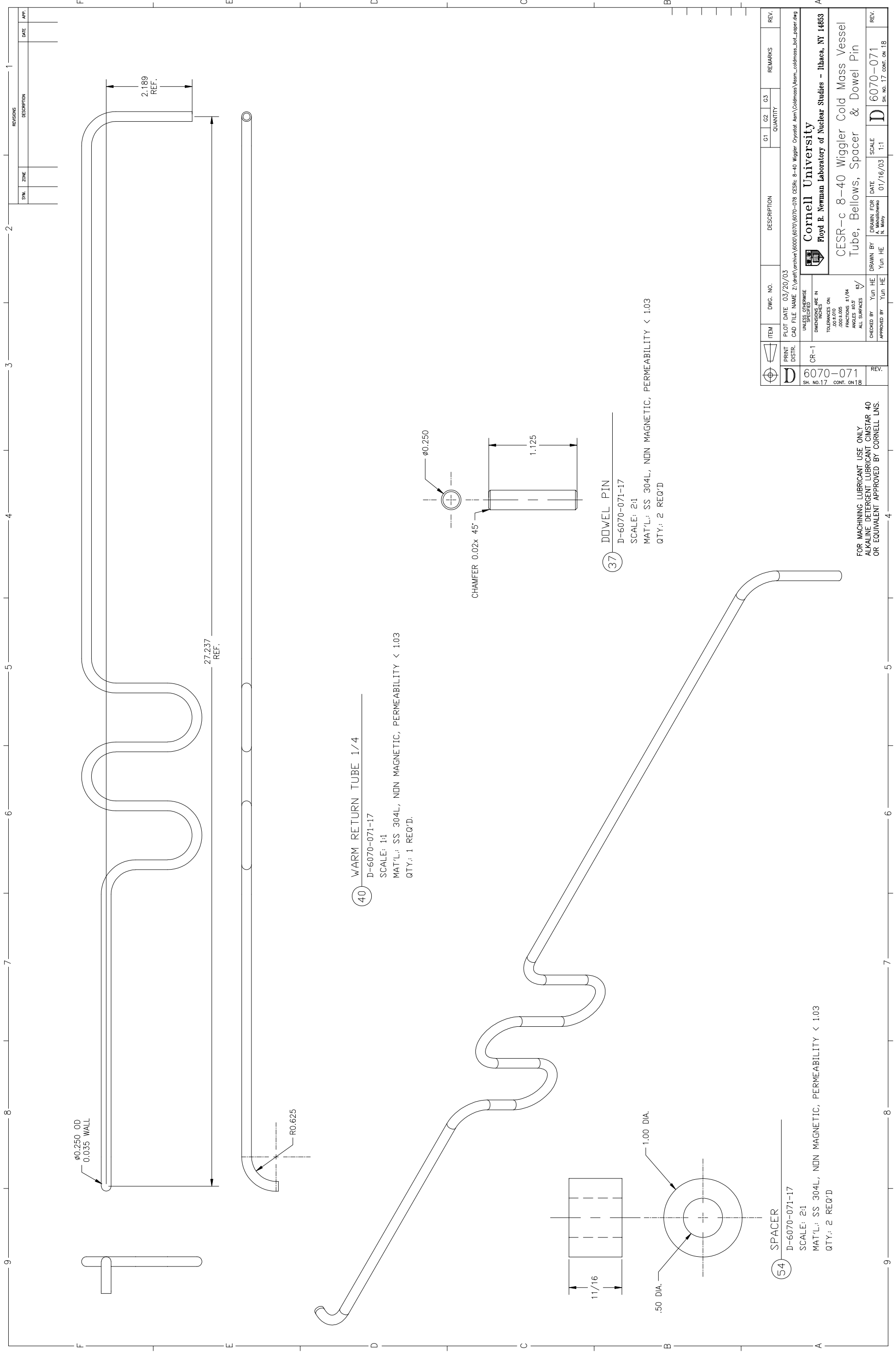
FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LNS.

SYN.	ZONE	REVISIONS	DESCRIPTION	DATE	APP.

ITEM	DWG. NO.	DESCRIPTION	QTY	G1	G2	G3	REMARKS	REV.
PRINT DISTR.	CR-1							
PLOT DATE: 03/20/03								
CAD FILE NAME: Z:\draft\verhiva\6000\6070\6070-078 CESRc 8-40 Wiggler Crystal Arm\Coldmass\verm_coldmass_bot_upper.dwg								
UNLESS OTHERWISE SPECIFIED								
DIMENSIONS ARE IN INCHES								
TOLERANCES ARE:								
FRACTIONS: #1/64								
DECIMALS: ±0.005								
ANGLES: ±0.5								
ALL SURFACES BY								
CHECKED BY	Yun HE	DRAWN BY	Yun HE	DATE	01/16/03	SCALE	1:1	REV.
APPROVED BY	Yun HE	DATE	01/16/03	SCALE	1:1	REV.	D	6070-071
SH. NO. 16		CONT. ON 17		SH. NO. 16		CONT. ON 17		

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CESR-c 8-40 Wiggler Cold Mass Vessel
Bottom Cold Mass Front/Back Plate



40 WARM RETURN TUBE 1/4
 D-6070-071-17
 SCALE: 1:1
 MAT'L: SS 304L, NON MAGNETIC, PERMEABILITY < 1.03
 QTY: 1 REQ'D.

37 DOWEL PIN
 D-6070-071-17
 SCALE: 2:1
 MAT'L: SS 304L, NON MAGNETIC, PERMEABILITY < 1.03
 QTY: 2 REQ'D.

54 SPACER
 D-6070-071-17
 SCALE: 2:1
 MAT'L: SS 304L, NON MAGNETIC, PERMEABILITY < 1.03
 QTY: 2 REQ'D.

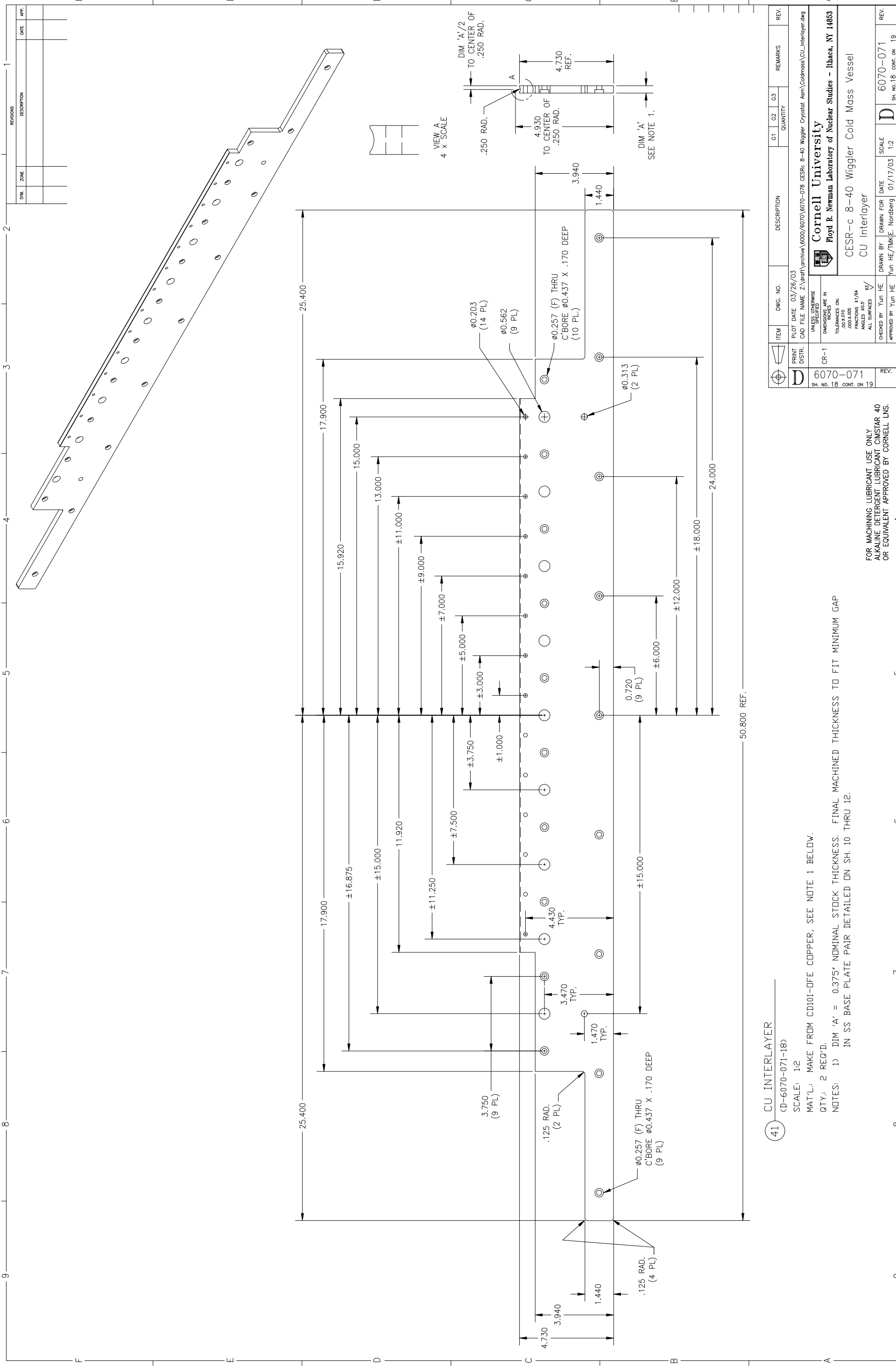
FOR MACHINING LUBRICANT USE ONLY
 ALKALINE DETERGENT LUBRICANT CIMSTAR 40
 OR EQUIVALENT APPROVED BY CORNELL LNS.

REV.	SYN.	ZONE	DESCRIPTION	DATE	APP.

ITEM	DWG. NO.	DESCRIPTION	Q1	Q2	Q3	REMARKS	REV.
PRINT DISTR.	PLOT DATE 03/20/03	DESCRIPTION	QUANTITY				
CR-1	CAD FILE NAME Z:\draft\mshwa\6070\6070-078 CESRc 8-40 Wiggler Crystal Ann\Coldmass\Aem_coldmass_bot_paper.dwg						
UNLESS OTHERWISE SPECIFIED							
DIMENSIONS ARE IN INCHES							
TOLERANCES ARE:							
FRACTIONS ±1/64							
ANGLES ±0.5							
ALL SURFACES							
CHECKED BY	Yun HE	DATE	01/16/03	SCALE	1:1		
APPROVED BY	Yun HE	DRAWN FOR	A. Mihalchenko				
REV.							
D 6070-071							
CONT. ON 18							
D 6070-071							
CONT. ON 18							

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CESR-c 8-40 Wiggler Cold Mass Vessel
 Tube, Bellows, Spacer & Dowel Pin



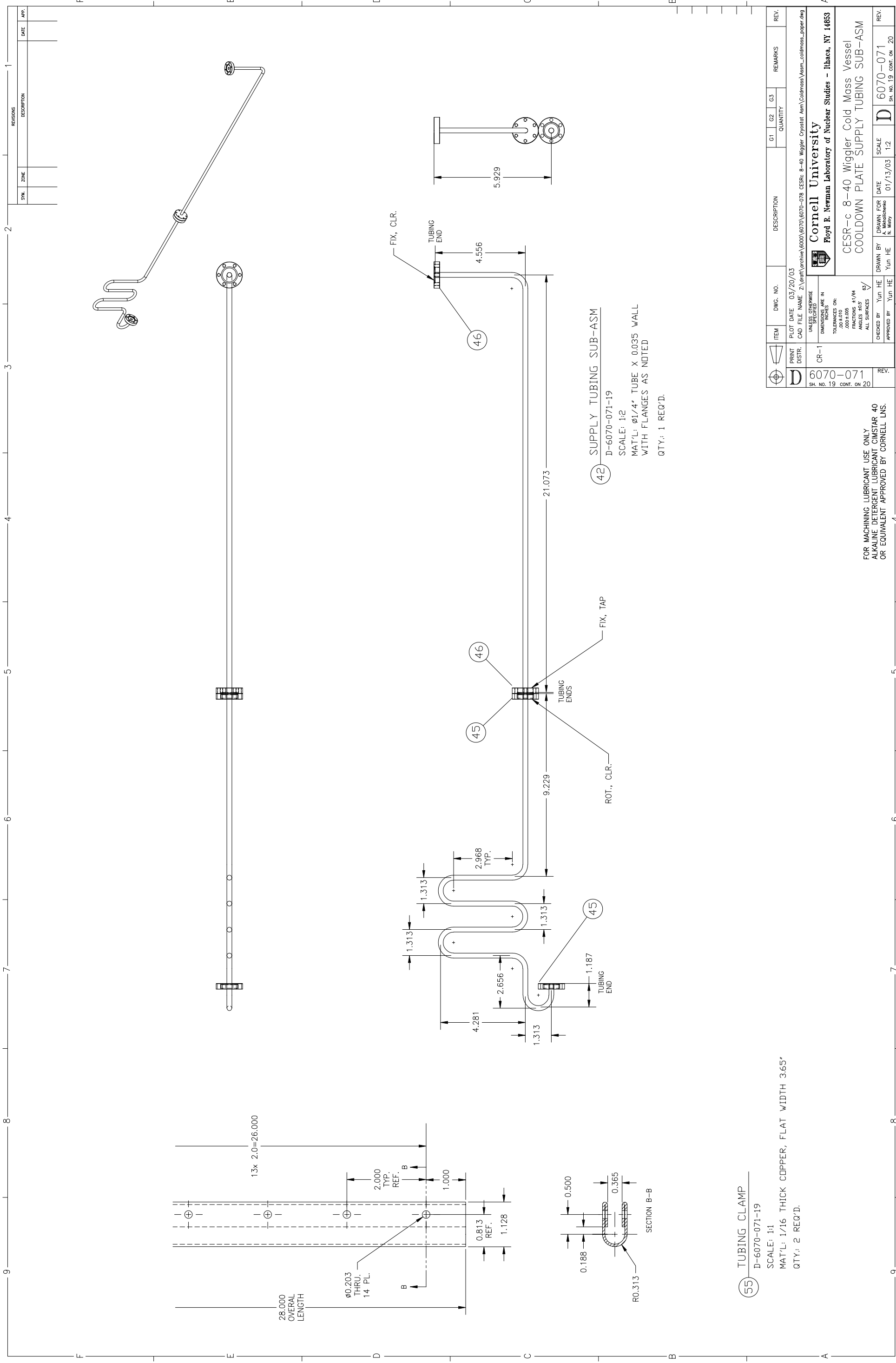
SYN.	ZONE	REVISIONS	DESCRIPTION	DATE	APP.

ITEM	DWG. NO.	DESCRIPTION	QUANTITY	G1	G2	G3	REMARKS	REV.
CR-1	6070-071	CU Interlayer						
PRINT DATE: 03/26/03 CAD FILE NAME: Z:\proj\archive\6070\6070-078 CESRc 8-40 Wiggler Cryostat Asm\Coldmass\CU_interlayer.dwg UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ±1/64 DECIMALS ±.005 ANGLES ±0.5 ALL SURFACES BY CHECKED BY: Yun HE DRAWN BY: Yun HE APPROVED BY: Yun HE								
Cornell University Floyd B. Newman Laboratory of Nuclear Studies - Ithaca, NY 14853 CESR-c 8-40 Wiggler Cold Mass Vessel CU Interlayer								
FOR MACHINING LUBRICANT USE ONLY ALKALINE DETERGENT LUBRICANT CIMSTAR 40 OR EQUIVALENT APPROVED BY CORNELL LNS.								

(41) CU INTERLAYER
 (D-6070-071-18)
 SCALE: 1:2
 MAT'L: MAKE FROM CD101-OFE COPPER, SEE NOTE 1 BELOW.
 QTY: 2 REQ'D.
 NOTES: 1) DIM 'A' = 0.375" NOMINAL STOCK THICKNESS. FINAL MACHINED THICKNESS TO FIT MINIMUM GAP IN SS BASE PLATE PAIR DETAILED ON SH. 10 THRU 12.
 2) DIM 'A' = 0.375" NOMINAL STOCK THICKNESS. FINAL MACHINED THICKNESS TO FIT MINIMUM GAP IN SS BASE PLATE PAIR DETAILED ON SH. 10 THRU 12.

REV. 1
 SCALE 1:2
 DATE 01/17/03
 DRAWN BY HE/TMK/E. Nordberg
 CHECKED BY Yun HE
 APPROVED BY Yun HE

6070-071
 CONT. ON 19

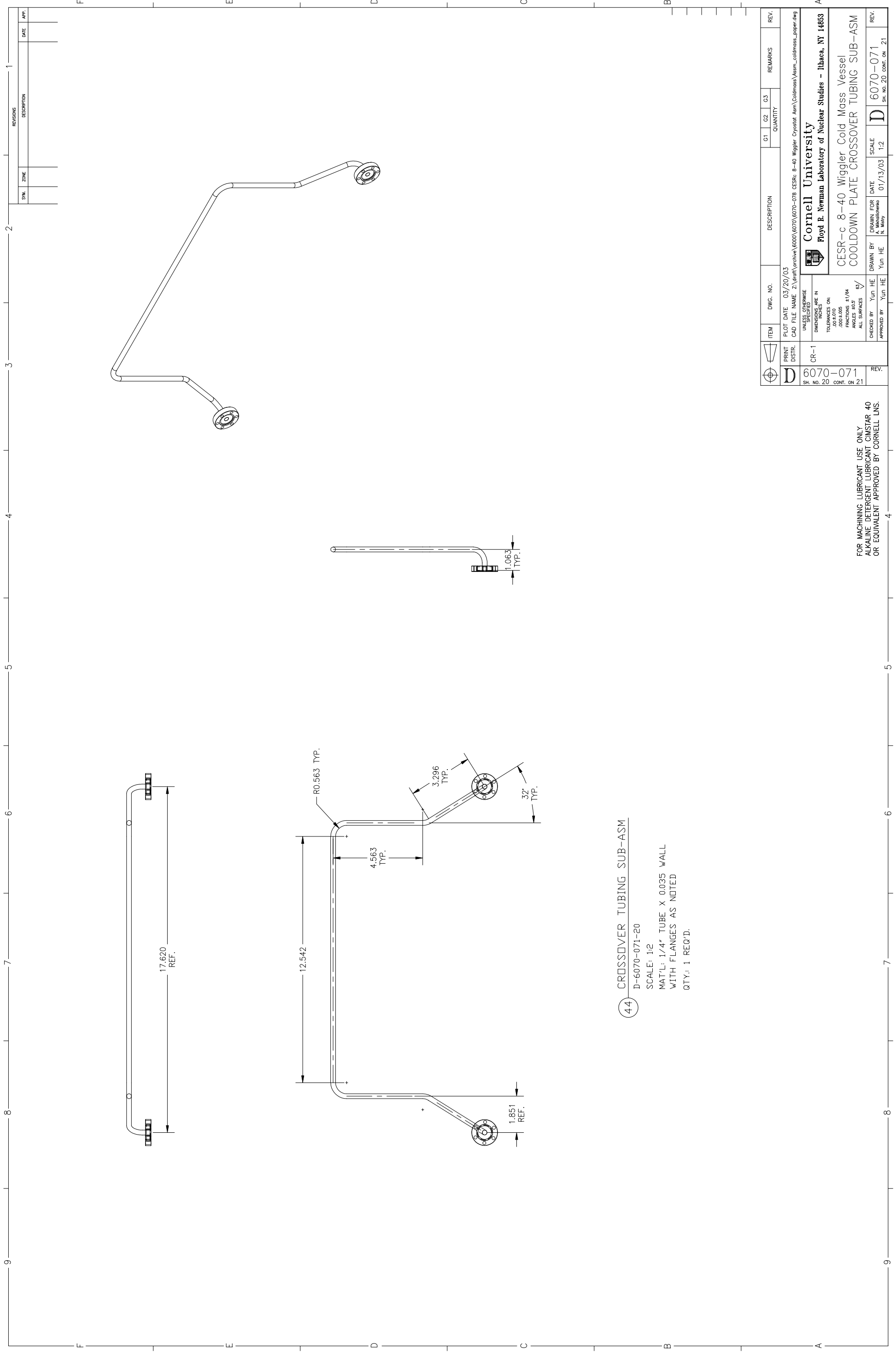


42 SUPPLY TUBING SUB-ASM
 D-6070-071-19
 SCALE: 1:2
 MAT'L: ϕ 1/4" TUBE X 0.035 WALL
 WITH FLANGES AS NOTED
 QTY.: 1 REQ'D.

55 TUBING CLAMP
 D-6070-071-19
 SCALE: 1:1
 MAT'L: 1/16 THICK COPPER, FLAT WIDTH 365"
 QTY.: 2 REQ'D.

ITEM	DWG. NO.	DESCRIPTION	Q1	Q2	Q3	REMARKS	REV.
D	6070-071	CR-1					
PRINT DATE: 03/20/03 PLOT DATE: 03/20/03 CAD FILE NAME: Z:\proj\project\6000\6070\070-078 CESR-c 8-40 Wiggler Crystal Asm\Coldmass\Asm_coldmass_sppr.dwg UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS: \pm 1/64 DECIMALS: \pm 0.005 ANGLES: \pm 0.5 ALL SURFACES BY CHECKED BY: Yun HE DRAWN BY: Yun HE DATE: 01/13/03 SCALE: 1:2 APPROVED BY: Yun HE SH. NO. 19 CONT. ON 20							
Cornell University Floyd B. Newman Laboratory of Nuclear Studies - Ithaca, NY 14853 CESR-c 8-40 Wiggler Cold Mass Vessel COOLDOWN PLATE SUPPLY TUBING SUB-ASM							
FOR MACHINING LUBRICANT USE ONLY ALKALINE DETERGENT LUBRICANT CIMSTAR 40 OR EQUIVALENT APPROVED BY CORNELL LNS.							
REV. D 6070-071 SH. NO. 19 CONT. ON 20							

SYN.	ZONE	REVISIONS	DATE	APP.



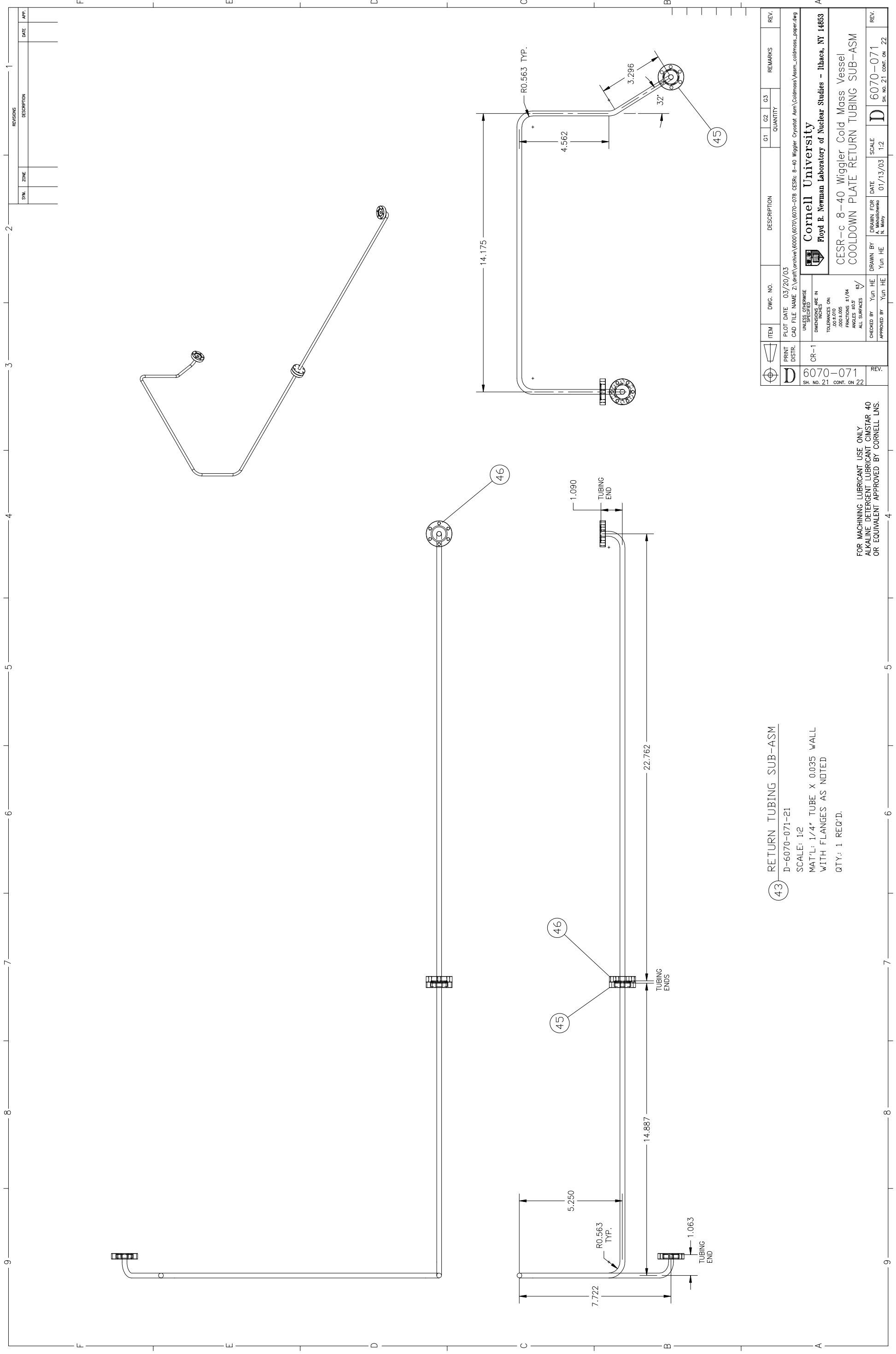
(44) CROSSOVER TUBING SUB-ASM
 D-6070-071-20
 SCALE: 1:2
 MAT'L: 1/4" TUBE X 0.035 WALL
 WITH FLANGES AS NOTED
 QTY: 1 REQ'D.

ITEM	DWG. NO.	DESCRIPTION	QUANTITY	REV.
PRINT DISTR. CR-1	PLOT DATE 03/20/03 CAD FILE NAME Z:\draft\yarchive\6000\6070-078 CESRc-8-40 Wiggler Crystal Arm\Coldmass\Asm_coldmass_paper.dwg			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: 0.005 ± 0.005 FRACTIONS ± 1/64 ANGLES ± 0.5 ALL SURFACES				
CHECKED BY Yun HE DRAWN BY Yun HE DATE 01/13/03 SCALE 1:2 APPROVED BY Yun HE				
D 6070-071 SH. NO. 20 CONT. ON 21		REV. D 6070-071 SH. NO. 20 CONT. ON 21		

Cornell University
 Floyd B. Newman Laboratory of Nuclear Studies - Ithaca, NY 14853

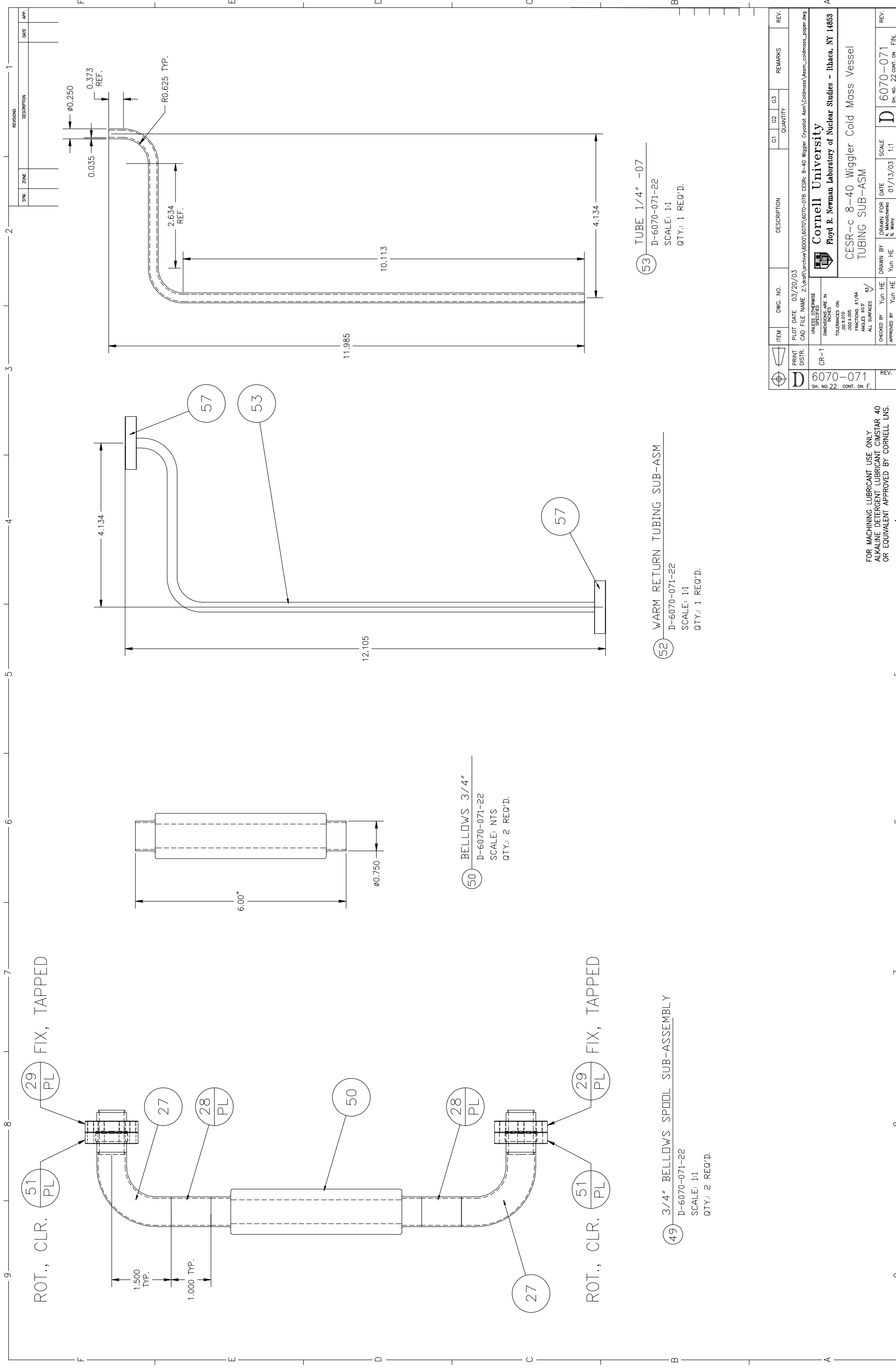
CESR-c 8-40 Wiggler Cold Mass Vessel
 COOLDOWN PLATE CROSSOVER TUBING SUB-ASM

FOR MACHINING LUBRICANT USE ONLY
 ALKALINE DETERGENT LUBRICANT CIMSTAR 40
 OR EQUIVALENT APPROVED BY CORNELL LNS.



43 RETURN TUBING SUB-ASM
 D-6070-071-21
 SCALE: 1:2
 MAT'L: 1/4" TUBE X 0.035 WALL
 WITH FLANGES AS NOTED
 QTY.: 1 REQ'D.

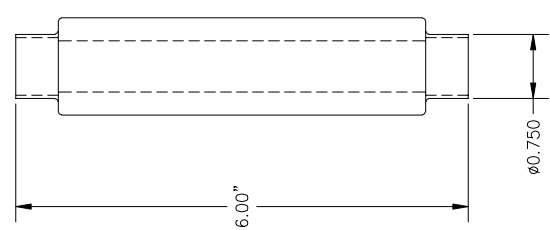
ITEM	DWG. NO.	DESCRIPTION	Q1	Q2	Q3	REMARKS	REV.
PRINT DISTR. CR-1	PLOT DATE 03/20/03 CAD FILE NAME Z:\draft\verchiv\6000\6070-078 CESR-c 8-40 Wiggler Crystall. Asm\Coldmass\Asm_coldmass_piper.dwg						
<p>Cornell University Floyd B. Newman Laboratory of Nuclear Studies - Ithaca, NY 14853</p> <p>UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ±1/64 DECIMALS ±0.005 ANGLES ±0.5 ALL SURFACES FINISHED</p>							
<p>6070-071 SH. NO. 21 CONT. ON 22</p>							
<p>CESR-c 8-40 Wiggler Cold Mass Vessel COOLDOWN PLATE RETURN TUBING SUB-ASM</p>							
<p>CHECKED BY Yun HE DRAWN BY Yun HE DATE 01/13/03 SCALE 1:2</p>							
<p>APPROVED BY Yun HE DATE 01/13/03 SCALE 1:2</p>							
<p>REV. D 6070-071 SH. NO. 21 CONT. ON 22</p>							



51
PL
ROT., CLR.

1.500
TYP.
1.000
TYP.

29
PL
FIX, TAPPED

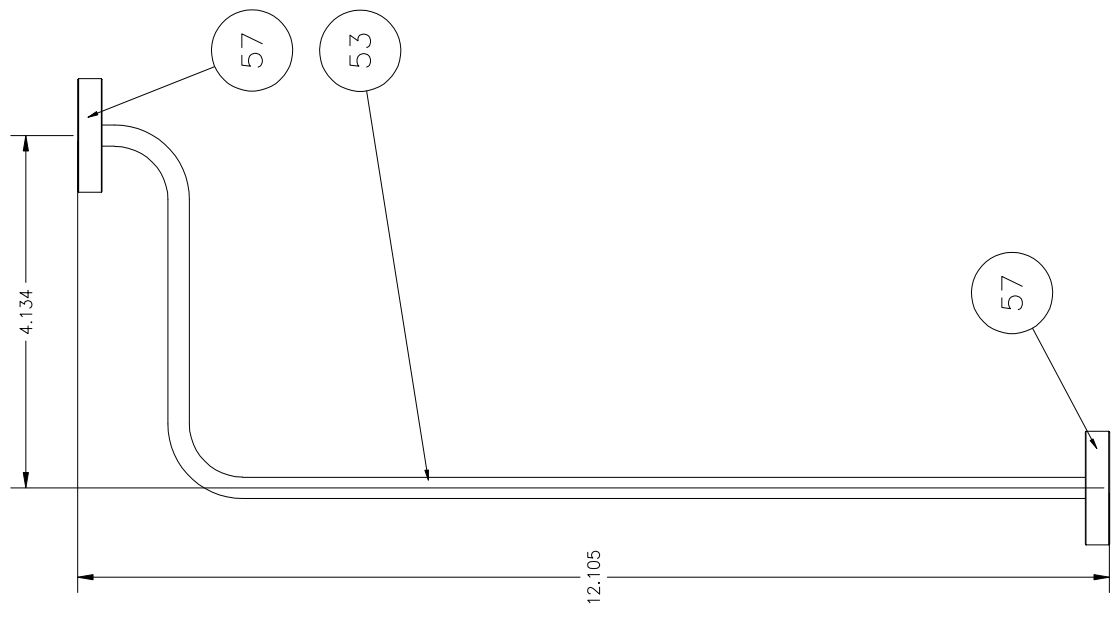


50
BELLOWS 3/4"
D-6070-071-22
SCALE: NTS
QTY: 2 REQ'D.

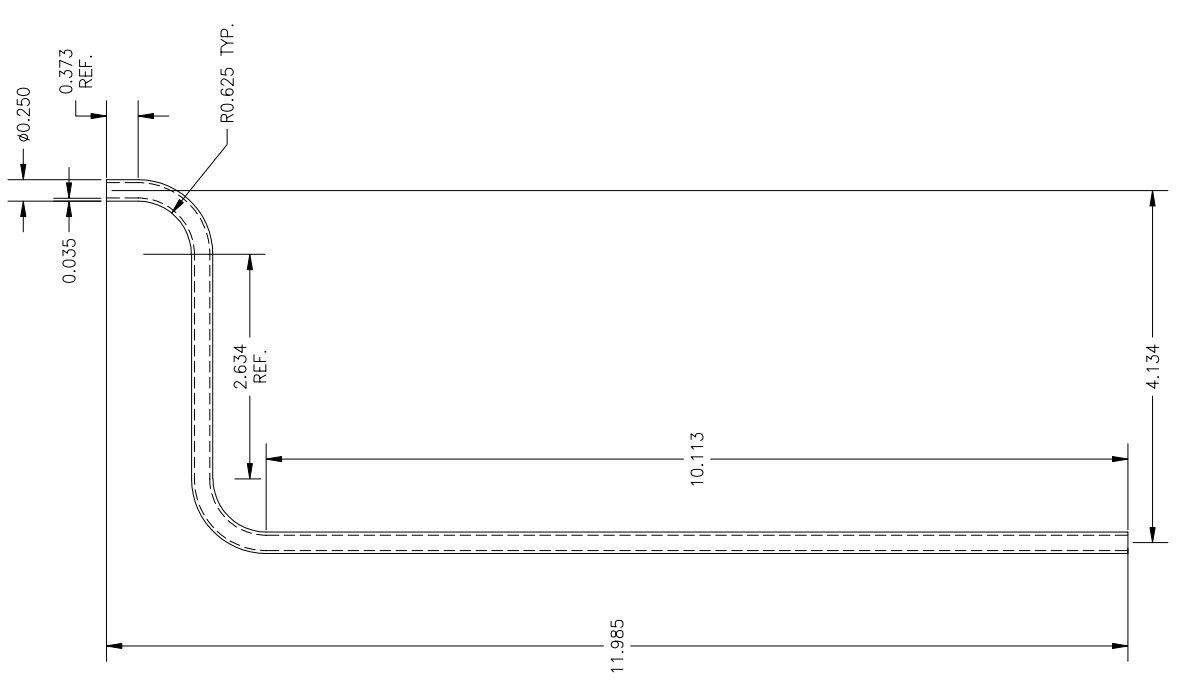
27

29
PL
ROT., CLR. PL
FIX, TAPPED

49
3/4" BELLOWS SPOOL SUB-ASSEMBLY
SCALE: 1:1
QTY: 2 REQ'D.



52
WARM RETURN TUBING SUB-ASM
D-6070-071-22
SCALE: 1:1
QTY: 1 REQ'D.



53
TUBE 1/4" -07
D-6070-071-22
SCALE: 1:1
QTY: 1 REQ'D.

ITEM	DWG. NO.	DESCRIPTION	Q1	Q2	Q3	REMARKS	REV.
D	6070-071	6070-071					
SH. NO. 22	CONT. ON F.						
CR-1							
PRINT DISTR.	PLOT DATE	03/20/03					
	CAD FILE NAME	Z:\proj\yveshiv\6000\6070\6070-078 CESRc-8-40 Wiggler Crystal Asm\Coldmass\Asm_coldmass_paper.dwg					
Cornell University Floyd B. Newman Laboratory of Nuclear Studies - Ithaca, NY 14853							
CESR-c 8-40 Wiggler Cold Mass Vessel TUBING SUB-ASM							
CHECKED BY	Yun HE	DATE	01/13/03	SCALE	1:1	REV.	D
APPROVED BY	Yun HE	DATE	01/13/03	SCALE	1:1	REV.	D

FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LNS.