

# 1st Hardware Status Update

Gore Calcified Vessel Model  
ME 486C-001  
2/4/2025

# Project Overview

## Client:

- W.L. Gore & Associates, Inc. – Medical

## Project Scope:

- Design, build, and test a replicable model of calcified lesions in the peripheral arterial system...
  - for deployment of vascular interventional devices under simulated use conditions
  - using inorganic materials.

## Project Significance:

- Accelerate the development of treatments for peripheral arterial disease by improving functionality and accessibility of research models

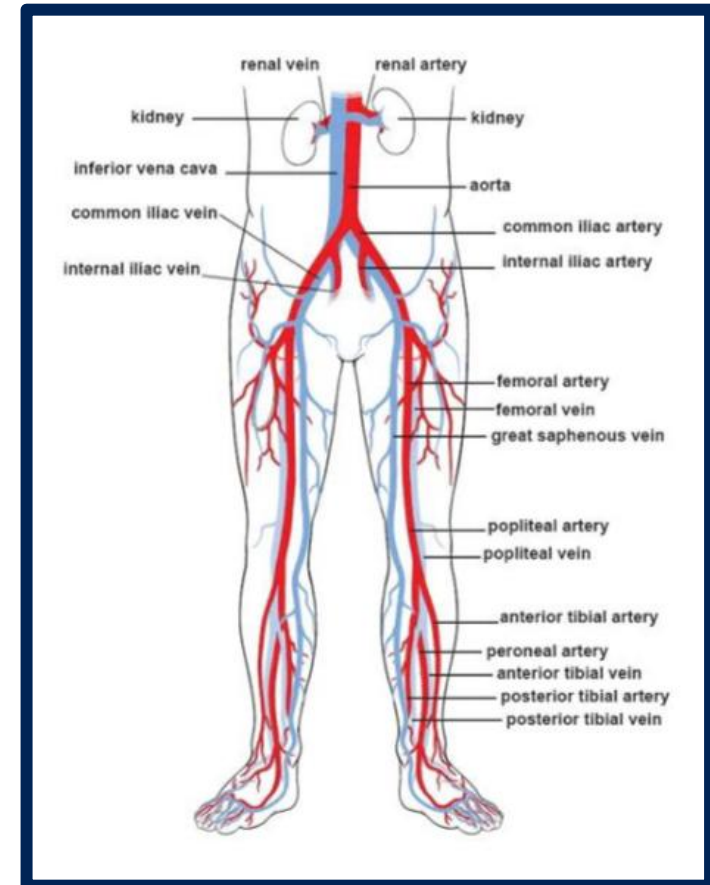


Figure 1– Peripheral Arterial System

# Design Efforts – CAD Assy.

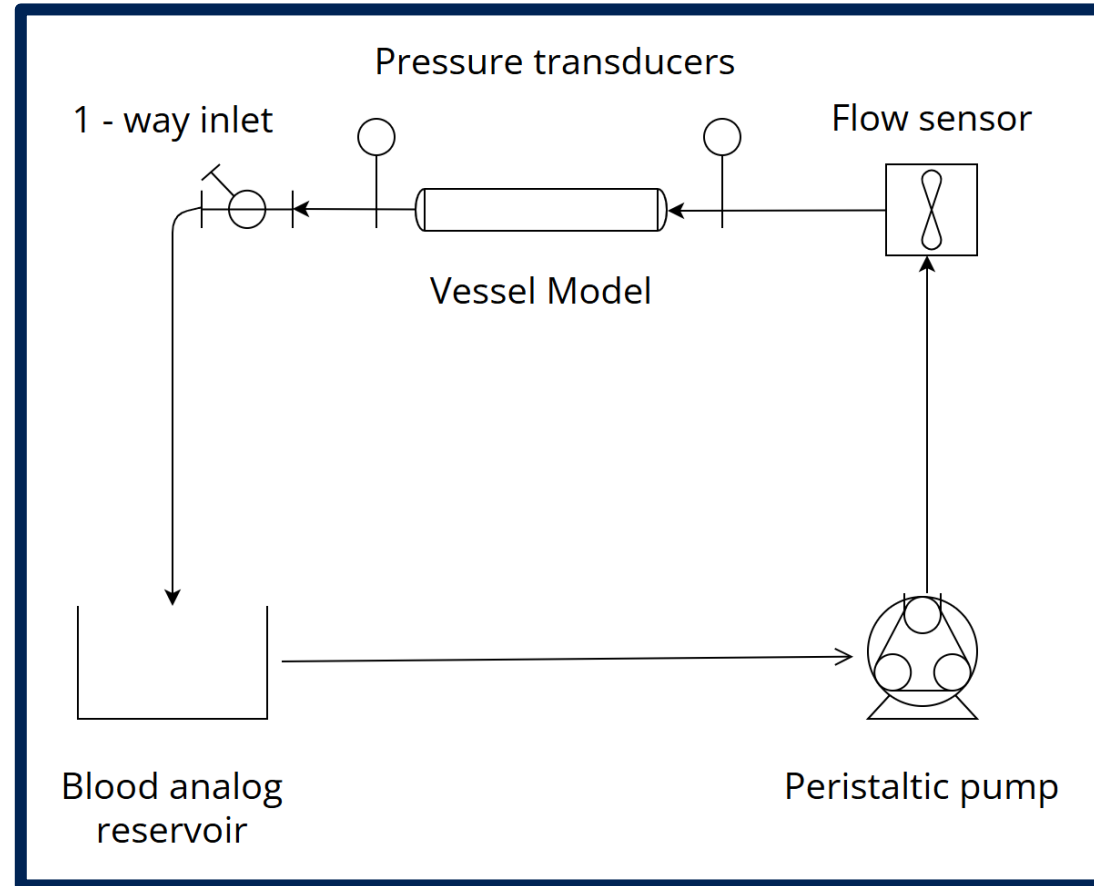
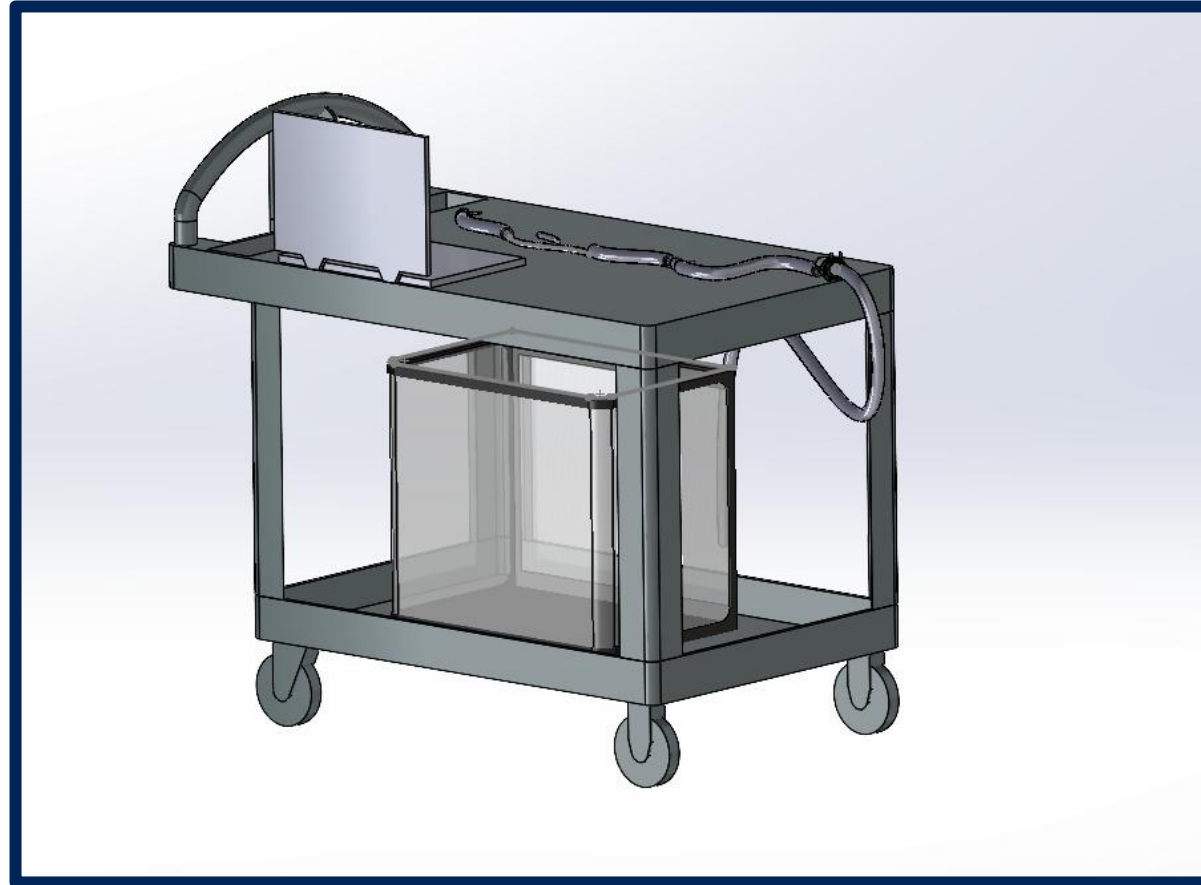


Figure 2 – Pipe Flow Diagram

# Design Efforts – CAD Assy.



*Figure 3 – Isometric View of Assembly [PN: 1358785-1A]*

# Design Efforts – Assy. Drawing

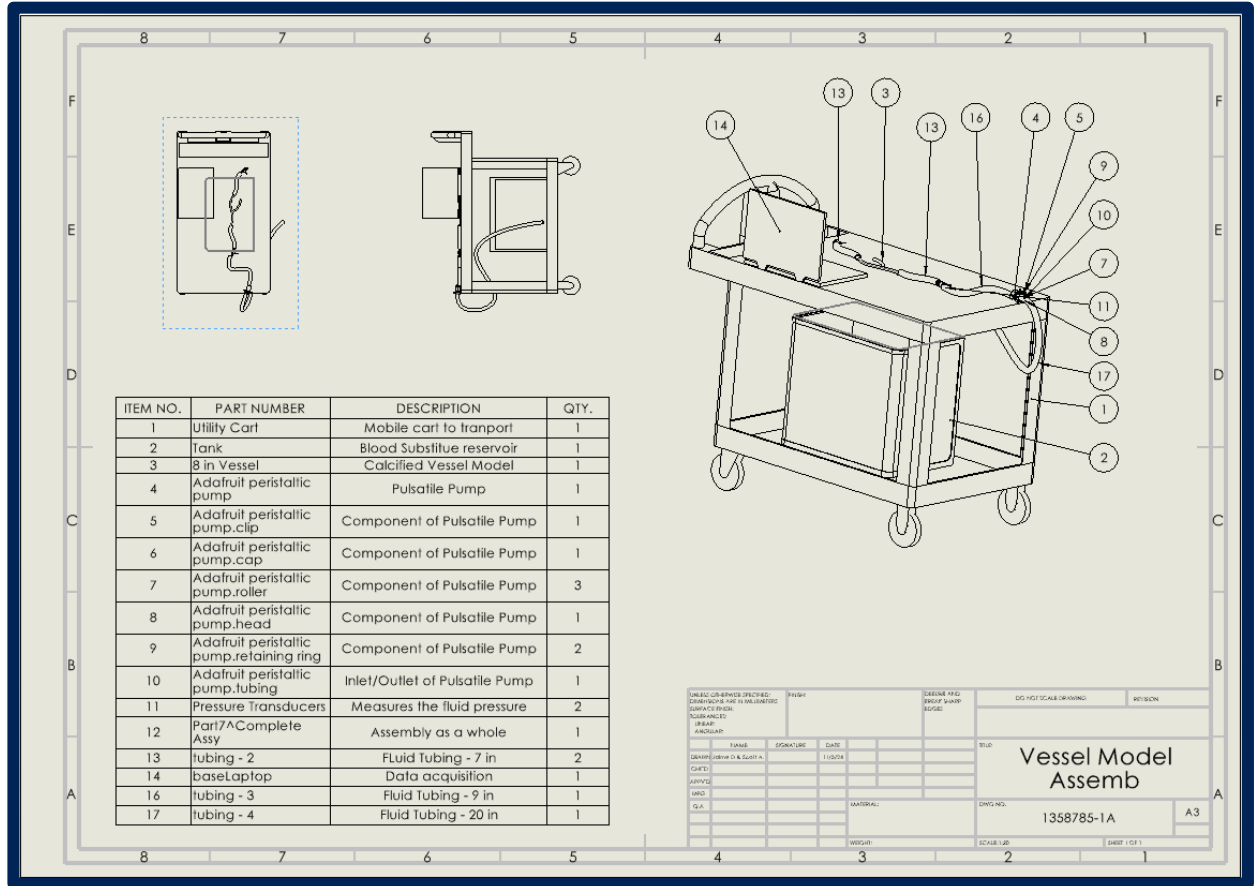


Figure 4 – Drawing of Assembly [PN: 1358785-1A \_ Vessel Model Assy.]

# Design Efforts – Comp. Drawing

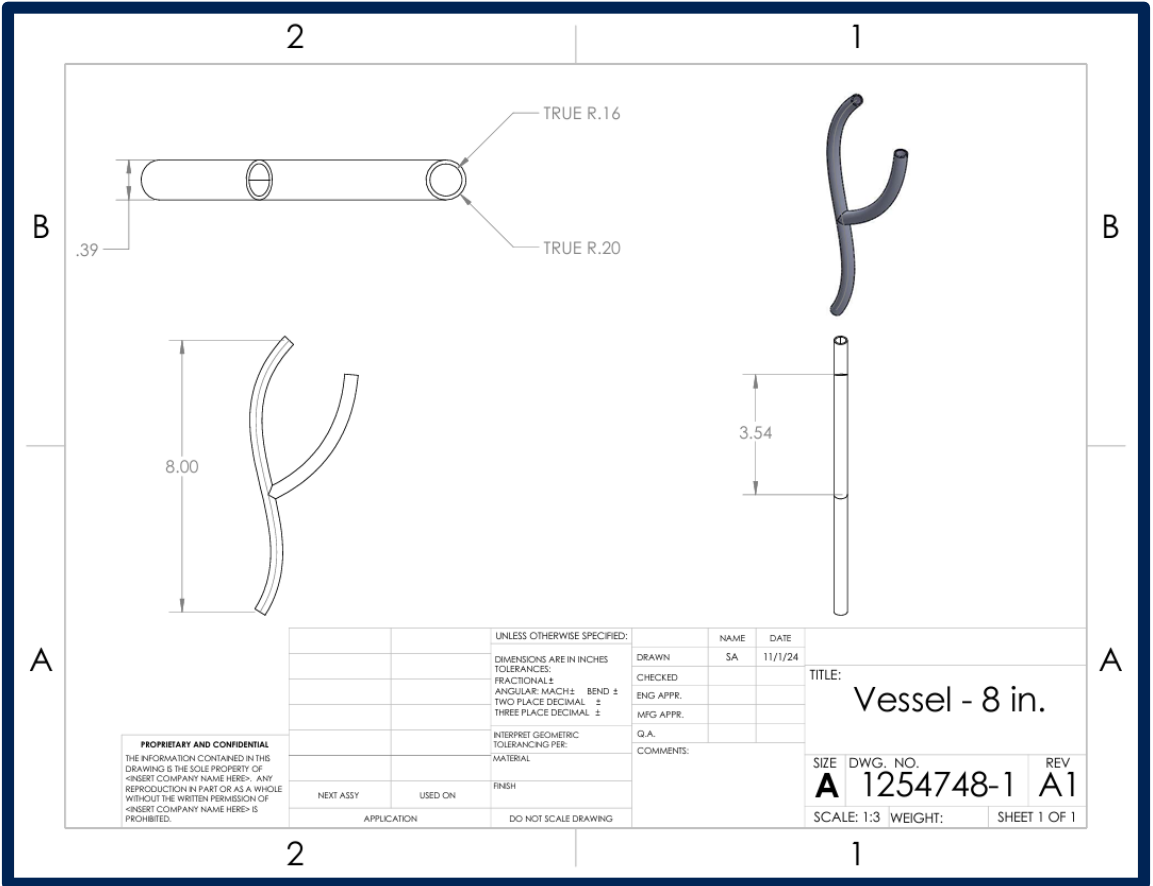


Figure 5 – Drawing of Component [PN: 1358785-1A\_8 in. Vessel]

# Design Efforts – Comp. Drawing

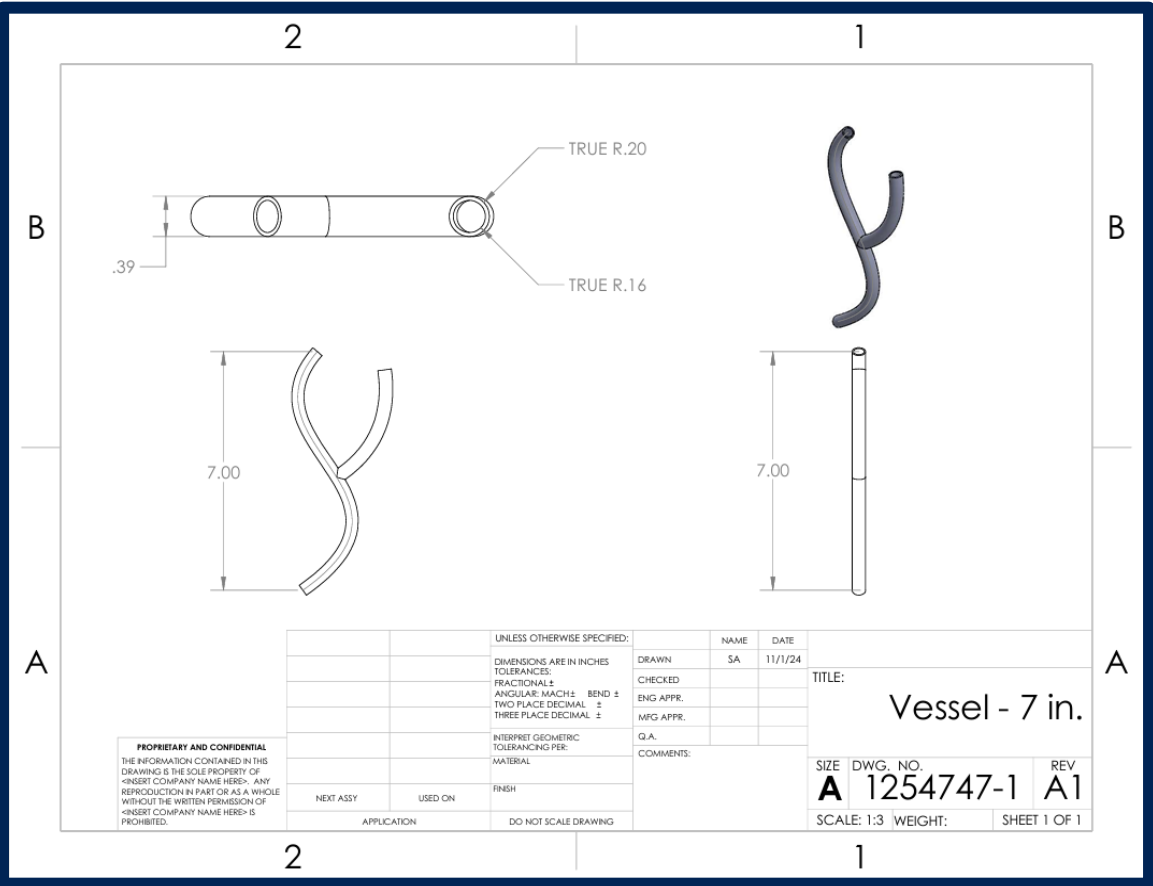


Figure 6 – Drawing of Component [PN: 1254747-1 \_7 in. Vessel]

# Design Efforts – Comp. Drawing

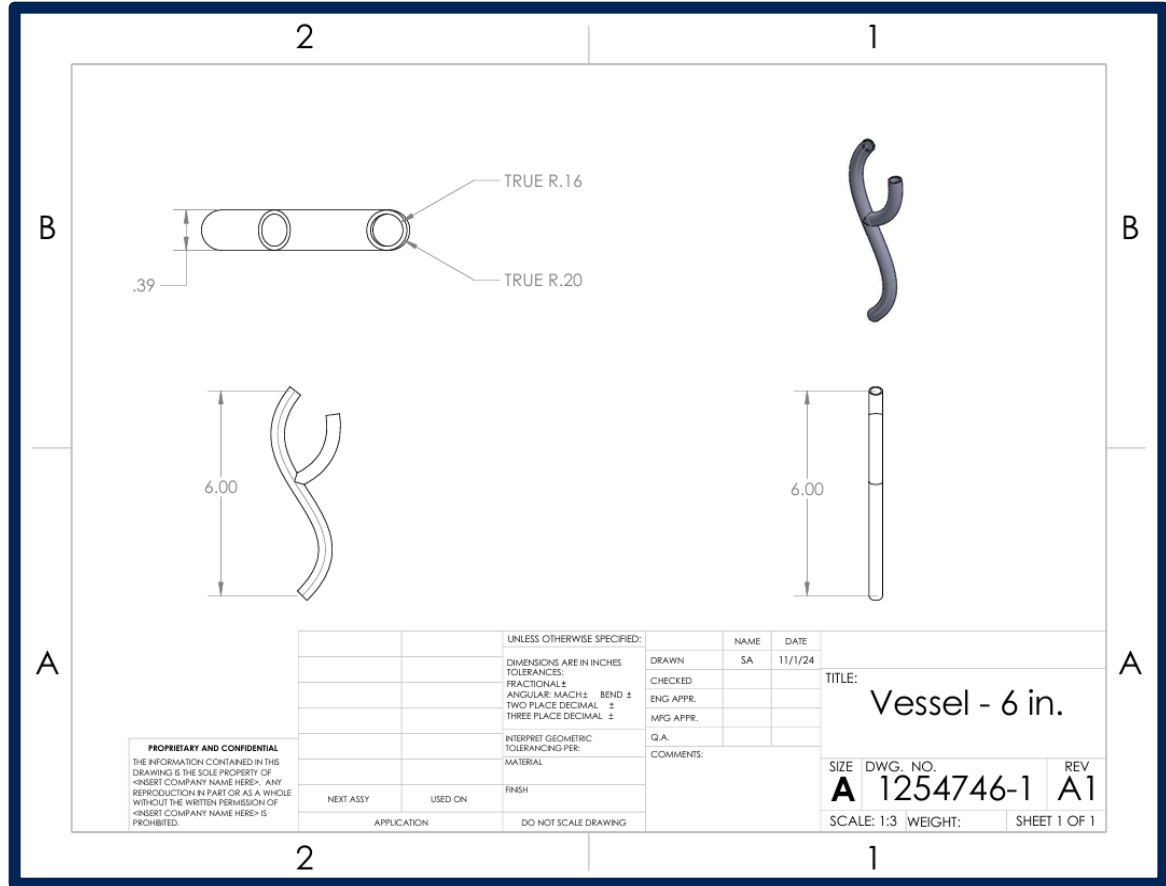


Figure 7 – Drawing of Component [PN: 1254746-1 \_6 in. Vessel]



# Design Efforts – Comp. Drawing

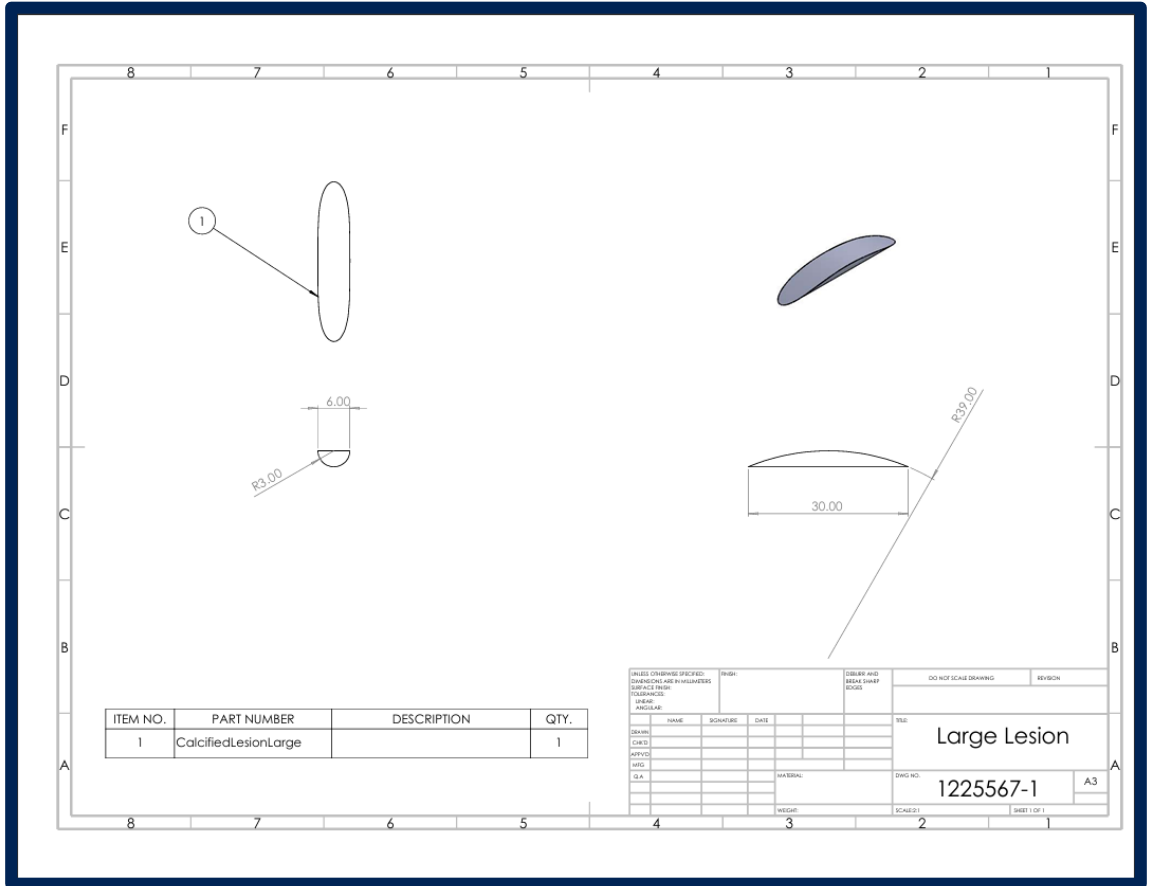


Figure 8 – Drawing of Component [PN: 1225567-1 \_Large Lesion]

# Design Efforts – Comp. Drawing

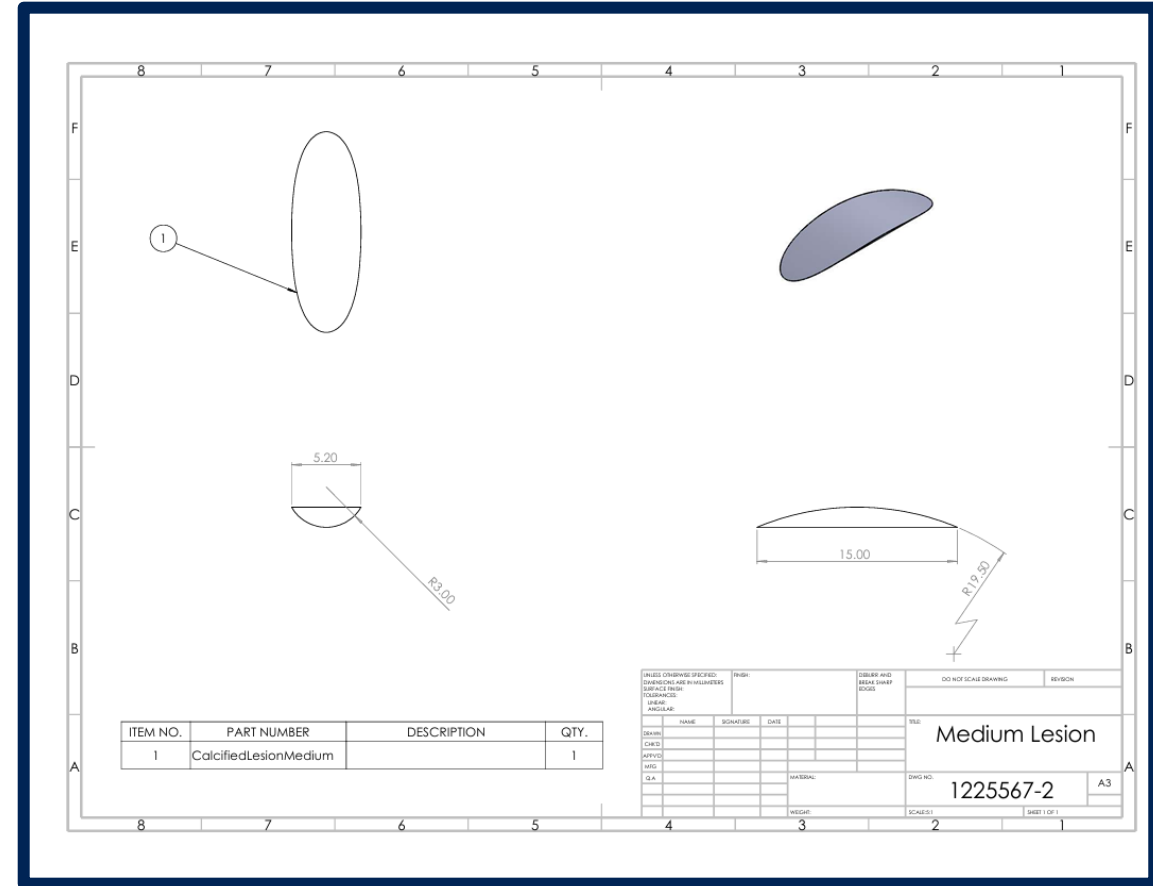


Figure 9 – Drawing of Component [PN: 1225567-2 \_Medium Lesion]

# Design Efforts – Comp. Drawing

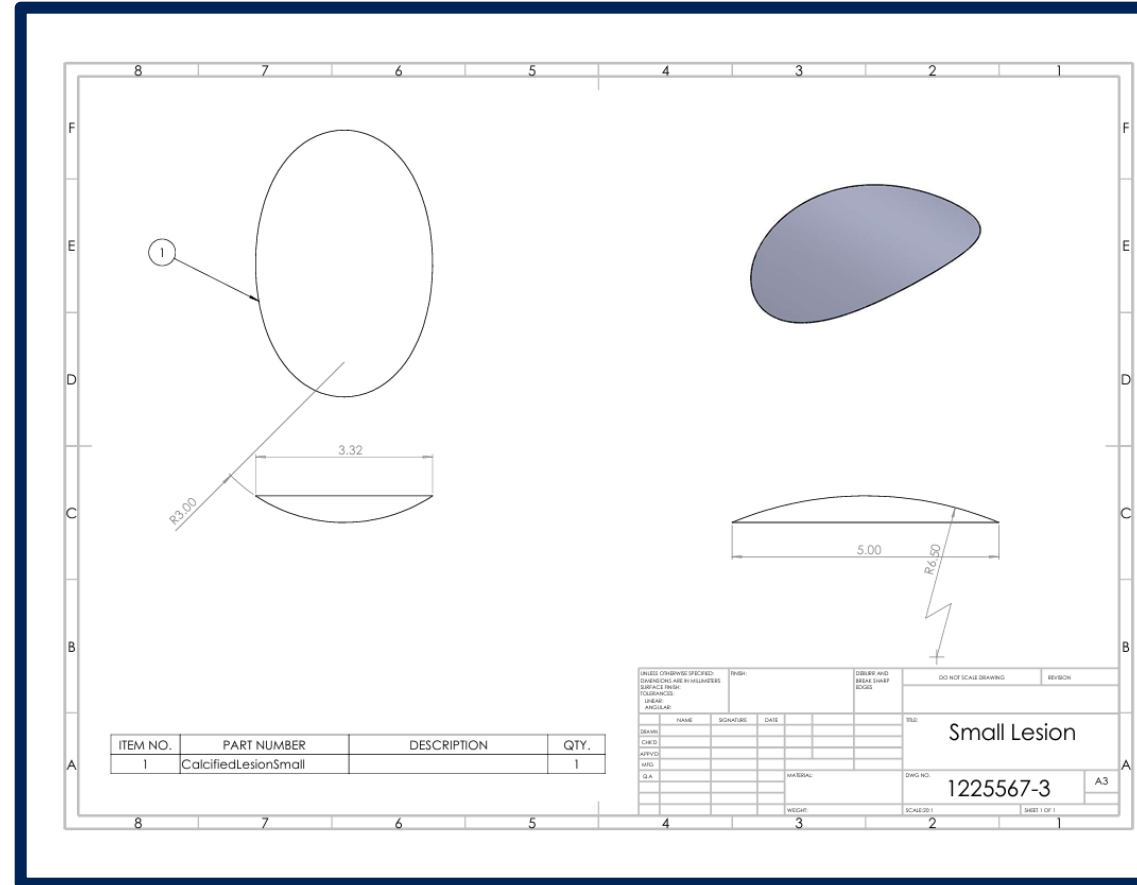


Figure 10 – Drawing of Component [PN: 1225567-3 \_Small Lesion]

# Purchasing Plan

Table 1 – BoM Purchasing Rows

GORE Calcified		Income	\$3,000						
		Fundraising	\$800						
		Total Income	\$3,800						
Item	Quantity	Price/Per	Total	Notes					
Pump 2	1	\$ 200.00	\$ 200.00	Purchased	Pressure Transducer	25	\$ 11.03	\$ 275.75	Purchased
Pump	1	\$ 28.43	\$ 28.43	Purchased	2pc Microcontroller	5	\$ 8.25	\$ 41.24	Purchased
Variable Power Supply	1	\$ 54.03	\$ 54.03	Purchased	AnyCubic Photon Mono 5S Pro	1	\$ 299.00	\$ 299.00	Purchased
85A Filament	1	\$ 56.15	\$ 56.15	Purchased	UV curing light	1	\$ 23.39	\$ 23.39	Purchased
SainSmart TPU	1	\$ 53.78	\$ 53.78	Purchased	Flow Sensor	2	\$ 10.36	\$ 20.72	Purchased
Tubing	2	\$ 7.63	\$ 15.26	Purchased	55D TPE Filament	1	\$ 25.99	\$ 25.99	Purchased
Cart/Platform	1	\$ 94.50	\$ 94.50	Purchased	40D TPU	1	\$ 56.15	\$ 56.15	Purchased
Tank	1	\$ 46.39	\$ 46.39	Purchased	Vessels	12	-	-	On Going
Arduino	1	\$ 45.00	\$ 45.00	Purchased	Arduinos	2	\$16.99	\$33.98	Purchased
Lesson Adhesive	2	\$ 5.19	\$ 10.37	Purchased	LCD Screen	1	\$ 11.99	\$ 11.99	Ordered
Wash and Cure Kit w/ Sealed Container	1	\$ 193.20	\$ 193.20	Purchased	Dupont Wire	1	\$ 6.98	\$ 6.98	Ordered
50A Resin	1	\$ 200.00	\$ 200.00	Purchased	Battery Holder	2	\$ 8.28	\$ 16.56	Ordered
					Breadboards	1	\$ 8.79	\$ 8.79	Ordered
					AnyCubic Photon Mono 5S Pro	1	\$ 102.00	\$ 102.00	Purchased
							Spent	\$1,719.65	
							<b>Total Budget Remaining</b>	<b>\$2,080.35</b>	

Item	Quantity	Price/Per	Total	Notes
Flexible Resin	1	\$ 200.00	\$ 200.00	Need to buy
Tubing	1	\$ 7.63	\$ 7.63	Need to buy
Connectors (10 pcs)	2	\$ 3.16	\$ 6.32	Need to buy
One way inlet	1	\$ 9.86	\$ 9.86	Need to buy
Platform for cart	1	\$ 10.00	\$ 10.00	Need to buy

**Purchasing Progress:**  
**85%**

# Manufacturing Plan

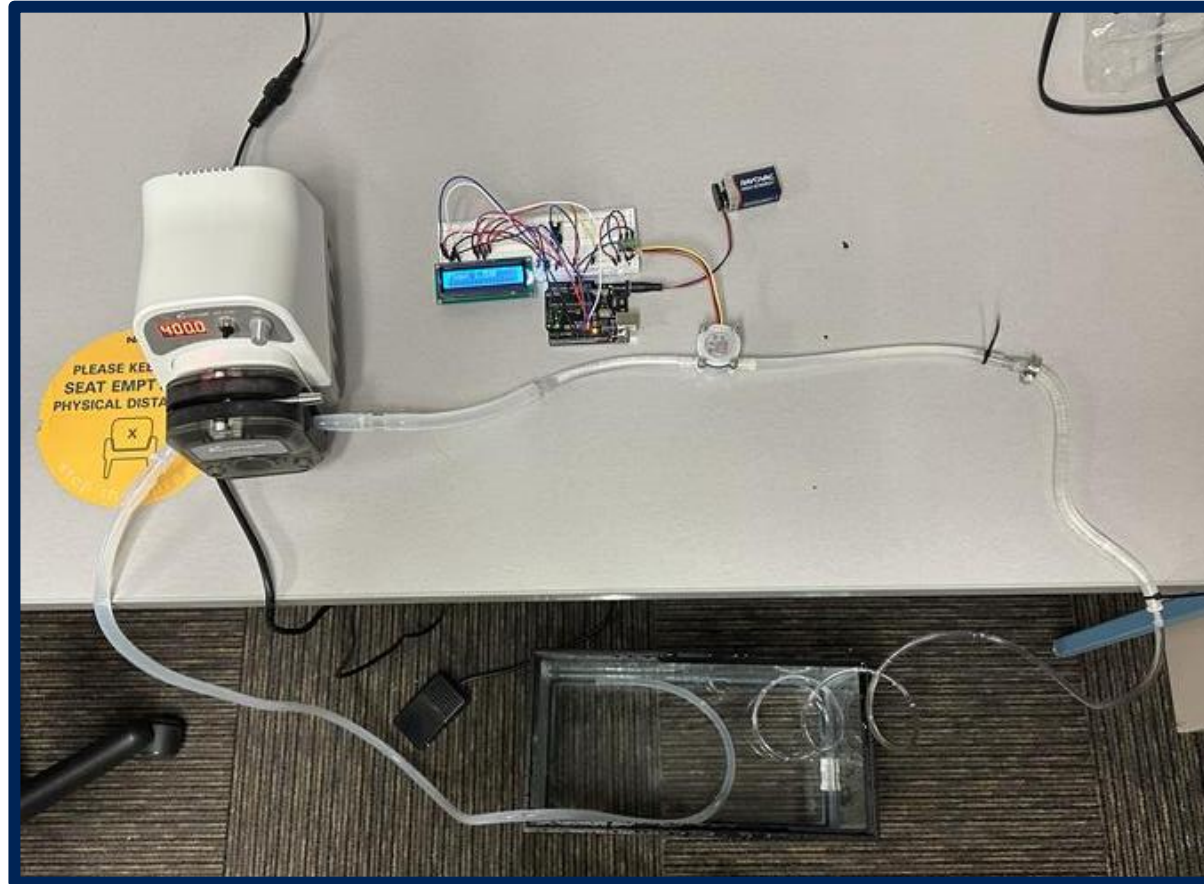
Table 2 – BoM Manufacturing Rows

Item	Quantity	Price/Per	Total	Purchased/Ma	Vendor	Lead Time
Pump	1	\$ 28.43	\$ 28.43	Purchased	Amazon	3 Days
Variable Power Supply	1	\$ 54.03	\$ 54.03	Purchased	Amazon	3 Days
85A Filament	1	\$ 56.15	\$ 56.15	Purchased	Amazon	3 Days
SainSmart TPU	1	\$ 53.78	\$ 53.78	Purchased	Amazon	3 Days
Tubing	2	\$ 7.63	\$ 15.26	Purchased	Home Depot	1 Day
Cart/Platform	1	\$ 94.50	\$ 94.50	Purchased	Harbor Freight	1 Day
Tank	1	\$ 46.39	\$ 46.39	Purchased	PetSmart	1 Day
Arduino	1	\$ 45.00	\$ 45.00	Purchased	Amazon	2 Weeks
Lesson Adhesive	2	\$ 5.19	\$ 10.37	Purchased	Amazon	3 Days
One way Inlet	1	\$ 9.86	\$ 9.86	Purchased	Amazon	2 Weeks
Artery Stand	1	\$ 16.38	\$ 16.38	Manufactured	In House	1 Week
Blood Analog	1	\$ 36.30	\$ 36.30	Purchased	3B Scientific	3 Weeks
Syringes	1	\$ 16.37	\$ 16.37	Purchased	Amazon	2 Weeks
50A Resin	1	\$200.00	\$200.00	Purchased	Amazon	2 Weeks
Pressure Transducer	1	\$275.75	\$275.75	Purchased	Utah Medical	3 Weeks
2pc Microcontroller	2	\$ 20.62	\$ 41.24	Purchased	Amazon	2 Weeks
Flow Sensor	2	\$ 10.36	\$ 20.72	Purchased	Amazon	2 Weeks
55D TPE Filament	1	\$ 25.99	\$ 25.99	Purchased	Amazon	2 Weeks
40D TPU	1	\$ 56.15	\$ 56.15	Purchased	Amazon	3 Weeks
Vessels	1	-	-	Manufactured	In House	On going
LCD Screen	1	\$ 11.99	\$ 11.99	Purchased	Amazon	1 Week
Dupont Wire	1	\$ 6.98	\$ 6.98	Purchased	Amazon	1 Week
Battery Holder	2	\$ 8.28	\$ 16.56	Purchased	Amazon	1 Week
Breadboards	1	\$ 8.79	\$ 8.79	Purchased	Amazon	1 Week
AnyCubic Photon Mono 5S Pro	1	\$102.00	\$102.00	Purchased	Amazon	1 Week
Arduinos	2	\$16.99	\$33.98	Purchased	Amazon	1 Week

= new material

Manufacturing Progress: 50%

# Demonstration



*Figure 11 – Current Build*

# Demonstration



Figure 12 – Vessel Closeup

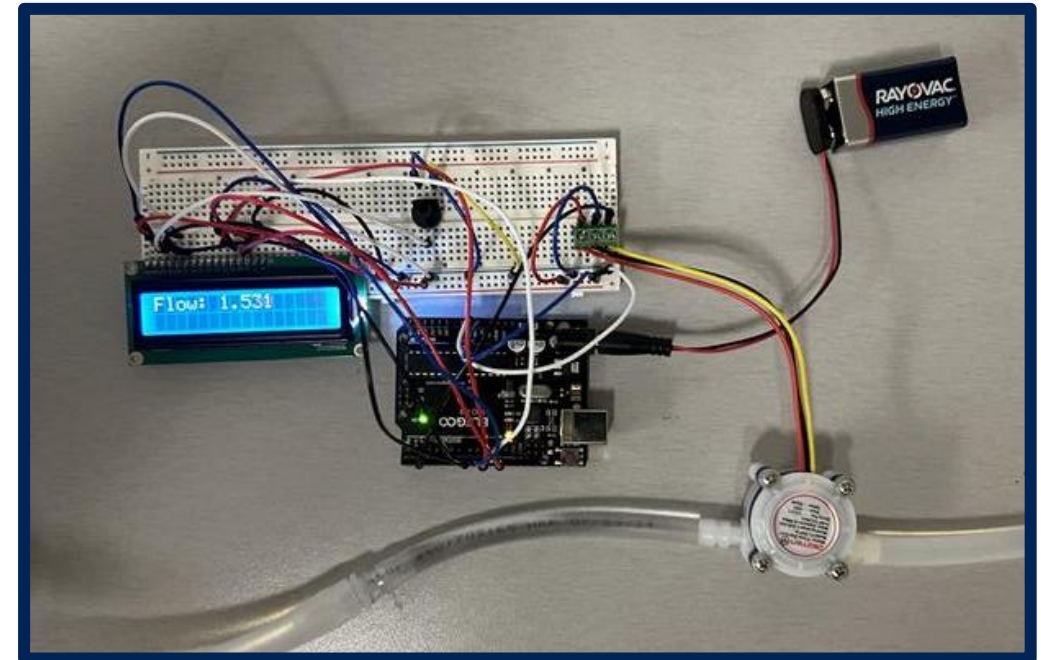


Figure 13 – Flow Rate Sensor Circuit Closeup

# Gantt Chart

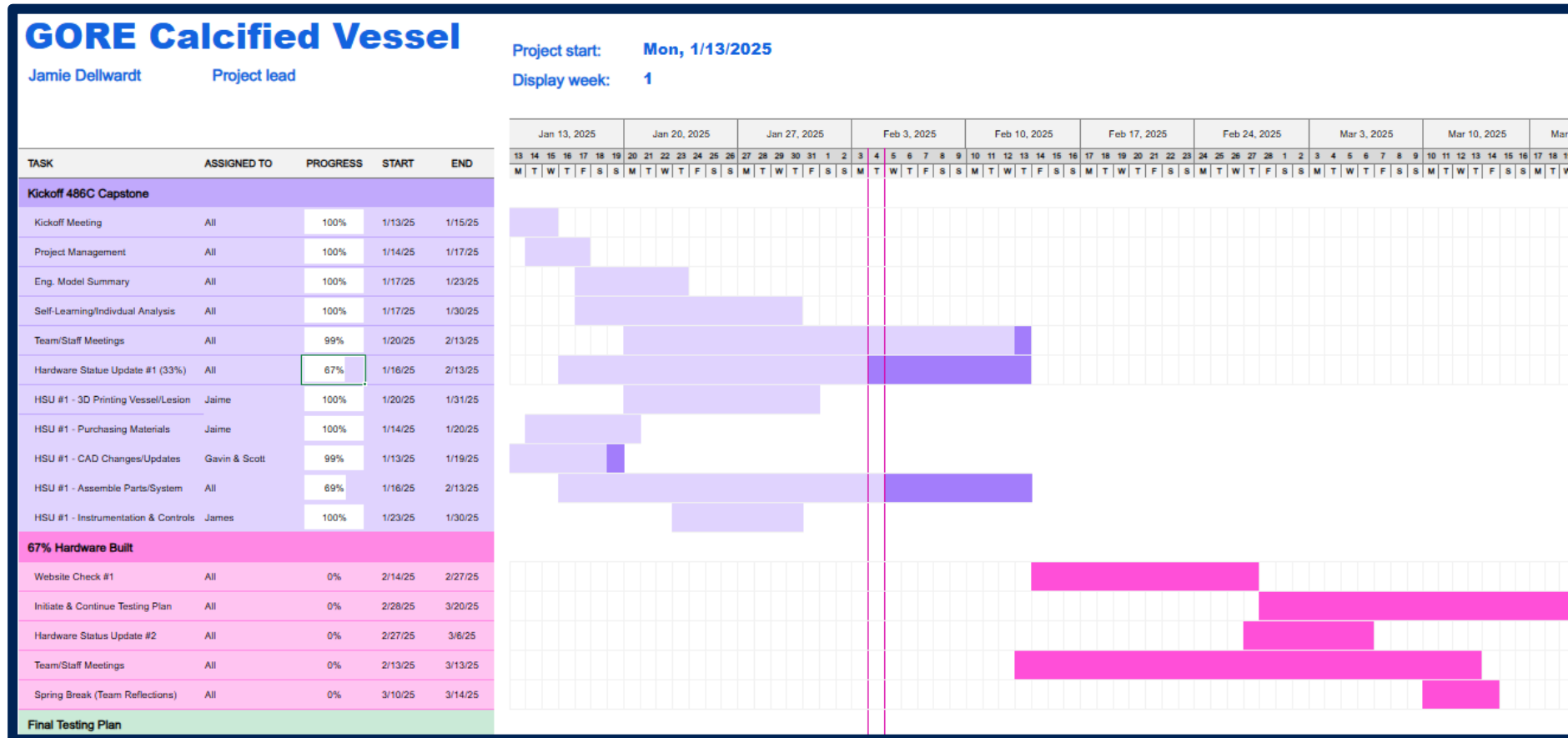


Figure 14 – Current Gantt Chart



# Thank You!