

## VHD Value Added Attributes Definitions

### From node:

A nationally unique id for the “from” node (assuming correct coordinate direction, this is the upstream node) endpoint of the drain. These ids are independent of the node ids in the .NAT table of an NHDinARC workspace. Provides a node-to-node traversal method used by some modeling software such as SPARROW.

### To node:

A nationally unique id for the “to” node (assuming correct coordinate direction, this is the downstream node) endpoint of the drain. These ids are independent of the node ids in the .NAT table of coverage format workspace. Provides a node-to-node navigation method used by some modeling software such as SPARROW.

### Hydrologic Sequence Number:

A nationally unique sequence number that places the reaches in hydrologic sequence. If reaches are processed in descending order (i.e. upstream to downstream), when any reach is processed, all the upstream reaches have been processed. If reaches are processed in ascending order (i.e. downstream to upstream), when any reach is processed, all the downstream reaches have been processed. Supports several new navigation methods including traversal through SQL queries.

### Start flag:

Set to ‘1’ if the drain is a headwater drain according to the Drain flow table, otherwise ‘0’. Provides a quick way to find headwaters.

### Terminal flag:

Set to ‘1’ if the drain is a terminal drain according to the Drain flow table, otherwise ‘0’. A terminal drain flows into the ocean, the Great Lakes, Canada, Mexico or the ground. Provides a quick way to find terminal drains.

### Terminal Drain Id:

The hydrologic sequence number for the terminal drain to which this drain flows according to the Drain flow table. A terminal drain is one that flows into the ocean, Canada, Mexico, or into the ground. Provides the ability to know where the network terminates from any point in the network.

### Level Path Id:

The hydrologic sequence number of the most downstream drain that is on the same level path as this drain according to the Drain flow table. Can be thought of as a “stream id” and can be used to support application such as river mile indexes.

### Arbolate Sum (in kilometers):

The sum of the lengths of all the drains that drain to the downstream end of the current drain.

### Path Length (in kilometers):

Distance from this drain’s downstream end to its terminal drain’s downstream end (as defined by Terminal Drain id) according to the Drain flow table.

**Thinner:**

An ordinal value designed to allow selection of progressively more dense networks. The least dense network is obtained by selecting Thinner=1.

**Divergence Flag:**

If this drain is one branch of a flow split (divergence ergence), Divergence flag = 1 when this drain is the main branch and Divergence flag = 2 otherwise. Divergence flag = 0 if this drain is not a branch of a flow split.

**Drain Stream Level:**

Stream level for this drain. Supports upstream mainstream navigation.

**Downstream Drain level:**

Drain level of the downstream mainstem drain. Supports downstream mainstem navigation.

**Stream Order:**

The Strahler stream order number for the drain.

**Upstream Level Path Id:**

Level Path Id of the immediately upstream mainstem drain. Supports navigation traversals through SQL queries.

**Upstream Hydrologic Sequence Number:**

Hydrologic Sequence Number of the immediately upstream mainstem drain. Supports navigation traversals through SQL queries.

**Upstream Minimum Hydrologic Sequence Number:**

Minimum Hydrologic Sequence Number of all immediately upstream drains. Supports navigation traversals through SQL queries.

**Downstream Level Path Id:**

Level Path Id of downstream drain. Supports navigation traversals through SQL queries.

**Downstream Drain Count:**

Number of drains immediately downstream. Supports navigation traversals through SQL queries.

**Downstream Minor Hydrologic Sequence Number:**

Definition: At a divergence ergence, the Hydrologic Sequence Number of the immediately downstream minor path drain.