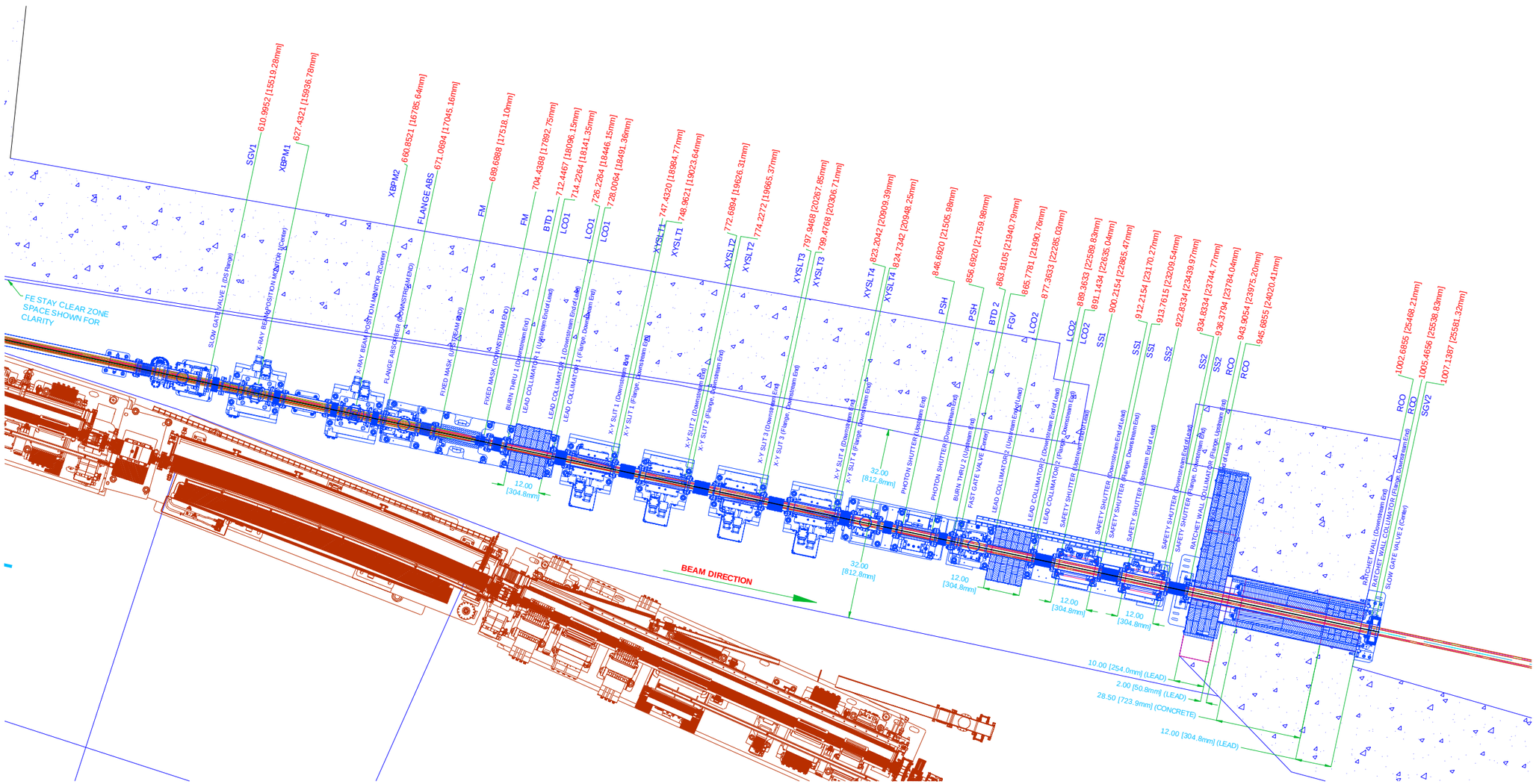
REVISION HISTORY					
REV	DESCRIPTION	DATE	DESIGNER	CHECKED BY	ENGINEER
A	RELEASE PER ECO-003025	3/2015	D.PULEO	C.AMARITO	C.AMUNDSEN
B	REVISIED PER ECO-003766	1/16	L.REFFI	J.FABIJANIC	C.AMUNDSEN
C	REVISIED PER ECO-004327	7/16	J.TUOZZOLO	CA/CS	C.AMUNDSEN



NOTE:

1. THE CENTER OF STRAIGHT IS THE ORIGIN FOR ALL DIMENSIONS UNLESS OTHERWISE NOTED.
2. BENDING MAGNET FAN NOT SHOWN, LAYOUT TO BE SUPPLIED BY VACUUM GROUP.
3. AN ID ENVELOPE AND TOLERANCE WAS USED TO ACCOMMODATE LONGITUDINAL ADJUSTMENT OF THE INSERTION DEVICES.
4. THE BURN-THRU DEVICE WAS REMOVED FROM THE RATCHET WALL COLLIMATOR

SPECIFICATIONS		SPEC REFERENCE
Project	PBN	PS-C-XFD-RSI-SST-BMM
Source	IVU/EPU	PS-C-XFD-RSI-SST-BMM
Beam Line Name	SPECTROSCOPY SOFT & TENDER	PS-C-XFD-RSI-SST-BMM
Abbreviation	SST	PS-C-XFD-RSI-SST-BMM
Period of insertion device	14	PS-C-XFD-RSI-SST-BMM
Long / Short Straight / Cell	SHORT / 07-ID	PS-C-XFD-RSI-SST-BMM
Canting Angle	2.00 mrad (HORIZONTAL ONLY)	PS-C-XFD-RSI-SST-BMM
Length of Source	US 1.6 m / DS .89 m	PS-C-XFD-RSI-SST-BMM
Location of Center of Source 1	~ -1.25 m	PS-C-XFD-RSI-SST-BMM
Location of Center of Source 2	~ 1.25 m	PS-C-XFD-RSI-SST-BMM
Nominal Radiation Fan (Horizontal)	US ±1.34 mrad/DS ±2.14 mrad	PS-C-XFD-RSI-SST-BMM
Nominal Radiation Fan (Vertical)	±1.95 mrad	PS-C-XFD-RSI-SST-BMM
Fixed Aperture Mask, Outboard Downstream, Aperture (Horizontal)	0.5 ± 0.05 mrad	PS-C-XFD-RSI-SST-BMM
Fixed Aperture Mask, Outboard Downstream, Aperture (Vertical)	0.3± 0.05 mrad	PS-C-XFD-RSI-SST-BMM
Fixed Aperture Mask, Inboard Downstream, Aperture (Horizontal)	0.5± 0.05 mrad	PS-C-XFD-RSI-SST-BMM
Fixed Aperture Mask, Inboard Downstream, Aperture (Vertical)	0.3± 0.05 mrad	PS-C-XFD-RSI-SST-BMM

SPECIFICATIONS		SPEC REFERENCE
Active Interlock Envelope	±.50 mm / ±.25 mrad	Tech Note No. 193 (BNL-108464-2015-IR)
Ray Tracing Procedure		Ray Tracing Procedure Doc: PS-C-ASD-PRC-147 Ver 4
Manufacturing & Positional Tolerance	±1.5 mm	Ray Tracing Procedure Doc: PS-C-ASD-PRC-147 Ver 4
Bremsstrahlung Source Dimension (Vertical)	+/- 12.5 mm	PS-C-ESH-STD-003
Bremsstrahlung Source Dimension (Horizontal - Outboard)	+ 37.5 mm	PS-C-ESH-STD-003
Bremsstrahlung Source Dimension (Horizontal - Inboard)	See Spec Ref	Determined by FE Collimator Apertures
Bremsstrahlung Source Location (Short Straight)	+ 2500 mm	PS-C-ESH-STD-003

REFERENCES (NSLS II SHAREPOINT):

1. FRONT END SPECIFICATIONS: NSLS-II GROUP SITES > NSLS-II ACCELERATOR SYSTEMS > MECHANICAL DESIGN AND ENGINEERING > FRONT ENDS > FRONT END REQUIREMENTS
2. NSLS II DOCUMENT NO. PS-C-ESH-STD-003 BREMSSTRAHLUNG RAY TRACING GUIDELINES FOR NSLS II BEAMLINES AND FRONT ENDS.
3. NSLS II TECHNICAL NOTE NUMBER 014 PRELIMINARY SHIELDING ESTIMATES FOR NSLS II BEAMLINES AND FRONT ENDS.
4. NSLS II CONTROLLED DOCUMENT NO. PS-C-XFD-RSI-SST-BMM-001 (VERSION 1) RSI FOR THE INSERTION DEVICES AND FRONT-ENDS FOR THE NSLS-II 7-ID BEAMLINES.
5. ID STRAIGHT SECTION LAYOUT DRAWING: SR-DG-LAY-3007
6. FRONT END RAY TRACING PROCEDURE: DOC. NO. PS-C-ASD-PRC-147 (VERSION 4)

HATCH LEGEND	
	FE Component
	Glid-Cop
	Lead
	Poly
	Lead (SS)

SST, COMPONENT LAYOUT

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
TOLERANCE AS SPECIFIED (ALL DECIMALS REQUIRED FOR SELECTION) AND AND FOR REFERENCE ONLY
NEWPORT DRAWING AND INSTRUCTIONS ARE ON FILE

DIMENSIONAL TOLERANCE: X. ± 0.060, .X ± 0.030, .XX ± 0.015, .XXX ± 0.005
ANGULAR TOLERANCE: .5°
FINISH: 125

DO NOT SCALE DRAWING - CONSULT CAD MODEL TO ASSIST IN FIT

THIRD ANGLE PROJECTION
SCALE: SEE DWG VIEW

BROOKHAVEN NATIONAL LABORATORY
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BROOKHAVEN SCIENCE ASSOCIATES
UPTON, NEW YORK 11973
Exploring Life's Big Questions.
Producing for Future

NSLS II NATIONAL SYNCHROTRON LIGHT SOURCE II

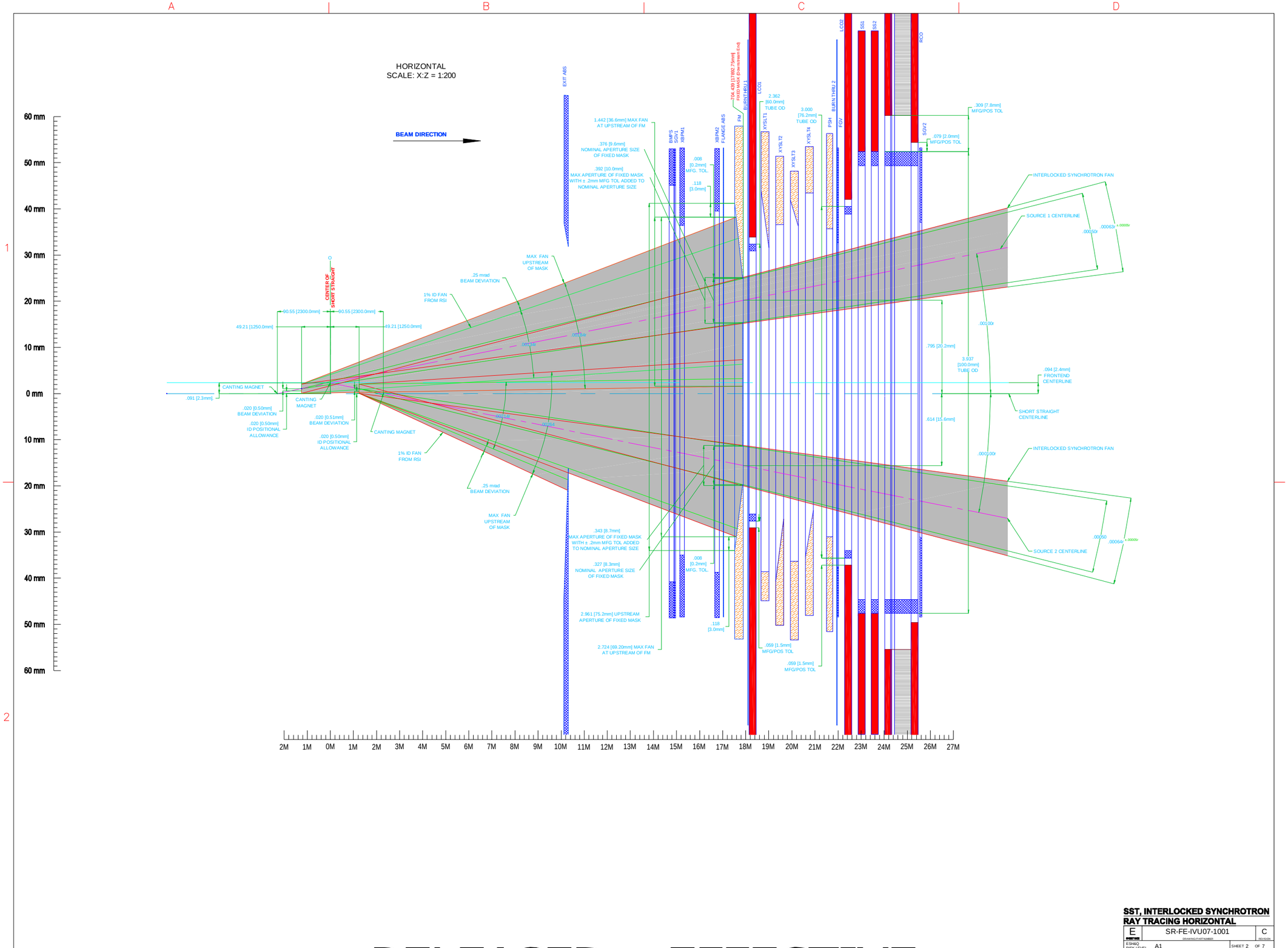
DRAWN BY	D.PULEO	3/2015
CHECKED BY	C.AMARITO	3/2015
RADIATION SAFETY REVIEWER	Z.ZHONG	3/2015
ENGINEER REVIEWER	C.AMUNDSEN	3/2015
SUPERVISOR	S.SHARMA	3/2015
ENGINEERING MANAGER	J.TUOZZOLO	3/2015
DIV. DIRECTOR	J.HOFFBAUER	3/2015
ESH REVIEWER	L.HARRIS	3/2015

NEXT ASSY: N/A
PROJECT:

STORAGE RING
FRONT END, SST BEAMLINE
RAY TRACING

E — SHEET SIZE
SR-FE-IVU07-1001 — DRAWING/PART NUMBER
C — REVISION
ES&HQ RISK LEVEL: A1
WBS# 1.03.04.07.03
SHEET 1 OF 7

RELEASED – EFFECTIVE

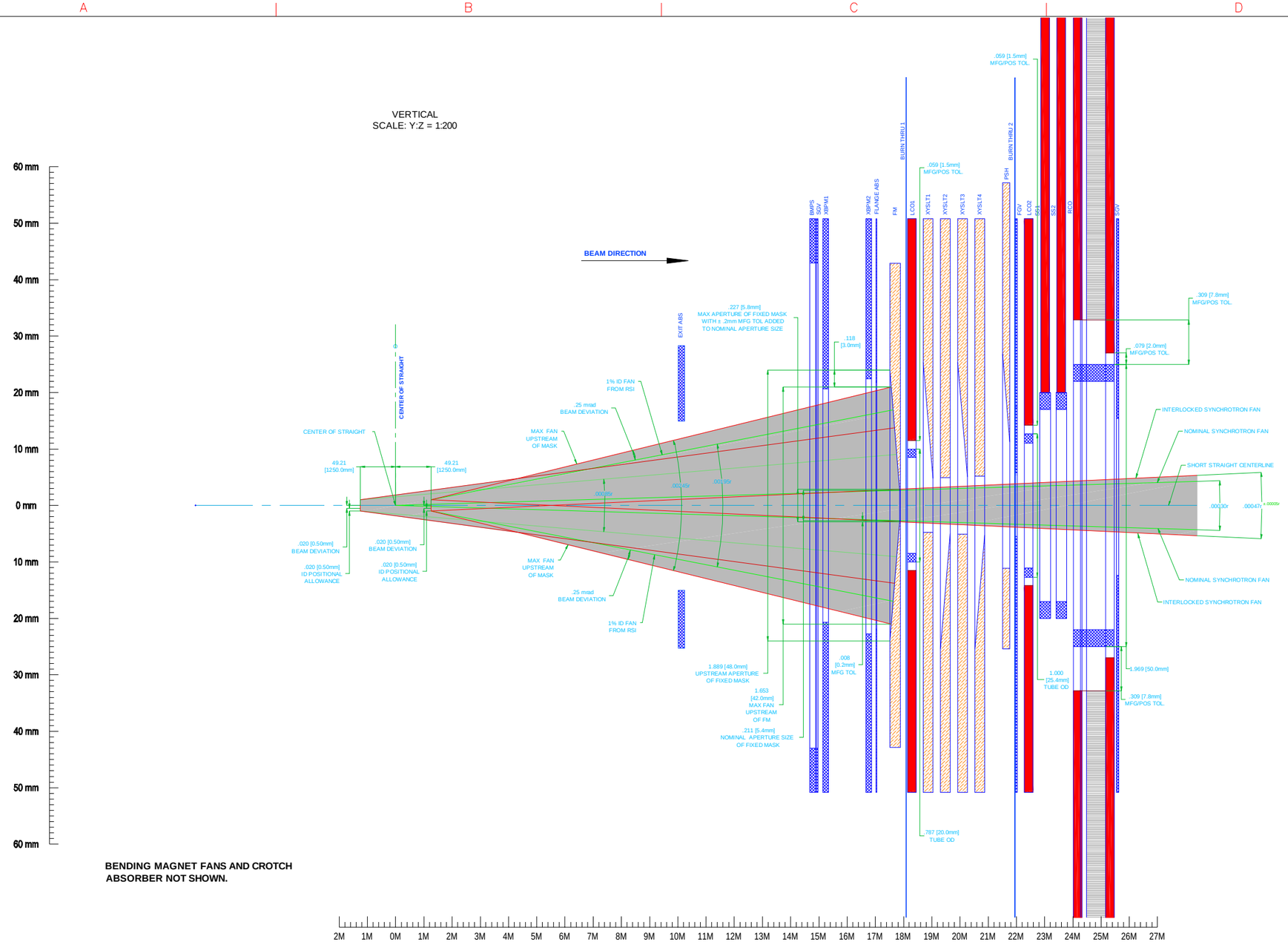


SST, INTERLOCKED SYNCHROTRON
RAY TRACING HORIZONTAL

E	SR-FE-IVU07-1001	C
ES&H Q RISK LEVEL A1		SHEET 2 OF 7

DRAWING/PART NUMBER REVISION

RELEASED – EFFECTIVE

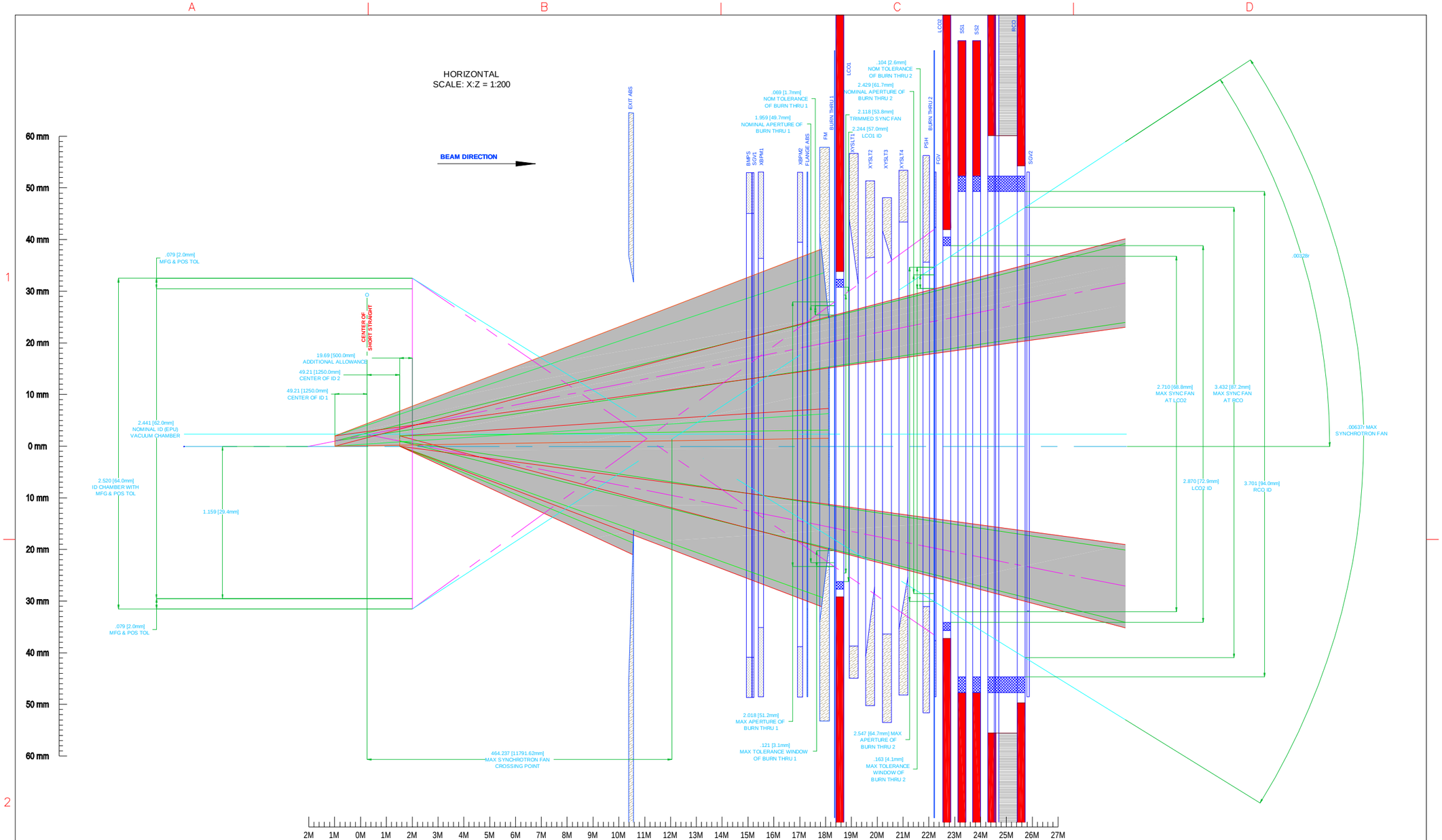


BENDING MAGNET FANS AND CROTCH ABSORBER NOT SHOWN.

SST, INTERLOCKED SYNCHROTRON RAY TRACING VERTICAL

E	SR-FE-IVU07-1001	C
	DRAWING/PART NUMBER	REVISION
ES&H/Q RISK LEVEL A1	SHEET 3 OF 7	

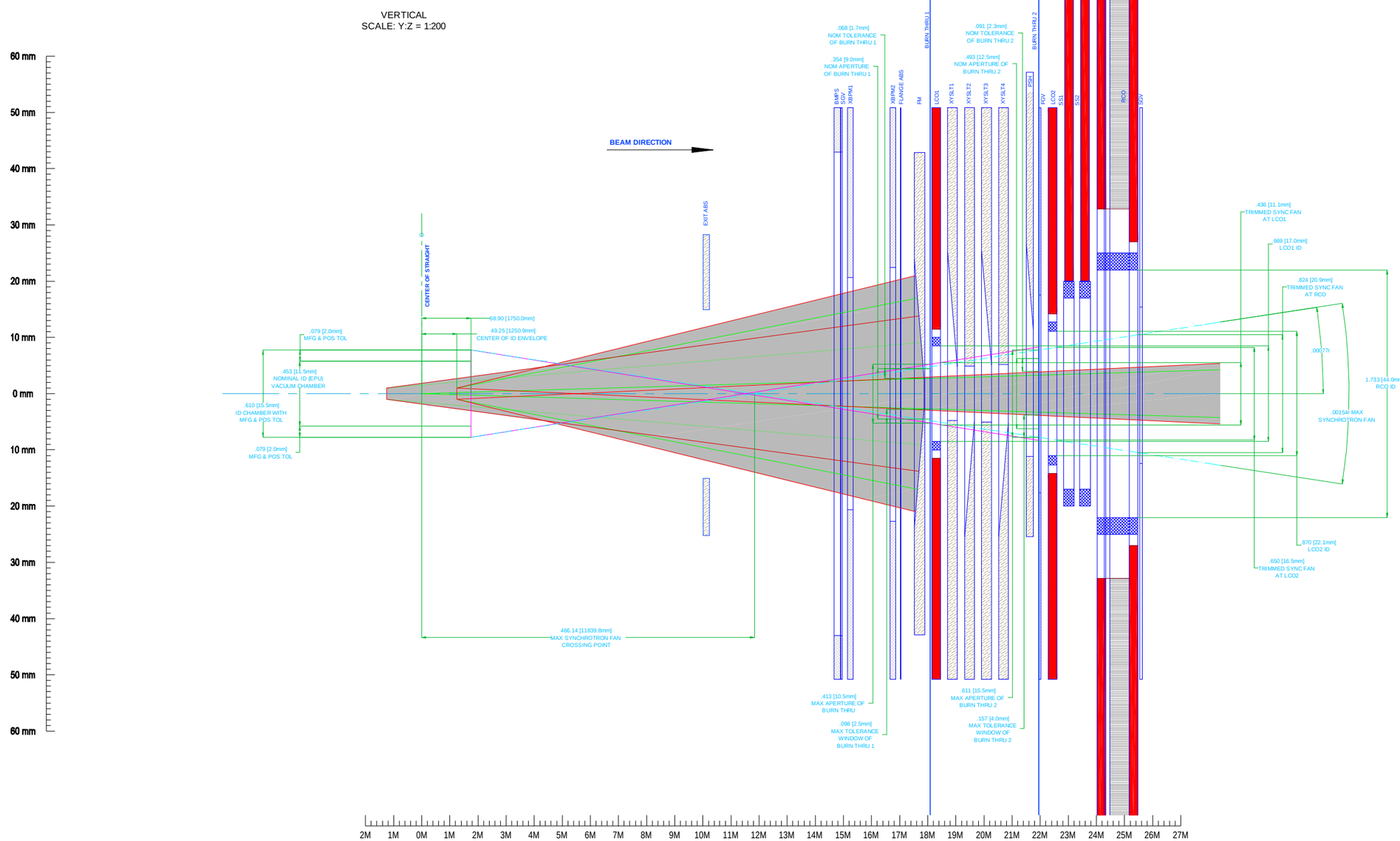
RELEASED – EFFECTIVE



SST, MAX SYNCHROTRON
RAY TRACING, HORIZONTAL

E	SR-FE-IVU07-1001	C
DRAWING/PART NUMBER		REVISION
ES&HQ RISK LEVEL A1	SHEET 6 OF 7	

RELEASED – EFFECTIVE



SST, MAX SYNCHROTRON RAY TRACING, VERTICAL

E	SR-FE-IVU07-1001	C
ESH&Q RISK LEVEL A1		SHEET 7 OF 7

RELEASED – EFFECTIVE