

HTD Rock Flume at Intake Water Flow Measurement

DATE: _____

TAKEN BY: _____

Stream Flow 

A. MEASUREMENTS

Width of Channel (measured in inches) at each marker												
Marker 0	Marker 1	Marker 2	Marker 3	Marker 4	Marker 5	Marker 6	Marker 7	Marker 8	Marker 9	Marker 10	Total inches	Divide by 11
											Average width of channel	

Depth of water in channel (measured in inches) at each marker												
Marker 0	Marker 1	Marker 2	Marker 3	Marker 4	Marker 5	Marker 6	Marker 7	Marker 8	Marker 9	Marker 10	Total inches	Divide by 11
											Average depth of channel	

Time tennis ball takes to flow from Marker 0 to Marker 10 (full 10 feet)													
Time 1						Time 6						Total times	Divide by 10
Time 2						Time 7							
Time 3						Time 8						Average velocity time (AVT)	
Time 4						Time 9							
Time 5						Time 10							

B. CALCULATING CROSS-SECTIONAL AREA,

Average width of channel x Average depth of channel x .00694 = Average Cross-Sectional Area in square feet

Width _____ **x** **Depth** _____ **equals** _____ **x** **0.00694** = _____ **Cross Sectional Area in square feet (CSA)**

C. CALCULATING AVERAGE CORRECTION VELOCITY

Total distance (10 feet) ÷ Average Velocity time x 0.8 (Velocity Correction Factor) = Average Corrected Velocity

Distance **10** **÷** **AVT** _____ **equals** _____ **x** **0.8** = _____ **Average Correction Velocity (AVC)**

D. CALCULATING STREAM FLOW (CFS)

Average Correction Velocity x Average Cross Sectional Area

AVC _____ **x** **CSA** _____ **equals** _____ **Stream Flow in CFS**

E. COMMENTS-NOTES

River Condition _____

Ditch Condition _____

HTD Rock Flume Water Flow Measurement

EQUIPMENT NEEDED					
16' Measuring Tape	Red Tape	Clipboard & Pen	Data Sheet	Stopwatch/SmartPhone	Tennis Ball

PROCEDURES

1. Clear any weeds or plants along the edge of the 10ft section that are in the water or hanging into the channel.
2. Measure width of water channel at each marker.
3. Measure depth of the center of the channel from the bottom to the top of the water at each of the markers.
4. Gently place tennis ball in center of waterway approximately 12 inches upstream from Marker 0.
5. Start timer when tennis ball crosses the red tape at Marker 0.
6. Watch tennis ball float downstream to ensure that it does not touch the side or any grass/weed (if tennis ball does touch the side or some grass or weeds, do not collect the travel time - start over).
7. Stop timer when tennis ball crosses the red tape at Marker 10.
8. Mark time and repeat 9 more times for a total of 10 timed flow rates.