



EPA OTM 33A Appendix B
GMAP-REQ-DA Mast System Mechanical Drawings
and Wiring Schematics

By

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Durham NC, 27711
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Contents

1. GMAP-REQ-DA Mast Systems mechanical drawings	3
1.1 Mast system assembly drawing	4
1.2 Lower mount base plate	5
1.3 Hinge block	6
1.4 Hinge plate	7
1.5 Hinge and lower mount hardware	8
1.6 Base socket	9
1.7 Mast pivot	10
1.8 Mast connector	11
1.9 Survey mount plate	12
1.10 Survey mount body	13
1.11 Compass mount	14
1.12 Lower sight clamp	15
1.13 Upper sight clamp	16
1.14 Survey key	17
1.15 Mast top cap	18
1.16 Instrument crossbar	19
1.17 Lower mast section	20
1.18 Center mast section	21
1.19 Upper mast section	22
1.20 Mount base	23
1.21 Lower assembly	24
1.22 Center assembly	25
1.23 Survey mount assembly	26
1.24 Upper assembly	27
1.25 Sample probe	28
2. Control System Wiring Schematics for GMAP-REQ Systems	29
2.1 System connection overview for EPA NEIC unit	29
2.2 Equipment interface connections for EPA NEIC unit	30
2.3 Mast interface connections for EPA NEIC unit	31
2.4 System power connections for EPA NEIC unit	32
2.5 Mast system connections for EPA R5 unit	33

Introduction

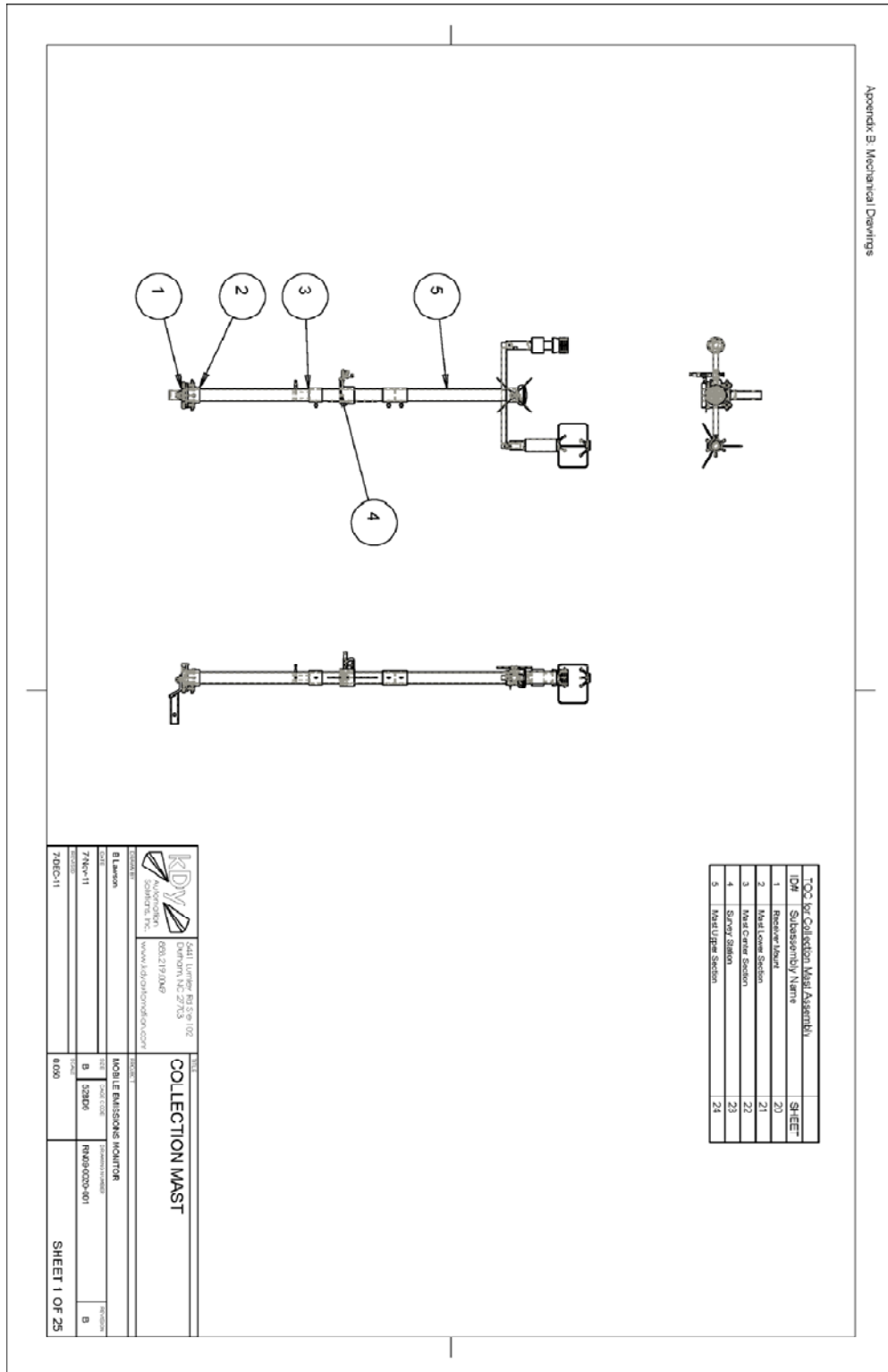
The following appendix contains GMAP-REQ-DA mechanical system drawings for a vehicle-mounted mast system along with basic wiring control schematics for a GMAP system. These mast and control system examples have been deployed on several EPA-developed GMAP systems.

General Disclaimer: The engineering and equipment descriptions contained here are illustrative and do not constitute OTM 33A method requirements. Mention of trade names or commercial products does not constitute endorsement or recommendation for use. The equipment designs and software published in this method and appendices are for informational purposes only. Adoption and or modification of the EPA GMAP engineering designs, software, or protocols are the sole responsibility of the user. Deployment and safe-use of this method, engineering examples, or variations thereof is the sole responsibility of the user. No engineering or software design performance or safe use guarantees are given or implied.

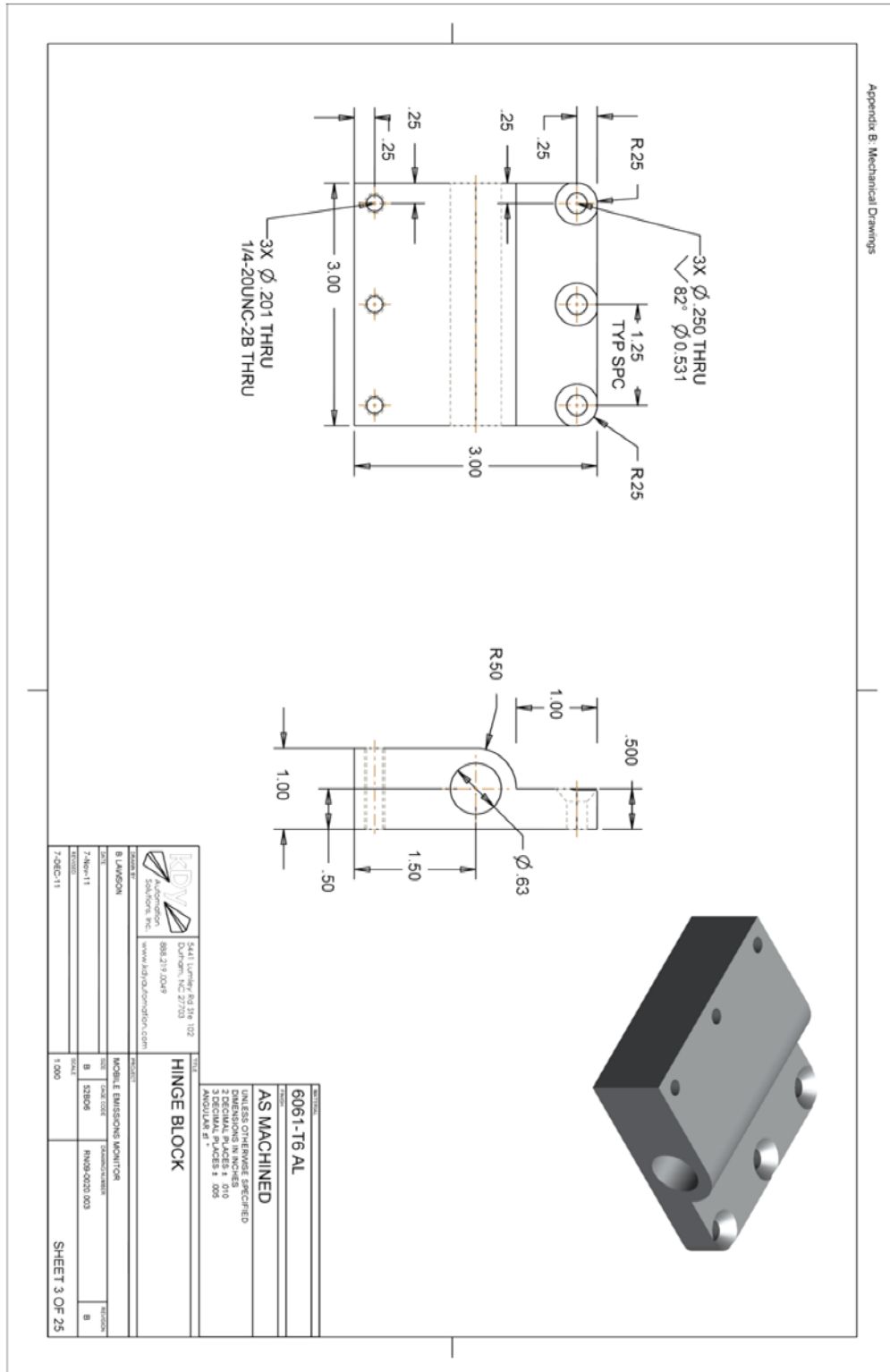
1. GMAP-REQ-DA Mast Systems mechanical drawings

The following appendix contains mechanical drawings of the EPA model 2 GMAP mast system. This mast system has been deployed on several EPA-developed GMAP systems. The mast system shown here is for the configuration employing $\frac{1}{4}$ inch diameter sampling probes. Concentration measurement instruments (CMIs) that required higher sampling flow rates will generally use larger diameter tubing.

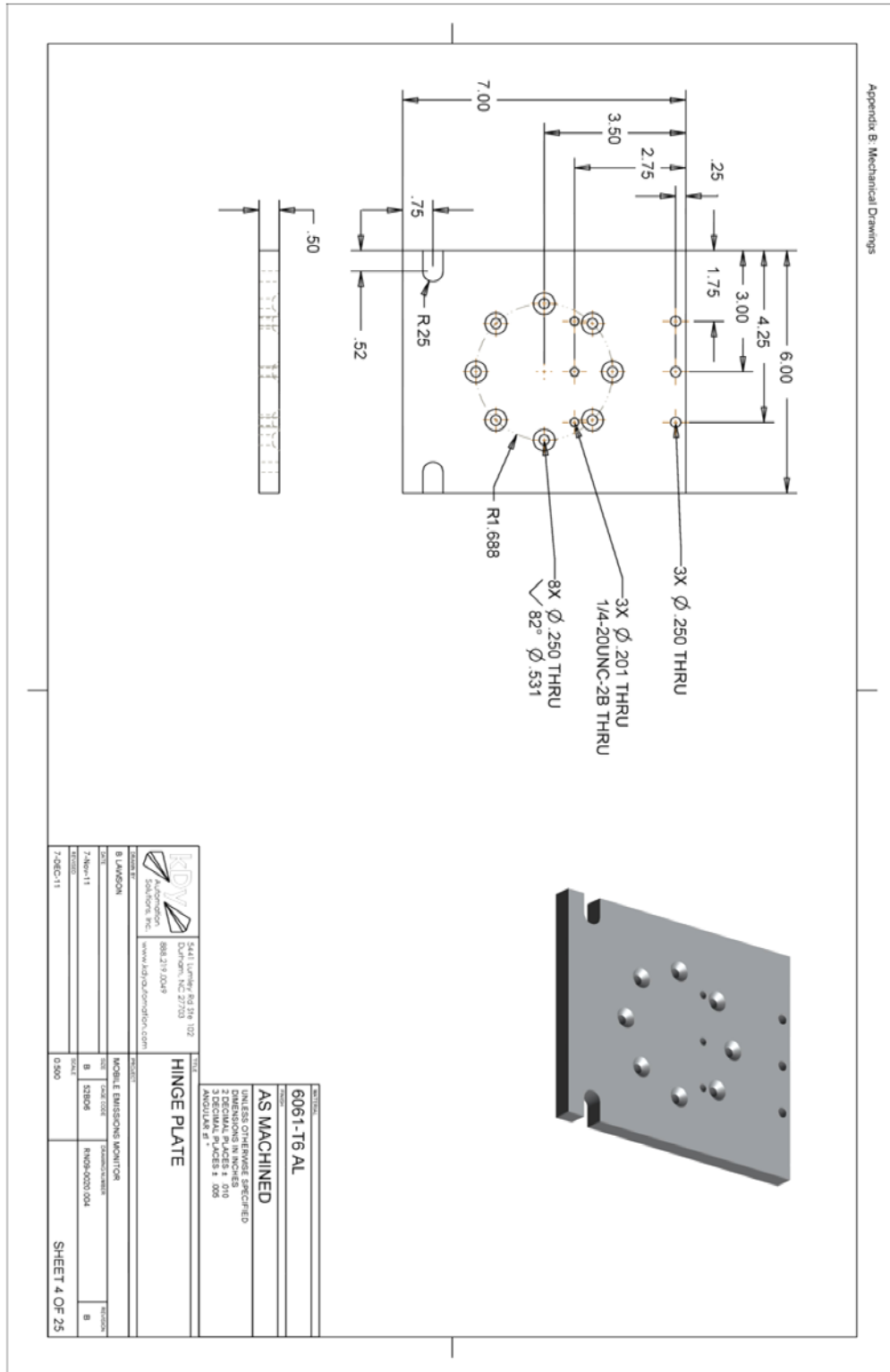
1.1 Mast system assembly drawing



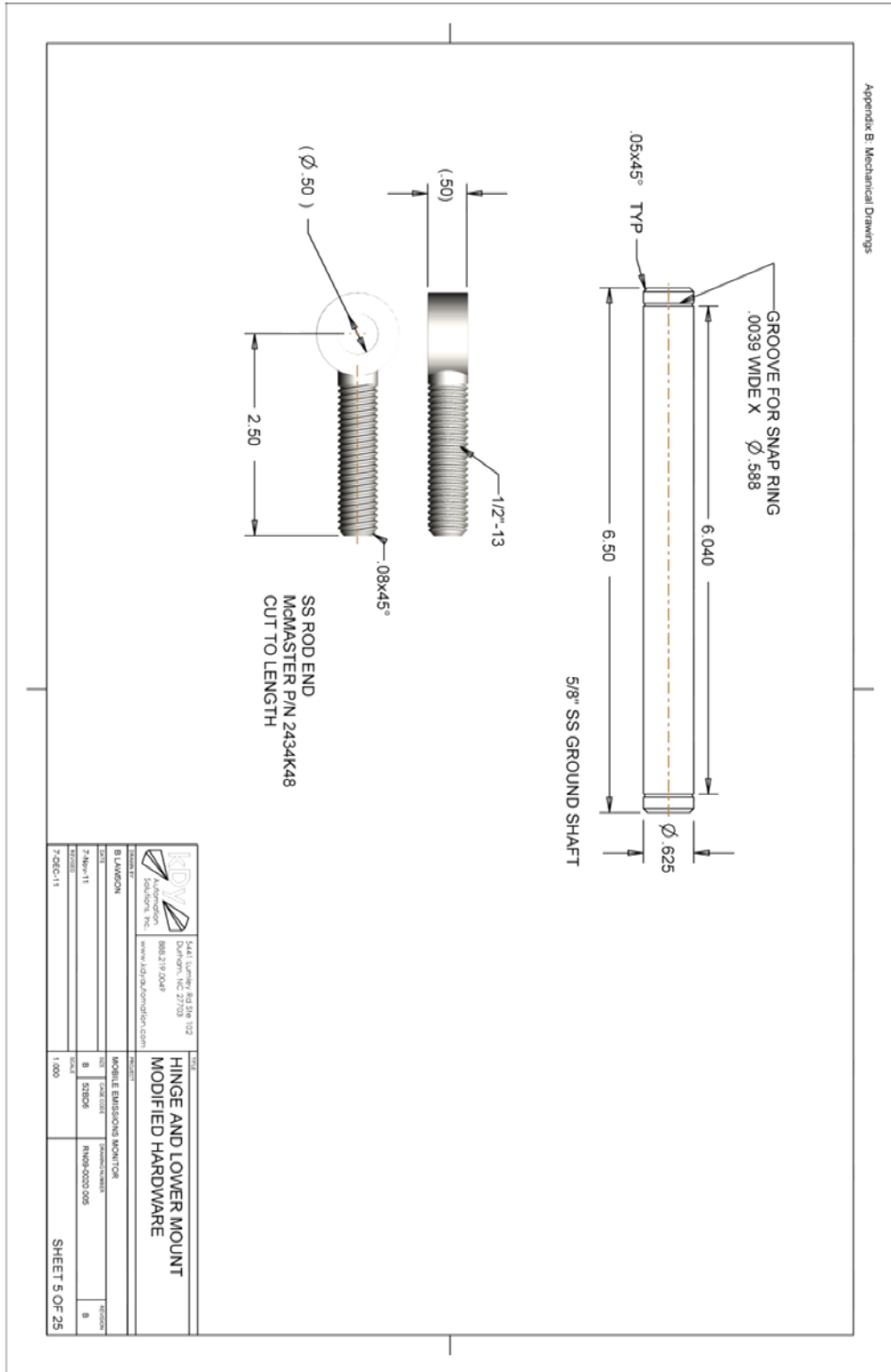
1.3 Hinge block



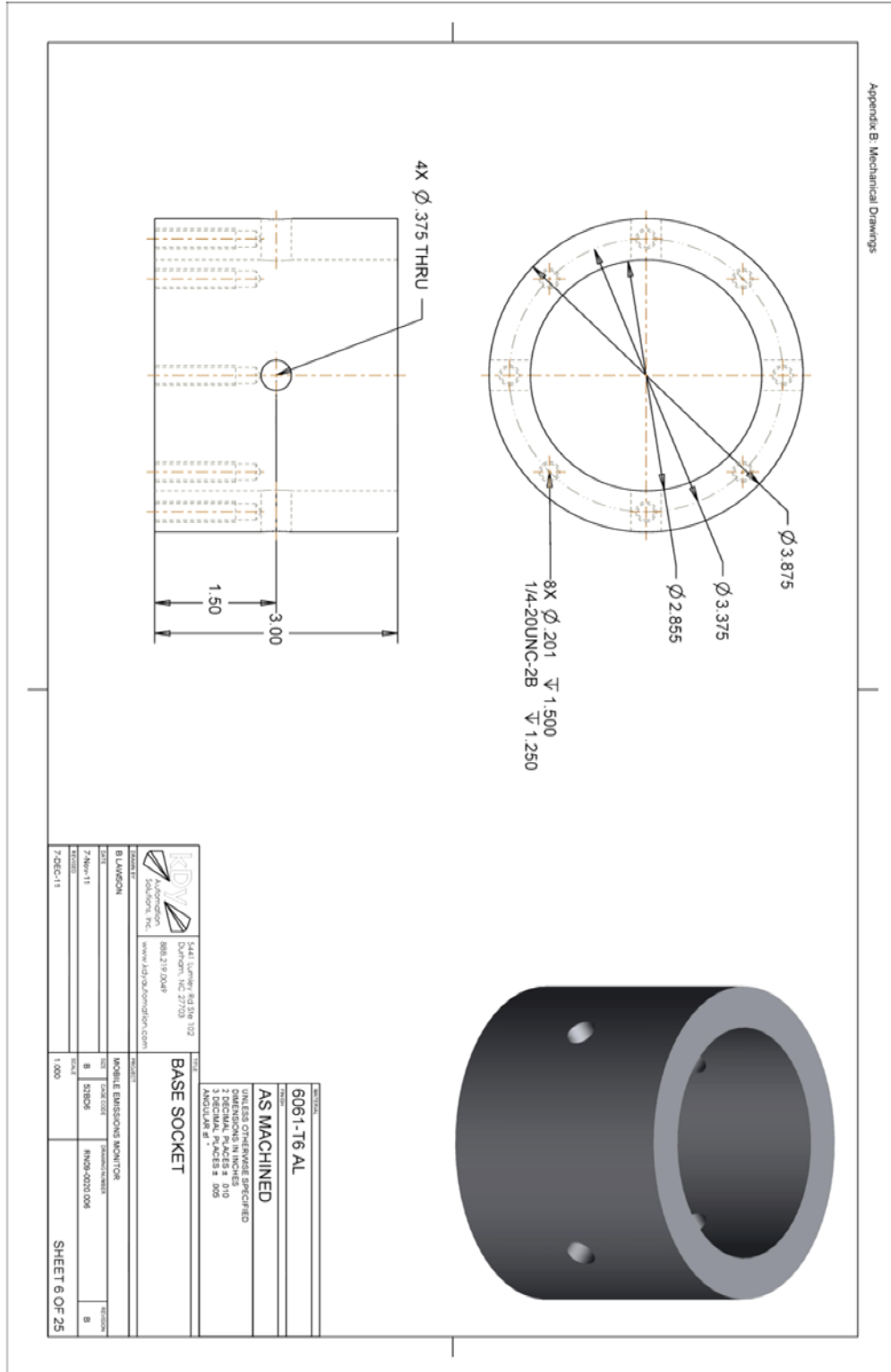
1.4 Hinge plate



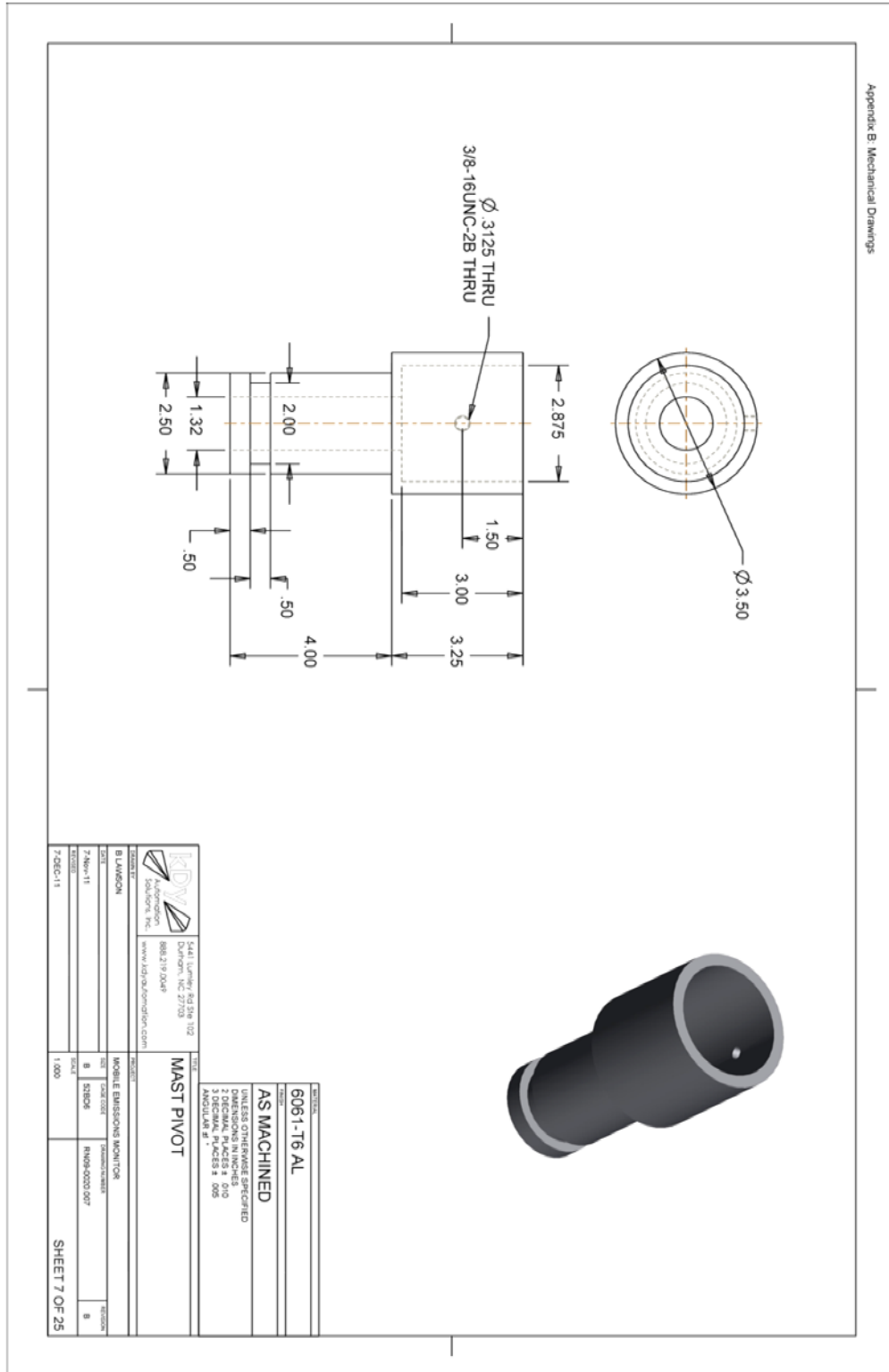
1.5 Hinge and lower mount hardware



1.6 Base socket



1.7 Mast pivot



1.8 Mast connector

Appendix B: Mechanical Drawings

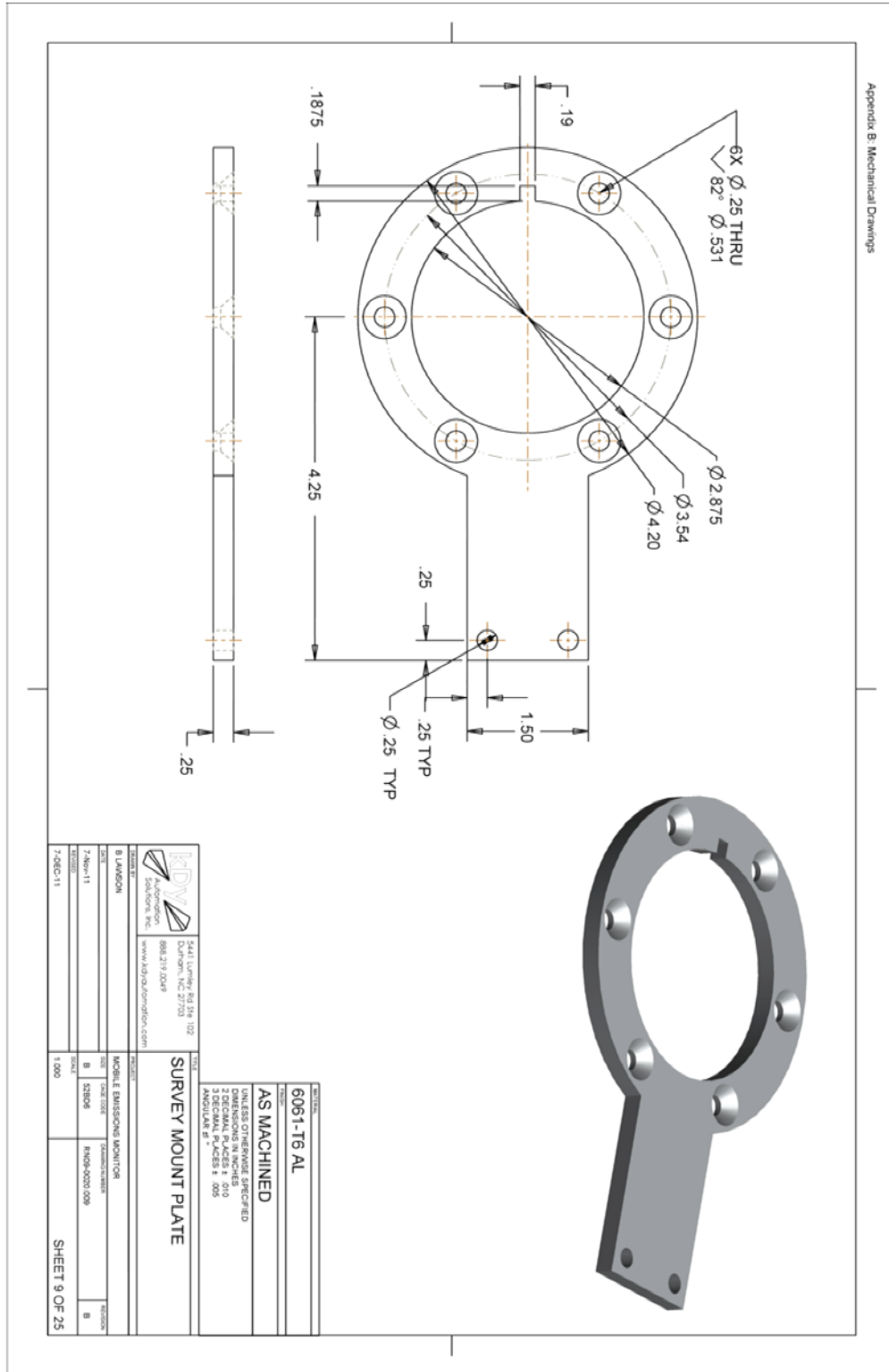
2X Ø 3125 THRU
 3/8-16UNC-2B THRU

Ø 3.50

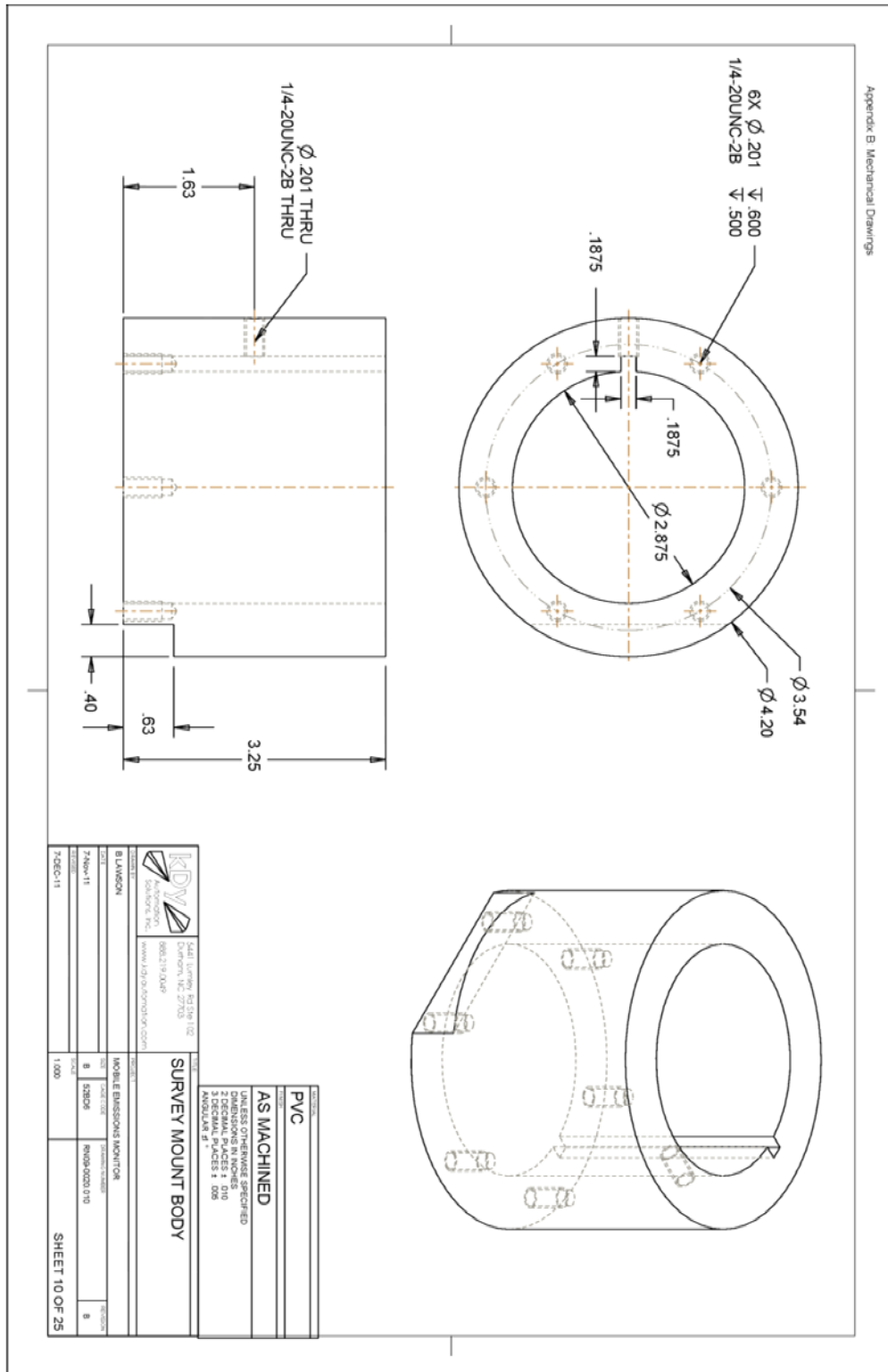
6061-T6 AL
 AS MACHINED
 UNLESS OTHERWISE SPECIFIED
 DIMENSIONS IN INCHES
 1 DECIMAL PLACE 2 0MS
 3 DECIMAL PLACES 4 0MS
 ANGLE 1° 1'

KIDV Automation Solutions Inc. 888.219.2048 www.kidvautomation.com		SCALE: 1:1 DATE: 7/20/11 DRAWN BY: B CHECKED BY: B APPROVED BY: B	
TITLE: MAST CONNECTOR PROJECT: MOBILE EMISSIONS MONITOR PART NO: R108-0000-005 SCALE: 1:1		SHEET 8 OF 25	

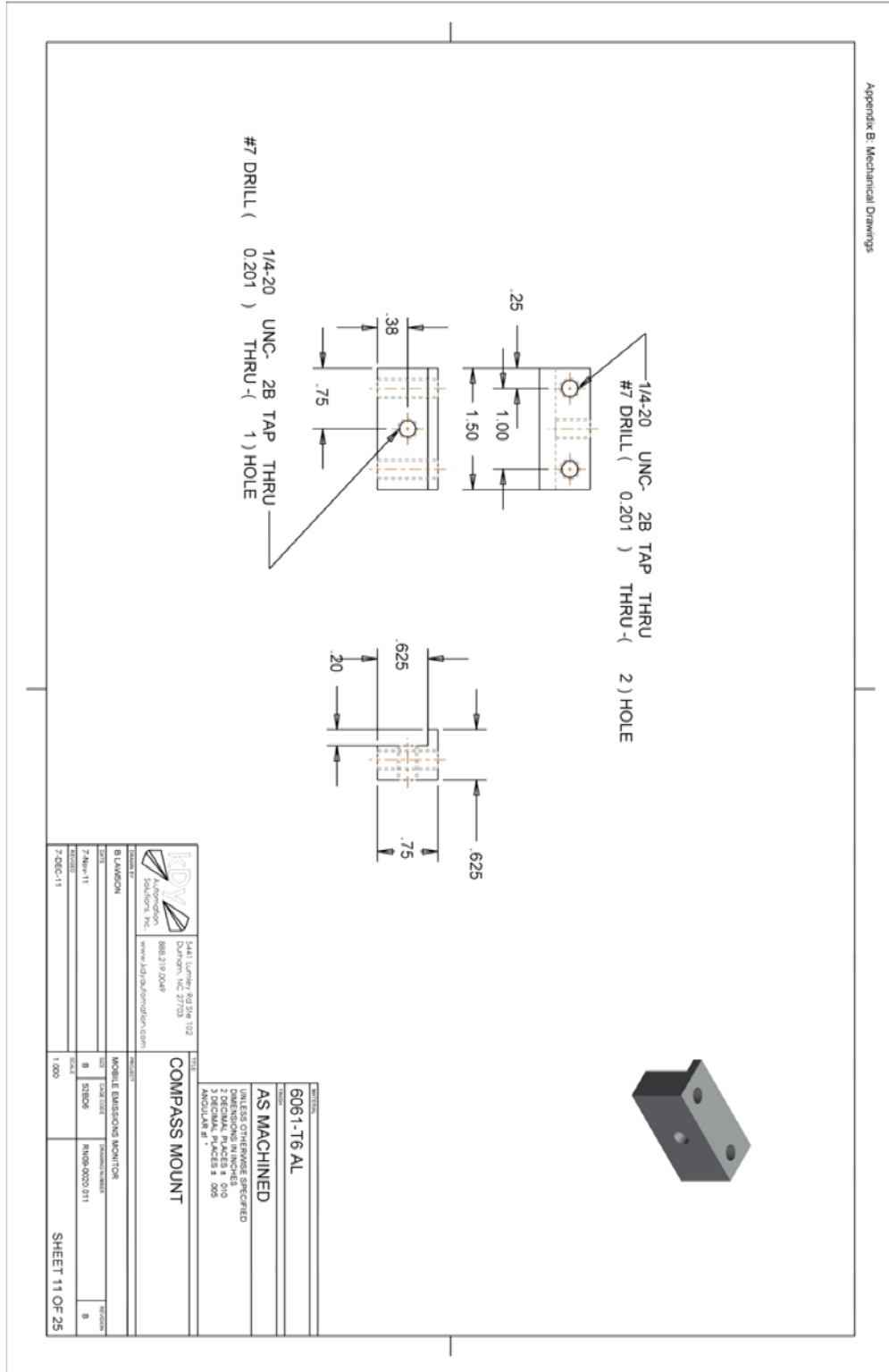
1.9 Survey mount plate



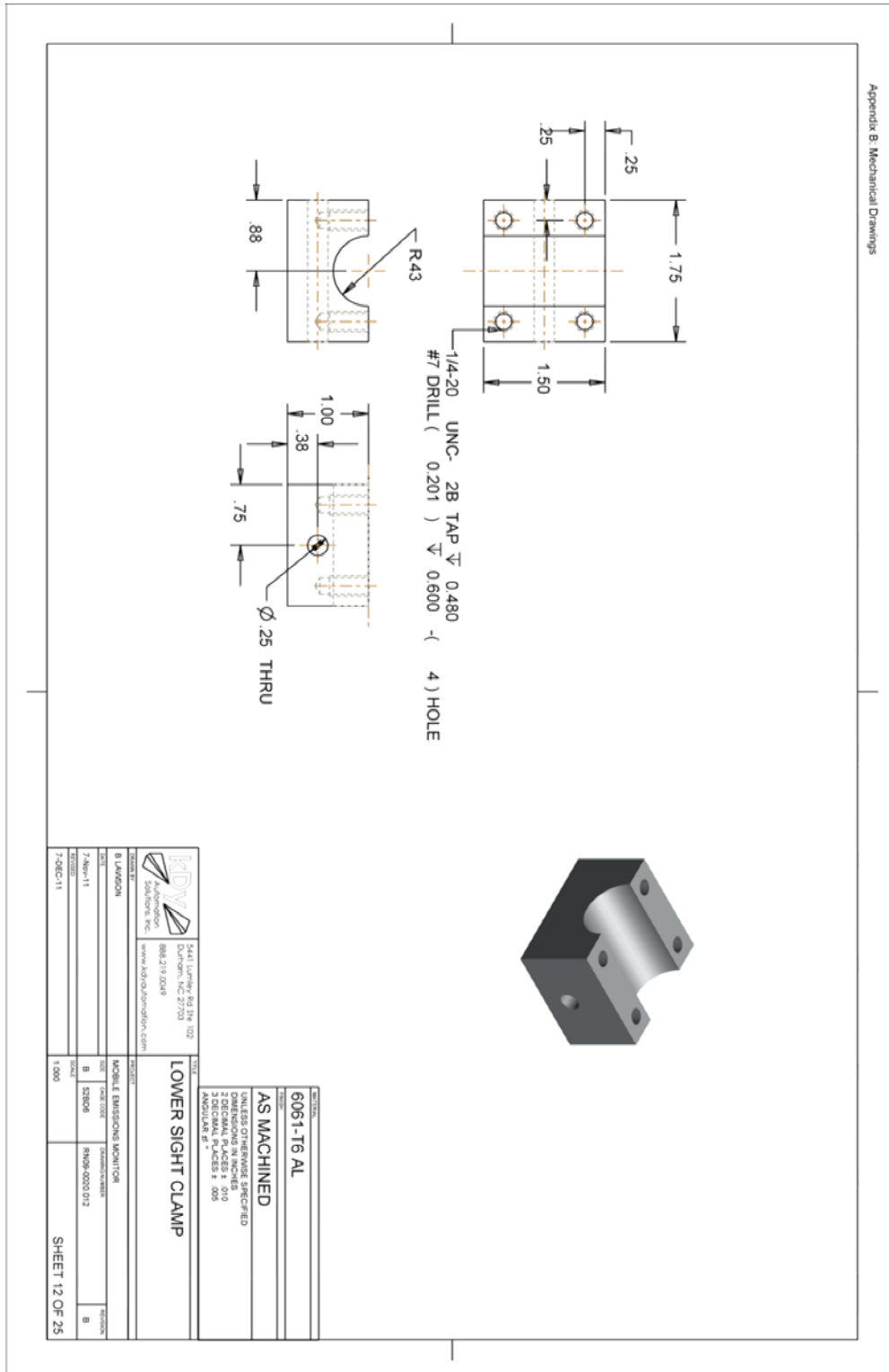
1.10 Survey mount body



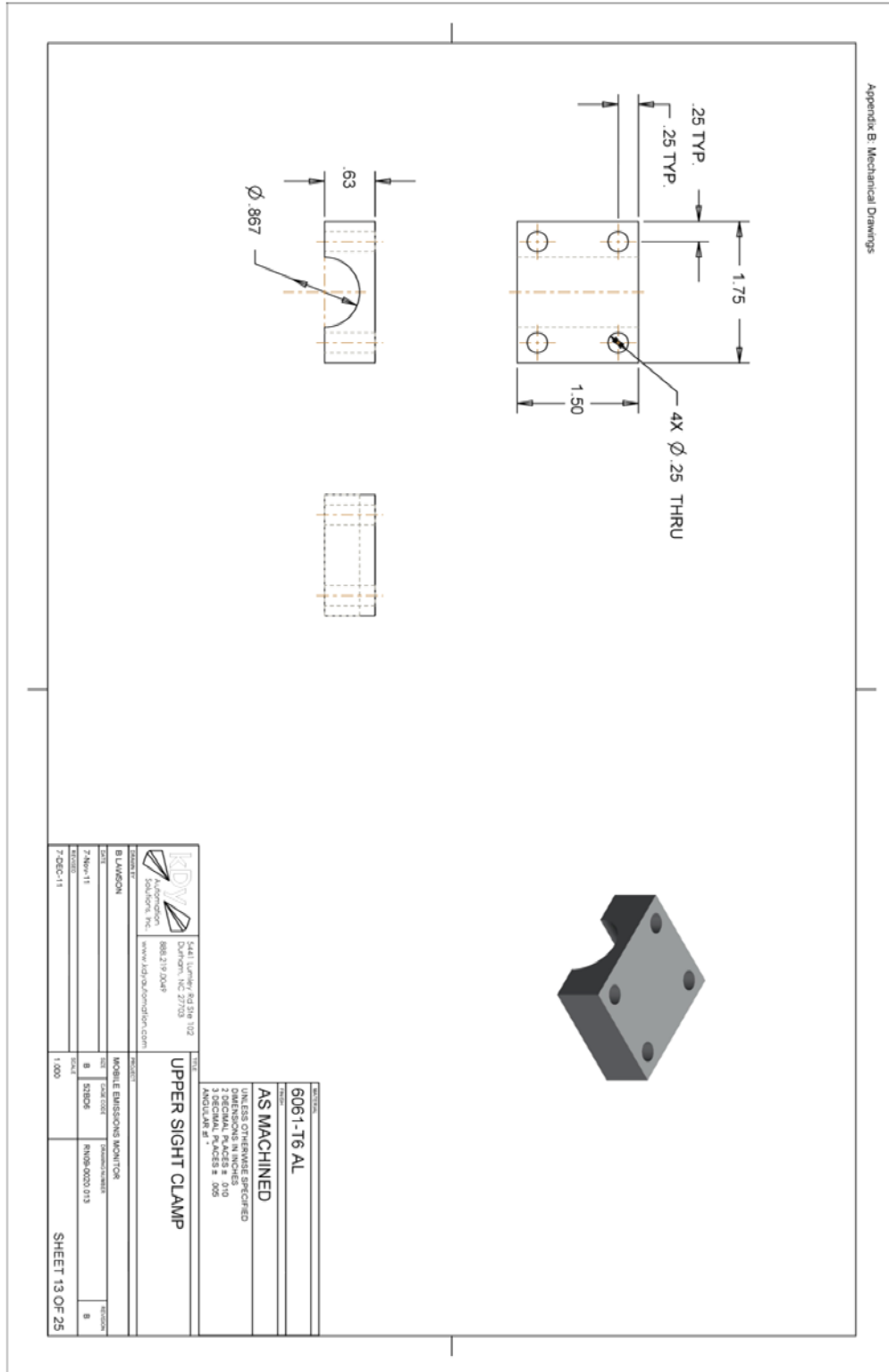
1.11 Compass mount



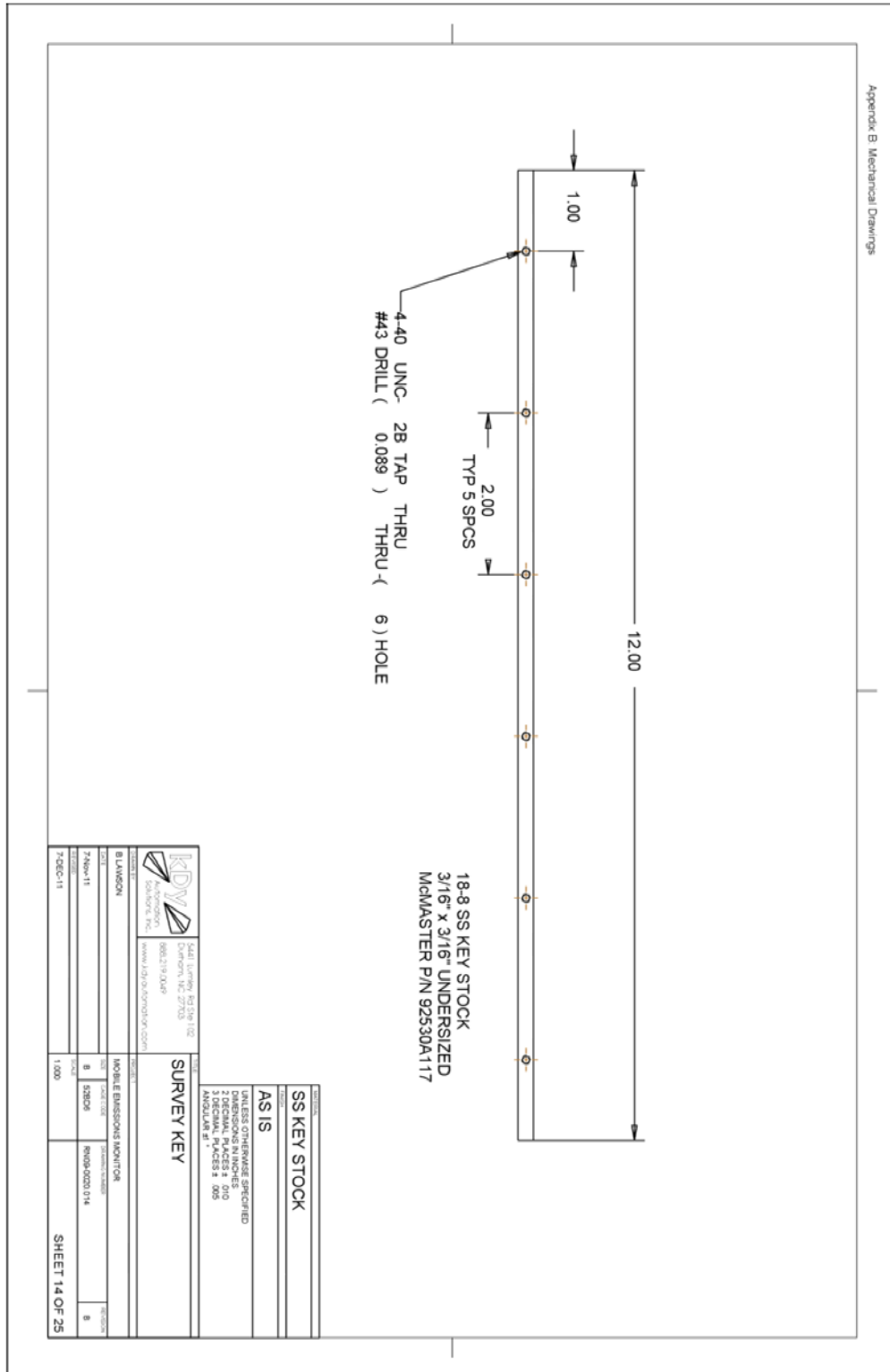
1.12 Lower sight clamp



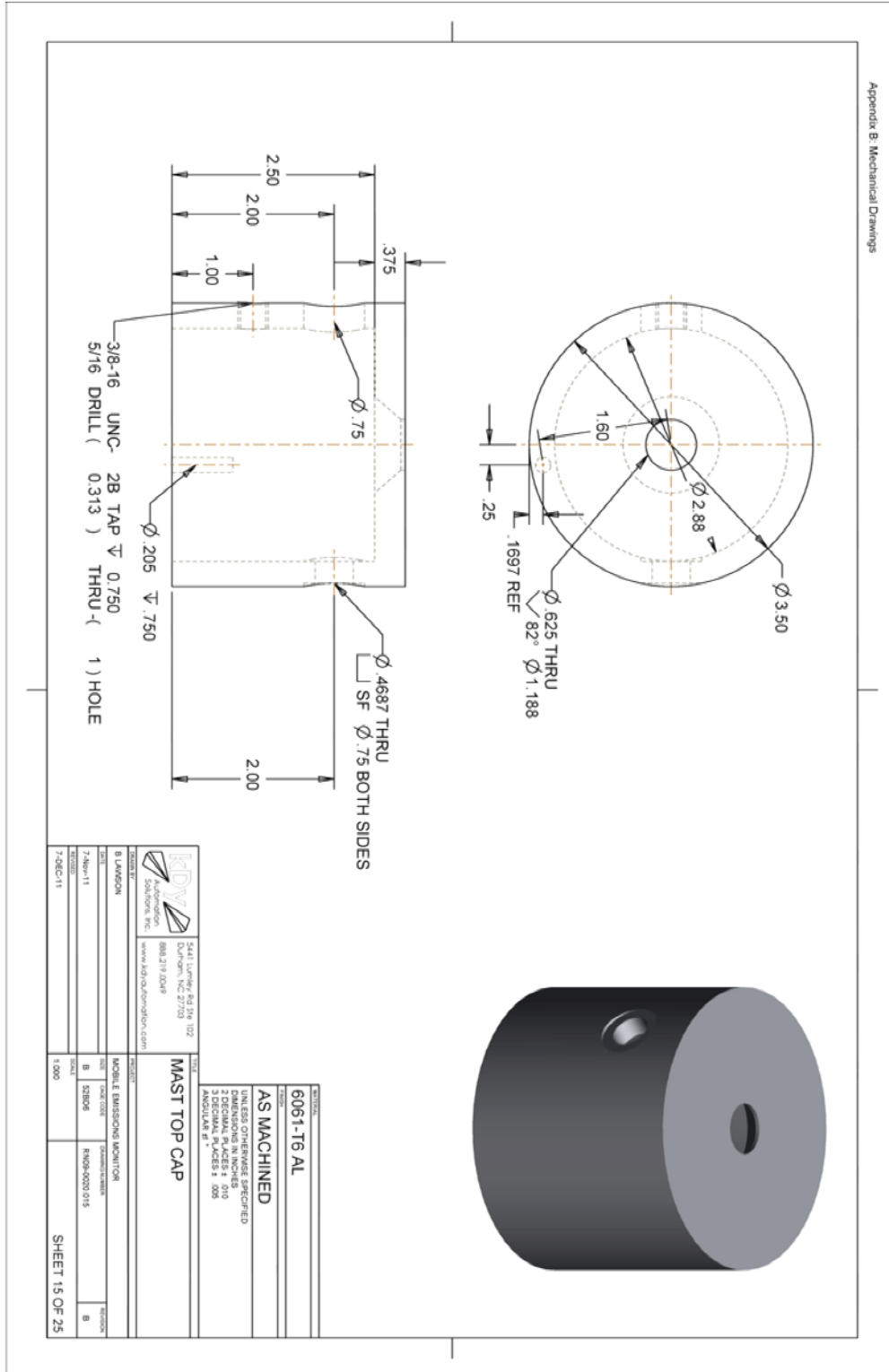
1.13 Upper sight clamp



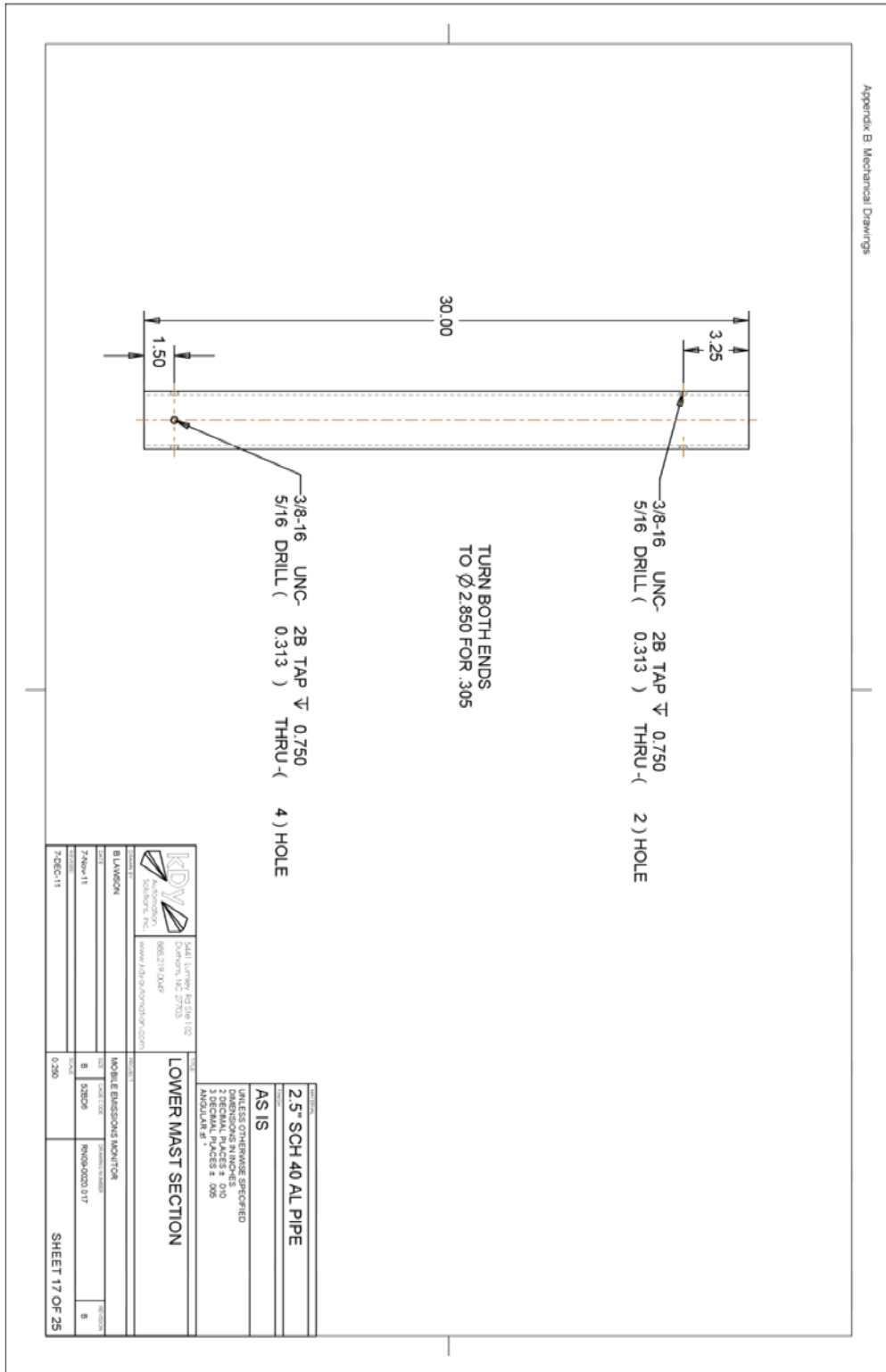
1.14 Survey key



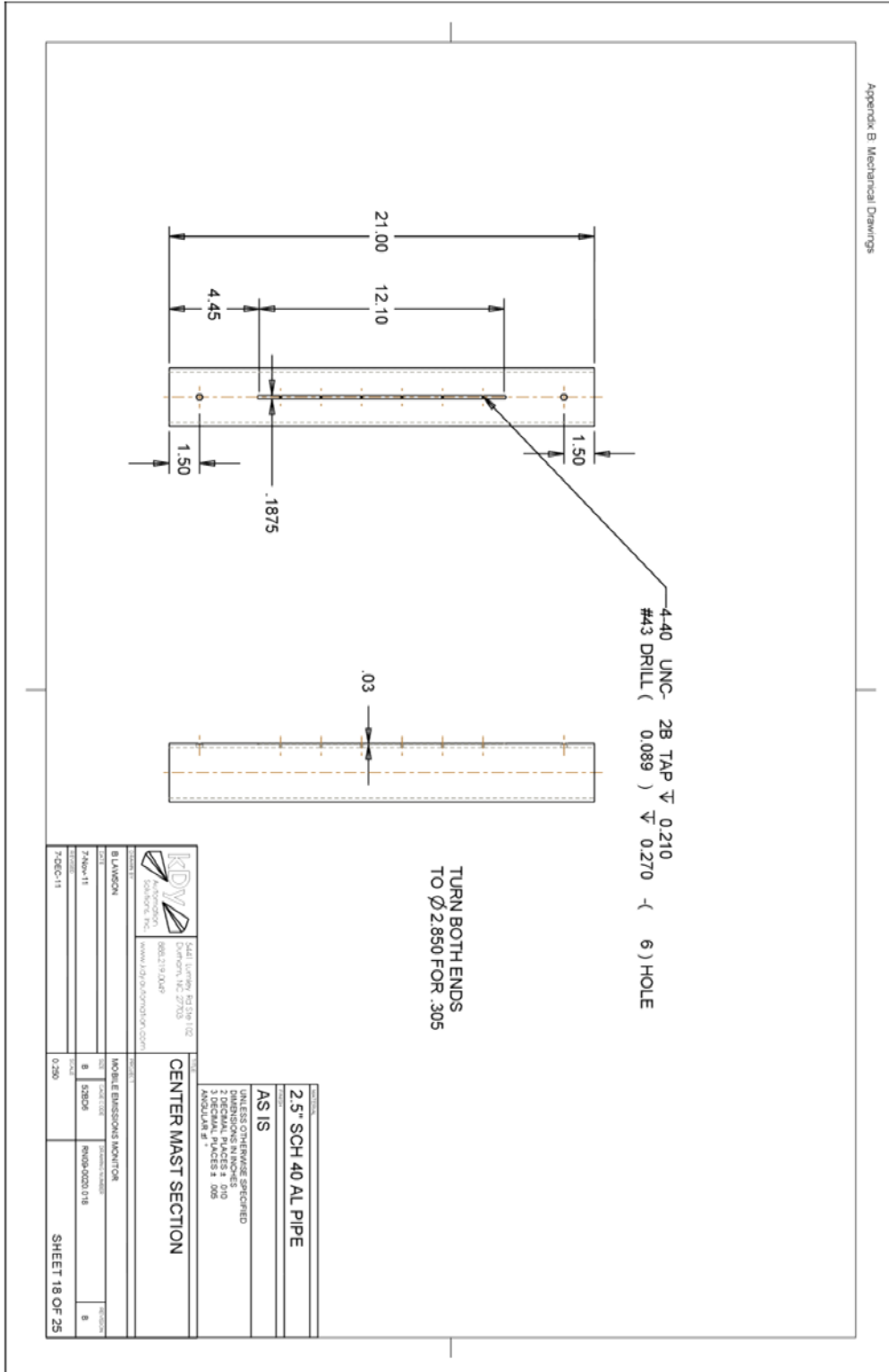
1.15 Mast top cap



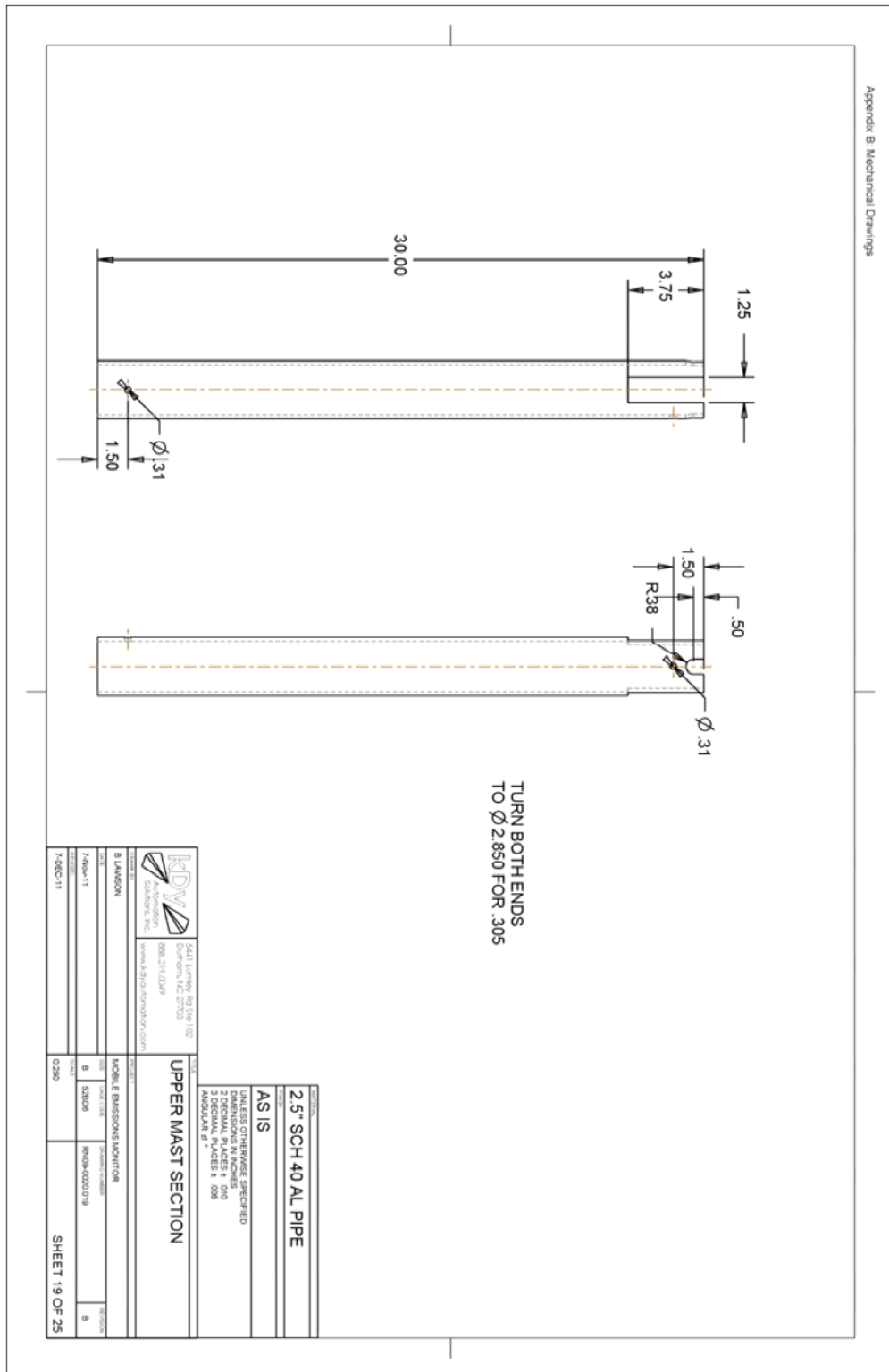
1.17 Lower mast section



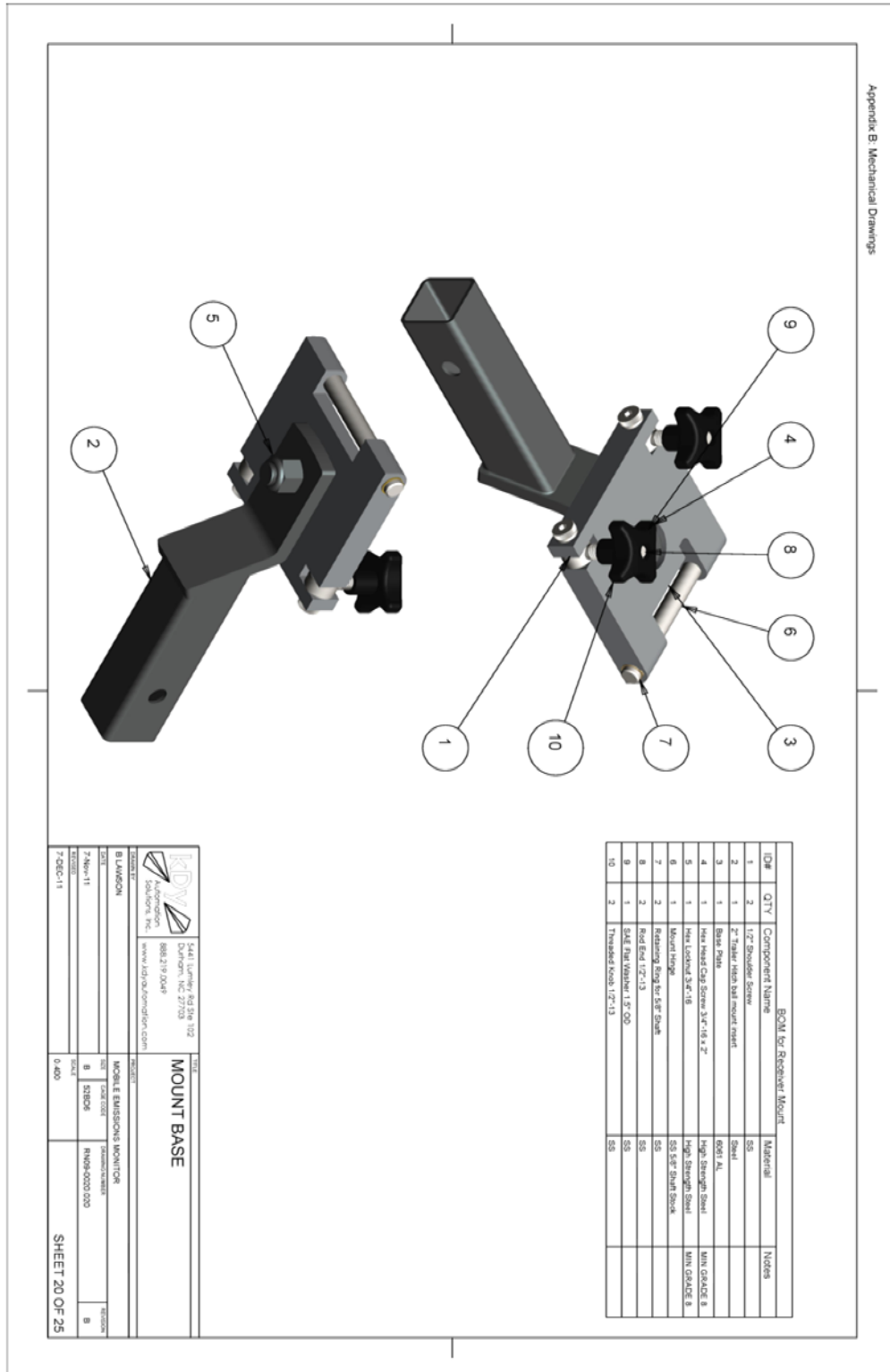
1.18 Center mast section



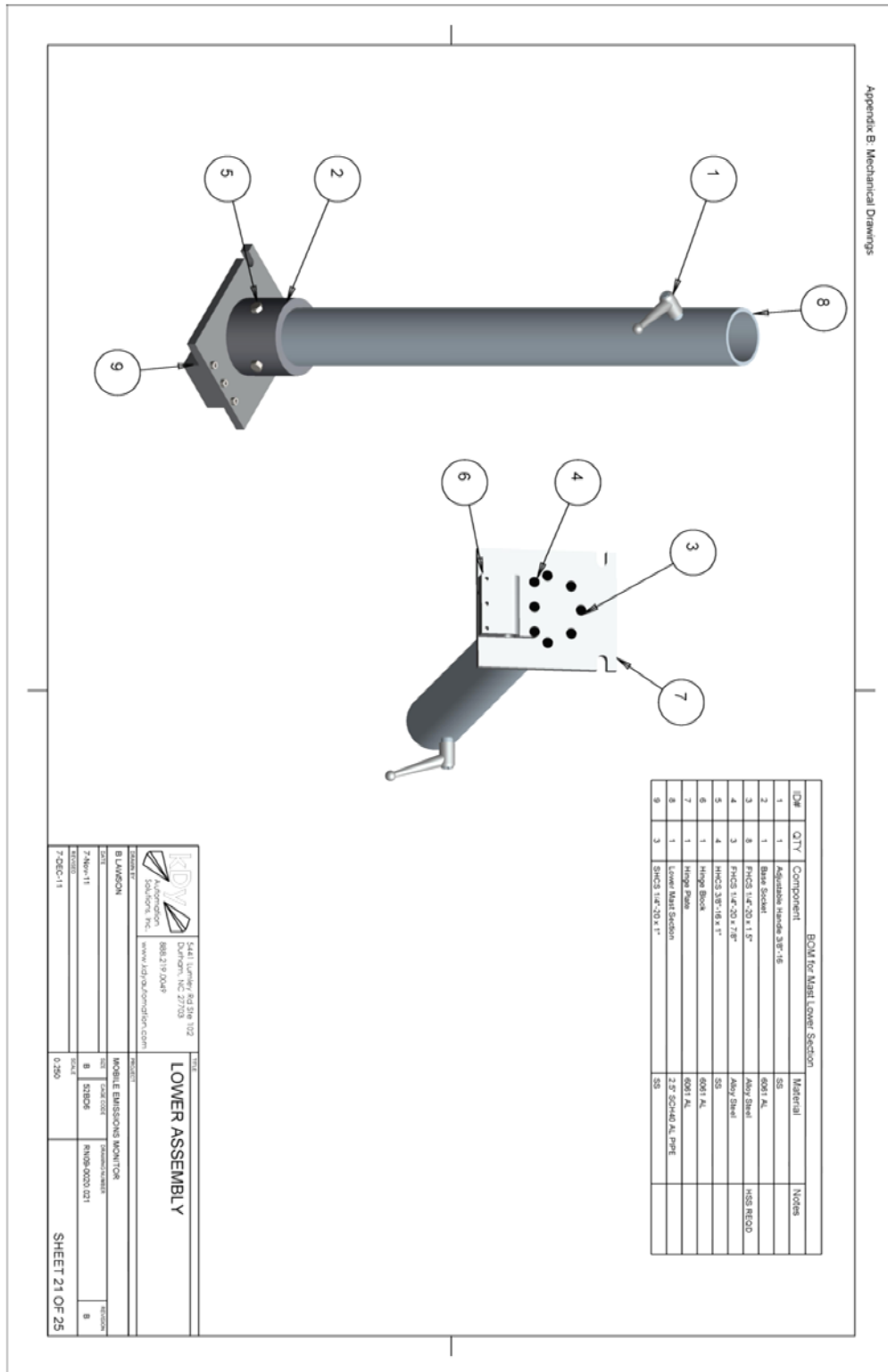
1.19 Upper mast section



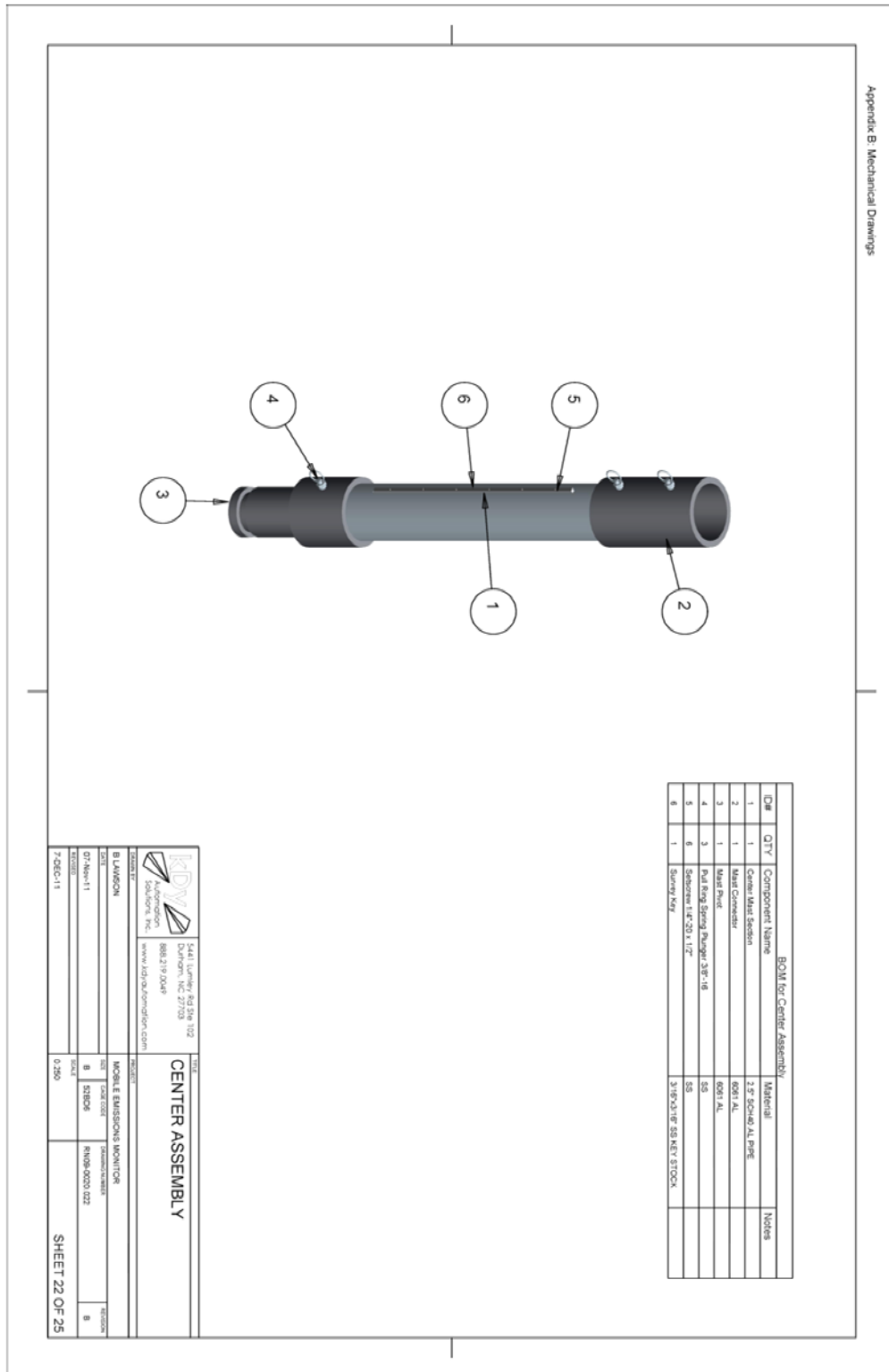
1.20 Mount base



1.21 Lower assembly



1.22 Center assembly



1.23 Survey mount assembly

Appendix B: Mechanical Drawings

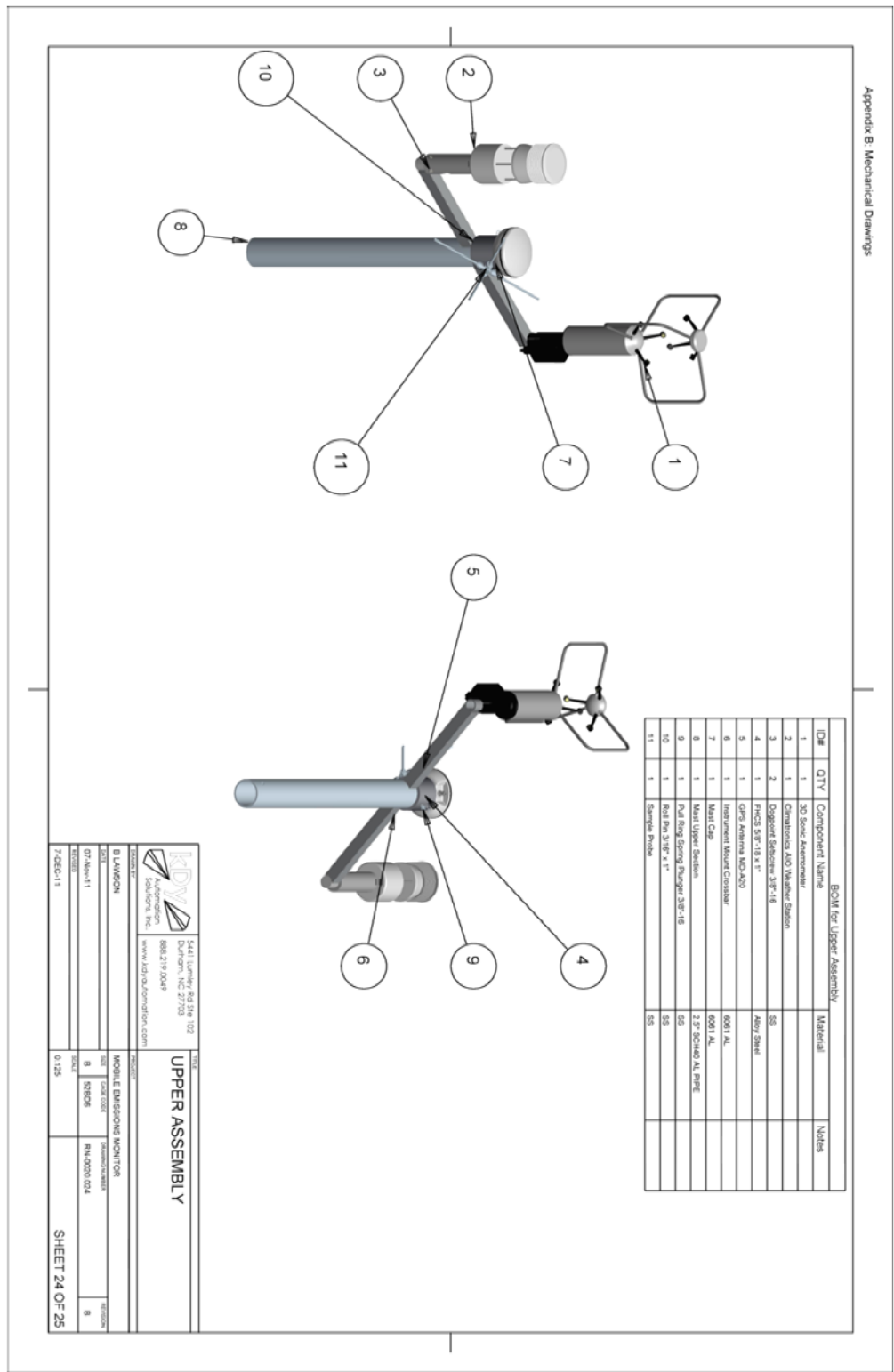
ID#	QTY	Component Name	Material	Note
1	1	Compass	6061 AL	
2	1	Compass Mount	6061 AL	
3	6	PHCS 1/4"x20 x 7/8"	Alloy Steel	
4	1	Lower Sight Clamp	6061 AL	
5	1	Set Screw 10-32 x 1"	SS	
6	6	SHCS 1/4"x20 x 1"	SS	
7	1	SHCS 1/4"x20 x 2"	SS	
8	1	Survey Mount Body	PHC	
9	1	Survey Mount Pin	6061 AL	
10	1	Surveying Sight		
11	1	Upper Survey Sight Clamp	6061 AL	

BOM for Survey Mount Assembly

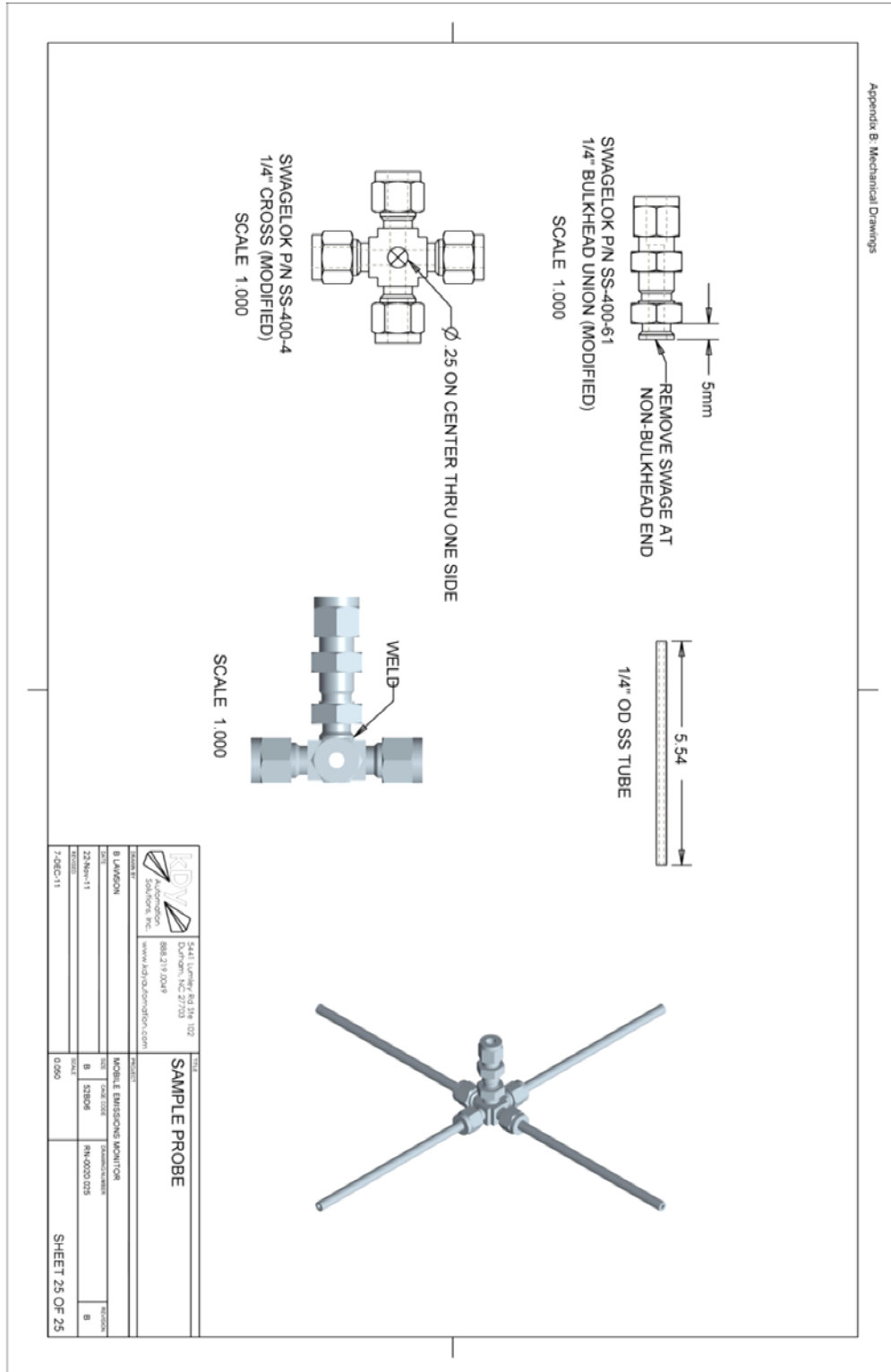
ID#	QTY	Component Name	Material	Note
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3	6	PHCS 1/4"x20 x 7/8"	Alloy Steel	
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5	1	Set Screw 10-32 x 1"	SS	
6	6	SHCS 1/4"x20 x 1"	SS	
7	1	SHCS 1/4"x20 x 2"	SS	
8	1	Survey Mount Body	PHC	
9	1	Survey Mount Pin	6061 AL	
10	1	Surveying Sight		
11	1	Upper Survey Sight Clamp	6061 AL	

<p>ADVA Automation Solutions, Inc. 888.219.2049 www.advaautomation.com</p>	<p>3441 Lumley St Ste 102 Solon, Ohio 44139 888.219.2049</p>	<p style="text-align: center;">SURVEY MOUNT ASSEMBLY</p> <p>DATE: 7-DEC-11</p> <p>PROJECT: MOBILE EMISSIONS MONITOR</p> <p>DESIGN: B SZBOB</p> <p>SCALE: 0.500</p> <p style="text-align: right;">SHEET 23 OF 25</p>
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1.24 Upper assembly



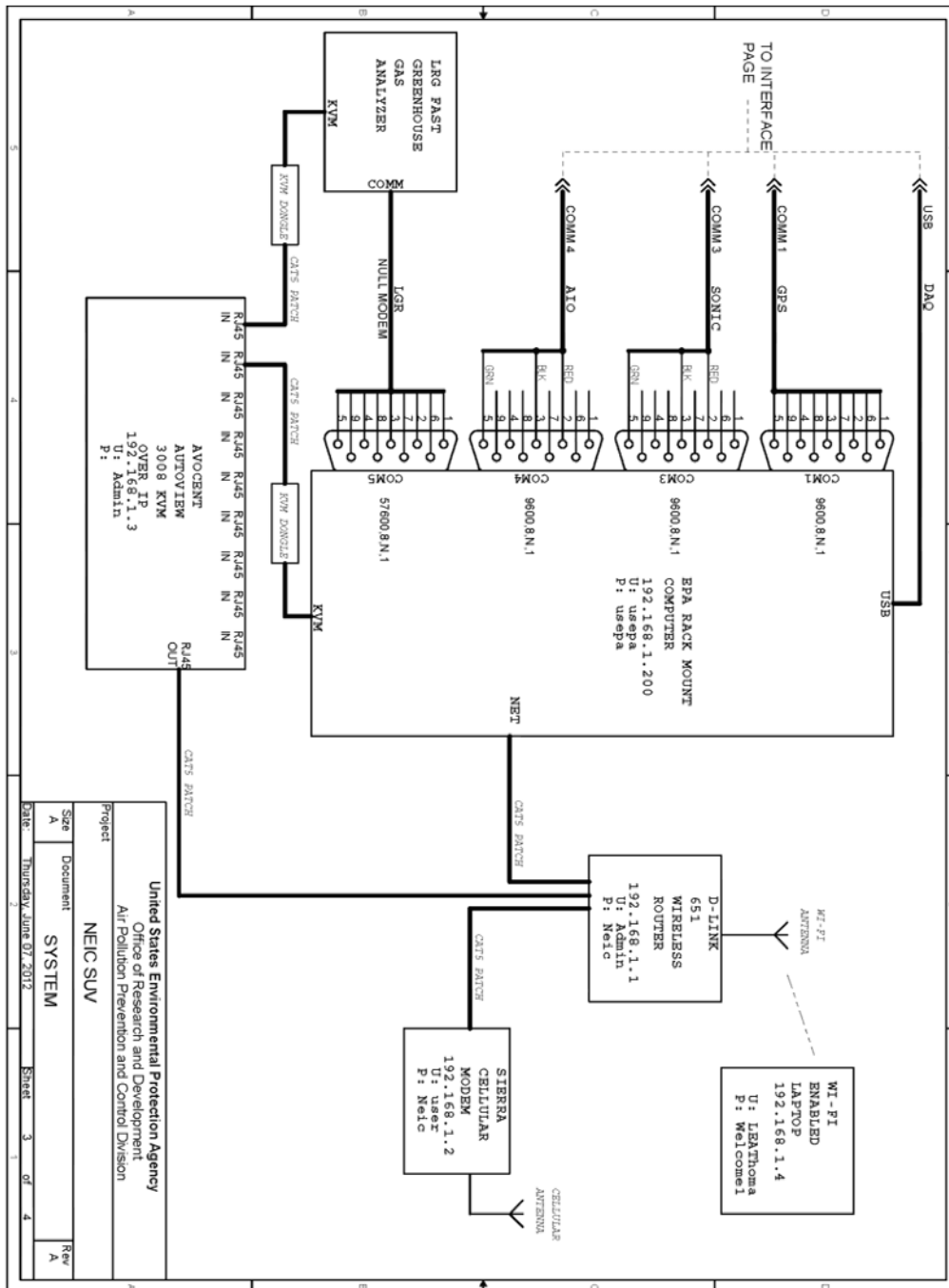
1.25 Sample probe



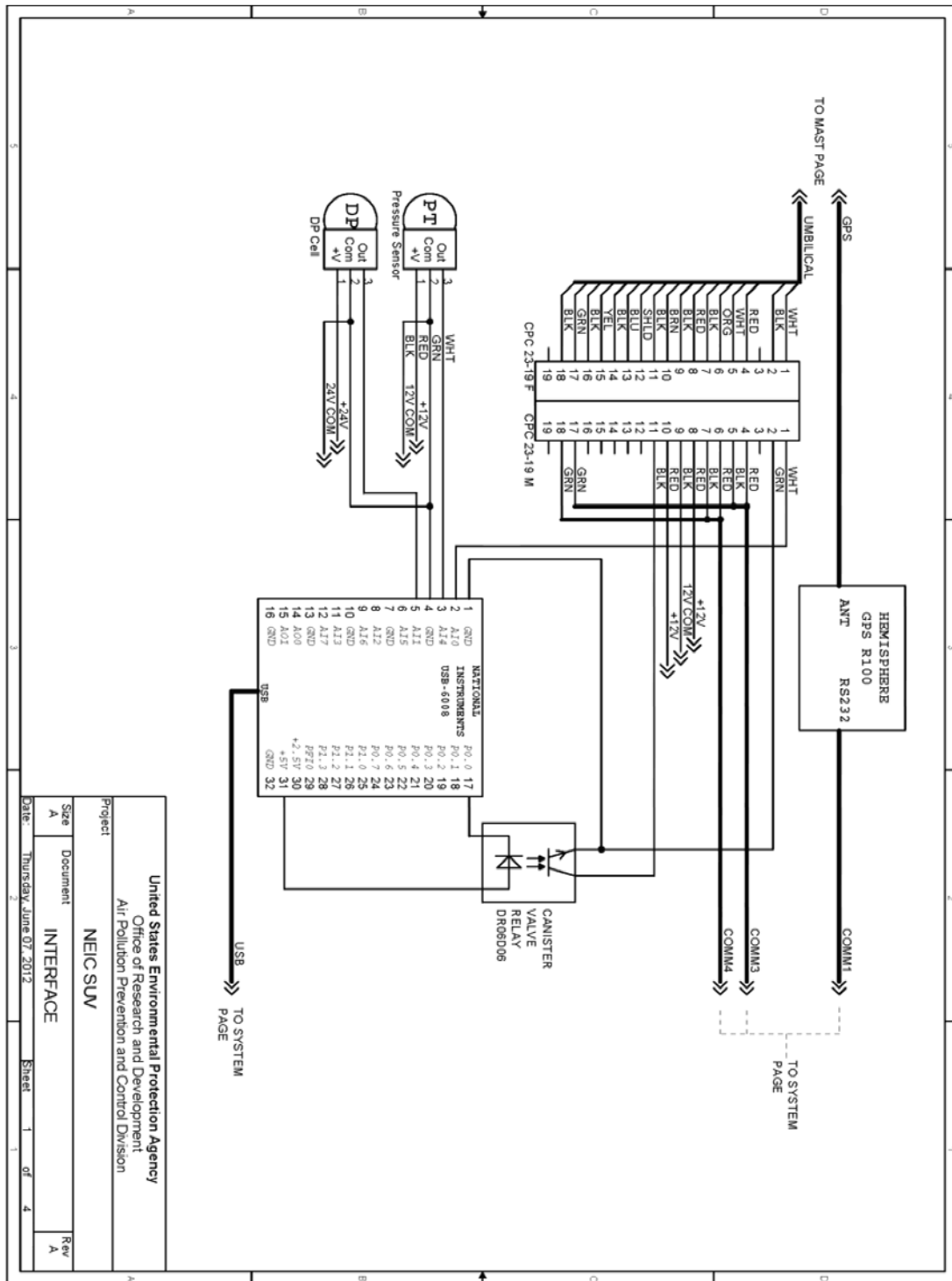
2. Control System Wiring Schematics for GMAP-REQ Systems

The following section contains control system wiring schematics examples for typical GMAP-REQ systems developed by EPA. This information is illustrative and does not constitute method requirements. Systems may utilize a subset of equipment illustrated depending on application and on communication requirements for various components.

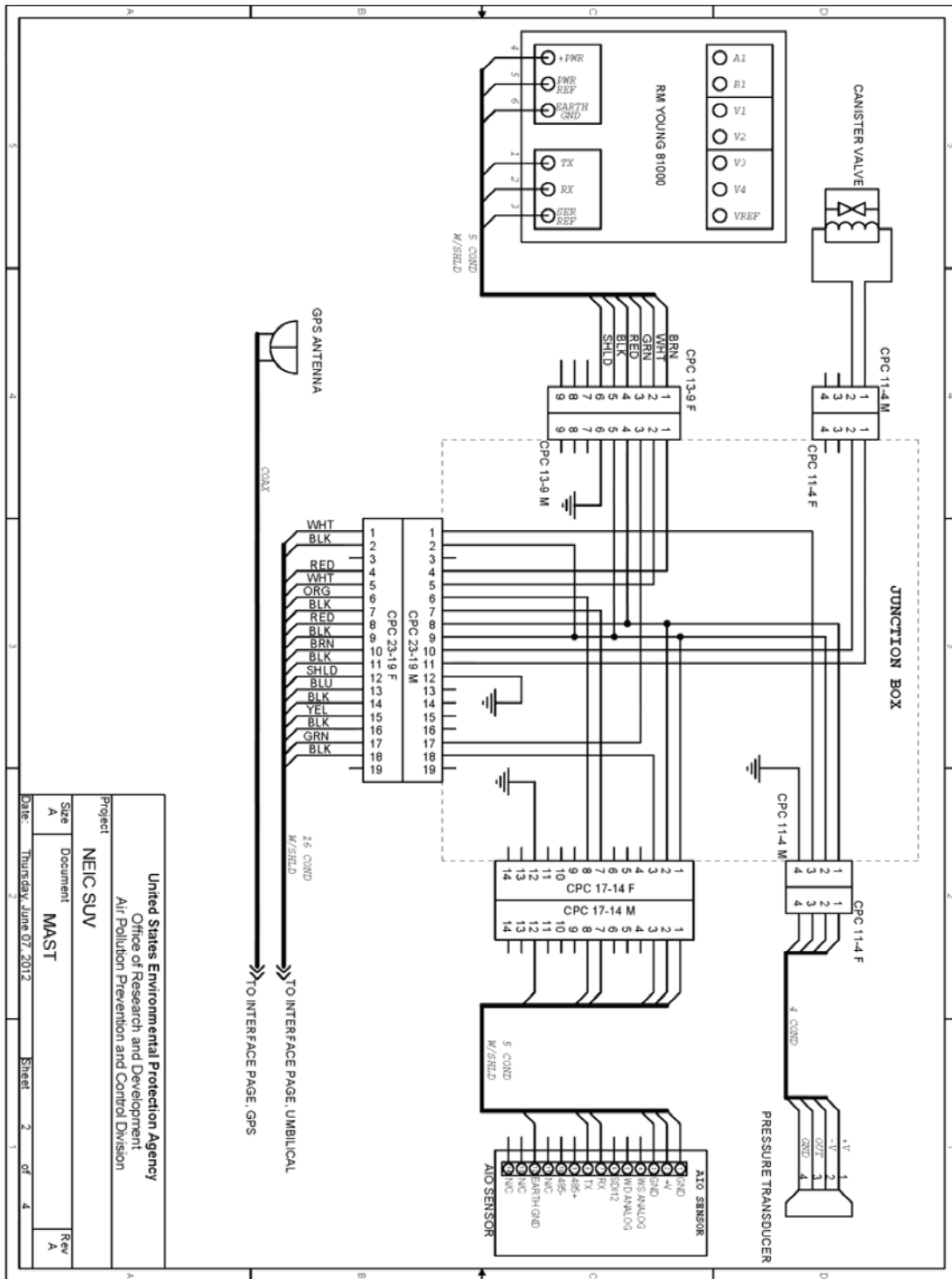
2.1 System connection overview for EPA NEIC unit



2.2 Equipment interface connections for EPA NEIC unit

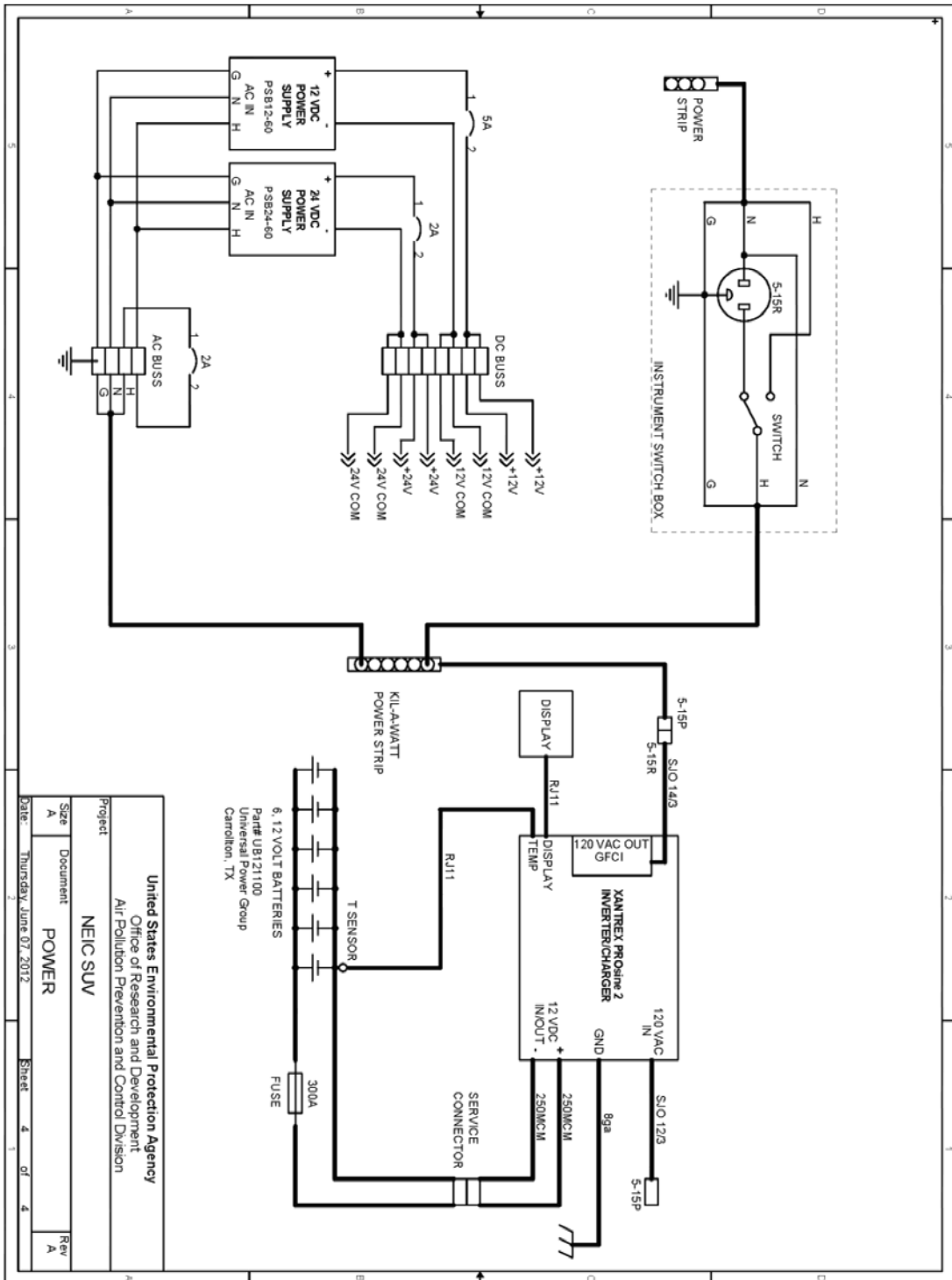


2.3 Mast interface connections for EPA NEIC unit

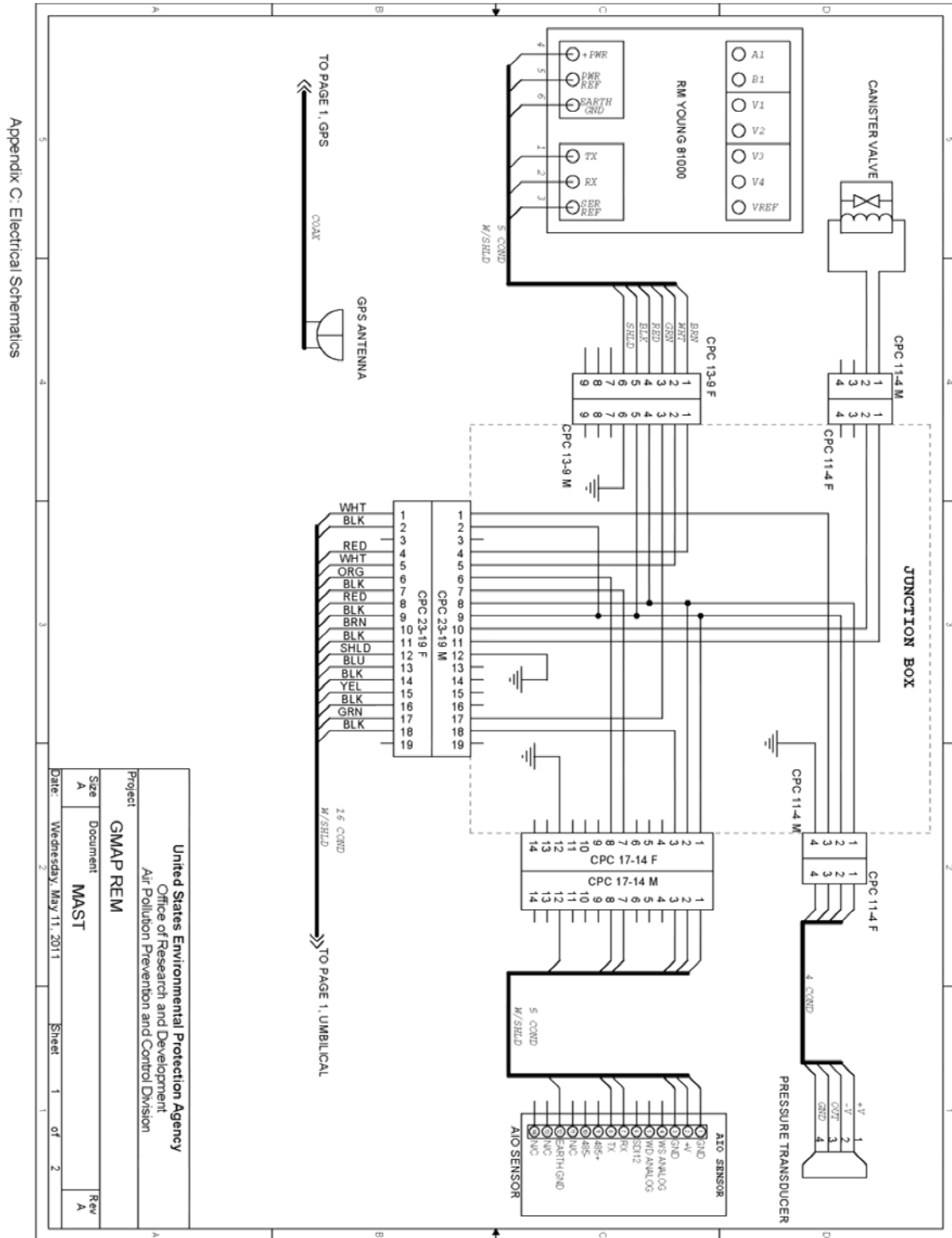


United States Environmental Protection Agency	
Office of Research and Development	
Air Pollution Prevention and Control Division	
Project	NEIC SUV
Size	Document
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Date	Thursday, June 07, 2012
Sheet	2 of 4
Rev	A

2.4 System power connections for EPA NEIC unit



2.5 Mast system connections for EPA R5 unit



Appendix C: Electrical Schematics

United States Environmental Protection Agency	
Office of Research and Development	
Air Pollution Prevention and Control Division	
Project	GMAP REM
Size	Document
Rev	MAST
Date:	Wednesday, May 11, 2011
Sheet	1 of 2