Most agencies that survey rivers and streams use **100-meters** as the reach length. Volunteers are encouraged to use the same length but other lengths are also acceptable. Most hardware or home stores sell open-reel tape measures of up to **300-feet** (100-meter open-reel tape measures are usually available from engineering supply companies). The 300-foot distance is allowable for the maximum reach length. In some cases younger volunteers may be monitoring so it is best to keep them within your line-of-sight. Certain stream-types may meander and have thick vegetation so the entire length of the reach may not be visible. Under these circumstances the length of the reach can be reduced as a safety precaution. If you reduce the reach size then it should have at least one or more of the channel features described below. The minimum length is **150-feet** but it must have riffles, pools and runs if the length is decreased.

Pool: areas of slow flowing deep water, often on the outside of bends Macroinvertebrate collections – These should be collected from riffles (preferred) and/or runs. Always move in an upstream direction so that the collections are representative. All collections within the reach are counted and identified together (composite). The number of collections depends on the size of the net. If you are using a two-pole kick-net, three samples (kicks) are usually adequate.

Run: smooth, unbroken flow connecting riffle and pool areas

The X-site is located at the most downstream end of the reach.

Velocity (flow) is measured at the first available run on a transect that is perpendicular to the channel.

Water samples – These should be collected as close to the X-site as possible if the appropriate collection area is there. Water samples should be collected from a run. The run is also the where width, depth and flow are measured. Usually only one location is necessary unless there are dramatic physical difference within the reach. Riffle: fast, shallow flow over boulders and cobbles which break the water surface Direction of flow

The Stream Reach