

**National Mapping Program
Technical Instructions**

Part 1

Template Development and Use

**Standards for 1:24,000-Scale
Digital Line Graph and
Quadrangle Maps**

**U.S. Department of the Interior
U.S. Geological Survey
National Mapping Division**

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

CONTENTS		Page
1.	Template Development	1-1
1.1	Extraction Specifications	1-2
	1.1.1 Feature Definitions	1-3
	1.1.2 Attributes and Attribute Values	1-5
	1.1.3 Delineation	1-5
	1.1.4 Representation Rules	1-6
	1.1.5 Capture Conditions	1-6
	1.1.6 Attribute Information	1-9
	1.1.7 Source Interpretation Guidelines	1-10
	1.1.7.1 All Sources	1-10
	1.1.7.2 Graphic	1-10
	1.1.7.3 Revision	1-11
1.2	Product Generation Rules	1-13
	1.2.1 Inclusion Conditions	1-14
	1.2.2 Generalization	1-14
	1.2.3 Symbolization	1-15
	1.2.4 Conflict Detection and Resolution	1-17
	1.2.4.1 Reading Conflict Detection and Resolution Rules	1-17
	1.2.4.2 Spatial Operators	1-19
	1.2.4.3 Resolution Strategies	1-22
	1.2.5 Names and Labels	1-23
1.3	Discrepancy Report	1-24

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

APPENDIXES		Page
1A	Instructions for Using Feature Templates During DLG-3 Revision .	1A-1
1B	Part 5 Feature Index to DLG-F Feature	1B-1
1C	Part 6 Feature Index to DLG-F Feature	1C-1
1D	DLG-F to DLG-3 Feature Crosswalk	1D-1
1E	DLG-3 to DLG-F Feature Crosswalk	1E-1

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

LIST OF PAGES

A complete and current copy of Part 1 of Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps consists of the pages (and most recent creation or revision dates) listed below.

<u>Page</u>	<u>Date</u>	<u>Page</u>	<u>Date</u>	<u>Page</u>	<u>Date</u>
1-ii	4/96	1A-4	4/96	1D-13	4/96
1-iii	4/96	1A-5	4/96	1D-14	4/96
1-iv	4/01	1B-1	4/96	1D-15	4/96
1-1	4/96	1B-2	4/96	1D-16	4/96
1-2	4/96	1B-3	4/96	1D-17	4/96
1-3	4/96	1B-4	4/96	1E-1	4/01
1-4	4/96	1B-5	4/96	1E-2	4/96
1-5	4/96	1B-6	4/96	1E-3	4/96
1-6	4/96	1B-7	4/96	1E-4	4/01
1-7	4/96	1C-1	4/96	1E-5	4/96
1-8	4/96	1C-2	4/96	1E-6	4/96
1-9	4/01	1C-3	4/96	1E-7	4/96
1-10	4/96	1C-4	4/96	1E-8	4/96
1-11	4/96	1C-5	4/96	1E-9	4/96
1-12	4/96	1C-6	4/96	1E-10	4/96
1-13	4/96	1C-7	4/01	1E-11	4/96
1-14	4/96	1C-8	4/96	1E-12	4/01
1-15	4/96	1C-9	4/96	1E-13	4/96
1-16	4/96	1D-1	4/96	1E-14	4/96
1-17	4/96	1D-2	4/96		
1-18	4/96	1D-3	4/96		
1-19	4/96	1D-4	4/96		
1-20	4/96	1D-5	4/01		
1-21	4/96	1D-6	4/96		
1-22	4/96	1D-7	4/96		
1-23	4/96	1D-8	4/96		
1-24	4/96	1D-9	4/96		
1A-1	4/96	1D-10	4/96		
1A-2	4/96	1D-11	4/96		
1A-3	4/96	1D-12	4/96		

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

1. TEMPLATE DEVELOPMENT

The following information describes how to use the feature templates. The sections explain what is included in each part of the template and any global rules that apply throughout the templates. If a rule applies to all features, it is a global rule. An example is a rule for how to measure a feature to determine if it meets capture conditions. The templates contain only exceptions to the global rule or additional information that is unique to the feature. If nothing appears in the template to change a global rule, then the rule applies.

Throughout the templates, if something being described meets the definition and capture conditions of a feature, the feature name appears in all CAPS. Generic descriptions of features appear in lower case type to indicate they may not meet the definition of the feature and should not be considered as that feature.

There are three reasons why an entry in the template does not contain information.

1. There is no applicable information, indicated by N/A.
Examples:
 - o Attribute/Attribute Value list when a feature has no attributes
 - o Attribute Information when a feature has no attributes
 - o Various specifications in the symbol table that don't apply
2. There is information not yet developed, indicated by TBD.
Examples:
 - o Rules for Names and Labels
3. In some cases, information could be developed, but none is currently available, indicated by a blank.
Examples:
 - o Generalization
 - o Conflict Detection and Resolution

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

1.1 EXTRACTION SPECIFICATIONS

The data extraction specifications in the feature templates contain all the information required to collect feature data. These specifications tell what is collected as a certain feature and when and how the feature is collected. The extraction specifications include:

- 1.1.1 Feature Definitions
- 1.1.2 Attribute and Attribute Values
- 1.1.3 Delineation
- 1.1.4 Representation Rules
- 1.1.5 Capture Conditions
- 1.1.6 Attribute Information
- 1.1.7 Source Interpretation Guidelines

The templates are as concise and positive as possible, and each template is meant to stand alone. Therefore, definitions, attributes, and attribute values describe what the feature looks like, not what it DOES NOT look like. Similarly, capture conditions explain when to capture a feature, not when NOT TO capture the feature. If this approach had not been used, each template could be too cumbersome, and too confusing, to be useful.

The capture conditions reflect the NMD policy of cartographic collection, which restricts data content and position based on graphic limitations of scale and legibility. Only content that can be displayed on the printed map is collected and all offsets in position necessary to accommodate symbolization are performed at the time of data collection. This policy, and the feature templates, will change as user requirements for geographic content and position become known and as technology and resources are developed to support the implementation of product generation rules for content generalization and symbol conflict resolution.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

1.1.1.1 Feature Definitions

Feature definitions are used to decide how to classify a feature. Attributes, delineation, and capture conditions limit which occurrences of a feature, from a class of features, the NMD collects. The main goal in classifying features is to define the features so that the distinctions between them are clear.

The features and their definitions were developed by studying a variety of sources including; NMD documentation; the Defense Mapping Agency's Feature and Attribute Coding System; Geographic Names Information System feature classes; the Spatial Data Transfer Standard feature list; publications from other Federal agencies, including National Ocean Service, Bureau of Land Management, Forest Service, and the Fish and Wildlife Service; and the Canadian National Topographic Data Base feature list. Attempts were made to coordinate feature definitions with other organizations, however, feature selection is somewhat different from one agency to another and even between units within each agency.

The feature definitions provide the distinguishing characteristics needed to differentiate between features. Although the difference between STREAM/RIVER and LAKE/POND is obvious, the distinction between STREAM/RIVER and CANAL/DITCH may not be so obvious. In this example, a feature that could be either a STREAM/RIVER or a CANAL/DITCH can be classified by comparing the two definitions. Although both STREAM/RIVER and CANAL/DITCH are linear water bodies, the definition for CANAL/DITCH specifies that it is artificial and that it is used to transport water, to drain or irrigate land, to connect two or more water bodies, or to serve as a waterway for watercraft. Therefore, CANAL/DITCH is distinguished from STREAM/RIVER by (1) the fact that it is artificial, and (2) the fact that it has specific uses. If the feature in question does not meet these two criteria, it is not a CANAL/DITCH.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

Although the feature definitions include those characteristics of a feature that the NMD uses to distinguish among features, the templates do not necessarily specify how to make the distinction. How one goes about deciding if something is artificial or natural, or if it is used for some special purpose or not, is beyond the scope of the templates. Annotation guides can be developed to support the content of the templates. These guides could contain graphic examples that illustrate map and real world identification and delineation of features.

There are some cases where the distinction between features is not clear, usually because past practices do not lend themselves to the classification method used to develop the domain of features. There are also cases where the definition is clear, but, again, because of past practices in the NMD, there might be some confusion. For example, the definition of a LAKE/POND states that it is a "body of standing water," so a dry lake doesn't fit the definition. However, the NMD symbol books describe dry lakes under lakes and ponds and in the DLG-3 format they are collected as lakes with a descriptive attribute of dry. In this case, a rule is developed in Source Interpretation Guidelines to reinforce the definition. The rule in this example is: "Do not capture dry lakes as LAKE/POND. See PLAYA."

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

1.1.2 Attributes and Attribute Values

Attributes describe characteristics of features. Many of these characteristics fall into one of three groups: (1) "Type" describes the function or purpose of a feature; (2) "Category" describes the form or nature of a feature; and (3) "Status" describes the state or existence of the feature or characteristic.

Definitions for attributes and attribute values are generic. The definition for the attribute "Elevation" is "The vertical distance from a given datum." This applies whether elevation is applied to a LAKE/POND or a STREAM/RIVER or a CONTOUR.

In some cases, more than one value for a given attribute can be selected. The ability to provide multiple values for an attribute makes it unnecessary to capture multiple features. For example, if a mine produces multiple products, only one instance of the feature mine is captured and the applicable products are assigned as values to the attribute Product. Currently, the templates do not identify those attributes that can be multi-valued, although the information is stored in the standards data base.

For most features, there is a discrete list of appropriate attribute values. However, for a few features, such as RESERVATION, the number of potential descriptors is quite large and it is not possible to create an exhaustive list of values. Selecting an alphanumeric value for the attribute "Text" provides the necessary flexibility to describe a RESERVATION.

1.1.3 Delineation

Delineation specifications describe what the limits of a feature are and what to include in the feature that meets capture conditions. The delineation generally describes real world entities.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

1.1.4 Representation Rules

The representation rules are described in two tables. The first table lists the relationships in which a feature may participate and the second table lists the feature object types used to represent the feature.

The relationship table presents the relationship name, the cardinality, and the related feature object. The cardinality expresses the minimum and maximum number of times one instance of a feature can be involved in the relationship. However, the current design of the standards database is flawed and the cardinality cannot be entered properly, so the cardinality is not populated.

The representation conditions table presents the feature objects used to represent a feature and the criteria to determine which feature object is used. The values displayed in the columns for "AREA", "SHORTEST" and "LONGEST" are sizes based on an areal measurement, the shortest axis, or the longest axis of the feature. A feature is represented by a specific feature object when the size criteria in the appropriate column is met. If a feature can only be represented by one feature object, then the only value shown will be ">0" in one of the columns. If no values appear in any column, then special conditions must be present to indicate the appropriate feature representation. Special conditions may also exist in conjunction with values in table.

1.1.5 Capture Conditions

The feature definitions describe what to capture, and the capture conditions describe when to capture it. Capture conditions are generally independent of source. The capture conditions currently reflect the content of a standard update product. Because primary mapping has been completed for the entire United States, most National Mapping Program activity is focused on revision. Information on data capture that pertains to specific sources or revision methods is found in the Source Interpretation Guidelines section.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

The templates must contain the criteria necessary to ensure that NMD products are accurate and consistent in style and content. Therefore, the capture conditions present the requirements for the content of NMD products, not just the step-by-step decisions an user needs to make in deciding whether to capture a particular feature.

An "If...Then" format is used for the capture conditions. The basic format is as follows:

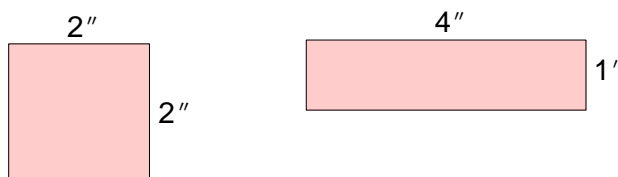
If FEATURE is CONDITION,
Then capture.

When there are multiple capture conditions, each statement stands alone. If the feature meets one of the conditions, it is captured.

Capture conditions are given in inches at map scale. In general, features are measured along the longest axis (length) and/or the shortest axis (width). Square features are measured along either axis, round features are measured by the diameter, and irregular features are measured against the axes of the best fitting rectangle (nonoriented). Linear features are measured as the accumulative measurement along the centerline of the feature for length and the predominant distance across the feature (measured perpendicular to the centerline) for width. Any specific or unique requirements for measurement are addressed separately for each feature.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

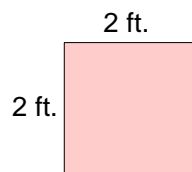
For areal measurements, the capture conditions are expressed as X square inches. Square inches indicate that **the value is an areal value**. Thus, 4 square inches indicates an area equivalent in extent to a square which measures 2" by 2", or to a rectangle which measures 1" by 4". Two examples of area = 4 square inches are:



Decimal values are handled in the same way; an area described as 0.01 square inches indicates an area equivalent in size to a square which measures 0.1" by 0.1". An example of area = 0.01 square inches is:



Do not confuse this terminology with the usage "2 foot square," where neither the value nor the unit is areal. For example:



The areal value terminology is used in the templates because it allows an area to be defined independently of lengths and widths. If there **are** minimum length or width requirements, then these values are included in the capture conditions in addition to the area value.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

1.1.6 Attribute Information

Attribute Information describes how to value the attributes once the feature is captured. Any required conditions and/or attribute value combinations are given. All attributes must be valued.

There are three global attribute values that apply to many attributes. These are "Unspecified", "Not Applicable", and "Unknown".

o Unspecified is used when the value is not known, but is not necessary. For example, a spring shown on the map with no additional label would have the value Unspecified for the attribute Water Characteristics.

o Not Applicable is used when a particular occurrence of a feature cannot have a particular attribute value. For example, if the water level of a STREAM/RIVER is not controlled for navigation, the value for Elevation = Not Applicable, because the attribute does not apply and therefore cannot be valued.

o Unknown is used when a required value is not known. For example, if the class of a road cannot be determined during collection or revision, the value would be unknown. Other sources will be required to determine the appropriate value.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

1.1.7 Source Interpretation Guidelines

Source Interpretation Guidelines provide additional information for interpreting the capture conditions when capturing data using specific source materials or methods. They also contain any modifications to the capture conditions specific to the source or capture methods.

1.1.7.1 All sources

This information helps interpret the capture conditions regardless of the source or method used in data capture. Included are such things as when to capture a coincident feature based on the capture conditions, when to capture more than one instance of the feature, and when to capture something as a different feature instead of the feature in the template. For those features that can occur in more than one theme, this section provides the guidelines for which theme should contain a specific feature instance.

1.1.7.2 Graphic

This information helps interpret the capture conditions when the source is a map. Included are guidelines for interpreting the symbology for proper classification, delineation, and capture.

When deciding to capture a feature from a graphic source, the capture conditions still apply. Features that do not meet the capture conditions are not captured. Generally, this reflects changing requirements. For example, a number of offshore features shown on NMD maps prior to 1961 are no longer required and should not be captured, even though they appear on the graphic.

Some capture conditions cannot be evaluated just by looking at the map. For example, when a feature is represented with a point symbol and the capture conditions state a size requirement, it is not possible to evaluate the true size of the feature from the graphic. If compliance with the capture conditions cannot be determined, then the feature is collected. Further evaluation will be done at the time of revision.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

In some cases, instructions are given to collect features for which the symbology has been suppressed on the map. For example, instructions are given on how to capture PLSS information when PLSS lines are dropped from the map because they are coincident with a boundary or a road.

1.1.7.3 Revision

This information helps interpret the capture conditions during revision. The term "revision" applies to the process by which data are updated to reflect changes that have occurred since the date of the existing DLG or, for simultaneous collection and revision, the Digital Raster Graphic (DRG).

Guidelines in this section are divided by the category of revision. Headings in this section are: Revision - General, Revision - Standard, and Revision - Limited. If no guidelines appear in any of these revision categories, then the guidelines in the remainder of the feature template apply.

Revision - General

Revision - Standard

Revisions - Limited - The goal for a limited update is that feature content will be current, but will include only: (1) those feature types that are photoidentifiable on a monoscopic source, supplemented with limited ancillary sources, and (2) those feature types from existing DLG's or DRG's that are not photoidentifiable but are not particularly prone to change. Some feature types are not revised at all while other feature types are revised with limited attribution. Existing data may or may not be revised. Ancillary sources may be required to revise some data. All of this information is provided in the limited update section.

If no limited update guidelines appear, the feature and all its attributes are revised using guidelines in the remainder of the template.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

If a feature is not revised during a limited update, guidelines state this and give information on how to handle existing DLG data. The guideline "Do not revise. Delete existing features." means the feature is not revised and all feature instances are deleted from the DLG. The guideline "Do not Revise. Retain existing features." means the feature is not revised and features that already exist in the DLG are retained except when that feature is replaced by another instance of a feature type that is revised in a limited update.

If a feature is revised, but only under certain conditions, those conditions will be stated, as well as how to handle existing DLG data. For example, in the feature PIPELINE, the guideline states "Revise aboveground pipelines only. Retain existing features."

There are some cases where only existing DLG data are revised and only under certain conditions. The guideline "Do not add new features. Revise existing features (conditions)." applies to these cases.

Special instructions may also apply to attribution. If attribution cannot be determined in limited update, that will be noted in this section. For example, the guideline for BUILDING states that Building Type = Unspecified for limited update. In addition it will be noted whether the value applies to existing data or not. In the case of BUILDING, the guideline states "Existing buildings will be given Building Type = Unspecified."

If data is being collected from a DRG as part of a simultaneous collection/revision project, the limited update instructions still apply. When revising data from a DRG, the term "retain" is interpreted to mean "collect" and the term "delete" is interpreted to mean "do not collect". So, the guideline "Do not revise. Retain existing features" means "Do not revise. Collect existing features" The guideline "Do not revise. Delete existing features" means "Do not revise. Do not collect existing features."

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

1.2 PRODUCT GENERATION RULES

The feature definitions, delineation, extraction specifications, and representation rules provide the guidelines for creating a data base. Upon creation of the data base, an additional set of rules is needed to provide guidelines for manipulating and processing the data to generate a particular cartographic product. These product generation rules are divided into five groups:

- 1.2.1 Inclusion conditions
- 1.2.2 Generalization
- 1.2.3 Symbolization
- 1.2.4 Conflict detection and resolution
- 1.2.5 Names and labels

The information in the Product Generation sections is not as complete as the information in the Data Extraction sections. Additions and modifications to the rules will occur as research continues. The Symbolization section is the most complete. The Conflict Detection and Resolution section and the Names and Labels section contain rules that have been identified thus far in the process, but these sections will require additional research.

Inclusion Conditions and Generalization requirements are described in the template under the heading "Data Extraction or Product Generation." Depending on the content of the data base, these activities could take place at different times in the production process. Current collection policy dictates that the database contains only the information required to create a map, therefore the inclusion conditions are equivalent to the capture conditions and generalization is not required. A collection policy that permits more geographic collection, would mean that the database contains information other than that required to create a specific product. Inclusion Conditions and Generalization for specific products then will be defined.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

1.2.1 Inclusion Conditions

Inclusion conditions are used to select feature instances from the data base to meet the requirements of a particular product. The policy in data extraction is to capture only what is required for a map, inclusion conditions are often "all required."

In the future, specifications and rules will be developed for other products, such as 1:50,000-scale topographic maps, that will be produced using the 1:24,000-scale database. In these cases, the inclusion conditions will reflect requirements for reduced content.

1.2.2 Generalization

Generalization is a process whereby feature detail is removed so that the resolution of the map is appropriate to its scale. NMD currently has a cartographic collection policy, so this function takes place as the data are collected and completion of this section is not required. As the move is made toward geographic collection and there is more content in the data base than will be shown on a map, these rules will be developed.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

1.2.3 Symbolization

Specifications for symbolizing and labeling feature objects are presented in tabular form and are organized according to the dimensionality of the feature object to be symbolized. All 0-D (point) symbols are listed first, then all 1-D (linear) symbols, and then all 2-D (areal) symbols.

A feature is shown as specified in the symbol tables. If a feature object is resymbolized during conflict detection, the rules appear in the Conflict Detection and Resolution section of the template.

Each entry in the symbol specification table includes a diagram of the symbol. Labels that are not derived from attribute values are shown as they appear on the graphic and in the primary placement position (position that will appear on the graphic unless a placement conflict occurs). An example is the label "Geyser" for the feature GEYSER.

Often, attribute values provide the information to be used for names and labels. The symbolization table uses boxes to indicate those attribute values which will be used as labels. For example, the proper name of a feature is stored as a value of the attribute Name. The symbol diagram shows the 3-letter code associated with the attribute, outlined in a box NAM. This indicates that the alphanumeric text stored as the value for Name is printed as the Name label. As another example, the feature SPRING has the attribute Water Characteristics, with possible values of Alkaline, Hot, Sulphur, or Unspecified. A box outlining the code for Water Characteristics (WAC) indicates that the label equates to whatever value is stored for Water Characteristics for an instance of the feature SPRING. All attribute values used as labels are shown in this manner. Values of "Unspecified," "Not Applicable," and "General Case" are not used as labels, and when an attribute has one of these values, no label is generated.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

Attribute Column

This column lists only those attributes whose values affect symbolization.

Value Column

This column lists the attribute values which determine the symbolization. The table contains a separate entry for each combination of attribute values that requires a unique symbol. (In the context of the symbolization table, a symbol includes not only the graphic part of the symbol, but also the name and (or) label associated with that symbol).

Symbol Specifications Column

This column contains a standardized set of words to describe the symbols. Each symbol is divided into standardized units or components (lines, circles, rectangles, etc.). Lineweight, color, dash length and spacing, and other parameters are included for each component, as appropriate. In some cases, two or more symbol components are combined to produce a symbol (e.g., the symbol for a school building consists of a square, line, and triangle).

Type Specifications column

If an attribute value provides a label for a symbol, the attribute name appears as a bold heading in this column, with additional parameters listed describing the color, style, size and spacing of the text. (The 3-letter code associated with the attribute name is shown as part of the symbol). Other text used to label the symbol is described under the bold heading **Label:**

Symbol #

Each symbol for each feature object is given an ID code. The code consists of a letter indicating the dimensionality of the feature, P for 0-D (point) feature objects, L for 1-D (linear) feature objects, and A for 2-D (aerial) feature objects, plus a three digit number. The numbers are consecutive starting with 001. Each dimension starts over again with 001 (e.g., P001, P002, L001, L002, A001). When used in combination with the feature type (or feature object code), this code provides a unique code for each feature object symbol.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

Symbol numbers for symbols that are the result of conflict detection and resolution rules are number consecutively beginning with 100. For 1:100,000-scale data, if the symbol is the same as that for a 1:24,000-scale product, the symbol number is the same. If the 1:100,000-scale symbol is different, it is given a number beginning with 200 (or 300 if it is the result of a conflict detection and resolution rule.)

1.2.4 Conflict Detection and Resolution Rules

Conditions exist in the real world that cannot be accurately represented on a map; features in the real world may be very close together so that their symbols on the map will coincide. These conditions must be addressed at the time of product generation. After the symbology is placed, as specified in the symbology tables, conflict detection and resolution rules describe how to resolve these symbolized feature conflicts.

The rules for conflict detection and resolution are not complete at this time. These rules need to be completely developed prior to implementation of a geographic collection policy.

1.2.4.1 Reading Conflict Detection and Resolution Rules

Each rule defines a problem (conflict detection) and gives instructions on how it is solved (resolution). The rules are written in the "If...Then" format, with a specific conflict between two symbolized features forming the "If" portion, and an action statement forming the "Then" portion. A generic rule serves to illustrate the basic format:

**If Primary Conflict Feature *conflicts with* Target Conflict Feature,
Then take specified action on Primary Conflict Feature.**

The first symbolized feature mentioned in the rule is defined as the Primary Conflict Feature, and it is the feature that will be acted upon in the resolution. The other symbolized feature mentioned in the rule is defined as the Target Conflict Feature. The verb that describes the conflict between the Primary Conflict Feature and the Target Conflict Feature is defined as the "spatial operator" (e.g., symbol_coalesces). Each spatial operator describes the nature of

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

the possible conflict between the two symbolized features. The resolution portion of the rule, following the "Then," contains a "resolution strategy". A resolution strategy, which is a specifically defined term, such as "resymbolize", determines what action should be taken to resolve the conflict.

The following points are important to remember:

- o Measurement values apply to spacing between symbols and not from symbol center to symbol center.
- o The resolution portion of the rule does not have to restate which symbol is acted upon, because it always refers to the Primary Conflict Feature.
- o The resolution portion of the rule calls for action on either a symbol or a symbol section. Symbol refers to the entire symbol for a given feature (If MILE MARKER coincides BRIDGE, then suppress_symbol). Symbol section refers to a portion of the feature that is in conflict (e.g., If BOUNDARY coincides with Boundary Point, then suppress_section).
- o A conflict detection rule appears only in the template of the Primary Conflict Feature.
- o Conflict detection and resolution rules handle only those conflicts that NMD wants to resolve. There are symbol coincidences and overlaps that are acceptable and for which conflict detection and resolution rules are not needed. Example: A bench mark symbol on a contour line is an acceptable symbol coincidence.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

An example of a Conflict Detection and Resolution Rule is:

If BRIDGE (Primary Conflict Feature) coincides (spatial operator) ROAD, RAILWAY, or CANAL/DITCH (Target Conflict Feature), Then suppress_section (resolution).

Translation: If the symbol for BRIDGE is coincident with the symbol for ROAD, RAILWAY, or CANAL/DITCH, then don't show the coincident part of the BRIDGE symbol.

1.2.4.2 Spatial Operators

Current conflict detection rules use three spatial operators:

- o symbol_coalesce
- o symbol_follows
- o coincides

The symbol_coalesce operator tests symbolized graphic data. This spatial operator is a test for the closeness of two symbolized features. Two features coalesce if the minimum separation of the outlines of their symbols is less than a specified separation distance. This separation distance is a required parameter that must be stated in the conflict detection and resolution rule.

Example:

If TANK symbol_coalesces ROAD, separation = 0.005", Then symbol_displace.

(The symbol should be moved only until the specified separation is reached.)

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

The `symbol_follows` operator tests symbolized graphic data. The operator tests for the closeness of two symbolized map features over a specified distance. The separation distance, and the length that the features must remain within this separation distance, are required parameters. The symbolized features follow each other if the minimum separation of their outlines is less than the specified separation distance for at least the specified length.

Example: If PIPELINE `symbol_follows` ROAD, separation = x", distance = y", Then `suppress_section`.

The `coincides` operator uses centerline data. The operator tests for strict coincidence of at least part of the centerline data. The test for `coincides` is performed by determining if the features own any of the same topology, either points, chains, or polygons. Two features are coincident if they share at least one spatial object, complete equivalence is not a requirement for the coincident condition. Table 1 describes the valid topology for coincidences.

Example: If WELL `coincides` WINDMILL, Then `suppress_symbol`.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use

Table 1
 Valid Topology for Coincides Spatial Operator

	0-D	1-D	2-D (perimeter)	2-D (fill)
0-D	P, N 	N 	N 	P, N*
1-D	N 	C 	C 	C**
2-D (perimeter)	N 	C 	C 	C
2-D (fill)	P, N* 	C** 	C 	Pg

P = Point, N = Node, C = Chain, Pg = Polygon

* Node must be on a chain that is internal to the polygon

** The chain cannot be part of the boundary of the polygon

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

1.2.4.3 Resolution Strategies

The current action statements listed below describe how the detected conflict is resolved.

Symbol_displace Alter the centerline geometry of the feature object to achieve the specified separation distance.

Resymbolize Remove the symbolization of an entire feature object and replace it with the new symbol as provided in the rule.

Resymbolize_section Remove the symbolization of only a portion of a feature object and replace it with the new symbol provided in the rule.

Suppress_symbol Suppress the display of an entire feature object.

Suppress_section Suppress the display of a portion of a feature object.

Rotate_symbol Change the orientation of a symbol or symbol component to a given angle.

Orient_symbol Change the orientation of a symbol or symbol component with respect to another feature.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

1.2.5 Names and Labels

Basic name and label information is contained in the symbol portion of the template. The names and label section contains additional information. This section is divided into two subsections: (1) selection and (2) placement. The selection subsection contains rules for determining when a particular feature is named or labeled. Rules for determining where to place the name or label are listed in the placement subsection. Like the section on conflict detection and resolution, this section of the template is not yet fully developed.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use

1.3 Discrepancy Report/Request for Review of Requirements

Complete a Discrepancy Report when an error is found in the feature templates or when a statement in the templates is not understood and a more clearly written statement is requested. The signature of a supervisor is required for submittal.

Complete a Request for Review of Requirements when a modification, addition, enhancement, or deletion of the requirements in a feature template is identified and the requested change makes a fundamental modification to the existing requirement(s). Before submitting a Request for Review of Requirements, please review the technical review notes (available from members of the mapping center standards team) for that particular feature and theme to evaluate whether the issue has already been discussed and resolved.

Submit the form Discrepancy Report/Request for Review of Requirements to:

Standards Team Leaders at Rocky Mountain Mapping Center and Mid-Continent Mapping Center.

Discrepancy Report/Request for Review of Requirements

Discrepancy Report Request for Review of Requirements (Check one)

Name of Originator:

Phone #:

Supervisor's Signature:

Date:

Office (Unit, Section, or Branch):

Location: EDC__ MAC__ MCMC__ RMMC__ WMC__ HQ__

Product: 1:24,000__ 1:24,000 Single Edition__ 1:100,000__

 Core Content__ National Hydrography Dataset__

Template Heading: _____

Change requested:

Mapping Center Authority's Signature:

(Required only for Request for Review of Requirements)

Date Received:

Analysis of Request:

Action: Change rejected__ Change made__ Requires policy decision__

Date:

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use
Appendix 1A

APPENDIX 1A

Instructions For Using Feature Templates During DLG-3 Revision

**INSTRUCTIONS FOR USING
FEATURE TEMPLATES DURING DLG-3 DIGITAL REVISION**

The current DLG-3 attribute codes are defined by symbols on a map. DLG-3 instructions state how to interpret the symbols on the map, how to collect a particular "feature", and which code to use. All of the decisions about how a symbol, which represents a real world phenomenon, got on the map in the first place are described in various other documents. These include Topographic and Technical Instructions, mapping center compilation guidelines, reports of phone calls, supplemental instructions, notes in the margins, and oral history.

The Standards for 1:24,000-scale Digital Line Graphs and Quadrangle Maps have been developed over the past 3-4 years by reviewing all of the instructions that could be found about a particular feature, resolving inconsistencies, and formatting this information in a feature template. The feature templates were extensively reviewed by teams at the mapping centers and by management to ensure that they capture current NMD requirements for defining and collecting real world features. The feature templates provide consistent, concise, unambiguous instructions that describe what we show on our maps.

DATA EXTRACTION

The feature templates provide the following information:

Feature Definitions - whether the feature is a road or a trail, for example.

Delineation - what the edges of the feature are.

Capture Conditions - what criteria the feature must meet to be considered for collection (content worthy).

The information in these sections applies whether making a map or collecting DLG-3 or DLG-F data. Use the feature definition to decide which feature you are looking at on the Digital Orthophoto Quadrangle (DOQ), use the delineation to decide what the edges of the feature are, and use the capture conditions to decide if the feature is collected or not.

For example, a small standing (as opposed to flowing) water body appears in the image. It is probably a LAKE/POND or a RESERVOIR. It has a natural shoreline, so is not a constructed basin. Based on the feature definition, it is a LAKE/POND and not a RESERVOIR.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use
Appendix 1A

Use the delineation to determine the extent of the LAKE/POND. It is naturally formed and appears to be perennial, so based on the delineation, the edge of the LAKE/POND is the position of the shoreline when the water is at the stage that prevails for the greater part of the year (average water elevation.)

Use the capture conditions to determine if this feature should be collected. In this example the State is South Carolina, which is not an arid area. At average water elevation, the LAKE/POND is 400 feet wide (0.2" at 24K) and 600 feet long (0.3" at 24K). The capture conditions require the capture of a LAKE/POND if it is greater than .05" along the shortest axis. The example meets the capture criteria and so it is captured.

After the feature is classified and the decision to capture is made, the representation in the digital file must be determined. At this point the feature templates cannot be used.

The feature templates provide rules for how to represent features using the DLG-F data model. Information in the Representation Rules section of the template describes what kind of feature objects (0-dimensional, 1-dimensional or 2-dimensional) are used to represent the features and in what relationships the features may participate. This information applies only to DLG-F data and cannot be used when collecting DLG-3 data. The current DLG-3 attribute coding standards must be used to determine whether the feature is collected as a point, line, or area and what codes should be attached to the spatial elements.

In the LAKE/POND example, the DLG-3 code 050 0421 describes a lake or pond. Because the lake is 0.2" by 0.3", it is digitized as an area and given the code 050 0421. The lake, however, may need additional DLG-3 codes.

Generally, the attributes and values defined in the feature templates correspond to descriptive or parameter codes in DLG-3 features. The main difference is that for DLG-F features, all attributes must be explicitly valued, whereas in DLG-3 features, certain characteristics are implied by the absence of a code.

There are several attributes listed for LAKE/POND in the feature template. The first is Elevation. The corresponding DLG-3 code 05N XXXX. The Attribute Information section in the feature templates indicates that the value for elevation is required only if there is a printed elevation. If the lake being digitized had a printed elevation, code 05N XXXX would be added. Otherwise, the code is not added. Note that the feature template requires an explicit description of the stage that the elevation value represents. This information is not explicitly collected in the DLG-3 format.

The next attribute in the feature template is Hydrographic Category. The corresponding DLG-3 code is 050 0610 (intermittent). Potential values are defined in the template and the appropriate value is selected based on definitions provided. Because the lake is perennial, no additional DLG-3 code is required.

The next attribute in the feature template is Name. This information is not collected in the DLG-3.

The last attribute in the feature template is Water Characteristics. The only corresponding DLG-3 code is 050 0608 (salt). The choices in the template are "salt" and "unspecified," which means the distinctive properties of the water are identified only if the lake is "salty." Because there is no evidence (either from the photographs or from the ancillary source) that the lake is "salty," no additional DLG-3 code is required.

PRODUCT GENERATION

The feature templates also contain product generation information needed to produce a graphic product. The Product Generation section of the templates includes symbol tables with all of the symbol specifications needed to create a graphic symbol based on combinations of attributes and values. These symbols reflect specifications found in Part 5, "Publication Symbols," Standards for 1:24,000- and 1:25,000-Scale Quadrangle Maps. Use the symbol tables in the feature templates to determine the graphic representation of a feature.

The conflict detection and resolution and the type selection and placement sections of the template are not fully developed. The rules that are identified in these sections reflect current mapping practices. For situations not identified in the templates, apply whatever rules are currently in use in traditional mapping.

SUMMARY: How to use the feature templates in DLG-3 revision:

1. Determine what feature to collect from the feature definition found in the templates (use Part 5 and Part 6 crosswalk tables in the appendices as an aid).
2. Determine if the feature should be collected from the capture conditions found in the templates.
3. Determine what the edges of the feature are (what to include when digitizing) using the delineation section of the templates.
4. Find the appropriate DLG-3 code from the crosswalk table.
5. Digitize as a point, line, or area and code the elements using the DLG-3 specifications.
6. Determine the need for any additional DLG-3 codes by evaluating the attribute list and attribute information in the feature templates.

In most cases, there will be a DLG-3 descriptive attribute code that corresponds to the attributes and values in the feature templates. There are cases where the feature templates provide more information than was captured in the DLG-3 format, even though it appeared on the map. The DLG-F format will capture this information. However, if the information has not been coded in the past, it still will not be coded in DLG-3 and references in the feature templates can be ignored.

7. Use existing DLG-3 instructions for other DLG-3 codes for which there is no corresponding feature or attribute in the feature templates. For example, DLG-F models "flow direction" very differently from the DLG-3 model, so there are no corresponding guidelines for codes like upper origin of stream. There are some DLG-3 codes that are cartographic representations for which there is no equivalent in the feature templates. These include things like bridge abutments, arbitrary extension lines, and closure lines, which should be collected using the DLG-3 instructions as guidelines.
8. Use the symbol specifications found in the symbol tables in the feature templates. For what to do with conflicting symbols, use whatever information can be found in the Conflict Detection section of the templates and rely on other traditional sources to fill in the gaps. Do the same for type selection and placement rules.

The end result is a DLG-3 file that looks like any other DLG-3 file, except that new features have been added using the definitions, delineations, capture conditions, and attribute information from the feature templates.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use
Appendix 1B

APPENDIX 1B

Part 5 (Publication Symbols) Index to DLG-F Feature

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use
Appendix 1B

The following table is provided as an aid in translating the symbol labels listed in the index to Part 5: Publication Symbols of Standards for 1:24,000- and 1:25,000-Scale Quadrangle Maps to DLG-F features. This table is only to direct the user to the appropriate feature template and does not imply that the feature indicated is the correct feature in all cases. This table is based on the version of Part 5 that includes Change Notice Number 2.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1B

Part 5 Index To DLG-F Feature

Part 5 Index Entry	DLG-F Feature	DLG-F Theme
Airboat Trail	LANE	Transportation
Airport	AIRCRAFT FACILITY	Transportation
Alkali flat	BARREN LAND	Nonveg. Surface Cover
	PLAYA	Hydrography
Apron	RUNWAY/APRON/TAXIWAY	Transportation
Aqueduct	CANAL/DITCH	Hydrography
	PIPELINE	Hydrography
Archeological site	ARCHEOLOGICAL SITE/RUIN	Built-up
Area between shoreline and sounding datum line	FORESHORE	Hydrography
Area limits	CABLE/PIPELINE SITE	Built-up
Area to be submerged	AREA TO BE SUBMERGED	Hydrography
Athletic field	ATHLETIC FIELD	Built-up
Bathymetric contour	CONTOUR (BATHYMETRIC)	Topo-bathy only
Battle trench	EMBANKMENT	Built-up
Beach, gravel	BARREN LAND	Nonveg. Surface Cover
Beacon	TOWER	Built-up
Bench mark		
Boardwalk	BOARDWALK	Built-up
Boat ramp	LAUNCHING RAMP	Built-up
Boundary	BOUNDARY LINE	Boundaries
Boundary monument	BOUNDARY POINT	Boundaries
	POINT MONUMENT	Boundaries
Breakwater	PIER/BREAKWATER/JETTY	Built-up
Breastworks	EMBANKMENT	Built-up
Bridge	BRIDGE	Transportation, Hydrography
Building	BUILDING	Built-up
Built-up area	BUILT-UP AREA	Built-up
Cableway	CABLEWAY	Built-up
Campground	CAMPGROUND	Built-up
Campsite	CAMPGROUND	Built-up
Canal	CANAL/DITCH	Hydrography
Canal lock	GATE	Hydrography
Carline	RAILWAY	Transportation
Carolina bay	BASIN	Named Landforms
Causeway	PIER/BREAKWATER/JETTY	Built-up
Cave entrance	CAVE ENTRANCE	Named Landforms
Cemetery	CEMETERY	Built-up
Channel	LANE	Transportation
Cliff dwelling	ARCHEOLOGICAL SITE/RUIN	Built-up
Cog railway	RAILWAY	Transportation
Coke ovens	KILN	Built-up

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1B

Part 5 Index To DLG-F Feature

Part 5 Index Entry	DLG-F Feature	DLG-F Theme
College	BUILDING	Built-up
	INSTITUTIONAL SITE	Built-up
Compressor station	PIPELINE REGULATION STA.	Built-up
Continental Divide	DIVIDE	Named Landforms
Contour	CONTOUR	Hypsography
Control point		
Conveyor	CONVEYOR	Built-up
Coral reef	REEF	Hypsography
Corral	HOLDING PEN	Built-up
Cranberry bog	CULTIVATED CROPLAND	Vegetative Surface Cover
Crevasse field	CREVASSE FIELD	Hydrography
Cul-de-sac	CUL DE SAC	Transportation
	ROAD	Transportation
Cut	CONTOUR	Hypsography
Dam	DAM/WEIR	Hydrography
Dike	EMBANKMENT	Built-up
Ditch	CANAL/DITCH	Hydrography
Diversion dam	DAM/WEIR	Hydrography
Donation land claim	PLSS AREA	PLSS
Drawbridge	DRAW SPAN	Transportation
Drive-in theater	OUTDOOR THEATER	Built-up
	DRIVE-IN THEATER SCREEN	Built-up
Dry lake or pond	PLAYA	Hydrography
	BARREN LAND	Nonveg. Surface Cover
Drydock	DRYDOCK	Built-up
Duck pond	INUNDATION AREA	Hydrography
Dune area	DUNES	Nonveg. Surface Cover
Evaporator	RESERVOIR	Hydrography
Feedlot	HOLDING PEN	Built-up
Fence line	FENCE LINE	Built-up
Ferry	LANE	Transportation
Field line	FENCE LINE	Built-up
Fish hatchery	AQUACULTURE SITE	Built-up
Fish ladder	FISH LADDER	Hydrography
Flat	PLAYA	Hydrography
	FORESHORE	Hydrography
Floodgate	GATE	Hydrography
Flume	FLUME	Hydrography
Footbridge	BRIDGE	Transportation
Ford	FORD	Transportation
Foreshore flat	FORESHORE	Hydrography
Found closing corner	SURVEY CORNER	PLSS
Found section corner	SURVEY CORNER	PLSS

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1B

Part 5 Index To DLG-F Feature

Part 5 Index Entry	DLG-F Feature	DLG-F Theme
Fumarole	FUMAROLE	Hydrography
Gaging station	GAGING STATION	Hydrography
Geyser	GEYSER	Hydrography
Glacial moraine	MORaine	Nonveg. Surface Cover
Glacier	ICE MASS	Hydrography
Grave	CEMETERY	Built-up
Gravel beach	BARREN LAND	Nonveg. Surface Cover
Helipad	AIRCRAFT FACILITY	Transportation
	HELIPAD	Transportation
Highway	ROAD	Transportation
Holiday area		
Homestead monument	SURVEY CORNER	PLSS
Horiz Control Sta.		
House of worship	BUILDING	Built-up
Inadequate survey area		
Incline railway	RAILWAY	Transportation
Intertidal zone	FORESHORE	Hydrography
Jetty	PIER/BREAKWATER/JETTY	Built-up
Lake	LAKE/POND	Hydrography
Land grant line	LAND GRANT	PLSS
	SURVEY LINE	PLSS
Land grant monument	SURVEY CORNER	PLSS
	POINT MONUMENT	PLSS
Land subj inundation	INUNDATION AREA	Hydrography
Landing strip	RUNWAY/APRON/TAXIWAY	Transportation
Landmark object	see specific feature	
Lava	INCLINE/FLOW	Named Landforms
	BARREN LAND	Nonveg. Surface Cover
Levee	EMBANKMENT	Built-up
Located object	see specific feature	
Location monument	SURVEY CORNER	PLSS
	POINT MONUMENT	PLSS
Mangrove	TREES	Vegetative Surface Cover
	SWAMP/MARSH	Hydrography
Marsh	SWAMP/MARSH	Hydrography
Meander Corner	SURVEY CORNER	PLSS
Mine		
dump	DISPOSAL SITE	Built-up
entrance	MINE ENTRANCE	Built-up
open pit	MINE	Built-up
shaft	MINE ENTRANCE	Built-up
strip	MINE	Built-up
Mineral monument	SURVEY POINT	PLSS

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1B

Part 5 Index To DLG-F Feature

Part 5 Index Entry	DLG-F Feature	DLG-F Theme
	POINT MONUMENT	PLSS
Mining claim	SURVEY LINE	PLSS
	SPECIAL SURVEY AREA	PLSS
Monorail	MONORAIL	Transportation
Mud flat	BARREN LAND	Nonveg. Surface Cover
Mud pot	MUD POT	Hydrography
Nonearthen shore	NONEARTHEN SHORE	Hydrography
Oil sump	RESERVOIR	Built-up
Open pit mine	MINE	Built-up
Orchard	CULTIVATED CROPLAND	Vegetative Surface Cover
Overpass	UNDERPASS	Transportation
Penstock	PIPELINE	Built-up
Permanent snowfield	ICE MASS	Hydrography
Picnic area	PARK	Built-up
	REST SITE	Transportation
Pier	PIER/BREAKWATER/JETTY	Built-up
Pipeline	PIPELINE	Hydrography, Built-up
Pit	MINE	Built-up
Platform	OFFSHORE PLATFORM	Built-up
Pond	LAKE/POND	Hydrography
Power substation	SUBSTATION	Built-up
Power transmission line	TRANSMISSION LINE	Built-up
Prospect	PROSPECT	Built-up
Pulloff area	REST SITE	Transportation
	ROAD	Transportation
Pumping station	PIPELINE REGULATION STA	Built-up
Quarry	MINE	Built-up
Racetrack	RACETRACK	Built-up
Raceway	RACETRACK	Built-up
Railroad	RAILWAY	Transportation
Railroad cut	CONTOUR	Hypsography
Railway	RAILWAY	Transportation
Ramp, boat or seaplane		
Range line	SURVEY LINE	PLSS
Rapids	RAPIDS	Hydrography
Recreational slide	RECREATIONAL SLIDE	Built-up
Redoubt	EMBANKMENT	Built-up
Reef	REEF	Hydrography
Reference monument	BOUNDARY POINT	PLSS
Reservoir	RESERVOIR	Hydrography
Rest Area	REST SITE	Transportation
River mileage marker	MILE MARKER	Hydrography
Road	ROAD	Transportation

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1B

Part 5 Index To DLG-F Feature

Part 5 Index Entry	DLG-F Feature	DLG-F Theme
Road cut	CONTOUR	Hypsography
Roadside park	REST SITE	Transportation
Rock	ROCK	Hydrography
Rocks, group of	HAZARD ZONE	Hydrography
Roundhouse	BUILDING	Built-up
Ruins	ARCHEOLOGICAL SITE/RUINS	Built-up
Runways	RUNWAY/APRON/TAXIWAY	Transportation
Sand	BARREN LAND	Nonveg. Surface Cover
Sand Dunes	DUNES	Nonveg. Surface Cover
Sand in open water	BARREN LAND	Nonveg. Surface Cover
School	BUILDING	Built-up
	INSTITUTIONAL SITE	Built-up
Scrub	SHRUBLAND	Vegetative Surface Cover
Seaplane Landing Area	LANE	Transportation
Seaplane ramp	LAUNCHING RAMP	Built-up
Seawall	WALL	Built-up
Section line	SURVEY LINE	PLSS
Seep	SPRING/SEEP	Hydrography
Service area	REST SITE	Transportation
Sewage disposal plant	SEWAGE DISPOSAL PLANT	Built-up
	RESERVOIR	Built-up
Sewerline, submerged	PIPELINE	Built-up
Shoal	HAZARD ZONE	Hydrography
	BAR	Named Landforms
Shoreline	SHORELINE	Hydrography
Siphon	PIPELINE	Hydrography
Ski lift	CABLEWAY	Built-up
Sludge pit	RESERVOIR	Built-up
Sluice gate	GATE	Hydrography
Snowfield, permanent	ICE MASS	Hydrography
Snowshed	BUILDING	Built-up
Sounding datum line	Sounding Datum Line	Hydrography
Special survey mon.	SURVEY CORNER	PLSS
Spillway	SPILLWAY	Hydrography
Spoil area	SPECIAL USE ZONE	Hydrography
Spoil bank	EMBANKMENT	Built-up
Spot elevation	SPOT ELEVATION	Hypsography
Spring	SPRING/SEEP	Hydrography
Stockyard	HOLDING PEN	Built-up
Stream	STREAM/RIVER	Hydrography
Swamp	SWAMP/MARSH	Hydrography
Swimming pool	RESERVOIR	Hydrography
Tailings	DISPOSAL SITE	Built-up

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1B

Part 5 Index To DLG-F Feature

Part 5 Index Entry	DLG-F Feature	DLG-F Theme
Tailings pond	RESERVOIR	Hydrography
Tank	TANK	Built-up
Taxiway	RUNWAY/APRON/TAXIWAY	Transportation
Telephone line	TRANSMISSION LINE	Built-up
Tennessee Valley Divide	DIVIDE	Named Landforms
Tide Station	GAGING STATION	Hydrography
Tidegate	GATE	Hydrography
Tollgate	GATE	Transportation
Township line	SURVEY LINE	PLSS
Tract	PLSS AREA	PLSS
Traffic circle	ROAD	Transportation
Trail	TRAIL	Transportation
Trees, scattered	TREES	Vegetative Surface Cover
Tunnel	TUNNEL	Hydrography, Transportation
Turntable	TURNTABLE	Transportation
Underpass	UNDERPASS	Hydrography, Transportation
University	INSTITUTIONAL SITE	Built-up
Valve station	PIPELINE REG. STA.	Built-up
Vert control sta.		
Vineyard	CULTIVATED CROPLAND	Vegetative Surface Cover
Wall	WALL	Hydrography, Built-up
Wash	WASH	Hydrography
Water filtration plant	FILTRATION PLANT	Built-up
	RESERVOIR	Hydrography
Waterfall	WATERFALL	Hydrography
Weir	DAM/WEIR	Hydrography
Well	WELL	Hydrography, Built-up
Wharf	WHARF	Built-up
Wind generator	WINDMILL	Built-up
Windmill	WINDMILL	Built-up
Witness corner	SURVEY CORNER	PLSS
Wooded swamp	SWAMP/MARSH	Hydrography
	TREES	Vegetative Surface Cover
Woods	TREES	Vegetative Surface Cover
Wreck	WRECK	Hydrography
	HAZARD ZONE	Hydrography
Wreckage, exposed	HAZARD ZONE	Hydrography

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use
Appendix 1C

APPENDIX 1C

Part 6 (Supplementary Publication Symbols) Index to DLG-F Feature

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use
Appendix 1C

The following table is provided as an aid in translating the symbol labels listed in the index to Part 6: Supplementary Publication Symbols of Standards for 1:24,000- and 1:25,000-Scale Quadrangle Maps to DLG-F features. This table is only to direct the user to the appropriate feature template and does not imply that the feature indicated is the correct feature in all cases. This table is based on the version of Part 6 that includes Change Notice Number 8.

Part 6 Index To DLG-F Feature

Part 6 Index Entry	DLG-F Feature	DLG-F Theme
Alkali flat	BARREN LAND	Nonveg. Surface Cover
Aqueduct	PLAYA CANAL/DITCH PIPELINE	Hydrography Hydrography Hydrography
Area limits	CABLE/PIPELINE SITE	Built-up
Area to be submerged	AREA TO BE SUBMERGED	Hydrography
Beach, gravel	BARREN LAND BEACH	Nonveg. Surface Cover Nonveg. Surface Cover
Bench mark		
Boardwalk	BOARDWALK	Built-up
Borrow pit	MINE	Built-up
Boundary	BOUNDARY LINE	Boundaries
Boundary monument	BOUNDARY POINT POINT MONUMENT	Boundaries Boundaries
with number & elevation	SPOT ELEVATION	Hypsography
Breakwater	PIER/BREAKWATER/JETTY	Built-up
Bridge	BRIDGE	Transportation, Hydrography
Brushwood	SHRUBLAND	Vegetative Surface Cover
Buildings	BUILDING	Built-up
Campground	CAMPGROUND	Built-up
Canal, contouring at	CONTOUR	Hypsography
Carline	RAILWAY	Transportation
Causeway	PIER/BREAKWATER/JETTY	Built-up
Cave	CAVE ENTRANCE	Named Landforms
Cemetery	CEMETERY	Built-up
Channel	LANE	Transportation
Church	BUILDING	Built-up
Clay pit	MINE	Built-up
Cliff dwelling	ARCHEOLOGICAL SITE/RUIN	Built-up
Closing corner	SURVEY CORNER	PLSS
Cloverleaf	ROAD	Transportation
Coke ovens	KILN	Built-up
College	INSTITUTIONAL SITE BUILDING	Built-up Built-up
Conduit, elevated	PIPELINE	Built-up
Contour	CONTOUR	Hypsography
Control points		
Coral Reef	REEF	Hydrography
Cranberry bog	CULTIVATED CROPLAND	Vegetative Surface Cover
Crevasses, glacial	CREVASSE FIELD	Hydrography
Cut	CONTOUR	Hypsography

Part 6 Index To DLG-F Feature

Part 6 Index Entry	DLG-F Feature	DLG-F Theme
Dam	DAM/WEIR	Hydrography
Danger curve	HAZARD ZONE	Hydrography
Dead end road	not collected	
Depth curve	DEPTH CURVE	Hydrography
Destination arrow		
Direction arrow		
Disappearing stream	SINK/RISE	Hydrography
Ditch	CANAL/DITCH	Hydrography
Dolphin	POST	Hydrography
Drawbridge	DRAW SPAN	Transportation
Drive-in theater	OUTDOOR THEATER	Built-up
	DRIVE-IN THEATER SCREEN	Built-up
Dry lake	FLAT	Hydrography
	BARREN LAND	Nonveg. Surface Cover
Dry pond	FLAT	Hydrography
	BARREN LAND	Nonveg. Surface Cover
Drydock	DRYDOCK	Built-up
Dune area	DUNES	Nonveg. Surface Cover
	BARREN LAND	Nonveg. Surface Cover
Elevations	CONTOUR	Hypsography
	SPOT ELEVATION	Hypsography
water surface	AREA TO BE SUBMERGED	Hydrography
	CANAL/DITCH	Hydrography
	INUNDATION AREA	Hydrography
	LAKE/POND	Hydrography
	STREAM/RIVER	Hydrography
Exposed Wreck	WRECK	Hydrography
Exposed Wreckage	HAZARD ZONE	Hydrography
	WRECK	Hydrography
Falls	WATERFALL	Hydrography
Fence line	FENCE LINE	Built-up
Ferry	LANE	Transportation
Filtration plant	FILTRATION PLANT	Built-up
	RESERVOIR	Hydrography
Fish hatchery	AQUACULTURE SITE	Built-up
Flat	FLAT	Hydrography
	BARREN LAND	Nonveg. Surface Cover
	FORESHORE	Hydrography
Flume	FLUME	Hydrography
Footbridge	BRIDGE	Transportation

Part 6 Index To DLG-F Feature

Part 6 Index Entry	DLG-F Feature	DLG-F Theme
Ford	FORD	Transportation
Foreshore flat	FORESHORE	Hydrography
Foul ground	HAZARD ZONE	Hydrography
Gaging station	GAGING STATION	Hydrography
Gas pipeline	PIPELINE	Built-up
Glacial crevasses	CREVASSE FIELD	Hydrography
Glacial moraine	MORaine	Nonveg. Surface Cover
Glacier	ICE MASS	Hydrography
Gravel	BARREN LAND	Nonveg. Surface Cover
Gravel beach	BEACH	Nonveg. Surface Cover
	BARREN LAND	Nonveg. Surface Cover
Gravel pit	MINE	Built-up
Horiz control stat		
Intricate surface area	DISTURBED SURFACE	Built-up
Inundation,land subject to	INUNDATION AREA	Hydrography
Jetty	PIER/BREAKWATER/JETTY	Built-up
Lake	LAKE/POND	Hydrography
dry	FLAT	Hydrography
	BARREN LAND	Nonveg. Surface Cover
Land grant	LAND GRANT	PLSS
	SURVEY LINE	PLSS
Land grant monument	POINT MONUMENT	PLSS
	SURVEY CORNER	PLSS
Land subj inundation	INUNDATION AREA	Hydrography
Landmark object	see specific feature	
Lanes, roads	ROAD	Transportation
Levee	EMBANKMENT	Built-up
Located object	see specific feature	
Lock	GATE	Hydrography
Mangrove	TREES	Vegetative Surface Cover
	SWAMP/MARSH	Hydrography
Marsh	SWAMP/MARSH	Hydrography
submerged	LAKE/POND	Hydrography
wooded	TREES	Vegetative Surface Cover
Masts, exposed	WRECK	Hydrography
	HAZARD ZONE	Hydrography
Meander Corner	SURVEY CORNER	PLSS
Mine		
areal strip	MINE	Built-up
dump	DISPOSAL SITE	Built-up

Part 6 Index To DLG-F Feature

Part 6 Index Entry	DLG-F Feature	DLG-F Theme
linear strip	MINE	Built-up
open pit	MINE	Built-up
shaft	MINE ENTRANCE	Built-up
tunnel entrance	MINE ENTRANCE	Built-up
Mining claim	SURVEY LINE	PLSS
	SPECIAL SURVEY AREA	PLSS
Mud	BARREN LAND	Nonveg. Surface Cover
Oil		
pipeline	PIPELINE	Built-up
reservoir, open	RESERVOIR	Built-up
sump	RESERVOIR	Built-up
Orchard	CULTIVATED CROPLAND	Vegetative Surface Cover
Overpass	UNDERPASS	Transportation
Penstock, underground	PIPELINE	Built-up
Picnic area	PARK	Built-up
	REST SITE	Transportation
Pier	PIER/BREAKWATER/JETTY	Built-up
Pile	HAZARD ZONE	Hydrography
	POST	Hydrography
Pond	LAKE/POND	Hydrography
dry	FLAT	Hydrography
	BARREN LAND	Nonveg. Surface Cover
Power trans. line	TRANSMISSION LINE	Built-up
Prospect	PROSPECT	Built-up
Pumping station	PIPELINE REGULATION STA	Built-up
Quarry	MINE	Built-up
Railroad	RAILWAY	Transportation
dismantled	TRAIL	Transportation
siding	RAILWAY	Transportation
station	BUILDING	Built-up
yard	RAILWAY YARD	Transportation
Railway, incline	RAILWAY	Transportation
Range line	SURVEY LINE	PLSS
Rapids	RAPIDS	Hydrography
Reef	REEF	Hydrography
Reference monument	BOUNDARY POINT	Boundaries
Reservoir	RESERVOIR	Built-up, Hydrography
Rice field	CULTIVATED CROPLAND	Vegetative Surface Cover
Road	ROAD	Transportation
Rock	ROCK	Hydrography
Roundhouse	BUILDING	Built-up
Route markers	ROUTE	Transportation

Part 6 Index To DLG-F Feature

Part 6 Index Entry	DLG-F Feature	DLG-F Theme
Railway, incline	RAILWAY	Transportation
Range line	SURVEY LINE	PLSS
Rapids	RAPIDS	Hydrography
Reef	REEF	Hydrography
Reference monument	BOUNDARY POINT	Boundaries
→ Reservoir	RESERVOIR	Built-up, Hydrography ←
Road	ROAD	Transportation
Rock	ROCK	Hydrography
Roundhouse	BUILDING	Built-up
Route markers	ROUTE	Transportation
Ruins	ARCHEOLOGICAL SITE/RUINS	Built-up
Salt evaporator	RESERVOIR	Hydrography
Sand area	BARREN LAND	Nonveg. Surface Cover
	DUNES	Nonveg. Surface Cover
Sand, in open water	BARREN LAND	Nonveg. Surface Cover
Sand, shifting	DUNES	Nonveg. Surface Cover
Sand pit, large	MINE	Built-up
School	BUILDING	Built-up
	INSTITUTIONAL SITE	Built-up
Scrub	SHRUBLAND	Vegetative Surface Cover
Seawall	WALL	Built-up
Section corner	SURVEY CORNER	PLSS
Section line	SURVEY LINE	PLSS
Sewage disposal	RESERVOIR	Hydrography
Sewage disposal plant	SEWAGE DISPOSAL PLANT	Built-up
Shoal	HAZARD ZONE	Hydrography
	BAR	Named Landforms
Shoreline	SHORELINE	Hydrography
Siphon	PIPELINE	Hydrography
Ski lift	CABLEWAY	Built-up
Sludge pit	RESERVOIR	Built-up
Sluice gate	GATE	Hydrography
Snag	HAZARD ZONE	Hydrography
Snowfield, permanent	ICE MASS	Hydrography
Snowshed	BUILDING	Built-up
Soundings	SOUNDING	Hypsography
Spoil bank	EMBANKMENT	Built-up
Spot elevation	SPOT ELEVATION	Hypsography

Part 6 Index To DLG-F Feature

Part 6 Index Entry	DLG-F Feature	DLG-F Theme
Swamp	SWAMP/MARSH	Hydrography
submerged	LAKE/POND	Hydrography
wooded	TREES	Vegetative Surface Cover
Swimming pool, masonry	RESERVOIR	Hydrography
Tailings	DISPOSAL SITE	Built-up
Tailings pond	RESERVOIR	Hydrography
Tanks, gas	TANK	Built-up
Tanks, oil	TANK	Built-up
Tanks, water	TANK	Built-up
Telegraph line	TRANSMISSION LINE	Built-up
Toll road	ROAD	Transportation
Tollgate	GATE	Transportation
Township line	SURVEY LINE	PLSS
Traffic circle	ROAD	Transportation
Trails	TRAIL	Transportation
Tramway	CABLEWAY	Built-up
	RAILWAY	Transportation
Transmission line, power	TRANSMISSION LINE	Built-up
Tunnel	TUNNEL	Hydrography, Transportation
Turntable, railroad	TURNTABLE	Transportation
U.S. Mineral monumnt	SURVEY CORNER	PLSS
	POINT MONUMENT	PLSS
U.S. location monumt	SURVEY CORNER	PLSS
	POINT MONUMENT	PLSS
Underpass	UNDERPASS	Transportation
Urban Area	BUILT-UP AREA	Built-up
Vert control stat		
Vineyard	CULTIVATED CROPLAND	Vegetative Surface Cover
Wall	WALL	Built-up
Wash	WASH	Hydrography
	STREAM/RIVER	Hydrography
Water, area	see specific feature	
Water, surface elev	see specific feature	
Well, water	WELL	Hydrography
Wells, excluding water	WELL	Built-up
	WELL FIELD	Built-up
Wharf	WHARF	Built-up
Windmill	WINDMILL	Built-up
Witness corner	SURVEY CORNER	PLSS
Woods	TREES	Vegetative Surface Cover
Wreck	WRECK	Hydrography
	HAZARD ZONE	Hydrography

Part 6 Index To DLG-F Feature

Part 6 Index Entry	DLG-F Feature	DLG-F Theme
Wreckage, exposed	HAZARD ZONE	Hydrography

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use
Appendix 1D

APPENDIX 1D

DLG-F Feature to DLG-3 Code Crosswalk

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use
Appendix 1D

The following table provides a guide to aid in the translation of DLG-F features to DLG-3 codes. This table is intended only to direct the user to the appropriate DLG-3 code and does not imply that the code indicated is the correct code in all cases. The user must rely on the DLG-3 documentation and the feature template to determine the correct feature and its associated DLG-3 code. This table is based on the 7/95 version of Part 3: Attribute Coding of Standards for Digital Line Graphs.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1D

DLG-F Feature to DLG-3 Code Crosswalk
 (Hydrography Theme)

DLG-F Feature	DLG-3 Code	DLG-3 Definition
Area of Complex Channels	050 0413	Braided Stream
Area to be Submerged	050 0108	Area to be Submerged
Bay/Inlet	No code	
Bridge	050 0602	Overpassing
	170 0213	Footbridge
	170 0001	Bridge Abutment
	170 0612	Double-Decked
	170 0618	On Drawbridge
	170 0602	Overpassing, On Bridge
	180 0001	Bridge Abutment
	180 0611	On Drawbridge
	180 0602	Overpassing, On Bridge
	050 0414	Ditch or Canal
Canal/Ditch	050 0415	Aqueduct or Pipeline
Connector	No code	
Crevasse Field	050 0411	Crevasse (Glacial)
Dam/Weir	050 0406	Dam or Weir
Estuary	050 0116	Bay, Estuary, Gulf, Ocean, Sea
Fish Ladder	050 0425	Fish Ladder
Foreshore	050 0115	Flats (Tidal, Mud, Sand, or Gravel)
Flume	050 0416	Flume
Fumarole	050 0304	Geyser
Gaging Station	050 0403	Gaging Station
Gate	050 0409	Gate
Geyser	050 0304	Geyser
Hazard Zone	050 0206	Limiting Danger Line
	050 0117	Shoal
	050 0125	Foul Ground
	050 0126	Mine Danger Area
	050 0410	Rock
	200 0467	Exposed Wreck or Wreckage
	200 0468	Sunken Wreck
	200 0465	Pile, Dolphin, Stump, or Snag

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1D

DLG-F Feature to DLG-3 Code Crosswalk
 (Hydrography Theme)

DLG-F Feature	DLG-3 Code	DLG-3 Definition
Ice Mass	050 0103	Glacier or Permanent Snowfield
Inundation Area	050 0119	Duck Pond
	050 0105	Inundation Area
Lake/Pond	050 0421	Lake or Pond
Lock Chamber	050 0407	Lock Chamber
Mile Marker	055 ----	River Mile Marker
Mud Pot	050 0304	Geyser
Nonearthen Shore	050 0201	Mannade Shoreline
Pipeline	050 0417	Penstock
	050 0418	Siphon
Playa	050 0415	Aqueduct or Pipeline
	050 0100	Alkali Flat
Post	050 0421	Lake or Pond (dry)
Rapids	200 0465	Pile, Dolphin, Stump, or Snag
Reef	050 0400	Rapids
Reservoir	050 0422	Reef
	050 0101	Reservoir
	050 0102	Covered Reservoir
	050 0104	Salt Evaporator
	050 0106	Aquaculture Pond
	050 0107	Industrial Water Impoundment
	050 0109	Sewage Disposal Pond
	050 0110	Tailings Pond
	050 0124	Filtration Pond
	050 0118	Soda Evaporator
	200 0451	Swimming Pool

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1D

DIG-F Feature to DIG-3 Code Crosswalk
 (Hydrography Theme)

DIG-F Feature	DIG-3 Code	DIG-3 Definition
Rock	050 0410	Rock
Sea/Ocean	050 0116	Bay, Estuary, Gulf, Ocean, or Sea
Shoreline	050 0122	Gut
Bridge	050 0207	Apparent Shoreline
	050 0203	Indefinite Shoreline
	050 0209	Low-Water Line
	050 0200	Shoreline
	050 0605	Right Bank
	050 0606	Left Bank
Sink/Rise	050 0003	Sink
Snag/Stump	200 0465	Pile, Dolphin, Stump, or Snag
Sounding Datum Line	050 0208	Sounding Datum
Special Use Zone	050 0424	Spoil Area, Dredged Area, or Dump Area
Special Use Zone Limit	No code	
Spillway	050 0408	Spillway
Spring/Seep	050 0300	Spring
Stream/River	050 0413	Braided Stream
	050 0412	Stream
	050 0420	Wash
Submerged Stream	050 0412	Stream (with 050 0612, Submerged or Sunken)
Swamp/Marsh	050 0111	Marsh, Wetland, Swamp, or Bog
	050 0112	Mangrove Area
Tunnel	050 0604	Tunnel
Underpass	050 0617	Underpassing
	050 0602	Overpassing
Wash	050 0420	Wash
Water Intake/Outflow	050 0303	Riser
	050 0405	Water Intake
Watercourse	No code	
Waterfall	050 0401	Falls
Well	050 0302	Flowing Well
	050 0301	Nonflowing Well

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1D

DLG-F Feature to DLG-3 Code Crosswalk
 (Transportation Theme)

DLG-F Feature	DLG-3 Code	DLG-3 Definition
Aircraft Facility Bridge	No code	Footbridge
	170 0213	On Drawbridge
	170 0618	Overpassing, On Bridge
	170 0602	On Drawbridge
	180 0611	Overpassing, On Bridge
	180 0602	Cul-De-Sac
	170 0005	Drawbridge
	170 0007	Drawbridge
	180 0007	Submerged or in Ford
	170 0606	Gate
Ford Gate	170 0004	Tollgate
	170 0403	Helipad
Helipad Interchange Lane	190 0404	
	No code	
Monorail Railway	170 0214	Road Ferry Crossing
	180 0207	Railroad Ferry Crossing
	190 0208	Monorail
	180 0201	Railroad
	180 0202	Railroad in Road
	180 0204	Carline
	180 0208	Railroad Siding
	180 0205	Cog Railroad, Incline Railway, or Logging Tram
	180 0209	Railroad Yard
	200 0453	Recreation Area, Public Use Area
Railway Yard Rest Site		

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1D

DLG-F Feature to DLG-3 Code Crosswalk
 (Transportation Theme)

DLG-F Feature	DLG-3 Code	DLG-3 Definition
Road		
	170 0402	Ramp in Interchange
	170 0203	Primary Route, Class 1, Divided, Lanes Separated
	170 0204	Primary Route, Class 1, One-Way, Other Than Divided Highway
	170 0202	Primary Route, Class 1, Symbol Divided by Centerline
	170 0201	Primary Route, Class 1, Symbol Undivided
	170 0208	Secondary Route, Class 2, One Way, Other Than Divided Highway
	170 0206	Secondary Route, Class 2, Symbol Divided by Centerline
	170 0207	Secondary Route, Class 2, Symbol Divided, Lanes Separated
	170 0205	Secondary Route, Class 2, Symbol Undivided
	170 0209	Road, Class 3, Symbol Undivided
	170 0218	Road, Class 3, Divided, Lanes Separated
	170 0221	Road, Class 3, One Way
	170 0217	Road, Class 3, Symbol Divided Centerline
	170 0210	Road, Class 4
	170 0219	Road, Class 4, One Way
	170 0222	Road in Transition
	170 0223	Road in Service Facility, Rest Area
	170 0405	Nonstandard Section of Road
	170 0401	Traffic Circle
	170 0212	Trail, Class 5, Four-Wheel Drive

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1D

DLG-F Feature to DLG-3 Code Crosswalk
 (Transportation Theme)

DLG-F Feature	DLG-3 Code	DLG-3 Definition
Route	No code	
Runway/Apron/Taxiway	190 0403	Landing Strip, Runway, Apron, Taxiway
Traffic Inspection Facility	170 0404	Weigh Station
Trail	170 0211	Trail
	170 0605	Labeled "Old Railroad Grade"
Tunnel	170 0601	In Tunnel
	180 0601	In Tunnel
Tunnel Entrance	170 0002	Tunnel Portal
	180 0002	Tunnel Portal
Turntable	180 0401	Turntable
Underpass	170 0607	Underpassing
	180 0605	Underpassing
	170 0602	Overpassing, On Bridge
	180 0602	Overpassing, On Bridge

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1D

DLG-F Feature to DLG-3 Code Crosswalk
 (Boundaries Theme)

DLG-F Feature	DLG-3 Code	DLG-3 Definition
Boundary Line	090 0202	Disputed Boundary
	090 0201	Indefinite (or Approximate) Boundary
	090 0203	Historical Line
	090 0001	Boundary Monument
	090 0301	Reference Monument for Boundary City
	090 0101	Incorporated City, Village, Town, Borough, or Hamlet
County	092 0---	County or County Equivalent FIPS Code (parameter)
Minor Civil Division	090 0100	Civil Township, District, Precinct, or Barrio
Nation	090 0197	Canada
	090 0198	Mexico
Point Monument Reservation	No code	
	090 0150	Large Park (City, County, Private)
	090 0151	Small Park (City, County, Private)
	090 0134	Misc. County Reservation
	090 0110	Federal Prison
	090 0136	Hawaiian Homestead
	090 0107	Indian Reservation
	090 0108	Military Reservation
	090 0111	Miscellaneous Federal Reservation
	090 0129	Miscellaneous State Reservation
	090 0104	National Forest
	090 0103	National Park
	090 0106	National Wilderness Area
	090 0132	State Forest
	090 0130	State Park
	090 0133	State Prison
Reservation	090 0131	State Wildlife Area
	090 0105	National Wildlife Area
State/Territory	091 00--	State or State Equivalent FIPS Code (parameter)

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1D

DLG-F Feature to DLG-3 Code Crosswalk
 (PLSS Theme)

DLG-F Feature	DLG-3 Code	DLG-3 Definition
Land Grant	300 0103	Land Grant
	300 0106	Overlapping land grants
Point Monument	No code	
Principal Meridian	No code	
Public Land Survey Survey Area	300 0110	PLSS Area
	300 0108	Private survey in Ohio
	300 0104	Private extensions of public land survey
	300 0105	Area of public and private survey overlap
	300 0102	Donation land claim
	300 0111	Tract
	300 0101	Homestead entry survey
	300 0112	U.S. Survey
	300 0113	Indian allotment
	300 0001	Found PLSS section corner
	300 0004	Meander corner
	300 0007	Witness corner
	300 0008	Witness point
	300 0009	Angle point
	300 0010	Amended monument
	300 0012	Found Quarter-section corner
	300 0014	Land Grant or other Special Survey Corner
	300 0301	Isolated Found Section Corner
	300 0300	Location or mineral monument
	300 0201	Approximate position
	300 0202	Protracted position
	300 0203	Closure line
Special Survey Area		
Survey Corner		
Survey Line		

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1D

DLG-F Feature to DLG-3 Code Crosswalk
 (Built-up Theme)

DLG-F Feature	DLG-3 Code	DLG-3 Definition
Aquaculture Site	No code	
Archeological Site/Ruin	200 0452	Archeological Site, Ruin, or Indian Mound
Athletic Field	200 0308	Cliff Dwelling
Boardwalk	200 0122	Athletic Field
Building	200 0201	Boardwalk
	200 0400	Building (general case)
	200 0402	Church
	200 0403	School
	200 0405	Courthouse
	200 0406	Post Office
	200 0407	City Hall or Town Hall
	200 0408	Hospital
	200 0409	Prison
	200 0411	Amphitheater
	200 0413	Capitol
	200 0414	Community Center
	200 0415	Museum
	200 0416	Memorial
	200 0417	Firehouse
	200 0418	Library
	200 0419	Auditorium
	200 0433	Radio, or Television Facility
	200 0450	Fort
	200 0455	Port of Entry
	200 0456	Stadium
	200 0457	Arena
	200 0458	Armory
	200 0459	Orphanage
	200 0460	Observatory
	200 0461	Grange Hall
	200 0462	Grain Elevator
	180 0400	Railroad Station
	180 0402	Roundhouse
	190 0402	Hydroelectric Plant
	190 0408	Measuring Station or Valve Station
	190 0400	Power Station or Power Plant
	200 0421	Sewage Disposal Plant
	200 0422	Waterworks

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1D

DLG-F Feature to DLG-3 Code Crosswalk
 (Built-up Theme)

DLG-F Feature	DLG-3 Code	DLG-3 Definition
Built-up Area	200 0150	Built-Up Area
Cable/Pipeline Site	050 0121	Obstruction area in water area
Cableway	190 0207	Aerial Tramway
	190 0209	Ski Lift
Campground	200 0449	Campground
	200 0316	Campsite
Cemetery	200 0420	Cemetery
Chimney	200 0306	Burner or stack
Conveyor	200 0200	Conveyor
Dish	No code	
Disposal Site	200 0427	Mine Dump
	200 0163	Tailings
Disturbed Surface	200 0164	Intricate Surface Area
Drive-In Theater Screen	200 0213	Screen (drive-in theater)
Drydock		
Embankment	200 0435	Levee or Dike
	200 0436	Spoil Bank
Exhibition Ground	200 0445	Fairgrounds
Fence Line	200 0206	Fence Line
Filtration Plant	No code	
Historical Monument	200 0301	Historical Marker
Holding Pen	200 0447	Corral
	200 0181	Feedlot or Stockyard
Institutional Site	200 0100	Church Complex
	200 0182	Experimental Farm
	200 0102	Health Care Complex
	200 0103	Orphanage Complex
	200 0104	Prison Compound
	200 0101	School Campus

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1D

DLG-F Feature to DLG-3 Code Crosswalk
 (Built-up Theme)

DLG-F Feature	DLG-3 Code	DLG-3 Definition
Kiln	200 0310	Kiln
	200 0211	Coke Ovens
Launch Facility	190 0405	Launch Complex
Launch Pad	no code	
Launching Ramp	190 0409	Seaplane Ramp
	200 0448	Boat Ramp
Locale	090 0135	Ahupuaa
Marina	200 0140	Marina
Mine	200 0428	Open Pit Mine
	200 0432	Pit, Unconsolidated Material
	200 0438	Reclaimed Area
	200 0430	Strip Mine
	200 0429	Quarry
Mine Entrance	200 0303	Mine Shaft
	200 0302	Mine Tunnel Entrance or Cave
Mobile Home Park	200 0105	Mobile Home Park
Offshore Platform	200 0426	Oil or Gas Platform
Outdoor Theater	200 0126	Drive-In Theater
	200 0411	Amphitheater
Park	200 0125	Zoo
	200 0454	Picnic Area
	200 0445	Fairgrounds
Pier/Breakwater/Jetty	200 0466	Breakwater, Jetty, Pier, Dock, or Wharf
Causeway	190 0201	Pipeline
Pipeline	200 0209	Sewerline
	050 0404	Pumping Station
Pipeline Regulation Station	190 0406	Pumping Station or Compressor Facility
Station		

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1D

DLG-F Feature to DLG-3 Code Crosswalk
 (Built-up Theme)

DLG-F Feature	DLG-3 Code	DLG-3 Definition
Populated Place	No code	
Power Site	No code	
Prospect	200 0304	Prospect
Proving Ground	200 0183	Proving Ground
Racetrack	200 0214	Drag Strip, Racetrack, or Raceway
Recreational Slide	200 0212	Recreational Slide
Reservoir	200 0165	Oil Sump or Sludge Pit
Sewage Disposal Plant	no code	
Shopping Center	200 0124	Shopping Center
Ski Jump	no code	
Sports Site	200 0123	Golf Course
	200 0127	Raceway Complex
	200 0446	Rodeo Grounds
	200 0120	Ski Area
	200 0184	Firing Range
Substation	190 0401	Substation
Tank	200 0425	Tank
	200 0314	Guzzler
Tower	200 0305	Tower
Transmission Line	190 0202	Power Transmission Line
	190 0203	Telephone Line
Wall	200 0203	Sea Wall
	200 0202	Wall
Wharf	200 0466	Breakwater, Jetty, Pier, Dock, or Wharf
Causeway		
Well	200 0311	Drill Hole
	200 0307	Well
Well Field	200 0424	Well Field
Windmill	200 0317	Wind Generator
	050 0305	Windmill

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1D

DLG-F Feature to DLG-3 Code Crosswalk
 (Hypsography Theme)

DLG-F Feature	DLG-3 Code	DLG-3 Definition
Contour (Land)	020 0200	Contour
	020 0201	Carrying Contour
	020 0202	Supplementary Contour
	020 0209	Obsolete Contour
Depth Curve	020 0206	Depth Curve
	020 0303	Sounding
Spot Elevation	020 0300	Spot Elevation, Less Than Third Order, ground level
	020 0302	Spot Elevation, Less Than Third Order, on bridge

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1D

DLG-F Feature to DLG-3 Code Crosswalk
 (Non-Vegetative Surface Cover Theme)

DLG-F Feature	DLG-3 Code	DLG-3 Definition
Barren Land	050 0100	Alkali flat
	050 0115	Flat
	050 0420	Wash
	050 0630	Boulder
	050 0631	Sand
	050 0632	Gravel
	050 0633	Rock (flat or reef)
	050 0634	Mud
	050 0635	Shell
	050 0636	Coral
	080 0100	Glacial Moraine
	080 0101	Gravel Area
	080 0102	Sand Area
	080 0104	Lava
Beach	080 0101	Gravel Area
	080 0102	Sand Area
	080 0102	Sand Area
Dunes	080 0102	Sand Area
	080 0100	Glacial Moraine

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1D

DLG-F Feature to DLG-3 Code Crosswalk
 (Vegetative Surface Cover Theme)

DLG-F Feature	DLG-3 Code	DLG-3 Definition
Cultivated Cropland	070 0103	Orchard or Plantation
	070 0104	Vineyard
	050 0114	Cranberry Bog
	070 0102	Scrub
Shrubland Tree Trees	no code	
	070 0105	Scattered Trees
	070 0101	Woods or Brushwood
	050 0112	Mangrove



APPENDIX 1E
DLG-3 Codes to DLG Feature Crosswalk



Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use
Appendix 1E

The following table is provided as an aid in the translating DLG-3 attribute codes to DLG-F features. This table is intended only to direct the user to the appropriate feature template and does not imply that the feature indicated is the correct feature in all cases. The user must rely on the DLG-3 documentation and the feature template to determine the correct feature and its associated DLG-3 code. Generally, descriptive and parameter codes are not presented in this table. Only those descriptive or parameter codes that equate to a DLG-F feature are listed. Codes that are valid only for USGS/FS Single-Edition products also do not appear. This table is based on the 7/95 version of Part 3: Attribute Coding of Standards for Digital Line Graphs.

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use
Appendix 1E

DLG-3 Codes to DLG-F Feature Crosswalk
(Hypsography - Major Code 020)

DLG-3 Code	DLG-F Feature
020 0200	Contour (Land)
020 0201	Contour (Land)
020 0202	Contour (Land)
020 0205	Contour (Bathymetric)
020 0206	Depth Curve
020 0207	Divide
020 0209	Contour (Land)
020 0210	Contour (Bathymetric)
020 0300	Spot Elevation
020 0302	Spot Elevation
020 0303	Sounding

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1E

DLG-3 Codes to DLG-F Feature Crosswalk
 (Hydrography - Major Code 050)

DLG-3 Code	DLG-F FEATURE
050 0003	Sink/Rise
050 0100	Playa, Barren Land
050 0101	Reservoir
050 0102	Reservoir
050 0103	Ice Mass
050 0104	Reservoir
050 0105	Inundation Area
050 0106	Reservoir
050 0107	Reservoir
050 0108	Area to be Submerged
050 0109	Reservoir
050 0110	Reservoir
→ 050 0111	Swamp/Marsh
050 0112	Trees
050 0114	Cultivated Cropland
→ 050 0115	Foreshore, Barren Land
050 0116	Bay/Inlet, Sea/Ocean, Estuary
050 0117	Hazard Zone
050 0118	Reservoir
050 0119	Inundation Area
→ 050 0121	Cable/Pipeline Site
050 0122	Bay/Inlet, Estuary, Lake/Pond, Sea/Ocean, Stream/River
050 0123	Drydock
050 0124	Reservoir
050 0125	Hazard Zone
050 0126	Hazard Zone
050 0200	Shoreline
050 0201	Non-Earthen Shore
050 0203	Shoreline
050 0205	Basin
050 0206	Hazard Zone
050 0207	Shoreline
050 0208	Sounding Datum Line
050 0209	Shoreline
050 0210	Lane
050 0300	Spring/Seep
050 0301	Well
050 0302	Well
050 0303	Water Intake/Outflow
050 0304	Geyser, Mud Pot, or Fumarole
050 0305	Windmill
050 0400	Rapids
050 0401	Waterfall
050 0403	Gaging Station
050 0404	Pipeline Regulation Station
050 0405	Water Intake/Outflow

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1E

DLG-3 Codes to DLG-F Feature Crosswalk
 (Hydrography - Major Code 050)

DLG-3 Code	DLG-F Feature
050 0406	Dam/Weir
050 0407	Lock Chamber
050 0408	Spillway
050 0409	Gate
050 0410	Rock, Hazard Zone
050 0411	Crevasse Field
050 0412	Stream/River, Submerged Stream
050 0413	Area of Complex Channels
050 0414	Canal/Ditch
050 0415	Pipeline, Canal/Ditch
050 0416	Flume
050 0417	Pipeline
050 0418	Pipeline
050 0419	Lane
050 0420	Wash, Stream/River, Barren Land
050 0421	Lake/Pond, Playa
050 0422	Reef
050 0423	Barren Land
050 0424	Special Use Zone
050 0425	Fish Ladder
050 0426	No F Feature
050 0602	Underpass
050 0603	Bridge
050 0604	Tunnel
050 0605	Shoreline
050 0606	Shoreline
050 0617	Underpass
055 ----	Mile Marker
050 0630	Barren Land
050 0631	Barren Land
050 0632	Barren Land
050 0633	Barren Land
050 0634	Barren Land
050 0635	Barren Land
050 0636	Barren Land

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use
Appendix 1E

DLG-3 Codes to DLG-F Feature Crosswalk
(Vegetative Surface Cover - Major Code 070)

DLG-3 Code	DLG-F Feature
070 0101	Trees
070 0102	Shrubland
070 0103	Cultivated Cropland
070 0104	Cultivated Cropland
070 0105	Trees

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use
Appendix 1E

DLG-3 Codes to DLG-F Feature Crosswalk
(Non-Vegetative Surface Cover - Major Code 080)

DLG-3 Code	DLG-F Feature
080 0100	Moraine, Barren Land
080 0101	Beach, Barren Land
080 0102	Beach, Barren Land
080 0104	Barren Land

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1E

DLG-3 Codes to DLG-F Feature Crosswalk
 (Boundaries - Major Code 090)

DLG-3 Code	DLG-F Feature
090 0001	Boundary Point
090 0100	Minor Civil Division
090 0101	City
090 0103	Reservation
090 0104	Reservation
090 0105	Reservation, Aquaculture Site
090 0106	Reservation
090 0107	Reservation
090 0108	Reservation
090 0110	Reservation
090 0111	Reservation
090 0129	Reservation
090 0130	Reservation
090 0131	Reservation, Aquaculture Site
090 0132	Reservation
090 0133	Reservation
090 0134	Reservation
090 0135	Locale
090 0136	Reservation
090 0150	Park, Reservation
090 0151	Park, Reservation
090 0197	Nation
090 0198	Nation
090 0199	No E Feature
090 0201	Boundary Line
090 0202	Boundary Line
090 0203	Boundary Line, Survey Line
090 0301	Boundary Point
091 ----	State/Territory
092 ----	County

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1E

DLG-3 Codes to DLG-F Feature Crosswalk
 (Roads and Trails - Major Code 170)

DLG-3 Code	DLG-F Feature
170 0001	No F Feature
170 0002	Tunnel, Tunnel Entrance
170 0004	Gate
170 0005	Cul-De-Sac
170 0007	Draw Span
170 0201	Road
170 0202	Road
170 0203	Road
170 0204	Road
170 0205	Road
170 0206	Road
170 0207	Road
170 0208	Road
170 0209	Road
170 0210	Road
170 0211	Trail
170 0212	Road
170 0213	Bridge
170 0214	Lane
170 0217	Road
170 0218	Road
170 0219	Road
170 0221	Road
170 0223	Road
170 0222	Road
170 0401	Road
170 0402	Road
170 0403	Gate
170 0404	Traffic Inspection Facility, Road
170 0405	Road
170 0601	Tunnel
170 0602	Underpass
170 0605	Trail
170 0606	Ford
170 0607	Underpass

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use
Appendix 1E

DLG-3 Codes to DLG-F Feature Crosswalk
(Railroads - Major Code 180)

DLG-3 Code	DLG-F Feature
180 0001	No F Feature
180 0002	Tunnel, Tunnel Entrance
180 0007	Draw Span
180 0201	Railway
180 0202	Railway, Road
180 0204	Railway
180 0205	Railway, Cableway
180 0207	Lane
180 0208	Railway
180 0209	Railway Yard
180 0400	Building
180 0401	Turntable
180 0402	Building
180 0601	Tunnel
180 0602	Underpass
180 0605	Underpass
180 0611	Bridge

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
Part 1: Template Development and Use
Appendix 1E

DLG-3 Codes to DLG-F Feature Crosswalk
(Pipelines, Transmission Lines, and Miscellaneous Transportation
Features - Major Code 190)

DLG-3 Code	DLG-F Feature
190 0201	Pipeline
190 0202	Transmission Line
190 0203	Transmission Line
190 0207	Cableway
190 0208	Monorail
190 0209	Cableway
190 0400	Building
190 0401	Substation, Building
190 0402	Building
190 0403	Runway/Apron/Taxiway
190 0404	Helipad
190 0405	Launch Facility
190 0406	Pipeline Regulation Station
190 0408	Building
190 0409	Launching Ramp
190 0410	Lane

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1E

DLG-3 Codes to DLG-F Feature Crosswalk
 (Hydrography - Major Code 200)

DLG-3 Code	DLG-F FEATURE
200 0100	Institutional Site
200 0101	Institutional Site
200 0102	Institutional Site
200 0103	Institutional Site
200 0104	Institutional Site
200 0105	Mobile Home Park
200 0120	Sports Site
200 0122	Athletic Field
200 0123	Sports Site
200 0124	Shopping Center, Building
200 0125	Park
200 0126	Outdoor Theater
200 0127	Sports Site
200 0140	Marina
200 0150	Built-up Area
200 0162	No DLG-F equivalent
200 0163	Disposal Site
200 0164	Disturbed Surface
200 0165	Reservoir
200 0181	Holding Pen
200 0182	Institutional Site
200 0183	Proving Ground
200 0184	Sports Site
200 0200	Conveyor
200 0201	Boardwalk
200 0202	Wall
200 0203	Wall
200 0206	Fence Line
200 0209	Pipeline
200 0211	Kiln
200 0212	Recreational Slide
200 0213	Drive-In Theater Screen
200 0214	Racetrack
200 0301	Historical Monument
200 0302	Mine Entrance, Cave Entrance
200 0303	Mine Entrance
200 0304	Prospect
200 0305	Tower
200 0306	Chimney
200 0307	Well
200 0308	Archeological Site/Ruin
200 0310	Kiln
200 0311	Well
200 0314	Tank
200 0316	Campground
200 0317	Windmill
200 0400	Building
200 0402	Building
200 0403	Building
200 0404	Building
200 0405	Building



Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1E

DLG-3 Codes to DLG-F Feature Crosswalk
 (Manmade Features - Major Code 200)

DLG-3 Code	DLG-F Feature
200 0406	Building
200 0407	Building
200 0408	Building
200 0409	Building
200 0411	Outdoor Theater
200 0412	Building
200 0413	Building
200 0414	Building
200 0415	Building
200 0416	Building
200 0417	Building
200 0418	Building
200 0419	Building
200 0420	Cemetery
200 0421	Building
200 0422	Building
200 0424	Well Field
200 0425	Tank
200 0426	Offshore Platform
200 0427	Disposal Site
200 0428	Mine
200 0429	Mine
200 0430	Mine
200 0432	Mine
200 0433	Building
200 0435	Embankment
200 0436	Embankment
200 0438	Mine
200 0445	Exhibition Ground
200 0446	Sports Site
200 0447	Holding Pen
200 0448	Launching Ramp
200 0449	Campground
200 0450	Building, Institutional Site
200 0451	Reservoir
200 0452	Archeological Site/Ruin, Mount
200 0453	Rest Site
200 0454	Park, Rest Site
200 0455	Building
200 0456	Building
200 0457	Building
200 0458	Building
200 0459	Building
200 0460	Building
200 0461	Building
200 0462	Building
200 0465	Post, Snag/Stump, Hazard Zone
200 0466	Pier/Breakwater/Jetty, Wharf
200 0467	Wreck, Hazard Zone
200 0468	Wreck, Hazard Zone

Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps
 Part 1: Template Development and Use
 Appendix 1E

DLG-3 Codes to DLG-F Feature Crosswalk
 (Public Land Survey System - Major Code 300)

DLG-3 Code	DLG-F Feature
300 0001	Survey Corner
300 0004	Survey Corner
300 0007	Survey Corner
300 0008	Survey Corner
300 0009	Survey Corner
300 0010	Survey Corner
300 0012	Survey Corner
300 0014	Survey Corner
300 0101	Special Survey Area
300 0102	Special Survey Area
300 0103	Land Grant
300 0104	Public Land Survey System Area
300 0105	Public Land Survey System Area
300 0106	Land Grant
300 0108	Public Land Survey System Area
300 0110	Public Land Survey System Area
300 0111	Special Survey Area
300 0112	Special Survey Area
300 0113	Special Survey Area
300 0114	No F Feature
300 0198	No F Feature
300 0201	Survey Line
300 0202	Survey Line
300 0203	Survey Line
300 0300	Survey Corner
300 0301	Survey Corner