

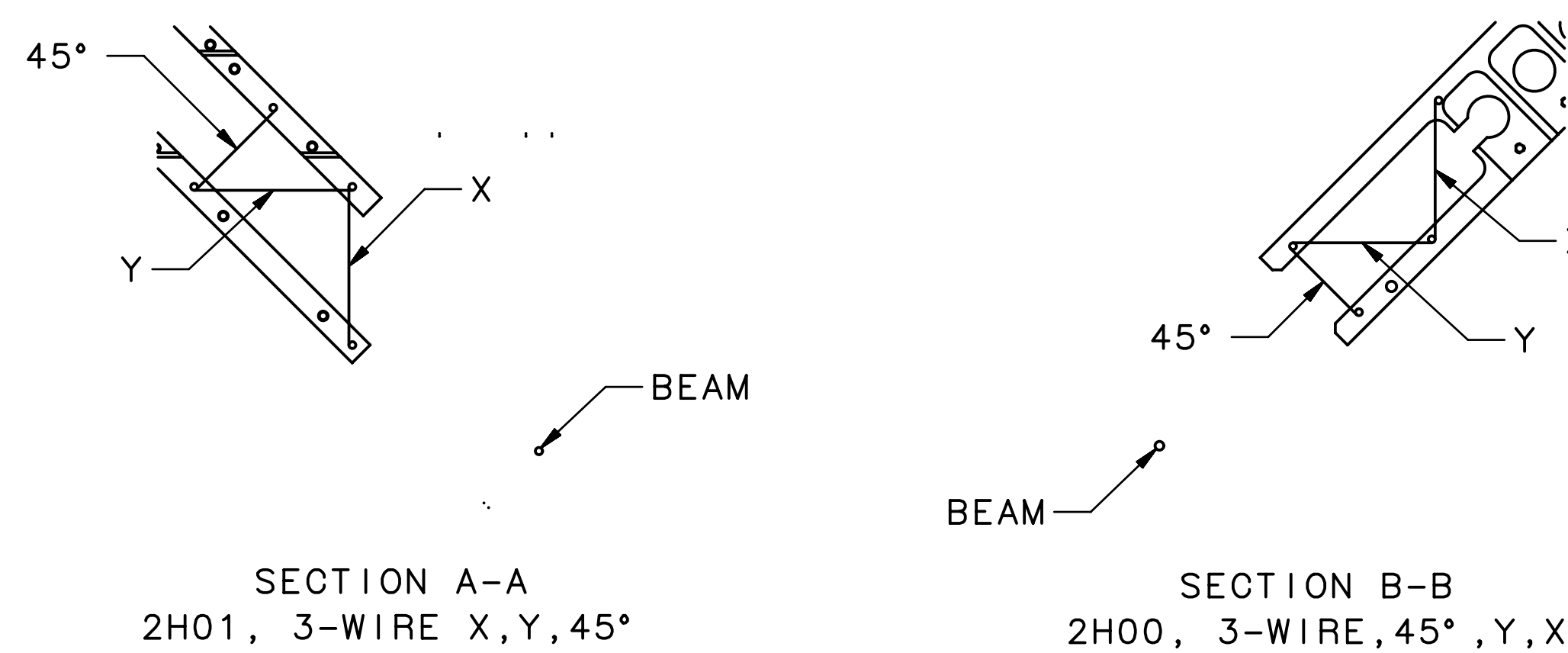
1 ELEMENTS CROSS THE ELECTRON BEAM AS READ (FROM LEFT-TO-RIGHT)

2 MACHINE CENTER IS 400.0948 METERS UPSTREAM OF \*HALL CENTER\*

3 CONTENTS:  
 PAGE 1: COMPONENT POSITIONING FOR REFERENCE BY COUNTING-ROOM & MCC OPERATORS  
 PAGE 2: COMPONENT POSITIONING FOR REFERENCE BY COUNTING-ROOM & MCC OPERATORS CONT'D  
 PAGE 3: COMPONENT IDENTIFICATION FOR INSTALLATION BY TECHNICAL STAFF  
 PAGE 4: BEAMLINE SHIELDING  
 PAGE 5: IDENTIFICATION OF MATERIALS IN THE BEAM

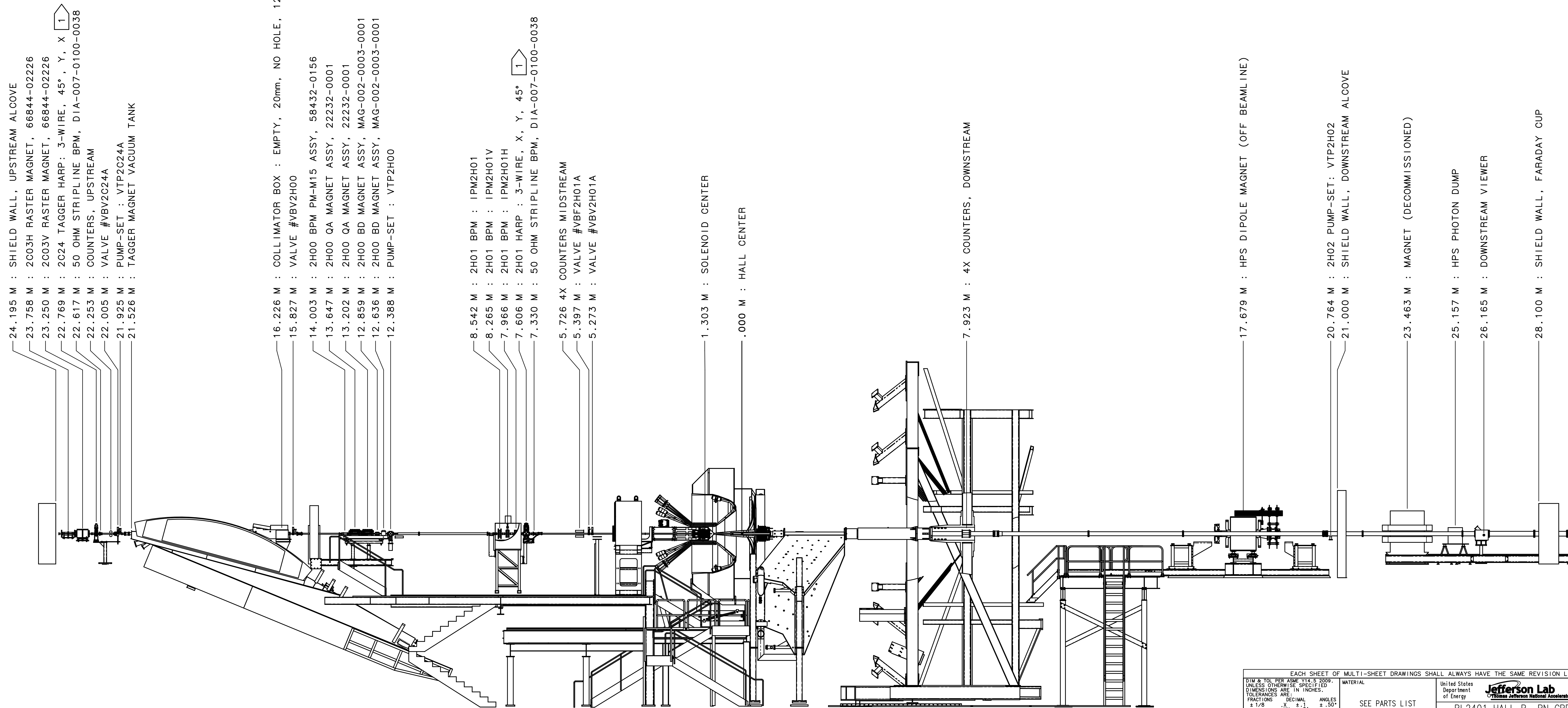
4 BEAM-TUBE IDENTIFICATION:  
 FORMAT: A - B - C, L  
 A = UPSTREAM FLANGE SIZE  
 B = TUBE OD  
 C = DOWNSTREAM FLANGE SIZE  
 L = LENGTH  
 CONFLAT FLANGES UNLESS SPECIFIED

5. DRAWING DEPICTS IDEAL INSTALLATION LOCATIONS FOR EQUIPMENT, REFER TO SURVEY TRANSMITTALS FOR FINAL LOCATION



FOR CONTINUATION  
 SEE DRAWING NO.  
 28405-0034

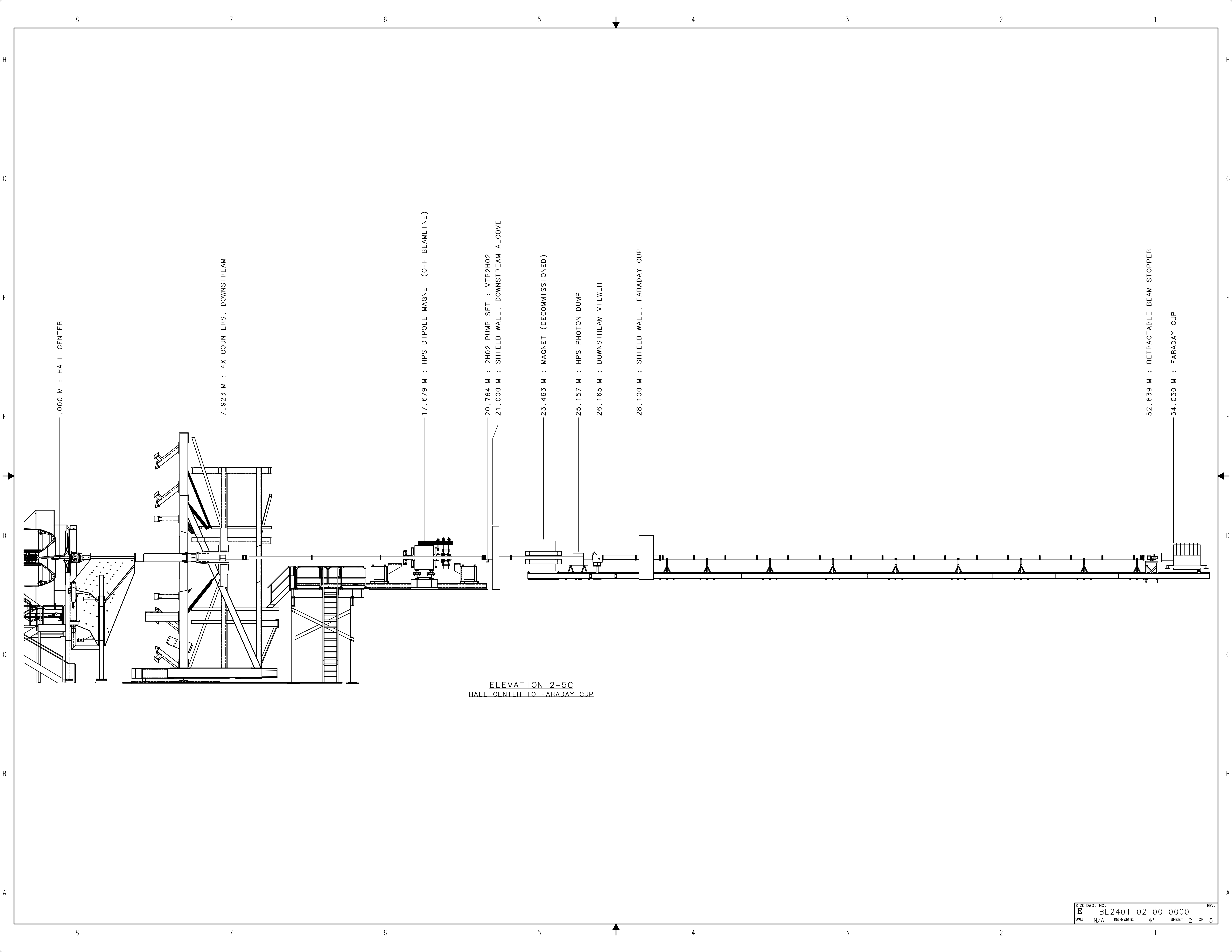
FOR CONTINUATION  
 SEE ELEVATION 2-5C



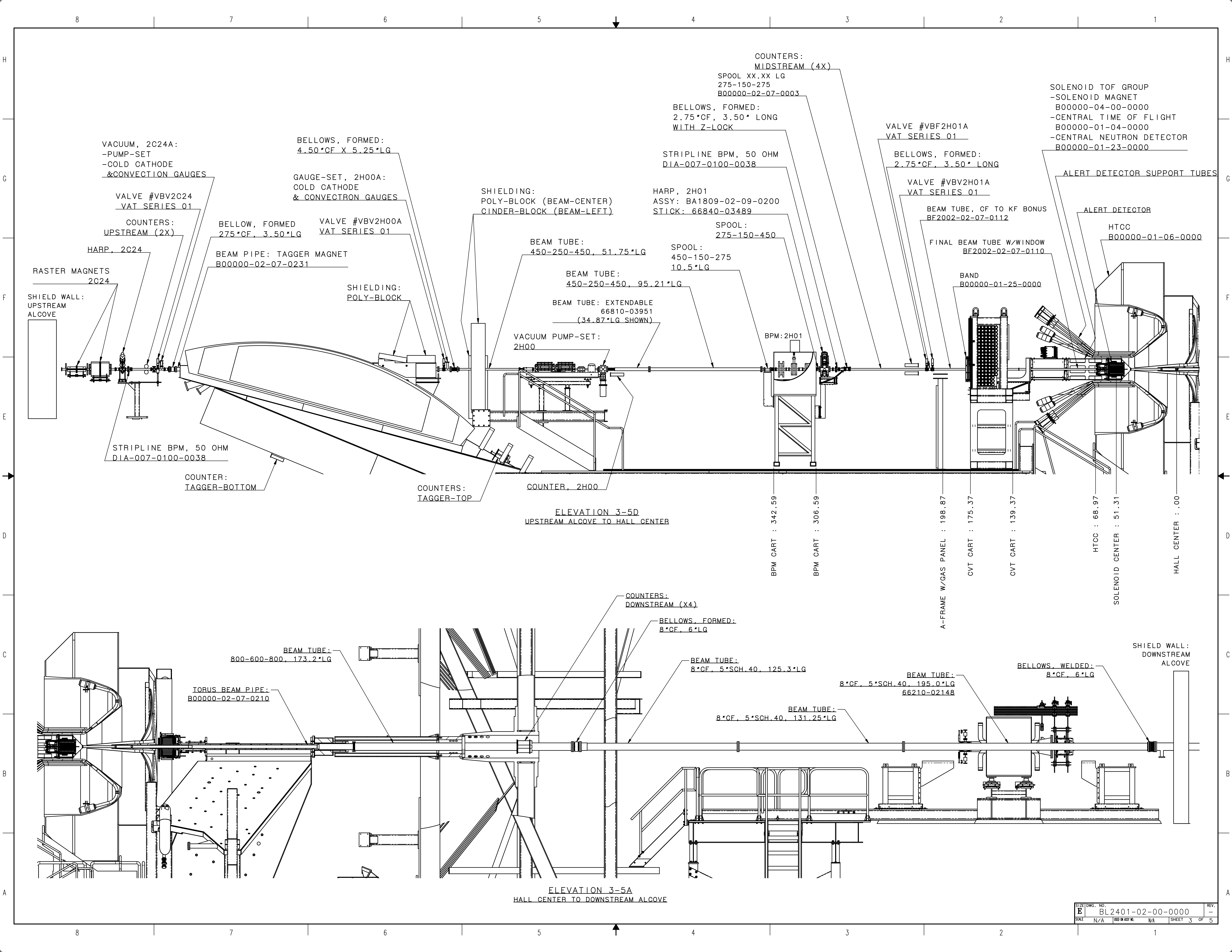
ELEVATION 1-5A  
 UPSTREAM ALCOVE TO DOWNSTREAM ALCOVE

EACH SHEET OF MULTI-SHEET DRAWINGS SHALL ALWAYS HAVE THE SAME REVISION LEVEL.

UNIT & TOL PER ASME Y14.5 2009. UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE	MATERIAL	United States Department of Energy	Jefferson Lab Thomas Jefferson National Accelerator Facility	Newport News Virginia
FRACTIONS ± 1/16 DECIMAL ± .01 ANGLES ± .50°	SEE PARTS LIST	BL2401 HALL B, RN GRP L, 2024 02 BEAMLINE 00 INSTALLATION TEMPLATE 0000 BEAMLINE ASSEMBLY		
THIRD ANGLE PROJECTION	FINISH: MACHINED SURFACES DEBUR & BREAK ALL SHARP EDGES	UNLESS OTHERWISE NOTED	SIZE DWG. NO. E BL2401-02-00-0000	REV. -
DO NOT SCALE DRAWING	DATE 07/23/2024	SCALE N/A	DWG. NO. N/A	SHEET 1 OF 5
DRAWN CHRIS GUTHRIE				



ELEVATION 2-5C  
HALL CENTER TO FARADAY CUP



8 7 6 5 4 3 2 1

VACUUM, 2C24A:  
-PUMP-SET  
-COLD CATHODE  
& CONVECTION GAUGES

BELLOWS, FORMED:  
4.50\*CF X 5.25\*LG

COUNTERS:  
MIDSTREAM (4X)  
SPOOL XX.XX LG  
275-150-275  
B00000-02-07-0003

SOLENOID TOF GROUP  
-SOLENOID MAGNET  
B00000-04-00-0000  
-CENTRAL TIME OF FLIGHT  
B00000-01-04-0000  
-CENTRAL NEUTRON DETECTOR  
B00000-01-23-0000

GAUGE-SET, 2H00A:  
COLD CATHODE  
& CONVECTRON GAUGES

BELLOWS, FORMED:  
2.75\*CF, 3.50\* LONG  
WITH Z-LOCK

VALVE #VBF2H01A  
VAT SERIES 01

VALVE #VVB2C24  
VAT SERIES 01

BELLOW, FORMED  
275\*CF, 3.50\*LG

VALVE #VVB2H00A  
VAT SERIES 01

STRIPLINE BPM, 50 OHM  
DIA-007-0100-0038

BELLOWS, FORMED:  
2.75\*CF, 3.50\* LONG

VALVE #VVB2H01A  
VAT SERIES 01

ALERT DETECTOR SUPPORT TUBES

HARP, 2C24

BEAM PIPE: TAGGER MAGNET  
B00000-02-07-0231

SHIELDING:  
POLY-BLOCK (BEAM-CENTER)  
CINDER-BLOCK (BEAM-LEFT)

HARP, 2H01  
ASSY: BA1809-02-09-0200  
STICK: 66840-03489

BEAM TUBE, CF TO KF BONUS  
BF2002-02-07-0112

ALERT DETECTOR

RASTER MAGNETS  
2C24

BEAM TUBE:  
450-250-450, 51.75\*LG

SPOOL:  
450-150-275  
10.5\*LG

FINAL BEAM TUBE W/WINDOW  
BF2002-02-07-0110

HTCC  
B00000-01-06-0000

SHIELD WALL:  
UPSTREAM  
ALCOVE

SHIELDING:  
POLY-BLOCK

BEAM TUBE:  
450-250-450, 95.21\*LG

BEAM TUBE: EXTENDABLE  
66810-03951  
(34.87\*LG SHOWN)

BAND  
B00000-01-25-0000

VACUUM PUMP-SET:  
2H00

BPM: 2H01

STRIPLINE BPM, 50 OHM  
DIA-007-0100-0038

COUNTER:  
TAGGER-BOTTOM

COUNTERS:  
TAGGER-TOP

COUNTER, 2H00

ELEVATION 3-5D  
UPSTREAM ALCOVE TO HALL CENTER

BPM CART : 342.59

BPM CART : 306.59

A-FRAME W/GAS PANEL : 198.87

CVT CART : 175.37

CVT CART : 139.37

HTCC : 68.97

SOLENOID CENTER : 51.31

HALL CENTER : .00

COUNTERS:  
DOWNSTREAM (X4)

BELLOWS, FORMED:  
8\*CF, 6\*LG

BEAM TUBE:  
800-600-800, 173.2\*LG

BEAM TUBE:  
8\*CF, 5\*SCH.40, 125.3\*LG

BEAM TUBE:  
8\*CF, 5\*SCH.40, 195.0\*LG  
66210-02148

BELLOWS, WELDED:  
8\*CF, 6\*LG

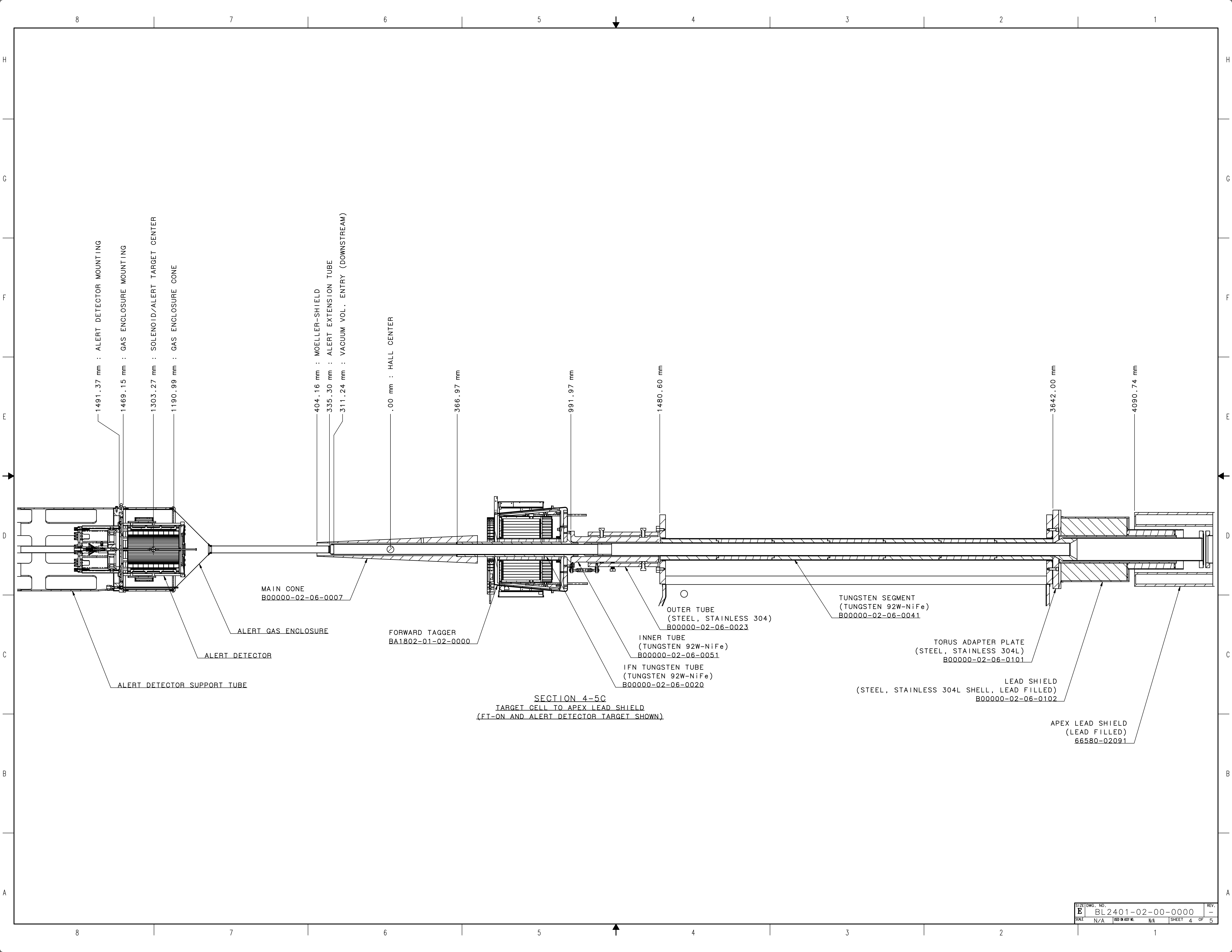
TORUS BEAM PIPE:  
B00000-02-07-0210

BEAM TUBE:  
8\*CF, 5\*SCH.40, 131.25\*LG

SHIELD WALL:  
DOWNSTREAM  
ALCOVE

ELEVATION 3-5A  
HALL CENTER TO DOWNSTREAM ALCOVE

8 7 6 5 4 3 2 1



1491.37 mm : ALERT DETECTOR MOUNTING  
 1469.15 mm : GAS ENCLOSURE MOUNTING  
 1303.27 mm : SOLENOID/ALERT TARGET CENTER  
 1190.99 mm : GAS ENCLOSURE CONE

404.16 mm : MOELLER-SHIELD  
 335.30 mm : ALERT EXTENSION TUBE  
 311.24 mm : VACUUM VOL. ENTRY (DOWNSTREAM)

.00 mm : HALL CENTER

366.97 mm

991.97 mm

1480.60 mm

3642.00 mm

4090.74 mm

MAIN CONE  
 B00000-02-06-0007

ALERT GAS ENCLOSURE

ALERT DETECTOR

ALERT DETECTOR SUPPORT TUBE

FORWARD TAGGER  
 BA1802-01-02-0000

INNER TUBE  
 (TUNGSTEN 92W-NiFe)  
 B00000-02-06-0051

IFN TUNGSTEN TUBE  
 (TUNGSTEN 92W-NiFe)  
 B00000-02-06-0020

SECTION 4-5C  
 TARGET CELL TO APEX LEAD SHIELD  
 (FT-ON AND ALERT DETECTOR TARGET SHOWN)

OUTER TUBE  
 (STEEL, STAINLESS 304)  
 B00000-02-06-0023

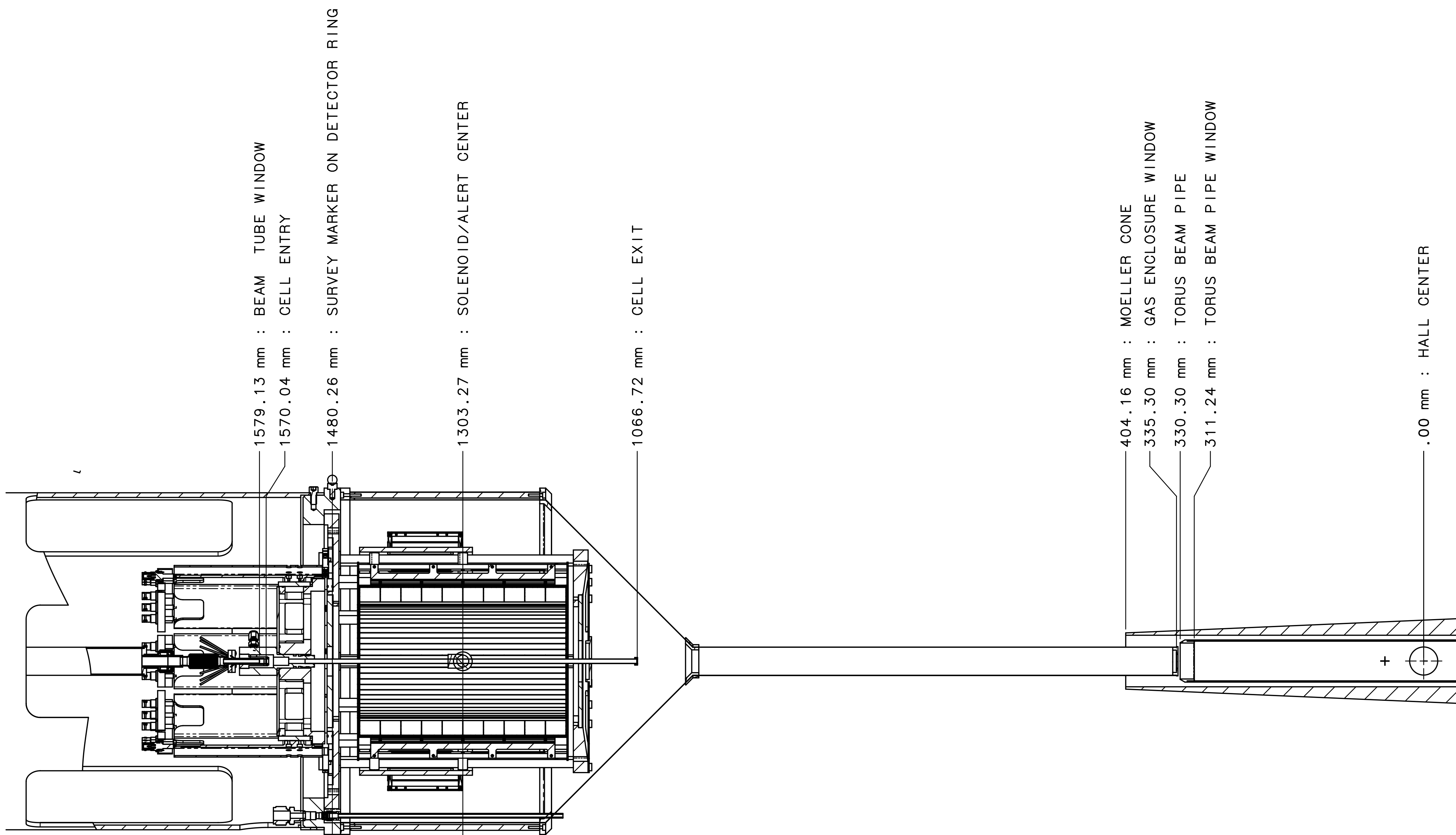
TUNGSTEN SEGMENT  
 (TUNGSTEN 92W-NiFe)  
 B00000-02-06-0041

TORUS ADAPTER PLATE  
 (STEEL, STAINLESS 304L)  
 B00000-02-06-0101

LEAD SHIELD  
 (STEEL, STAINLESS 304L SHELL, LEAD FILLED)  
 B00000-02-06-0102

APEX LEAD SHIELD  
 (LEAD FILLED)  
 66580-02091

8 7 6 5 4 3 2 1



176.99 mm  
 ELEVATION 5-6E  
 TARGET CELL TO HALL CENTER

TABLE -A-  
 MATERIALS IN THE BEAM LINE ALERT TARGET CELL CONFIGURATION

ITEM	DRAWING NO.	MATERIAL	THICKNESS
TARGET CELL ENTRY		ALUMINUM	30um
TARGET CELL EXIT	TBD	ALUMINUM	30um
GAS ENCLOSURE EXIT		ALUMINUM	30um
BEAM TUBE WINDOW	66850-C-04384	ALUMINUM	30um
VACUUM VOL. ENTRY (DOWNSTREAM)	B00000-02-07-0210	ALUMINUM	75um

8 7 6 5 4 3 2 1