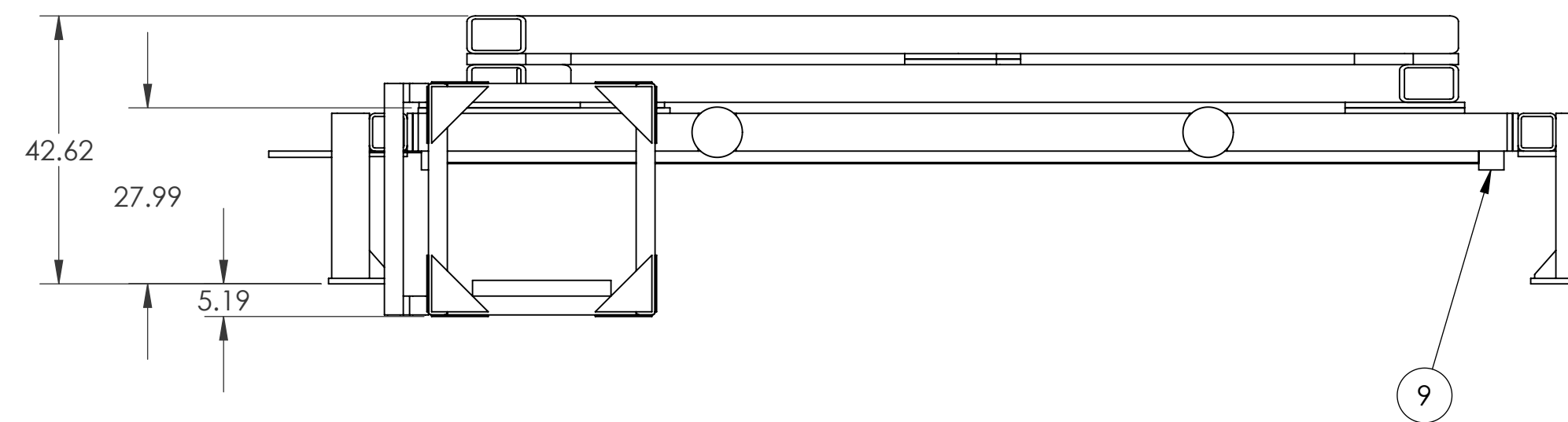
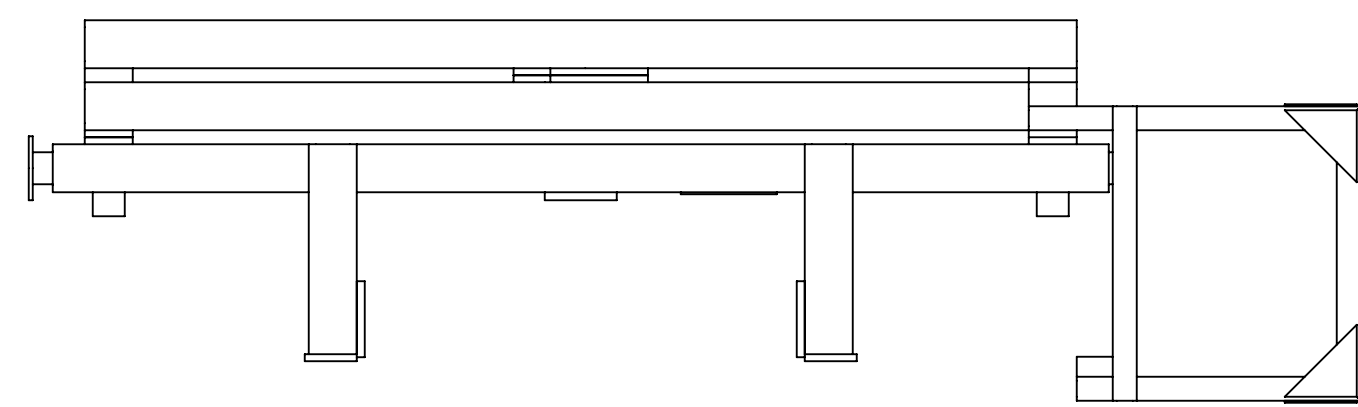
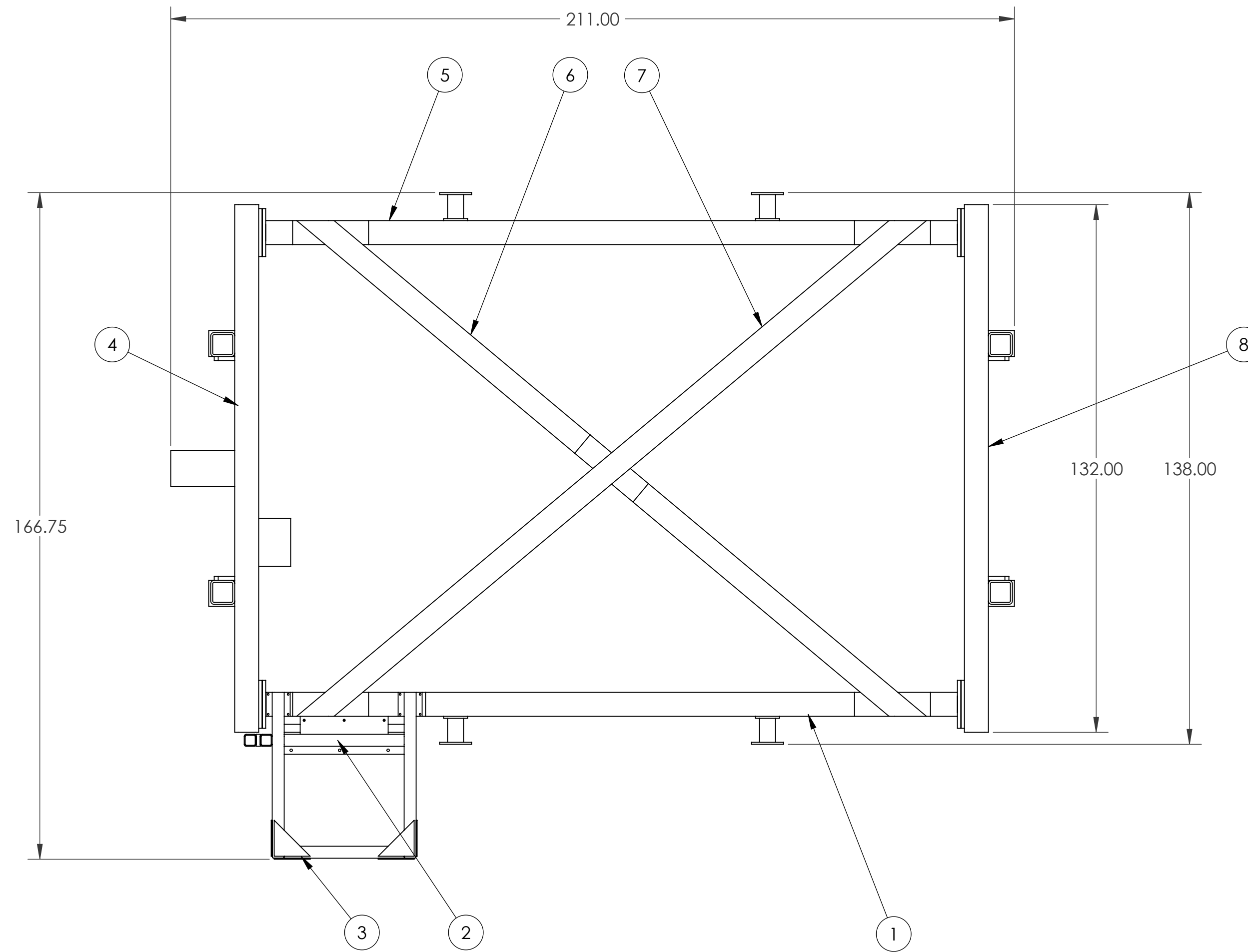


REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
-	-	INITIAL ISSUE	-	-



NOTES:
 1) ALL WELDS ARE FILLET, NOT SHOWN
 2) ALL WELDS CONTINUOUS
 3) PAINT ALL UNMACHINED SURFACES BLUE ENAMEL

Parts List							
ITEM NO.	Default/ QTY.	DET_SHT	ASSY_SHT	DESCRIPTION	MATERIAL	SIZE	WEIGHT
1	1	5	1	MAIN FRAME, VERTICAL, RH	WELDMNT	SEE CHART	870
2	1	2	1	Pb CAP	LEAD	3.50 x 6.00 x 22.00	182
3	1	2	1	DOG HOUSE	WELDMNT	SEE CHART	351
4	1	3	1	MAIN FRAME, HORIZONTAL, LOWER	WELDMNT	SEE CHART	702
5	1	4	1	MAIN FRAME, VERTICAL, LH	WELDMNT	SEE CHART	839
6	1	6	1	MAIN FRAME, DIAGONAL, LOWER	WELDMNT	SEE CHART	654
7	1	7	1	MAIN FRAME, DIAGONAL, UPPER	WELDMNT	SEE CHART	764
8	1	8	1	MAIN FRAME, HORIZONTAL, UPPER	WELDMNT	SEE CHART	652
9	4	9	1	CARRIAGE STOP	CRS	3.00 x 4.00 x 4.00	13

NOTE: DO NOT SCALE DRAWING!
 ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE
 DIMENSIONS ARE IN:
 INCHES [mm] mm [IN]
 x.xx [x,x] ± .010 [.3]
 x.xxx [x,xxx] ± .005 [.13]
 x.xxxx [x,xxxx] ± .0005 [.013]
 xx/xx ± 1/32
 x' ± 1'

UNIVERSITY OF ROCHESTER
 DEPT. OF PHYSICS AND ASTRONOMY
 SIDNEY W. BARNES RESEARCH LABORATORY

TITLE: MINERVA MAPPER FRAME

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE	2/1/07
CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	-

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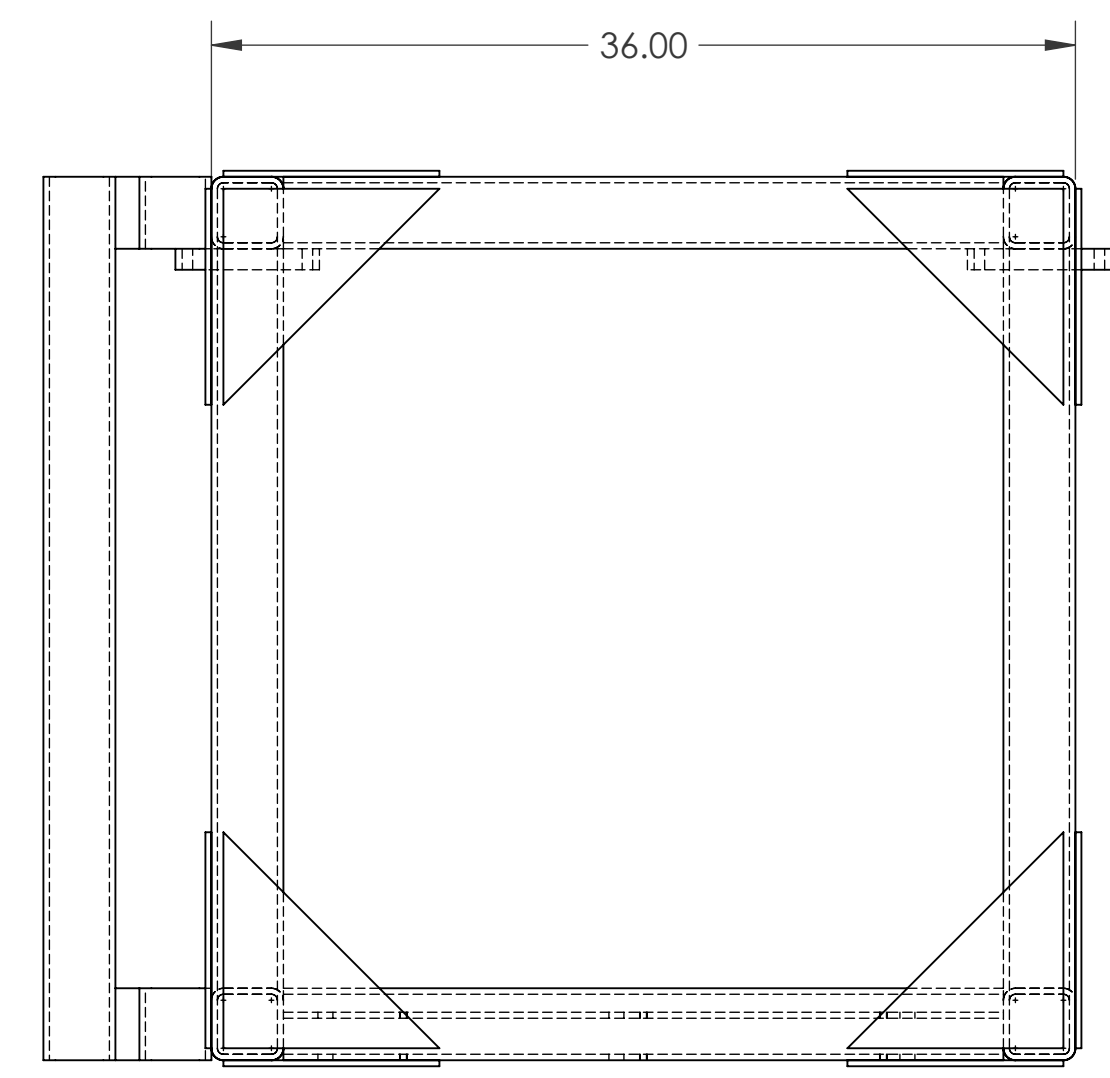
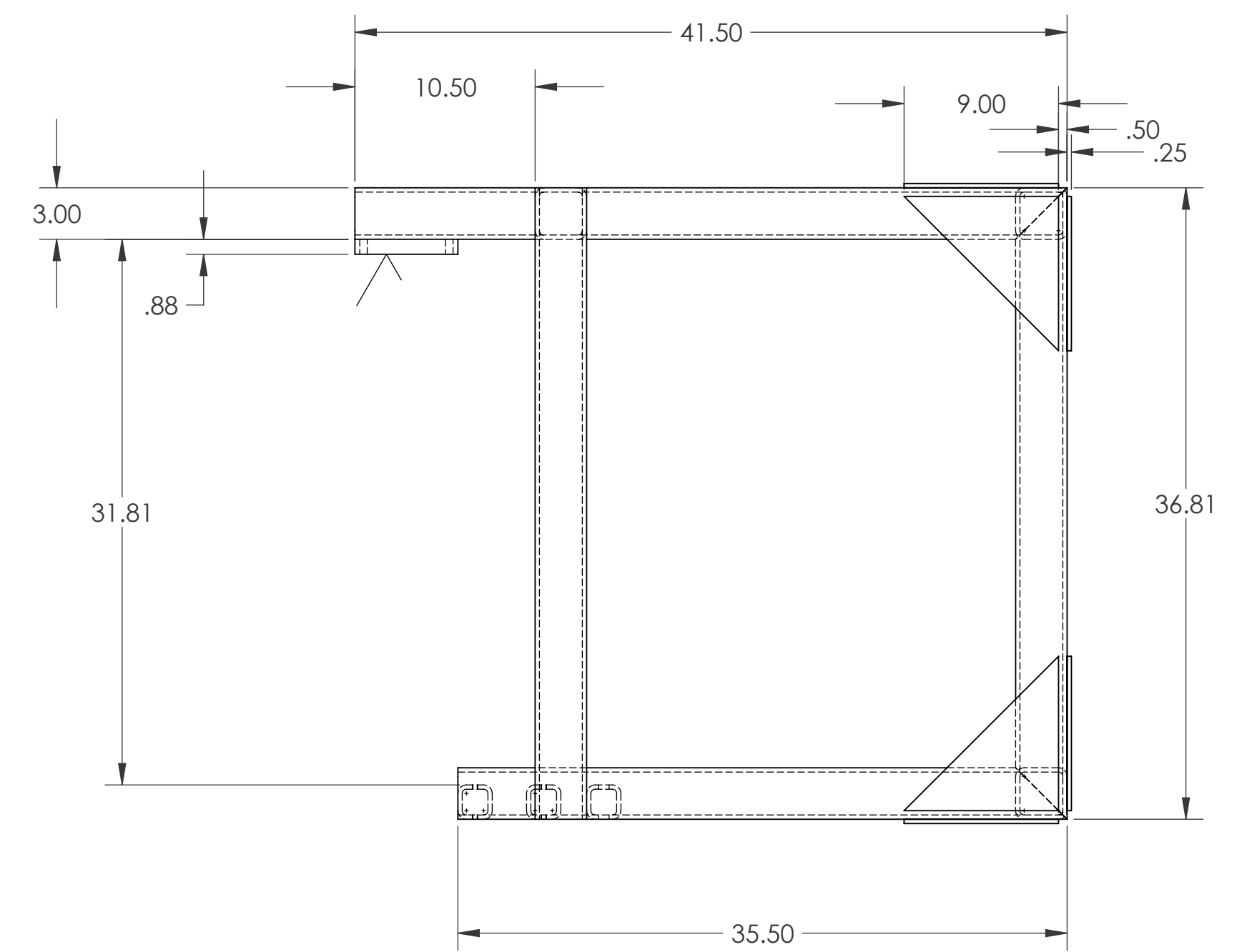
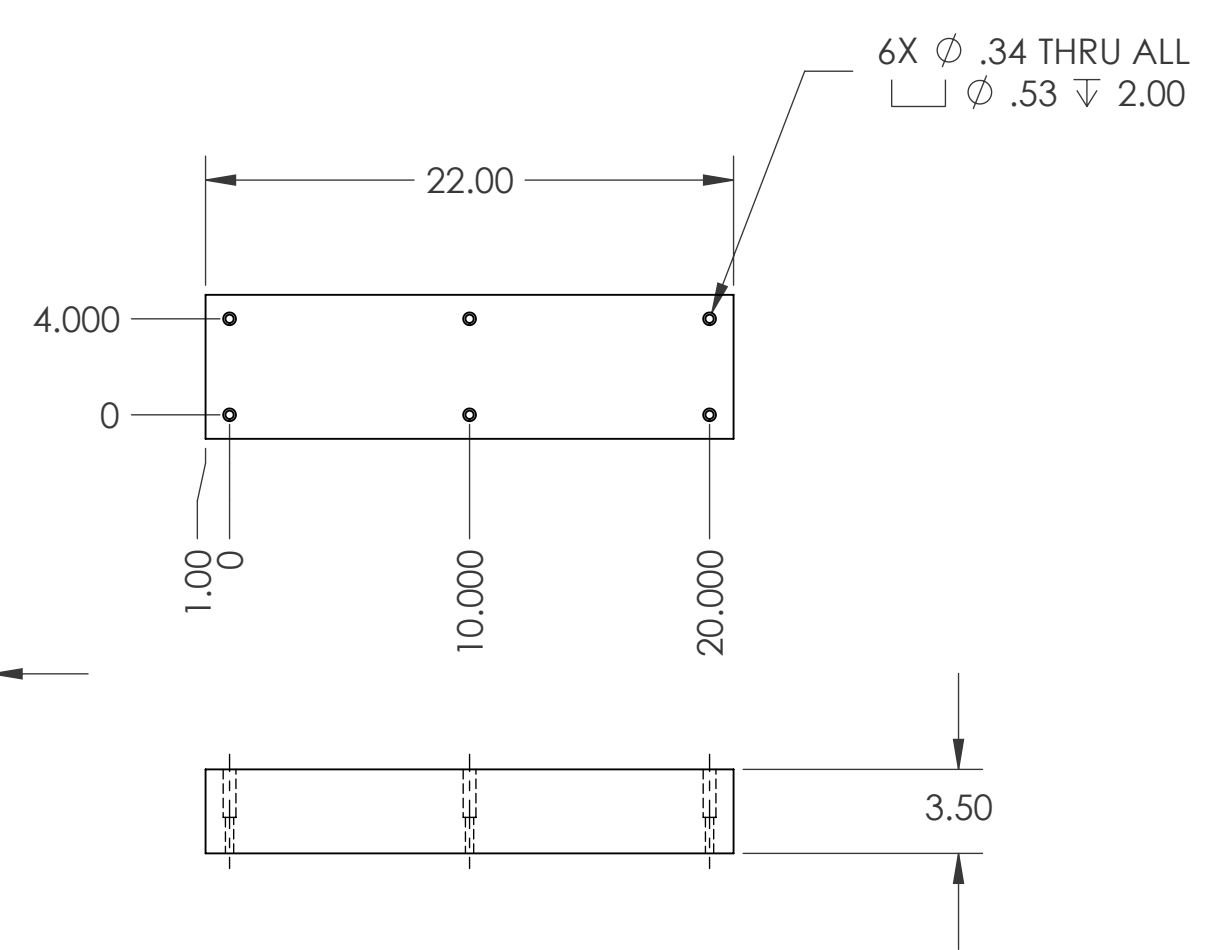
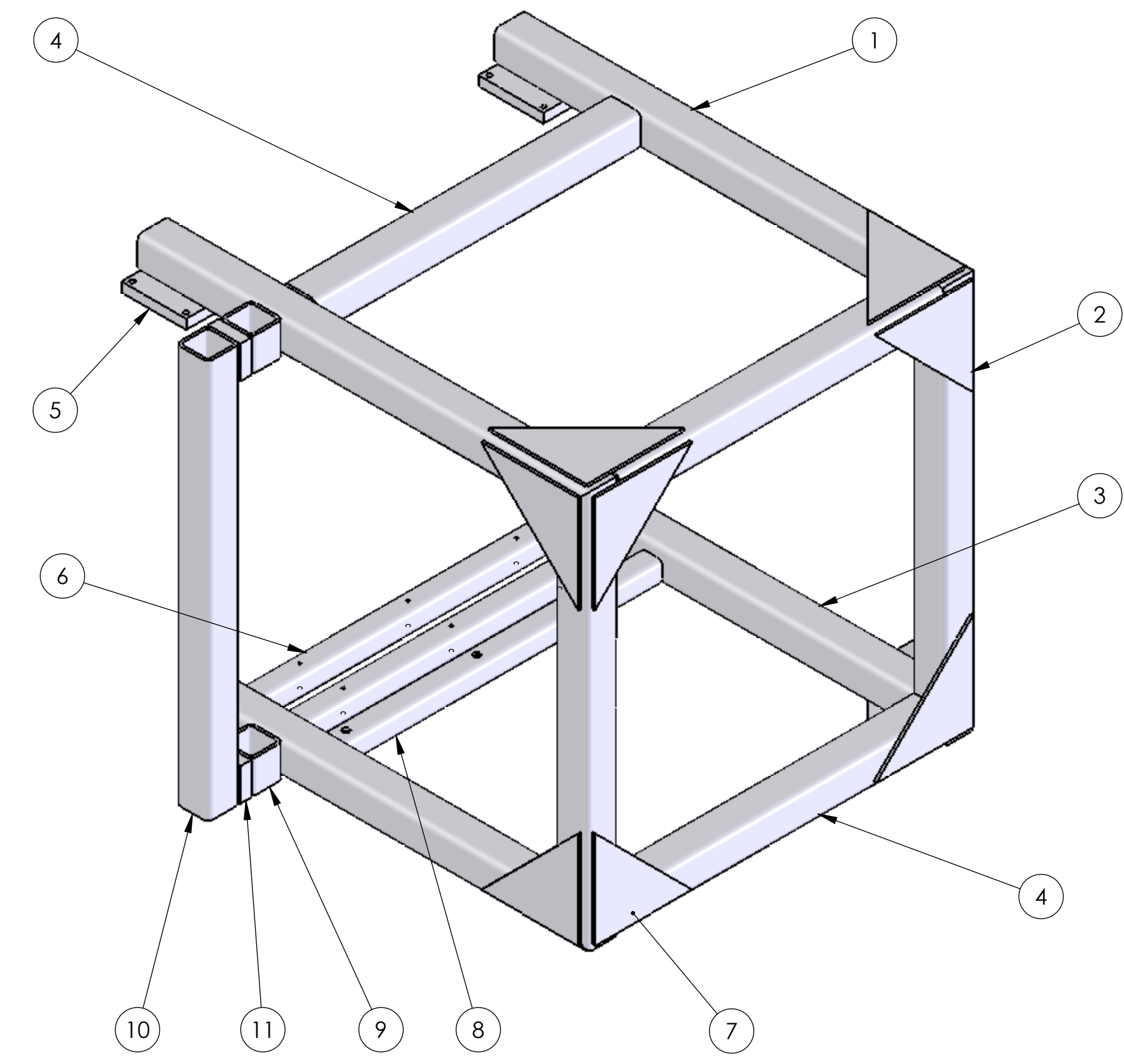
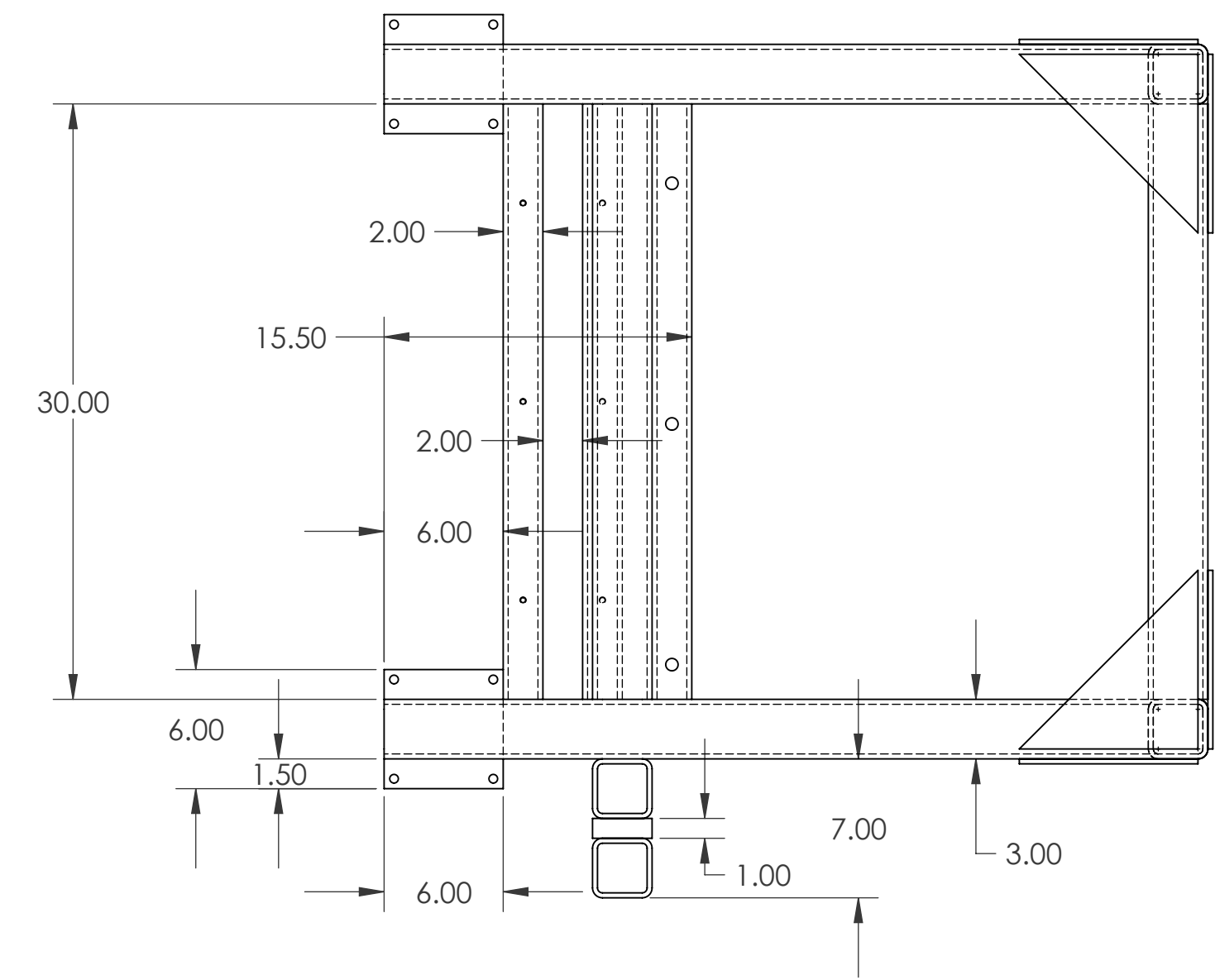
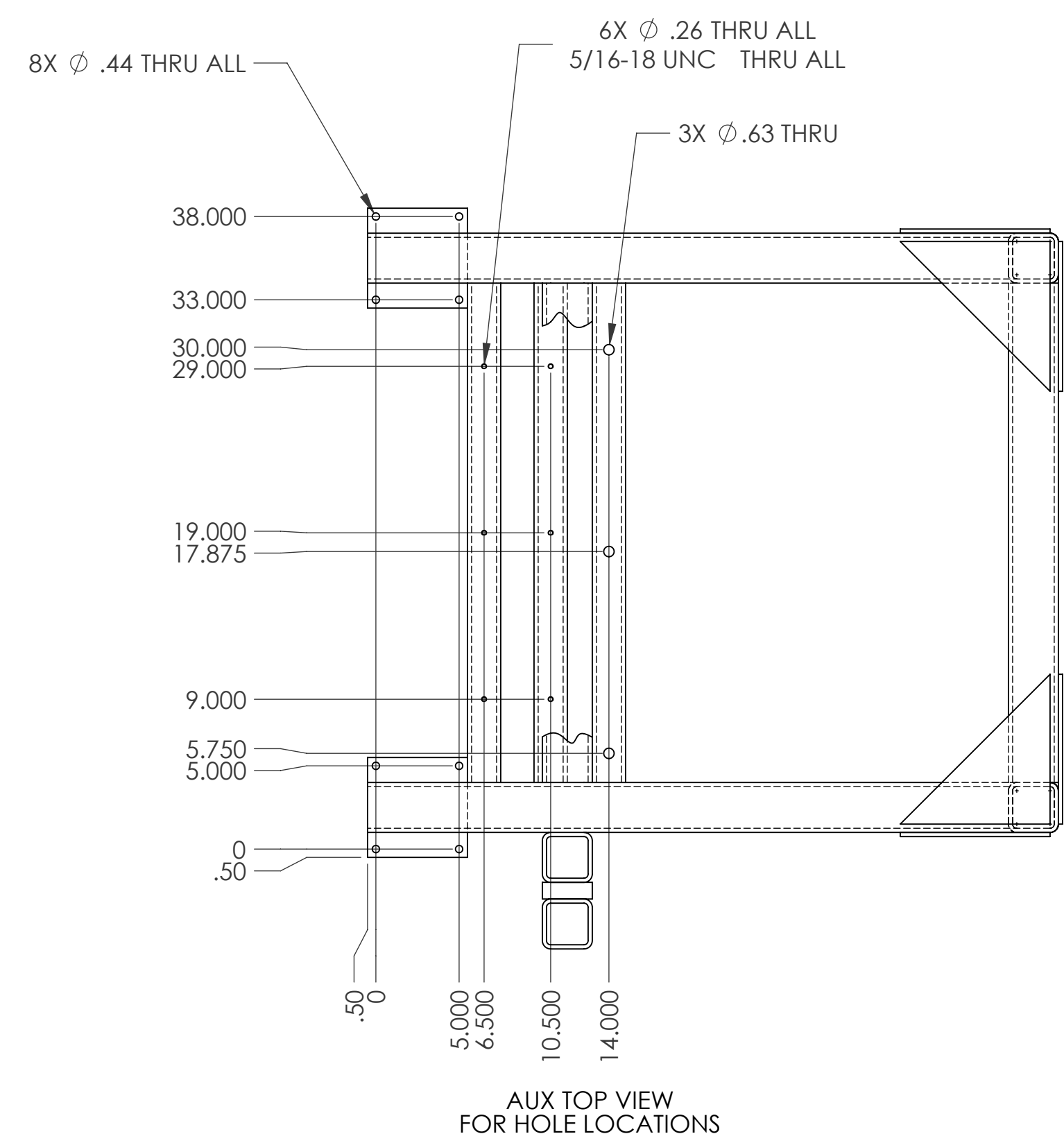
SCALE: 1:24 SHEET 1 OF 9

SIZE: D DWG NO: 70002

WEIGHT: 5075 LBS

FILE: 70002-MAPPER FAB FRAME ASSY

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
-	-	INITIAL ISSUE	-	-



2 NAME: Pb CAP
 QTY: 1
 MAT'L: LEAD
 HARD'N: -
 FINISH: PAINT PER SPEC
 SIZE/TYPE: 3.50 x 6.00 x 22.00
 WEIGHT: 182

NOTES:
 1) PAINT ALL SURFACES BLUE ENAMEL

ITEM NO.	QTY.	MATERIAL	DESCRIPTION	LENGTH	WEIGHT
1	2	STEEL	TUBE, SQUARE 3.00 X 3.00 X .25	41.5	29
2	2	STEEL	TUBE, SQUARE 3.00 X 3.00 X .25	36.81	25
3	2	STEEL	TUBE, SQUARE 3.00 X 3.00 X .25	35.5	25
4	3	STEEL	TUBE, SQUARE 3.00 X 3.00 X .25	30	22
5	2	CRS	.88 x 6.00	6.00	9
6	2	STEEL	TUBE, SQUARE 2.00 X 2.00 X .25	30	13
7	12	CRS	.25 x 9.00	9.00	3
8	1	STEEL	TUBE, SQUARE 2.00 X 2.00 X .25	30	13
9	2	STEEL	TUBE, SQUARE 3.00 X 3.00 X .25	3	2
10	1	STEEL	TUBE, SQUARE 3.00 X 3.00 X .25	36.81	27
11	2	CRS	1.00 x 3.00	3.00	9

3 NAME: DOG HOUSE
 QTY: 1
 MAT'L: WELDMENT
 HARD'N: -
 FINISH: PAINT PER SPEC
 SIZE/TYPE: SEE CHART
 WEIGHT: 351

NOTES:
 1) ALL WELDS ARE FILLET, NOT SHOWN
 2) ALL WELDS CONTINUOUS
 3) PAINT ALL UNMACHINED SURFACES BLUE ENAMEL

NOTE: DO NOT SCALE DRAWING!
 ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE:
 DIMENSIONS ARE IN:
 ☒ INCHES [mm] ☐ mm [IN]
 x.xx [x,x] ± .010 [.3]
 x.xxx [x,xxx] ± .005 [.13]
 x.xxxx [x,xxxx] ± .0005 [.013]
 xx/xx ± 1/32
 x' ± 1"

UNIVERSITY OF ROCHESTER
 DEPT. OF PHYSICS AND ASTRONOMY
 SIDNEY W. BARNES RESEARCH LABORATORY

TITLE: MINERVA MAPPER FRAME

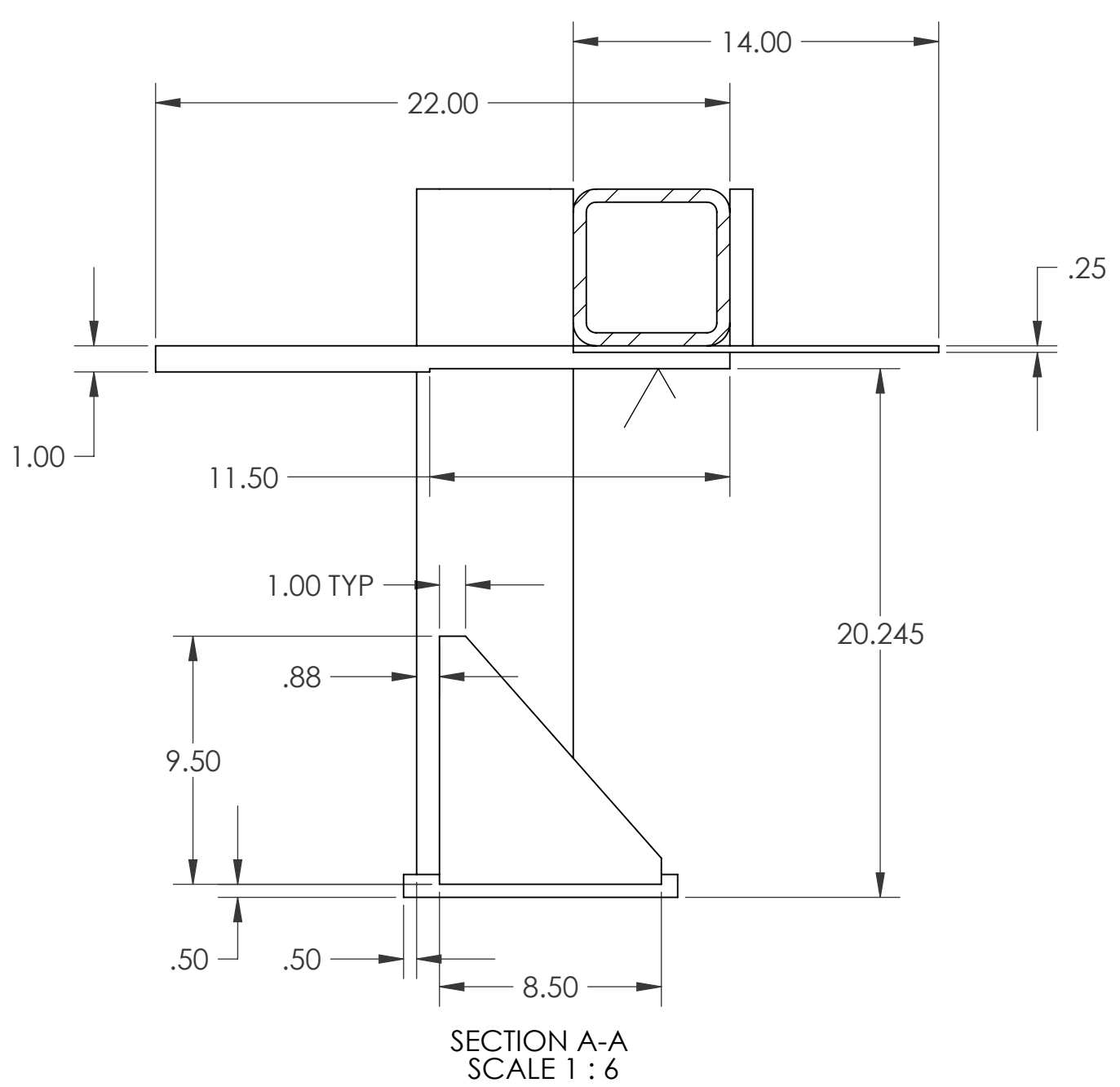
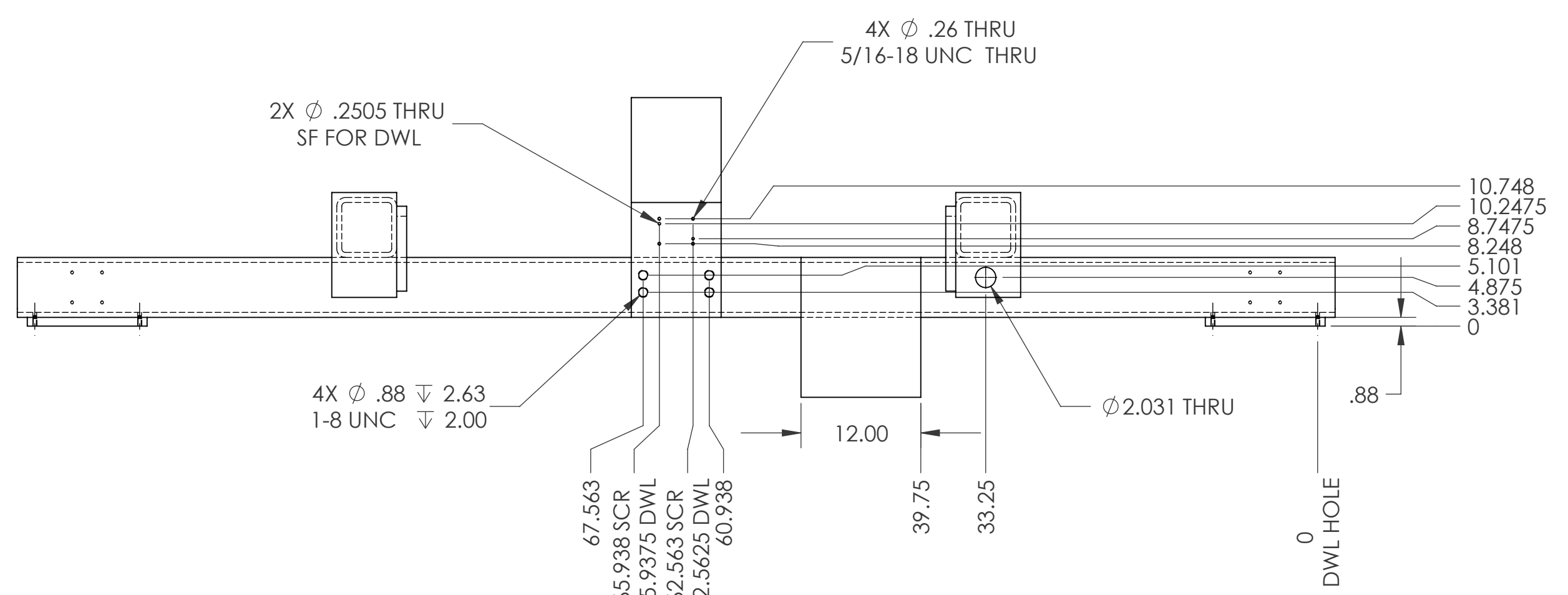
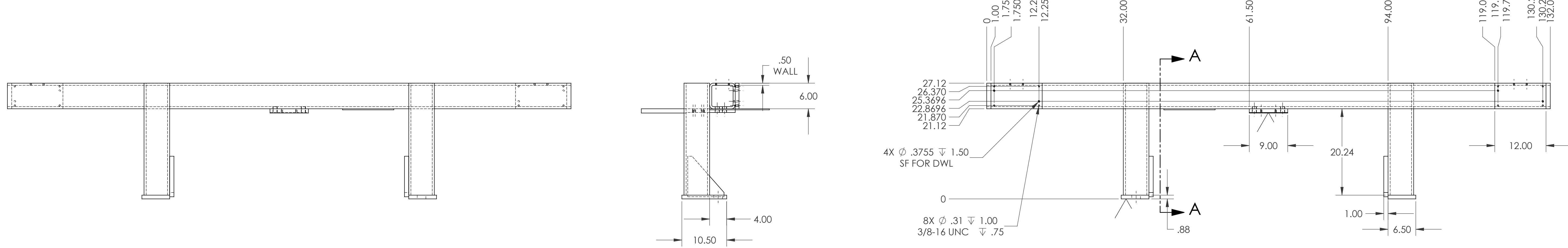
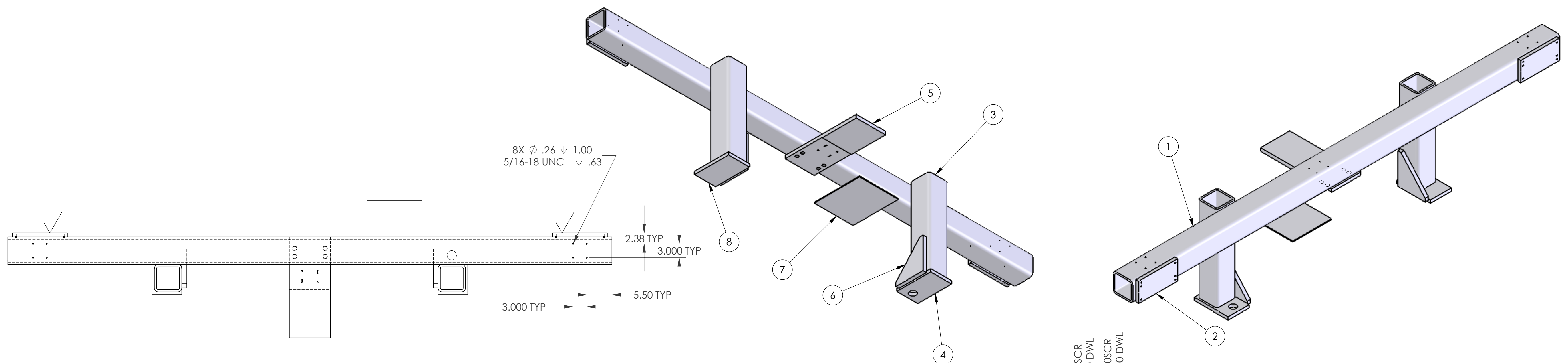
THIRD ANGLE PROJECTION	DRAWN: RSF	DATE: 2/1/07
	CHECKED: RSF	DATE: 2/1/07
	APPROVED: RSF	DATE: -

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SIZE (DWG NO)	70002	REV	-
SCALE	1:8	SHEET	2 OF 9

WEIGHT: 351 LBS FILE: 70002-MAPPER FAB FRAME ASSY

ZONE		REV	REVISIONS		DATE	APPRV
-	-	-	DESCRIPTION	INITIAL	ISSUE	-



4 NAME: MAIN FRAME, HORIZONTAL, LOWER
QTY: 1
MAT'L: WELDMNT
HARD'N: -
FINISH: PAINT PER SPEC
SIZE/TYPE: SEE CHART
WEIGHT: 702

NOTES:
1) ALL WELDS ARE FILLET, NOT SHOWN
2) ALL WELDS CONTINUOUS
3) PAINT ALL UNMACHINED SURFACES BLUE ENAMEL

ITEM NO.	QTY.	MATERIAL	DESCRIPTION	LENGTH	WEIGHT
1	1	STEEL	TUBE, SQUARE 6.00 X 6.00 X .50	132	389
2	2	CRS	.88 x 6.00	12.00	18
3	2	STEEL	TUBE, SQUARE 6.00 X 6.00 X .50	26.25	77
4	1	CRS	.88 x 6.50	10.50	16
5	1	CRS	1.00 x 14.00	12.00	51
6	2	CRS	1.00 x 8.50	9.50	14
7	1	CRS	.25 x 12.00	14.00	12
8	1	CRS	.88 x 6.50	10.50	51

NOTE: DO NOT SCALE DRAWING!
ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
 ☒ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
 x.xxx [x.xxx] ± .005 [.13]
 x.xxxx [x.xxxx] ± .0005 [.013]
 xx/xx ± 1/32
 x' ± 1"

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DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

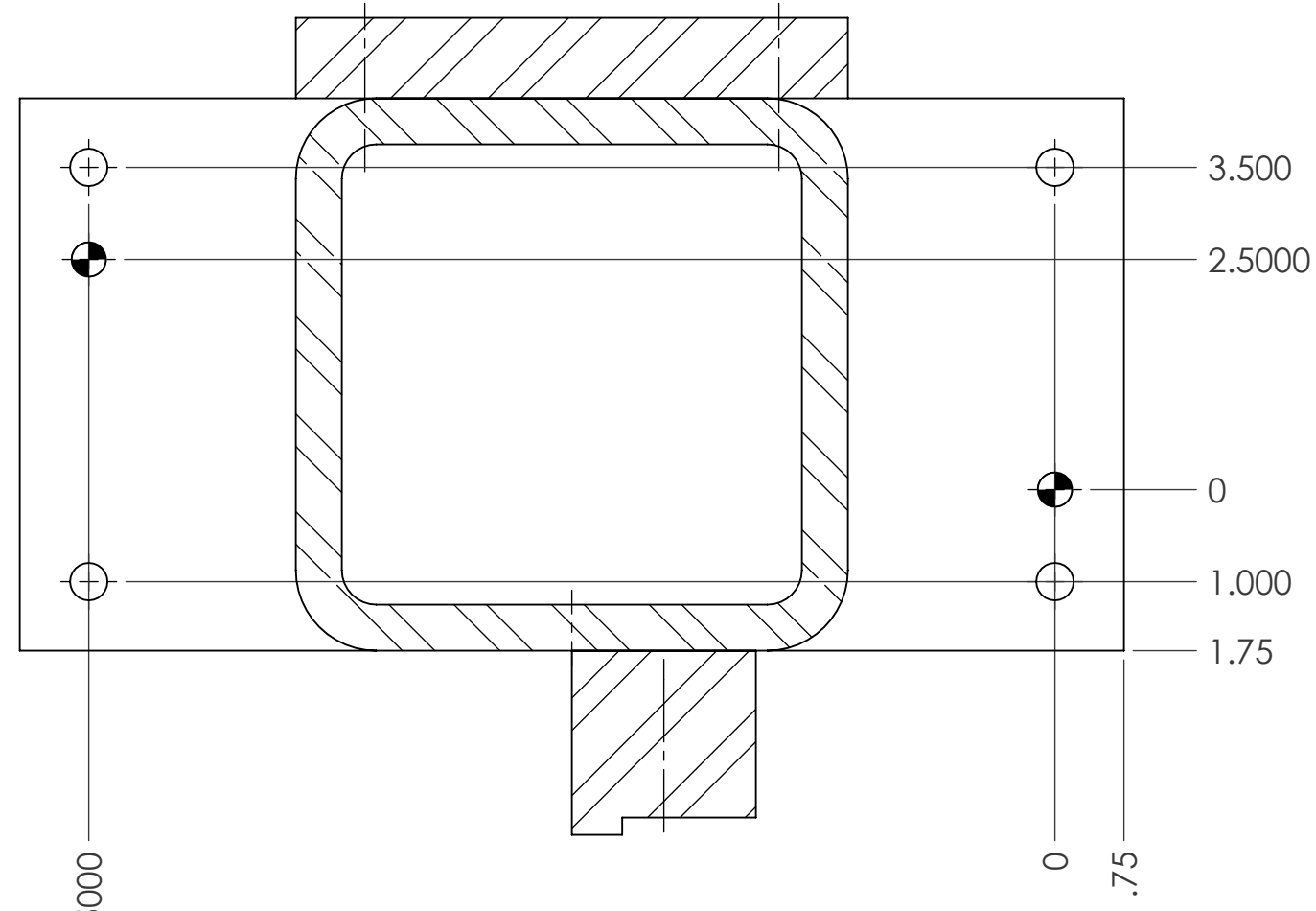
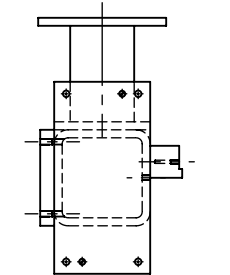
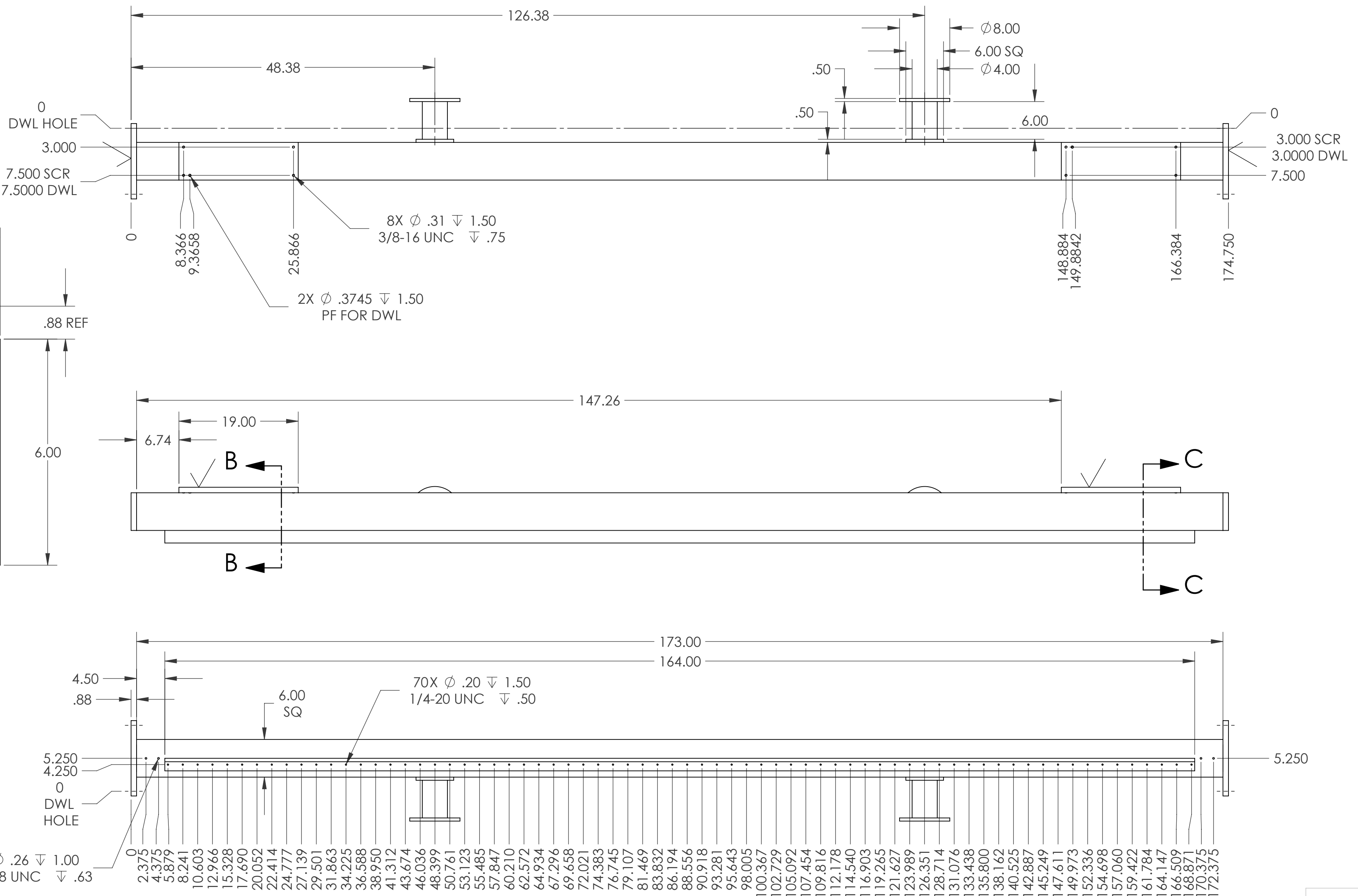
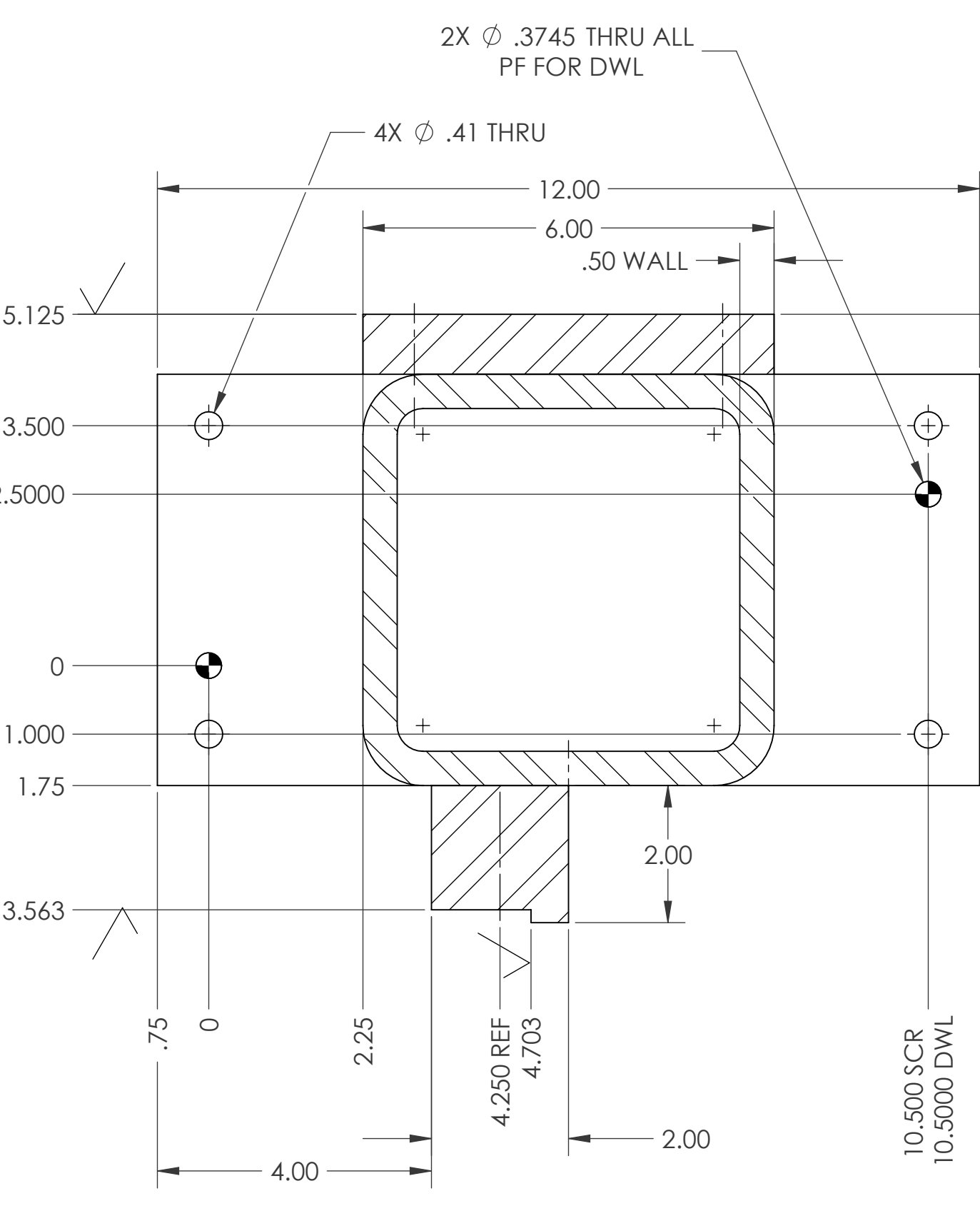
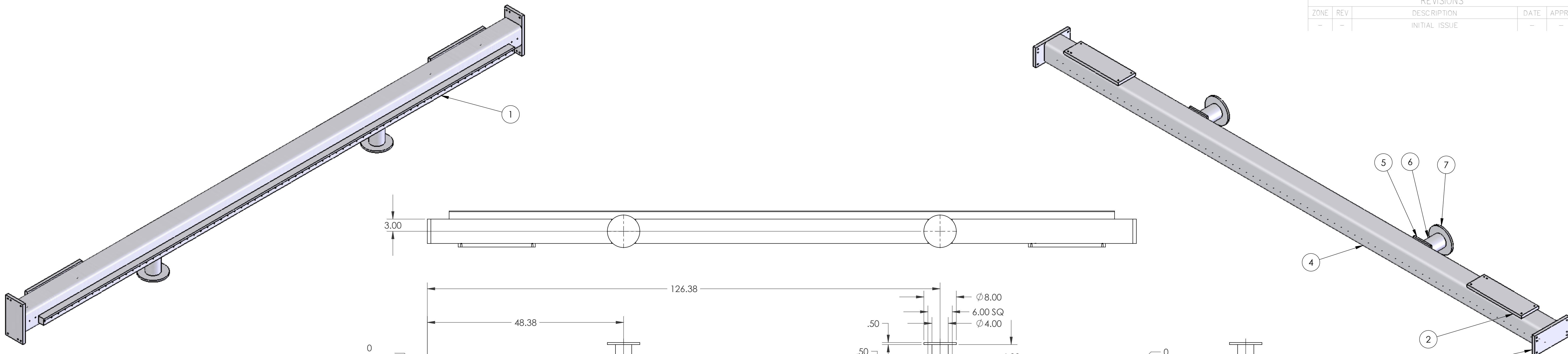
TITLE: MINERVA MAPPER FRAME

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE	2/1/07
CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	-

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SCALE 1:12	SHEET 3 OF 9	

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
-	-	INITIAL ISSUE	-	-



SECTION B-B
SCALE 1 : 2
VIEW VERIFIES ALL HOLES ARE INLINE

SECTION C-C
SCALE 1 : 2

5 NAME: MAIN FRAME VERT LH
QTY: 1
MAT'L: WELDMENT
HARD'N:
FINISH: PAINT PER SPEC
SIZE/TYPE: SEE CHART
WEIGHT: 839

- NOTES:
1) ALL WELDS ARE FILLET, NOT SHOWN
2) ALL WELDS CONTINUOUS
3) PAINT ALL UNMACHINED SURFACES BLUE ENAMEL

NO MACHINING ALLOWANCES ADDED

ITEM NO.	QTY.	MATERIAL	DESCRIPTION	LENGTH	WEIGHT
1	1	CRS	2.00 x 2.00	164.00	171
2	2	CRS	.88 x 6.00	19.00	28
3	2	CRS	.88 x 6.00	12.00	18
4	1	STEEL	TUBE, SQUARE 6.00 X 6.00 X .50	173	510
5	2	CRS	.50 x 6.00	6.00	5
6	2	CRS	4.00 DIA	6.00	21
7	2	CRS	8.00 DIA	.50	7

NOTE: DO NOT SCALE DRAWING!
ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☒ INCHES [mm] ☐ mm [IN]
x.xxx [x.x] ± .010 [.3]
x.xxxx [x.xxx] ± .005 [.13]
x.xxxxx [x.xxxx] ± .0005 [.013]
xx/xx ± 1/32
x' ± 1'

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DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

TITLE
MINERVA MAPPER FRAME

THIRD ANGLE PROJECTION
DRAWN: RSF
CHECKED: RSF
APPROVED: RSF
DATE: 2/1/07
DATE: 2/1/07
DATE: -

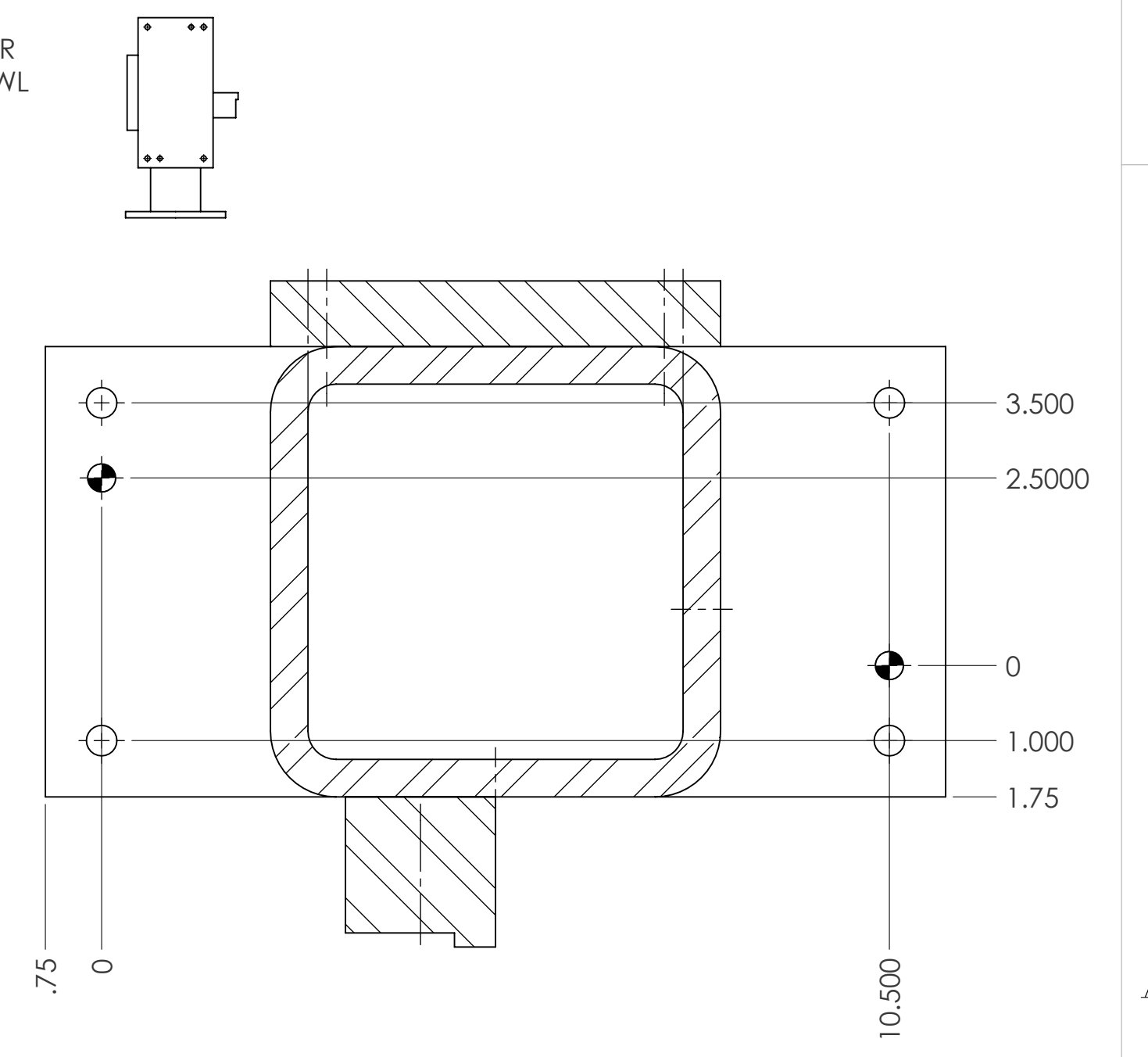
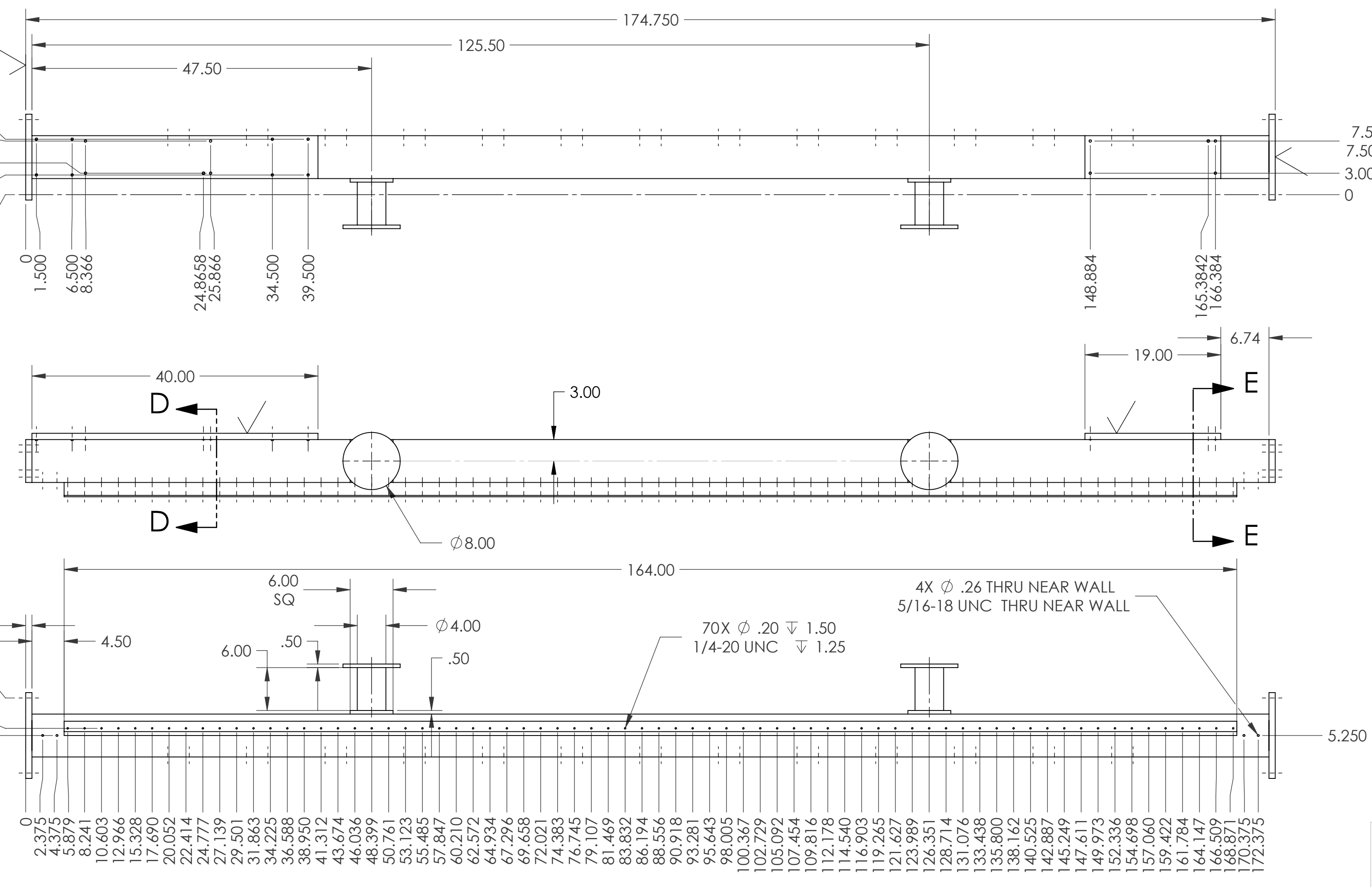
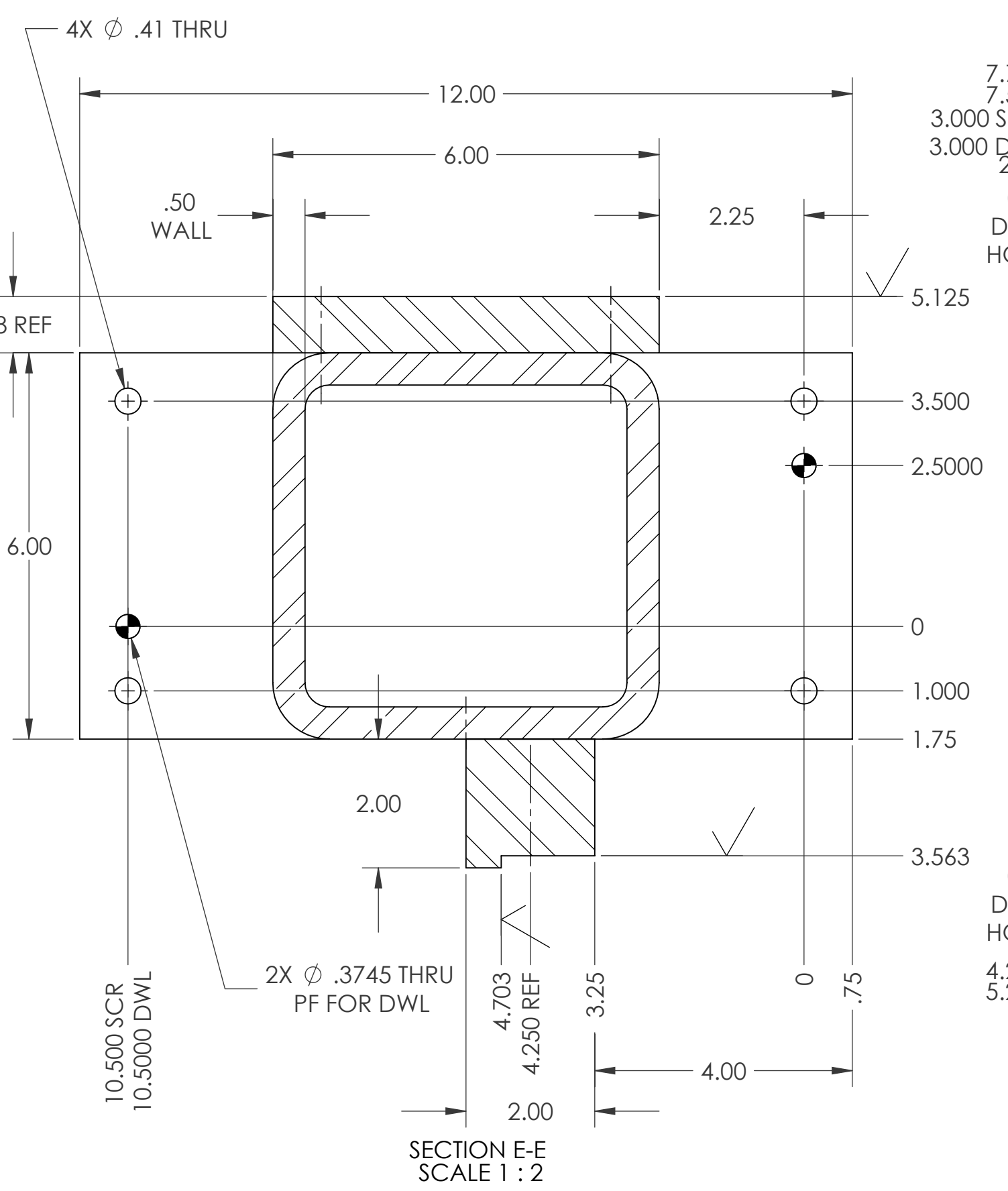
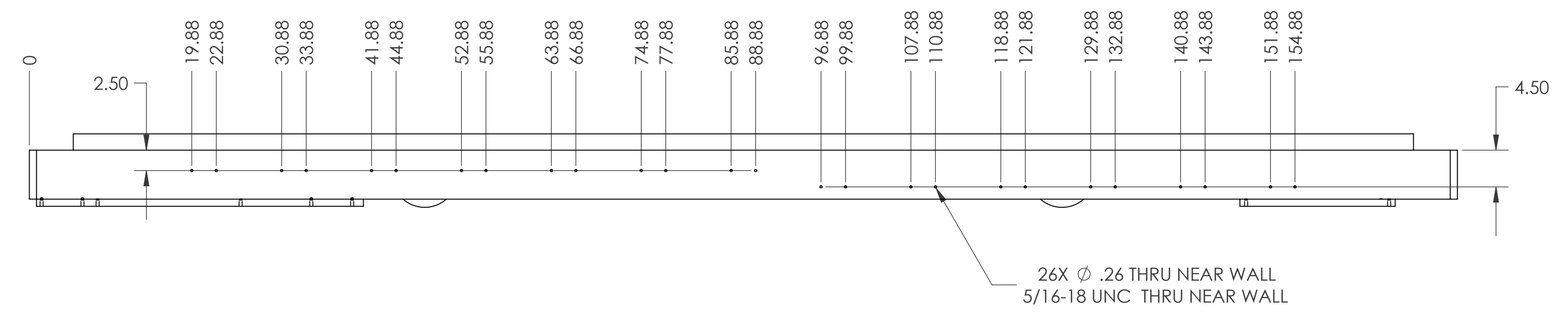
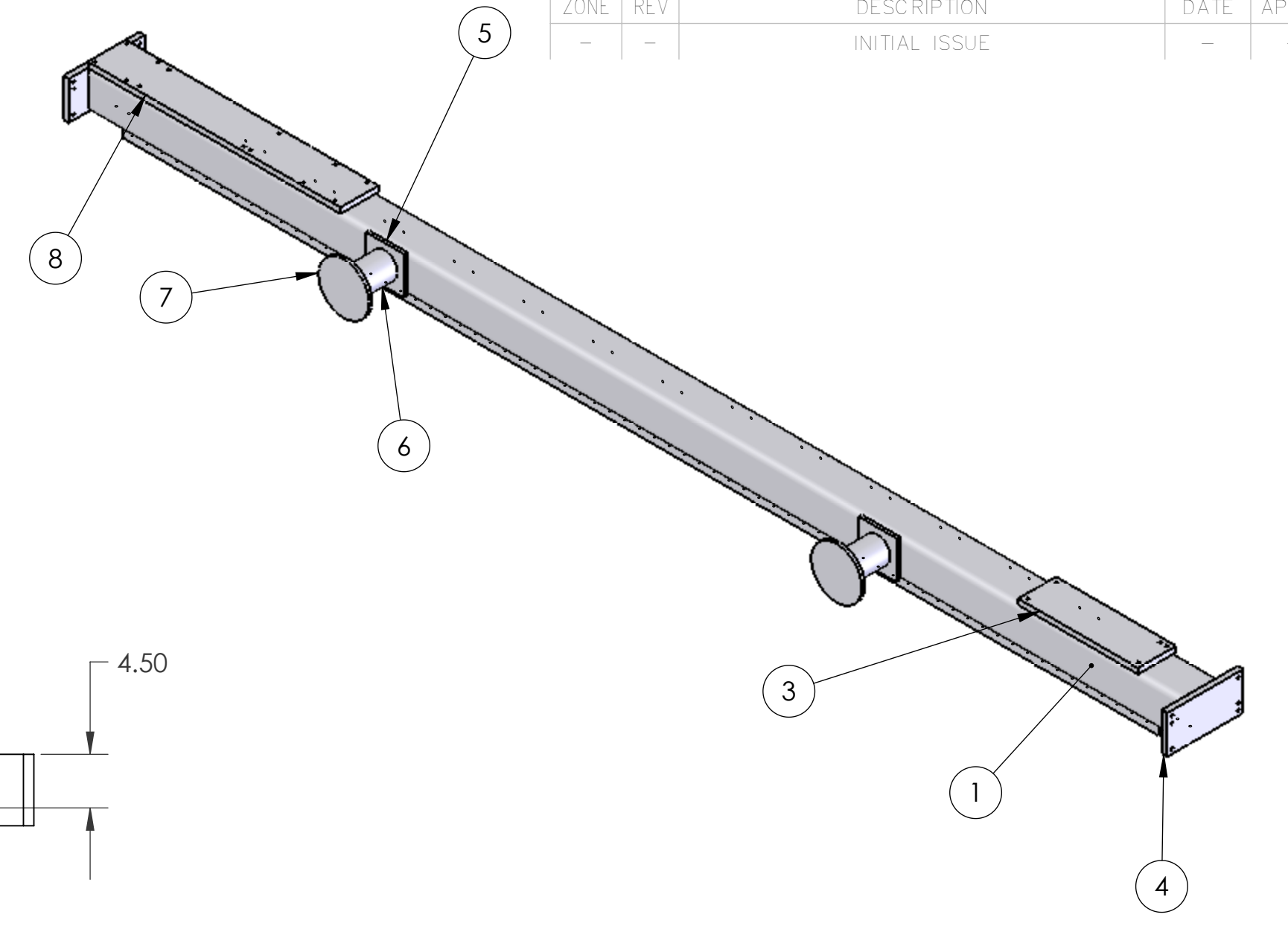
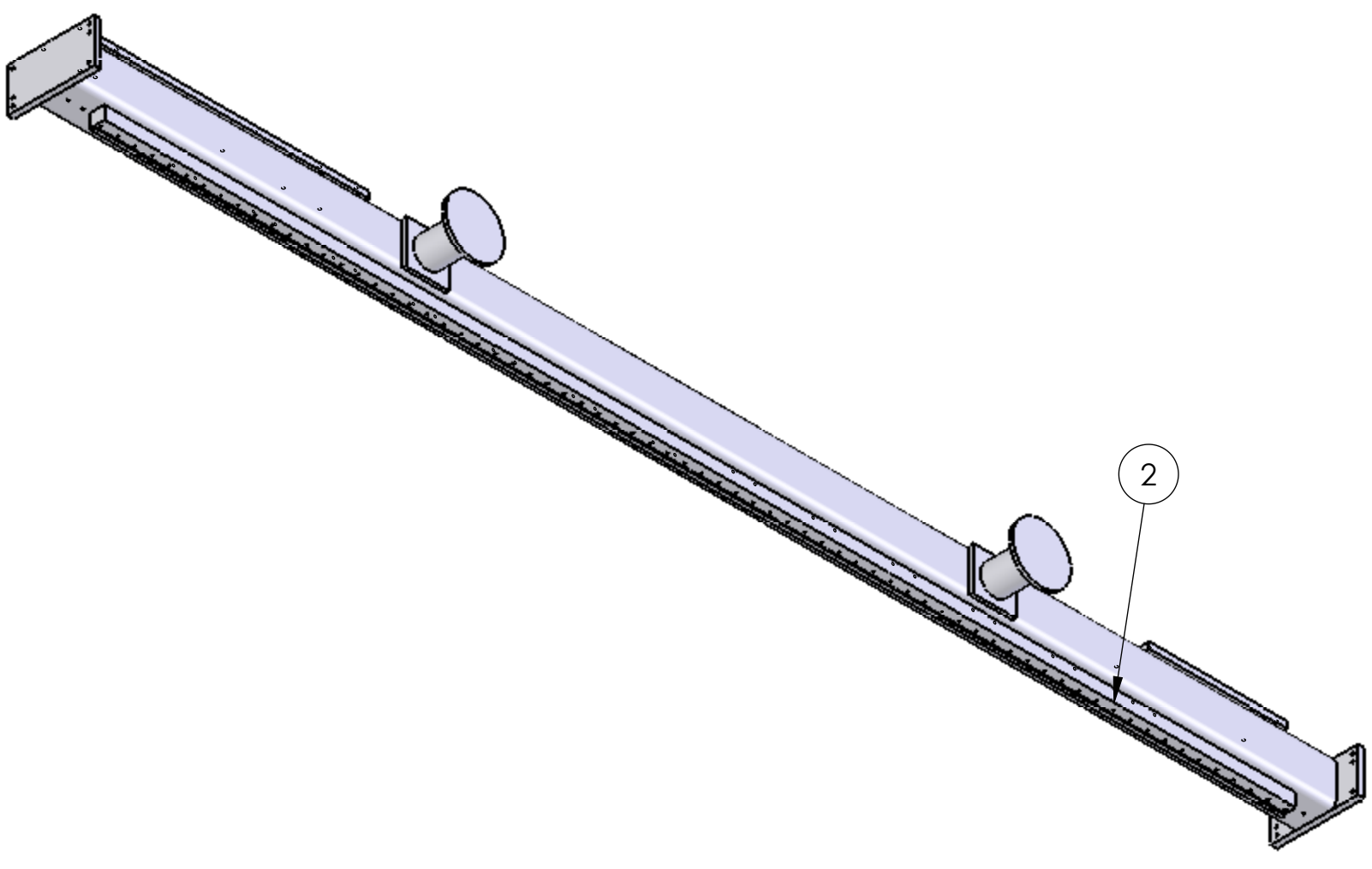
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SIZE [DWG NO]
D 70002
SCALE 1:12 SHEET 4 OF 9
REV -

WEIGHT: 839 LBS

FILE: 70002-MAPPER FAB FRAME ASSY

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
-	-	INITIAL ISSUE	-	-



- NOTES:
 1) ALL WELDS ARE FILLET, NOT SHOWN
 2) ALL WELDS CONTINUOUS
 3) PAINT ALL UNMACHINED SURFACES BLUE ENAMEL

1 NAME: MAIN FRAME VERT RH
 QTY: 1
 MAT'L: WELDMENT
 HARD'N: -
 FINISH: PAINT PER SPEC
 SIZE/TYPE: SEE CHART
 WEIGHT: 870

ITEM NO.	QTY.	MATERIAL	DESCRIPTION	LENGTH	WEIGHT
1	1	STEEL	TUBE, SQUARE 6.00 X 6.00 X .50	173	510
2	1	CRS	2.00 x 2.00	164.00	171
3	1	CRS	.88 x 6.00	19.00	28
4	2	CRS	.88 x 6.00	12.00	18
5	2	CRS	.50 x 6.00	6.00	5
6	2	CRS	4.00 DIA	6.00	21
7	2	CRS	8.00 DIA	.50	7
8	1	CRS	2.00 x 2.00	164.00	171

NOTE: DO NOT SCALE DRAWING!
 ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE
 DIMENSIONS ARE IN:
 ☒ INCHES [mm] ☐ mm [IN]
 x.xxx [x.x] ± .010 [.3]
 x.xxx [xxx] ± .005 [.13]
 x.xxxx [xxxx] ± .0005 [.013]
 xx/xx ± 1/32
 x' ± 1'

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TITLE
MINERVA MAPPER FRAME

THIRD ANGLE PROJECTION

DRAWN: RSF
 CHECKED: RSF
 APPROVED: RSF

DATE: 2/1/07
 DATE: 2/1/07
 DATE: -

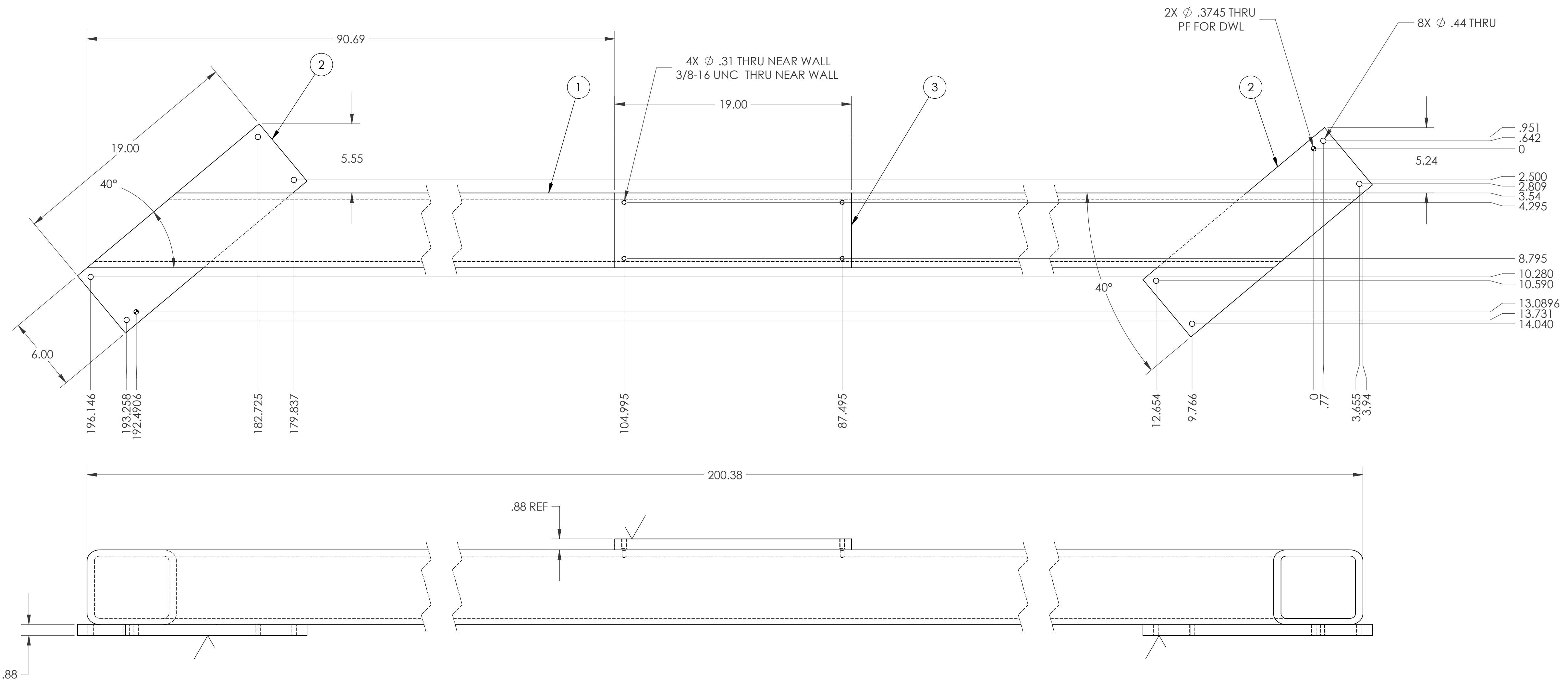
SIZE [DWG NO]
 D 70002

SCALE: 1:12 SHEET 5 OF 9

WEIGHT: 870 LBS

FILE: 70002-MAPPER FAB FRAME ASSY

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
-	-	INITIAL ISSUE	-	-



6 NAME: MAIN FRAME DIAG LOWER
 QTY: 1
 MAT'L: WELDMENT
 HARD'N: -
 FINISH: PAINT PER SPEC
 SIZE/TYPE: SEE CHART
 WEIGHT: 654

NOTES:
 1) ALL WELDS ARE FILLET, NOT SHOWN
 2) ALL WELDS CONTINUOUS
 3) PAINT ALL UNMACHINED SURFACES BLUE ENAMEL

ITEM NO.	QTY.	MATERIAL	DESCRIPTION	LENGTH	WEIGHT
1	1	STEEL	TUBE, SQUARE 6.00 X 6.00 X .50	200.38	570
2	2	CRS	.88 x 6.00	19.00	28
3	1	CRS	.88 x 6.00	19.00	28

NOTE: DO NOT SCALE DRAWING!
 ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
 ☒ INCHES [mm] ☐ mm [IN]

x.xx [x,x] ± .010 [.3]
 x.xxx [x,xxx] ± .005 [.13]
 x,xxx [x,xxx] ± .0005 [.013]
 xx/xx ± 1/32
 x' ± 1"

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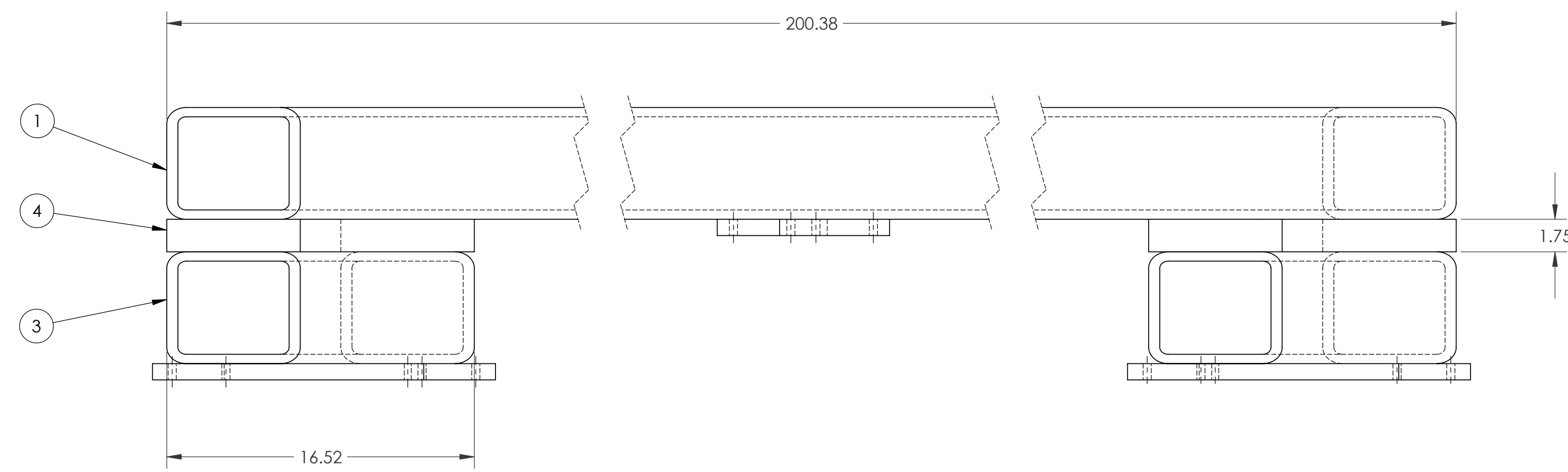
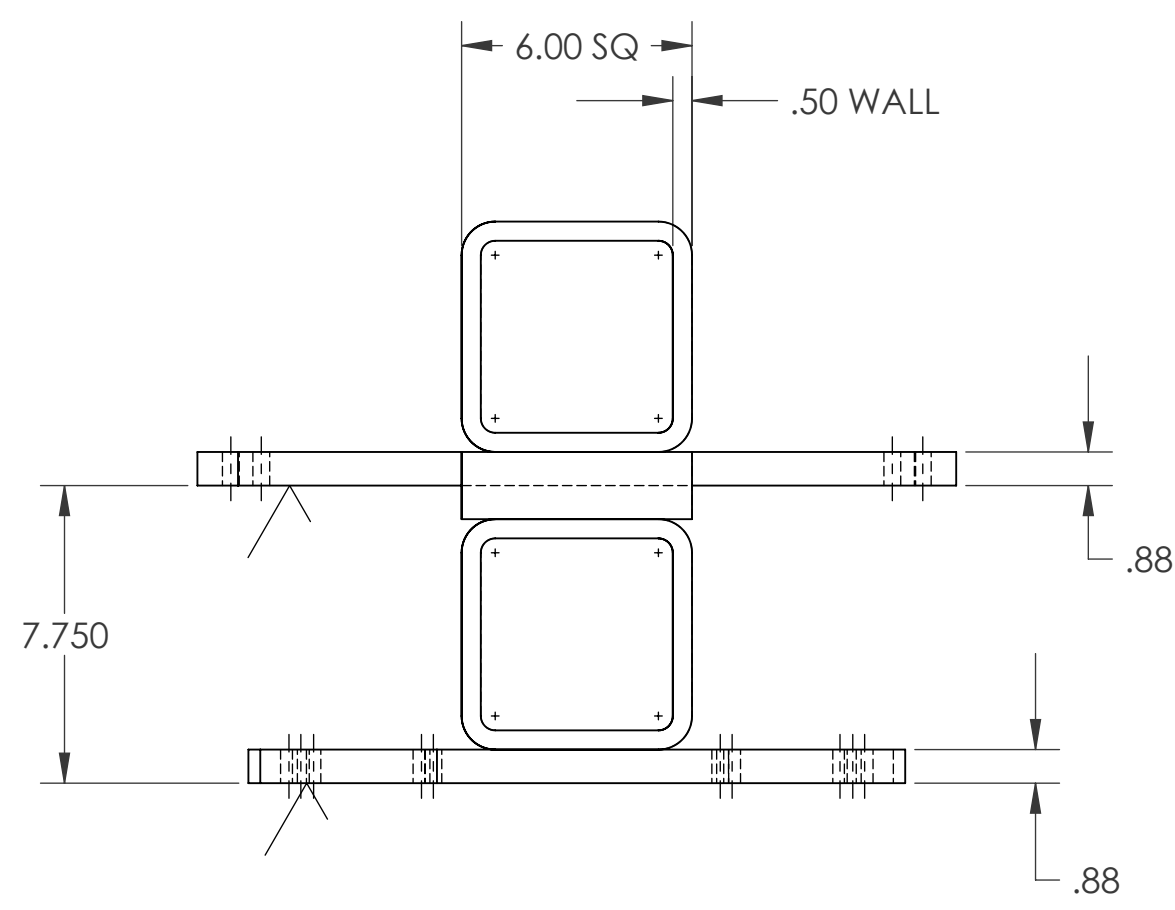
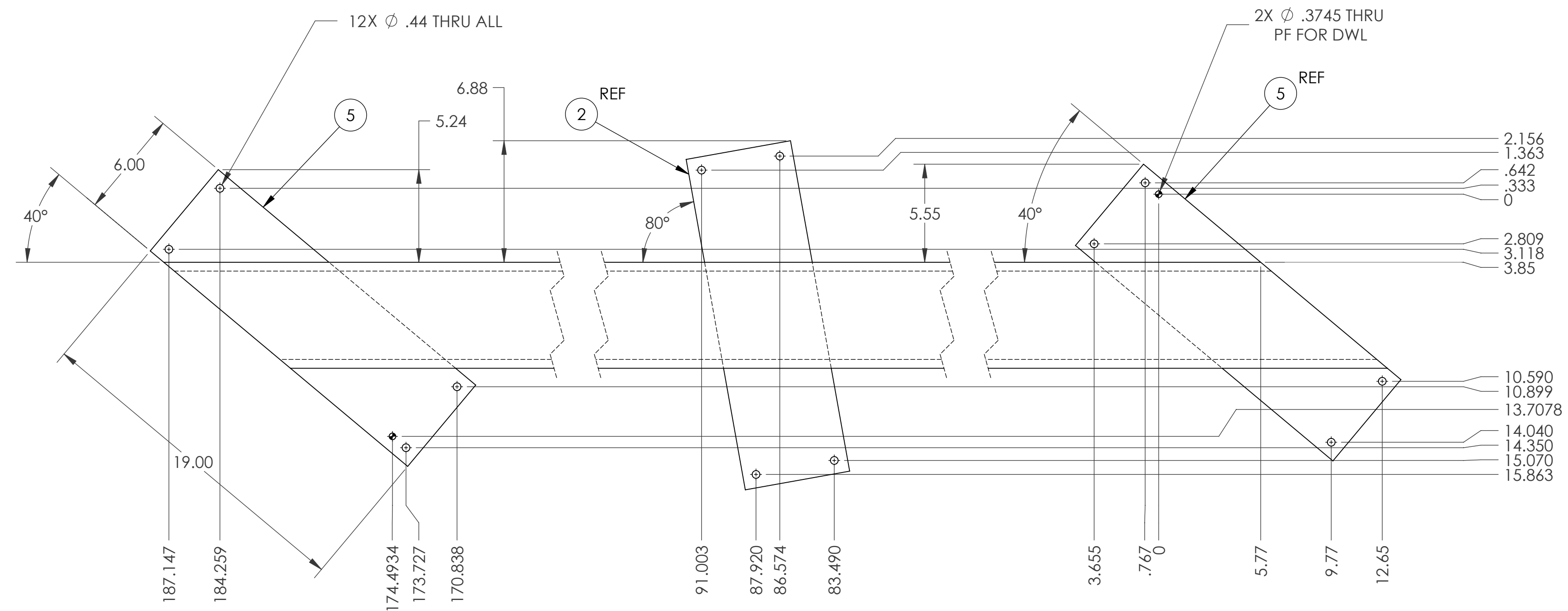
TITLE
 MINERVA MAPPER FRAME

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE	2/1/07
CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	-

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SCALE 1:5	SHEET 6 OF 9	

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
-	-	INITIAL ISSUE	-	-



7 NAME: MAIN FRAME DIAG UPPER
 QTY: 1
 MAT'L: WELDMENT
 HARD'N:
 FINISH: PAINT PER SPEC
 SIZE/TY: SEE CHART
 WEIGHT: 764

NOTES:
 1) ALL WELDS ARE FILLET, NOT SHOWN
 2) ALL WELDS CONTINUOUS
 3) PAINT ALL UNMACHINED SURFACES BLUE ENAMEL

ITEM NO.	QTY.	MATERIAL	DESCRIPTION	LENGTH	WEIGHT
1	1	STEEL	TUBE, SQUARE 6.00 X 6.00 X .50	200.38	570
2	1	CRS	.88 x 6.00	19.00	28
3	2	STEEL	TUBE, SQUARE 6.00 X 6.00 X .50	16.52	28
4	2	CRS	1.75 x 6.00	16.52	28
5	2	CRS	.88 x 6.00	19.00	28

NOTE: DO NOT SCALE DRAWING!
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 DIMENSIONS ARE IN:
 ☒ INCHES [mm] ☐ mm [IN]
 x.xx [x,x] ± .010 [.3]
 x.xxx [x,xxx] ± .005 [.13]
 x,xxxx [x,xxxx] ± .0005 [.013]
 xx/xx ± 1/32
 x' ± 1"

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TITLE: MINERVA MAPPER FRAME

THIRD ANGLE PROJECTION

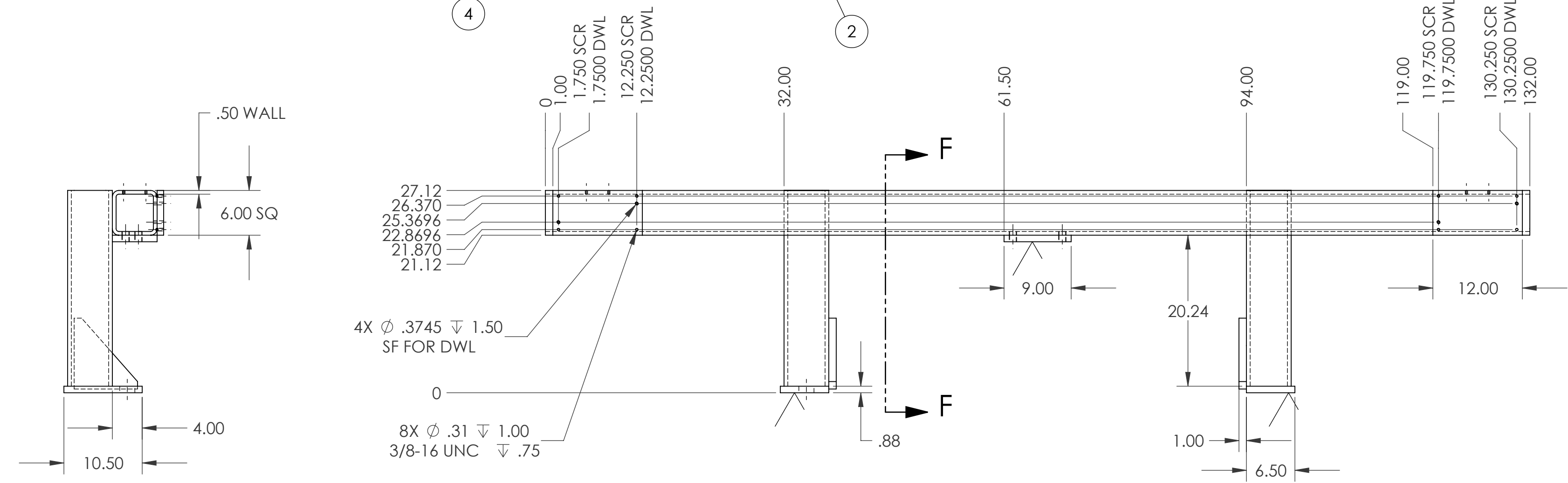
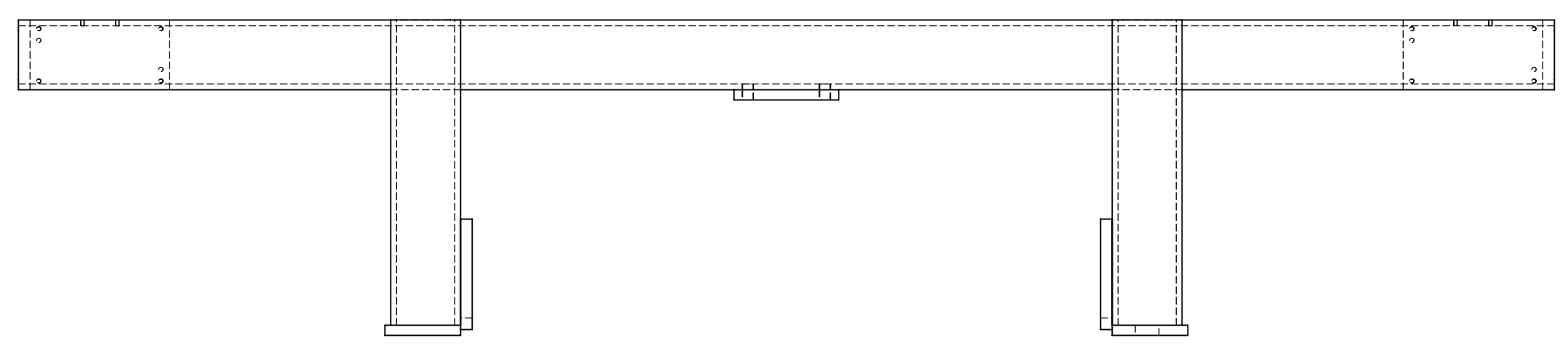
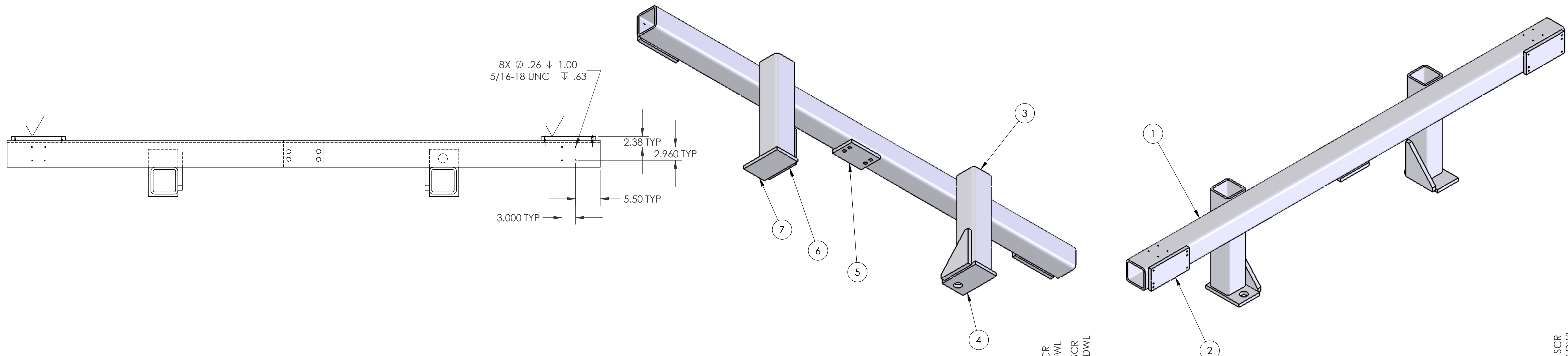
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CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	-

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SCALE	1:5	SHEET	7 OF 9		

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
-	-	INITIAL ISSUE	-	-

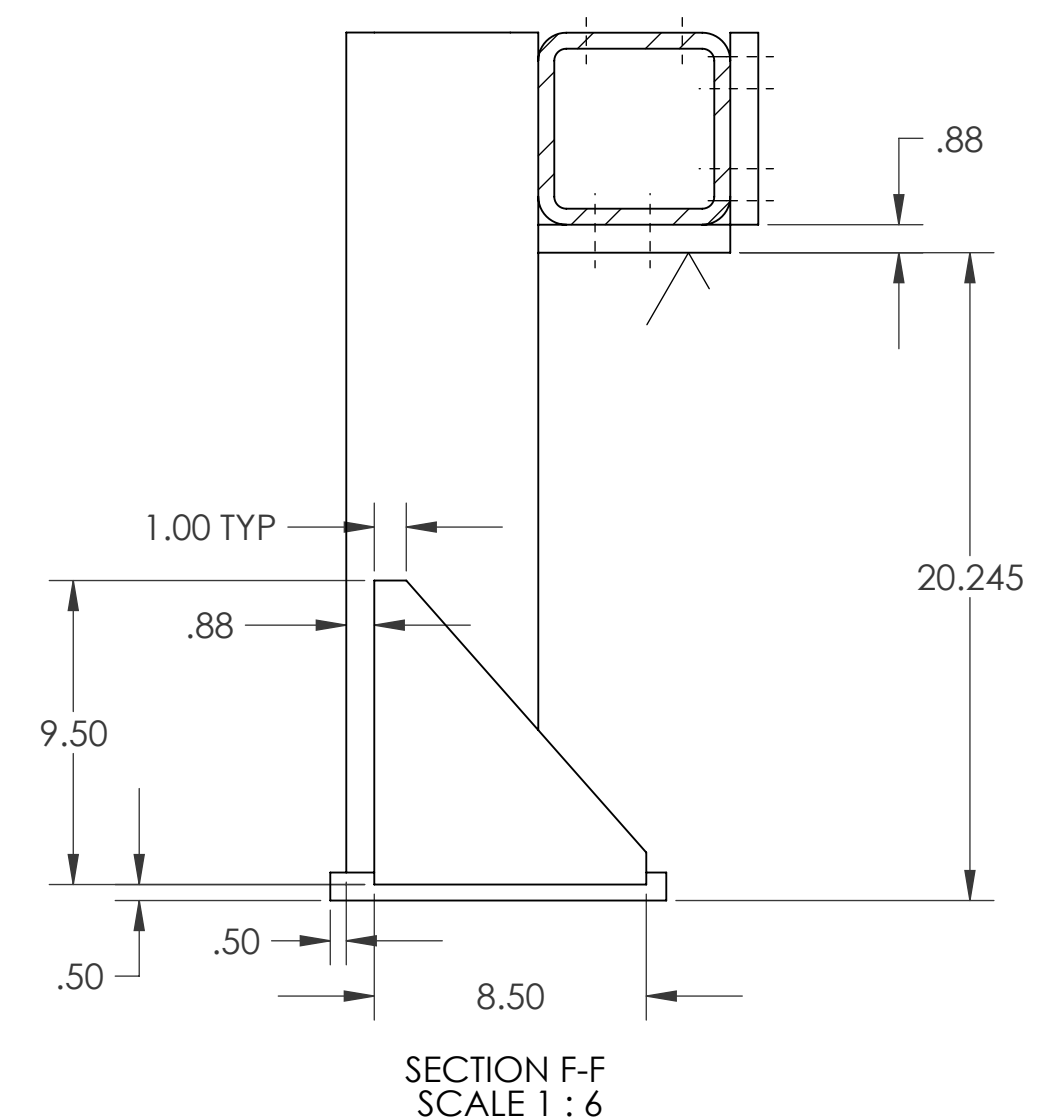
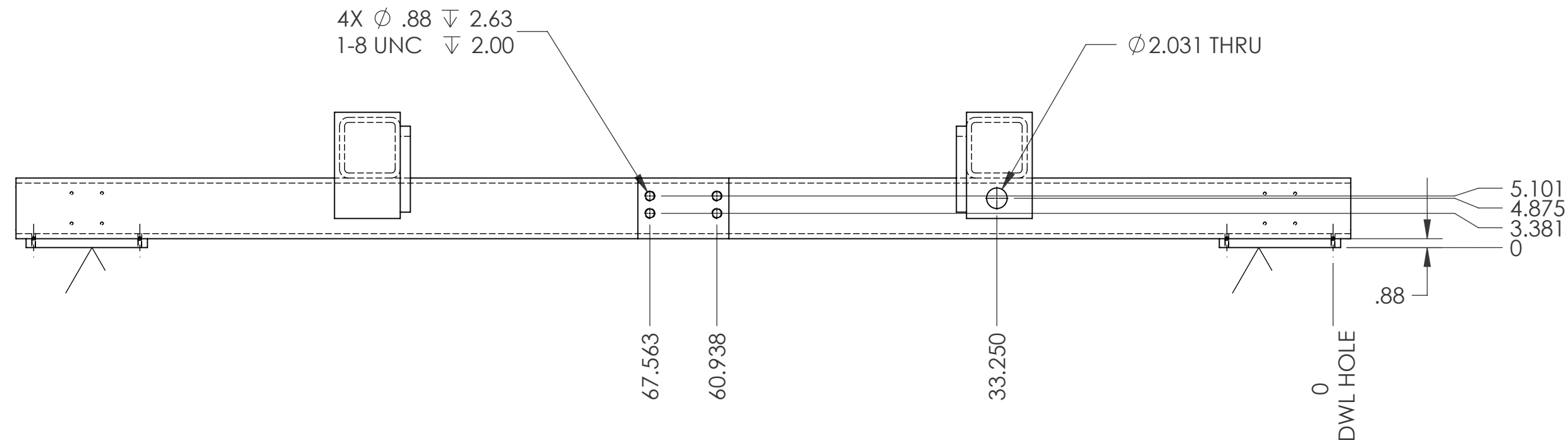
B

B



A

A



8 NAME: MAIN FRAME HORIZ UPPER
 QTY: 1
 MAT'L: WELDMENT
 HARD'N: -
 FINISH: PAINT PER SPEC
 SIZE/TYPER: SEE CHART
 WEIGHT: 652

NOTES:
 1) ALL WELDS ARE FILLET, NOT SHOWN
 2) ALL WELDS CONTINUOUS
 3) PAINT ALL UNMACHINED SURFACES BLUE ENAMEL

Weldment Cut List					
ITEM NO.	QTY.	MATERIAL	DESCRIPTION	LENGTH	WEIGHT
1	1	STEEL	TUBE, SQUARE 6.00 X 6.00 X .50	132	389
2	2	CRS	.88 x 6.00	12.00	18
3	2	STEEL	TUBE, SQUARE 6.00 X 6.00 X .50	26.25	77
4	1	CRS	.88 x 6.50	10.50	16
5	1	CRS	1.00 x 14.00	12.00	13
6	2	CRS	1.00 x 8.50	8.50	14
7	1	CRS	.88 x 6.50	10.50	17

NOTE: DO NOT SCALE DRAWING!
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 x.xx [x.x] ± .010 [.3]
 x.xxx [x.xxx] ± .005 [.13]
 x.xxxx [x.xxxx] ± .0005 [.013]
 xx/xx ± 1/32
 x' ± 1'

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 DEPT. OF PHYSICS AND ASTRONOMY
 SIDNEY W. BARNES RESEARCH LABORATORY

TITLE: MINERVA MAPPER FRAME

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE	2/1/07
CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	-

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SIZE	DWG NO	REV
D	70002	-
SCALE	SHEET	OF
1:12	8	9

WEIGHT: 652 LBS

FILE: 70002-MAPPER FAB FRAME ASSY

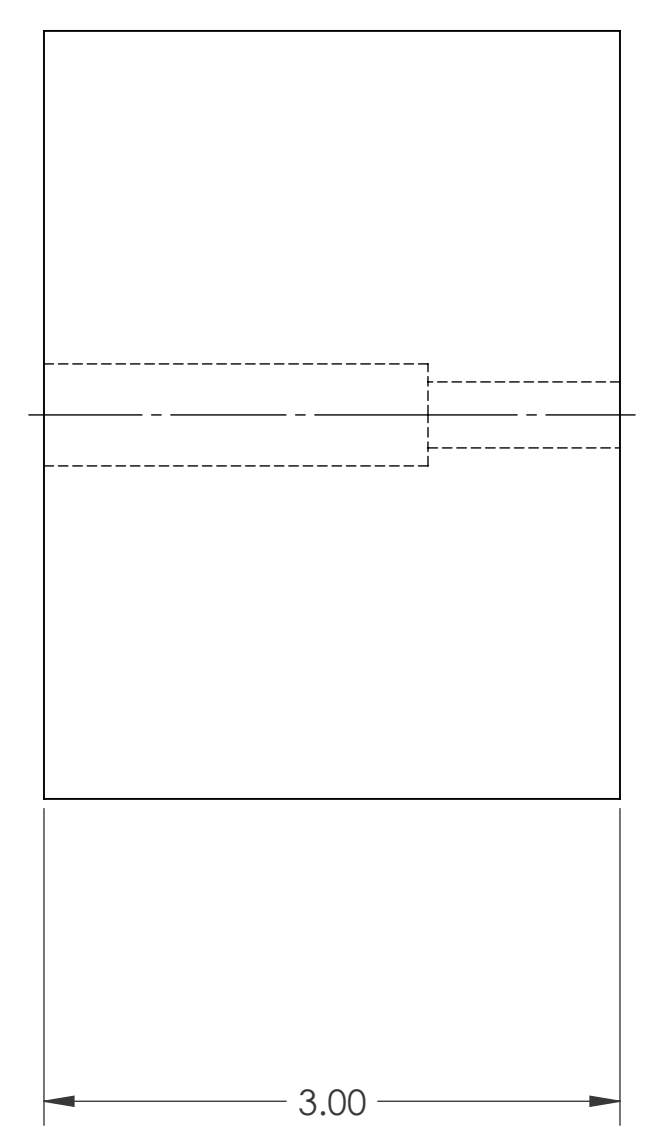
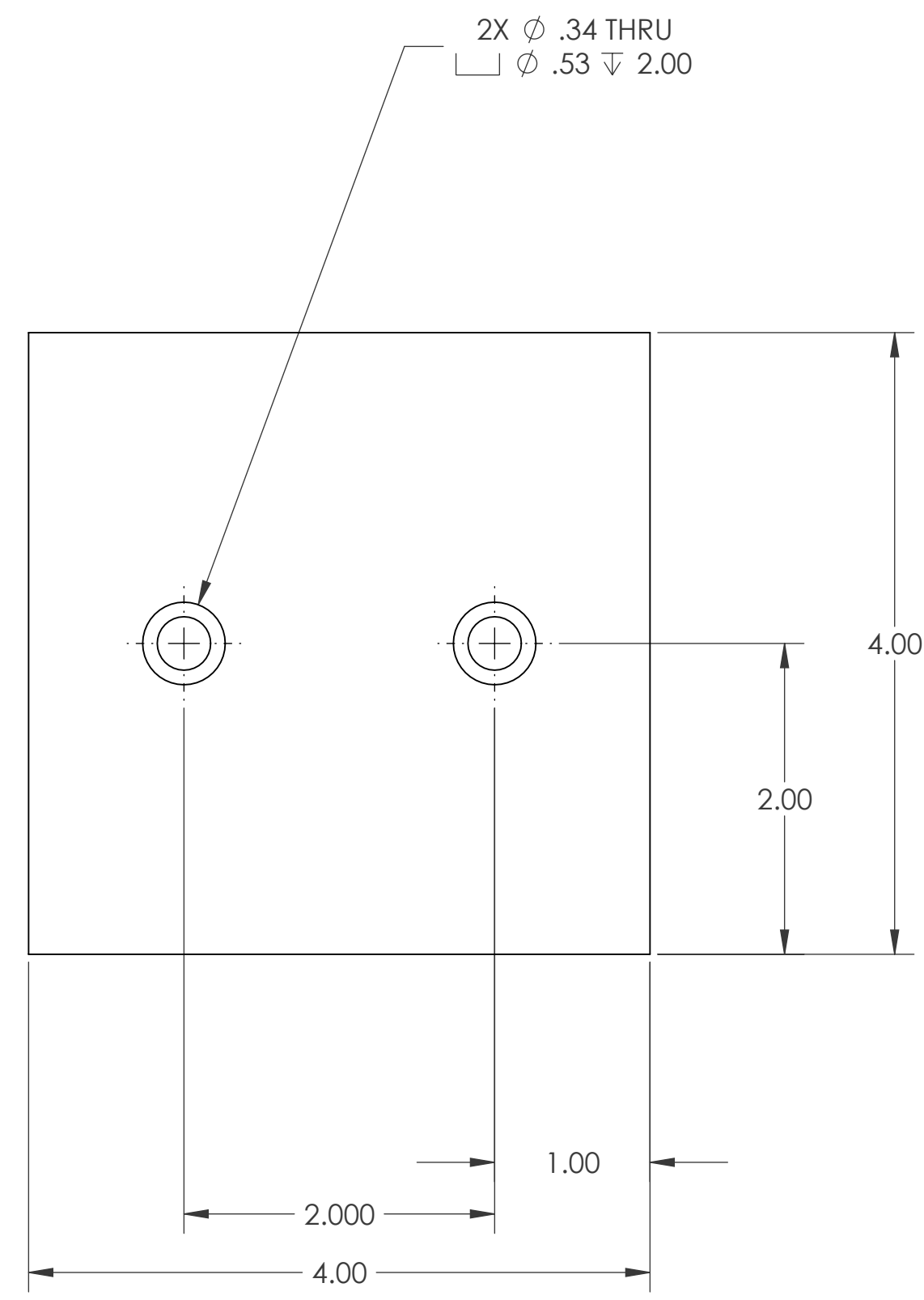
4

3

2

1

ZONE		REV	DESCRIPTION	DATE	APPRV
-	-	-	INITIAL ISSUE	-	-



9 NAME: CARRIAGE STOP
 QTY: 4
 MATL: CRS
 HARD'N: -
 FINISH: PAINT PER SPEC
 SIZE/TYPE: 3.00 x 4.00 x 4.00
 WEIGHT: 13

NOTES:
 1) PAINT ALL UNMACHINED SURFACES BLUE ENAMEL

NOTE: DO NOT SCALE DRAWING !
 ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
 INCHES [mm] mm [IN]

x.xx [x,x] \pm .010 [.3]
 x.xxx [x,xx] \pm .005 [.13]
 x.xxxx [x,xxx] \pm .0005 [.013]
 xx/xx \pm 1/32
 x' \pm 1'

UNIVERSITY OF ROCHESTER
 DEPT. OF PHYSICS AND ASTRONOMY
 SIDNEY W. BARNES RESEARCH LABORATORY

TITLE: MINERVA MAPPER FRAME

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE	2/1/07
CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	-

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SIZE	DWG NO	REV
D	70002	-
SCALE	SHEET	OF
1:1	9	9

4

3

2

1