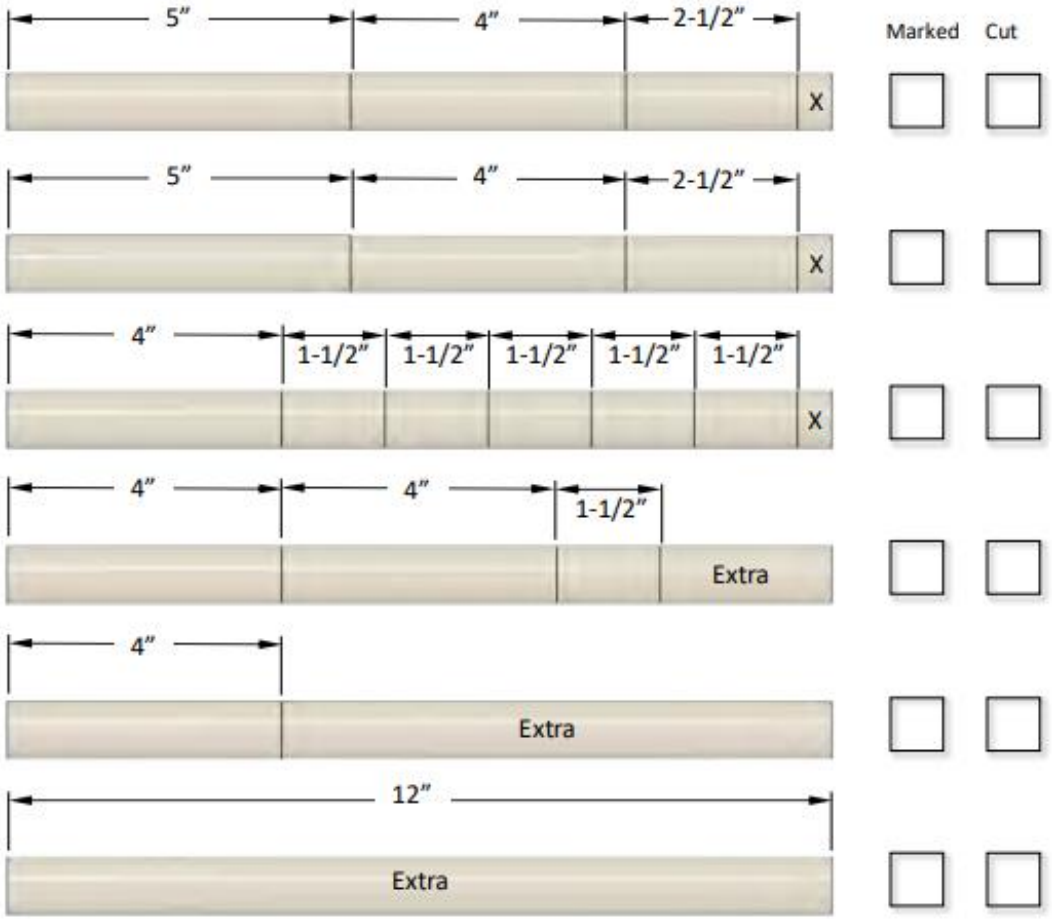

Figure 6

TASK 3.3 – Drilling the Thruster Mounting Holes

Refer to the **Tool Usage, Skills, and Safety Section** for more information about safely using the drill and drill bits.

- Locate three 4" long pipe pieces.
- For ease of marking and accuracy, secure each piece of pipe in the table vise when measuring (shown previously in Figures 4 & 5).
- Hold the ruler parallel to the pipe. Mark the locations of the thruster mounting holes with a straight line along the edge of the ruler to intersect with the hole location marks. (Figure 9)
- Repeat for the other two 4" pipes.
- Clamp the pipe in the table vise, with the marks facing upward, and with one of the rubber pads removed from the table vise.

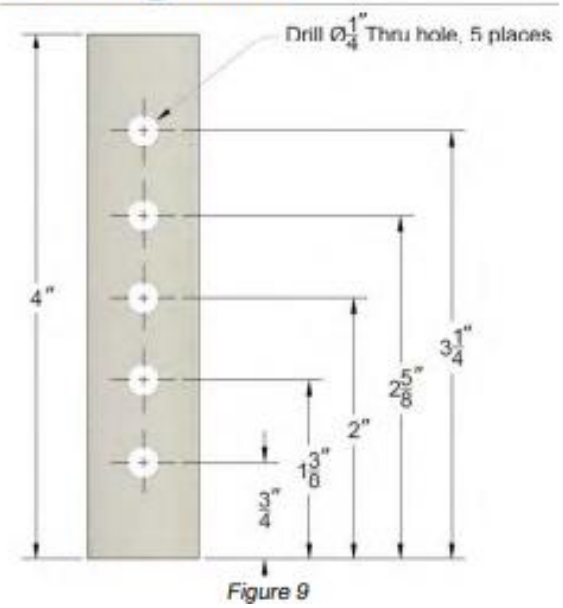

Figure 9

TASK 3.5A – Utility ROV Frame Assembly

Construct the Utility ROV Frame as shown in Figure 16.

- Insert the 5" long pipes into the 2" long floatation pieces before connecting the elbows. (Figure 17)
- Position the thruster mounting pipes with the holes facing as shown. (Figure 17)
- Assemble the lower right section (Figure 18) and the lower left section (Figure 19). These sections are identical except for the orientation of the upper and lower cross support elbows.
- Assemble the upper and lower frame sections (right and left sides). (Figures 20 & 21)

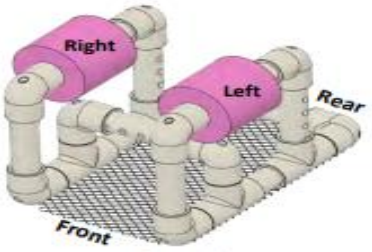

Figure 16

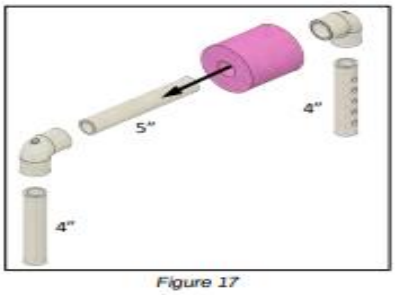

Figure 17

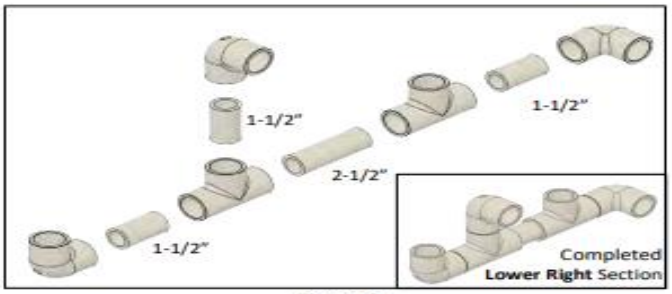

Figure 18

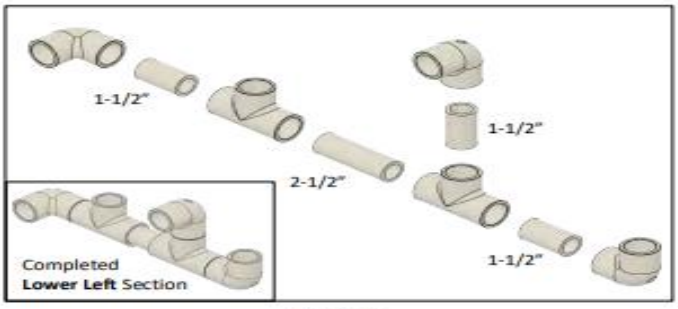

Figure 19

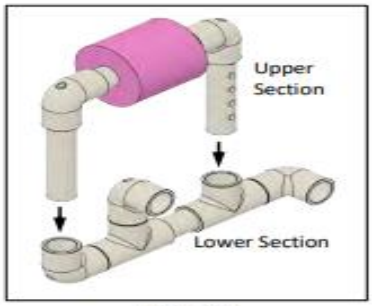

Figure 20

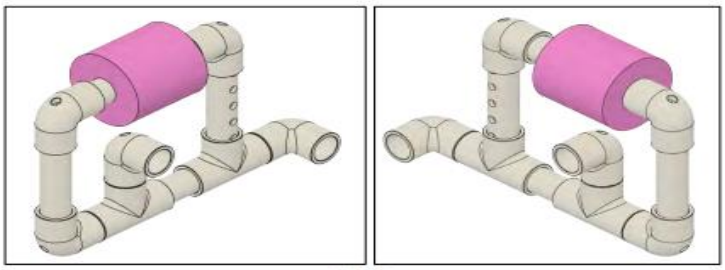
Figure 21

- Connect the two frame side sections using a 4" long pipe and 4" long thruster mounting pipe as shown in Figure 22.

Completed Utility ROV Frame is shown in Figure 23. An optional payload net can be added using the instructions in Task 3.7.

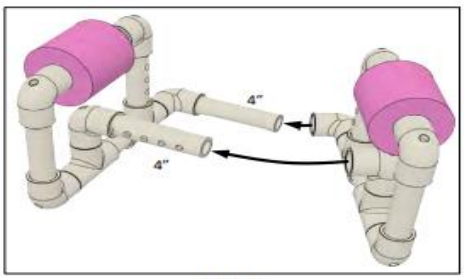

Figure 22

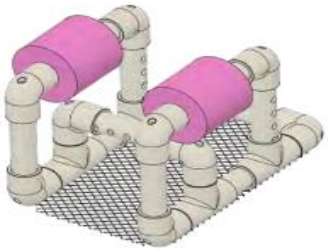
Figure 23