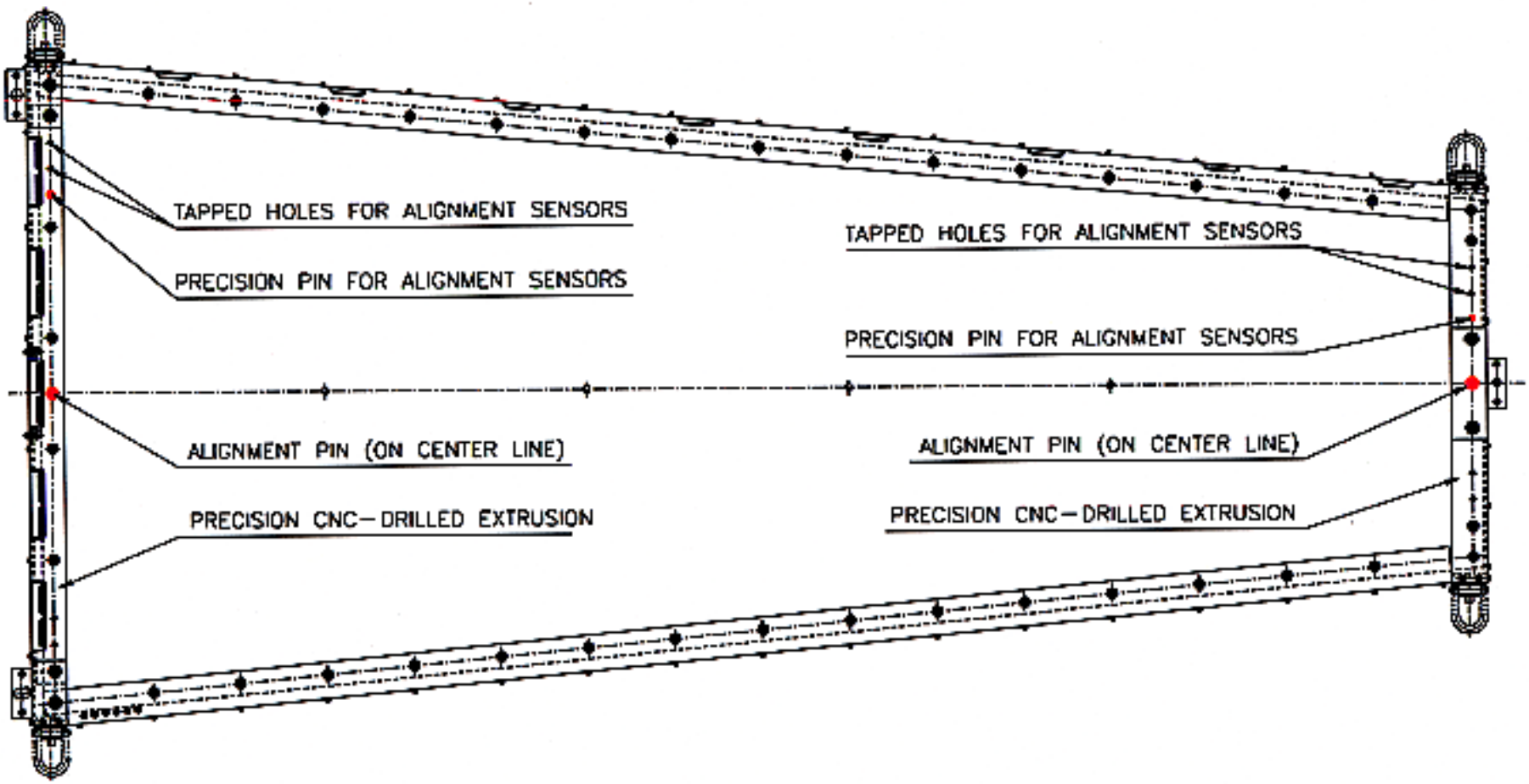
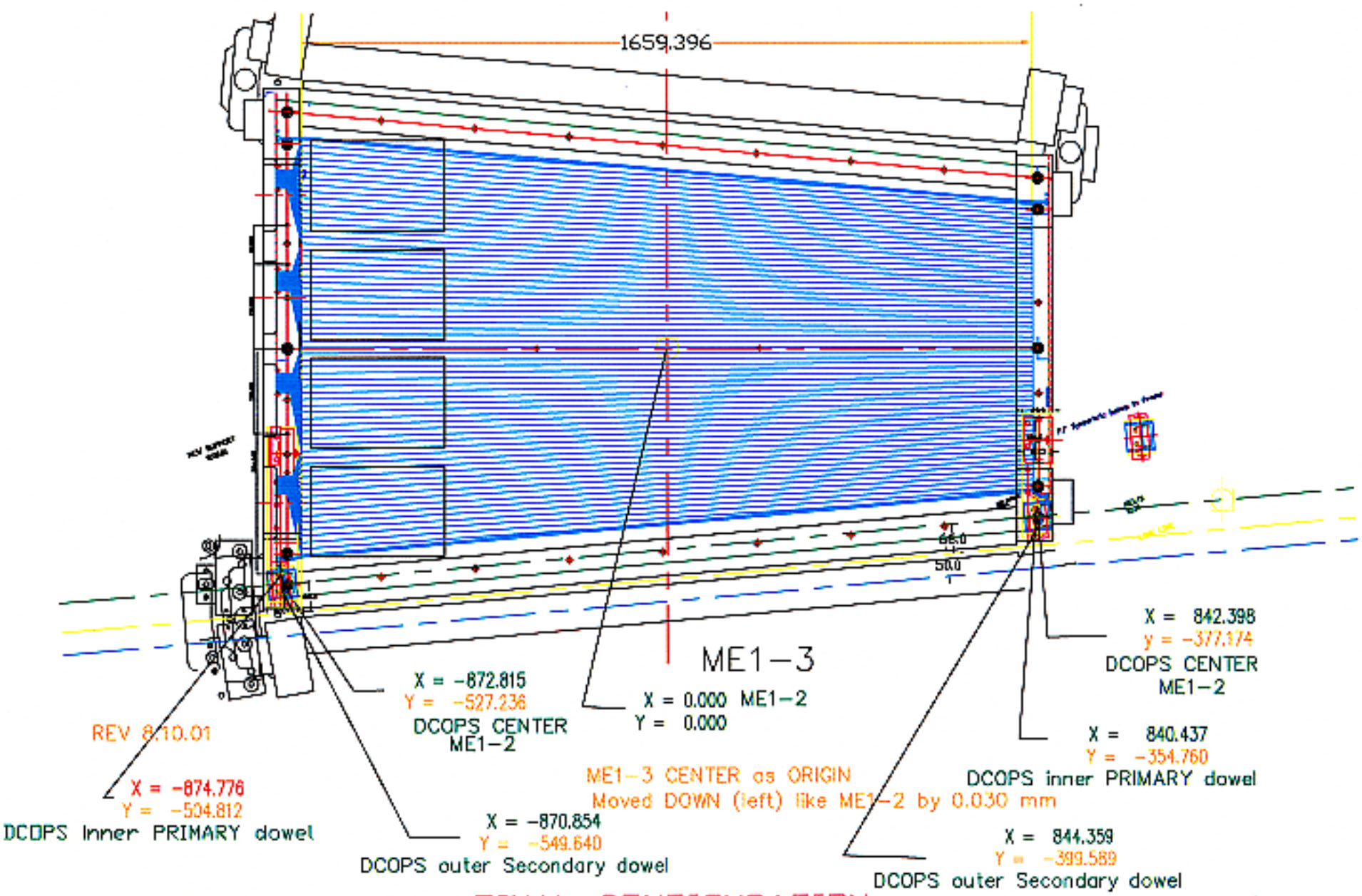

TAPPED HOLES FOR ALIGNMENT SENSORS
PRECISION PIN FOR ALIGNMENT SENSORS
ALIGNMENT PIN (ON CENTER LINE)
PRECISION CNC-DRILLED EXTRUSION
TAPPED HOLES FOR ALIGNMENT SENSORS
PRECISION PIN FOR ALIGNMENT SENSORS
ALIGNMENT PIN (ON CENTER LINE)
PRECISION CNC-DRILLED EXTRUSION


1659.396
ME1-3
X = 0.000 ME1-2
Y = 0.000
X = -872.815
Y = -527.236
DCOPS CENTER
ME1-2
X = 842.398
y = -377.174
DCOPS CENTER
ME1-2
X = 840.437
Y = -354.760
DCOPS inner PRIMARY dowel
REV 8.10.01
X = -874.776
Y = -504.812
DCOPS Inner PRIMARY dowel
ME1-3 CENTER as ORIGIN
Moved DOWN (left) like ME1-2 by 0.030 mm
X = -870.854
Y = -549.640
DCOPS outer Secondary dowel
X = 844.359
Y = -399.589
DCOPS outer Secondary dowel
FINAL CONFIGURATION

FERMILAB
ENGINEERING NOTE

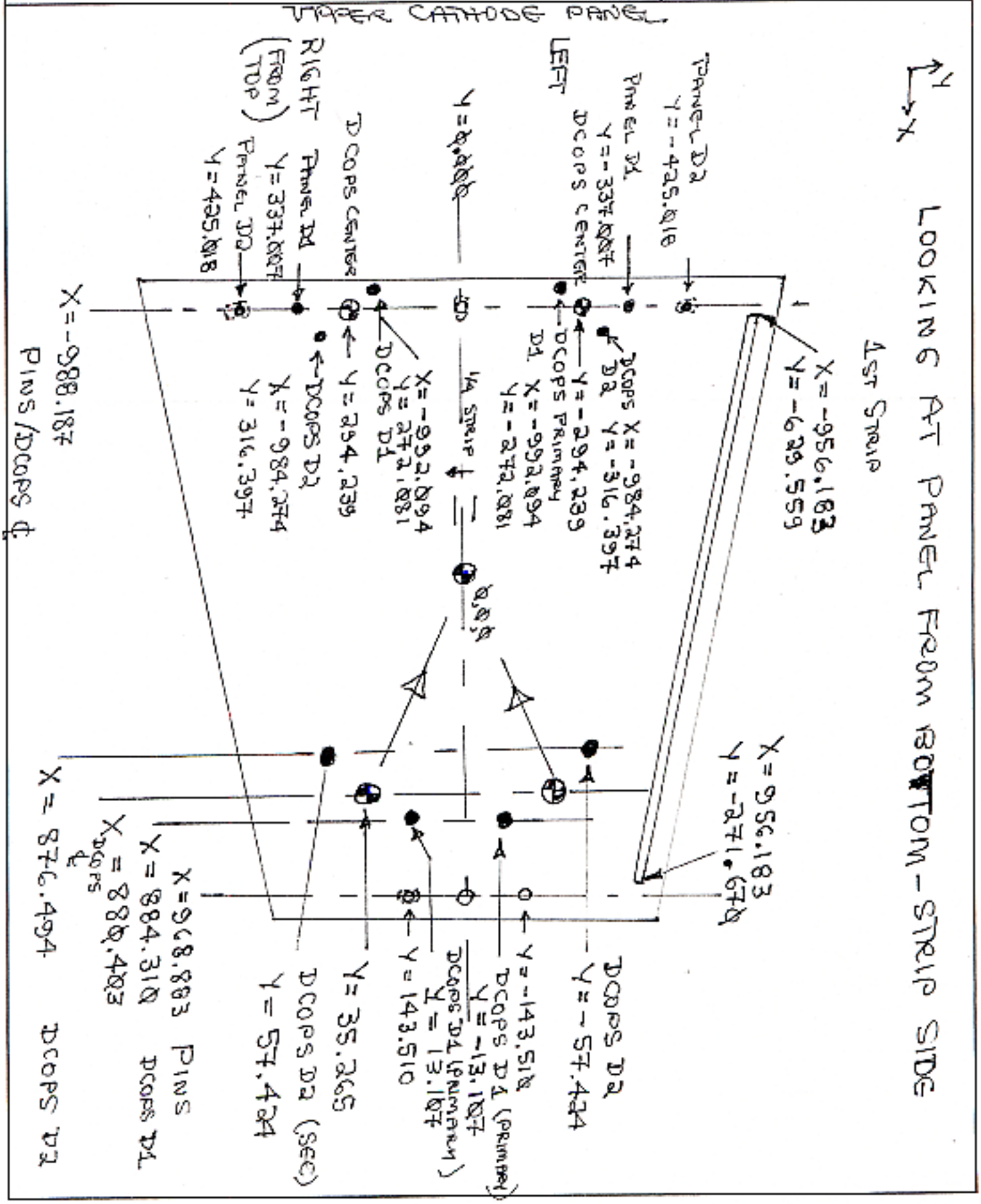
SECTION	PROJECT	SERIAL-CATEGORY	PAGE

SUBJECT: ME2-1 GEOMETRY IN CSC UCS

NAME: D. EARTY

DATE: 4.25.01

REVISION DATE: REVISION



FERMILAB
ENGINEERING NOTE

SECTION	PROJECT	SERIAL-CATEGORY	PAGE
CMS	EMPMS		

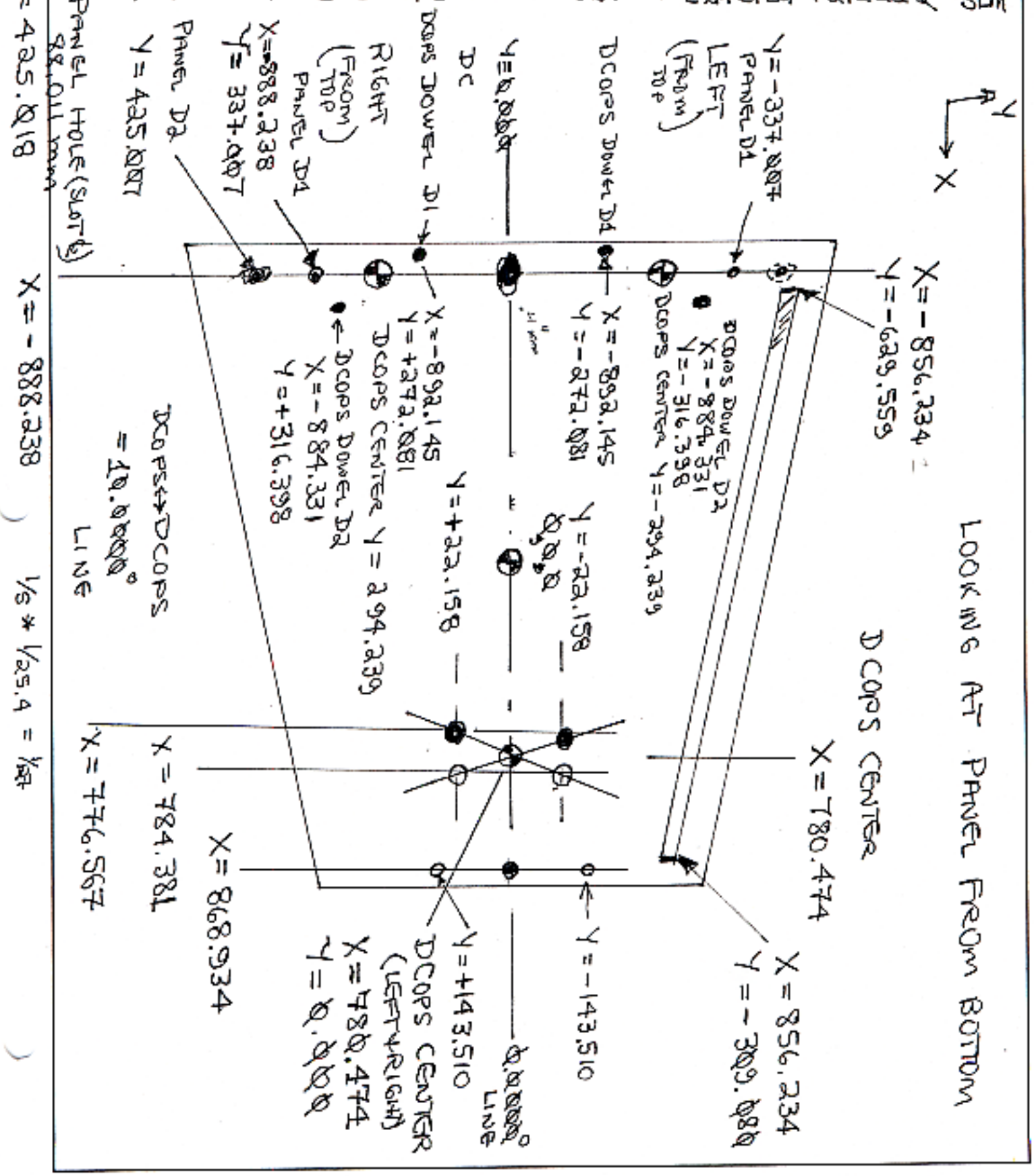
SUBJECT: ME3-1 GEOMETRY IN CSC UCS

NAME: D. EARTLY

DATE: 4.25.01

REVISION DATE:

MECHANICAL DCOPS PLACEMENT → EXACTLY 10.0000° SLM



FERMILAB
ENGINEERING NOTE

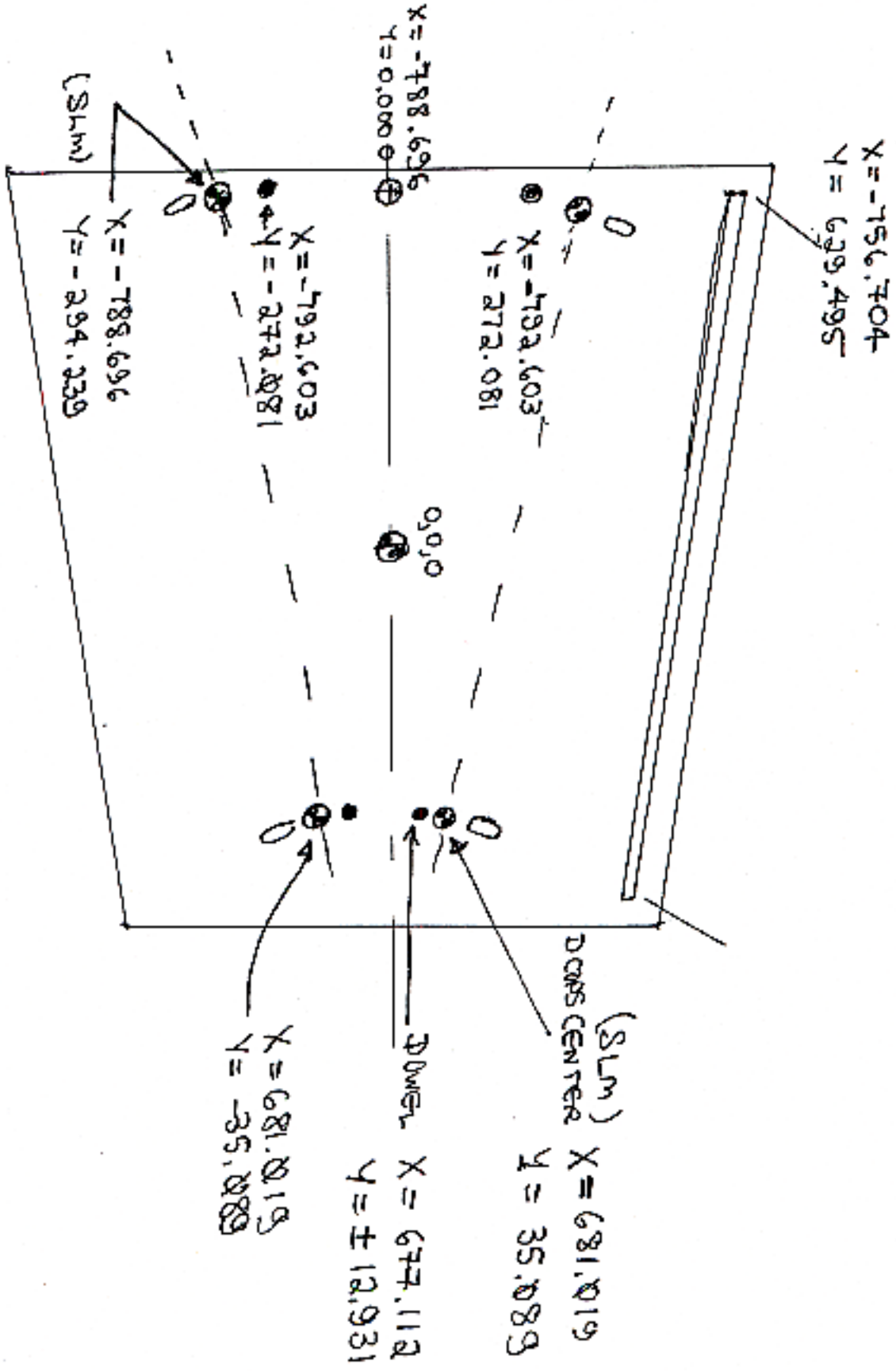
SECTION	PROJECT	SERIAL-CATEGORY	PAGE

SUBJECT: ME4-1 FINAL DCOPS - SLM

NAME: D. EARTLY

DATE: 05.31.01

REVISION DATE:



FERMILAB
ENGINEERING NOTE

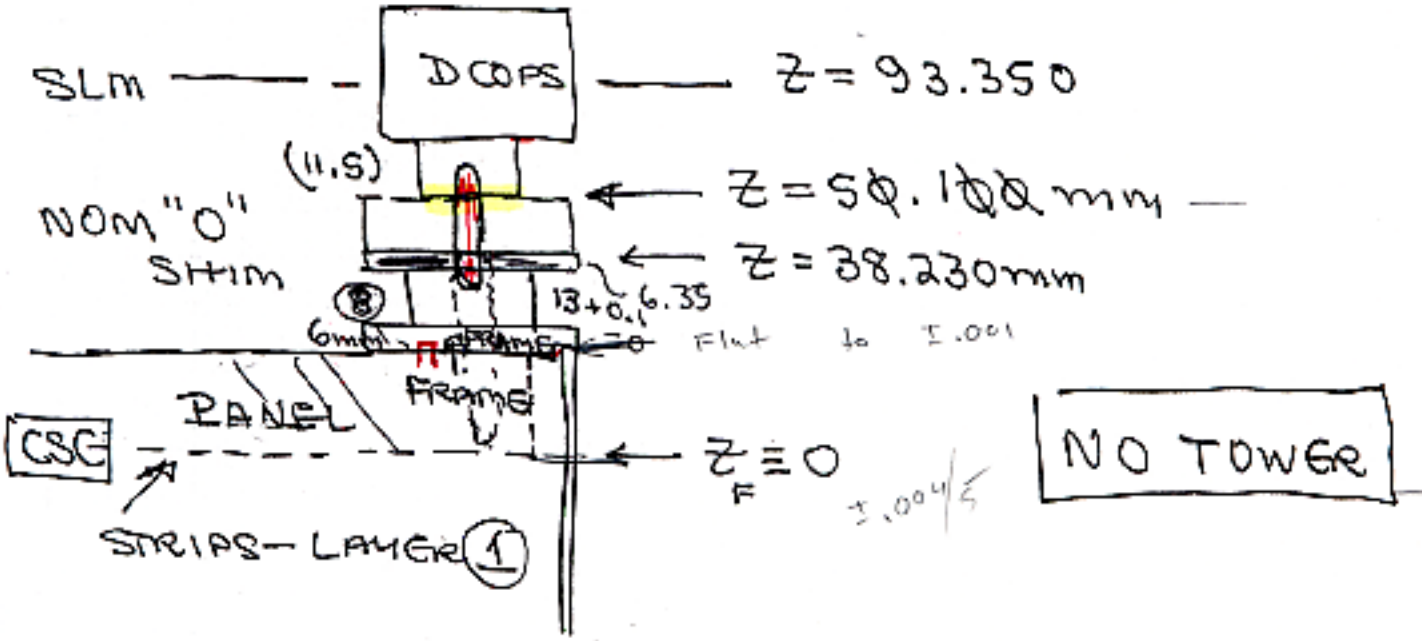
SECTION	PROJECT	SERIAL-CATEGORY	PAGE

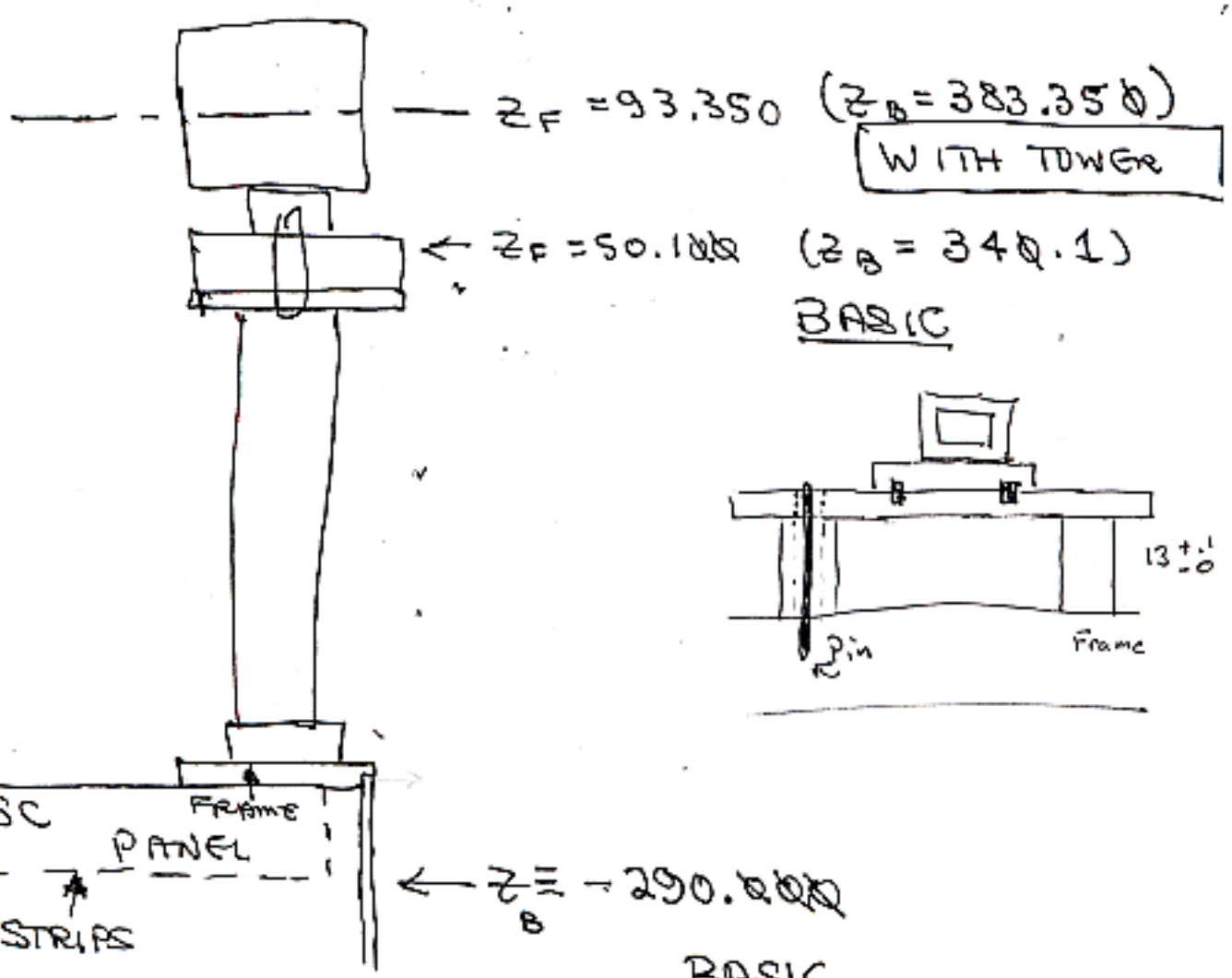
SUBJECT: ME234-2 SETTING Z-DCOPS dowel

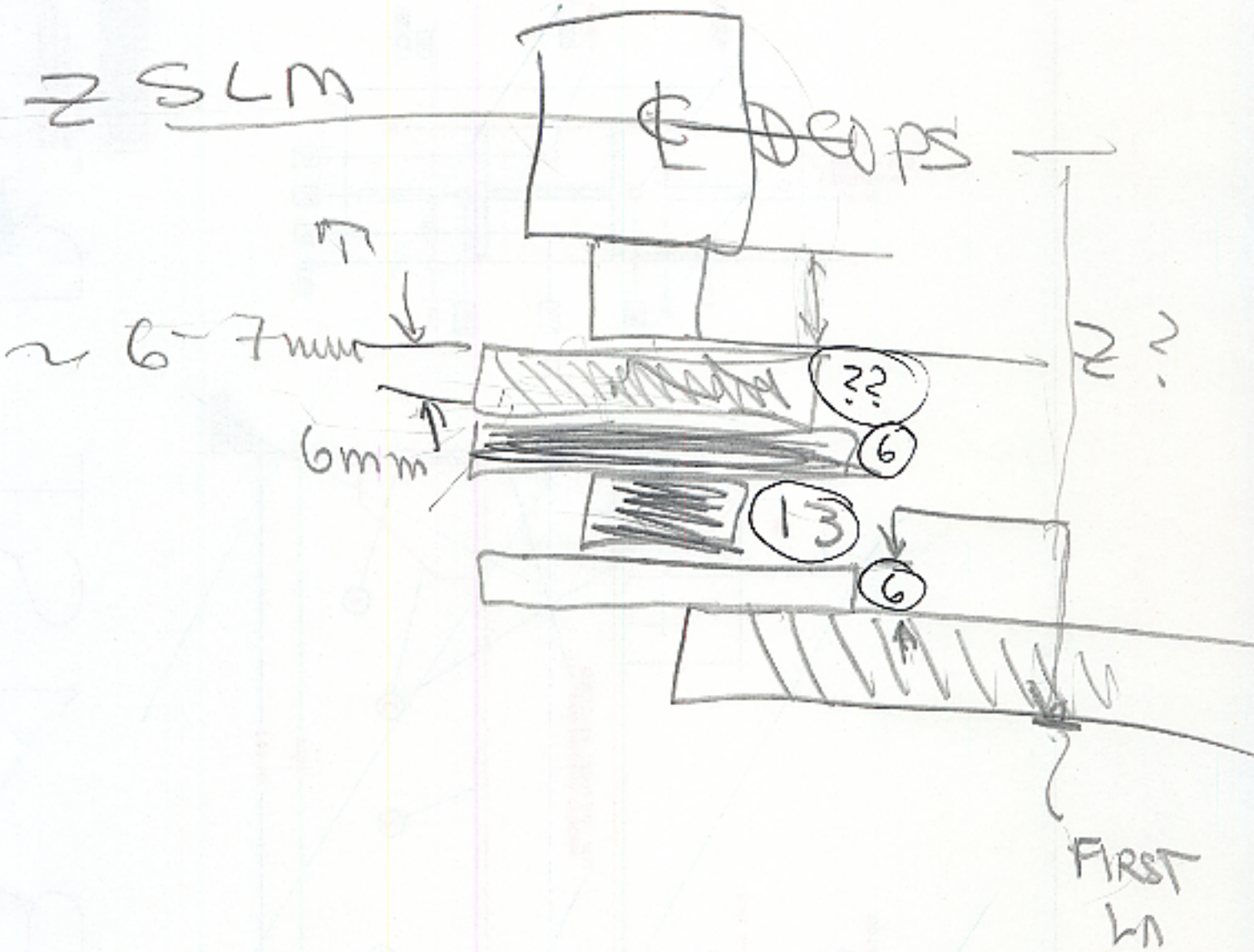
NAME: D. EARTLY

DATE: 4-13-01

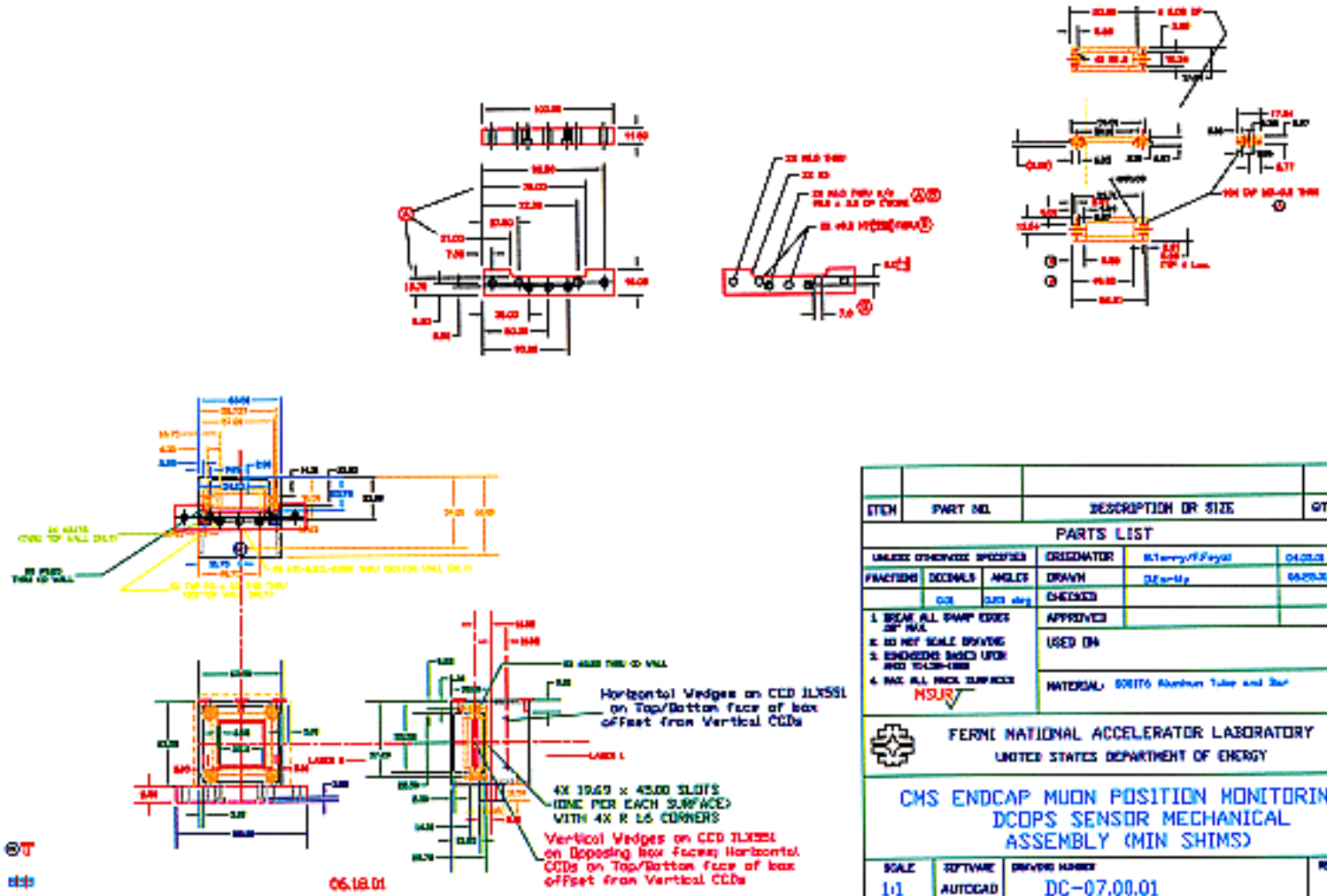
REVISION DATE:






Z SLM
℄ DEOPS
~ 6~7mm
6mm
??
6
13
6
Z ?
FIRST
LN

REV.	DESCRIPTION	DRAWN / APPD.	DATE / DATE



ITEM	PART NO.	DESCRIPTION OR SIZE	QTY.

PARTS LIST

UNLESS OTHERWISE SPECIFIED			ORIGINATOR		
FRACTIONS	DECIMALS	ANGLES	DRAWN		
			CHECKED		
			APPROVED		

1. BREAK ALL SHARP EDGES .005" MAX.
2. DO NOT SCALE DRAWING
3. DIMENSIONS BASED UPON ANSI Y14.5M-1982
4. MAX ALL MACH. SURFACES

MSUR

USED ON:

MATERIAL: 6061T6 Aluminum Tube and Bar

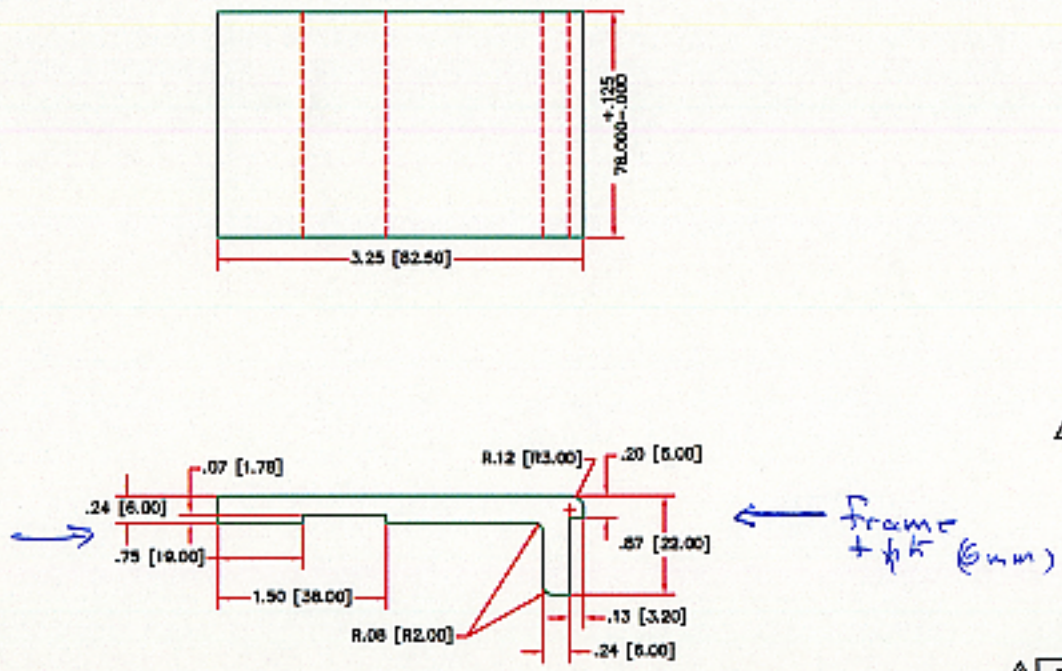
FERMI NATIONAL ACCELERATOR LABORATORY
UNITED STATES DEPARTMENT OF ENERGY

CMS ENDCAP MUON POSITION MONITORING
DCOPS SENSOR MECHANICAL
ASSEMBLY (MIN SHIMS)

SCALE	SOFTWARE	DRAWING NUMBER	REV.
1:1	AUTOCAD	DC-07.00.01	

FILE: DCOPS-DC07.00.01

REV.	DESCRIPTION	DRAWN / APPR.	DATE / DATE
	E.R. #6883		
A	REM. EUROPEAN PROJECTION SYMBOL & TOLERANCES ATTACHED TO TITLE BLOCK. ADD NOTE NEXT TO TITLE BLOCK, CHG'D. DESIGN OF EXTRUSION. ADD NOTES #1-3, ADD ATTACHED TOLERANCE BLOCK TO TITLE BLOCK PER E.C.O. #6048	P.BELKO / N.CHESTER	7/13/00 / 7/13/00



NOTES:

1. ALL DIMENSIONS ARE INCHES [MM].
2. TOLERANCES: HALF STANDARD EXTRUSION TOLERANCES. FULL LENGTH TO BE USED. NO CLIP MARKS ALLOWED.
3. MATERIAL: 6061 ALUMINUM, TEMPER T6.

TOLERANCES:
3 PLACE DECIMAL ± 0.1 mm
2 PLACE DECIMAL ± 0.3 mm
1 PL. DEC., STRAIGHT ± 0.4 mm
ANGULAR FOLD ± 0.5°

ITEM	PART NO.	DESCRIPTION OR SIZE	QTY.
		PARTS LIST	

UNLESS OTHERWISE SPECIFIED		CHECKED	PSL
XX	XXX	ANGLES	DRAWN P.BELKO 7/5/00
			CHECKED N.CHESTER 7/5/00
			APPROVED N.CHESTER 7/5/00
			USED ON
			MATERIAL: 6000 SERIES ALUM. TEMPER T6

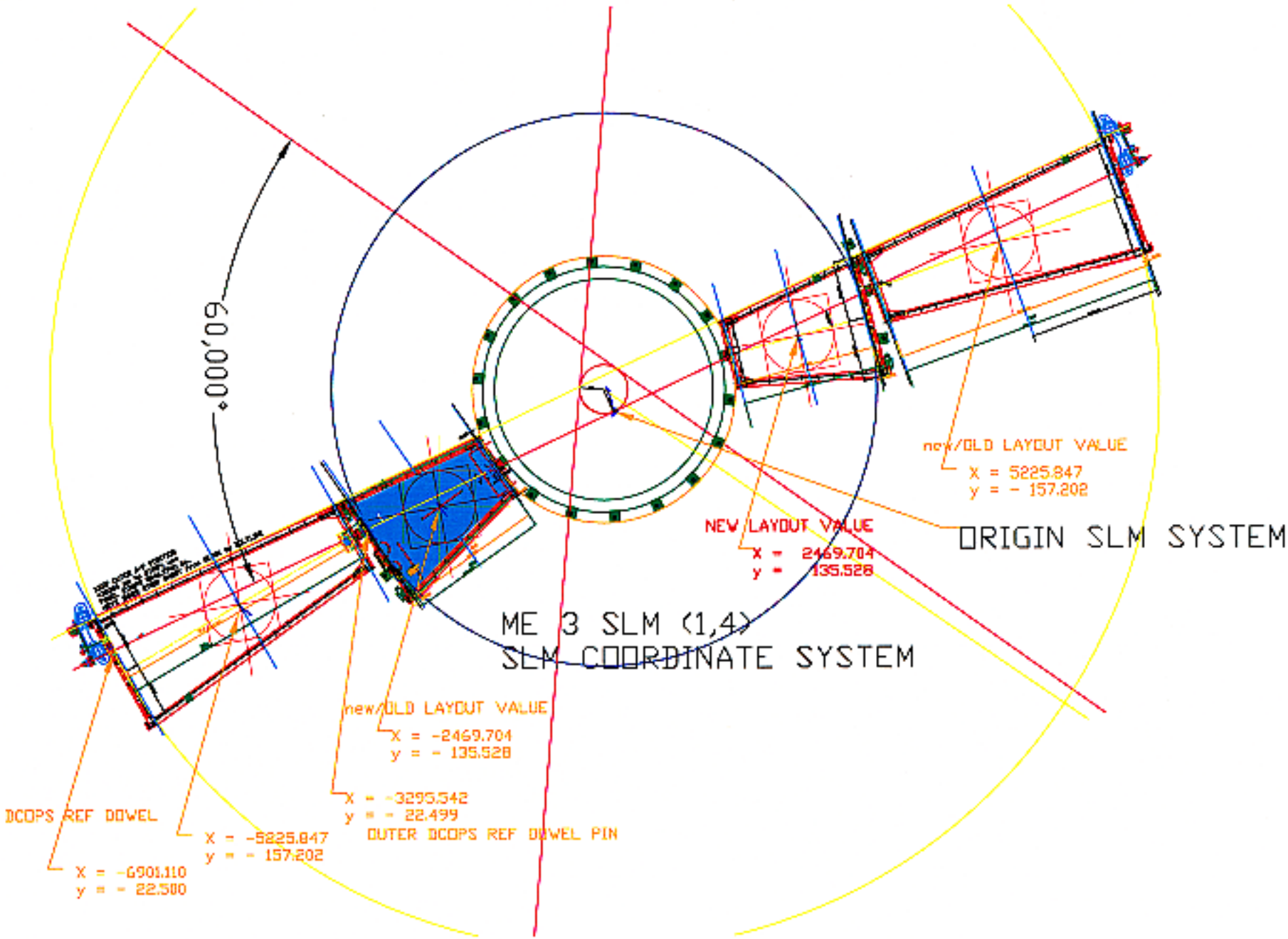
FERMI NATIONAL ACCELERATOR LABORATORY
UNITED STATES DEPARTMENT OF ENERGY

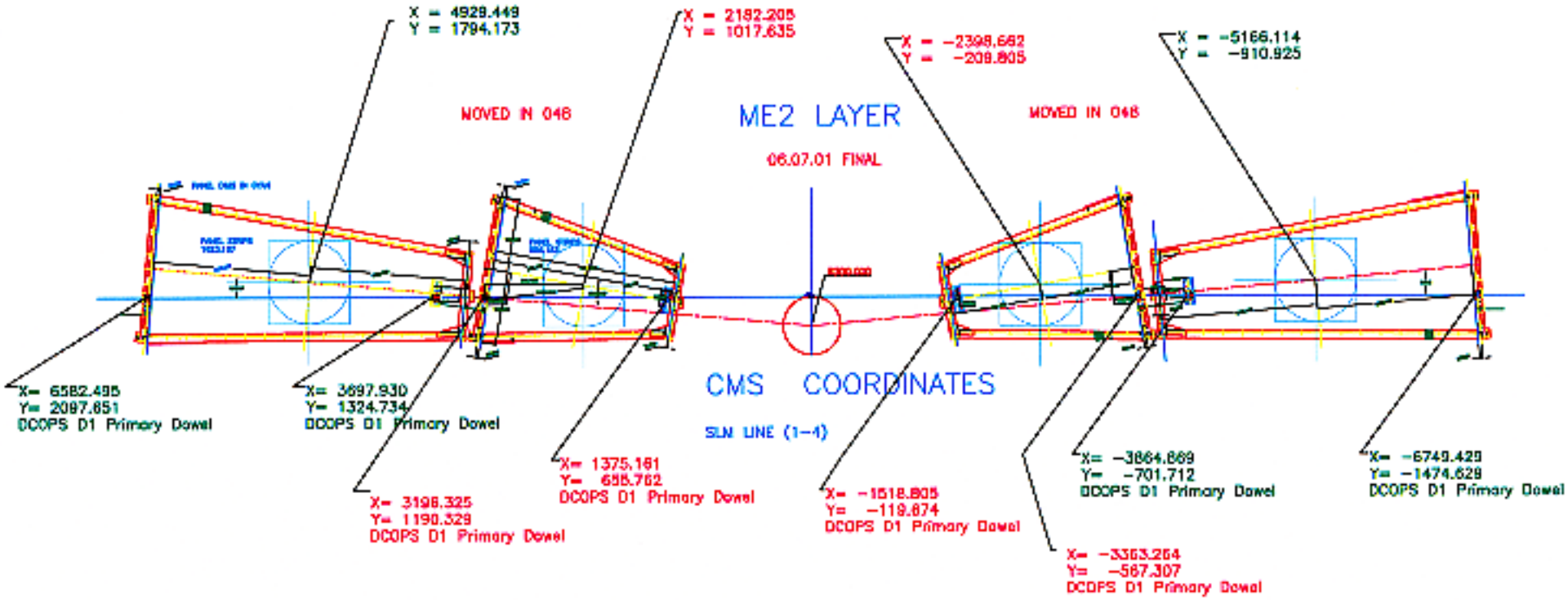
CMS END CAPS
ME234/2 CHAMBER FRAME
EXTRUSION – PROFILE – 78"

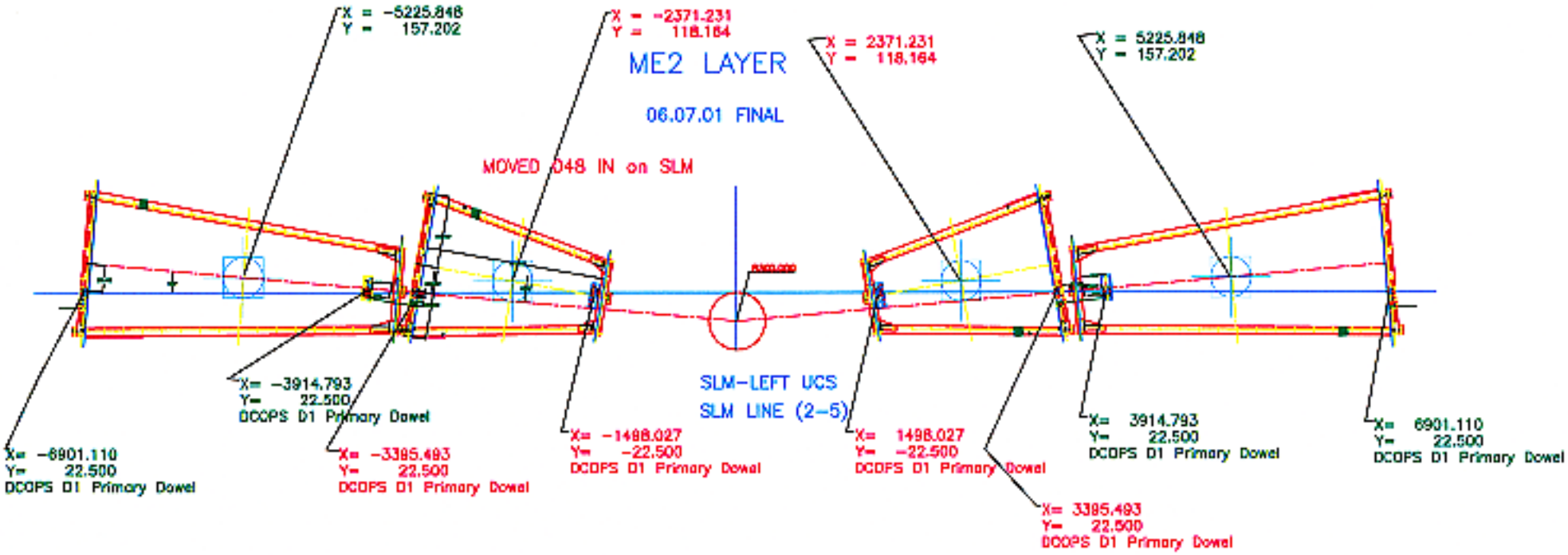
SCALE	SOFTWARE	DRAWING NUMBER	REV
FULL	AUTOCAD	5520-MB-368341	A

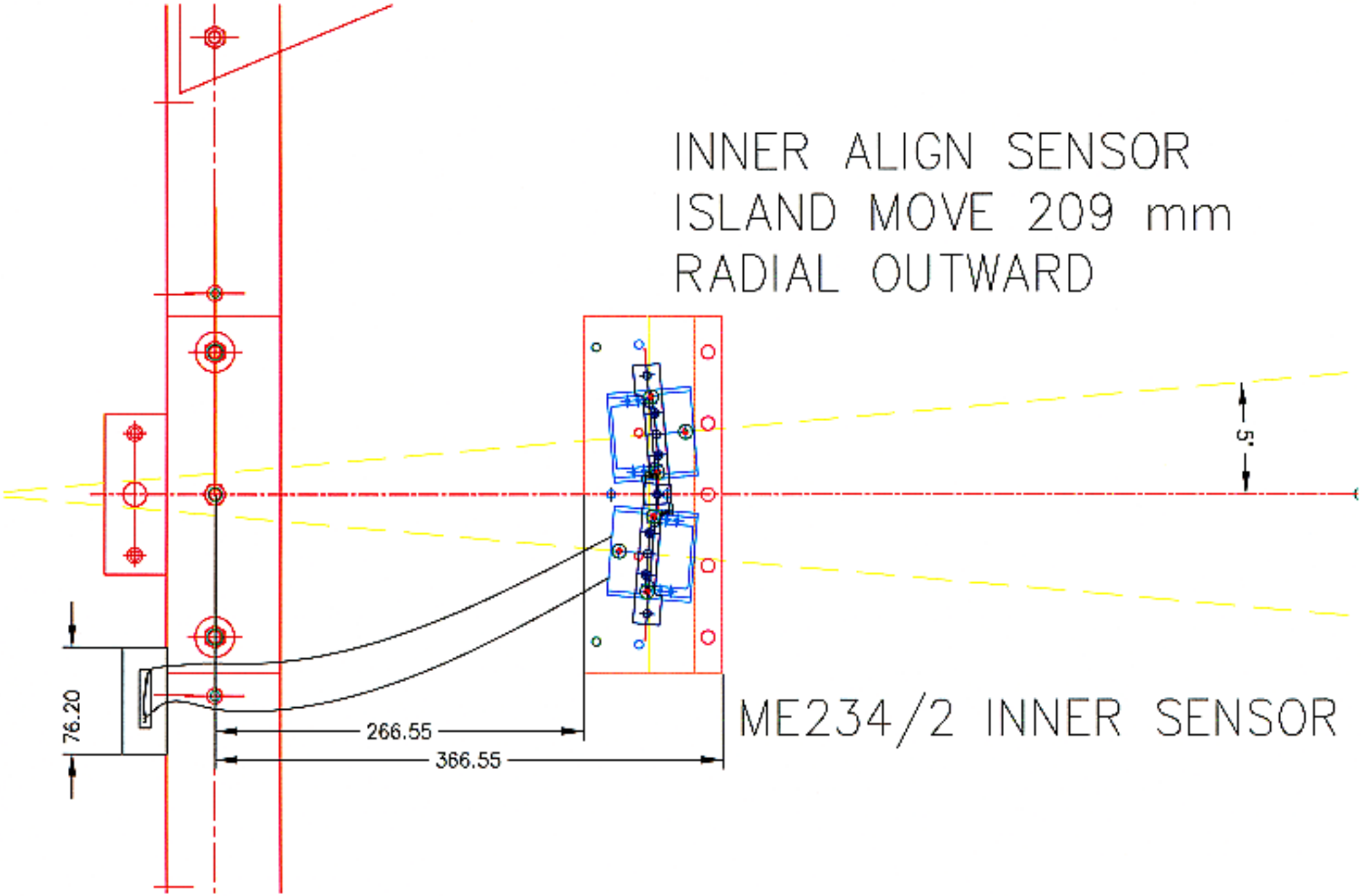
FILE: pbelko

REF.:
UNIV. OF WISCONSIN
(PSL) #5185 100A SH'T. #1 OF 2


60.000°
new/OLD LAYOUT VALUE
X = 5225.847
y = - 157.202
ORIGIN SLM SYSTEM
NEW LAYOUT VALUE
X = 2469.704
y = 135.528
ME 3 SLM (1,4)
SLM COORDINATE SYSTEM
new/OLD LAYOUT VALUE
X = -2469.704
y = - 135.528
X = -3295.542
y = - 22.499
OUTER DCOPS REF DOWEL PIN
DCOPS REF DOWEL
X = -5225.847
y = - 157.202
X = -6901.110
y = - 22.500


X = 4929.449
Y = 1794.173
X = 2182.205
Y = 1017.635
X = -2398.662
Y = -209.805
X = -5166.114
Y = -910.925
MOVED IN 048
ME2 LAYER
06.07.01 FINAL
MOVED IN 048
CMS COORDINATES
SLN LINE (1-4)
X= 6582.495
Y= 2097.651
DCOPS D1 Primary Dowel
X= 3697.930
Y= 1324.734
DCOPS D1 Primary Dowel
X= 3198.325
Y= 1190.329
DCOPS D1 Primary Dowel
X= 1375.161
Y= 655.762
DCOPS D1 Primary Dowel
X= -1518.805
Y= -119.874
DCOPS D1 Primary Dowel
X= -3363.264
Y= -567.307
DCOPS D1 Primary Dowel
X= -3864.869
Y= -701.712
DCOPS D1 Primary Dowel
X= -6749.429
Y= -1474.629
DCOPS D1 Primary Dowel


X = -5225.848
Y = 157.202
X = -2371.231
Y = 118.164
ME2 LAYER
06.07.01 FINAL
X = 2371.231
Y = 118.164
X = 5225.848
Y = 157.202
MOVED .048 IN on SLM
SLM-LEFT UCS
SLM LINE (2-5)
X= -3914.793
Y= 22.500
DCOPS D1 Primary Dowel
X= -6901.110
Y= 22.500
DCOPS D1 Primary Dowel
X= -3395.493
Y= 22.500
DCOPS D1 Primary Dowel
X= -1498.027
Y= -22.500
DCOPS D1 Primary Dowel
X= 1498.027
Y= -22.500
DCOPS D1 Primary Dowel
X= 3395.493
Y= 22.500
DCOPS D1 Primary Dowel
X= 3914.793
Y= 22.500
DCOPS D1 Primary Dowel
X= 6901.110
Y= 22.500
DCOPS D1 Primary Dowel


INNER ALIGN SENSOR
ISLAND MOVE 209 mm
RADIAL OUTWARD
5°
76.20
266.55
366.55
ME234/2 INNER SENSOR