PHENIX MuTr North Scaffold Installation Procedure

procedure name

PHENIX Procedure No.PP-2.5.5.4-22

Revision: A **Date: 4-30-02**

Hand Processed Changes

HPC No.	Date	Page Nos.	Initials

Approvals

Peter J. Kroon 5/14/02
PHENIX S E & I Date

David M. Lee 14 May 02
Cognizant Scientist/Engineer Date /Activity Manager

William Kley 5/13/02
PHENIX Safety Date

CA-D Liaison Date

REVISION CONTROL SHEET

LETTER	DESCRIPTION	DATE	WRITTEN BY	APPROVED BY	CURRENT OVERSIGHT
A	First Issue	4/30/2002	n/a	P.Kroon, D. Lee, W Lenz	
DEACTIVATED	Installation Completed. This procedure shall be re-activated when necessary	7/22/2007	n/a	D. Lynch, R. Pisani, P. Giannotti	D. Lynch

North Scaffold Installation Procedure

1.0 Purpose and Scope

1.1 The purpose of this procedure is to provide direction for the installation of the North scaffolding. The bulk of the scaffolding is commercial items from BIL-JAX, Inc. It consists of scaffolding placed inside the magnet between stations 2 and 3.

2.0 Responsibilities

2.1 All operations shall be performed under the direction of the PHENIX experimental hall "person-in-charge", or their designee.

2.2 This procedure and all relevant BNL safety guidelines must be strictly adhered to. In accordance with BNL policy, any individual may cease operations if they in any way feel unsafe or if they believe unsafe procedures are being followed, such a complaint shall be reviewed by the cognizant engineer, and if necessary, BNL ES&H service.

2.3 A representative from the muon-tracking mechanics team should be present at all times where critical lifts and questions arise.

3.0 Prerequisites

3.1 Training: All personnel involved in this procedure shall have reviewed this procedure, and be fully knowledgeable about the way in which the scaffolding is mounted in the North magnet. A meeting will take place with all participants involved with this installation to review all aspects and answer any questions that any of the personnel may have.

3.2 All personnel involved with in this procedure shall have a safety awareness certificate.

3.3 All personnel involved in this procedure shall wear hardhats and safety shoes.

4.0 Precautions

4.1 The area where rigging operations will be performed shall be cordoned-off to all personnel except the "person in charge" and the technicians assigned to perform this procedure.

4.2 Some operations will require personnel to work in close proximity to suspended loads. Do not permit anyone to be positioned under the load.

4.3 The maximum static load is 1400 lbs. This provides a safety factor of 4.

5.0 Equipment List

5.1 Torque wrench

6.0 Preparation

6.1 Magnet hoses tested and leak tight.

6.2 A complete set of scaffolding assembly drawings is available, along with a set of photographs taken at New Mexico State University, where a complete pre-assembly has taken place.

7.0 **Procedure**

7.1 Internal scaffolding.

7.1.1 The internal scaffolding is assembled from the bottom to the top as the detectors and FEE is installed.

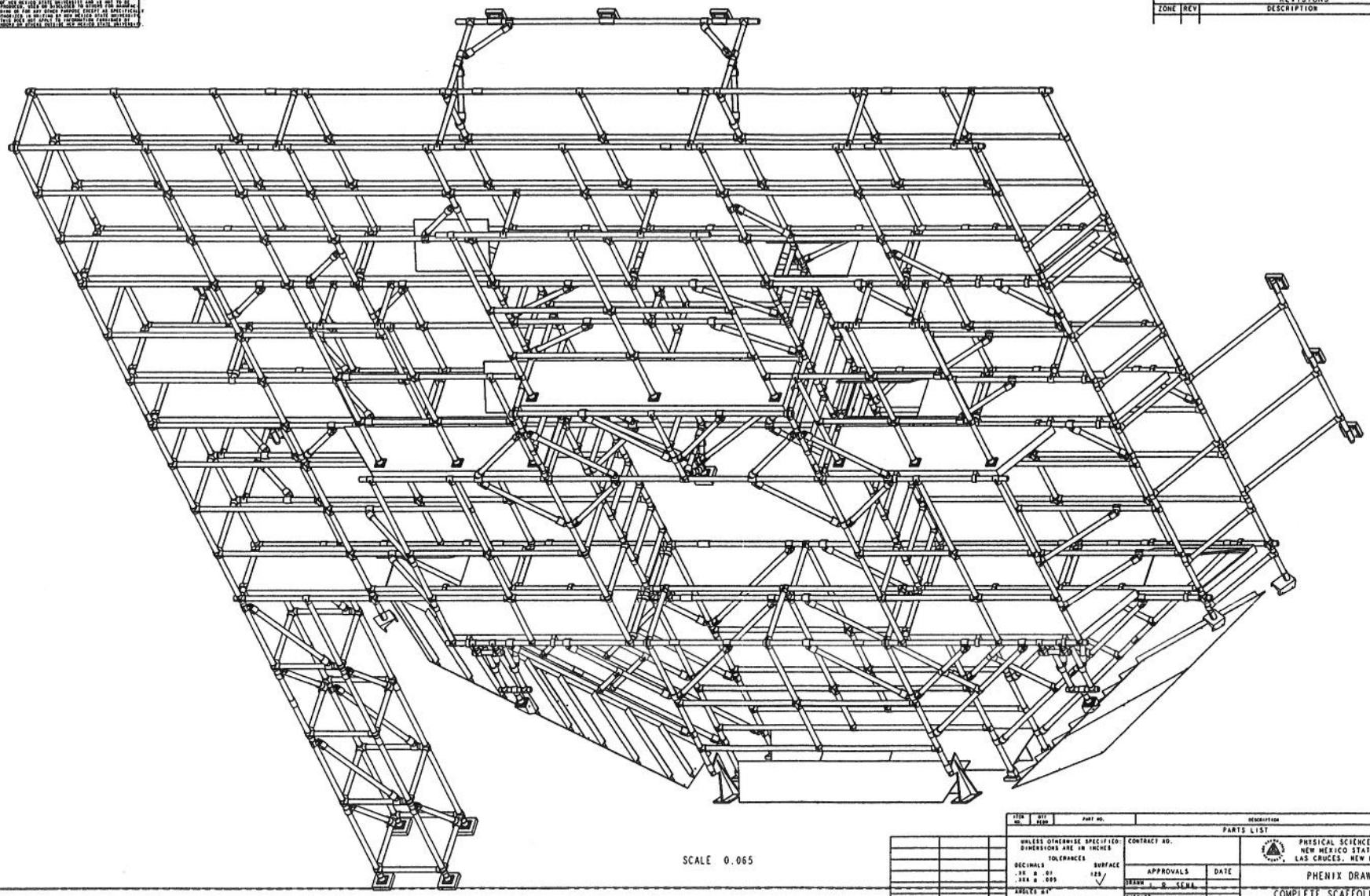
7.1.2 Attach to the bottom of the magnet the ladders on either side, drawing 017511 25-26

7.1.3 Attach to the bottom of the magnet the bottom stair, drawing 017511 21-22

7.1.4 Attach to the bottom of the magnet the bottom foot drawing 017511 23-24

7.1.5 Attach remaining scaffolding as needed.

7.1.6 All setscrews, used with the internal scaffolding couplings, should be set to a maximum torque of 12-ft. lbs.



SCALE 0.065

DWG. NO.	SHT.	REV.

REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVAL

PARTS LIST

ITEM NO.	QTY PER	PART NO.	DESCRIPTION	MATERIAL/SPECIFICATION

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS .XX ± .01 .XXX ± .005
SURFACE 125
ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

CONTRACT NO.

APPROVALS	DATE
DRAWN J. R. SENA	
CHECKED	
APPROVED	
APPROVED	

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LAS CRUCES, NEW MEXICO 88003

PHENIX DRAWING

COMPLETE SCAFFOLDING ASSEMBLY

SIZE D | CAGE NO. 1D978 | DWG NO. 017510-1

SCALE | SHEET

THIS DRAWING WAS PRODUCED USING
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FILE NAME: DRW-STAZAROSTA3.DRW

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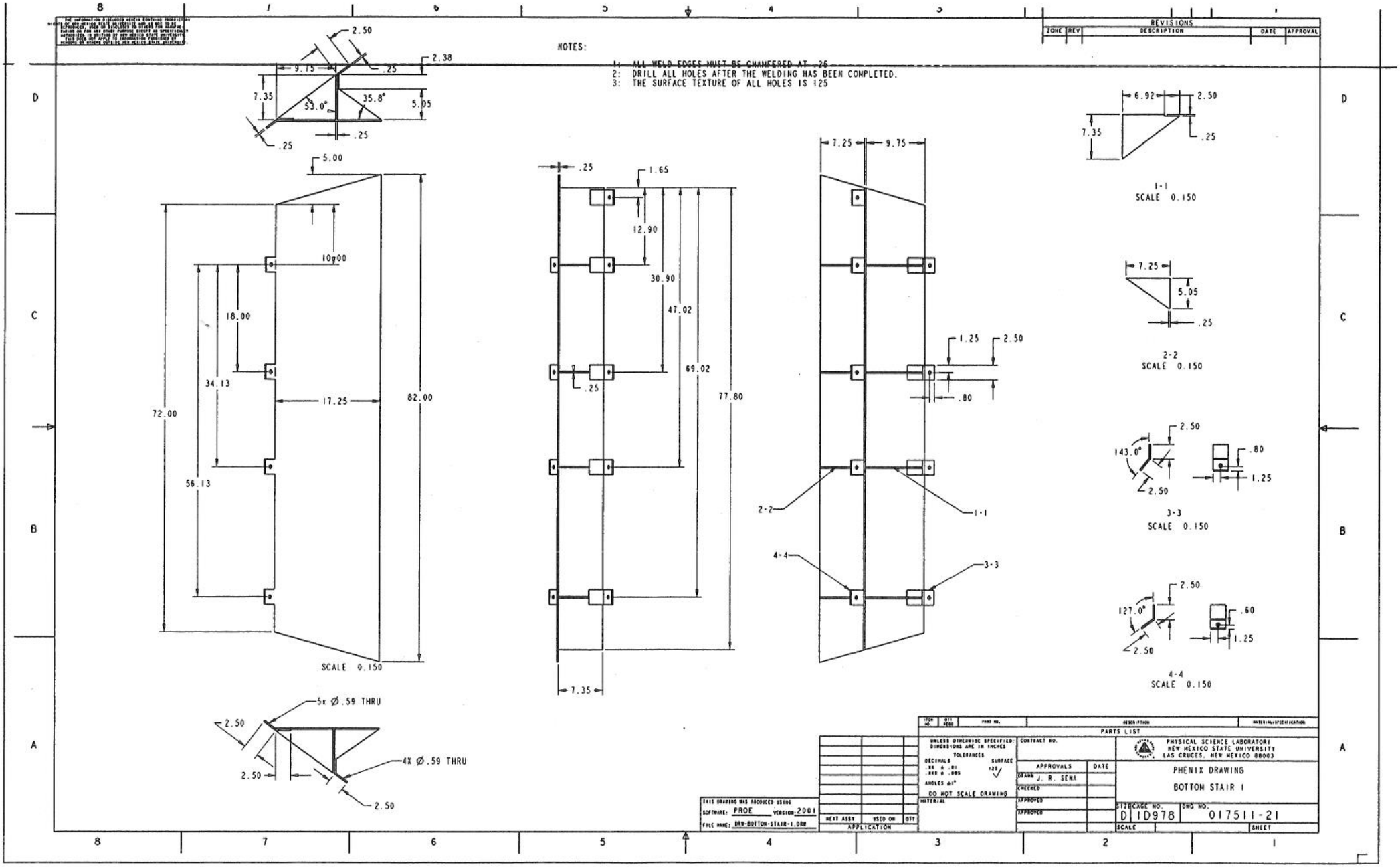
APPLICATION		



NOTES:
1: ALL WELD EDGES MUST BE CHAMFERED AT .25
2: DRILL ALL HOLES AFTER THE WELDING HAS BEEN COMPLETED.
3: THE SURFACE TEXTURE OF ALL HOLES IS 125
REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVAL
2.50
2.38
9.75
.25
7.35
53.0°
35.8°
5.05
.25
.25
5.00
10.00
18.00
34.13
72.00
17.25
82.00
56.13
SCALE 0.150
.25
1.65
12.90
30.90
47.02
69.02
77.80
.25
7.35
7.25
9.75
1.25
2.50
.80
2-2
1-1
4-4
3-3
6.92
2.50
7.35
.25
1-1
SCALE 0.150
7.25
5.05
.25
2-2
SCALE 0.150
2.50
143.0°
.80
1.25
2.50
3-3
SCALE 0.150
2.50
127.0°
.60
1.25
2.50
4-4
SCALE 0.150
5x Ø.59 THRU
2.50
4X Ø.59 THRU
2.50
2.50
PARTS LIST
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USED ON
QTY
APPLICATION
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS
.XX ± .01
.XXX ± .005
ANGLES ±1°
SURFACE
125
DO NOT SCALE DRAWING
MATERIAL
CONTRACT NO.
APPROVALS
DATE
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APPROVED
APPROVED
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LAS CRUCES, NEW MEXICO 88003
PHENIX DRAWING
BOTTOM STAIR 1
SIZE D
CAGE NO. 1D978
DWG NO. 017511-21
SCALE
SHEET

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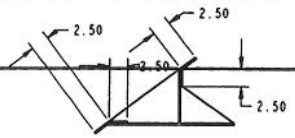
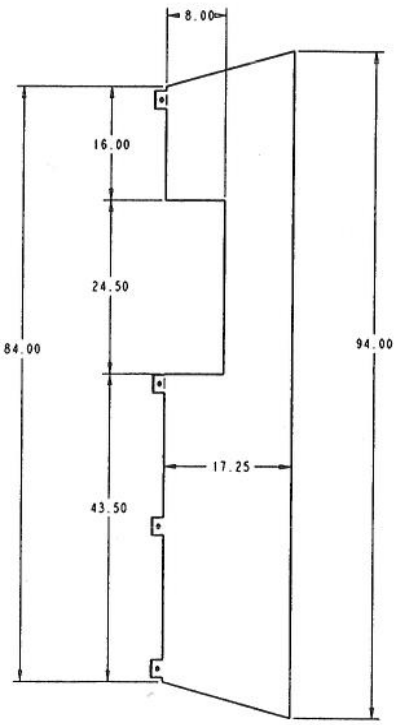


NOTES: SAME AS PREVIOUS DRAWING



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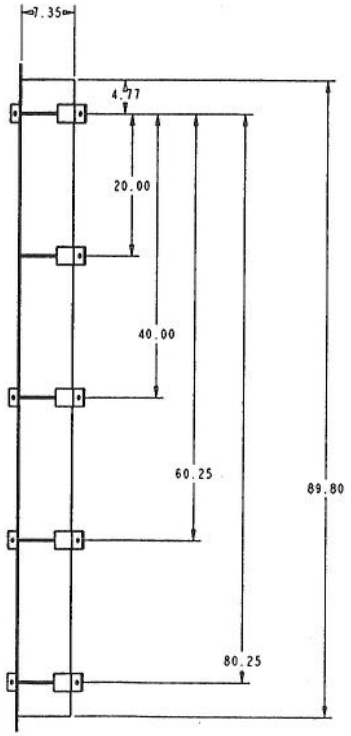

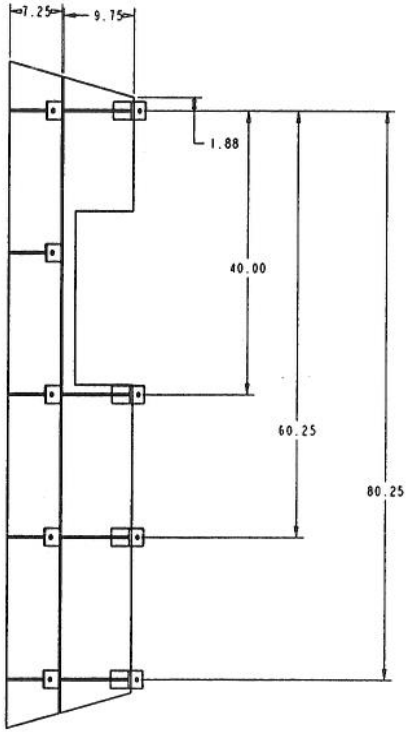

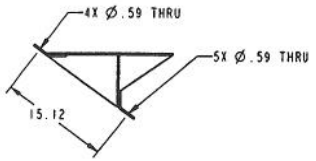

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APPLICATION			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS .XX ± .01 .XXX ± .005
SURFACE 125
ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

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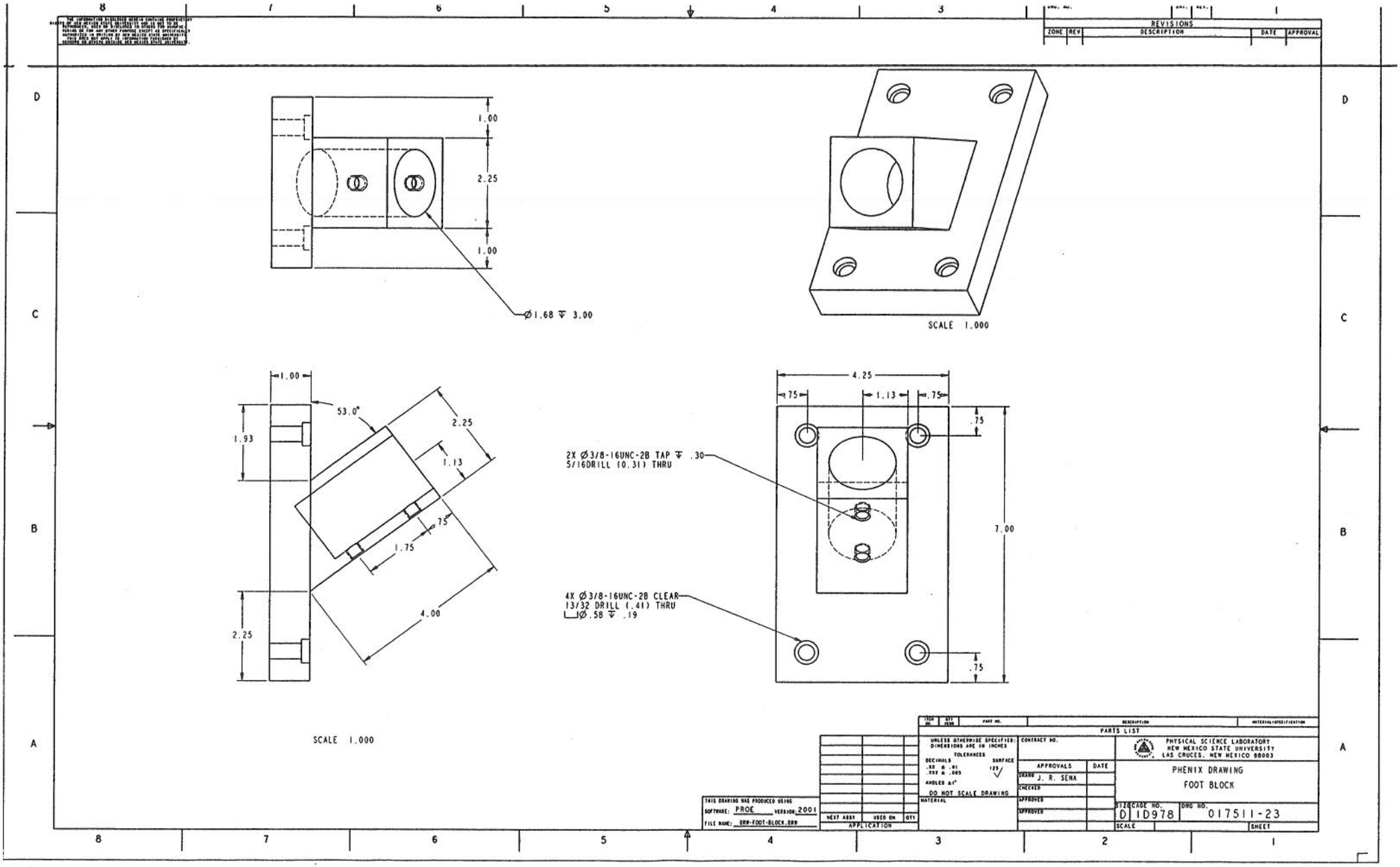
PHENIX DRAWING

BOTTOM STAIR 2

SIZE	CAGE NO.	DWG NO.
D	ID978	017511-22
SCALE		SHEET



REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVAL
1.00
2.25
1.00
Ø1.68 ↧ 3.00
SCALE 1.000
1.00
53.0°
2.25
1.93
1.13
.75
1.75
4.00
2.25
SCALE 1.000
4.25
.75
1.13
.75
.75
7.00
.75
2X Ø3/8-16UNC-2B TAP ↧ .30
5/16DRILL (0.31) THRU
4X Ø3/8-16UNC-2B CLEAR
13/32 DRILL (.41) THRU
⌴Ø.58 ↧ .19
PARTS LIST
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS
.XX ± .01
.XXX ± .005
ANGLES ±1°
SURFACE
125
DO NOT SCALE DRAWING
MATERIAL
CONTRACT NO.
APPROVALS
DATE
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APPROVED
APPROVED
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PHENIX DRAWING
FOOT BLOCK
SIZE D
CAGE NO. 1D978
DWG NO. 017511-23
SCALE
SHEET
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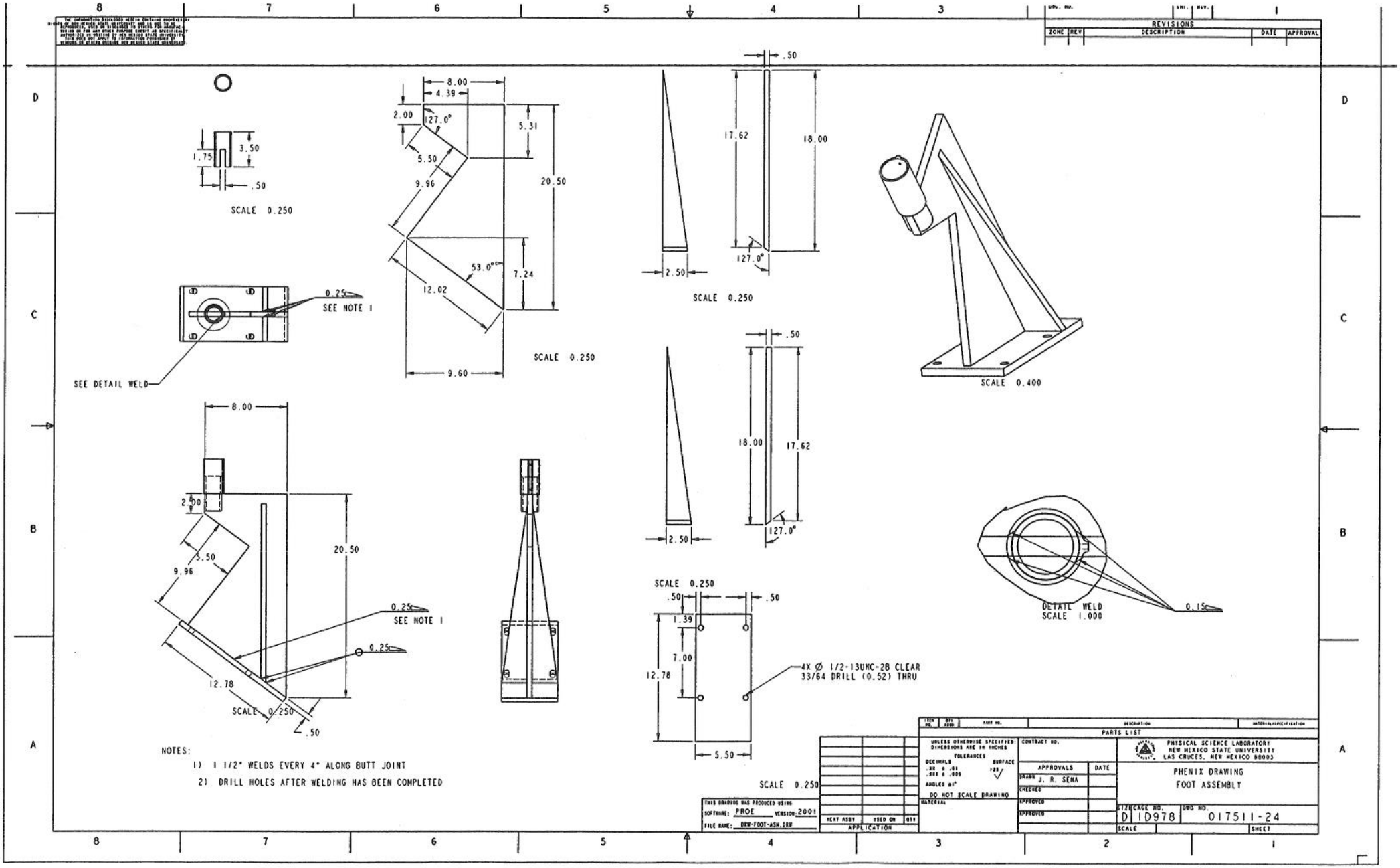

REVISIONS
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SCALE 0.250
SEE NOTE 1
SEE DETAIL WELD
SCALE 0.250
SCALE 0.250
SCALE 0.400
SCALE 0.250
SEE NOTE 1
SCALE 0.250
SCALE 0.250
4X Ø 1/2-13UNC-2B CLEAR
33/64 DRILL (0.52) THRU
DETAIL WELD
SCALE 1.000
NOTES:
1) 1 1/2" WELDS EVERY 4" ALONG BUTT JOINT
2) DRILL HOLES AFTER WELDING HAS BEEN COMPLETED
PARTS LIST
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES
DO NOT SCALE DRAWING
CONTRACT NO.
APPROVALS DATE
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APPROVED
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PHENIX DRAWING
FOOT ASSEMBLY
SIZE D CAGE NO. 1D978 DWG NO. 017511-24
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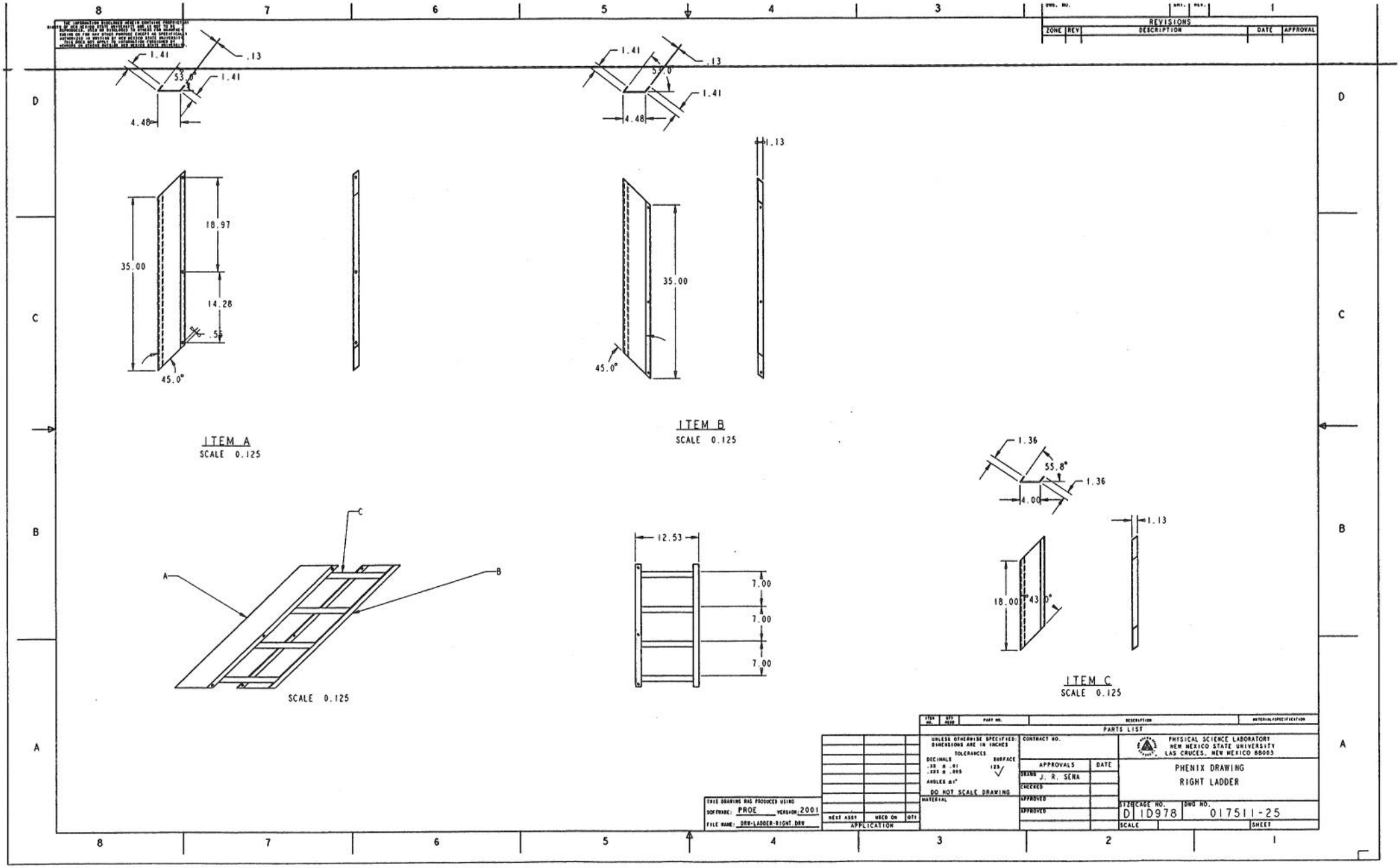

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4.48
18.97
35.00
14.28
.55
45.0°
ITEM A
SCALE 0.125
1.41
.13
53.0°
1.41
4.48
1.13
35.00
45.0°
ITEM B
SCALE 0.125
C
A
B
SCALE 0.125
12.53
7.00
7.00
7.00
1.36
55.8°
1.36
4.00
1.13
18.00
43.0°
ITEM C
SCALE 0.125
PARTS LIST
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS
.XX ± .01
.XXX ± .005
ANGLES ±1°
SURFACE
125
DO NOT SCALE DRAWING
MATERIAL
CONTRACT NO.
APPROVALS
DATE
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PHENIX DRAWING
RIGHT LADDER
SIZE D
CAGE NO. 1D978
DWG NO. 017511-25
SCALE
SHEET
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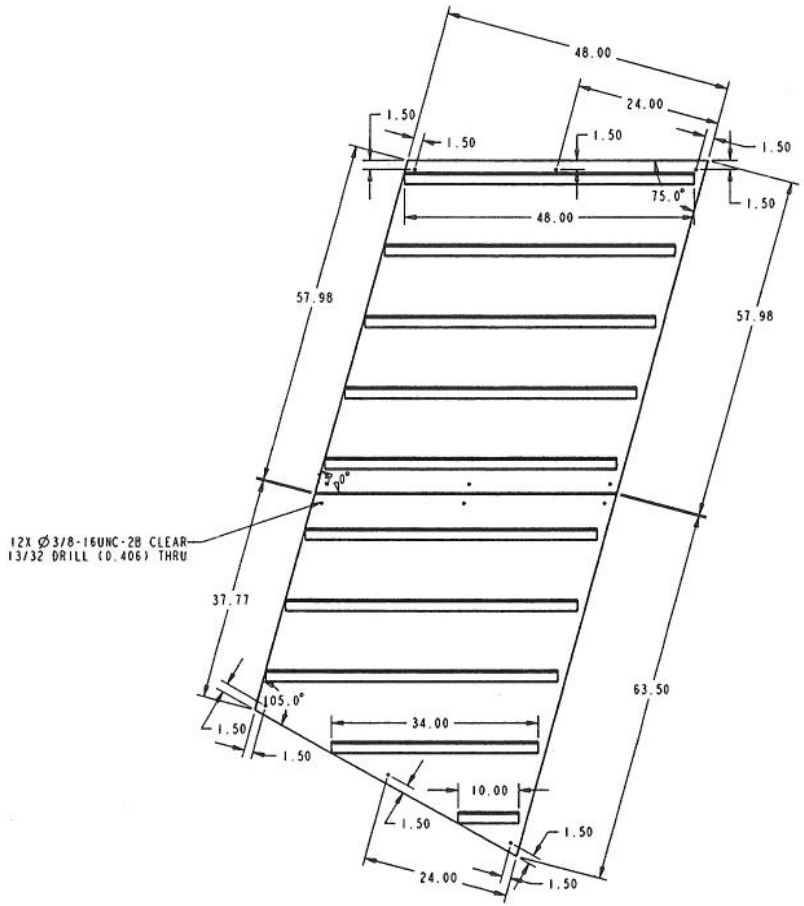

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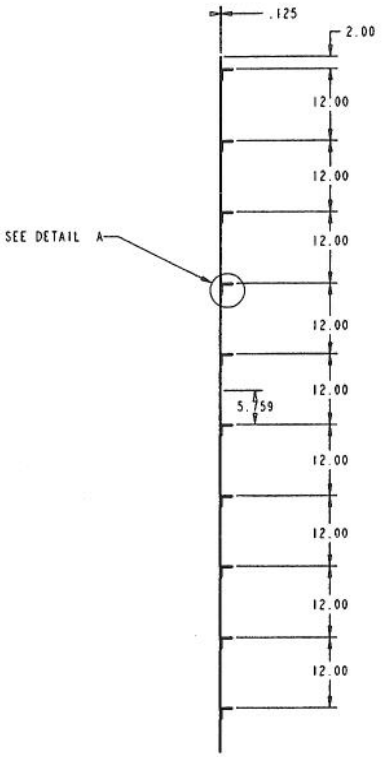

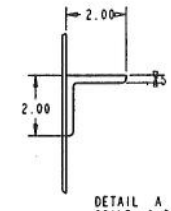

DETAIL A
SCALE 0.500

NOTES:

1: ANGLED ALUMINUM WILL BE ATTACHED WITH VERY HIGH BOND TAPE AND 1/8" CLOSED END RIVETS

2: THE QUANTITY IS 2, THE SECOND IS A MIRROR IMAGE

ITEM NO.	QTY REQD	PART NO.	DESCRIPTION	MATERIAL/SPECIFICATION

PARTS LIST

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS .XX ± .01 .XXX ± .005
SURFACE 125
ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

CONTRACT NO.

APPROVALS	DATE
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APPROVED	

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PHENIX DRAWING
RIGHT LADDER

SIZE D | CAGE NO. 1D978 | DWG NO. 017511-25
SCALE | SHEET

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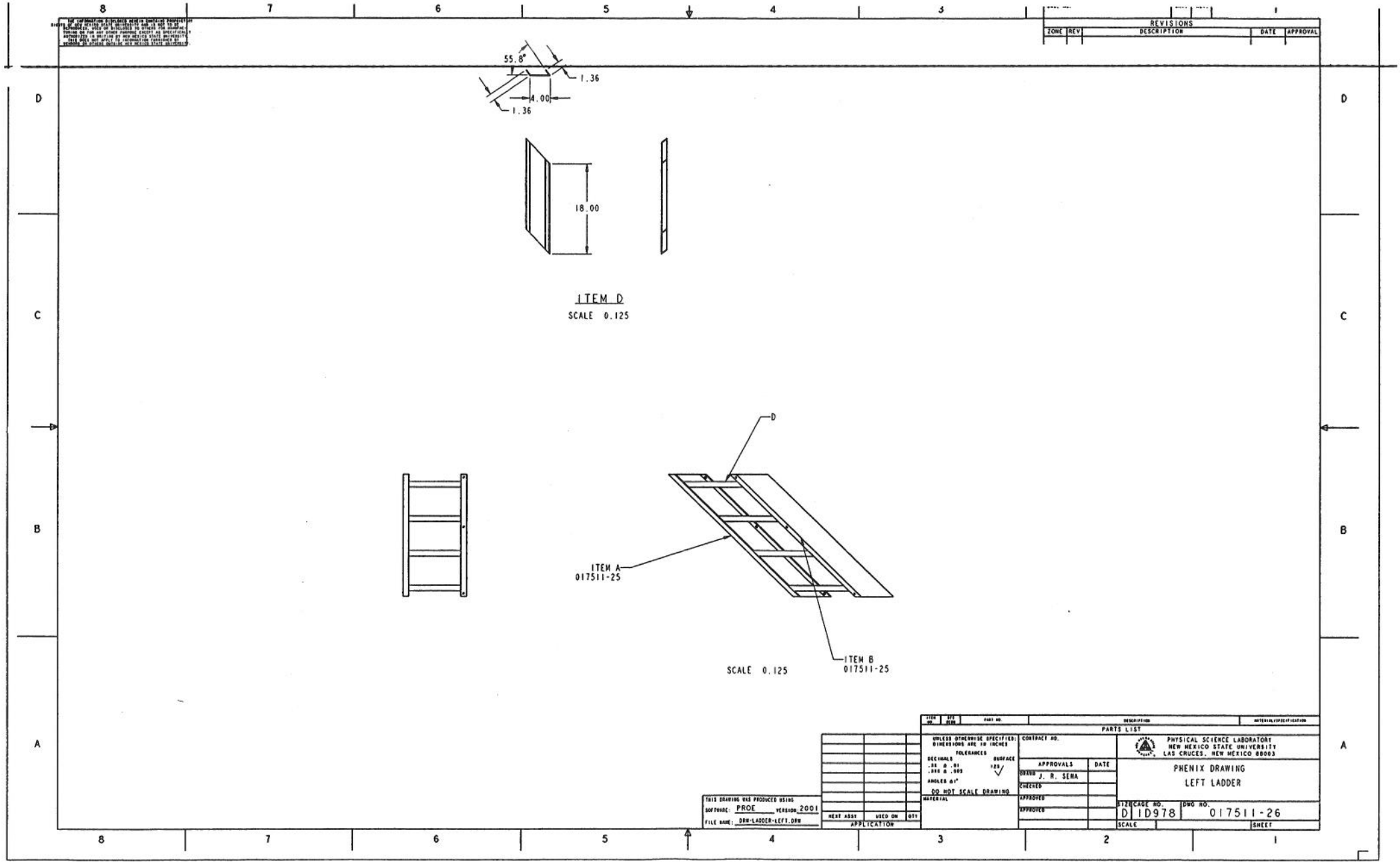
NEXT ASSY	USED ON	QTY

APPLICATION



REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVAL
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1.36
4.00
1.36
18.00
ITEM D
SCALE 0.125
D
ITEM A
017511-25
ITEM B
017511-25
SCALE 0.125
PARTS LIST
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS
.XX ± .01
.XXX ± .005
ANGLES ±1°
SURFACE
125
DO NOT SCALE DRAWING
MATERIAL
CONTRACT NO.
APPROVALS
DATE
DRAWN J. R. SENA
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APPROVED
APPROVED
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PHENIX DRAWING
LEFT LADDER
SIZE D
CAGE NO. 1D978
DWG NO. 017511-26
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QTY
APPLICATION