

Calculating Stream Width

Site/ Location: _____

Name _____

Collection Date: _____

Class _____

Collection Time: _____

Group # _____

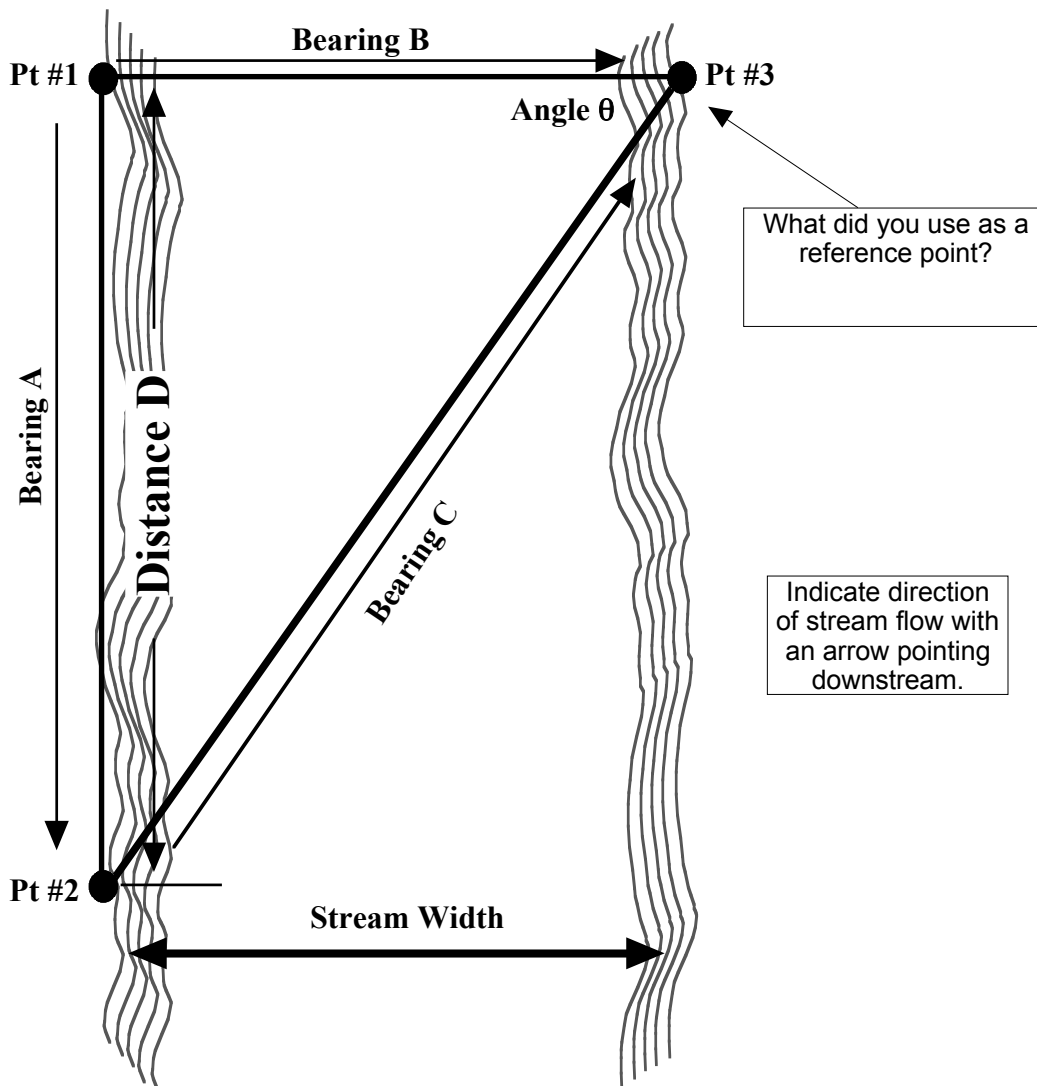
Materials

tape measure

compass

scientific calculator

pencil/pen



Procedure

1. Begin by selecting Pt #1 along the bank of the stream.
2. Determine Pt #2 by measuring **Distance D** along the bank from Pt #1.
Mark the location of Pt #2 and record the distance and unit of measurement.

Distance D from #1 to #2: _____ feet or meters

3. Take a compass reading from Pt #1 to Pt #2. Record the compass bearing.

Compass **Bearing A** from #1 to #2: _____ °

4. Pick a point (Pt #3) along the opposite bank that is directly across from Pt #1. An imaginary line connecting Pt #1 and Pt #3 should be perpendicular to the line connecting Pt #1 and Pt #2. To determine the direction of Pt #3 from Pt #1, do the following and record your calculation below. 1) If you are facing Pt #2 and need to turn to your left to locate Pt #3, then you subtract 90° from the **Bearing A**. If you must turn to your right to locate Pt #3, then you add 90° to **Bearing A**.

Compass **Bearing B** from Pt #1 to Pt #2: _____ ° +/- 90° = _____ °
Bearing A **Bearing B**

5. Mentally mark this point. You will take another bearing to this same spot from Pt #2.

6. Move to Pt #2 and take another compass reading from Pt #2 to Pt #3. Record the compass bearing:

Compass **Bearing C** from #2 to #3: _____ °

7. Calculate the angle formed by the imaginary lines from Pt #1 to Pt #3 and Pt #3 to Pt #2. Determine the difference between compass Bearing A and Bearing C. This becomes **Angle θ**

larger of Bearing B or C _____ °
smaller of Bearing B or C - _____ °

 _____ ° = **Angle θ**

8. Calculate the stream width using the following formula and a calculator.

stream width = (Distance D) ÷ (tan θ)
stream width = (_____) ÷ (tan _____)
= _____ (unit of measure: feet or meter ?)

Post-trip Data

9. Look up the streamflow data for the East Fork of the Lewis River at the following website:

<http://waterdata.usgs.gov/wa/nwis/uv?station=14222500>

10. Record the following information:

Current or estimated flow: _____ cubic ft per second (t³/sec)
for _____ (date) _____ (time)
Mean flow for this date based on 74+ years: _____ ft³/sec