
Oregon and Washington State Framework

Clearinghouse Hydrography Data Dictionary

Physical Data Model
Version 1.0

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Section 1 Database Overview

Background and Document Contents

This data dictionary describes data for the Washington and Oregon Framework Hydrography data and the standard system used to identify the states surface water.

The Framework goal was to utilize an existing data model that would enable various participants to locate and identify the state's marine and fresh surface water. The system was developed to provide a standard for referencing surface water bodies and watercourses, and to provide a vehicle for cross-referencing existing surface water data between agencies and groups in both GIS and tabular formats.

It is intended that this physical data model provide the backbone whereby users may each attach and retain their own particular surface water data. The standard identifiers provided by this system will ideally facilitate data exchange on a wide scale amongst water management entities and reduce redundancy in data collection.

For additional information about Dynamic Segmentation and/or the rules and procedures for applying this model, please refer to the companion document titled "*Oregon and Washington State Framework Hydrography Concepts, Rules & Procedures.*"

Document Contents

Section 1 is comprised of a description of the data layers, database listings and naming conventions.

Section 2 describes the working physical data model, how system identifiers and indexing are carried, the database contents, the imbedded metadata, and an explanation of naming standards and coding structure.

Section 3 contains an explanation of the format of the data dictionary sheets and the larger detailed code tables.

Data Layer Descriptions

The Framework model allows for the storage of all hydrographic features. Successful implementation of the Framework Hydrography data model requires that participants understand the way in which the different features are modeled and that they have a common understanding of the terms and definitions contained in the document. This section addresses the way in which these features are modeled.

Hydrographic features are modeled in four layers:

Water Points (WP)

Watercourses (WC)

Water Bodies (WB)

Water Body Shorelines (WS)

The desired source scale for all layer acquisition is 1:24,000 or better. 1:100,000 data may be substituted where layers at the desired source scale have not been developed.

A longitude/latitude identifier (LLID) uniquely identifies each hydrographic feature in the model. This 13-character identifier is composed of the concatenated decimal degree longitude and latitude of the feature. The identifier is unique within each layer but there is no requirement that it be unique between the layers. The geographic location used to generate the LLID varies depending on the data layer. Consult the detailed layer attribute table definitions (Section 2) to determine the location used to generate the LLID for that layer.

Each feature in the Water Point (WP), Watercourse (WC) and Water Body (WB) layers share the following attributes:

- a unique LLID identifier.
- a generalized classification of the hydrographic feature type (e.g. spring, stream, lake etc.)
- a classification of the type of cartographic element. This is a more detailed classification of the feature useful for mapping or more detailed database queries.
- a classification of seasonal, or periodic behavior of the water feature (e.g. perennial, intermittent or ephemeral)
- a robust set of attributes that describe the history of spatial edits to each feature. See detailed layer attribute table definitions (Section 2) for a complete description of these feature history attributes.

What follows is a short description of each of the four layers present in the model, the type(s) of features included in each layer and the relationships between the related information.

The Water Point (WP) layer is the repository for springs, seeps and other hydrographic features with limited spatial extent (i.e. most easily represented by a point). This layer consists of a point coverage and a single related table. The related table describes the history of spatial edits to the feature.

The Watercourse (WC) layer consists of stream, canal, flume, pipeline and other linear hydrographic feature centerlines. Where these features (especially streams) are represented as double lined features at the source scale they will be represented in this layer by their centerline. Streams that flow through water bodies such as lakes and reservoirs will also be represented by a centerline. This feature has been modeled to allow for flow modeling. All arcs must point downstream. This layer will be routed using the LLID identifier for the stream. All associated attributes are stored as event tables on the LLID routes. The stream routes are indexed starting from 0 at the mouth of the stream to some maximum value at the headwaters. All route measures will be initially calibrated in kilometers to three decimal places. As these routes are edited, every effort will be made to keep the measure value at a given map location from shifting. This will be accomplished by stretching or shrinking the measure values to accommodate lengthening or shrinking along the route as its X,Y coordinates are edited. Thus, over time, the measures will only approximate kilometers along a watercourse or shoreline. These measures are simply an indexing scheme for linear referencing, not a stored attribute of shoreline or watercourse length.

The Water Body (WB) layer consists of sounds, bays, lakes, ponds, wetlands, reservoirs, inundation areas, the double lined portions of streams and other hydrographic features best represented as areas. For ease of managing these features they have been modeled as regions rather than simple polygons in the Framework model. However, by agreement, each water body will be stored as a non-overlapping, non-multi-part region (i.e. there will be one polygon per region). The advantages of this approach will be described in detail in document titled “*Oregon and Washington State Framework Hydrography Concepts, Rules & Procedures.*” Water body attributes will be stored in the WB region attribute table (PATWB.)

The Water Body Shoreline (WS) layer consists of one or more representations of the shoreline of each water body. One representation of the shoreline for each water body will be flagged in the Framework database as the “default” shoreline. This default shoreline will be coincident with the water body perimeter in the water body (WB) layer. This layer is modeled in the Framework to accommodate those instances where multiple shorelines based on different datum (e.g. mean high water, mean low water etc.) are useful, especially marine shorelines. This layer is modeled as a routed linear feature. Water will be on the right side of each route and each shoreline will be represented by one or more non-overlapping routes. However, most simple water bodies (e.g. small lakes and ponds) will likely be represented by a single route. The history of spatial edits to each water body will be stored as an event on the route(s) on the default shoreline. Our agreement is that unless there is good justification to do so, all other shoreline attributes will be stored as events on the default shoreline. Non-default shorelines are intended to accommodate specialized requirements.

Database Listing and Naming Conventions

This section contains a list of the data files and diagrams depicting the relationships that exist between the files.

Database Layers and Coverages

Layer Description	Feature Class	Attribute Table Name
Water bodies areas	Region	WB.PATWB
Water body shorelines	Route	WS.RATWS
Watercourses	Route	WC.RATWC
Water points	Point	WP.PAT

Naming Conventions

Table Names:

COVERAGE NAME . TOPOLOGY TYPE _ DESCRIPTION

Examples: WC.EVT_NAME
 WS.EVT_SL_TYPE
 WP.REL_FTR_HST

Lookup Table Names:

COVERAGE NAME . TOPOLOGY TYPE _ ITEM DESCRIPTION

Examples: WC.LUT_FTR_ORG_CD

Column Names or Items in Lookup Table

ITEM NAME FTR_ORG_CD

ITEM NAME_LU FTR_ORG_LU

(replace_CD with _LU for short description)

ITEM NAME_DS FTR_ORG_DS

(replace _CD with _DS for long description)

Item or Field Names:

COVERAGE NAME . DESCRIPTION _ CLASS/KEY

Example: WC.LN_TYP_CD

The following data files are included in the database with their corresponding file names and whether they are mandatory or optional. The data described below is provided in ARC/INFO format. All data is stored in NAD83 geographic coordinates, double precision.

Note: LLID's are not unique across coverages.

Watercourses

Coverage/Table	File Name	Requirement Type
Coverage	WC	
Line attribute table	WC.AAT	Mandatory
Section table	WC.SECWC	Mandatory
Route attribute table	WC.RATWC	Mandatory
Event table	WC.EVT_NAME	Mandatory
Event table	WC.EVT_LN_TYPE	Mandatory
Event table	WC.EVT_FTR_TYPE	Mandatory
Event table	WC.EVT_RRF	Mandatory
Event table	WC.EVT_STRM_FLOW	Mandatory
Event table	WC.EVT_FTR_HST	Mandatory

Water Bodies

Coverage/Table	File Name	Requirement Type
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Coverage	WB	
Region attribute table	WB.PATWB	Mandatory

Water Shorelines

Coverage/Table	File Name	Requirement Type
Coverage	WS	
Line attribute table	WS.AAT	Mandatory
Section table	WS.SECWS	Mandatory
Route attribute table	WS.RATHYD	Mandatory
Event table	WS.EVT_SL_TYPE	Mandatory
Event table	WS.EVT_FTR_HST	Mandatory

Water Points

Coverage/Table	File Name	Requirement Type
Coverage	WP	
Point attribute table	WP.PAT	Mandatory
Point relate table	WP.REL_FTR_HST	Mandatory

Please refer to Section 4 for a full listing of associated code tables. There you will find the actual code tables as they're reflected in the four data coverages (watercourses, water shorelines, water bodies and water points) with the similarities and differences between them noted.

Database File Relationships

The following diagrams depict the relationships between the data files comprising the three layers:

Figure 1-1 Watercourse

Figure 1-2 Water Body

Figure 1-3 Water Shoreline

Figure 1-4 Water Point

Figure 1-1 Database File Diagram - Watercourses

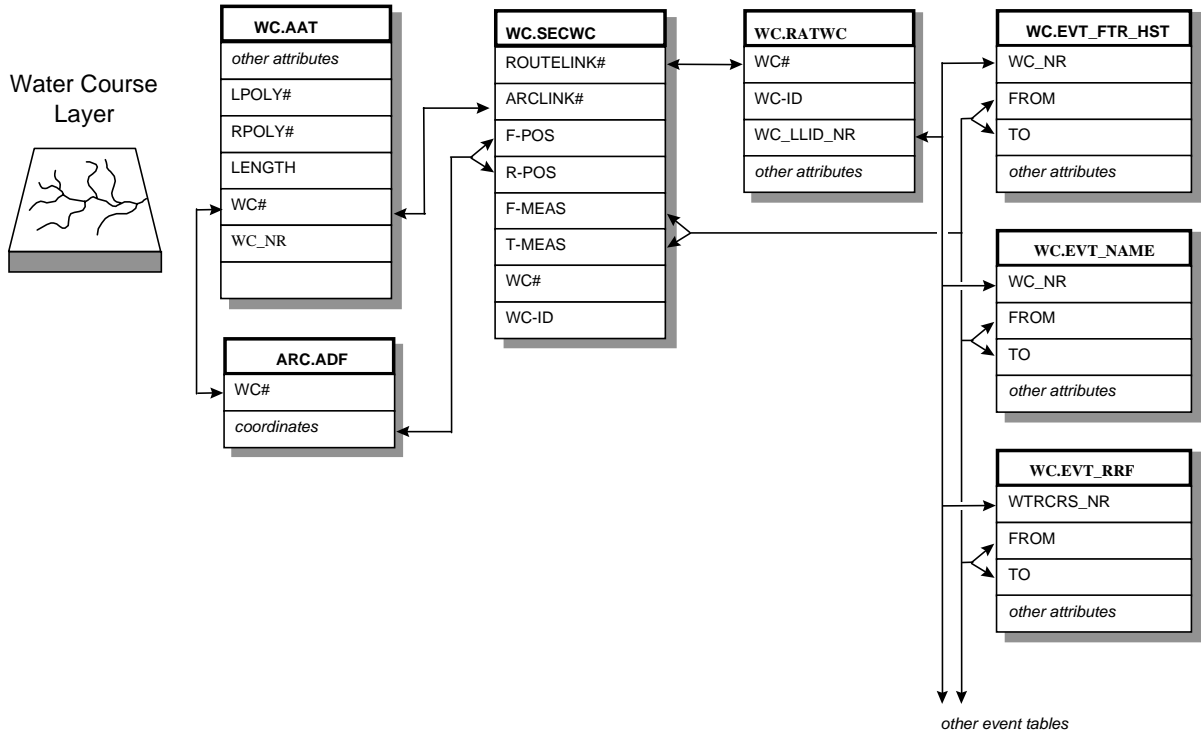


Figure 1-2 Database File Diagram – Water Bodies

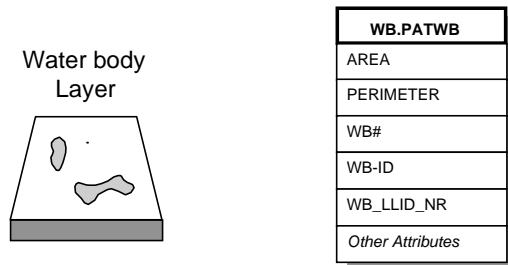


Figure 1-3 Database File Diagram - Water Shoreline

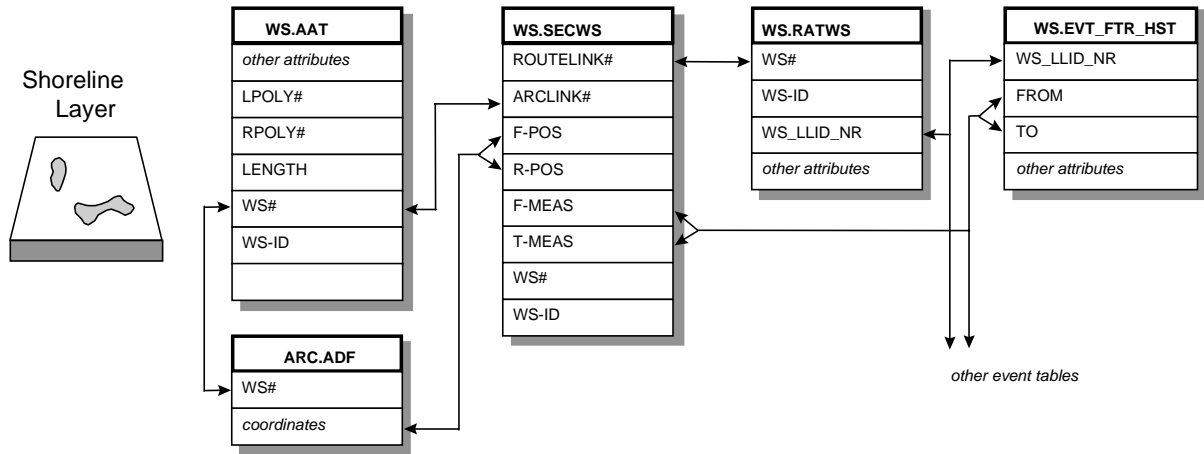
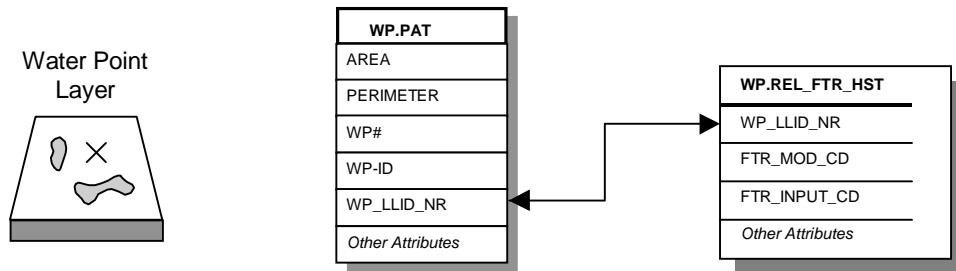


Figure 1-4 Database File Diagram – Water Points



Section 2 Washington Hydrography Framework Data Descriptions

Watercourse Data Layer Descriptions

Line Layer: Watercourses

Layer Name: WC

Table Name: WC.AAT

Arc Attribute Table

Defined	Item
<u>Item Name</u>	<u>Definition</u>
FNODE#	4,5,B
TNODE#	4,5,B
LPOLY#	4,5,B
RPOLY#	4,5,B
LENGTH	8,18,F,5
WC#	4,5,B
WC-ID	4,5,B
Redefined Items	
ARCLINK#	4,5,B

Data Classification - AAT

FNODE#

Arc from node internal number

TNODE#

Arc to node internal number

LPOLY#

Internal identifier of polygon to left of arc.

RPOLY#

Internal identifier of polygon to right of arc.

LENGTH

Arc length, units in decimal degrees.

WC#

Arc internal number, software assigned.

WC-ID

Arc identifier assigned by user. This item is not used nor is it changed. Presence required by the software.

ARCLINK#

A redefined item of WC#. Arc link number. Identifies the arc to which the section belongs (arc internal number from the ARC file). It is provided to enable keyfile selections within ARCPLOT.

Section Table Outline

Defined Item Name	Item Definition
ROUTELINK#	4,5,B
ARCLINK#	4,5,B
F-MEAS	4,12,F,3
T-MEAS	4,12,F,3
F-POS	4,12,F,3
T-POS	4,12,F,3
WC#	4,5,B
WC-ID	4,5,B

*Data Classification - SEC***ROUTELINK#**

Route link number. Route internal number from RAT; identifies the route to which the section belongs.

ARCLINK#

Arc link number. A redefined item (item WB#) that identifies the arc to which the section belongs (arc internal number from the ARC file.) It is provided to enable keyfile selections within ARCPLOT.

F-MEAS

From measure. Measure of start position of section.

T-MEAS

To measure. Measure of end position of section.

F-POS

From position. Start position in terms of percentage of existing arc.

T-POS

To position. End position in terms of percentage of existing arc.

WC#

Internal sequence number of the sections.

WC-ID

User assigned section identifier set to equal the interval section identifier. This item is not used nor is it changed. Presence required by the software.

Route Attribute Table

<u>Defined Item Name</u>	<u>Item Definition</u>
WC#	4,5,B
WC-ID	4,5,B
WC_LLID_NR	13,13,C
Redefined Items	
ROUTELINK#	4,5,B

*Data Classification - RAT***WC#**

Route system internal sequence number

WC-ID

Route-system ID, user defined. This item is not used nor is it changed. Presence required by the software.

WC_LLID_NR

Watercourse longitude/latitude identifier number. The 13 character longitude/latitude derived unique watercourse route identifier (this is also known as LLID in the federal arena.) All watercourse segments are grouped into watercourse routes. The identifier is based on position of the downstream point (mouth) of the watercourse. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points).

Example: 1215613480987

ROUTELINK#

A redefined item in HYD# . Route link number. Identifies the route to which the section belongs (RAT internal number). It is provided to enable key file selections in ARCPLLOT.

Event Table Outline

Defined	Item
<u>Item Name</u>	<u>Definition</u>
WC_LLID_NR	13,13,C
WC_BEGIN_AD	4,12,F,3
WC_END_AD	4,12,F,3
WC_LN_TYPE_CD	2,2,I

*Data Classification - EVT***WC_LLID_NR**

Watercourse longitude/latitude identifier number. The 13 character longitude/latitude derived unique watercourse route identifier (this is also known as LLID in the federal arena.) All watercourse segments are grouped into watercourse routes. The identifier is based on position of the downstream point (mouth) of the watercourse. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points).

Example: 1215613480987

WC_BEGIN_AD

Watercourse begin address. The beginning, or downstream, index of the watercourse segment. The address or index at which an event or attribute can be associated to a route.

Example: 000.000

WC_END_AD

Watercourse end address. The ending, or upstream, index of the watercourse segment. The address or index at which an event or attribute can be associated to a route.

Example: 036.025

WC_LN_TYPE_CD

Watercourse line type code. The type of watercourse feature that is represented in the database.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

Event Table Outline

Defined Item Name	Item Definition
WC_LLID_NR	13,13,C
WC_BEGIN_AD	4,12,F,3
WC_END_AD	4,12,F,3
WC_GNIS_NM	50,50,C
WC_GNIS_NR	8,8,I

*Data Classification - EVT***WC_LLID_NR**

Watercourse longitude/latitude identifier number. The 13 character longitude/latitude derived unique watercourse route identifier (this is also known as LLID in the federal arena.) All watercourse segments are grouped into watercourse routes. The identifier is based on position of the downstream point (mouth) of the watercourse. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points).

Example: 1215613480987

WC_BEGIN_AD

Watercourse begin address. The index measure of the beginning, or downstream, extent of the event. The address or index at which an event or attribute can be associated to a route.

WC_END_AD

Watercourse end address. The index measure of the ending, or upstream, extent of the event. The address or index at which an event or attribute can be associated to a route.

WC_GNIS_NM

Watercourse GNIS name. The name of the feature as represented within the Geographic Names Information System (GNIS). The USGS is the mandated source of this information.

WC_GNIS_NR

Watercourse GNIS (Geographic Names Information System) number. The unique identifier number assigned to each feature name represented within the GNIS database. This number is used to insert and/or update watercourse names stored in the framework hydrography database.

Event Table Outline

Defined	Item
<u>Item Name</u>	<u>Definition</u>
WC_LLID_NR	13,13,C
WC_BEGIN_AD	4,12,F,3
WC_END_AD	4,12,F,3
WC_HYDR_FTR_CD	2,2,C
WC_CART_FTR_CD	4,4,I

*Data Classification - EVT***WC_LLID_NR**

Watercourse longitude/latitude identifier number. The 13 character longitude/latitude derived unique watercourse route identifier (this is also known as LLID in the federal arena.) The identifier is based on position of the downstream point (mouth) of the watercourse. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points).

Example: 1215613480987

WC_BEGIN_AD

Watercourse begin address. The index measure of the beginning, or downstream, extent of the event. The address or index at which an event or attribute can be associated to a route.

WC_END_AD

Watercourse end address. The index measure of the ending, or upstream, extent of the event. The address or index at which an event or attribute can be associated to a route.

WC_HYDR_FTR_CD

Watercourse hydrographic feature code. The code used to describe the hydrographic feature type that the watercourse represents.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

WC_CART_FTR_CD

Watercourse cartographic feature code. The code used to describe the cartographic feature type that the watercourse represents. This represents feature codes developed initially by the USGS and used on the DLG's.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

Event Table Outline

Defined Item Name	Item Definition
WC_LLID_NR	13,13,C
WC_BEGIN_AD	4,12,F,3
WC_END_AD	4,12,F,3
WC_RRF_NR	17,17,C
Redefined Item	
WC_HUC_NR	8,8,I
WC_RRF_SG_NR	4,4,I
WC_RRF_MI_NR	5,5,N,2

Data Classification - EVT

WC_LLID_NR

Watercourse longitude/latitude identifier number. The 13 character longitude/latitude derived unique watercourse route identifier (this is also known as LLID in the federal arena.) All watercourse segments are grouped into watercourse routes. The identifier is based on position of the downstream point (mouth) of the watercourse. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points).

Example: 1215613480987

WC_BEGIN_AD

Watercourse begin address. The index measure of the beginning, or downstream, extent of the event. The address or index at which an event or attribute can be associated to a route.

WC_END_AD

Watercourse end address. The index measure of the ending, or upstream, extent of the event. The address or index at which an event or attribute can be associated to a route.

WC_RRF_NR

Watercourse River Reach File number. This represents the unique identifier used by the USEPA. A unique identifier is carried on individual stream segments, running confluence to confluence. The source of this data will be USGS National Hydrography Database (NHD) once Washington State 100K hydrography is incorporated into the database.

WC_HUC_NR

Watercourse hydrographic unit code number. The code of the watershed area as defined by USGS, in which the river route is located.

WC_RRF_SG_NR

Watercourse river reach file segment number. The Washington Rivers Information System (WARIS) reach segment number.

WC_RRF_MI_NR

Watercourse river reach file mile number. The Washington Rivers Information System (WARIS) reach mile number.

Event Table Outline

Defined	Item
<u>Item Name</u>	<u>Definition</u>
WC_LLID_NR	13,13,C
WC_BEGIN_AD	4,12,F,3
WC_END_AD	4,12,F,3
WC_CONTU_CD	3,3,C
WC_PERIOD_CD	3,3,C

Data Classification - EVT

WC_LLID_NR

Watercourse longitude/latitude identifier number. The 13 character longitude/latitude derived unique watercourse route identifier (this is also known as LLID in the federal arena.) All watercourse segments are grouped into watercourse routes. The identifier is based on position of the downstream point (mouth) of the watercourse. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points).

Example: 1215613480987

WC_BEGIN_AD

Watercourse begin address. The index measure of the beginning, or downstream, extent of the event. The address or index at which an event or attribute can be associated to a route.

WC_END_AD

Watercourse end address. The index measure of the ending, or upstream, extent of the event. The address or index at which an event or attribute can be associated to a route.

WC_CONTU_CD

Watercourse continuity code. This is the classification of flow primarily in relation to its expression at the earth's surface. These codes can be found in the associated lookup table.

These codes can be found in the associated lookup table in Section 4 - Appendix.

WC_PERIOD_CD

Watercourse periodicity code. This is a classification for watercourses in terms of the seasonal behavior of the feature over time or in terms of its surface flow.

These codes can be found in the associated lookup table in Section 4 - Appendix.

Event Table Outline

Defined Item Name	Item Definition
WC_LLID_NR	13,13,C
WC_BEGIN_AD	4,12,F,3
WC_END_AD	4,12,F,3
FTR_MOD_CD	3,3,C
FTR_INPUT_CD	2,2,I
FTR_INTRP_CD	2,2,I
FTR_SRC_CD	3,3,I
FTR_SRC_DT	8,8,D
FTR_SRCSCALE_NR	7,7,I
FTR_ACCUR_NR	4,12,F,3
FTR_ORG_CD	12,12,C
FTR_EDIT_DT	8,8,D

*Data Classification - EVT***WC_LLID_NR**

Watercourse longitude/latitude identifier number. The 13 character longitude/latitude derived unique watercourse route identifier (this is also known as LLID in the federal arena.) All watercourse segments are grouped into watercourse routes. The identifier is based on position of the downstream point (mouth) of the watercourse. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points).

Example: 1215613480987

WC_BEGIN_AD

Watercourse begin address. The index measure of the beginning, or downstream, extent of the event.

WC_END_AD

Watercourse end address. The index measure of the ending, or upstream, extent of the event.

FTR_MOD_CD

Feature modify code. Identifies the type of change that occurred to hydrography watercourse feature. Tracks the type of modification performed on the database. These codes can be found in the associated lookup table.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

FTR_INPUT_CD

Feature input code. The manner in which the hydrography watercourse data is entered or updated in the spatial database. These codes can be found in the associated lookup table.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

FTR_INTRP_CD

Feature interpretation code. The methodology used to compose the hydrography watercourse information and how it was derived prior to data entry into the spatial coverage.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

FTR_SRC_CD

Feature source code. The compilation map or image source used when adding or updating hydrography watercourse data.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

FTR_SRC_DT

Feature source date. The compilation map or image source date used for the addition or update of hydrography watercourse data.

Example: 19990515 (CCYYMMDD = May 15, 1999)

FTR_SRCSCALE_NR

Feature source scale number. Describes the scale denominator of the map or image source for the hydrography watercourse data additions or updates in the database. Exact scale can be input. The density of hydrography features displayed will vary by the base map scale.

Example: 24000

FTR_ACCUR_NR

Feature accuracy code. Describes the positional accuracy of the hydrography watercourse data being added or updated in the database. Describes the correctness of the measurement. Use actual value eg. .001; 3; 100. All units are entered in meters.

FTR_ORG_CD

Feature organization code. The organization that compiled, entered, updated or deleted the hydrography watercourse data. This list will grow as new organizations begin to add or update information and are certified by the clearinghouse.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

FTR_EDIT_DT

Feature edit date. The date the feature was either entered, updated or deleted in the hydrography coverage. Represents the date when the data was incorporated into the database. This item is utilized to track changes in the database.

Example: 19980515 (CCYYMMDD = May 15, 1998)

Water Body Data Layer Descriptions

Polygon Layer: Water Bodies

Layer Name: WB

Table Name: WB.PATWB

Region Attribute Table Outline

Defined Item Name	Item Definition
AREA	8,18,F,5
PERIMTER	8,18,F,5
WB#	4,5,B
WB-ID	4,5,B
WB_LLID_NR	13,13,C
WB_HYDR_FTR_CD	2,2,C
WB_CART_FTR_CD	4,4,I
WB_GNIS_NM	50,50,C
WB_GNIS_NR	8,8,I
WB_PERIOD_CD	3,3,C

Data Classification - **REGION**

AREA

Water body area in decimal degrees.

PERIMETER

Water body perimeter length in decimal degrees.

WB#

Water body region internal number; software assigned.

WB-ID

Water body region user-defined ID. This item is not used nor is it changed. Presence required by the software.

WB_LLID_NR

Water body longitude/latitude identifier number. The 13 character longitude/latitude derived unique identifier of the water body. All water bodies and islands represented as polygonal features are assigned an identifier. The identifier is based on position of the polygon label point. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points).

Example: 1234567890987

WB_HYDR_FTR_CD

Water body hydrographic feature code. The code used to describe the hydrographic feature type that the water body polygon represents.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

WB_CART_FTR_CD

Water body cartographic feature code. The code used to describe the cartographic feature type that the water body polygon represents. This represents feature codes developed initially by the USGS and used on the DLG's.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

WB_GNIS_NM

Water body GNIS name. The name of the water body as contained within the Geographic Names Information System (GNIS) which is maintained by the USGS.

WB_GNIS_NR

Water body GNIS (Geographic Names Information System) number. The unique identifier number assigned to each feature name represented within the GNIS database. This number is used to insert and/or update water body names stored in the framework hydrography database.

WB_PERIOD_CD

Water body periodicity code. This is a classification of a water bodies in terms of the seasonal behavior of the feature over time or in terms of its surface flow.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

Shoreline Data Layer Descriptions

Line Layer: Water Shoreline

Layer Name: WS

Table Name: WS.AAT

Arc Attribute Table Outline

Defined Item Name	Item Definition
FNODE#	4,5,B
TNODE#	4,5,B
LPOLY#	4,5,B
RPOLY#	4,5,B
LENGTH	8,18,F,5
WS#	4,5,B
WS-ID	4,5,B
Redefined Items	
ARCLINK#	4,5,B

Data Classification - AAT

FNODE#

Arc from node internal number

TNODE#

Arc to node internal number

LPOLY#

Internal identifier of polygon to left of arc.

RPOLY#

Internal identifier of polygon to right of arc.

LENGTH

Arc length, units in decimal degrees.

WS#

Arc internal number, software assigned.

WS-ID

Arc identifier assigned by user. This item is not used nor is it changed. Presence required by the software.

ARCLINK#

Arc link number. A redefined item (item WS#) that identifies the arc to which the section belongs (arc internal number from the ARC file). It is provided to enable key file selections within ARCPLOT.

Section Table: Water Shoreline**Table Name: WS.SECWS***Section Table Outline*

Defined Item Name	Item Definition
ROUTELINK#	4,5,B
ARCLINK#	4,5,B
F-MEAS	4,12,F,3
T-MEAS	4,12,F,3
F-POS	4,12,F,3
T-POS	4,12,F,3
WS#	4,5,B
WS-ID	4,5,B

Data Classification - **SEC****ROUTELINK#**

Route link number. Route internal number from WS.RATHYD; identifies the route to which the section belongs.

ARCLINK#

Arc link number. A redefined item (item WS#) that identifies the arc to which the section belongs (arc internal number from the ARC file.) It is provided to enable key file selections within ARCPLOT.

F-MEAS

From measure. Measure of start position of section.

T-MEAS

To measure. Measure of end position of section.

F-POS

From position. Start position in terms of percentage of existing arc.

T-POS

To position. End position in terms of percentage of existing arc.

WS#

Internal sequence number of the sections.

WS-ID

User assigned identifier set equal to the interval section identifier. This item is not used nor is it changed. Presence required by the software.

Route Attribute Table Outline

Defined Item Name	Item Definition
WS#	4,5,B
WS-ID	4,5,B
WS_LLID_NR	13,13,C
WS_DATUM_CD	4,4,C
WS_DFLT_SHORE_CD	1,1,C
Redefined Items	
ROUTELINK#	4,5,B

*Data Classification - RAT***WS#**

Route system internal sequence number

WS-ID

Route-system ID, user defined. This item is not used nor is it changed. Presence required by the software.

WS_LLID_NR

Water shoreline longitude/latitude identifier number. The 13 character longitude/latitude derived unique identifier of the shoreline. All water body shorelines and island shorelines are assigned an identifier. All shoreline segments are grouped into shoreline routes. The identifier is based on beginning of the route and is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points).

Example: 1215613480987

WS_DATUM_CD

Water shoreline datum code. The character code that describes the type and level that the water body shoreline was mapped at.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

WS_DFLT_SHORE_CD

Water shoreline default shoreline code. The character code that designates the shoreline that's used to build water body area features. The default shoreline is comprised of the mean-high water line (mh) and the fresh water (fw) shoreline. This field is included to unambiguously designate the default shoreline regardless of the future changes or exceptions to the business rules.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

ROUTELINK#

A redefined item for the HYD#. Route link number. Identifies the route to which the section belongs (RAT internal number). It is provided to enable key file selections in ARC PLOT.

Event Table Outline

Defined Item Name	Item Definition
WS_LLID_NR	13,13,C
WS_BEGIN_AD	4,12,F,3
WS_END_AD	4,12,F,3
WS_TYPE_CD	2,2,I

*Data Classification - EVT***WS_LLID_NR**

Water shoreline longitude/latitude identifier number. The 13 character longitude/latitude derived unique identifier of the shoreline. All water body shorelines and island shorelines are assigned an identifier. All shoreline segments are grouped into shoreline routes. The identifier is based on beginning of the route and is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points).

Example: 1215613480987

WS_BEGIN_AD

Water shoreline begin address. The beginning, or downstream, index of the segment. The address or index at which an event can be associated to a route

Example: 020.035

WS_END_AD

Water shoreline end address. The ending, or upstream, index of the segment. The address or index at which an event can be associated to a route.

Example: 002.326

WS_TYPE_CD

Water shoreline type code. The type of water body shoreline feature that is represented.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

Event Table Outline

Defined	Item
<u>Item Name</u>	<u>Definition</u>
WS_LLID_NR	13,13,C
WS_BEGIN_AD	4,12,F,3
WS_END_AD	4,12,F,3
FTR_MOD_CD	3,3,C
FTR_INPUT_CD	2,2,I
FTR_INTRP_CD	2,2,I
FTR_SRC_CD	3,3,I
FTR_SRC_DT	8,8,D
FTR_SRCSCALE_NR	7,7,I
FTR_ACCUR_NR	4,12,F,3
FTR_ORG_CD	12,12,C
FTR_EDIT_DT	8,8,D

*Data Classification - EVT***WS_LLID_NR**

Water shoreline longitude/latitude identifier number. The 13 character longitude/latitude derived unique identifier of the shoreline. All water body shorelines and island shorelines are assigned an identifier. All shoreline segments are grouped into shoreline routes. The identifier is based on beginning of the route and is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points).

Example: 1215613480987

WS_BEGIN_AD

Water shoreline begin address. The index measure of the beginning, or lowest address, of the event. The address or index at which an event or attribute can be associated to a route.

WS_END_AD

Water shoreline end address. The index measure of the ending, or highest address, of the event. The address or index at which an event or attribute can be associated to a route.

FTR_MOD_CD

Feature modify code. Identifies the type of change that occurred to hydrography water shoreline feature. Tracks the type of modification performed on the database.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

FTR_INPUT_CD

Feature input code. The manner in which the hydrography shoreline data is added or updated in the spatial database.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

FTR_INTRP_CD

Feature interpretation code. The methodology used to compose the hydrography shoreline information and how it was derived prior to data entry into the spatial coverage.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

FTR_SRC_CD

Feature source code. The compilation map or image source used when adding or updating hydrography shoreline data.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

FTR_SRC_DT

Feature source date. The compilation map or image source date used for the addition or update of hydrography shoreline data.

Example: 19990515 (CCYYMMDD = May 15, 1999)

FTR_SRCSCALE_NR

Feature source scale number. Describes the scale denominator of the map or image source for the hydrography shoreline data additions or updates in the database. Exact scale can be input. The density of hydrography features displayed will vary by the base map scale.

Example: 24000

FTR_ACCUR_NR

Feature accuracy code. Describes the positional accuracy of the hydrography shoreline data being added or updated in the database. Describes the correctness of the measurement. Refer to USGS map accuracy standards for more information. Use actual value eg. .001; 3; 100. All units are entered in meters.

FTR_ORG_CD

Feature organization code. The organization that compiled, entered, updated or deleted the hydrography shoreline data. This list will grow as new organizations begin to add or update information and are certified by the clearinghouse.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

FTR_EDIT_DT

Feature edit date. The date the feature was either entered, updated or deleted in the hydrography coverage. Represents the date when the data was incorporated into the database. This item is utilized to track changes in the database.

Example: 19980515 (CCYYMMDD = May 15, 1998)

Water Point Layer Data Descriptions

Point Layer: Water Points

Layer Name: WP

Table Name: WP.PAT

Point Attribute Table

Defined Item Name	Item Definition
AREA	8,18,F,5
PERIMETER	8,18,F,5
WP#	4,5,B
WP-ID	4,5,B
WP_LLID_NR	13,13,C
WP_HYDR_FTR_CD	2,2,C
WP_CART_FTR_CD	4,4,I
WP_PERIOD_CD	3,3,C

Data Classification - PAT

AREA

Water point area in decimal degrees.

PERIMETER

Water point perimeter length in decimal degrees.

WP#

Arc internal number, software assigned.

WP-ID

Water point identifier assigned by user. This item is not used nor is it changed. Presence required by the software.

WP_LLID_NR

Water point longitude/latitude identifier number. The 13 character longitude/latitude derived unique identifier of the water point. All water point features are assigned an identifier. The identifier is based on position of the point feature on the source material. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points).

Example: 1215613480987

WP_HYDR_FTR_CD

Water point hydrographic feature code. The code used to describe the hydrographic feature type that the water point represents.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

WP_CART_FTR_CD

Water point cartographic feature code. The code used to describe the cartographic feature type that the water point represents. This represents feature codes developed initially by the USGS and used on the DLG's.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

WP_PERIOD_CD

Water point periodicity code. This is a classification of a water point in terms of the seasonal behavior of the feature over time or in terms of its surface expression.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

Point Relate Table

Defined Item Name	Item Definition
WP_LLID_NR	13,13,C
FTR_MOD_CD	3,3,C
FTR_INPUT_CD	2,2,I
FTR_INTRP_CD	2,2,I
FTR_SRC_CD	3,3,I
FTR_SRC_DT	8,8,D
FTR_SRCSCALE_NR	7,7,I
FTR_ACCUR_NR	4,12,F,3
FTR_ORG_CD	12,12,C
FTR_EDIT_DT	8,8,D

Data Classification - REL

WP_LLID_NR

Water point longitude/latitude identifier number. The 13 character longitude/latitude derived unique identifier of the water point. All water point features are assigned an identifier. The identifier is based on position of the point feature on the source material. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points).

Example: 1215613480987

FTR_MOD_CD

Feature modify code. Identifies the type of changes that occurred to hydrography water point feature. Tracks the type of modification performed on the database.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

FTR_INPUT_CD

Feature input code. The manner in which the hydrography water point data is entered or updated in the spatial database.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

FTR_INTRP_CD

Feature interpretation code. The methodology used to compose the hydrography water point information and how it was derived prior to data entry into the spatial coverage.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

FTR_SRC_CD

Feature source code. The compilation map or image source used when adding or updating hydrography water point data.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

FTR_SRC_DT

Feature source date. The compilation map or image source date used for the addition or update of hydrography water point data.

Example: 19990515 (CCYYMMDD = May 15, 1999)

FTR_SRCSCALE_NR

Feature source scale number. Describes the scale denominator of the map or image source for the hydrography water point data additions or updates in the database. Exact scale can be input. The density of hydrography features displayed will vary by the base map scale.

Example: 24000

FTR_ACCUR_NR

Feature accuracy code. Describes the positional accuracy of the hydrography water point data being added or updated in the database. Describes the correctness of the measurement. Use actual value eg. .001; 3; 100. All units are entered in meters.

FTR_ORG_CD

Feature organization code. The organization that compiled, entered, updated or deleted the hydrography water point data. This list will grow as new organizations begin to add or update information and are certified by the clearinghouse.

These codes can be found in the associated lookup table listed in Section 4 - Appendix.

FTR_EDIT_DT

Feature edit date. The date the feature was either entered, updated or deleted in the hydrography coverage. Represents the date when the data was incorporated into the database. This item is utilized to track changes in the database.

Example: 19980515 (CCYYMMDD = May 15, 1998)

Section 3 Appendix

Acknowledgements

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Data Dictionary Code Tables

Watercourse

Code Table Name: **wc.lut_wc_ln_type_cd**

1		
WC_LN_TYPE_CD	= 5	
WC_LN_TYPE_LU	= Artificial	
WC_LN_TYPE_DS	= Watercourse line projected for connectivity purposes	
2		
WC_LN_TYPE_CD	= 10	
WC_LN_TYPE_LU	= Single	
WC_LN_TYPE_DS	= Single-line watercourse segment	
3		
WC_LN_TYPE_CD	= 20	
WC_LN_TYPE_LU	= Interior - in water body	
WC_LN_TYPE_DS	= Watercourse interior line within a water body	
4		
WC_LN_TYPE_CD	= 21	
WC_LN_TYPE_LU	= Interior - double banked stream	
WC_LN_TYPE_DS	= Watercourse interior line within a double banked watercourse	
5		
WC_LN_TYPE_CD	= 30	
WC_LN_TYPE_LU	= Watercourse/body perimeter	
WC_LN_TYPE_DS	= Watercourse segment and water body perimeter	
6		
WC_LN_TYPE_CD	= 99	
WC_LN_TYPE_LU	= Unknown/unclassified	
WC_LN_TYPE_DS	= Unknown or Unclassified	

Code Table Name: **wc.lut_wc_contu_cd**

1		
WC_CONTU_CD	= con	
WC_CONTU_LU	= Continuous	
WC_CONTU_DS	= Continuous. A channel with no interruptions in space.	
2		
WC_CONTU_CD	= int	
WC_CONTU_LU	= Interrupted	
WC_CONTU_DS	= Interrupted. A perennial flow with intervening intermittent or ephemeral segments or intermittent flow with intervening ephemeral segments	
3		
WC_CONTU_CD	= unk	
WC_CONTU_LU	= Unknown/Unclassified	
WC_CONTU_DS	= Unknown or Unclassified	

Code Table Name: wc.lut_wc_period_cd

1		
WC_PERIOD_CD	= eph	
WC_PERIOD_LU	= Ephemeral	
WC_PERIOD_DS	= Ephemeral.	Watercourse that exist only as a result of storm precipitation.
2		
WC_PERIOD_CD	= int	
WC_PERIOD_LU	= Intermittent or seasonal	
WC_PERIOD_DS	= Intermittent or seasonal.	Watercourse that is dry during certain times of the year.
3		
WC_PERIOD_CD	= per	
WC_PERIOD_LU	= Perennial	
WC_PERIOD_DS	= Perennial.	Watercourse that essentially exist year round
4		
WC_PERIOD_CD	= sub	
WC_PERIOD_LU	= Sub-surface	
WC_PERIOD_DS	= Sub-surface.	Watercourse reach that represents a sub-surface flow.
5		
WC_PERIOD_CD	= unk	
WC_PERIOD_LU	= Unknown/Unclassified	
WC_PERIOD_DS	= Unknown or unclassified.	Used when condition information is unknown or unclassified

Water Body

Code Table Name: wb.lut_wb_period_cd

1		
WB_PERIOD_CD	= dry	
WB_PERIOD_LU	= Dry land	
WB_PERIOD_DS	= Dry land.	Indicates an island.
2		
WB_PERIOD_CD	= eph	
WB_PERIOD_LU	= Ephemeral	
WB_PERIOD_DS	= Ephemeral.	Water bodies that exist only as a result of storm precipitation.
3		
WB_PERIOD_CD	= int	
WB_PERIOD_LU	= Intermittent or seasonal	
WB_PERIOD_DS	= Intermittent or seasonal.	Water bodies that are dry during certain times of the year.
4		
WB_PERIOD_CD	= per	
WB_PERIOD_LU	= Perennial	
WB_PERIOD_DS	= Perennial.	Water bodies that essentially exist year round.
5		
WB_PERIOD_CD	= unk	
WB_PERIOD_LU	= Unknown/Unclassified	

WB_PERIOD_DS = Unknown or unclassified. Used when condition information is unknown or unclassified.

Water Shoreline

Code Table Name: ws.lut_ws_datum_cd

1
WS_DATUM_CD = ehw
WS_DATUM_LU = Extreme high
WS_DATUM_DS = Extreme high water

2
WS_DATUM_CD = elw
WS_DATUM_LU = Extreme low
WS_DATUM_DS = Extreme low water

3
WS_DATUM_CD = fw
WS_DATUM_LU = Fresh water
WS_DATUM_DS = Fresh water shoreline

4
WS_DATUM_CD = mhhw
WS_DATUM_LU = Mean higher high
WS_DATUM_DS = Mean higher high water

5
WS_DATUM_CD = mhw
WS_DATUM_LU = Mean high
WS_DATUM_DS = Mean high water

6
WS_DATUM_CD = mllw
WS_DATUM_LU = Mean lower low
WS_DATUM_DS = Mean lower low water

7
WS_DATUM_CD = mlw
WS_DATUM_LU = Mean low
WS_DATUM_DS = Mean low water

8
WS_DATUM_CD = na
WS_DATUM_LU = Not a shoreline
WS_DATUM_DS = Does not constitute a shoreline

Code Table Name: ws.lut_ws_dflt_shore_cd

1
WS_DFLT_SHORE_CD = n
WS_DFLT_SHORE_LU = No
WS_DFLT_SHORE_DS = No, it is not the default shoreline

2
WS_DFLT_SHORE_CD = y

WS_DFLT_SHORE_LU = Yes
 WS_DFLT_SHORE_DS = Yes, it is the default shoreline

Code Table Name: ws.lut_ws_type_cd

1
 WS_TYPE_CD = 1
 WS_TYPE_LU = Marine mainland
 WS_TYPE_DS = Marine mainland shoreline

2
 WS_TYPE_CD = 2
 WS_TYPE_LU = Marine island
 WS_TYPE_DS = Marine island shoreline

3
 WS_TYPE_CD = 3
 WS_TYPE_LU = Freshwater
 WS_TYPE_DS = Freshwater shoreline

4
 WS_TYPE_CD = 4
 WS_TYPE_LU = Freshwater island
 WS_TYPE_DS = Freshwater island shoreline

5
 WS_TYPE_CD = 5
 WS_TYPE_LU = Artificial
 WS_TYPE_DS = Artificial line

6
 WS_TYPE_CD = 99
 WS_TYPE_LU = Unclassified
 WS_TYPE_DS = Unclassified. Used when information is unknown or unclassified.

Water Point

Code Table Name: wp.lut_wp_period_cd

1
 WP_PERIOD_CD = eph
 WP_PERIOD_LU = Ephemeral
 WP_PERIOD_DS = Ephemeral. Water features that exist only as a result of storm precipitation.

2
 WP_PERIOD_CD = int
 WP_PERIOD_LU = Intermittent/seasonal
 WP_PERIOD_DS = Intermittent or seasonal. Water features that are dry during certain times of the year.

3
 WP_PERIOD_CD = per
 WP_PERIOD_LU = Perennial
 WP_PERIOD_DS = Perennial. Water feature that essentially exist year round

4

8		
WX_HYDR_FTR_CD	=	PP
WX_HYDR_FTR_LU	=	Pipelines/water conveyance
WX_HYDR_FTR_DS	=	Pipelines and water conveyance structures
9		
WX_HYDR_FTR_CD	=	SC
WX_HYDR_FTR_LU	=	Side channels
WX_HYDR_FTR_DS	=	Side channels to rivers or stream
10		
WX_HYDR_FTR_CD	=	SP
WX_HYDR_FTR_LU	=	Springs/seeps
WX_HYDR_FTR_DS	=	Springs and seeps
11		
WX_HYDR_FTR_CD	=	ST
WX_HYDR_FTR_LU	=	Streams/rivers
WX_HYDR_FTR_DS	=	Streams and rivers
12		
WX_HYDR_FTR_CD	=	UN
WX_HYDR_FTR_LU	=	Unclassified
WX_HYDR_FTR_DS	=	Unclassified
13		
WX_HYDR_FTR_CD	=	WT
WX_HYDR_FTR_LU	=	Wet areas
WX_HYDR_FTR_DS	=	Wet areas

Code Table Name: wx.lut_wx_cart_ftr_cd

1		
WX_CART_FTR_CD	=	100
WX_CART_FTR_LU	=	Alkali flat
WX_CART_FTR_DS	=	Alkali flat
2		
WX_CART_FTR_CD	=	101
WX_CART_FTR_LU	=	Reservoir
WX_CART_FTR_DS	=	Reservoir
3		
WX_CART_FTR_CD	=	103
WX_CART_FTR_LU	=	Glacier/snowfield
WX_CART_FTR_DS	=	Glacier or permanent snowfield
4		
WX_CART_FTR_CD	=	105
WX_CART_FTR_LU	=	Inundation
WX_CART_FTR_DS	=	Inundation
5		
WX_CART_FTR_CD	=	106
WX_CART_FTR_LU	=	Fish hatchery/farm
WX_CART_FTR_DS	=	Fish hatchery or farm
6		
WX_CART_FTR_CD	=	107
WX_CART_FTR_LU	=	Industrial water impoundment
WX_CART_FTR_DS	=	Industrial water impoundment

7	
WX_CART_FTR_CD	= 109
WX_CART_FTR_LU	= Sewage pond/filtration bed
WX_CART_FTR_DS	= Sewage disposal pond or filtration bed
8	
WX_CART_FTR_CD	= 110
WX_CART_FTR_LU	= Tailings pond
WX_CART_FTR_DS	= Tailings pond
9	
WX_CART_FTR_CD	= 111
WX_CART_FTR_LU	= Marsh/wetland
WX_CART_FTR_DS	= Marsh, wetland, swamp, bog
10	
WX_CART_FTR_CD	= 114
WX_CART_FTR_LU	= Cranberry bog
WX_CART_FTR_DS	= Cranberry bog
11	
WX_CART_FTR_CD	= 115
WX_CART_FTR_LU	= Flats
WX_CART_FTR_DS	= Flats (tidal, mud, sand, gravel)
12	
WX_CART_FTR_CD	= 116
WX_CART_FTR_LU	= Bay/estuary
WX_CART_FTR_DS	= Bay, estuary, gulf, ocean or sea
13	
WX_CART_FTR_CD	= 117
WX_CART_FTR_LU	= Shoal
WX_CART_FTR_DS	= Shoal
14	
WX_CART_FTR_CD	= 300
WX_CART_FTR_LU	= Spring/seep
WX_CART_FTR_DS	= Spring or seep
15	
WX_CART_FTR_CD	= 400
WX_CART_FTR_LU	= Rapids
WX_CART_FTR_DS	= Rapids
16	
WX_CART_FTR_CD	= 401
WX_CART_FTR_LU	= Falls
WX_CART_FTR_DS	= Falls
17	
WX_CART_FTR_CD	= 402
WX_CART_FTR_LU	= Gravel pit/quarry with water
WX_CART_FTR_DS	= Gravel pit or quarry filled with water
18	
WX_CART_FTR_CD	= 406
WX_CART_FTR_LU	= Dam/weir
WX_CART_FTR_DS	= Dam or weir
19	
WX_CART_FTR_CD	= 407
WX_CART_FTR_LU	= Canal lock/sluiice

WX_CART_FTR_DS 20	= Canal lock or sluice gate
WX_CART_FTR_CD	= 408
WX_CART_FTR_LU	= Spillway
WX_CART_FTR_DS 21	= Spillway
WX_CART_FTR_CD	= 410
WX_CART_FTR_LU	= Exposed rock
WX_CART_FTR_DS 22	= Exposed rock
WX_CART_FTR_CD	= 412
WX_CART_FTR_LU	= Stream/river
WX_CART_FTR_DS 23	= Stream or river
WX_CART_FTR_CD	= 414
WX_CART_FTR_LU	= Ditch/canal
WX_CART_FTR_DS 24	= Ditch or canal
WX_CART_FTR_CD	= 415
WX_CART_FTR_LU	= Aqueduct
WX_CART_FTR_DS 25	= Aqueduct
WX_CART_FTR_CD	= 417
WX_CART_FTR_LU	= Penstock
WX_CART_FTR_DS 26	= Penstock
WX_CART_FTR_CD	= 418
WX_CART_FTR_LU	= Siphon
WX_CART_FTR_DS 27	= Siphon
WX_CART_FTR_CD	= 419
WX_CART_FTR_LU	= Channel in water
WX_CART_FTR_DS 28	= Channel in water area
WX_CART_FTR_CD	= 420
WX_CART_FTR_LU	= Wash/ephemeral
WX_CART_FTR_DS 29	= Wash or ephemeral drain
WX_CART_FTR_CD	= 421
WX_CART_FTR_LU	= Lake/pond
WX_CART_FTR_DS 30	= Lake or pond
WX_CART_FTR_CD	= 422
WX_CART_FTR_LU	= Reef
WX_CART_FTR_DS 31	= Reef
WX_CART_FTR_CD	= 423
WX_CART_FTR_LU	= Sand/gravel in open water
WX_CART_FTR_DS 32	= Sand or gravel in open water
WX_CART_FTR_CD	= 425

WX_CART_FTR_LU	= Fish ladder
WX_CART_FTR_DS	= Fish ladder
33	
WX_CART_FTR_CD	= 466
WX_CART_FTR_LU	= Pier/jetty
WX_CART_FTR_DS	= Pier, jetty, breakwater, dock, wharf or causeway
34	
WX_CART_FTR_CD	= 901
WX_CART_FTR_LU	= Impoundment
WX_CART_FTR_DS	= Impoundment
35	
WX_CART_FTR_CD	= 902
WX_CART_FTR_LU	= Island
WX_CART_FTR_DS	= Island
36	
WX_CART_FTR_CD	= 999
WX_CART_FTR_LU	= Not applicable
WX_CART_FTR_DS	= Not applicable or unclassified water body

Code Table Name: wx.lut_ftr_mod_cd

1	
FTR_MOD_CD	= add
FTR_MOD_LU	= Addition
FTR_MOD_DS	= Addition of spatial feature
2	
FTR_MOD_CD	= del
FTR_MOD_LU	= Deletion
FTR_MOD_DS	= Deletion of existing spatial feature. Documents the historical ID which maybe referenced
	in an orphaned event row that will have no matching spatial record.
3	
FTR_MOD_CD	= upd
FTR_MOD_LU	= Update
FTR_MOD_DS	= Update of existing spatial feature

Code Table Name: wx.lut_ftr_input_cd

1	
FTR_INPUT_CD	= 1
FTR_INPUT_LU	= Automatic
FTR_INPUT_DS	= Automatic via computer software
2	
FTR_INPUT_CD	= 2
FTR_INPUT_LU	= Scan
FTR_INPUT_DS	= Scanning
3	
FTR_INPUT_CD	= 3
FTR_INPUT_LU	= Table digitize
FTR_INPUT_DS	= Tablet digitizing
4	

FTR_INPUT_CD	= 4
FTR_INPUT_LU	= Coordinate File
FTR_INPUT_DS	= Spatial coordinate file
5	
FTR_INPUT_CD	= 5
FTR_INPUT_LU	= Line tracking
FTR_INPUT_DS	= Automatic line tracing
6	
FTR_INPUT_CD	= 6
FTR_INPUT_LU	= Heads-up digitize
FTR_INPUT_DS	= Heads-up digitizing
7	
FTR_INPUT_CD	= 99
FTR_INPUT_LU	= Unspecified
FTR_INPUT_DS	= Unspecified map feature input method

Code Table Name: wx.lut_ftr_intrp_cd

1	
FTR_INTRP_CD	= 1
FTR_INTRP_LU	= Photogrammetric
FTR_INTRP_DS	= Photogrammetric interpretation
2	
FTR_INTRP_CD	= 2
FTR_INTRP_LU	= GPS
FTR_INTRP_DS	= Global Position System (GPS)
3	
FTR_INTRP_CD	= 3
FTR_INTRP_LU	= Photointerp
FTR_INTRP_DS	= Photointerpretation
4	
FTR_INTRP_CD	= 4
FTR_INTRP_LU	= Crenulation
FTR_INTRP_DS	= Interpretation of streams from contour crenulation
5	
FTR_INTRP_CD	= 5
FTR_INTRP_LU	= Surface modeling
FTR_INTRP_DS	= Surface flow modeling
6	
FTR_INTRP_CD	= 6
FTR_INTRP_LU	= Transect
FTR_INTRP_DS	= Transect along a stream channel
7	
FTR_INTRP_CD	= 7
FTR_INTRP_LU	= Existing work
FTR_INTRP_DS	= Existing line work
8	
FTR_INTRP_CD	= 8
FTR_INTRP_LU	= Best guess
FTR_INTRP_DS	= Stream not directly observable so stream location is estimated
9	

FTR_INTRP_CD = 99
 FTR_INTRP_LU = Unspecified
 FTR_INTRP_DS = Unspecified/Unknown

Code Table Name: wx.lut_ftr_src_cd

1
 FTR_SRC_CD = 1
 FTR_SRC_LU = USGS Map
 FTR_SRC_DS = USGS Topographic Map

2
 FTR_SRC_CD = 2
 FTR_SRC_LU = Orthophoto
 FTR_SRC_DS = Orthophotography

3
 FTR_SRC_CD = 3
 FTR_SRC_LU = Aerial photo
 FTR_SRC_DS = Aerial Photograph

4
 FTR_SRC_CD = 4
 FTR_SRC_LU = MSS Imagery
 FTR_SRC_DS = Multi-Spectral Satellite Imagery

5
 FTR_SRC_CD = 5
 FTR_SRC_LU = Field Survey
 FTR_SRC_DS = Field Survey of on the ground observation

6
 FTR_SRC_CD = 6
 FTR_SRC_LU = County/City Plan Map
 FTR_SRC_DS = County or City Planning Map

7
 FTR_SRC_CD = 7
 FTR_SRC_LU = Field Map
 FTR_SRC_DS = Field Map

8
 FTR_SRC_CD = 8
 FTR_SRC_LU = DEM
 FTR_SRC_DS = Digital Elevation Model (DEM)

9
 FTR_SRC_CD = 9
 FTR_SRC_LU = Radar Imagery
 FTR_SRC_DS = Radar Imagery

10
 FTR_SRC_CD = 10
 FTR_SRC_LU = Laser Imagery
 FTR_SRC_DS = Laser Imagery

11
 FTR_SRC_CD = 11
 FTR_SRC_LU = CFF'
 FTR_SRC_DS = Cartographic Feature File (CFF)

12

FTR_SRC_CD	= 12
FTR_SRC_LU	= NWI Map
FTR_SRC_DS	= National Wetlands Inventory (NWI) Map
13	
FTR_SRC_CD	= 99
FTR_SRC_LU	= Unspecified
FTR_SRC_DS	= Unspecified

Code Table Name: wx.lut_ftr_org_cd

1	
FTR_ORG_CD	= bcmelp
FTR_ORG_LU	= BC Ministry of Environ
FTR_ORG_DS	= British Columbia Ministry of Environment, Lands and Parks
2	
FTR_ORG_CD	= coclrk
FTR_ORG_LU	= Clark Co
FTR_ORG_DS	= County - Clark, WA
3	
FTR_ORG_CD	= coking
FTR_ORG_LU	= King Co
FTR_ORG_DS	= County - King, WA
4	
FTR_ORG_CD	= copier
FTR_ORG_LU	= Pierce Co
FTR_ORG_DS	= County - Pierce, WA
5	
FTR_ORG_CD	= cosnoh
FTR_ORG_LU	= Snoh. Co
FTR_ORG_DS	= County - Snohomish, WA
6	
FTR_ORG_CD	= cospok
FTR_ORG_LU	= Spokane Co
FTR_ORG_DS	= County Spokane, WA
7	
FTR_ORG_CD	= cothurs
FTR_ORG_LU	= Thurston Co
FTR_ORG_DS	= County - Thurston, WA
8	
FTR_ORG_CD	= coyak
FTR_ORG_LU	= Yakima Co
FTR_ORG_DS	= County - Yakima, WA
9	
FTR_ORG_CD	= ctyoly
FTR_ORG_LU	= Olympia
FTR_ORG_DS	= City of Olympia, WA
10	
FTR_ORG_CD	= ctysea
FTR_ORG_LU	= Seattle
FTR_ORG_DS	= City of Seattle, WA
11	

FTR_ORG_CD	= ctyvan
FTR_ORG_LU	= Vancouver
FTR_ORG_DS	= City of Vancouver, WA
12	
FTR_ORG_CD	= iricc
FTR_ORG_LU	= IRICC
FTR_ORG_DS	= Intergovernmental Resource Information Coordinating Council
13	
FTR_ORG_CD	= lvwfbr
FTR_ORG_LU	= Longview Fiber
FTR_ORG_DS	= Longview Fiber Company
14	
FTR_ORG_CD	= nmfs
FTR_ORG_LU	= NMFS
FTR_ORG_DS	= National Marine Fisheries Service
15	
FTR_ORG_CD	= nrcs
FTR_ORG_LU	= NRCS
FTR_ORG_DS	= Natural Resources Conservation Service
16	
FTR_ORG_CD	= nwifc
FTR_ORG_LU	= NWIFC
FTR_ORG_DS	= Northwest Indian Fisheries Commission
17	
FTR_ORG_CD	= ordeq
FTR_ORG_LU	= ODEQ
FTR_ORG_DS	= OR Dept. of Environmental Quality
18	
FTR_ORG_CD	= psrc
FTR_ORG_LU	= PSRC
FTR_ORG_DS	= Puget Sound Regional Council
19	
FTR_ORG_CD	= raynr
FTR_ORG_LU	= Rayonier
FTR_ORG_DS	= ITT Rayonier
20	
FTR_ORG_CD	= smpsn
FTR_ORG_LU	= Simpson
FTR_ORG_DS	= Simpson Timber Company
21	
FTR_ORG_CD	= unknown
FTR_ORG_LU	= Unknown
FTR_ORG_DS	= Unknown input organization
22	
FTR_ORG_CD	= usace
FTR_ORG_LU	= USACE
FTR_ORG_DS	= U.S. Army Corps of Engineers
23	
FTR_ORG_CD	= usblm
FTR_ORG_LU	= USBLM
FTR_ORG_DS	= U.S. Bureau of Land Management

24		
FTR_ORG_CD	= usbor	
FTR_ORG_LU	= USBR	
FTR_ORG_DS	= U.S. Bureau of Reclamation	
25		
FTR_ORG_CD	= usbpa	
FTR_ORG_LU	= USBPA	
FTR_ORG_DS	= U.S. Bonneville Power Administration	
26		
FTR_ORG_CD	= usepa	
FTR_ORG_LU	= USEPA	
FTR_ORG_DS	= U.S. Environmental Protection Agency	
27		
FTR_ORG_CD	= usepa-r10	
FTR_ORG_LU	= USEPA-10	
FTR_ORG_DS	= U.S. Environmental Protection Agency - Region 10	
28		
FTR_ORG_CD	= usfs	
FTR_ORG_LU	= USFS	
FTR_ORG_DS	= U.S. Forest Service	
29		
FTR_ORG_CD	= usfs-oly	
FTR_ORG_LU	= USFS-Olympic	
FTR_ORG_DS	= U.S. Forest Service - Olympic	
30		
FTR_ORG_CD	= usfws	
FTR_ORG_LU	= USFWS	
FTR_ORG_DS	= U.S. Fish and Wildlife Service	
31		
FTR_ORG_CD	= usgs	
FTR_ORG_LU	= USGS	
FTR_ORG_DS	= U.S. Geological Survey	
32		
FTR_ORG_CD	= usgs-nmd	
FTR_ORG_LU	= USGS-NMD	
FTR_ORG_DS	= U.S. Geological Survey - National Mapping Division	
33		
FTR_ORG_CD	= usnps	
FTR_ORG_LU	= USNPS	
FTR_ORG_DS	= U.S. National Park Service	
34		
FTR_ORG_CD	= wadfw	
FTR_ORG_LU	= WDFW	
FTR_ORG_DS	= Washington Department of Fish and Wildlife	
35		
FTR_ORG_CD	= wadnr	
FTR_ORG_LU	= WDNR	
FTR_ORG_DS	= Washington State Department of Natural Resources	
36		
FTR_ORG_CD	= wadot	
FTR_ORG_LU	= WDOT	

FTR_ORG_DS = Washington Department of Transportation
 37
 FTR_ORG_CD = waecy
 FTR_ORG_LU = Ecology
 FTR_ORG_DS = Washington Department of Ecology
 38
 FTR_ORG_CD = weyhsr
 FTR_ORG_LU = Weyerhaeuser
 FTR_ORG_DS = Weyerhaeuser Company

Cross Reference Code Table Name: wx.xrf_hydr_cart

Record WX_HYDR_FTR_CD WX_CART_FTR_CD

1	dc	407
2	dc	408
3	dc	414
4	dc	425
5	es	115
6	es	116
7	es	117
8	es	419
9	es	422
10	es	466
11	gl	103
12	im	101
13	im	105
14	im	106
15	im	107
16	im	109
17	im	466
18	im	901
19	is	410
20	is	423
21	is	902
22	iw	111
23	iw	114
24	la	100
25	la	110
26	la	402
27	la	421
28	la	466
29	pp	415
30	pp	417
31	pp	418
32	sc	412
33	sp	300
34	st	117
35	st	400
36	st	401
37	st	406
38	st	412
39	st	419
40	st	420
41	st	466

42 un 999
 43 wt 111

Data Dictionary Format Sheet Explanations

The formatting sheets provide the users with a road map with a description of how information is stored in the various data layers and coverages described in this data dictionary. Each coverage type is listed and its various components explained in detail.

Polygon Layer:¹
 Line . . .

Feature Attribute Table Outline

Begin Column⁴	Defined Item Name⁵	Item Definition⁷
13*	Cover-ID	4,5,B
17	VARIABLE1	1,1,I
* Redefined Items*⁸		

VARIABLE1

This is a description of Variable1, including any coding scheme and permissible values (e.g., 1 = good, 2 = bad, 3 = ugly).

Notes:

¹The type of coverage, either polygon, line, or point; or type of table, either route, section, event, or reference.

²A descriptive variable (item) name.

³**In a Polygon Attribute Table (PAT)**, there are four items automatically assigned. Only the last item, Cover-ID, is shown above. They are:

Area	(units in square coverage units)	4,12,F
Perimeter	(units in coverage units)	4,12,F
Cover#	(polygon internal number; computer assigned)	4,5,B
Cover-ID	(user defined ID; if not assigned by user, will usually default to Cover#)	4,5,B

*13 for PAT, 25 for AAT

In an Arc Attribute Table (AAT), there are seven items automatically assigned. Only the last item, Cover-ID, is shown above. They are:

Fnode#	(from node internal number)	4,5,B
Tnode#	(to node internal number)	4,5,B
Lpoly#	(left polygon; if only a line coverage, then set to zero)	4,5,B
Rpoly#	(right polygon)	4,5,B
Length	(units in coverage units)	4,12,B
Cover#	(arc internal number)	4,5,B
Cover-ID	(arc user ID)	4,5,B

⁴The variable begins in this column in the INFO record. An INFO record can be 4,096 columns (bytes) wide. This limit applies also to records so that the combined length of selected and related records cannot exceed 4,096.

⁵The defined variable name. This is how INFO will read the item. The item name can be up to 16 characters long, no spaces, must begin with a letter, and is case sensitive.

⁶An alternative name can be assigned to the item. This is sometimes done to shorten the item name.

⁷The item definition consists of four elements:

1. Item name (see Note 5)
2. Item width - the number of bytes to store the variable
3. Output width - the number of columns to display the item value
4. Item type

The Item width and Output width may be different because decimal and binary representations of the same numeric value have different widths. If no output width is specified, the default width is the item width.

There are 11 possible INFO item types:

Type	Permissible Width	Uses	Stored As
1. B = Binary	2 or 4	Store large/small numbers economically	Binary
2. C = Character	4,096	Store alphanumeric data (ARC imposes a 320 limit)	ASCII
3. D = Date	8	Store dates ASCII	
4. F = Floating	4 or 8	Store extremely large/small numbers	Binary
5. I = Integer	1 to 16	Codes ASCII	
6. N = Numeric	1 to 16	Store decimal numbers as characters	ASCII

- 7. L = Leading fill 1 to 16 Store leading zeroes in numbers such as ASCII Zip Codes (i.e., 01234)
- 8. V = Implied 1 to 16
 decimal point
- 9. O = Overpunch 1 to 16
- 10. T = Training sign 1 to 16
- 11. P = Packed decimal 1 to 16

The range for a 2-byte binary is **plus/minus** (use symbol) 32,767; for a 4-byte binary is **plus/minus** 2,147,483,648 (display for this would be 4,10,B).

Types L, V, O, T, and P are not supported by ARC. In general, the more that items are stored in binary format, the less storage space is required.

⁸A redefined item is a new name, type, or width for previously defined items or subsets of items in the FAT. Commonly used to create unique relate items to access data in a lookup table.

Format Sheet Explanation - Section Table

Section Table:

Table Name:

Section Table Outline

<u>Begin</u> <u>Column</u>	<u>Defined</u> <u>Item Name</u>	<u>Item</u> <u>Definition</u>
1	ROUTELINK#	4,5,B
5	ARCLINK#	4,5,B
9	F-MEAS	4,12,F,3
13	T-MEAS	4,12,F,3
17	F-POS	4,12,F,3
21	T-POS	4,12,F,3
25	<subclass>#	4,5,B
29	<subclass>-ID	4,5,B

Data Classification - SEC

In a section attribute table (SEC), there are eight items automatically assigned. The items found in a SEC are:

Routelink#	(route internal # from RAT; identifies the route to which the section belongs)	4,5,B
Arclink#	(arc internal # from the AAT; identifies the arc to which the section belongs)	4,5,B
F-meas	(measure of start position of section)	4,12,F,3
T-meas	(measure end position of section)	4,12,F,3
F-pos	(start position in terms of percentage of existing arc)	4,12,F,3
T-pos	(end position in terms of percentage of existing arc)	4,12,F,3
<subclass>#	(internal sequence number of the sections)	4,5,B
<subclass>-ID	(section ID; if not assigned by user, will default to subclass #)	4,5,B

Please see the ARC/INFO User's Guide, "Dynamic Segmentation," for an explanation of routes, sections, and event tables.

Format Sheet Explanation - Route Table

Route Table:

Table Name:

Route Attribute Table Outline

Begin Column	Defined Item Name	Item Definition
1	<subclass>#	4,5,B
5	<subclass>-ID	4,5,B
9	<Route key item>	User defined

Data Classification - RAT

In a Route Attribute Table (RAT), the <subclass># is software assigned. The <subclass>-ID is also software assigned, but can be re-assigned by the user. The route key item is user defined and assigned. The items in a RAT are defined as:

<subclass>>#	(internal sequence number of the sections)	4,5,B
<subclass>>-ID	(route-system ID; if not assigned by user, will default to subclass #)	4,5,B
<Route key item>	(relates RAT to event databases)	User defined

Please see the ARC/INFO User's Guide, "Dynamic Segmentation," for an explanation of routes, sections, and event tables.

Format Sheet Explanation - Linear Event Table

Linear Event Table:

Table Name:

Event Table Outline

Begin Column	Defined Item Name	Item Definition
1	<event key item>	User defined
7	FROM	4,12,F,3
11	TO	4,12,F,3

Data Classification - RAT

In a linear event table (EVT), there are three items always present. The event key item is user defined. They are:

<event key item>	(relates event table to RAT) (The event key items for WAHYD are defined as 13,13,C)	User defined
From	(start measure in terms of index on existing route)	4,12,F,3
To	(end measure in terms of index on existing route)	4,12,F,3

Please see the ARC/INFO User's Guide, "Dynamic Segmentation," for an explanation of routes, sections, and event tables.

Format Sheet Explanation - Point Relate Table

Point Event Table:

Table Name:

Event Table Outline

<u>Begin</u> <u>Column</u>	<u>Defined</u> <u>Item Name</u>	<u>Item</u> <u>Definition</u>
1	<relate key item>	User defined
7	Location	4,12,F,3

Data Classification - REL

In a point relate table (REL), there are at least two items always present. The relate key item is user defined. They are:

<relate key item> (relates table to PAT) User defined

(The relate key items for WAHYD points are defined as 13,13,C)

Please see the ARC/INFO User's Guide, "Dynamic Segmentation," for an explanation of routes, sections, and event tables.

